

A
M E D I C I N A L
D I C T I O N A R Y ;

I N C L U D I N G

P H Y S I C ,		C H Y M I S T R Y ,
S U R G E R Y ,		A N D
A N A T O M Y ,		B O T A N Y ,

In all their BRANCHES relative to MEDICINE.

T O G E T H E R W I T H A

H I S T O R Y *of* D R U G S ;

An ACCOUNT of their Various

P R E P A R A T I O N S , C O M B I N A T I O N S , and U S E S ;

A N D A N

I N T R O D U C T O R Y P R E F A C E ,

1,686

Tracing the PROGRESS of PHYSIC, and explaining the THEORIES which
have principally prevail'd in all Ages of the World.

With C O P P E R P L A T E S .

By R. J A M E S , M. D.

V O L . I .

*The LORD hath created Medicines out of the Earth, and he that is wise will not
abhor them, Ecclesiasticus, Chap. xxxviii. Verse 4.*

Ἱπποκρῆς, τεχνέων μὲν πασέων ἐστὶν ἐπιφανεστάτη.

HIPPOCRATES.

L O N D O N :

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M.DCC.XLIII.



of Merit; and if otherwise, as one of the Incon-
veniences of Eminence.

HOWEVER You shall receive it, my Design can-
not be disappointed; because this public Appeal
to Your Judgment will show, that I do not found

my Hopes of Appropriation upon the ignorance of
my Readers; And that fear
Dr. MED.
whose Knowledge is most extensive.

S I R,

TH A T the *Medicinal Dictionary* is dedi-
cated to You, is to be imputed only to
Your Reputation for superior Skill in those Sciences
which I have endeavoured to explain and facilitate:
And You are, therefore, to consider this Address,
if it be agreeable to You, as one of the Rewards
of

iv DEDICATION.

of Merit; and if otherwise, as one of the Inconveniences of Eminence.

HOWEVER You shall receive it, my Design cannot be disappointed; because this public Appeal to Your Judgment will shew, that I do not found my Hopes of Approbation upon the Ignorance of my Readers; and that I fear His Censure least, whose Knowledge is most extensive.

I am,

S I R,

Your Most Obedient,

Humble Servant,

R. James.

P R E F A C E.

PROVIDENCE having, in the Beginning, furnished Mankind with a large Store of Remedies, in the Animal, Vegetable, and Mineral Kingdoms, their Uses and Application seem to have been originally discovered by Inspiration, or Accident; tho' Reason is not altogether to be denied her Share in the Improvement of this salutary Art. By Inspiration, I mean, first, that natural Instinct perceivable both in Man and Beast, which directs them frequently, when labouring under Distempers, to have recourse to what is salutary, and to avoid what is pernicious. This is more remarkable, at present, in the Brute Creation, than in Man; tho' the latter has some Reason to believe himself not excluded from this singular Protection of Providence, and would have more, if, like the former, we behaved, with respect to Aliment, Exercise, and all the Non-naturals, in a manner more conformable to the wise Institutions of the Creator.

In almost every Fever, we meet with Circumstances which evince the real Existence of this sort of Instinct in Man.

Thus, on the very first Attack, after the Stomach has discharged its Contents, which would otherwise increase the Disorder, and retard the Cure, by putrefying in the Body, all solid Aliment is nauseated; those Sorts particularly which are subject to an alkaline Putrefaction, and which would be most prejudicial; and nothing but cooling acefcent Liquors are coveted, which afford the best Means of Relief. Add to this, that there is a Heaviness of the Head, and a general Inability to Motion: Now, it is well known, that muscular Motion greatly increases Fevers, and that Rest contributes to their Cure.

Secondly, I am inclined to believe, that many Medicinal Discoveries may have been brought about by Inspiration, that is, by the peculiar Direction of Providence, which are usually attributed to Accident; otherwise it should seem surprising, that after the Labours of a Multitude of Men, both of Learning and Abilities, who have spent their entire Lives in physical Researches, and after all the boasted Advantages of our Reason, we find, to the Mortification of human Wisdom, that the most important Remedies have been discovered by Savages and Madmen, whilst they had nothing less in View than the Improvement of Physic: By the latter I mean the Alchemists, who, in their Pursuits after the Transmutation of Metals, have blundered upon some Medicines of Efficacy. Thus, as we are told in Scripture, *God hath made foolish the Wisdom of this World*; thus *the Foolishness of God is wiser than Men*; and *the Weakness of God is stronger than Men*. Thus *God hath chosen the foolish Things of the World to confound the wise*; and *God hath chosen the weak Things of the World to confound the Things which are mighty*. And *the base Things of the World, and the Things which are despised, hath God chosen*; yea, *and the Things which are not, to bring to nought the Things that are*: — *That no Flesh should glory in his Presence*.

It is very possible, and even probable, that the Illiterate may have perceived a secret Impulse to apply unknown Simples to particular Disorders, without being able to give any Reason for their Conduct; and if these have been attended with Success, Reason has indicated their farther Use in similar Cases. It would, however, be difficult to determine how far Inspiration, or Accident, may have had a Share in particular Discoveries.

The Part which Reason has acted in the Invention of Remedies, and Improvement of Medicine, seems principally to consist in the following Particulars.

First, It was obvious enough to observe, that Distempers attended with particular Circumstances, which are now called Symptoms, were sometimes cured, without the Assistance of Art, by spontaneous Evacuations; such as Haemorrhages, violent Diarrhoeas, Vomitings, or Sweats; or by Tumors on some of the extreme Parts; and that, when these did not happen, the People thus affected usually died. Now, if we may presume, that the first Inhabitants of the Earth had Abilities equal to our own, they could not be long without trying, whether, in Cases attended with the like Circumstances, and where such Evacuations did not happen, artificial Evacuations might not produce the same salutary Effects; and the Means of procuring them were probably learned very early, either by observing the Operations of Simples on the Brute Creation, or on Man, when taken either out of Curiosity, Necessity, or Accident. Hence Bleeding, Purges, Vomits, and Sinapisms, or topical Remedies, applied with a View of inviting a Tumor into the extreme Parts, were, in all Probability, introduced: But Experience proved Reason defective in these very Instances, as it must have appeared upon repeated Trials, that these artificial Evacuations, tho' often salutary, were not universally attended with Success, but even sometimes proved manifestly injurious. On these Occasions, it was reasonable enough to suspect, that the Unsuccessfulness of these Evacuations depended upon their being procured unseasonably, or in a Degree disproportioned to the Exigencies of Nature. It must have, therefore, been some Time before Experiments could be collected, and compared together, sufficient to make it appear, that in acute Distempers there is a critical Time, when the vital Powers have prepared the Matter, which causes the Disease, for Expulsion; and that if the Evacuations, mentioned above, are procured at this fortunate Season, the Disease is carried off; whereas at another time they would be fatal, or at least prejudicial. It must, however, be confessed, that since Intemperance and Idleness have introduced frequent Plethoras, that is, Fulnesses of Blood, these Evacuations have been rendered more universally necessary, under proper Restrictions, than they would have been in a natural and less corrupted State of Mankind.

I cannot forbear making an Observation, by the way, which naturally occurs from what has been said; which is, That as the Art of Physic has been already, it may also continue to be, greatly improved, by carefully remarking the Means which Nature, unassisted by Art, employs, in order to free the Constitution from Distempers; for hence many important Hints may be taken, for the Relief of other Patients under the same Circumstances, and for the general Advancement of true medicinal Knowledge. That Hippocrates was evidently of this Opinion, appears

appears to me from his *Epidemics*, particularly the first and third Books, which seem to be wrote principally with this View; for in these he acquaints us with the State and Constitution of the sick Person, the Circumstances as they appeared from time to time, and the Event, very seldom taking Notice of any Remedies being employ'd.

Secondly, Reason seems to have been concerned very early in the Invention and Improvement of Medicine, by applying, to the Distempers of Mankind, those Remedies which the Brute Creation was observed to employ, for Relief, under various Diseases. Thus Bleeding is said, by *Pliny*, to have been learned from the *Hippopotamus*, which used, when grown unwieldy, to come out of the Water upon the Banks of the *Nile*, and there open a Vein in the Leg with a pointed Reed, stopping up the Orifice, after sufficient Evacuation, with Mud. Thus, also, the *Ibis* is reported to have taught the *Egyptians* the Use of Clysters. And thus, according to *Herodotus* and *Pausanias*, *Melampus* discovered the purgative Quality of Hellebore, by observing, that his Goats always purged after browsing upon that Plant.

Other rational Methods of improving Physic were, the exposing sick People in the most public Places, that they might learn from others, who had been afflicted in the same manner, the Means whereby they were relieved, in order to employ those for the Relief of their own Disorders; and the registering particular Cases, and Remedies, in the Temples.

What Progress Physic had made before the Flood, is very difficult to determine with any Degree of Exactness; but as the Diet of the Antediluvians was very simple, the Necessity for Exercise great, and the Use of fermented Liquors unknown, it is more than probable, that Physic was very little necessary, and consequently not much cultivated; and that Intemperance, Idleness, and the Use of Wine, as they rendered the Art of Medicine of more Use, gradually gave Occasion for its Improvement.

As the Use of Wine, and Debauchery, with all their Consequences, began to prevail very soon after the Flood, Physic, as it should seem, began to be more cultivated, as more useful to Society. Thus far, however, is certain, that the Art of Medicine, like all other Sciences, flourished originally in the East, from whence it was imported into *Egypt*, from thence into *Greece*, and so into other Parts of the World: But the *Egyptians* have been so industrious in concealing their History under Allegories, that it is extremely difficult to extricate Truth out of a Multitude of Fables. It is generally agreed, that *Egypt* and *Africa* were peopled by *Cham*, the Son of *Noah*, who, without Doubt, made his Posterity acquainted with all the Sciences then known; and, amongst the rest, with all the medicinal Discoveries then made. His Son *Misraim* also has the Reputation of having propagated Arts amongst the *Egyptians*; but whether *Cham*, or *Misraim*, or either of them, was the famous *Zoroaster* of the *Persians*, it is not our present Business to inquire. It makes more to our Purpose, that these, and some of their early Posterity, were deified by their superstitious Countrymen, on account of their inventing, improving, and communicating Arts and Sciences to Mankind. Hence the fabulous Relations which we meet with of *Isis*, *Osiris*, *Hermes*, *Trismegistus*, *Horus*, who is the same as *Apollo*, and Son to *Isis*, *Thoth*, *Æsculapius*, and some others, who are said to be Inventors and Improvers of Physic. See *ÆSCULAPIUS*.

I cannot pass over this Period without remarking, how early the Effects of Fermentation were observed; for *Noah*, as we learn, was intoxicated with his own Wine: Now he cannot reasonably be supposed to have made Wine, without taking Notice of Fermentation; nor to have been drunk, without being sensible of its Effects. We may observe, how nearly the Circumstances attending Drunkenness, in the first Instance we have of it upon Record, resemble those with which it is attended at this Day. Thus *Noah*, we are told, was, by a too liberal Use of Wine, led into the Indecency of exposing his Nakedness to his youngest Son *Cham*; and that he awaked, as it should seem, in a very ill Humour, a thing not unusual in our Days, and cursed his Grandson *Canaan*, who had not offended him, for an Accident, which does not appear to have been any body's Fault but his own. It would have been happy for Mankind if his Conduct, on this Occasion, had given him the Hint to conceal his Discovery, if it was his, of Wine; for, by divulging it, he has not only cursed *Canaan*, but all Mankind. See *Genesis*, Cap. ix. Verse 20.

We have traced Physic into *Egypt*, where it undoubtedly received great Improvements. And here we have the first Instance of Physicians by Profession; for *Joseph*, who lived 1769 Years before *Christ*, as we are told in *Genesis*, Cap. 50. ordered the Physicians, his Servants, to embalm the Patriarch *Jacob*. The Word *ṭibbān*, which we translate *Physicians*, can mean nothing else; and therefore the Art of Embalming must in these Days have been exercised by the Physicians.

As for the antient State of Physic among the *Egyptians*, *Clemens Alexandrinus* informs us, "That there were forty-two Books of *Hermes* of great Account, which contain all the Philosophy of the *Egyptians*: The six last are in a more particular manner studied by the *ṭibbān*, Pall or Cloak-bearers, as relating to Medicine. These treat concerning the Construction of the Body, Diseases, Instruments, the Eyes; and, lastly, concerning the Disorders peculiar to Women."

As for the Condition and Character of Physicians at that Time among the *Egyptians*, it is plain, they were held a sacred Order of Men, as appears from the foregoing Passage of *Clemens Alexandrinus*, where their particular Office, in the sacred Processions, is specified. How great their Dignity, and how immense their Revenues were, we learn from *Diodorus Siculus*, who informs us, that the third Part of *Egypt* was allotted for the Priests, who, in these Days, were Physicians, that they might support themselves decently, and furnish what was necessary for performing the religious Ceremonies of the Country. This Dignity was hereditary, and handed down, without Interruption, from Father to Son. But it is highly probable, there were several Orders and Degrees of these Men; since to them belonged the Embalmers, of whom *Diodorus* affirms, that they received the Knowledge of their Art from their Ancestors; assuring us, at the same time, that the *Egyptians* held them in the greatest Esteem and Veneration, because they belonged to the Class of the Priests, and might, as such, have free Access to their most secret and retired Places. *Herodotus* gives us still a more full and circumstantiate Account of the State of the Physicians in *Egypt*, when he informs us, "That it was so divided, and, as it were, parcel'd out, that one Physician had the Charge of one Distemper, another of another; and that no one durst take upon him the Cure and Inspection of more." All *Egypt*, says he, is full of Physicians; some of whom practised on the Eyes, others on the Head, others on the Teeth, and others on the Belly; and that a different and distinct Set of Physicians had the Care of occult Diseases committed to them.

These Men practised gratis, since they had a Salary from the Public; at least, according to *Diodorus Siculus*, they did so during a State of War; and always afforded their Aid to Travellers of their own Country, without exacting a Fee. But the Embalmers were under different Regulations in the Exercise of their Art. The Physicians practised according to an authentic Record established by their Predecessors, who had been illustrious in their Professions: If, by following the Laws and Rules laid down in this sacred Code, they could not relieve and cure the Patient, they were not held criminal; but in case they attempted any thing not warranted thereby, if with-

out Success, it was a capital Crime. Great Improvements, therefore, were not to be expected, whilst this Law subsisted. *Aristotle*, in the second Chapter of the third Book of his *Politics*, informs us, that, after the fourth Day of the Disease, the Physician might begin to do something for the Relief of the Patient; but that if he attempted any thing before that Time, it was at his own Peril: But *Aristotle* treats this as an idle and pernicious Law, tho' others stand up in its Vindication. *Isocrates*, in his Encomium on *Busiris*, gives us the following succinct Account of the Medicine of the *Egyptians*: "The Priests, says he, who enjoy many Advantages, (*I suppose he means so many as to put them above the Necessity of considering themselves more than their Patients*) have, for the Relief of the Afflicted, invented a System of Physic, which does not prescribe dangerous Medicines; but such as may be used as safely as their daily Food: Hence it is, that the *Egyptians* are a People of sound and robust Constitutions, and live to a very great Age."

From what has been said, we may form a Judgment of the Dignity of the *Egyptian* Physicians, of the Manner in which they were so liberally provided for, and how their Practice was not so much directed by any real Judgment they themselves had in Physic, as according to a standard written Law; from which we may perhaps reasonably enough conclude, that their Theory was fixed; that the Memory had a greater Share in it than the Judgment; and that the Physician could not, with Impunity, go beyond the Bounds of the sacred Books. But, to be more particular, we shall take a View of the State and Condition of each Branch of Physic among them. As for their Physiology, then, it is obvious, that its Perfection must have borne a Proportion to the State of Anatomy; since it is principally to be learned from frequent and repeated Dissections of the human Body. What the State of their Anatomy was, may be seen under the Article ANATOMIA.

Diogenes Laertius informs us, that they believed Animal Bodies to consist of the four Elements, and quotes *Manetho* for his Authority. *Seneca* also assures us, that they divided the Elements into Male and Female. They, farther, attributed a great Influence to the heavenly Bodies over those of Men; and divided the human Body into thirty-six Parts, all which were consecrated to so many Gods or Demons, who were the Authors of Health or Disorders, in the respective Parts they had under their Patronage; for this Reason these Demons were by them worshipp'd and appeased by certain Incantations. They also thought these Demons might be reconciled to them by engraving their Hieroglyphics on Herbs and Stones. This seems to be the Basis, as it were, of Magic; and the main Hinge on which the Whole of it turns. The Doctrine of Climacteric Years, or what *Pliny* calls the *Scansilis Annorum Lex*, may possibly derive its Origin from the *Egyptians*; tho' others, with more Probability, deduce it from *Pythagoras*; and *Pliny* ascribes it to *Æsculapius*. All these Opinions may be right; for *Pythagoras* might, and probably did, borrow his Doctrine of Numbers from *Egypt*, or some of the Eastern Nations.

What the State of their Pathology was, we may in some measure infer from what has been said; for the Causes of Diseases were referr'd to Demons, who were the Dispensers of Health and Diseases. Some are of Opinion, that their Pathology must have received considerable Improvements from the Opportunities the Embalmers had of viewing and inspecting the human Viscera. *Herodotus*, and *Diodorus Siculus*, think, that their observing these Viscera to be variously corrupted, laid a Foundation for their believing, that Diseases were produced by the Substances taken for the Nourishment and Support of the Body. This might, perhaps, be the Foundation of their particular Regimens, with respect to Diet, in order to guard themselves against Diseases: Hence, also, might arise their Use of Clysters, purgative Draughts, Fastings, and Vomits, with a View of preserving themselves from Diseases, by removing their first Causes. This Method they used, according to *Herodotus*, for three Days successively each Month; or, according to *Diodorus Siculus*, with an Intermission of three or four Days. Each of these Authors may have given a faithful Account of the Practice of the Time in which he lived, tho' their Relations differ. The *Egyptians*, according to *Pliny* and *Ælian*, learned the Use of Clysters from the Bird *Ibis*, whose Beak was so form'd by Nature, that she could commodiously introduce it into her Anus, and inject a Fluid for cleansing her Intestines; and this, together with their other Methods of evacuating the Body, were from them propagated to other Nations. It is also probable, that Frictions, Baths, and Ointments, were originally used among the *Egyptians*, before they were known to the *Greeks*. *Herodotus* was of Opinion, that the sound and healthy State of the *Egyptians* was owing to the Constancy of the Seasons, since the Atmosphere, in their Climate, is subject to no remarkable Changes or Alterations; so that their preservative Method might, on this Account, be attended with the greater Success. Before we leave the Diet of the *Egyptians*, we shall observe, that, whatever some Authors have asserted, the Eating of Flesh was common among them, tho' under certain Restrictions and Limitations. Thus *Herodotus* informs us, "That the Priests had Plenty of every thing; that they lay under no Necessity of spending any thing of their own Fortunes; they were daily supplied with Beef and Goose from the Altars; that they had Wine furnished them; but that they were not allowed to eat Fish; and that Beans were not sown in all the Land." Hence probably the famous Prohibition of *Pythagoras*, with respect to this Vegetable.

But tho' the *Egyptians* used Flesh for Food, yet they were under greater Restrictions, in this Particular, than most other Nations; for what the Legislators of one Country allow'd, was, for political Reasons, expressly prohibited in others. The Drink commonly in Use among the *Egyptians* was the Water of the River *Nile*, which, *Plutarch* informs us, was held in great Esteem by them, and rendered those who drank it very corpulent. *Herodotus* tells us, that the Soil of *Egypt* is not proper for the Culture of Vines; so that the Wine used by their Kings and Priests must have been imported from other Nations. We may form a Judgment of the Temperance of the *Egyptians*, from the Method of Life enjoined even Kings; who, according to *Diodorus Siculus*, "lived upon simple Food, and a moderate Quantity of Wine, which could neither produce Repletion nor Intoxication: In short, so moderate a Regimen was prescribed, that the Laws, relating to this Particular, seemed rather to be the Directions of a sagacious Physician, than the Injunctions of a Legislator." To this Frugality and Temperance the Children were inured from their very Infancy.

As for their bodily Exercises, they were widely different from those of the *Greeks*, since as *Diodorus Siculus* informs us, it was not customary among them to learn Music and Wrestling; for they were of Opinion, that by the daily Exercises of the *Palestra*, a genuine Health was not generated, but a short-lived Strength, highly dangerous to young People.

In common Life they were extremely studious of Cleanliness, and, in this respect, follow'd the Example of the Priests; who, according to *Herodotus*, had their Bodies shav'd all over every third Day, and wore always, when in the Exercise of their Offices, clean Linen Garments to prevent the Generation of Vermin, and the Contraction of Sores. We also learn from the same Author, that Shaving was universally in Use among the *Egyptians*, and that it was customary with them to go with their Bodies either not at all, or very slightly cover'd.

cover'd. They did not allow their Hair to grow, except when upon a Pilgrimage, or when they had bound themselves by an Oath to the Gods so to do. So far were they from shaving their Bodies from a Principle of Grief, that they never allow'd their Hair to grow, except when some terrible Calamity had befallen them.

Galen seems to lay great Stress upon the Astrological Predictions of the *Egyptians*, and wonderfully recommends their Precepts injoining the Observation of the Moon.

As for the Practice of the *Egyptians*, we can only bestow this general Encomium upon it, that it was of old celebrated all over the World, and that, according to *Isocrates*, they used the most safe and salutary Medicines. The *Nepenthes* is highly celebrated by *Homer*, and by *Diodorus Siculus* called *ορυγής* ἢ *λύπης* φάρμακον, the Remedy of Anger and Sorrow. The Poet ascribes so singular Virtues to it as to affirm, that whoever drinks it mix'd with Wine, shall not be sad during that Day, tho' his Father or Mother should die, or even tho' his Brother, or dearest Friend, should be murder'd before his Eyes. He also asserts, that *Helen* got this *Nepenthes* in *Egypt* from *Polydamna* the Wife of *Thon*. Since the Sentiments of Authors are various with regard to this Medicine, it would be too tedious to mention them all. *Olaus Borrichius* is probably in the Right, when he conjectures, that it was some Preparation of Opium, and Dutroy, both the Produce of *Egypt*. This Opinion appears the more consonant to Truth, because the modern oriental Writers agree with *Galen*, that the best Opium is the *Thebaic*, which at this Day, is produc'd at *Abutige*, a Town in the Region of *Thebais*. The *Egyptians* used often to retire to the Temple of *Isis* and *Serapis*, where, during their Sleep, they expected Remedies to be revealed to them. *Strabo* also informs us, that they did the same in the Temple of *Vulcan* near *Memphis*. But 'tis highly probable, that, on urgent Occasions, Medicine was practis'd by the Vulgar, as well as by the Priests, since we are told by antient Historians, that *Egypt* was full of Physicians, and that all its Inhabitants practis'd as such. But 'tis scarce probable, that the Medicine of the Vulgar extended farther than Prevention by Vomits, Purges, and Clysters, which were, perhaps, confined to themselves, and those of their Family; but we are told by *Diodorus Siculus*, that none durst profess Physic, without being admitted as a Member of the College of Priests.

About a hundred Years after *Moses*, who lived 1530 Years, or thereabouts, before the Birth of Christ, *Melampus* an *Argive*, the Son of *Amythaon* and *Aglaia*, having travelled into *Egypt*, and made himself acquainted with the Sciences then cultivated in that Country, introduced into *Greece* a great deal of their Theology and Superstition, together with Magic, the Arts of Divination, and of Physic. With respect to the latter, three very remarkable Circumstances occur. The first is, That he cured the Daughters of *Prætus* King of *Argos*, of Madness, by purging them with Hellebore, whether the Black or White is uncertain, the cathartic Quality of which he is said to have learned from observing, that his Goats were always purged after eating of this Vegetable.

The second Circumstance is, That after purging these Ladies with Hellebore, he bathed them in a certain cold Fountain. Here we have the first Instances upon Record of Purging, and of bathing with a medicinal View.

The third Circumstance relates to another Cure said to have been performed by *Melampus* upon *Iphiclus*, one of the *Argonauts*, and the Son of *Phylacus*. This Hero, it seems, had not the Capacity of getting Children, of which he was very desirous; and, upon applying to *Melampus*, was directed to take the Rust of Iron for ten Days together in Wine; which he accordingly did, and found from it the Effects he wish'd for. It is scarcely worth while to mention, that he is said to have learned this Piece of Practice, by his Skill in Augury, from a Vultur, which communicated it to him; for if the Story is true, which Mr. *Le Clerc* doubts, he was probably able to assign better Reasons for what he did, deduced from Reason or Experience, whatever Parade he might make of acquiring his Knowledge by extraordinary Means, in order to raise his Reputation among his ignorant Countrymen; an Artifice not uncommon in our Days amongst the Disingenuous and Artful, of which the Conduct of the Adepts and Empirics furnishes us with a thousand Instances.

Melampus, moreover, employed Incantations and Charms in the Cure of Diseases, which it is likely he was taught in *Egypt*.

These Particulars we learn from *Herodotus*, *Pausanias*, *Ovid*, and *Apollodorus*; and they will furnish us with the following Remarks.

First, That the Art of Physic must have made a greater Progress in this early Age than is generally allowed; since, in the Case of *Prætus's* Daughters, *Melampus* practis'd a Method which could not have been much mended in our Days, considering the singular Effects of Hellebore, especially the black Sort, in Disorders peculiar to that Sex, and the Propriety of subsequent cold Bathing.

In the Case of *Iphiclus*, if, as may be reasonably supposed, his Impotence proceeded from a Relaxation of the Solids, and the languid Circulation of the Fluids, I believe a modern Physician, in such a Case, could not have done better, than by administering proper Preparations of Iron, to correct the general Defects in the Constitution, and to remove the Imbecillity depending thereon.

The other Remark I would make is with respect to Incantations and Charms, which we are told *Melampus* employ'd in Diseases. These were coeval with Physic, and seem to have been originally introduced artfully, in order to impose a Belief upon those not in the Secret, that the Person who exercised them, was particularly favoured by some superior Being. This was attended with a very good Effect upon the Practitioner, as it excited a Veneration for him in the Minds of the Vulgar; and, in consequence of this, the Patient was more easily prevailed upon to submit implicitly to whatever was directed. Mean time the Cure was performed by some Remedy of real Efficacy, administered as a Part of, or only in Aid of, the Charm or Incantation, as the Patient was made to believe. If the Priests of *Isis*, or *Æsculapius*, had been acquainted with the Virtues of the *Peruvian* Bark in the Cure of intermitting Disorders, it would have been an easy Matter for them to have defrauded this Remedy of its Reputation, and transferred it to some mysterious Incantation performed at the time of its Exhibition. I must, however, confess, that the Solemnity of the Ceremony might possibly have some Effect on the Person upon whom it was performed, as it might exalt the Faith of the Patient in his Physician, a Circumstance of no small Moment, and, besides, might give, in some Degree, a Turn to the Distemper, as the Body is manifestly influenced by the Affections of the Mind.

Thyodamas, the Son of *Melampus*, is said to have inherited his Father's Medicinal Knowledge; but History does not furnish us with any remarkable Instances of his Practice. *Polyidus*, the next Physician upon Record, was either Grandson or Nephew to *Melampus*; but we are not informed of any Particular, with regard to his Practice. We may however collect, that he was in great Reputation, by the fabulous Accounts which his Countrymen give of him. They relate, that *Glaucus*, the Son of *Minos* King of *Crete*, was accidentally suffo-

cated;

P R E F A C E.

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cated, and buried in a large Vessel of Honey, so that his Father could not find out what had been his Fate, or where he was, till *Polydus*, by his Skill in Augury, discovered him, and then restored him to Life.

The next Physician, or Surgeon, for the two Professions were not separated till many Ages after, amongst the *Greeks*, was *Chiron* the Centaur. This great Man, for such he appears to have been, is much celebrated for his Knowledge in all the polite Sciences then cultivated, and particularly in the Medicine both of Man and Cattle; from which Circumstance he was fabled to be half Man, and half Beast. His Name derived from *cheir*, which signifies a Hand, and the Appellation of *Chironian*, given to the most untractable Species of Ulcers, should seem to be Evidences of his being principally concerned in the Chirurgical Part of Medicine. But as it is highly improbable, that he could have been ignorant of the Advances which had before his Time been made in Physic, we have the more Reason to depend upon the Testimonies of *Plutarch*, *Pliny*, and other Authors, who represent him as one well acquainted with the Virtues of Herbs, and as a Person who made some Improvements with regard to internal Remedies. Thus he is said to have discovered the Virtues of Centaury, a Plant which we are told received this Name from him.

The extreme old Age to which *Chiron* lived, furnished the *Grecians* of Distinction, for more than one Age, with an Opportunity of giving their Children a liberal Education under his Tuition. Thus *Hercules* is said to have been among the Number of his Pupils; but we meet with very little relating to his Medicinal Knowledge, except that the Fable of his destroying the *Hydra* of *Lerna* may be interpreted to import his draining the Fen of that Name with a medicinal Intention; I mean, that of delivering the adjacent Countries from endemial Distempers, to which the poisonous Exhalations from such a Marsh subjected them; and that he may be supposed to have cured *Alceste*, the Wife of *Admetus*, of some very dangerous Distemper; whence the Fable, that he released this Princess from Hell, after having conquered *Pluto*, that is, Death. It is observable, that many Plants derive their Names from *Hercules*, and that the Epilepsy has acquired the Appellation of the *Herculean Disease*; but I am of Opinion, that, with respect to these Plants, they were not originally called so, because *Hercules* discovered their Virtues, but because they were esteemed irresistible in the Cure of certain Disorders; and as to *Herculean*, applied to the Epilepsy, it seems only to import the Disease being invincible, and not that *Hercules* was either acquainted with the Nature of it, or afflicted with it.

Another of *Chiron's* Pupils was *Aristæus*, who appears to have been very well acquainted with natural Productions, and to have applied some of them to Uses not universally known before his Days: Thus the Arts of making Oil and Cheese, and of collecting Honey, are said to have been invented by him. And Mr. *Le Clerc* attributes the Discovery of Silphium, and its Uses, to *Aristæus*.

A third Hero educated by *Chiron* was *Jason*, who commanded in the *Argonautic Expedition*, which has been the Subject of many Poems, and given Rise to a Multitude of Fables. *Borrichius* takes a great deal of Pains to prove, that the celebrated *Golden Fleece* was a Book containing the Art of making Gold. But whoever considers the Circumstances of this Expedition, will perceive it highly probable, that the *Greeks* gave a fabulous Turn to the *Argonautic Exploit*, in order to disguise the real Intent of it, which was mere Robbery; and that the Riches of *Aetæas* King of *Cholcis* allured this Band of Heroes, and inspired them with the Desire of plundering him, which, to their great Honour, they effected. Thus in all Ages Robbery and Murder have been esteemed infamous in little Villains only, but glorious in Heroes.

Hecate, the Wife of *Oetas*, with *Circe* and *Medea* his two Daughters, is celebrated by Antiquity for her Physical Knowledge. The Researches of *Hecate* seem to have been made with a View of discovering the poisonous Qualities of Plants, in which she was very successful; an Instance of which is the *Aconitum*, or *Wolfsbane*, the deleterious Qualities of which she has the Reputation of having first remarked.

Circe, according to *Diodorus Siculus*, inherited her Mother's Skill, and acquired more by means of her own Researches; but the bad Use she made of her Knowledge has rendered her Character the most infamous of any we meet with in Antiquity; for she poisoned her Husband, a King of the *Sarmatians*, for which, and some Exploits of the like Nature, she was obliged to fly from her Country, and take Refuge either in *Italy*, or a desert Island not very distant from it. A little of the *Grecian Exaggeration* made this Lady Daughter of the Sun, and a Sorceress; whence all the Romances we meet with in regard to her History.

The Character of *Medea* her Sister is more amiable, tho' much involved in Fable. Besides her Knowledge of Vegetables, she is the first, as is said, who made use of warm Baths, and is therefore reported to have boiled People alive; and an Accident which happened to *Pelias* a King of *Thessaly*, added Credit to the Scandal. This Prince, being very old, had an Inclination to try the Efficacy of this new Remedy, and died under the Experiment. She has farther the Reputation of having been able to restore Youth to old People; because, as is conjectured, she had a Method of communicating a black Colour to grey Hairs, by means of certain Plants, the Virtues of which she first discovered; but others are of Opinion, that what gave Rise to this Fable was, that she had the Art of rendering the most effeminate Bodies strong and vigorous, by directing suitable Exercises.

Angitia, or *Angerona*, is by some mentioned as Sister to *Medea* and *Circe*, whilst others think her the same as *Medea*: We, however, meet with nothing relating to her Medicinal Capacity, but what is fabulous.

Amongst the Heroes of the *Argonautic Expedition* was the celebrated *Orpheus*, who, according to *Pliny*, wrote on the Subject of Plants; and is by others reported to have discovered Remedies for some Diseases, the Particulars of which are not mentioned.

Linus the Poet also, on account of his having wrote on Fruits and Trees, is said to have had some Knowledge in Medicine.

But with respect to Physic, the most eminent Pupil of *Chiron* was the *Grecian Æsculapius*, of whom I have given an Account under the Article of his Name.

About seventy Years after the *Argonautic Expedition*, the confederated Armies of *Greece* invaded the *Trojan Territories*; this gave Occasion to a celebrated Period in History, which answers to the Year 1194. before Christ. *Achilles*, one of the Heroes concerned in this War, was, in consequence of his Education under *Chiron*, acquainted with Physic, and is mentioned as the Inventor of some Remedies, which are specify'd under the Article of his Name. Nor was his Companion *Patroclus* ignorant of this Art, as we may infer from his dressing the Wound of *Eurypylus*, at the Request of the last-mention'd Hero.

Protesilaus the Son of *Iphiclus* was remarkable for being the first of the *Greeks* who was killed in the Expedition against *Troy*, and is farther celebrated by *Philostratus* for his great Skill in Physic; which he must have possessed in an eminent Degree, if it is true, that he could cure all Distempers, and particularly Dropsies, Consumptions, Quartans, and Diseases of the Eyes.

Pliny attributes the Discovery of the Virtues of the *Teucrium*, against Obstructions of the Spleen, to *Teucer*, another of the *Grecian* Heroes.

About this Period, *Leucus* a Companion of *Ulysses*, as we learn from *Ptolemy* of *Alexandria*, usually called *Ptolemaeus Hephestionis*, quoted by *Photius*, dedicated a Temple to *Apollo* upon the Rock of *Leucus*; but it is probable, that the Custom of leaping from this Rock into the Sea, with a View of curing Love, began long before, because we are informed by the same Author, that *Venus*, by the Advice of *Apollo*, took this Method in order to cure herself of her Passion for *Adonis*.

Homer also celebrates *Agamede* the Daughter of *Mulius*, and tells us, she was acquainted with all the Medicines which the Earth produces.

Ἡ τῶσα φάρμακα ἥδη ὅσα τρέφει ἔρπια χθονί.

But *Macbaon* and *Podalirius*, the Sons of *Æsculapius*, of all the *Greeks* concerned in the Siege of *Troy*, were the most eminent for their Medicinal Knowledge. We find them, however, concerned only in Chirurgical Cases; but it is not probable, that these Heroes, who were thus descended, and Physicians by Profession, could be ignorant of any thing which had at that Time been discovered with respect to internal Medicine, especially if we reflect, that *Physic*, as well as Surgery, was cultivated in the Family of *Podalirius*, and received from time to time such Improvements from his Posterity, that *Hippocrates*, the seventeenth in lineal Descent, was enabled to bring these Arts to a surprising Degree of Perfection.

In the History of *Podalirius*, we meet with the first Instance of Bleeding: This Hero, according to *Stephanus Byzantinus*, was, in his Return from the Siege of *Troy*, driven by a Tempest upon the Coasts of *Caria*, where the Shepherd who received him, understanding that he was a Physician, conducted him to King *Damathus*, whose Daughter had fallen from the Top of a House. *Podalirius* cured the young Princess by bleeding her in both Arms. With this lucky Accident the King her Father was so well pleased, that he gave her in Marriage to him, and a Part of his Kingdom as a Dowry.

Antiquity furnishes us with very few authentic Materials relative to the History of *Physic*, from the *Æra* of the *Trojan* War to the Time of *Hippocrates*. Some, however, during this Interval are mentioned, who employed themselves in Medicinal Researches, besides the Descendants of *Æsculapius*. Thus *Solomon*, who lived about a hundred and sixty, or a hundred and eighty Years after the *Trojan* War, is represented by *Josephus*, as one perfectly well acquainted with the Medicinal Virtues of all natural Productions; which agrees with the Character we find in Scripture of this Prince. The same Author relates, That a Queen of *Ethiopia*, called in Scripture, the Queen of the East, whom the Reputation of *Solomon's* Wisdom brought to *Jerusalem*, made a Present of the true Balsam-tree to her Royal Host, who by Cultivation propagated this precious Plant in his Gardens about *Jericho*.

Epimenides has the Reputation of having taught the *Greeks* the Use of Squills. He is farther said to have slept fifty-seven Years in a Cave; which is interpreted to mean, that he was so long absent from his Country, and spent that Time in travelling, principally with a View of making Discoveries in *Physic* and Philosophy.

Thales and *Pherecydes* are also said to have travelled into *Egypt*, and thence to have imported the Sciences into *Greece*, and amongst the rest *Physic*.

Pythagoras, who is said to have lived about the 60th Olympiad, that is, about 520 Years before Christ, travelled into *Egypt* and the *Indies*, in quest of Knowledge; and upon his Return to his own Country, which is said to have been *Samos*, finding it in a State of Slavery to the Tyrant then reigning, he removed to *Crotona*, where he founded a School much celebrated in Antiquity. *Celsus* mentions this Philosopher, as being instrumental in the Advancement of Medicinal Knowledge. He seems to have studied more the Preservation of Health, and Prevention of Distempers, by means of a proper Regimen and Diet, than the Cure of Diseases by Medicines. Vinegar of Squills, however, is said to be a Remedy invented by him; but it is also said, that he learned the Virtues of Squills from *Epimenides*. Neither *Pythagoras* nor any of his Disciples were, properly speaking, Practitioners of *Physic*, since they applied themselves principally to the Theory of the Art, except *Empedocles*; at least we read of no Cures performed by any other of them. As for *Pythagoras* himself, he neglected nothing that could improve his Mind, or increase his Knowledge. 'Tis highly probable, that he acquired his Skill in Medicine among the *Egyptians*; but we have only some small Fragments of his Works, and some of these breathe the same Spirit of Superstition, which had been the Bane of preceding Physicians; for what he has wrote concerning Physiology is very inconsiderable.

He imagined that at the Instant of Conception a certain Substance, containing a warm Vapour, descended from the Brain; and that the Soul, and all the Senses, drew their Origin from this Vapour, whilst the Flesh, the Nerves, the Tendons, the Bones, the Hairs, and the Body in general, were formed of the Blood, and other Humours, conveyed to the Matrix. He asserted, that the Body of the Fœtus was formed, and become solid, in forty Days; but that, according to the Laws of Harmony, seven, nine, and for the most part ten Months were necessary to render it entirely perfect; and during that Time, according to his Doctrine, whatever was to happen to the Child in the whole Course of its Life, was regulated and determined. He affirmed, that the Veins, the Arteries, and the Nerves, were the Bonds of the Soul. According to him, the Soul was extended from the Heart to the Brain, and that Part of the Soul which is in the Heart, is the Source of the Passions; whereas Reason and Understanding reside in the Brain. This Opinion, which is common to him with the sacred Writers, he perhaps, received from the *Chaldeans*, with whom he had conversed.

As for the Causes of Diseases, whatever Notions he entertained of them, were learned in the same School, and in that of the Magicians, whom he had also consulted. The Air, he said, was full of Spirits, Demons, or Heroes, which are the Authors of Dreams, Signs, and Diseases, both to Men and Beasts. Lustrations and Expiations, according to him, had a Relation to these Demons and Spirits. In the same School, he no doubt learned what he wrote concerning the magic Virtues of Plants. Upon this Subject he composed a Book, by some ascribed to a Physician called *Clemporus*. As for the natural Properties of Plants, *Pliny* only informs us, that he laid a particular Stress upon those of Cabbage.

Some of the Maxims he laid down with regard to the Preservation of Health are yet preserved: If, says he, we intend to enjoy Health, we must accustom ourselves to such Food as is most simple, and may be found everywhere. For this Reason he eat no Flesh, but lived upon Herbs and Water. He also prohibited the Use of Beans, probably in Imitation of the *Egyptians*. As he lived in this manner, it was easy for him to follow that Advice he gave, when he ordered not to approach a Woman, unless with an Intention to become weaker. He also asserted, that it was highly improper to run into Excesses, either with respect to Labour or Nourishment.

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He made Health to consist in a certain Harmony which is not explained. He asserted the same thing concerning Virtue, every thing which was good, and God himself; so that every thing in the universal System subsisted by Harmony. By this Harmony he probably meant the Relation, or just Proportion, which all things ought mutually to bear to each other; or the natural Order of all things. As to the famous mysterious Doctrine of Numbers, each, according to him, was possessed of its proper Dignity, some being much more perfect than others. The odd Numbers, for Instance, were more considerable, and of a higher Virtue, than those which were even. The former represented the Male, and the latter the Female. But the Number Seven was of all others the most perfect.

From this Opinion sprung originally the Doctrine of Climacteric Years, the Discovery of which is attributed to the Chaldeans, from whom Pythagoras might have also learned it. This Name is given to every seventh Year of the Life of Man, and it is by some thought, that in this Year he runs the greatest Risque, not only with regard to Life and Health, but also with regard to the Goods of Fortune, in consequence of the Changes which happen in these Years.

If we may believe Celsus, it is upon the same Foundation that the Persuasion of the Physicians is built with respect to the Force of the Number Seven in Diseases, and the Difference between odd and even Days.

They who assert, that Pythagoras left no Writings, and that all we know of his Sentiments is taken from the Works of his Disciples, may deny that this Philosopher ever entertained any such Notion. Galen, who for other Reasons than those drawn from the Perfection of Numbers, considered in themselves, believed that we ought to pay Attention to odd and even Days, is astonished that Pythagoras should have been of this Opinion. " 'Tis so easy, says he, to discover the Absurdity and Vanity of what is advanced with respect to the Power of Numbers, that we have just Reason to be surpris'd, that Pythagoras, who was in other respects so wise and knowing, should have attributed so much to them." This Philosopher had enjoyed an Opportunity of examining them, and admiring the Result of their various Combinations, since, as is said, he was acquainted with Arithmetic and Geometry; but that these rational Sciences ought rather to have given him a Disgust at the Trifles above-mentioned.

All this Theory of Pythagoras, with respect to Physic, affords an Occasion of reflecting upon the Weakness, and at the same time upon the Vanity, of human Nature; for as the Whole of his System is either entirely false, or at best precarious, both these must have been concerned in prevailing on this otherwise extraordinary Man, for such he appears to have been, to have propagated Chimeras which he had either learned or invented, instead of Realities; and to have impos'd imaginary Laws of Action upon the Animal Oeconomy, instead of investigating the Rules by which it is actually governed. But, to do Justice to this celebrated Philosopher, I must confess, that his particular Theory is neither better nor worse, than those which have been founded upon some more modern Systems of Philosophy.

Zamolxis, whom the Getae adored as their God, has passed for the Scholar of Pythagoras, tho' others believe him to be a great deal older. The Knowledge of Medicine has also been ascribed to him. We are pretty much in the Dark as to this Particular; only we know, that he asserted, " That the Eyes could not be cured without the Head, nor the Head without the rest of the Body, nor the Body without the Soul." He also maintained, that the Greek Physicians wanted Success in the Cure of most Disorders, in consequence of their Ignorance with regard to this Particular. The Remedies he used for the Cure of the Soul were Incantments; not like those used by Æsculapius; for if we may believe Plato, " The Incantments of Zamolxis were nothing more than rational and moral Discourses; for these produce Wisdom in the Soul, which being once acquired, it is easy to procure Health, both to the Head, and to all the other Parts of the Body."

But, amongst all the Disciples of Pythagoras, none made so great a Figure as Empedocles; of whom it is said, that he discovered the Reasons why Sicily was much subject to Pestilence, and such a Sterility of the Soil, as to cause Famine. These were caused by a frequent South Wind, which, blowing through the Overtures of certain Mountains, had a bad Influence on the Country. He therefore directed these Overtures to be stopped up, and thereby prevented the Consequences of these South Winds for the future.

He also acquired great Reputation by a Case which is related under the Article ΑΡΝΟΕΑ, which see.

We learn from a Passage in *Plutarch* in his Treatise *επι των ἀρεσίων τοῖς φιλοσόφοις*, that Empedocles was acquainted with the Cochlea of the Ear, where he said Sounds were formed. We meet with no Instance before his Days of this Part of the Organ of Hearing being observed.

As to the Physiology of Empedocles, it does not appear, that he was more excellent than his Master Pythagoras. He made one Observation however, which appears to be very just, and is confirmed by modern Discoveries; which is, that the Seeds of Plants are analogous to the Eggs of Animals.

Empedocles was of Agrigentum, a Town in Sicily, and flourished about the 84th Olympiad, that is, about 430 Years before Christ. He esteemed Physic so much, that he said the Physicians excelled all other Men, and approached the nearest in Rank to the immortal Gods. This Sentiment was very different from that of the famous *Heraclitus*, who was of Opinion, that if it was not for the Physicians, the Grammarians might be placed in the highest Rank of Fools; perhaps this last-mentioned Philosopher might be displeased with the Profession, because some of the Physicians, his Contemporaries, might be wise enough to oppose the Introduction of his Philosophy into Medicine, and impertinent enough to ask some Questions, which would give him a great deal of Trouble to answer.

Acron was a Countryman and Contemporary of Empedocles. What relates to him as a Physician, is specified under the Article of his Name, which see.

Alcmaeon of Crotona was another Disciple of Pythagoras, who made Physic his favourite Study. His particular Notions are specified under the Article ΑΝΑΤΟΜΙΑ, which see. He is said to have been acquainted with the Passage from the Palate to the Ear, now called the *Eustachian Tube*, perhaps because he asserted, that Goats respired by their Ears. *Abaris*, the famous *Scythian*, has the Reputation of having understood Physic, as is mentioned under the Article of his Name.

I have designedly omitted many fabulous Accounts of the Heathen Deities, who were said to be Inventors of Physic, because they are of little Importance in our present Inquiries; and, because I would confine myself to the History of Physic, I have taken no Notice of a great many Philosophers, who were not Physicians by Profession, and who considered Medicine only as an Appendage to Philosophy. It will, however, be necessary to represent the State of Physic in some other Nations, and amongst other People of Antiquity, besides the Egyptians and Greeks, before I proceed to the Era of Hippocrates.

The Druids were at the same time the Priests, the Judges, and the Physicians, of the antient Gauls. *Pliny* observes, with regard to their Practice, that they attributed a great deal to the Mistletoe of the Oak, which they looked upon as a Remedy of uncommon Efficacy against Barrenness, and all Poisons whatever; and that they gathered it for Use with abundance of superstitious Ceremonies. The same Author also informs us, that the Druids highly recommended an Herb called *Selago*, somewhat resembling Savin; but this Herb is not known in our Days. Besides, from the sixth Book of *Cæsar's Commentaries*, we gather, that when any of the Gauls were seized with any terrible Disorder, they made a Vow to sacrifice human Creatures, with a View to recover their Health, and that the Druids were the barbarous Ministers of these inhuman Rites. We cannot determine precisely when the Druids began: *Aventinus*, in his Annals, thinks there was a College of Druids in the Time of *Herman*, or *Hermion*, a King of the Germans, by some said to be contemporary with the Patriarch *Jacob*; but all this is fabulous. According to *Pliny* and *Suetonius*, their Order became extinct in the Times of *Tiberius* and *Claudius*; or, at least, these Emperors issued out Edicts for banishing and exterminating them, because they were looked upon as Magicians, and People who used unlawful and sinister Arts.

With the Druids we may class that Species of the Gymnosophists, of whom *Strabo* makes mention, who practised Physic, and boasted of being able, by their Remedies, to enable those who desired it to have many Children, and these either Boys or Girls as they had a Mind. The Origin of the Gymnosophists is very antient.

The Chinese, and some other Oriental Nations, have been in great Reputation for their Knowledge in Arts and Sciences; it does not, however, appear, that this Character is altogether just. With respect to the Medicine of these Nations, I must be obliged to *Schulzius* for his Account of it, as I have not the Authors from whence he has extracted it.

Other Eastern Nations pretend, that the Knowledge of Medicine first flourished among themselves; but the principal Claims, with regard to this Particular, are laid by the Chinese, the Japanese, and Malabarians. The Chinese, with whom the Japanese agree in a great many Particulars, affirm, that Kings who lived long before the Deluge, were the Inventors of their Medicine. We have no Accounts of the Dignity of Physicians among them in these remote and early Times: However, as a public Body of Men, they are at present very inconsiderable, if we may believe *Johannes Neubosius*, in his *Descript. Legation. Batavic.* Notwithstanding this unpromising Circumstance, the Europeans, who live among them, are said to commit the Care of their Health to them, in Preference to Physicians who are their own Countrymen. They acquire a Knowledge of Diseases by a long and tedious Observation of Pulses. This Method, they say, they were taught by one *Lipe*, and King *Hoamiti*, who, according to their Chronology, lived two thousand six hundred and eighty-eight Years before Christ. Besides the Pulse, they consider the Eyes, the Tongue, and the Face of the Patient, but neglect all other Circumstances from which Prognostics might be drawn; for they neither interrogate the Patient with respect to his State, nor inspect the Urine of those who are under their Care. When they know the Pulse, they form a Judgment of the Nature of the Disease, and make their Prognostics accordingly. After this they have recourse to a most antient Book, which is the Standard of their Practice, find out the Denomination of the Pulse, and the Remedies appropriated to the particular Disease, of which it is the concomitant Symptom. Most of their Medicines are simple, and easily prepared, such as Decoctions. They are entirely ignorant of Chymistry, shamefully neglect Anatomy, and never admit of Phlebotomy, as *Cleyerus*, in *Fragment. Oper. Medic.* informs us. They imagine, that there is a certain Circulation of the Blood and Spirits, which conveys the radical Moisture, and native Heat, thro' the Veins and Vessels of the twelve Members. This Circulation is, according to them, performed fifty times in the Space of twenty-four Hours, according to the Revolution of the Heavens through the fifty Houses. This phantastic and ridiculous Account of a Circulation of the Fluids in a human Body has induced some of the less wary and circumspect of the Europeans to assert, that the Circulation of the Blood was very early known to the Chinese. This Opinion *Cleyerus* asserts to be more than four thousand Years old, tho' some maintain, that it is only of four hundred Years standing. This Mistake has, in all Probability, been owing to *Paschius*, who, in his Work *de Novis Inventis*, has not accurately transcribed the Number from *Cleyerus*. Thus the Error of one has, as it generally happens, misled Numbers of others.

They have formed a pompous kind of Pathology, in order to account for painful and spasmodic Disorders: Upon this Theory depend Acupuncture, and burning *Moxa* on the Parts affected. Tho' these two Pieces of Practice are equally familiar to the Chinese and Japanese, yet they differ somewhat in the Method of performing them. Their Theory in general, however antient, is yet very imperfect and unphilosophical: Notwithstanding this, their Physicians, in consequence of their Experience and Industry, make a considerable Figure, and attract the Esteem and Veneration of our own Countrymen. For this Reason, the celebrated *Boyle* deservedly inculcates the superior Excellence of Practice and Experience.

The Malabarian Medicine, practised by the Bramines, is said to be no less antient than that of the Egyptians. We owe our Acquaintance with the State of Medicine, in that Nation, to the incomparable *Joannes Ernestus Grundlerus*, who, in the Year 1708, went to Malabar, in Quality of Danish Missionary. This worthy Gentleman, upon his Arrival in the Indies, read the Works of their Physicians, conversed with the most Learned and Skilful of the Bramines, and sent to Europe a small Work under the Title of *Medicus Malabaricus*; in which he informs us, that the Art of Medicine is very antient in that Nation; that it is principally learned from a Book of medicinal Knowledge. They deduce the Origin of Medicine from what they call the Supreme God, and assert, that for many Myriads of Years it was handed down successively thro' various Orders of Gods; that these communicated it to the Prophets, and the Prophets to the common Race of Mortals. Their Theory is not only lame and imperfect, but, for the most part, false and erroneous, as is obvious from their Doctrine of Pulses; for they assert, that the Source and Origin of the Pulse is situated about four Fingers Breadths below the Navel, and that seventy-two Thousand Arteries are thence distributed thro' all the Parts of the Body. This Source or Origin is, according to them, four Fingers Breadth wide, and the Length of two Fingers in Height. They of Respiration is equally absurd and ridiculous: They divide their Medicines into six Classes, according to their respective Tastes; that is, acid, sweet, saline, bitter, acrid, and astringent. They include the whole curative Part of Medicine in eight Classes, according to the like Number of Species of Diseases. But, before any one every one cannot lay a just Claim to such an extensive Degree of Perfection; hence it happens with them, that the Generality of Physicians confine themselves to one, or, at most, two of these Classes, that, neglecting the Diseases of Children; to the second, those who know how to cure the Wounds made by venomous Animals;

to the third, those who undertake to banish Demons, and remove the Disorders of the Mind; to the fourth, those who assist such as are impotent, and incapacitated for Generation; to the fifth, those who banish Diseases in their Infancy, and these are held in greater Esteem than any of the rest; to the sixth Class belong Surgeons, or those who assist the Distress'd with their Hands; to the seventh, those who avert old Age, and prevent Baldness; to the eighth, those who know how to cure the several Disorders incident to the Head and Eyes. Over each of these Classes some Deity presides, as a Patron, and tutelary God: This imaginary Power these Physicians worship, and in his Name they exhibit their Medicines. Thus the Wind presides over the Diseases of Children; Water over the Disorders arising from the Wounds made by venomous Animals; the Air is helpful in banishing Demons; and a fiery Wind assists the Impotent; the Sun presides over those who banish the first Attacks of Diseases; and lastly, the Soul of Man presides over the Disorders of the Eyes and Head, as a Kind of tutelary God.

They affirm, that every one has three principal Diseases born, at it were, with him. The first of these is called *Wodum*, that is, Wind or Flatulences in the Body; the second is called *Bittum*, that is, a Vertigo or Foolishness; the third is denominated *Tschestum*, that is, Impurities of the Humours: And these Diseases, happening from various Causes, are prevalent according to the particular State and Condition of the Patient, and either excite or suppress others. They enumerate their primitive Disorders, and those arising from them; from one of the primitive Kind they sometimes make three hundred and more to arise. The Diseases of the Mind are, according to them, seven hundred and ninety-two in Number; and all the Diseases both of Body and Mind, taken together, amount to two thousand eight hundred and forty-seven. In order to discover the true Natures of Diseases, they not only carefully observe the Pulse, but diligently consider the Excrements, and especially the Urine. When they want to find out whether any Patient will die or live, they put some of his Urine in a Vessel; then they immerse a Straw in pure Oil, and suffer the Oil to drop off the Straw into the Urine: If the Drop subsides to the Bottom, the Patient dies; but if it floats on the Surface, they confidently affirm, that the Patient will live. In forming their Prognostics they pay a great Attention to the Stars; and the Physician, when going to visit his Patient, superstitiously regards Auguries, considers Birds, and every Object that occurs, the Messenger that calls him, himself, and the particular Posture in which he was found by the Person who called him.

They give very accurate Directions with regard to the Choice of Medicines, the Places where they are produced, the Times of gathering, and the Method of keeping them; as also how each of them ought to be prepared, and preserved after Preparation. They also lay down Directions with regard to such Substances as they eat and drink, determine how long they remain good and wholesome, and specify the Vessels most proper for preserving them. They prescribe a most accurate Regimen for their Patients, determine how much they should sleep or wake in such or such particular Disorders; how often they should cleanse their Teeth, or wash their Mouth, in what manner they ought to lodge, and how it is proper for them to sup.

They cultivate Chymistry, which, they assert, was delivered to them in four Books by the God *Tschiewen*. They treat of Mercury, Sulphur, Antimony, and other Minerals; of Salts, Vitriol, and Alum; of Corals, Gems, and Metals; of the Instruments used in Chymistry, and the Method of performing its various Processes. They have several compound Medicines, and prepare universal Pills; but they exhibit every Medicine in a Vehicle appropriated to its Nature and Design. For particular Diseases they also injoin a particular Regimen. Most of them are Strangers to Venesection; and perform Scarifications very rarely, and that in a very unskilful manner. They scarce know any thing of Issues and Clysters: But such of them as live intermix'd with the *Europeans*, gradually adopt Venesection, and other Branches of our Practice.

In the Preparations of their Medicines, which is their Chymistry, they almost constantly use the Dung or Urine of Cows: This, no doubt, is owing to the high Opinion they entertain of the Sanctity of these Animals. They also use dry Cow-dung instead of Coals. With them there is no Distinction between Physicians and Apothecaries, but the same Man who prepares, also prescribes the Medicines. The Physicians must, with them, be inroll'd in the Books of the Bramines; and every one must, as in *Egypt*, remain in his stated Condition, and exercise that Branch of the Art his Ancestors had done before him. It is obvious, that these Eastern Nations, in many things, with regard to Physic, agree not only with each other, but also with the Medicine of the antient *Egyptians*. It were to be wished, that *Wagadastirum*, that antient Book, were translated into *Latin*, and published; since it is not to be doubted, but, from it, we might learn a great many Particulars relating to the Medicines imported from the Eastern Nations: Perhaps also it might be found to differ little from the Books of *Hermes*, which the *Egyptians* looked upon as their Standard of Practice.

Tho' we are obliged to take our Accounts of the State of Medicine among the *Chinese* and *Malabarians* from modern Authors, yet we may reasonably believe, that Physic, in these Nations, is of a very old Date, since it is in a manner interwoven with their Religion. We have also Reason to believe, that Medicine retained its antient Form in these Nations, till the *Europeans* began to trade with them; especially if we add this Circumstance, that they are universally known to be rigorously attached to their antient Forms and Customs.

I must not finish the History of the Medicine of remote Nations, without observing, that, of all the People of whom History gives us any Information, the *Americans* appear to have acted the most prudently, and, with respect to Physic, to have been the wisest People of whom we have any authentic Accounts; because it is indisputably better to have no Theory at all, than one which is bad, and capable of introducing Errors into Practice.

Antonio di Solis, speaking of *Montezuma*, Emperor of *Mexico*, says, That he took a particular Care to transplant into his Gardens all the choice Simples that benign Climate produced, where the only Study of the Physicians was to attain to the Knowledge of their Names and Properties. They had Herbs for all kinds of Pains and Infirmities; and in the Juices and Application of those Herbs consisted all their Remedies, with which they effected surprising Cures; having, by long Experience, found out their Virtues, and which, without distinguishing the Cause of the Distemper, they applied, to the Patient's great Benefit and Relief.

The King freely distributed to all, who had Occasion for them, such of his Simples as were prescribed by the Physicians, or desired by the Sick; and used to inquire if the Patient had received any Benefit therefrom, either gratifying a sort of Vanity he had in the successful Operation of his Medicines, or believing that he fulfill'd the Obligation of a Sovereign, in taking such Care of the Health of his Vassals.

The same Author, in another Place, speaking of the Sickness of *Cortez*, informs us, that the Senate sent for all the best Physicians of their Country, whose Skill consisted in the Knowledge and Choice of medicinal Herbs, which they applied with a wonderful Discernment of their Virtues and Effects, varying the Medicine according to the Condition and different Turns of the Distemper, and to them he was entirely beholden for his Cure: For making use at first of wholesome cooling Simples, to correct the Inflammation, and mitigate the Pain, which

occasioned the Fever, they proceeded by degrees to apply others, proper to ripen and heal the Wound, with so much Skill and good Fortune, that in a little time they restored him to his perfect Health.

Let the rational Physician laugh at Empirics; it is certain, however, that the first Knowledge of Physic was from Experience; and in a Country entirely unacquainted with Natural Philosophy, which searches out Causes by Effects, it was no small Matter to find so great a Progress made in the Knowledge of Nature.

Theory cannot assume, with any Appearance of Reason, the Power of discovering the Virtues of Simples in curing Distempers, tho', by investigating the Causes of Diseases, it may adapt known Remedies with greater Propriety, and perhaps Success, to particular Cases; provided always, that the Theory has its Foundation more in Truth, than in the Imaginations of the Whimsical and Trifling.

In consequence, therefore, of neglecting all manner of Theory, and cultivating Experience, the *Americans* have been able to discover to the *Europeans* the most effectual Remedies yet known, as the *Peruvian Bark*, *Ipecacuanha*, and a Multitude of others, for which we are indebted to the Experience of the illiterate Inhabitants of the new World; whilst all the boasted Learning of the *Europeans* hath been so little productive of Improvements in Physic, that, with respect to our own Plants, we know very little more of their Virtues, than what we have learned from *Dioscorides*, and some other of the Antients: And as to Distempers, those which were esteemed incurable two thousand Years ago, would have remain'd to this Day, if the Experience of the Virtues of the *Peruvian Bark*, *Mercury*, and *Antimony*, had not furnished us with the Means of relieving Patients labouring under some few.

I shall now proceed to the *Æra of Hippocrates*, in which we have more certain, as well as useful, Accounts of Physic; after having taken Notice of four celebrated Persons, who were either contemporary with, or preceded that great Physician, a very few Years; I mean *Iccus*, *Herodicus*, *Democritus*, and *Ægimius*.

Iccus, then, if we may believe the Testimonies of some antient Authors, was a Physician who lived some time before *Herodicus* of *Selymbria*, and who was highly attached to Athletic Exercises: But he differ'd very considerably from some others of the same Class, because he practis'd Temperance and Sobriety to such an exalted Degree, as, on that Account, to become a Proverb. He is also said to have remained all his Life unmarried, lest he should dissipate and impair his Strength by conjugal Embraces. With the same View he advised other Wrestlers to abstain from Venery, during the Time they were preparing themselves for entering the Lists: But it cannot be said, that all Athletics have follow'd his Example in this Particular, since we read of some who have been invigorated by a moderate Use of Venery.

Herodicus, or *Prodicus*, of *Selymbria*, was born some time before *Hippocrates*, and flourished at the same time that Physician did; tho' *Pliny* informs us, that he was one of the Disciples of *Hippocrates*. *Plato* makes him the Inventor of the Gymnastic Medicine, or that which, by various kinds of Exercises, procures and preserves a good Habit, and removes Diseases after they are formed. The same Author informs us, that being a Schoolmaster of an infirm Constitution, and labouring under an incurable Disease, he first made a Trial upon himself, how much Exercise contributed to stop the Progress of Diseases; and that he afterwards proceeded to cultivate the Whole of the Gymnastic Art, and teach what particular Exercises were calculated to prevent particular Diseases; and, in this Branch of Medicine, he is, by some, asserted to have been Preceptor to *Hippocrates* himself. The very Mention of *Herodicus* renders it necessary, that we should take a brief View of the Antiquity of the Gymnastic or Athletic Art, since the Gymnastic Medicine drew its Origin from it.

The Gymnastic Exercises, then, so much celebrated in antient *Greece*, are much older than the Gymnastic Medicine introduced by *Herodicus*, or any other Author whatever; for they were, at least, practis'd at the Beginning of the Olympiads, an entire hundred of which, or four hundred Years, had certainly elapsed before the Days of *Hippocrates*.

Among the other *Grecian* Heroes, *Hercules* is celebrated as the principal Author of these Exercises: But after him, the Practice being dropp'd, *Iphitus*, by public Consent, revived them, seven hundred and seventy-six Years before *Christ*. The Olympic Exercises were famous over all *Greece*. The *Pythic* were somewhat less solemn and pompous than these. The *Nemean* also, and the *Isthmian* Games, tho' not so famed as the former, were yet celebrated every third Year. These Games were called *iesi agones*, or Exercises consecrated to the Honour of the Gods. The Victors, in these Games, gained nothing by the Conquest, except the Glory of having overcome, and a certain Crown, which was bestowed upon them as a Badge of Honour.

Besides these, there were other Games instituted in private Cities, in which the Victors were rewarded with something more than bare Glory. All these Circumstances prevailed on the principal Inhabitants of *Greece* to consider the Improvement of their bodily Strength, and their Breath, as a Thing of Importance enough to deserve their serious Attention; and hence the Method of increasing both, by proper Exercises and Regimen, was erected into a Science. Time and Experience made it evidently appear, that these had a great Influence on Health; it was therefore obvious enough, that the adopting this Science into Medicine would be attended with many Advantages.

Ægimius is said to have lived before *Hippocrates*, and to have been the first who wrote upon the Pulse. See the Article of his Name.

Democritus is said to have been a great Traveller, and to have been much delighted in making Experiments; but the Accounts of him in general are involved in no small Obscurity, and his genuine Works are long ago destroy'd. The Historians who lived near his own Times have given us a few short Hints concerning him; but later Authors have, from spurious Works, collected many Circumstances relating to him, which have a direct Tendency to perplex and confound his History. Notwithstanding this Misfortune, we shall endeavour, in our Accounts of this Philosopher, to distinguish betwixt Probability and Fiction.

That *Democritus*, then, was an *Abderite*, and consequently a *Thracian*; that he was descended of a considerable Family, and was Master of a pretty ample Fortune, are Facts proved by a great many Circumstances; for when *Xerxes* was passing into *Europe* with a Design to subdue *Greece*, the Father of *Democritus* is said to have entertained that King, and to have received from him Magi and *Chaldeans*, with an Intention to educate his Son. After this *Democritus* studied under *Leucippus*, the celebrated Master of the *Eleatic* School. He is also said to have entertained a high Notion of the *Pythagoreans*, and to have improved himself by them. Prompted by an insatiable Thirst after Knowledge, he travell'd thro' *Egypt*, *Persia*, *Arabia*, and *Ethiopia*, till he became old; conversed with the *Gymnosophists* and *Babylonians*, and spent a Patrimony of an hundred Talents. On his Return home he led a solitary Life in a Country Garden given him by his Brother, where he tried Experiments, collected his former Observations, and wrote his Books. As he abhor'd the Manners and Customs of his Countrymen, and laughed at the Fooleries they treated in a serious Manner, he began to be looked upon as a mad Man, and

some insisted, that he should be put to Death for squandering away his Patrimony. But, when he had read his Works to his Fellow-citizens, he was not only absolved, but presented with an incredible Sum of Money.

'Tis commonly reported, that the People of *Abdera* called *Hippocrates* to cure *Democritus* of Madness; and that when *Hippocrates* came, he found him employed in dissecting various Animals, in order to discover the Nature of the Bile. *Hippocrates* is said to have been charmed with the Man, and to have been much improved by his Conversation. But these Circumstances are not sufficiently attested to deserve our Assent.

Petronius informs us, that he expressed the Juices of all Herbs, and spent his entire Life in making Experiments. Whether these Experiments were performed from a Principle of Curiosity, or with a View to investigate the Properties of Medicines, is perhaps not easily determined: If, however, we may believe *Seneca*, this Author knew the Art of softening Ivory, and of converting small Stones into Emeralds, by boiling them.

Hence some are of Opinion, that *Democritus* was a skilful Anatomist, and a good Chymist; and maintain that he wrote on Subjects of both these Kinds. His Book intitled *περὶ τῆς λίθου*, which perhaps, treated of the Load-stone, they will have to relate to the Philosophers-stone. Some chymical Manuscripts, by some highly extolled, also bear his Name; but the more Judicious confess, that these are the Compositions of some later Greek. This seems to be obvious enough from the Fragments of that Work, which are preserved.

To Authors of this Kind it has, no doubt, been owing, that some Moderns have confidently affirmed, that *Democritus* possessed the Divine Water, or the *Scythicus Latex*, by some called *πνεῦμα*, by the Assistance of which he could make potable Gold, and the Philosophers-stone. *Schulzius* conjectures very prettily, that this *Scythicus Latex*, by others called *δακρυον χρυσοποιον*, is the same with *Aqua Vita*, or inflammable Spirit of Wine, which in the Slavonic Language is called *Korsfolki*, a Word pretty near to the Greek *χρυσόπικτον*.

Democritus seems to have been the Author, or at least, the Improver and Illustrator, of the *Corpuscularian* Philosophy, which in the School of *Epicurus* was subtly accommodated to Physic by several, and particularly those of the Methodic Sect, and in our own Days by the *Cartesians*.

Democritus is said to have lived long, and when by a sudden Loss of Strength he perceived Death to be near, he for the sake of his Sister preserved his Life for three entire Days. With what Remedy he effected this, is not universally agreed upon, since some affirm, that it was by the Smell of hot Bread, and others by that of Honey. If this Story is true, *Democritus* had an uncommon Complaisance for his Sister; because the Motive of her desiring him to live a few Days, was only that she should not be in Mourning, and, in consequence of that, lose the Diversion of a certain Festival which was approaching.

We now proceed to more authentic Accounts, and more important Doctrines, relating to Physic, than any which History has hitherto furnished us with, I mean those which we learn from the celebrated *Hippocrates*. I have given his Descent with some other Particulars relative to the Posterity of *Æsculapius*, under the Article *ASCLEPIADÆ*, and a Sketch of his Life under that of his Name. I shall now proceed to his Doctrine, after having observed, that he was born, according to the best Accounts, in the 80th Olympiad; about 460 Years before Christ.

In the following Detail of his Philosophy and Physiology, I must acknowledge my Obligations to Mr. *Le Clerc*, who has with great Judgment and Accuracy extracted them from his Works, and given them to complete, that very little can be added to what he has said.

If *Galen's* Judgment may be taken, *Hippocrates* was no less distinguished among the Philosophers than Physicians. He assures us besides, that *Plato* adopted all the Opinions of *Hippocrates*; that the Writings of *Aristotle* are nothing but Commentaries on the Philosophy of *Hippocrates*; and that *Aristotle* was no more than an Interpreter of *Hippocrates* and *Plato*; that from them he borrow'd his Doctrine of the four first Qualities, *hot, cold, dry, and moist*. *Hippocrates* indeed seems, in some Places, to advance the Notion of these Qualities, where he admits of four Elements, *Air, Water, Fire, and Earth*; at least he opposes, in his Book of the *Nature of Man*, those who acknowledge only one. But in his first Book of *Diet* he establishes another System, where he mentions only two Principles, *Fire and Water*, one of which gives Motion to all Things; and the other nourishes them, and supplies them with Matter for Accretion. These Contradictions, and some others, proceed from confounding the Works of *Hippocrates* with several other Pieces which did not belong to him. The Book last cited is one of those which in early Ages passed for supposititious.

What we are more certain of, and what is of the greater Importance, as it nearly relates to Medicine, is, that *Hippocrates*, in almost all his Works, shews that he acknowledged one general Principle, which, *Lib. de Alimento*, he calls *Nature*, which is above all others, and to which he attributes a great Power. "Nature, says he, is sufficient in Animals for all things, or is to them instead of all things. It knows of itself whatever is necessary for them, without being taught, or being under a Necessity to learn of any one." And upon this Footing, as if *Nature* were indued with a Principle of Knowledge, he gives it the Title of *just*. He ascribes to it a Power, (*δύναμις*) or Powers, which are in the Nature of Handmaids. "There is, says he, one Power alone; and there are more than one*." It is by these Powers that every thing is administered in the Bodies of Animals, these distribute the Blood, Spirits, and Heat, into all Parts; by which means they receive Life and Sensation." He says, in another Place, "It is the Power which nourishes all things, and makes them grow."

The Manner in which Nature acts, or its most sensible Administration, by the Mediation of the Powers, consists, according to him, partly in attracting what is good or convenient for every Species, and in retaining, preserving, or altering it, partly in rejecting what is superfluous or hurtful, after separating it from what is useful. Upon these Principles almost the whole Physiology of *Hippocrates* is founded; or upon a natural Inclination which every thing has to unite itself with whatever has a proper Relation to it, and to avoid every thing which is contrary; supposing also an Affinity between the different Parts of the Body, from whence they mutually sympathize with one another in those Evils which they suffer, and partake in every good Thing which happens to each Particular, according to the great established Maxim, that all Parts of the Body concur, consent, and conspire together, according to the Animal Oeconomy.

Thus we see what *Hippocrates* meant by the Term *Nature*: He gives no other Description of this Principle of such wonderful Actions, unless it be, that he seems to compare it to a sort of *Heel*, of which he speaks

* *Galen*, in his Commentary on the sixteenth Aphorism of the second Book, thus explains this Sentence. "Hippocrates, says he, every-where takes care to preserve this mighty Power, or Virtue, which has the Direction of Animals: whether therefore he calls it *Power* in the Singular, or *Powers* in the Plural Number, it matters not. Thus, in his Book *de Alimentis*, he says, "There is one Power, and more than one," meaning, that there is one Power in general, which comprehends many particular Powers."

after this manner : “ What we call *Heat*, or *bot*, says he, *Lib. de Carnibus*, seems to be something that is immortal, which understands, hears, sees, and knows, both what is past, and what is to come.” At least we see a near Relation between those Effects which he ascribes to this *Heat*, and those which he attributes to *Nature*.

We find in the Book of *Hippocrates* just now quoted, intituled *de Carnibus*, or, according to others, *de Principiis*, something singular enough concerning the Formation of the Universe, and of Animals in particular. He supposes first, that the Production of Man, or his Being, the Soul which is within him, his Health or Sickness, the good or evil Events which befall him, his Birth and Death, all proceed from things elevated above us, (*ἀετὶς*) or celestial Things. By these we might understand the Stars, which, according to this Author, have a mighty Influence upon human Bodies; but he explains himself by attributing all that has been just now mentioned, to that immortal *Heat* before spoken of, which, as we said, is the same thing which in other Places he calls *Nature*.

The greatest Part, says he, of the *Heat* just now described having prevailed at the Time when all Things were in Confusion, it formed what the Antients called *Æther*. Another Part of this *Heat*, residing in the lowest Place, which we call *Earth*, there became indued with the Qualities of Cold and Dryness, and a great Disposition to Motion. A third Part of this *Heat*, having possessed the middle Space between the *Æther* and the *Earth*, constituted what we call the *Air*, which is also a little hot. Lastly, the fourth Part, which is next to the *Earth*, and the thickest and most humid, formed what is called the *Water*. All these things having been blended together by a circular Motion in the time of the Confusion before spoken of, that Portion of *Heat* which resided in the *Earth*, being dispersed into different Quarters, and divided into various Parcels, more of it in one Place than another, the *Earth* by that means became dried, and assumed the Form of *Membranes*, or *Coats*; and the Substance inclosed within them being heated, as it were, by a kind of Putrefaction, the fattest and least humid, being soon burnt, took the Form of *Bones*. The viscous, and in some measure cold Matter, which was incapable of burning, produced *Nerves*, or rather *Tendons* and *Ligaments*, which are hard and solid. As to the *Veins*, they were made of the coldest, and of the most viscous Parts of the Matter in Conjunction; for the viscous Part, being torrefied or dried by the *Heat*, produced the *Membranes* or *Pellicles* of which they are composed; and the Part which had nothing of a fat or viscous Matter in it, being dissolved, formed the liquid or humid Substance which they contain. The *Bladder*, with its Contents, was formed much after the same manner as all the other Cavities.

In those Parts, continues *Hippocrates*, where the viscous Matter prevailed over the Fat, *Membranes* were formed; but where the Fat was predominant, *Bones* were produced. The *Brain* being the Source or proper Seat of a cold and viscid Matter, which the *Heat* could neither dissolve nor burn, first there were formed *Membranes* on its Superficies, and afterwards *Bones*, by means of a small Portion of Fat, which the *Heat* had torrefied. The *Spinal Marrow* was made after the same manner, being cold and viscous like the *Brain*, and consequently very different from the *Marrow of the Bones*, which, being simply Fat, is not inclosed in a *Membrane*. The *Heart*, having much of a viscous Substance, became a hard and viscid Piece of *Flesh*, invested with a *Membrane*, and hollow; the *Lungs*, which are near the *Heart*, were produced after the same manner. The *Heart*, having by its *Heat* warmed the most viscous Part of the Humidity, soon dried it, and reduced it to a kind of Froth full of Perforations or Pipes, with many small *Veins*. The *Liver* was formed of a large Portion of hot and humid Matter, which contained nothing fat or viscous in it; so that the Cold prevailing over the *Heat*, the Humidity became coagulated, or inspissated.

Hippocrates reasons on the same Footing concerning the Production of some other Parts; but the Account before us is sufficient to give us an Idea of his Manner of philosophising on that Head, and will furnish us with this Reflection, that there seems to be no great Difference between this System of *Hippocrates*, and that of *Heracitus*; that *Heat*, by means of which *Hippocrates* supposes all things were produced or formed, being much the same thing as the *Fire*, which, according to *Heracitus*, was the Element or Principle of all Bodies. Several Passages might be taken out of the first Book of *Diet* to confirm what has been said; what follows is express to the Purpose. “ In short, says *Hippocrates*, the *Fire* has disposed every thing within the Body in “ Imitation of the Universe.”

This may suffice to give an Idea of his general Philosophical Notions.

We have a brief Account of the Anatomy of *Hippocrates* under the Article ANATOMIA, and, as he was very defective in this Part of Knowledge, have perhaps said as much as the Subject deserved. But when we come to consider his Character as a Physician, he demands our highest Attention, calls for our greatest Regard, and deserves to have his Physiology inquired into with the strictest Accuracy, and utmost Impartiality.

Hippocrates, then, makes the human Body to consist of three constituent Principles, the *Solids*, the *Fluids*, and the *Spirits*. These three he elsewhere explains, by calling them the containing, and the contained Parts, and those which excite Motion (*κίνητα*). By that which contains, must undoubtedly be understood the solid Parts, such as the *Bones*, *Nerves*, *Tendons*, *Ligaments*, *Cartilages*, *Membranes*, and *Fibres*. By that which is contained, *Hippocrates* principally understood four Sorts of Humours, *Blood*, *Phlegm*, *yellow Bile*, and *Melancholy*, or *black Bile*. By those which excite Motion, he meant what he otherwise expresses by the Word *Spirit*, which, according to him, is a Substance partaking of the Nature of the *Air*, from which it derives its Origin, and is diffused thro’ all the Body.

With respect to the Humours, *Hippocrates* is of Opinion, that the *Blood* is naturally hot, fluid, of a red Colour, and sweet to the Taste; that the *Phlegm* is cold, fluid, white, viscid, and somewhat saline; that the *yellow Bile* is dry, glutinous and bitter, and extracted from the most pinguious Parts of the *Blood* and *Aliments*; and that *Melancholy* is black, cold and dry, very glutinous, flatulent, and inclined to ferment.

The human Body, according to him, is composed of these four Substances; and it is by them that we either enjoy Health, or are afflicted with Diseases. The State of Health is good so long as these Humours remain in their natural Conditions, with respect to their Quantities, their Qualities, and due Mixtures. The State of Health, on the contrary, is bad when any of these is either in a smaller or in a larger Quantity than it ought to be, when it is kept separate from the rest in any Part of the Body, and when all these Humours are not possessed of the requisite Qualities, or are not mixed in a due and natural Proportion. Health and Sickness may, from what has been said of each, be fully defined; but *Hippocrates* has given us no formal Definition of either, except in one Place, where he calls a Disease, whatever creates Pain or Uneasiness to a Patient. But this is too general to be a just and accurate Definition.

As for the Uses of each particular Humour, he was of Opinion, that the *Blood* in a sound and natural State nourished the Parts, and was the Source of animal *Heat*, the Cause of a fresh Colour, and of good Health.

Health. He imagined, that the yellow Bile preserv'd the Body in its natural State, hindered the numerous small Ducts, and capillary Vessels, from being obstructed, and kept the Intestines, allotted for the Discharge of the Fœces, open. He also maintained, that it contributed to quicken the Senses, and promote the Digestion of the Aliments. The black Bile was, according to him, the Lees of the other Humours, which serv'd as a sort of Basis to them. The Phlegm, in his Opinion, serv'd to lubricate and facilitate the Motions of the Nerves, the Membranes; the Cartilages, the Joints, the Tongue, and other Parts of the Body.

Besides the four Qualities of Fluidity, Dryness, Heat, and Cold, by *Hippocrates* ascrib'd to the Humours, it appears, from several Passages, that he believ'd them possess'd of a great Number of others, which, in a natural State, were useful, and only became prejudicial, when they acquired a preternatural Energy, degenerated from what they should be, or separated themselves from the rest. "The Antients," says he, in his Book *De Prisca Medicina*, "did not believe that Dryness, Cold, Humidity, or any other Quality of a like Nature, could produce any Disorder in the Constitution; but they were of Opinion, that an Excess of either of these, which could not be surmounted by Nature, was the Source of the several Distempers with which Mankind were afflicted; and their Endeavours were bent upon correcting or removing this Excess. Now, as among sweet Substances the sweetest are the strongest, so among those which are bitter or acid, such as are most so, are most powerful. In a Word, among all Substances of every Kind, that which is most exalted in its Qualities, is the strongest and most efficacious. Substances of this Kind lodg'd in the human Body, were, according to the Antients, the Sources of Pain and Diseases. There really are in our Bodies bitter, saline, sweet, sour, sharp, insipid, and a great many other Substances which assume different Qualities; according to their Quantities or Strengths. These different Qualities are not perceptible, nor productive of Injury, so long as the Humours are duly mixed and blended together. But when the Humours are separated from each other, and remain so, then their Qualities become at once sensible and prejudicial."

From this Passage we may perceive, that *Hippocrates* did not imagine that these Substances acted by what the Philosophers call Primary Qualities, especially since a little after he tells us, "That Heat is not attended with great Force, but four and insipid Substances are, whether internally exhibited, or externally apply'd; whether with respect to Meat or Drink, or external Applications, of whatever Kind." And he concludes, that among all the Qualities of Bodies, none are less powerful than Heat and Cold.

What we have said of the Humours separating from each other, has some Analogy with what *Hippocrates* frequently observes with respect to the Humours being put into a Commotion. He sometimes expresses this Commotion by the Word *ἔργον*, which implies an Impetuosity resembling the peculiar Motions of certain Animals, when violently stimulated by Nature to the Propagation of their Kind.

In some other Passages *Hippocrates* seems to ascribe the Origin of Diseases only to the Bile, and the Phlegm: And Disorders are, according to him, produc'd when these two Humours mix themselves with the Blood, when they are faulty either with regard to Quantity or Quality, or happen to be lodg'd in Places where they ought not naturally to be. But as he elsewhere speaks of two Sorts of Bile; these, with the Phlegm, make three Humours; which, when added to the Blood, make four in all.

In other Passages he makes mention of a fifth Humour, which is Water; and of which he affirms the Spleen to be the Source, as the Liver and Brain are of the Blood, the Bile, and the Phlegm. Some Commentators are of Opinion, that this Water is the same thing with Melancholy, and that *Hippocrates* uses them as convertible Terms: However, their Sentiment does not appear to be easily reconcilable with the Idea he form'd of Melancholy, which he consider'd as the Lees of the other Humours, and consequently little analogous to Water. Nor do they give a more satisfactory Account of the thing, who maintain, that there are two Kinds of Melancholy, one of which is that already described, and the other that which ought to be rather call'd black Bile, which is nothing but the yellow Bile supposed to be blacken'd, and render'd excessively hot; for such a Substance has nothing in common with Water. But what seems to support and give Credit to this Sentiment is, that, in the same Passage, this Water is affirm'd to be the most weighty Humour in the human Body. Besides, we may with Reason assert, that this is a different System from that of *Hippocrates*, since the Books *De Morbis*, where this Water is mentioned, were by the Antients ascrib'd to *Polybus*, Son-in-Law to *Hippocrates*.

This Water may also be analogous to what *Hippocrates* elsewhere calls *Ichor*, by which is commonly understood every clear and aqueous Humour in the human Body, whether in a sound or a valetudinary State. But *Hippocrates* seems rather to restrain the Name *Ichor* to the clear and limpid Parts of such Humours as are in a preternatural State, and corrupted; for he gives the Name of *Ichor* to that Species of Sanies which flows from malignant Ulcers, and which is clearer than good Pus ought to be. In some Passages he also makes mention of acrid, bilious, and burning Ichors.

We find, also, another System, with respect to the Causes of Diseases, in that Book intituled *Περὶ πνεύματος*, which, though dignified with the sacred Name of *Hippocrates*, is yet by many thought to be none of his. The Author of this Work sometimes uses the Word *πνεύμα*, and sometimes *πνεύματα*, with this Difference, that one of these Words imports the Air or Wind shut up within the Body, whereas the other is restrain'd to the external Atmosphere, from which he nevertheless pretends that the Air within the Body is supply'd by means of Respiration, and the Air contained in the Aliments deriv'd. From this Book it appears, that he looks upon the Air or Wind to be the true Cause of Health or Sicknes, rather than the Humours, which in this Case he takes to be no more than concurring Causes, inasmuch as the Air mixes with them. But this last Sentiment may be reconciled with that already mentioned, and ascrib'd to *Hippocrates*, with respect to the Effects of the Humours, by saying, that all they are observ'd to do with regard to Health and Diseases, suppose a previous Impulse of the Air, as a kind of *Primum Mobile*; and that for this Reason *Hippocrates* calls it what excites Motion.

According to *Hippocrates*, there are as many external Causes of Health and Sicknes, as there are Objects without the Body capable of acting upon it. Health and Sicknes are likewise influenced by Regimen, and all the several Accidents which occur during the whole Course of a Man's Life. As it is so, we must readily perceive, that Health and Diseases depend in general on the following Causes: The Air, what we eat, what we drink, Sleep and Watching, Exercise and Rest, Retention and Excretion, and, last of all, on the Passions of the Mind. We may also rank among the external Causes of Health and Diseases, the Action of extraneous and foreign Bodies, which are sometimes useful, but may also prove injurious and prejudicial to us. Among this last Class of Causes are Poisons, and venomous Animals.

Hippocrates found a kind of Analogy and Relation between some of the internal and external Causes now mentioned; he compared, for Instance, the four Humours with the four Periods of human Life, the four Seasons of the Year, and with those Climates and Countries which are hot, cold, dry, or moist. He imagined that Infancy or Childhood, the Spring of the Year, and temperate Climates, must necessarily produce Blood, and consequently

consequently such Disorders as arise from too large a Quantity of it, rather than Distempers which depend upon the other Humours. Youth, the Summer, hot and dry Countries, are, according to him, proper for generating Bile, and all the Diseases produc'd by it. Manhood, the Autumn, and Places where the Air is thick and unequal, contribute to the Formation of Melancholy, and the Train of gloomy Disorders arising from it. And, lastly, old Age, Winter, cold and moist Countries, produce Phlegm, and phlegmatic Disorders. He also carefully examin'd what particular Aliments produce Blood, Bile, or any of the rest of the Humours. He considers the Effects of Sleeping and Watching, of Exercise and Rest, and the other external Causes, with respect to the four Humours, and the Advantages reap'd, and the Injuries generally sustain'd, by them.

Among all these Causes of Health and Diseases, the most extensive and general, according to *Hippocrates*, are the Air, and the Aliments, both which he examines with the utmost Accuracy and Attention possible; for he has wrote several Books upon Aliment, and taken particular Pains to distinguish what is good from what is bad, and what is proper from what is improper, according to the several States and Conditions of People. To this he was so much the more oblig'd, because his Method of treating Diseases turn'd almost entirely on the Choice of Aliment, as well with regard to the Quality as the Quantity, and proper Times of using it.

He attributed also a great deal to the Air, and what depends upon it. We have already seen what he thought with regard to the four Seasons, and the Difference of Climates. He also examined the common and extraordinary Winds, the Irregularities of the Seasons, the Rising and Setting of the Stars, the Times influenced by certain Constellations, such as the *Dog-star*, *Arcturus*, and the *Pleiades*. He also consider'd the Solstices and Equinoxes, because he believ'd that all these produc'd great Changes in Diseases; but he does not explain how these Changes are brought about.

From what has been said we may infer, that *Hippocrates* look'd upon a Knowledge of Astronomy, as a necessary Qualification in a Physician; and was convinc'd, that the Stars have some Influence on the human Body. This corresponds to what he elsewhere says of the heavenly Bodies, which he reckons among the Causes of Disorders; and agrees with that celebrated Passage, where he asserts, That our Life, our Health, our Death, and every thing relating to our Being, depend upon things above us. And in all Probability he had something of a like Nature in View, when he speaks of a *θεῖον τι*, or something divine, as the Cause of Diseases. Some of the most ancient Commentators on his Works have imagin'd, that when he spoke in this manner, he alludes to what has been said on this Subject by the Poets, especially by *Homer*, who attributes certain Diseases which afflict Mankind, to the Wrath and Displeasure of the Gods. But *Galen* is not of the same Opinion with these Commentators, and justly observes, "That they who interpret or comment upon an Author, ought not to write every thing which to themselves appears to be true, or what they think the Author ought to have believ'd, but only what is strictly agreeable to his Sentiments, even though it should be false." Now *Galen* maintains, that there is none of the Works of *Hippocrates*, in which the Causes of Diseases are ascrib'd to the Gods. Besides, he proves that *Hippocrates* was not really of this Opinion, first, from his manner of accounting for the Symptoms of a Disease he describes, and calls it by the same Names it usually went under in his own Days. They who were seiz'd with it, were said to be *struck*, probably from a false and groundless Notion of the People, that Patients labouring under it were *struck*, as with a Thunderbolt, by some Divinity: But *Hippocrates* expressly observes, that the Antients did not give this Epithet to those who were seiz'd with this Disorder, for any other Reason, but because after their Deaths their Sides were found livid and bruised, as if they had received Blows. Secondly, he proves his Opinion, from a Book of *Hippocrates*, *De Morbo Sacro*, where that ancient Physician endeavours to root out of the Minds of the Vulgar, the Notion of the Gods being the Authors of Diseases.

But to return to the Meaning of what *Hippocrates* called *divine* in Diseases, the same *Galen* concludes, that this Physician meant no more by it than the Constitution of the Atmosphere: But this does not determine the Question, since such may be the State of the Air, that we may find something extraordinary in it, and consequently something we may call *divine*. This is the real Sentiment of some of the modern Commentators on *Hippocrates*, who imagine, that the *θεῖον τι* of this Author, depended upon certain occult Qualities of the Air, which neither resemble its known and obvious Qualities, nor any other Quality whatever. But this is not the Sense of *Galen* in that Passage, nor of *Hippocrates* himself, who seems to declare against this Opinion, when in his Book *De Morbo Sacro*, or *Epilepsy*, he tells us, that "this Disorder draws its Origin from the same Causes which produce other Diseases; that is, from things subject to Changes, such as the Cold, the Sun, and the Winds, which undergo perpetual Vicissitudes. Now, continues he, though these things are all the Effects of divine Institution and Appointment, yet we have no Reason to look upon this Disease in particular as divine; since all Diseases ought to be at once both human and divine."

It may perhaps be said, that it has been doubted if *Hippocrates* was Author of this Treatise. But if we reflect on the constant Custom of *Hippocrates*, in exactly pointing out the Constitution of the Seasons, in or after which the Diseases he intends to describe have appeared, we shall see, that of whatever Disease he intends to treat, those of the pestilential Kind not excepted, he only makes mention of the common and ordinary Changes of the Air, with respect to Heat or Cold, Dryness or Humidity. He observes, for Instance, that a rainy Spring has been preceded by a wet Winter, or followed by a scorching Summer; that such or such Winds have blow'd, without saying a single Word of any other particular or occult Qualities of the Air, which are supposed to produce extraordinary Diseases.

'Tis true there are some other Passages of his Works said to lay a Foundation for the occult Qualities already mentioned, and which *Galen* himself, as well as the above-named modern Authors, believ'd. First, then, in his Book *De Alimento*, the Words *αἰὶν ἀδναθ*, or *occult Cause*, occur. *Galen* maintains, that when *Hippocrates* speaks of epidemical Diseases, which, he says, proceed from the Air, or what we breathe, being impregnated with unwholesome Exhalations proper to breed Diseases, he insinuates, that these Exhalations do not act by ordinary Qualities, but by some hidden and inexplicable Properties. But I cannot find, that *Hippocrates* has explained himself with regard either to these Exhalations, or the Influence of the Stars, and the particular Manner in which they act upon terrestrial Bodies; though, as we have already observ'd, he takes their real Action upon them for granted. These Exhalations seem to be the same with what in his Book *De Flatibus*, he calls *μιασμάτα*, that in the same Passage wherein *Hippocrates* endeavours to make epidemical Diseases proceed from the Air, he attempts to prove, that they are not produc'd by the Aliments, as other Diseases are. From what has been said

The Humours and the Air being, as we have seen, the Causes of Health and Diseases, the solid or containing Parts, which make the third Species of Substance of which animal Bodies consist, must be the Subjects affected, since they are observ'd to be found or indisposed, according to the good or bad Dispositions produc'd in them by the

the Humours, and the Air, and according to the advantageous or injurious Impressions made on them by external Objects. This Consequence may be drawn from the following, and some other Passages of *Hippocrates*: "When," says he, in his Book *De Natura Hominis*, "any one of the Humours is separated from the rest, it necessarily follows, that the Part whence it came must be disorder'd, and that the Part to which it flows in too large a Quantity, must endure Pain and Torment." In another Passage of the same Book he informs us, that "those Diseases which proceed from the most considerable Parts of the Body, are the most dangerous; for," continues he, "if a Disease must remain in the Part where it began, when a noble Part suffers, the whole Body must be proportionably afflicted."

As for the Differences of Diseases, we find nothing full upon this Subject in *Hippocrates*: However, we may gather from his Works, that the different Causes mentioned, and the different Parts of the Body which are affected, produce so many different Disorders, as he informs us, in that celebrated Passage; in his Book *De Alimento*. "The Differences," says he, "of Diseases depend upon the following things, Aliments, the Air, Heat, the Blood, the Phlegm, the Bile, and all the Humours; as also on the Flesh, the Fat, the Veins, the Arteries, the Nerves, the Muscles, the Membranes, the Bones, the Brain, the Spinal Marrow, the Mouth, the Tongue, the Throat, the Oesophagus, the Stomach, the Intestines, the Diaphragm, the Belly, the Liver, the Spleen, the Kidneys, the Bladder, the Matrix, and the Skin."

Among these Diseases, *Hippocrates* look'd upon some as mortal, and upon others as only dangerous; whilst others were very easily cur'd, according to the Cause which produc'd them, the Part affected, or the Constitution of the Patient.

He also makes another general Difference of Diseases with regard to the Time of their ordinary Duration, when he distinguishes them into acute, or short and violent, and such as are chronical, or of long Duration; and all this with respect to the several Causes already mentioned, since, according to him, acute Disorders are produc'd by the Bile, and the Blood; and that in the Flower of Youth, in the Spring, and in the Summer. Those of a chronical Nature are, on the contrary, produc'd by Phlegm, and black Bile, and that in old Age, and during the Winter. Of the former Class of these Disorders some are more and some less acute: This holds also true of those which are chronical, and of a longer Duration.

Hippocrates also distinguished Diseases with regard to the Places in which they rag'd, either generally, or at particular Seasons. Those which were familiar and common to certain Places, he called endemic; and such as rag'd sometimes in one Place, and sometimes in another, and with which many were equally seiz'd, during a certain Space of Time, he call'd epidemic Disorders, such as the Plague, the most terrible not only of this, but of all other Classes of Diseases. He constituted a third Genus of Diseases opposite to the preceding, and distinguished them by the Name *sporadics*, or dispersed Diseases, including under that Name all the Diseases of different Characters which attack different Persons indifferently at any Season; in a Word, all the common and ordinary Diseases, some of which are of one Kind, and some of another.

He also made a Distinction between those Diseases which are hereditary, and brought into the World with us, and those which are afterwards produc'd by any Accident whatever.

Lastly, he look'd upon some Diseases as of a mild and benign, and others of an obstinate and malignant, Nature. The former Class of these Disorders was easily and most frequently cur'd, but the latter created a great deal of Trouble to the Physician, and often baffled his Skill, and put an End to the Patient's Life, in spite of all his Medicines.

Hippocrates extended his Views still farther, and consider'd the Changes which happen in Diseases with regard to four different Periods, that is, the *arsis* or Beginning, the *crisis* or Augmentation, the *apsis* or Height, and the *chylasis* or Decline of the Disease. But the Word *Decline* is only applicable to such Disorders as terminate happily; for in others Death ensues instead of the Decline. The third Period, or Height of the Disease, is, then, succeeded by the most considerable Change; for it decides with respect to the Life or Death of the Patient. This is generally, or at least more frequently, brought about by a *Crisis*; by which *Hippocrates* meant no more than every sudden Change which happens in a Disease, whether for the better, or the worse; whether the Cure follows immediately, or some time after. This Change is, according to him, produced by Nature herself, who, as it were, sits in Judgment, and either acquits or condemns the Patient, by a favourable or unfavourable Crisis. But that we may the better understand his Meaning, we must advert to the Idea he affixes to the Word *Nature*, which is that of a Principle, which governs and presides in the animal Oeconomy. If then Diseases consist in a Disorder or Perturbation of this Oeconomy, as we may gather from what has been said concerning their Causes, Nature and Diseases must always be mutual Antagonists. But as in the Struggle they have with each other, Nature is, as it were, both Judge and Party, she must frequently have the better; for which Reason the Word *Crisis* is most commonly taken for a favourable Determination of Nature, which puts a happy Period to the Disease.

The Manner in which Nature acts upon this Occasion, in order to destroy her Enemy, is by reducing the Humours, whose Disorder occasions that of the whole Body, to their natural State, with regard to their Quality and Quantity, their Mixture and Motion, the Places they possess, and every other Particular with regard to which they may be faulty. Among the several Means employ'd by Nature for this Purpose, *Hippocrates* laid the greatest Stress upon what he calls *πρῆξις*, or the Concoction of the Humours. This is her first Design; 'tis by this Concoction she renders herself Mistress, and brings things to a favourable Termination. The Humours being reduced to this State, whatever is superfluous or hurtful is spontaneously discharged, or at least may easily be eliminated, by proper Medicines. When what is superfluous is evacuated, which happens either by a Discharge of Blood, a Flux of the Belly, Vomit, Sweat, a Discharge of Urine, Tumors, Abscesses, the Itch, Eruptions, Pustules, or Spots in the Skin, Nature easily reduces other things to the same State and Condition in which she found them before the Attack of the Disorder.

But it must be observed, that these Evacuations are not, by *Hippocrates*, look'd upon as the Effects of a true and genuine Crisis, except when they are made in a considerable Quantity, small and scanty Evacuations being, according to him, insufficient to produce a happy Crisis; on the contrary they intimate, that Nature is burdened with a Load of Humours, which she suffers to come away for want of Power to retain them, because they prove a continual Stimulus to her. In this Case what is discharg'd is crude, because the Disorder is as yet at its Height; and so long as Matters remain in this Situation, we can only hope for a bad or imperfect Crisis, which either denotes the Triumph of the Disease, or that its Strength is equal to that of Nature. The Result of this is either Death, or a Protraction of the Disease. In this last Case Nature has often time to attempt a new Crisis, more favourable than the former, after having made more fresh and vigorous Efforts to promote the Concoction of the Humours.

'Tis of Importance to observe, that, according to *Hippocrates*, this Concoction of Humours cannot be perfected, but in a certain time, just as Fruit, which requires a certain time to bring it to Maturity; for he compares the Humours concocted by Nature, to Fruit that is perfectly ripe. The Time requisite for this Concoction is regulated by the Differences of Diseases. In such Disorders as *Hippocrates* calls very acute, the Concoction is perfect, and the Crisis made on the fourth Day. In those which are only acute, these favourable Circumstances do not happen till the seventh, sometimes the eleventh, and sometimes the fourteenth Day, which is properly the longest Time assign'd by *Hippocrates* to Disorders of the truly acute Kind; though in some Passages he seems to extend the Time to the twentieth and twenty-first, and sometimes to the fortieth and sixtieth Day.

All Disorders which exceed this last Number of Days, are class'd among those of the chronic Kind. And whereas in those which do not exceed the fourteenth, or at most the twentieth Day, every fourth Day either produces a Crisis, or is at least a remarkable Day, by which we can determine whether there will be a Crisis on the fourth Day following, and whether it will be favourable or not; so in those Distempers which are protracted from the twentieth to the fortieth Day, *Hippocrates* reckons no longer but by every seventh Day; and in those which pass the fortieth Day, he begins to reckon upon each twentieth Day, as appears from the following Progression, which contains the Days expressly mark'd by *Hippocrates*, the first of which is the fourth; from which he passes to the seventh; then to the eleventh, the fourteenth, the seventeenth, and the twentieth; from which he passes to the twenty-seventh, and the thirty-fourth; and from this last to the sixtieth, the hundredth, and the hundred and twentieth. After this last Term, the critical Days are no longer reckon'd; and as those Diseases which are protracted to the hundred and twentieth Day have their Crisis regulated by the Number of Days, so those which exceed that Term, are only consider'd with respect to the general Changes of the Seasons; so that some terminate about the Equinoxes and Solstices, and others at the Rising or Setting of the Stars and Constellations already mentioned: Or if Numbers are still to come into the Account, the Reckoning is made by Months, and even by whole Years. On the same Principles *Hippocrates* supposes, that some Diseases of Children come to a Crisis in the seventh Month from their Nativity; and others only in their seventh, or perhaps their fourteenth Year.

We have one Remark more to make concerning the twentieth and twenty-first Days, which is, that both are equally distinguish'd as critical Days in different Places of our Author's Works. The Reason he gives in one of those Places why he prefers the first of those Days to the other, which makes up three complete Septenaries, "is, because the Duration of a Distemper is not to be reckon'd by complete Days, since neither the Years nor the Months consist of such." But this Reason does not hinder him from marking, in other Places, the one-and-twentieth for a true critical Day, as indeed he does almost all odd Days, which appear to him so well disposed for a Crisis, that he says, in one of his Aphorisms, "Sweats which begin on the third, fifth, ninth, eleventh, fourteenth, seventeenth, twenty-first, twenty-seventh, thirty-first, and thirty-fourth Day of a Fever; are good; and that those which happen on other Days prognosticate great Trouble and Danger to the Patient; and that the Disease will be long, and subject to Relapses." And in another Aphorism he says, in express Words, "That a Fever which leaves the Patient on any but an odd Day, is commonly subject to a Return." *Galen*, in explaining this Passage, pretends, that instead of odd Day, we should read critical Day; but he might have spar'd his Criticism, for the same thing is found in some other Places, as in the second of the Epidemics, where there is a Passage parallel to that just quoted; and another which says, "That they who die of a Disease, necessarily die in one of the odd Days; and if the Disease be long, in a Month or Year that falls out of an odd Number." We have more on the same Subject in the fourth Book of Diseases, where what has been just now said of odd Days is looked upon as a generally receiv'd Notion; and therefore if any one should object, that this Book was not written by *Hippocrates*, but by *Polybus* his Son-in-Law, the Proof would lose nothing of its Force; for the Author does not deliver it as his private Sentiment, but the general Opinion of Mankind.

Galen was obliged to declare against odd Days, for the same Reason that he rejects every thing which concerns the Dignity of the Number Seven, and other Numbers, which were look'd upon by the *Pythagoreans* to have some sort of Virtue in them, and to be more perfect one than another, after the manner before spoken of. And though he agrees that Crises happen in Septenaries, it is not by virtue of the Number Seven, but by the Influence of the Moon, which governs the Weeks that are composed of seven Days. I know not whether *Hippocrates* thought upon the Influence of the Moon upon this Occasion; but what he says in one of his Books before cited, "of an Harmony which results from the Conjunction of certain Numbers more perfect and entire than others," plainly shews, that he had espoused the Opinion of *Pythagoras*; and of this *Celsus* was very sensible, when he says, that "the Numbers of the *Pythagoreans* were formerly much celebrated; and were the Cause that the antient Physicians fell into Errors." Here it is plain that he had an Eye to *Hippocrates*.

But whatever Opinion *Hippocrates* might entertain concerning the Power of odd Days, and other critical Days, before indicated, he does not scruple to acknowledge that the thing sometimes varies. This appears by an Example brought by himself, of a salutary Crisis, which happen'd on the sixth Day of a Disease; and of another of the same Nature, which fell out on the fifteenth; but these are rare Cases, and are no Hindrance to the Establishment of his general Rule.

We must not, on this Occasion, forget to observe, first, that *Hippocrates* did not pretend that all Diseases terminated universally in Crises; but he was nevertheless of Opinion, that they could not without these terminate securely; and that when a Cure was perform'd without a Crisis, the Patient was subject to Relapses. Secondly, we must observe, that besides these Changes in Diseases, in Consequence of which the Patient either dies, or is cur'd, *Hippocrates* often speaks of another Change, which is, when the Disease, instead of terminating, only changes its Species; as when a Pleurisy becomes an Inflammation of the Lungs, or an Ophthalmy a Phthisis, or when a Cancer of the Breast becomes one of the Uterus. Changes of this Kind are produced when the material Cause of the Disease is removed from one Part to another.

Whatever Opinion we may entertain of the general Philosophy and Physiology of *Hippocrates*, in which, by the way, we find nothing so extravagant and trifling as in many modern Theories, founded, as is boasted, on anatomical Discoveries, and mechanic Principles, a Physician must have practised his Profession with very little Improvement to himself, and Advantage to his Patients, if he has not, in almost every Case he has attended, observed the extensive Usefulness of the Doctrine relating to the Concoction of the Humours, and Termination of Diseases. But the Reputation *Hippocrates* gained was principally owing to his exact Observation of the most minute Circumstances of Diseases, and the Care he took to give us a Detail of what preceded them, the Symptoms with which they were attended, what afforded Relief, and what exasperated the Disorder. This is, properly speaking, to give the History of a Disease; and by following this Method, *Hippocrates* not only learned to distinguish one Disease from another, by the Symptoms peculiar to each Species of Disorder, but he

also acquired a surprising Dexterity at predicting Diseases before they happen'd, and determining their Events when they really seized the Patient, by comparing the Diseases which attack'd different Persons, and the Symptoms which generally preceded or followed them. He seems, in some Passages, to insinuate, that he himself was the first who proceeded upon these Principles, and taught the Manner of foretelling the Event of a Disease, or making what we commonly call the Prognostic. On this Account all Antiquity ador'd him, and was persuaded, that the Physician who from certain Symptoms of a Disease could tell the Patient every thing that happened, and who could even recount the Circumstances the Patient had omitted, and foretel how a Disease would terminate, was a real Judge of the State of the Patient, and deserv'd to have a great deal of Confidence reposed in him. And as it is not always in the Power of a Physician to save his Patients, he may, at least, save his own Character, by making a just Prognostic. *Hippocrates* was so well acquainted with Symptoms, that this Branch of Physic might be said to be his Master-piece: And *Celsus* justly observes, that whatever Improvements later Physicians may have made, yet they were still obliged to adhere to *Hippocrates*, in what he deliver'd with regard to Symptoms. All his Works are full of Observations relating to the Symptoms of Diseases; but they are in a particular manner collected and reduced into a Body in his Aphorisms, his Prognostics, his Predictions, and *Coaca Prænotiones*. *Galen* is not of Opinion, that the two last of these Works belong to *Hippocrates*; because they are full of Blunders and Imperfections: He also adds, that whatever is good and valuable in them, has been taken from the two first, and from his Epidemics. But this Circumstance has not hindered Numbers of learned Men from commenting upon them, and holding them in the highest Esteem. Before a Prognostic can be depended upon, one must have observ'd it to hold universally, or at least for the most part; for one or two Observations are of no considerable Moment. This cannot be said of all the Prognostics of *Hippocrates*, since some of them seem to be no more than Observations made by certain Persons, who observed what happened from the Beginning to the End of a Disease; and comparing what Symptoms occur'd in the first Stage, with what appear'd about the Termination, drew Prognostics accordingly. This *Galen* seems to insinuate, when he affirms, that some of his Prognostics have been taken from his Epidemics. 'Tis possible *Hippocrates* might have thought, that the best Method of succeeding in this Particular, was to examine the Histories of Diseases related by the best Masters, and to draw such Consequences from them, as made most for his Purpose. This, to be sure, was a very proper and rational Method of going to work; but to prevent the Danger he was in of falling into Mistakes, he must have collected an infinite Number of Observations upon each Disorder, with a View to find parallel Cases in every Species of Disease; so that we might with Justice affirm, that when such a Set of Symptoms appear, the Patient must die; and that when others appear, he recovers. If, for Instance, among twenty Patients labouring under continued Fevers, fifteen or eighteen who have discharg'd a few Drops of Blood at the Nose, and had a little Sweat only on their Heads and Breasts, have died; and if among twenty who have had a plentiful Discharge of Blood, and a large and universal Diaphoresis, fifteen or eighteen have recover'd, we may from these Circumstances conclude, that the former Symptoms are fatal, and the latter salutary. But 'tis not probable, that they who have collected these Prognostics, and especially the *Prænotiones Coacæ*, have always taken care to have a sufficient Number of Examples of the Cases they propose. The Life of one Man is not sufficiently long for this Purpose, as *Hippocrates* himself acknowledges. The Advantages this Physician enjoy'd in this Particular were very singular; for he supply'd the Defects of his own Experience by that of the *Asclepiadae*, his Predecessors, who were, in all Probability, capable of making Observations justly, the Difficulty of which *Hippocrates* confesses to be so great, that he affirms we may very readily be deceiv'd, especially with respect to Prognostics. The Predictions, says he, with regard to acute Distempers, are uncertain; and we cannot precisely determine whether the Patient shall die or live. He not only draws his Indications from the component Principles of the human Body, in order to predict Diseases, and their Events, but he considers the natural Functions, the Actions, the Habitudes, and Customs, of each Patient. He also takes a View of what happens before the Disease, and during the Time it rages; of what is produc'd by our own Negligence, or that of others; by the interior Disposition of our Bodies, or by the external Objects which surround us. All these Circumstances furnish'd *Hippocrates* with Symptoms, by which he was enabled to judge of People's State and Condition, with respect not only to present, but also future Disorders.

The first thing *Hippocrates* consider'd, especially in acute Diseases, was the Visage of the Patient. It was, according to him, a good Sign, when the Patient had the Countenance of a healthy Person; and accordingly as it receded from this State, there was a proportionable Danger. He gives us the following Description of the Visage of a dying Person. "When," says he, "the Patient has a sharp Nose, sunk Eyes, hollow Temples, cold and retracted Ears, the Skin of the Forehead hard; tense, and dry, and a livid or leaden Colour, we may be sure Death is not at a great Distance, unless the Patient has been exhausted by long Watching, by a Flux, or long Fasting." This by Physicians is call'd the *Facies Hippocratica*, in order to denote, that the Observation was made by him. Fallen, relaxed, and cold Lips, are elsewhere look'd upon, by the same Author, as a Symptom which predicts the same Event. This Physician drew his Indications also from the Eyes in particular. When a Patient cannot support the Light, sheds Tears involuntarily, and in his Sleep discovers a Part of the White of his Eyes, these are unfavourable Symptoms, especially the latter, except when the Patient has a Habit of doing so, or labours under a Flux. Dull Eyes are also a Prefage of Death, or of a great Loss of Strength. Sparkling, fix'd, and ghastly Eyes, denote either a present, or an approaching Delirium and Phrensy. When the Patient sees something red like Sparkles, or like Lightning, passing before his Eyes, it is a Sign of a subsequent Hæmorrhage, or Loss of Blood, which often happens before the Crisis, which ought to be made in this Way.

The Patient's manner of lying also indicates his State and Condition. If he lies on one Side, with his Neck, his Arms, and Limbs; a little retracted, this is a good Sign, because 'tis the Posture of a Person in Health. On the contrary, if the Patient lies on his Back, with his Arms stretched out, and his Limbs extended, and especially when he slides or slips towards the Feet of the Bed, this is a Sign of Decay of Strength, and of approaching Death. When a Patient lies upon his Belly, this, unless he is accustomed to do so when well, indicates a Delirium, or a Pain of the Belly. When Persons labouring under burning Fevers are always feeling for something with their Hands, and putting them to their Eyes, as it were to take away something that passes before them: When they move their Hands over the Bed and Cloaths, as it were to seek for something, or to pick the Flocks of Wool out of them, all these are Signs of a Delirium, and of Death. When a Patient naturally silent begins to speak more than he usually did, or when a great Talker becomes silent, this Change is itself a kind of Delirium, or at least denotes the sudden Approach of one, and is accordingly by *Hippocrates* mentioned as a Sign thereof. The Subfultus, or convulsive Motions of the Tendons at the Wrists, also preface a Delirium. As for the different Sorts of Deliriums, *Hippocrates* dreaded the Consequences of those most which turn'd upon Subjects of a gloomy and terrible Nature; but thought those less dangerous, which were accompany'd with Gaiety and Pleasantry.

lantry. A frequent and uneasy Respiration imports either the Pain the Patient suffers, or an Inflammation of the Parts above the Diaphragm. A long Respiration, or such as requires a great deal of Time, is a Sign of a Delirium; but an easy and natural Respiration is always a happy Symptom in acute Disorders. 'Tis obvious *Hippocrates* depended very much upon the Signs drawn from Respiration; since, in several Passages, he is at singular Pains to describe the different Manners in which the Patients respire. Thus he mentions an uneasy, a slow, a great, and a small Respiration; a Respiration which is great or long *outwardly*, that is, in the Time of Expiration; a Respiration which is small and short *inwardly*, that is, when the Breath is drawn in; a Respiration which is, as it were, doubled, and some other Kinds. Continual Watchings in acute Disorders denote either present Pain, or an approaching Delirium. All the Excrements of the human Body also supply'd *Hippocrates* with Signs, upon which he very much depended. He was very careful in examining the Urine, the Fœces, the Wind discharg'd, the Sweat, the Spit, the Saliva, Excrements of the Nose, the Tears, the Wax of the Ears, and the Pus of Ulcers; and all these he look'd upon as things from which he might draw the most certain Signs with regard to the State and Disposition of the Humours. But these Circumstances lay us under no Obligation to believe *Cælius Rhodiginus*, when he tells us, that *Hippocrates* was so fond of improving in his Profession, that he was not ashamed to taste the Excrements themselves. If any one before this Author has asserted this Circumstance concerning *Hippocrates*, it has undoubtedly been with a View to turn this great Physician into Ridicule.

Hippocrates, indeed, examined all these Substances with regard to their Qualities, that is, their Colour, Smell, and Consistence, the extraneous or extraordinary Matter they contained, their Heat, their Coldness, and their sharp and acrid Quality. He also examined them with respect to their Quantity, the Places whence they were discharged, the Time they had been retained, the Manner, and other Circumstances, with which they were evacuated. 'Tis not to be denied, but he judg'd of some of these Substances by the Taste, but then he depended upon the Patient's, and not upon his own Taste. He drew, for Instance, certain Indications from saltish or sweet Spit; from the Sweat, the Tears, or Excrements of the Nose which were either saltish or sour. The Wax of the Ears is, indeed, according to him, sweet in such as are a dying, or will not recover from their Disorder; but bitter in those who will escape. Except this, there is not a single Case in which the Patient may not be made to judge of the thing himself. But nothing hinders the Physician who looks upon this as a material Circumstance, from making those who are nearly interested in the Patient, or such as are employed in the lowest Services of Life, to try the Experiment. In another Passage, *Hippocrates*, speaking of the Excrements of the Belly, says, that in certain Cases they are, as it were, saltish. In another Passage he makes mention of a Fever, which he calls *Salt*. But, with respect to this, *Galen* observes, that tho' Salt is generally discovered by the Taste, and not by the Touch; yet the Physician, in feeling the Pulse of such a Patient, finds something rough and stimulating, as if he applied his Hand to Flesh that had been salted, or soaked in Brine. I am really of Opinion, that certain Species of Salts may be discovered by the Touch, and that the Salt of the Excrements mentioned in the first Passage may be known by the Manner in which the Anus is stimulated when the Fœces are discharg'd. But in this Case the Patient is Judge, and not the Physician.

Among all the Excrements, the Urine and the Fœces supplied *Hippocrates* with the largest Number of Prognostics, with regard almost to all Diseases. The best Urine, according to him, is that whose Sediment is white, soft, and smooth. When the Urine continues thus thro' the whole Disease till the Crisis happens, the Patient runs no Risque, and is soon cured. This *Hippocrates* called a concocted Urine, or such as imported the Concoction of the Humours. He observed, that this Concoction did not often appear to be full and complete, except on the critical Days, which give a lucky Termination to the Disease. There is a Necessity, said he, for comparing Urine with the Pus which flows from Ulcers. As the Pus, which is white, and possessed of the Qualities of such Urine as we have mentioned, is a Sign that the Ulcer is nearly cured; so the Pus, which is of a different Colour from white, and of a bad Smell, is a Sign, that the Ulcer is malignant, and consequently to be cured with Difficulty. Just so all the Urines which are like those we have already described, are good, whilst all others are bad, and only differ from each other in Degrees. The first Species never appears till Nature has got the better of the Disorder, and is an Indication, that the Humours are concocted, without which a Cure cannot reasonably be expected. But Urine of the latter Species is discharged, so long as the Crudities subsist, or so long as the Humours are not concocted. Among Urines of this last Species, the best are such as have a reddish Colour, with a soft and smooth Sediment. These denote that the Disease will be somewhat long, but not dangerous. The worst Species of Urines are such as have a high-red Colour, and are at the same time clear, and without Sediment; and such as, when just discharg'd, appear confused and turbid. Urines have also sometimes a certain Cloud suspended in them. In proportion as this Cloud is at a greater or smaller Distance from the Bottom of the Vessel, or differs from the Colour of which the Sediment should be, the larger or smaller Quantity of Crudities is contained in the Body. Urines which are white and clear like Water, also denote great Crudities, and sometimes a Translation of the Bile to the Brain. Those Urines which are yellow, or reddish, denote too large a Quantity of Bile. Urines which are black, are worst of all, especially if they have a disagreeable Smell, or are either entirely thick, or entirely limpid. Urines whose Sediment resembles coarse Meal, Bran, small Laminæ or Scales, are bad Prefages, but especially the last, since by this means we may be assured of the bad Disposition of the Bladder and Kidneys. The Fat which sometimes swims at the Top of Urine in form of a Spider's-web, denotes a Consumption of the Flesh and Solids. A Discharge of a large Quantity of Urine is a Sign of a Crisis.

We must not forget to observe, that *Hippocrates* compared the State and Disposition of the Tongue with that of the Urine; that is, if the Tongue was yellow, and coloured with Bile, the Urine must be of the same Colour; and on the contrary, when the Tongue is red and moist, the Urine is of a natural Colour. The Fœces which are soft, of a reddish Colour, and a due Consistence, which are not extraordinarily fetid, and which correspond to the Quantity of Aliment taken, are best of all. They ought also to become somewhat thicker when a Crisis draws near. It is also a good Omen, when round long Worms are discharged at the same time. But if the Matter of the Fœces is liquid, it may afford the Patient Relief, provided it is discharg'd without much Noise, and not too frequently in small Quantities, nor in such large Quantities, or so often, as to bring on Faintings. Fœces which are aqueous, white, or of a greenish pale Colour, red, frothy, or glutinous, are bad. That Excrement which is black, that which resembles Fat, that which is livid, or like Verde-black Bile, is universally a bad Omen; since this Humour, from whatever Quarter it comes, denotes the bad State of the Viscera. Excrements of various Colours denote the Length of the Disease, and shew that it is not altogether free from Danger. *Hippocrates* ranks among the same Class Excrements which are bilious or yellow, or mixed with Blood, those that are green and black, and those which resemble Scrapings of the Bowels.

Bowels. He also esteemed those Stools bad which contained only pure Bile, or Phlegm alone. The Substance discharged by Vomit ought to be mixed with Bile and Phlegm; and that in which one of these is only found is bad. When this Matter is black, livid, green, or of a porraceous Colour, 'tis a fatal Symptom. The Matter which is very fetid is so likewise; but when it is fetid and livid at the same time, Death will soon be the Fate of the Patient. A Vomiting of Blood very often proves mortal.

The various Kinds of Spit, which in Disorders of the Lungs and Pleurifies afford the most Relief, are such as are expectorated most speedily and easily. It is also a good Sign, if they are at first mixed with a great deal of yellow Matter; but if they appear all of the same Colour, or are red, long after the Beginning of the Disorder, or if they are saltish, acrid, or occasion a violent Cough, they are bad. Spits purely yellow are also bad, and such as are white, glutinous, and frothy, afford no Relief. Whiteness of the Spit is also a Mark of Concoction; but it must not be viscid, too thick, or too clear. The same Judgment may be formed of the Excrements of the Nose, with regard to Concoction or Crudities. Black, green, or red Spit, is of bad Presage. In Inflammations of the Lungs, Spit mixed with Bile and Blood is a good Omen, if it appears at the Beginning; but bad, if it only appears about the seventh Day. But in these Disorders, the worst of all Signs is when the Spit is retained, and when the too great Quantity of Matter, which presents itself for Expectoration, produces a Stertor, or Rattling in the Throat and Breast. Spitting of Blood is followed by a Spitting of Pus, then by a Phthisis, and last of all by Death.

Good Sweats are those which happen on a critical Day, which are plentiful, universal, and remove the Fever. Cold Sweats are bad, especially in acute Fevers; for in others they only denote the Length of the Disorder. When a Diaphoresis only appears on the Head and Neck, 'tis a Sign that the Disorder will be long and dangerous. A gentle Sweat or Moisture appearing on any Part, such as the Head or Breast, does not afford Relief, but denotes the Seat of the Distemper, and the Weakness of the Part on which it appears. This sort of Sweat *Hippocrates* calls *Ephidrosis*.

During the Time that Pus is forming in any Part, Pain is felt, and the Fever continues; but, as soon as the Pus is form'd, or prepar'd, the Pain and Fever cease. The Hypochondria and Belly ought always to be soft and equal, both on the Right and Left Side, and every-where else. When these Parts are hard, unequal, hot, elevated, or when the Patient cannot suffer them to be handled; it is a Sign of the bad State and Disposition of the Viscera, except in Cases where there are external Inflammations.

Hippocrates also examin'd the State of the Pulse, or the Beating of the Arteries; and, according to the Observation of *Galen*, he was the first Physician who was known to use *Σφυγμῶν* (the Pulse) in the Sense in which it is commonly taken, that is, a Beating of the Arteries. For we must observe, that the antient Physicians, and even *Hippocrates* himself, for the most part, meant by this Word the extraordinary Pulsation, or violent Beating, which is felt in any Part that is inflam'd, without applying the Fingers to it. But *Galen*, who gives us this Account of *Hippocrates*, in another Passage informs us, that the Pulse is the only Part of Medicine upon which this antient Physician has not touch'd. Some Greek Authors, of a later Date than *Galen*, have also made the same Observation. We may, however, collect several Observations, with respect to this Particular, from the Writings of *Hippocrates*: When, for Instance, in the fourth Book of his Epidemics he informs us, that, in very acute Fevers, the Pulse is very frequent, and very great; when, in the same Passage, he makes mention of tremulous and slow Pulses; and when he observes, in speaking of the *Fluxus Albus*, that, when the Pulse beats in a gentle and languid Manner, it is a Sign of approaching Death. In like manner he observes, in his *Coacæ Prænotiones*, that lethargic Patients have a slow and languid Pulse. He also informs us, in the second Book of his Epidemics, that, when the cubital Vein (that is, Artery) beats, the Patient is in danger of becoming furious, or is a Person naturally prone to Anger. These Quotations shew us, that *Hippocrates* was not entirely ignorant of the Signs drawn from the Pulse; but it must be own'd, his Precepts, with respect to this Particular, are very few, in comparison to what has been deliver'd with so much Exactness, and frequently more than once, concerning all the other Signs. Neither does it appear, that he himself, in Practice, made any Use of the Rules he has laid down with respect to the Pulse; at least, in his Epidemics, which are a sort of Journal of a great Number of Cases he had treated; we find nothing relating to this Subject, except the two Passages already quoted. And it is surprising, that, considering his Exactness in every other respect, and his Care to observe the most minute Circumstances, he should forget to make the least Mention of the State of his Patients Pulses. In all Probability he did not judge whether his Patients were feverish or not, or of the Degrees of their Fever, if they were really so, by the Pulse. Perhaps the different Degrees of Heat and Cold the Patients felt, their greater or less Inquietudes, and particularly their Manner of Respiration, which he generally observ'd with the utmost Care, were by him thought Points of the greatest Importance, and the Marks by which he discover'd whether his Patients labour'd under a Fever or not, and whether that Fever was considerable or not. These Observations of *Hippocrates* relate principally to the Prognostics of Diseases; and if, in this Particular, he was in the right, it was the Effect of his Judgment, his Exactness, and his particular Attention to the Nature of every Disorder that occur'd: this made *Galen* very justly affirm, that *Hippocrates* was the most careful, and the most exact, of all Physicians. Care in observing every thing that happen'd to the Patient, was so material and constituent a Part of his Character, that, notwithstanding his philosophical Turn, he was not by far so much attach'd to reasoning upon the Symptoms of Diseases, as careful in relating them with Candor and Honesty. He was principally taken up in observing the Symptoms of Diseases, in order to distinguish them, and judge of the Events of those which he had actually under his Management; by comparing them with similar Cases he had formerly treated; and he was seldom at any great Pains to assign a Reason, why, when such a Symptom appeared, it was generally follow'd by such another. The Empirics, a Sect of Physicians, who arose after him, for this Reason disputed, with the Dogmatic or Reasoning Sect, the Honour of having this Father of Physicians on their Side; for the former maintained, that the Method of *Hippocrates* was not different from their own, and look'd upon him as an Author of their own Sect. *Galen* had some Reason to blame them in this Particular; for 'tis not to be doubted but *Hippocrates* reason'd, and even sometimes philosophiz'd, in the Course of his Profession. The Empirics, indeed, had been in the right, if they had only asserted, that the Philosophy of *Hippocrates* was none of the best; and said, that they prefer'd the bare Descriptions he had given of Diseases, and their Symptoms, and his Directions and Observations with regard to the Method of treating them, before all his Reasonings on the Causes of these Disorders. 'Tis, however, certain, that *Hippocrates* has recommended his Medicine to Posterity by those very things for which the Empirics admire him; and 'tis by these means he has made himself esteemed even by those who were no Favourers of his Theory. We may add, that the Books of *Hippocrates*, which contain the most Reasoning and Philosophy, are ascribed to other Authors; such as his Book *de Natura Hominis*, that *de Natura Pueri*, that *de Ventis*, the first of those *de Dieta*, and some others. The Author of the Book *de Subfiguratione Empirica*, which is among the Works of

Galen,

Galen, is of the same Opinion, when he says, "That if *Hippocrates* has in the Eyes of Posterity acquired a Character equal to that of *Æsculapius*; it was because he cured Luxations, Fractures, and Ulcers, which others " could not cure ; " and because he told beforehand what was to happen, and what had happened to Patients without any Information ; and not because he wrote large Volumes, or advanc'd curious and fine-spun Speculations.

Besides, it ought to be observed, that the Skill of *Hippocrates*, and the Physicians who came after him, and imitated him with respect to the Prognostics of Diseases, made the People, who did not know how far their Knowledge extended, look upon them as Persons of a divine Character, and exact things of them which were far beyond their Skill. Some of these Physicians have been very fond of keeping up this Opinion amongst the Vulgar, with a View to the Profit they expected to reap from it; since, said they, if the People will be deceived, let them be so.

What obliges some Physicians, in our Days, to go upon this dishonest and unworthy Maxim, is their really observing, that the People will be deceived; and that those Physicians, who, believing themselves capable of satisfying reasonable Patients, scorn to turn Quacks and Mountebanks, have very little Practice, and are abandon'd in favour of a Set of miserable Blunderers, who can neither read, nor write, but who are sought after eagerly, in order, from a Glass of Urine, to give an Account of a Disorder, which, perhaps, they could not discover, tho' they saw the Patient himself. When we speak of the People, we do not mean the Dregs of Mankind; for People of this Character are equally spread thro' all Conditions of Life, and are, generally, the most numerous in every Community. It often happens, I know not for what Reason, that People, otherwise valuable for Penetration and good Sense, are as much misled in this Particular, as the meanest of the Vulgar.

But, to return to *Hippocrates*, 'tis a Circumstance which does not a little contribute to raise his Merit, that, notwithstanding he lived at a Time when Medicine was involved in Superstition, yet he never suffered himself to be drawn away by the prevailing Folly. Neither his Reasonings, his Observations, nor his Remedies, have the least Tincture of this Weakness, which was so general in his Days, and is still so prevalent among some Physicians. The Prognostics also of *Hippocrates* have no other Foundation than purely natural Things. 'Tis true, in his Book *de Insomniis*, he speaks of some Ceremonies or Sacrifices to be performed to certain Divinities, according to the Nature of the Dreams; but these Fooleries were no more in him than the Duties enjoined by his Religion. His good Sense in other Parts of that Work appears by his accounting for Dreams from what People have done or said; he also draws Consequences from them with respect to the State of the Body, accordingly as it is loaded with Bile, Phlegm, or Blood. This he infers from the Subjects of different Dreams, and the various Circumstances with which they are accompanied.

Thus we see, that almost whatever we know with respect to the Signs and Symptoms of Diseases, has been learned from *Hippocrates*; and we are not less obliged to him for several important Maxims relative to the Preservation of Health, and the Cure of Diseases, which the modern Physician must never lose Sight of, if he intends to be successful in his Practice. Thus he informs us, that the Preservation of Health principally depends upon eating without Satiety, and using suitable Exercise; for, says he, it is impossible for a Person to continue in Health, if he eats, without Labour; because Eating and Exercise mutually assist each other. Exercise consumes the Superfluities of the Aliment received into the Body; and Aliment again replenishes the Body, and supplies the Deficiencies of what is worn away and consum'd by Exercise. But he strongly recommends Temperance, or Moderation, with respect to Meat, Drink, Sleep, Exercise, and Venereal Enjoyments.

What the Moderns have said, in a thousand Volumes, may be reduc'd to these short Rules, which are so excellent, that if they were universally put in Practice, however beneficial they would be to Mankind in general, they would ruin the Physicians, by rendering their Art in a great measure useless; for very few Diseases would occur, except such as are Endemial, Epidemical, or produc'd by Accident; and even these would generally be so mild, as to admit easily of a Cure.

Hippocrates has, farther, been very express in his Observations concerning Air, Water, particular Situations, and Climates. His indefatigable Industry, also, furnish'd him with a great Number of important Remarks, relative to particular Sorts of Aliments, and Exercises, consider'd both as a Preservative from, and curative of, Diseases; nor has he omitted taking Notice, that Baths, Clysters, Frictions, and gentle Vomits, may be advantageously employ'd as Aids or Succedanea to Exercise, for the Preservation of Health. On this Occasion I cannot omit remarking, that Dr. *Cheyne* lays great Stress, in many Parts of his Works, upon frequent gentle Vomits, with the same View, in valetudinary Constitutions.

With respect to chronical Distempers, the Method of Cure, practis'd by *Hippocrates*, consisted principally in regulating the Diet, directing proper Exercises, and prescribing Baths, Unctions, Frictions, and a very few Medicines; and it does not clearly appear, that, at this Day, notwithstanding all our boasted Improvements, we can treat chronic Cases in a manner more rational, or more frequently attended with Success. I know there are other, but perhaps less successful, Methods of treating these Cases, by the frequent Exhibition of Remedies, some of which operate with considerable Violence; but it has been disputed, perhaps not without Reason, whether these Medicines, by their Operation, tho' they may remove the present Complaint, may not injure the Constitution so far, as to lay a Foundation for other Diseases, or to shorten Life. This *Quarles* alludes to, when he represents a Physician perpetually snuffing a Candle, insinuating, that it burns the clearer for his Assistance, but wastes, at the same time, the faster. I would not be understood to mean, that such Medicines are never to be used; for there are *Herculean* Diseases, which require adequate Remedies; and of this *Hippocrates* was abundantly sensible, and accordingly apply'd them, when more gentle Treatment fail'd of Success.

The extraordinary Sagacity, however, of *Hippocrates*, made him discover, that Exercises of all Sorts were prejudicial in acute Diseases; accordingly he never directed them in these Cases; and in the sixth Book of his Epidemics, he shews the Absurdity of *Herodicus* in conducting in a different Manner.

In Diseases of the acute Kind, *Hippocrates* was convinc'd by Experience, that Nature alone bore a great Share, and was very powerful in conducting the Disease through all its Stages, preparing or concocting the morbid Matter for Expulsion, and bringing it to a Crisis. In pursuance of this Opinion, instead of disturbing Nature in her salutary Operations, by administering a Multitude of Remedies, he industriously waited on her, though not as an idle Spectator; for he endeavour'd to promote the Concoction and Preparation of the Humours, and to moderate the Symptoms, when excessive, by a just Regimen; and a few Remedies; and when evident Signs of Concoction appear'd, and not before, he assist'd Nature, when deficient, in the Expulsion of the morbid Matter, by those Evacuations to which he observ'd a spontaneous Tendency.

The principal Rules by which he regulated his Practice, are the following.

First, that Contraries or Opposites were the Remedies of their Opposites; that is, if we suppose certain things opposite to each other, we must employ them against each other. He explains this Maxim in that Aphorism where he says, that Evacuation cures the Diseases which proceed from Repletion, and Repletion those which proceed from Evacuation. Thus Heat destroys Cold, and Cold Heat.

In the second Place he asserted, that Medicine was no more than an Addition of what was wanting, and a Subtraction or Retrenchment of what was superfluous. This Axiom is explained by what *Hippocrates* says, when he informs us, that there are certain Juices or Humours, which, on certain Occasions, must be evacuated, dislodg'd, or dry'd up; and others which must be recruited, and produc'd afresh in the Body.

As for the Manner of doing this, he cautions us in general, to beware of evacuating, or filling too suddenly, or too plentifully; and informs us, that it is dangerous to become suddenly hot, or suddenly cold; since all Excesses are prejudicial to Nature.

In the fourth Place *Hippocrates* asserted; that it was sometimes necessary to dilate, and sometimes to contract: To dilate and open the Passages by which the Humours are naturally evacuated, when they are either not sufficiently open, or entirely obstructed; and, on the contrary, to brace up the relaxed Passages, when the Juices which pass through them ought either not to be evacuated at all, or are actually discharging in too large a Quantity. He adds, that there are certain Occasions; on which the Physician ought to mitigate; others, on which he ought to indurate; others, on which he ought to soften; sometimes he must attenuate, and sometimes inspissate; sometimes he must rouse, and give a Stimulus; and sometimes stupefy, and render void of Sensation; and all this with regard to the Humours, and the solid Parts of the Body.

In the fifth Place he advises us, to have a particular Regard to the Course of the Humours, and diligently to observe whence they come, and whither they tend; and in Consequence of this he advises, that when they tend where they should not go, we should derive them to some other Part, and alter their Direction, almost in the same manner in which the Water of a Rivulet is turn'd: Or, upon other Occasions, we must endeavour to divert these Humours, deriving those upwards which tend downwards, and those downwards which tend upwards. This is neither more nor less than the modern Doctrines of Derivation and Revulsion.

In the sixth Place he observes; that what must necessarily be discharg'd, ought to be carried off through proper Passages.

Seventhly, When, says he, we do any thing according to Reason, though the Success does not always answer, yet we ought not too easily, or too quickly, to change our Method of acting, so long as our first Reason remains in Force. But, as this Maxim may sometimes prove fallacious, the following may be a kind of Limitation and Correction to it. "We must," says *Hippocrates*, "pay a great Attention to that which affords Relief, and that which does Injury; that which the Patient easily bears, and that which he is not able to support."

His ninth Advice is of the greatest Importance. We must, says he, do nothing rashly. We must sometimes remain at Rest, or without doing any thing. By this means, if we do no Good to the Patient, we at least do him no Harm. To violent Disorders we must, according to *Hippocrates*, apply violent Remedies. What resists the Force of Medicines, the Knife may cure; what the Knife cannot cure, Fire may relieve; but what Fire cannot cure, ought to be look'd upon as incurable. In the last Place *Hippocrates* advises against undertaking desperate Diseases, since their Cure is beyond the Force and Power of Medicine.

These are the most general and important Maxims on which *Hippocrates* founded his Practice; and most of them presuppose that fundamental Principle he lays down at first, which is, that Nature herself cures Diseases.

Under the Article *ALCALI* I have given so full an Account of the Regimen recommended by *Hippocrates* in acute Distempers, that it would be superfluous to take farther Notice of it in this Place. I shall therefore proceed to the Remedies known and used by *Hippocrates*.

Though the more gentle and lenient Cathartics, with which the *Arabians* and some others have enrich'd Medicine since the Time of *Hippocrates*, could not be known to him, yet he appears to have been abundantly sensible; that keeping the Belly soluble, or purging gently, was of the utmost Importance in the Cure of Diseases. For this Purpose he made use of a Decoction of the Herb Mercury, with an equal Quantity of Pisan, and a small Portion of Honey, which he directs to be given at Intervals. Sometimes he prescribes Cabbage, or its Juice; and, if this did not answer the Intention, the Leaves of Elder. With a View of procuring Stools, he likewise orders a Decoction of Beet with Honey, and of Cabbage with Salt. But he more frequently recommends Ass's Milk, and that in so large a Quantity sometimes, as sixteen Heminae, which is more than eight Pints; nor does he omit the Milk of Cows, Goats, and Mares. He directs, moreover, the Use of Whey, which he generally orders to be boil'd; and, according to the Interpretation of *Schulzius*, of a Passage in his Treatise *De Internis Affectionibus*, Buttermilk of Mares Milk. *Hippocrates* also used Clysters and Suppositories.

His Methods of provoking a gentle Vomiting were, to fill the Stomach with some of the above-mentioned laxative Vegetables, and to make the Patient drink after it a Decoction of Lentils, with an Addition of Honey and Vinegar; or to exhibit large Quantities of a Decoction of Hyssop, with a little Salt or Vinegar; or of Honey and Water, with a little Vinegar; and if this did not succeed, he gave the Patient, some little time after, a Draught of warm Water.

The Drastic Purges employ'd by *Hippocrates* were Hellebore, both black and white; Peplium, Colocynthis, the Grana Cnidia, Cneorum, Elaterium, Scammony, and Thapsia, which see under their respective Articles.

Hippocrates orders Blood to be taken away on several Occasions, and from several Parts, as the Arms, the Nostrils, the Forehead, the Occiput, the Veins in the Anus, those under the Tongue, and in the Hands; he appears also to have been well acquainted with the Uses of Cupping and Scarification. See *PHLEBOTOMIA*.

It does not appear, that he made any great Use of Narcotics, or Medicines which induce Sleep; though in some few Passages of his Treatises of the Disorders of Women, he speaks of the Juice of Poppy, as conducive to the Cure of what we now call Hysterics. He likewise takes Notice of Mandrake, but cautions against exhibiting it in Quantities sufficient to cause Madness; and of Henbane.

As to Fomentations, Baths, Inseffions, Suffumigations, and Gargarisms, he seems to have been perfectly well acquainted with their Efficacies, and the proper Seasons and Manners of using them; and he lays a particular Stress upon Ointments. I don't know, that he any-where mentions Plaisters; but instead of these he frequently directs Cataplasms, in Cases where we, perhaps, might find them preferable to Plaisters.

There is something too ridiculous in the Notion entertain'd by some of *Hippocrates* being an Adept in Chymistry, to require a serious Examination.

When Venesection, and the Use of Purgatives, which were the two principal and most general Means used by *Hippocrates* for diminishing the Superfluity of the Blood and Humours, were not sufficient for that Purpose, he

then

then had recourse to Diuretics. This he seems to intimate in the following Passage of his Work *De Ratione Viſus in Acutis*. "All Diſeaſes," ſays he, "terminate, or are cur'd by Evacuations made either by the Mouth, the Belly, the Bladder, or ſome other like Outlet; but Sweat is common to all Diſeaſes, and equally terminates them all."

The diuretic Medicines, or ſuch as provoke Urine, were differently prepared, according to the Nature of the Caſe, or the Diſpoſition of the Patient. Sometimes the Bath was uſed for this Purpoſe; and, at other times, ſweet Wine was exhibited with the ſame Intention. The Aliments taken alſo contributed to the ſame Purpoſe. Among the Herbs commonly uſed, *Hippocrates*, for this Intention, recommended Garlick, Onions, Leeks, Cucumbers, Melon, Citruls, Cytifus, both Sorts of Apium, Fennel, Maidenhair, and Nightſhade, as well as all acrid Subſtances. In the ſame Claſs he puts Honey mixed with Water and Vinegar, and all ſalted Aliment. But when he intended to anſwer that Intention with ſomewhat more Brifkneſs and Violence, he took four Cantharides, from which he cut the Wings and Feet, and exhibited the Powder in Wine and Honey. He ordered theſe ſeveral Remedies in various chronical Diſorders, after Purgation, when he believed the Blood to be ſtill loaded with that Species of Humour which he call'd *Ichor*, or when there was a Retention of Urine.

In ſome Caſes *Hippocrates* propoſes exciting a Diaphoreſis, as well as provoking Urine; but he does not inform us in what manner it is to be done. In another Paſſage he tells us, that we muſt carefully examine whether Sweating be proper or not; and if it is, when, and in what manner, it ought to be excited: But he does not ſpecify the Means proper for that Purpoſe. There is only one Paſſage where he ſpeaks of provoking Sweat, by pouring warm Water on the Head of the Patient, till his Feet ſweat; that is, till a Sweat breaks out on all the Parts of his Body. After this he orders the Patient to eat a large Quantity of boil'd Meal, to drink ſome pure Wine upon it, to be cloſe cover'd up, and to remain in that State for ſome time. What he adds immediately after, of eating two or three Roots of *Narcifſus* for Supper, does not appear to have any Relation to the Intention of exciting a Diaphoreſis, ſince *Dioſcorides* claſſ'd the *Narcifſus* among Emetics. 'Tis poſſible *Hippocrates* might have given the Patient his Choice, whether he would ſweat or vomit. 'Tis alſo poſſible, that the *Narcifſus* of which *Hippocrates* ſpeaks, was not afterwards known by the ſame Name, which has been the Fate of ſeveral other Simples. In the Works of *Hippocrates* we meet with no other Sudorifics to be taken internally. The Diſeaſe for which he propoſes theſe Medicines is ſuch a Fever, as does not proceed from Bile or Phlegm, but from a Laffitude, or any other Cauſe. From this Paſſage we may ſee, that *Hippocrates* did not approve of exciting a Diaphoreſis in any Fevers, except that particular Species he mentions; and we ſhall ſee in the Sequel, that the deſtructive Practice of adminiſtring ſtrong Diaphoretics was of much later Date, and founded on a falſe Theory.

In the Days of *Hippocrates* Surgery was ſo connected with Medicine, that the former was ſcarce diſtinguiſhed from the latter by any peculiar and diſcriminating Name. The Book intituled *De Officina Medici* gives ſo full an Account of a chirurgical Apparatus, that it might almoſt be taken for a modern Treatiſe of Surgery. That *Hippocrates* himſelf aſſiſted the Sick by manual Operation, is a Fact which cannot be called in Queſtion. How this Phyſician acquitted himſelf when he had a Wound or Ulcer to cure, we learn from that Book intituled *De Ulceribus*, which, notwithſtanding its Title, treats principally of recent Wounds. But ſince it is univerſally eſteem'd genuine, we ſhall make uſe of it in giving an Account of the Surgery of *Hippocrates*.

This Phyſician, then, forbids a recent Wound in any Part, except in the Joints, to be waſh'd with any thing but Wine. He requires no other Dreſſings beſides a Cataplaſm, which is not to be apply'd immediately to the Wound itſelf, but to the adjacent Parts.

The Food and Drink muſt be exhibited in moderate Quantities; and the harder they are of Diſteſtion, their Quantities muſt be proportionably the leſs. The Patient muſt alſo remain in a State of Reſt and Eaſe. When the Wound is not in the Abdomen, but only in the Extremities, he ſuffers the Blood to diſcharge itſelf plentifully, ſince by that means the Parts become leſs full, and a leſs conſiderable Corruption enſues. Oils, and oleous Subſtances, are by no means proper for recent Wounds. In many Wounds, eſpecially where a Corruption is threatened, Purging is of ſingular Service. If a Wound is not thoroughly cleanſed, it will neither heal ſpontaneouſly, nor even when its Lips are brought into Contact.

An *Eryſipelas* accompanying a Wound renders Purging abſolutely neceſſary. Where there is a Wound with Contuſion, a Suppuration muſt be made before the Cure can be performed. For anſwering this Intention therefore, Cataplaſms muſt be apply'd to the tumid Part, but not to the Wound itſelf.

Theſe are his general Directions with regard to Wounds, to which he ſubjoins an Account of the Cataplaſms to be uſed; and of ſuch as are proper for cleanſing ſordid Ulcers. He there alſo gives us an Account of a Medicine proper both for recent and inveterate Ulcers; and that Preparation comes pretty near to the Nature of the *Unguentum Egyptiacum*, at preſent uſed for the ſame Intention.

Towards the End of the Book there are ſome things relating to an Oedema and Varices. He orders cedematous Swellings of the Feet to have a large Number of ſmall deep Wounds made in them; and directs, that a Varix ſhould be prick'd here-and-there, that the Blood may flow in ſmall Quantities from the little Orifices. In another Paſſage he aſſigns a Reaſon for this ſeemingly unaccountable Piece of Practice. "Though," ſays he, "it is not expedient to allow a full and thorough Effuſion of Blood, yet Neceſſity often calls upon us to take away ſome."

With regard to Bandages, he gives the following Direction: "We ought, ſays he, to deſpiſe thoſe whimſical and curious Bandages, which pleaſe the Eye of the Spectator, without anſwering the Intention for which they are apply'd; for they are not only troubleſome and idle, but alſo frequently hurtful and prejudicial; and 'tis obvious, that the Afflicted ſeek rather a Relief from their Pains, than a conceited and ſuperfluous Elegance in their Dreſſings." What we are to obſerve, with regard to Bandages, he elſewhere accurately lays down, provided the Book *de Officina Medici* claims him as its genuine Author.

His Book *de Fiſtulis* treats almoſt wholly of thoſe of the *Anus*. After he has laid down the Cauſes whence they proceed, he informs us how to make a Search, by introducing a Stalk of freſh Garlick. Then he orders a fivefold Thread, or a Hair, to be paſſed thro' the Orifices of the Fiſtula, and to be gradually drawn cloſer, that its Sinus may be open'd. Then he preſcribes ſeveral Medicines neceſſary for the Cure of this Diſorder, but makes no mention of the Method by cutting.

Hitherto the Surgery of *Hippocrates* appears to be not very bold; but, in his other Chirurgical Pieces, we find him employ'd in cutting and burning. When treating of Wounds of the Head, he directs us when, and how far, the Bone is to be ſcrap'd or perforated. When the Surgeon neglects this, where it ought to have been uſed, a Suppuration happens internally, and the Patient dies convulſed and delirious. "But, ſays he, this Convulſion ſeizes moſt Patients in the oppoſite Side of the Body; for, if any one has an Ulcer on the Left Part of his Head, the Convulſion ſeizes the Right Part of his Body, and *vice verſa*."

That

That *Hippocrates* had several Instruments for Perforation, we learn from many Passages of his Works. Among these there is mention made of a certain serrated and hollow Terebra, design'd for cutting the Bones to the very Membranes, and not unlike to that Instrument which we call the Trapan. In his Book *De internis Affectionibus*, we are inform'd, that this Instrument was us'd in perforating the Ribs, in order to discharge the Water, in a Dropsy of the Breast; tho' others maintain, that this Operation was perform'd by means of a simple Terebra.

As for Fractures, *Hippocrates*, after making a due Extension, replac'd them, apply'd a Bandage suited to the Nature of the Case, laid proper Compresses, slightly cover'd with some Cerate, over the Bandage, and secured the Compresses with Linen Swaths. Then he apply'd Splints, to be secur'd by very loose Ligatures; only for the sake of Ease to the Patient, but not with a View, that the Splints should contribute any thing to the Compression. This Caution he inculcates in the most earnest manner. The Surgeon must also be able to make a judicious Estimate of the Time in which Bones are generally united and consolidated, by the Formation of a Callus. He gives accurate Directions with regard to this Matter; but informs us, that Difference of Ages and Constitutions must produce a Variation with respect to the Time. The Bones of the Cubitus are consolidated in the Space of thirty Days, during the first ten of which the Diet must be spare, and of an attenuating Nature. On the tenth Day we are diligently to inquire, if Circumstances call for it, whether the Reduction has been duly and accurately made. Then the Bandages and Splints are to be again duly apply'd; and, if no Itching is felt, nor an Exulceration suspected, they are to remain in that State till the twentieth Day. The Patient, in the mean time, is gradually to be strengthened by a larger Quantity of more nourishing Food, in proportion as the Cure advances. Two Thirds of the thirty Days being thus expir'd, the Bandages are to be made gradually looser, and fewer, till the Cure is completed.

This is the whole Process, and, as it were, a general Model for reducing and curing broken Bones; for he himself adds, "These Directions are, as it were, a just and stated Law for the Cure of Fractures; instructing us at once how they ought to be treated, and what are the Events of their being skilfully manag'd." Here there is no Mention made of Plaisters, nor do we read of their being apply'd to these Purposes for a considerable Time after the Days of *Hippocrates*; at least we do not find, that *Paulus Aegineta*, who lived many Years after Christ, used any Plaisters in the Cure of Fractures.

In his Book *De Articulis*, the Doctrine of Luxations is delivered at great Length: Where, in slight Cases, he advises to make the Reduction with the Hand alone; but, in more terrible Cases, such as a Luxation of the Spine, he makes use of an Instrument, which he calls *διασπαστικός*, the Structure and Use of which he describes at Length. Thus also, in the Reduction of a luxated Humerus, after enumerating the several Methods generally used, he describes a Machine, under the Name of *ΑΜΒΕ*, by which the Humerus is most easily reduc'd; and this very Instrument is still used by some modern Surgeons for that very Purpose. *Hippocrates* himself seems to have been the Inventor of this Machine, which, in all succeeding Ages, has bore his venerable Name. He seems also to have been highly diligent in finding out compendious Methods of Cure in Chirurgical Cases. As a Proof of his Industry in this Particular, we need only consider his giving an Account of a fruitless Experiment he himself made, and the Reason he assigns for acquainting the World with his want of Success. "This, says he; I wrote on Purpose; for 'tis instructive to know those things which, upon Trial, were not attended with Success, and the Reasons why."

Hitherto we have had a Specimen of the Surgery of *Hippocrates*, with regard to Wounds, Ulcers, Fractures, and Luxations; in which Cases we often find him not afraid to add one Wound to another, or to make Incisions, for the Relief of the Patient, and the Cure of the Disorder. He also perform'd curious Operations on the Eyes.

In Suppurations of the Kidneys, if a Tumor appears about the Spine, he open'd it, by making a deep Incision, that the Pus might be discharg'd. He order'd the Paracentesis to be perform'd on the Breast, for evacuating the Pus and Water contain'd in its Cavity. He also order'd the same Operation to be perform'd in the Abdomen, for carrying off the Water collected in it, in that Species of Dropsy call'd Ascites; tho', for the most part, he said these Operations were follow'd by none of the best Consequences. In these Disorders he sometimes used the actual Caustery instead of Incision.

In general it may be said, that *Hippocrates* was not afraid of using the actual Caustery, since 'tis certain, that he lays down plain and accurate Directions for cauterizing the Shoulder, or rather the Parts about the Arm-pit, in Cases where the Humerus frequently slips out. He also ordered raw Flax to be burnt upon the Parts immediately affected with arthritic Pains, which Piece of Practice has been retain'd by his Followers.

He also extracted the Foetus, when dead, by the Help of Instruments, as is obvious from his small Book *De Exsectione Fetus*: But he not only discharged his Disciples from cutting for the Stone; but also bound them by a solemn Oath, to leave this Operation to those whose Province it came under. That he did so, is certain, provided that Form of Oath which passes under his Name, was by him really administer'd to his Disciples; but the most judicious think they have just Reason to doubt of the Truth of this Circumstance. In all Probability, the Operations for the various kinds of Herniæ were not practis'd in his Days, since Herniæ are only once mention'd by him in his Works.

In order to shew the Progress which Physic had made in the Time of *Hippocrates*, Mr. *Le Clerc* very judiciously gives a Catalogue of the Diseases mention'd or describ'd by him, which he distributes into five different Classes: Under the first he comprehends all those Distempers which have retain'd the Names he gave them, and are known, by the Signs and Symptoms, to be the same which he describes.

The second Class contains those Distempers which are known by Names different from those by which *Hippocrates* call'd them, but are distinguished by the Symptoms which he attributes to them.

The third includes such Distempers as *Hippocrates* has call'd by no particular Name, but only describ'd.

Under the fourth are comprehended Distempers, which, tho' nam'd and describ'd, are, however, not known at present.

The fifth contains such Disorders as are call'd by Names which at present we do not understand, and which are not describ'd.

FIRST CLASS.

A

- Ἀγκύλη, Ancylofis.
 Ἀγμοί, } Fractures.
 Κατάγματα, }
 Οἱς τὸ αἰδοῖον ἐπαίρειν ἀδύνατον, Impotence.
 Αἰδοίων σηπεδόνες, Putrefactions of the Pudenda.
 Αἵματος πύσις, Spitting of Blood.
 Αἰμωδία, Stupor of the Teeth.
 Αἰμορραγία, Hæmorrhage.
 Αἰμορροΐδες, Hæmorrhoides.
 Ἀκροχόρδονες, Warts.
 Ἀλγήματα, Pains.
 Ἀλυσμός, }
 Βλαστρισμός, } Anxiety or Restlessness.
 Ριπτασμός, }
 Ἀλύκη, }
 Ἀλφῶ, White Leprosy.
 Ἀλώπηκες, Alopecia.
 Ἀμβλυαγμίες, Dimness of Sight.
 Ἀναυδία, Privation of Voice.
 Ἀνθραξ, Carbuncle.
 Ἀνορεξία, Loss of Appetite.
 Ἀντιάδες, Tumors of the Tonsils.
 Ἀποπληξία, } Apoplexy.
 Βλητοί, }
 Ἀπόληψις φλεβῶν. See the Article APOLEPSIS.
 Ἀπόστημα, } Abscess.
 Ἀποσάσις, }
 Ἀποφορὰ, }
 Ἐκτρώσις, } Miscarriage.
 Διαφορὰ, }
 Ἐκβολή, }
 Ἀρθρα τοῦ πλεύμονος σπασμὸν, Spasmodic Contractions of the Lobes of the Lungs.
 Ἀρθρίτις, Gout.
 Ἀρθρίτις μετ' ἐπιπρωμάτων περὶ τοῖσιν ἄρθροισιν, Gout with indurated Matter at the Joints.
 Ἀσάι, Nauseating of Food.
 Ἀσθμα, Asthma.
 Ἀσκαρίδες, Worms call'd Ascarides.
 Ἀτεκοί, ἢ ἀφροὶ γυναῖκες, Sterility in Women.
 Ἀφθαί, Aphthæ.
 Ἀφωνία, Dumbness.
 Ἀψυχία, } Fainting.
 Λειποθυμία, }

B

- Βαρηκοία, Dulness of Hearing.
 Βήξ, Cough.
 Βλεφάρων ἐπιφύσεις ἢ σῦκα, Excrescences on the Eyelids.
 Βλεφάρων ἐκτροπή, A Turning of the Eye-lid outwards. See ECTROPE.
 Βλεφάρων ἐνμύσεις, Coalescence of the Eye-lids.
 Βλεφάρων ὥρα, Scabby Eye-lids.
 Βλητοί. Those were thus call'd who were either apoplectic, or dy'd of a Pleurisy, and had a Lividness on their Sides after Death.
 Βόμβοι ἐν ὠσίν, ἢ ἤχοι, Ringing in the Ears.
 Βουβῶνες, Buboës.
 Βράγχος, Hoarseness.

Γ

- Γαγγραινώδες, }
 Σηπεδόνες μέλαιναί, } Gangrene and Sphacelus.
 Σφακελῶ, }
 Σφακελισμός, }

- Γαλιάγκωνες, Shortness of the Arms.
 Γαργαρέων ἀνεσπασμένῳ, Retraction of the Uvula.
 Γλαύκωμα, } Glaucoma.
 Γλαυκώσις, }
 Τῆς Γνάθης σφακελισμός, Sphacelation of the Cheek.
 Γογγῶναι, Hard round Tumors in the Neck.
 Τὸ Γονοεῖδες διελθόν, Involuntary Discharge of the Semen, simple Gonorrhea.

Δ

- Διαρροία, Diarrhea.
 Διατρίσματα, }
 Ἐκπτώσεις, } Luxations and Sprains.
 Ἐξαρτήματα, }
 Ἐξαρτώματα, }
 Δοθίνη, A Bile.
 Δυσεντερία, Dysentery.
 Δυσουρία, Dysuria.
 Δυσπνοία, Dyspnoea.
 Δυστοκία, Difficult Labour.

Ε

- Ἐγκεφάλαισμος, Concussion of the Brain.
 Ἐδρη ἐπιφλεγμαινώση, Inflammation of the Anus.
 Παρὰ τὴν Ἐδρην σῆμα σκληρόν, A hard Tubercle near the Anus.
 Ἐιλεός, } The Iliac Passion.
 Χορδαψός, }
 Ἐιλεός ἰκτερώδης, Iliac Passion, attended with a Jaundice.
 Ἐκπληξίς, A sudden Privation of Sensation.
 Ἐκπτώσις τῆς ὑτέρας, Falling down of the Uterus.
 Ἐκτύσις, } Empyema.
 Ἐμπύημα, }
 Ἐκτᾶσις, Alienation of Mind.
 Ἐκτᾶσις μελαγχολική, Alienation of Mind, caus'd by Melancholy.
 Ἐκχύμα, } Ecchymosis from Contusions.
 Ἐκχυμωσις, }
 Ἐλκεα, Ulcers.
 Ἐλκεα κακοῦθα, Malignant Ulcers.
 Ἐλκεα συριγγώδεα, Fistulous Ulcers.
 Ἐλκεα χοιρώδεα, Scrophulous Ulcers.
 Ἐλλωσις, } Distortion of the Eyes.
 Ὀμμάτων διαστροφή, }
 Ἐλμινθοί, } Worms.
 Εὐλαί, }
 Θηρία, }
 Ἐλμινδοὶ πλατεῖαι, Flat Worms.
 Ἐλμινδοὶ τρογγύλαι, Round Worms.
 Ἐμετῶς αἱμάτων, Vomiting of Blood.
 Ἐμπροσθότονος, Emprosthotonos, a Sort of Convulsion.
 Ἐξανθίσματα, Cutaneous Eruptions.
 Ἐπικύημα, Superfetation.
 Ἐπιληψία, Epilepsy.
 Ἐπιμήνια διαπύα, Purulent Catamenia.
 Ὑμενώδεα, &c. Unnatural Catamenia of all Sorts.
 Ἐπινυκτίδες, Epinyctides.
 Ἐρπης, Herpes.
 Ἐρυσίπελας, Erysipelas.
 Ἐφηλίδες, Freckles.

Η

- Ἡπατίτις, }
 Ἡπαρ φλεγμαινών, } Inflammation of the Liver.

I

Ἰδρῶα, Pustules proceeding from an acrimonious Sweat.
Ἰκτερός, Jaundice.
Ἰλιγγοί, Vertigos.
Ἰόνδοι, Hard Tubercles on the Face.
Ἰσχίαι, Sciatica.
Ἰσχυοφωνία, } Hesitation.
Ψελλισμός, }

K

Κάτοχος, } Catoche.
Κατοχή, }
Καρδιαλγία, } Heart-burn.
Καρδιωγμός, }
Καρηβαρία, Heaviness of the Head.
Καρκίνος, } Cancer.
Καρκίνωμα, }
Καρκίνος ἀκρότατος, External Cancer.
Καρκίνος κρυπτός, Latent or internal Cancer.
Καρκίνος σύμφυτος, Hereditary Cancer.
Κάρος, Carus.
Καταμήνια, ἢ τὰ γυναικεῖα πλείονα, Redundancy of the Catamenia.
Καταμήνια ἀκρήτως γινόμενα, Natural Catamenia.
Καταμήνια ἀχρῶα, Colourless Catamenia.
Καταμήνια ἐκλείποντα, Retention of the Catamenia.
Καταμήνια ὀλίγα, Deficient Catamenia.
Κατάρροι συντόμως ἀπόλλυντες, Suffocating Catarrhs.
Κατάρροος, A Defluxion or Rheum.
Καταφθόρη, Cataphora.
Καῦσος, Causus, or burning Fever.
Καχεξία, Cachexy.
Κεφαλαλγία, Head-ach.
Κήλαι, Ruptures.
Κηρίαι, } Favi and Achores.
Ἀχωρ, }
Κίονες τηκόμενοι, Putrefactions of the Uvula.
Κίρσοι, } Varices.
Ἰξίαι, }
Κίρσος ἐν πλεῦμονι, Varix of the Lungs.
Κίων ἐν αἰδοίοις, Excrescence in the Pudenda.
Κνησμός, } Itching.
Κνιποτής, }
Κνίδωσις διὰ τὸ σῶμα, A pungent Itching in the Mouth.
Κόνδυλοι ἀνάθεν τῶν ὤλων, Tubercles of the Gums.
Κόραι αἱ μικρότεραι φαίνοντες, ἢ γωνίας ἔχουσαι, The Pupil of the Eye too small, or angular.
Κόρης ἑλκωσις, Exulceration of the Pupil.
Κορυζα, Coryza.
Κριδὴ ἐν βλεφάρῳ, Hordeolum on the Eyelids.
Κυνάγχη, Quinsey.
Κυνάγχη ἐς τὴν πλῆμωνα, A Quinsey affecting the Lungs.
Κύρτωσις, } Crookedness.
Κυφωσις, }
Κῦσις ἀποληφθεῖσα, Retention of Urine.
Κῶμα, Coma.
Κῶμα ἐξ ὑπνώδους, Coma Vigil.
Κωφωσις, Deafness.

A

Λειεντερία, Lientery.
Λειχήνες, Tetters.

Λέπρη, Leprosy.
Λευκή, The white Leprosy.
Λήθαργος, Lethargy.
Λημαί, Blear Eyes.
Λημαί ξηραί, Dry blear Eyes.
Λιθός, } Stone.
Λιθίασις, }
Λιμός, Canine Appetite.
Λοιμός, The Plague.
Λοποί, Desquamations of the Skin.
Λόρδωσις, Distortion of the Spine forwards.
Λοχίη καὶ ἀρρῶσις κατεχομένη, Retention of the Lochia.
Λύγμος, Hiccough.

M

Μάδισις, Baldness.
Μανία, Madness.
Μελαγχολία, } Melancholy.
Τὰ Μελαγχολικά, }
Μύλη, A Mole.
Μώρωσις, Stupidity.

N

Νάρκωσις, Torpor, or Loss of Sensation.
Νεφέλαι, } Clouds,
Ἀχλὺς, } Cicatrices } in the Eyes.
Αἰγίδες, } Pearls
Ἀργέμων, } Albugo
Νεφρίτις, Any Affection of the Kidneys.
Νηπίων ἐκλάμψεις, Epileptic Fits in Children.
Νυκταλωπες. See the Article NYCTALOPS.

O

Ὁδοντοπόνοι, Pains of the Gums in Children from their breeding Teeth.
Πρὸς τοὺς ὀδόντας ἀλγύματα, Tooth-ach.
Πρίσις τῶν ὀδόντων, Gnashing or Grinding of the Teeth.
Συνερισμός ὀδόντων, Fixing of the Teeth, of the upper and lower Jaws, together.
Ὁδύνη, Pains.
Ὁίδημα, Tumor.
Ὁμφαλος φλεγμαίνων, Inflammation of the Navel.
Ὁνείρωγμοι, Nocturnal Pollutions.
Ὁπισθοτόνος, A Specimen of Convulsion call'd Opisthotonos.
Ὁρθοπνοία, Straightness of Breathing.
Ὁρχις μέγας, Tumefy'd Testicles.
Ὁσφύος πόνοι, Pains of the Loins.
Ὁυλαί μέλαιναι, Blackness of the Gums.
Ὁυλὴ ἐν κόρῃ, a Cicatrix in the Pupil of the Eye.
Ὁυρον κατεχομένον, Retention of Urine.
Ὁφθαλμός ἐρρώνως, Rupture of the Eye.
Ὁφθαλμὸς ἑλκωσις, Exulceration of the Eye.
Ὁφθαλμὸς ὑγρὸς, Moist Ophthalmy.
Ξηρὸς, Dry Ophthalmy.
Ὁφθαλμὸς διεφθαρμένος, Pupil of the Eye spoil'd.
Τῆς ὀφθαλμοῦ μετακίνησις, The Pupil remov'd from its natural Situation.
Ὁφθαλμὸς διὰ τῆς ῥώγμης ὑπερέχουσα, Prominence of the Pupil, occasion'd by a Rupture of the Eye.

Π

Παλμός, Palpitation.

Παραφρεσύνη,
Παραφροσύνη,
Παρακοπή,
Παρακρούσις,
Παραλήρησις,

Delirium.

Παρακυνάγχη, a Species of Quinsy.
Παράνοια, Madness, Loss of the Senses.
Παράσρεμμα ἐν πρὸς ὤφῳ, Distortion of the Mouth.
Παρίδρυμα, Disorders of the Tonsils.
Παρονυχία, Whitlow.
Περικνημονίη, Peripneumony.
Περὶ ῥοιή, Great Discharges of the morbid Humours.

Πιτυρίασις, a scurfy Head.
Πλάναι τῶν ὑστερέων, Hysterical Symptoms.
Πλεύμων ἔμπυον, Suppuration of the Lungs.
Πλευρίτις, Pleurisy.
Πλευρίτις ξηρὴ, Dry Pleurisy.
Πλευρίτις ὑγρὴ, Moist Pleurisy.
Πνίξις ὑστερικὴ, Hysterical Suffocations.

Πόδαγρα, } Gout in the Feet.

Ποδαγρικὰ, }

Πολύπυς, Polypus in the Nose.

Πτερύγιον, the Unguis, a Disorder of the Eyes.

Πτυαλισμός, Spontaneous Salivation.

Πύον διὰ ῥινῶν, A Discharge of Pus by the Nostrils.

Πῦρ, A burning Fever.

Πῦρ ἀγριον, A sort of inflammatory Tetter, perhaps the Shingles.

Πυρετός, Fever.

Πυρετός ἀκατάστατος, An irregular Fever, fixed to no certain Period.

Πυρετός ἀκρητίχολος, A pure bilious Fever.

Πυρετός ἀλμυρώδης, A salt Fever.

Πυρετός ἀμφημέριος, A quotidian Fever.

Πυρετός ἡμέριος, A Fever, whose Paroxysms seize the Patient in the Day-time.

Πυρετός ἀσώδης, A Fever attended with Anxiety.

Πυρετός ἀτάκτος, An irregular Fever.

Πυρετός ἀχλυώδης, A Fever attended with Dimness of Sight.

Πυρετός βληχρὸς, A slight Fever.

Πυρετός γλίσχρος. See the Article GLISCHROS.

Πυρετός δακνώδης, ἢ ὡρῆνης τῇ χειρὶ, A Fever which is pungent, or one which is mild to the Touch.

Πυρετός διαλείπων, An intermittent Fever.

Πυρετός ἐξέρυθρος, A Fever attended with great Redness.

Πυρετός ἐξωχρὸς, A Fever attended with great Paleness.

Πυρετός ἐπαναδιδών, An increasing Fever.

Πυρετός ἐπιάλτος, A Fever attended with Shivering.

Πυρετός εὐήδης, A Fever of a mild Kind.

Πυρετός ἡμιτρεταῖος, A Hemitritæus.

Πυρετός ἰδίων δαίντος, A terrible Fever.

Πυρετός ἰλιγγιώδης, A Fever attended with a Vertigo.

Πυρετός κακρόδης, A malignant Fever.

Πυρετός κοπιάδης, A Fever attended with Laffitude.

Τὰ λειπυρικὰ, Fevers wherein the external Parts are cold, whilst the internal are extremely hot.

Πυρετός λυγγώδης, A Fever attended with Hiccoughs.

Πυρετός μακρὸς, A long Fever.

Πυρετός μαλθακός, A soft Fever.

Πυρετός νοτιώδης, A moist Fever.

Πυρετός νυκτέριος, A nocturnal Fever.

Πυρετός ξηρὸς, A dry Fever.

Πυρετός ξυνεχὴς, A continual Fever.

Πυρετός ὀξύς, An acute Fever.

Πυρετός πελιδνός, A livid Fever.

Πυρετός πεμπταῖος, A Fever returning every fifth Day.

Πυρετός πεμφιγώδης, A flatulent Fever.

Πυρετός περιμαῖος, a burning Fever.

Πυρετός περιψυχθεῖς, A cold Fever.

Πυρετός πλανήτης, An Erratic Fever.

Πυρετός τεταρταῖος, A Quartan.

Πυρετός τριταῖος, A Tertian.

Πυρετός τριταιοφύης, A Fever resembling a Tertian.

Πυρετός φονώδης, a destructive Fever.

Πυρετός χειμερινός, A Winter Fever.

Πυρετός χλιαρὸς, A moderately hot Fever.

Πῶροι,

Ἐπιπωρώματα,

Συγρέμματα,

Λιθίδια περὶ τοῖσιν ἀρθροῖσιν,

Chalk-stones in the Joints.

P

Ῥάχιος διαστροφή, Distortion of the Spine.

Ῥέγχος, } A Stertor.

Ῥέχχος, }

Ῥεῦμα, A Catarrh.

Ῥεῦμα ἀλμυρὸν, } A salt

Ῥεῦμα νιτρώδης, } nitrous

Ῥεῦμα δριμύ, } sharp

Ῥεῦμα θερμὸν, } hot

Ῥήγματα, Ruptures of any Vessels, or of an Abscess; or Fissures of the Lips, or Tongue.

Ῥίγος, Excessive Shivering.

Ῥόος ἐρυθρὸς, } Ruber.

Ῥόος λευκός, } Fluor } Albus.

Ῥόος πυρρὸς, } } Ruffus.

Ῥὸς γυναικείος, } Muliebris.

Σ

Σκληρύνματα, Indurated Tumors.

Σκοτοδίη, } Vertigo attended with Dimness

Τὰ σκοτωδῆα, } of Sight.

Σπασμάτα, Contractions of the Fibres.

Σπασμοί, Convulsions.

Σπλὴν ἐπληρμένος, } Tumor of the Spleen.

Σπλὴν μέγας, }

Σπλινίτις, Inflammations of the Spleen.

Σταφύλη, Relaxation of the Uvula.

Στήθος ἢ μεταφρένον ραγὴν, Fracture of the Breast, or Back-bones.

Στόμα ἀνέσπασμένον, Distortion of the Mouth.

Στόμα δυσώδες, Fetid Breath.

Στραγγυρία, Strangury.

Στρεβλοί, Wry Neck.

Στρώφοι ἢ ἀνέλκσις, Gripping of the Intestines.

Συγγυγες, Fistulas.

Σώμα νωδρώδες, Torpidness of the Body.

T

Ταχυγλωσσότεροι, Too great Volubility of Speech.

Τενεσμός, Tenesmus.

Τερηδών, Caries.

Τερμινθοί, Terminthi.

Τετανός, Tetanus.

Τραυλισμός, Stammering.

Τρίχωσις, Trichosis.

Τρόμος,

Τρέμος, Tremor.

Τρώματα, Wounds.

Τυφλωσις,

Ὁφθαλμῶν τέρησις, } Privation of Sight.

Υ

Υδρωψ, } Dropsy.

Υδρωψ λευκὸν φλέγμα, } Leucophlegmatia.

Υδρωψ λευκοφλεγμάλιν, }

Υδρωψ ξηρὸς, A dry Dropsy.

Υδρωψ πνεύμονος, A Dropsy of the Lungs.

Υδρωψ ὑποσαρκίδιος, Anasarca.

Υδρωψ μετ' ἐμφυσημάτων, A flatulent Dropsy.

Υπερέμετος τῶν φλεβίων περὶ τὴν ἐγκέφαλον, Rup-
tures of the Vessels in the Brain.

Υπερσάρκωσις, Hyperfarcosis.

Υπογλωσσις, Tumor under the Tongue.

Τὰ ὕτερα κατεχόμενα, Retention of the Secun-
dines.

Υστερικὰ, Various Disorders of the Uterus.

Φ

Φαλακρότης, Baldness.

Φθίσις,

Φθίση,

Φθινώδεα νοσήματα, } Consumption.

Τῆξις,

Φθίσις ἐξίως, Consumption of the whole Habit.

Φθίσις ἰσχιαδική, Ischiadic Consumption.

Φθίσις νεφρική, Nephritic Consumption.

Φθίσις νωτιαία, Tabes Dorsalis.

Φλεγμονή, Inflammation.

Φλυκταῖναι, Phlyctænæ.

Φόβοι ἐν ὕπνοις, Frightful Dreams.

Φρενίτις, Phrenitis.

Φρίκη, Horror, Shivering.

Φύματα,

Κόνδυλοι, } Various sorts of Tubercles.

Συτρεμμαῖα, }

Φύματα περὶ τὴν κύστιν, Tubercles in the Bladder.

Φυματα ἐν τῇ ἐρήδρῃ, Tubercles, or Caruncles, in
the Urethra.

Φύματα χοιρώδεα, Scrophulous Tubercles.

Τὰ παρ' ἐς φύματα, } Tubercles about the Ears.

Φήρεα,

Φωίδες, Red Blotches on the Legs, caused by sit-
ting too near the Fire.

X

Χάσμη ξυνεχής, Perpetual Gaping.

Χιμετλα, Chilblains.

Χοιράδες, King's-evil.

Χολέρα, Cholera Morbus.

Χολέρα ξηρή, } dry

Χολέρα ὑγρή, } moist } Cholera Morbus.

Χρῶμα πονηρὸν, Bad Colour.

— χλωρὸν, Green-sickness.

Χώλωσις, Limping.

Ψ

Ψώρα, The Itch.

Ω

Ὠμὸν φύμα ἐν πνεύμονι, Crude Tubercles in the
Lungs.

Ὠτῶν πόνοι, Pains of the Ears.

Ὠτῶν ὑγρότητες, Redundant Moisture of the Ears.

In the second Class are contained only two Diseases, which are,

Ἀναντή. See the Article AVANTE.

Φροντίς νεσος χαλεπή. See the Article PHRONTIS.

The third comprehends three Diseases, one of which is described in the Treatise *de Aere, Locis, Aquis*, which I have inserted under the Article AER. This Distemper is peculiar to the *Scythians*.

Another is thus described.

“ Those whose Spleens are tumefied, are affected with putrid Gums, and have a fetid Breath: But if a
“ Largeness of the Spleen be neither attended with Hæmorrhages; nor a fetid Breath, the Patient is afflicted
“ with malignant Ulcers, and black Cicatrices in the Legs. If there be a manifest Abscess in the Face, a
“ grave or deep Tone of the Voice, or a Pain of the Teeth, we may expect an Hæmorrhage from the Nose.
“ They who have the Parts under the Eyes very much elevated, will be found to have large Spleens; and if
“ their Feet also swell, will appear as if they were hydropic; but the Belly and Loins are also to be observ'd.”

The Symptoms here enumerated leave no Room to doubt of the Author's meaning that Distemper which we call the Scurvy.

The third Distemper is described in the third Book of the Epidemics, Section the third.

Before the Beginning of the Spring, the Season being cold, Erysipelatæ were very frequent, some owing to a manifest Cause, others not; they were however, of a malignant Kind, and very mortal. Many laboured under Disorders of the Fauces, and had their Voice affected; burning Fevers, also Phrensies, Aphthæ in the Mouth, Tubercles (φύματα) in the Pudenda, Ophthalmies, and Carbuncles, Loosenesses, Aversion to Food; attended in some with a Thirst, in others not, were very frequent. The Urine was turbid, much in Quantity, and of an ill Quality; the Patients for the most part laboured under a Coma, succeeded by want of Sleep. Oftentimes the Disease had no Crisis at all, (for *απασία*, I read *ἀπείσιαι* with *Foesius*) and sometimes one that was imperfect; Dropsies also and Consumptions were frequent.

In many Persons an Erysipelas, taking its Rise from very small and inconsiderable Pustules, (πυκνότητες) dispersed itself all over the Body; but if the Patient were about sixty Years of Age, and in the least negligent, it principally affected the Head. Many, even while under Cure, were seized with violent Inflammations, and the Erysipelas increased, and quickly spread itself every-where. In most who were thus affected, the Pustules (πυκνότητες) came to a Suppuration, attended by an extraordinary Putrefaction and Separation of the Flesh, Nerves, and Bones; for the Collection of Humours was not like good Pus, but a Confluence of corrupt and putrid Matter of many and various Kinds. Those who happened to be thus affected about the Head, suffered the Loss of the Hair from their Head and Beard, with the Denudation and Luxation of the Bones, and a great Defluxion of Humours, with or without a Fever. These Symptoms, however, were more terrible than dangerous; for most of those in whom the Matter ripened, and came to a Suppuration, recovered; but those who, after the Removal of the Inflammation and Erysipelas, remained free from an Abscess, died in great Numbers. And thus it happened, whatever Part of the Body the Disease infested; sometimes the Arm from the Hu-
merus

merus to the Cubit, or the Part below it, had the Bone laid bare, some had their Sides affected, others their Fore-part, or Back-part. Sometimes the Thigh, or the Leg, or the whole Foot, were deprived of Flesh; but the most dismal Case of all was, when the Distemper seized upon the Pubes and Pudenda.

This Description, I should think, agrees pretty well with a malignant Species of the Small-pox; but I am sensible, that many are of a different Opinion. As I have given the Passage, others may judge for themselves.

The fourth Class includes only two Distempers.

Τύφος. See the Article TYPHUS.

Παχὺ νόσημα. See the Article PACHYS.

In the fifth Class Mr. *Le Clerc* reckons the following Distempers.

Ἀναιμία. Anemia.

Ἰππῶρις. See the Article HIPPOURIS.

Νέσος φθινική. See the Article PHTHINICE.

Ταγγαί. See the Article TANGÆ.

Τυφομανία. See the Article TYPHOMANIA.

The above-quoted Author mentions *έρπες* in this Class; but improperly, since it is known to import Tubercles under the Ears.

The Medicines taken Notice of by *Hippocrates* are principally the following. But it must be remarked, that as the *Greek* Language in general underwent Variations, so the Names of Plants were frequently changed; and hence arises an Impossibility of being certain, that this Catalogue is entirely just.

<p>A.</p> <p>Abrotanum. Absinthium. Acacia. Acetum. Adiantum. Ærugo Æris. Æs. Æris Flos. Æris Limatura. Æris Squama. Æs Ustum. Agnus Castus. Alica. Allium. Althæa. Alumen. Alumen Ægyptium. Alumen Scissile. Alumen Ustum. Ammoniacum. Amomum. Amygdalæ. Anagallis. Anagyris. Anchusa. Anemone. Anethum. Anisum. Anseris Axungia. Anseris Medulla. Anseris Stercus. Anthemis. Aparine. Aqua marina. Argentum. Argenti Flos. Aristolochia. Aromatica varia. Artemisia. Atriplex. Afinus. Afini Stercus. Aspalathum. Asparagus. Asphodelus. Avena. Auripigmentum. Axungia.</p>	<p>Bitumen. Blitum. Bombylium. <i>A Sort of Bee.</i> Brassica. Bryonia. Bulbus albus. Bulbus inter segetes nascens. Buprestis Animal. Buprestis Herba. Butyrum.</p> <p>C.</p> <p>Cachrys. Calamintha. Calamus Aromaticus. Calx viva. Canis. Cantharides. Capparis. Capra. Capræ Lac. Capræ Axungia. Capræ Stercus. Capræ Sudor. Carabe. Cardamomum. Caseus. Castoreum. Cedria. Cedrus. Centaureum. Cepa. Cera. Cera alba. Cervus. Cervi Cornu. Cervi Medulla. Chalcitis. Chamæleon. Charien. Chondrus. Chryfitis. Chryfocolla. Cicer. Cicuta. Cinnamomum. Cneorum. Cnestrum. Cnicus. Cnidia Grana. Colocynthis. Conyza. Coriandrum. Cornu Bovinum Cornu Caprinum Cornu Cervinum</p>	<p>Crataegonon. Crinanthemum. Crithmum. Crocus. Cucumis. Cucumis sylvestris. Cucurbita. Cuminum. Cuminum Æthiopicum. Cupressus. Cyclamen. Cydonia. Cyperus. Cytisus.</p> <p>D.</p> <p>Daphnoides. Daucus. Dictamnus. Dictamnus Creticus. Dracontium. Dracunculus.</p> <p>E.</p> <p>Ebenus. Echinus. Echinus marinus. Elaterium. Epipetron. Ericæ. Eruca. Ervilia. Ervum. Erysimum. Euanthemum.</p> <p>F.</p> <p>Faba. Farinæ variet. Ferula. Ficus sativæ Ficus sylvestris Foeniculum. Foenugracum. Fraxinus. Fuligo. Fungus.</p> <p>G.</p> <p>Galbanum. Galla. Glans Ægyptia. Glastum. Glycyrrhiza.</p> <p>H.</p> <p>Hedera. Helleborus albus. Helleborus niger. Hippomarathrum.</p>
<p>B.</p> <p>Baccharis. Beta. Bilis Bovina. Bilis Porcina. Bilis Scorpii marini.</p>	<p>rasum & ustum.</p>	

I shall add to my Accounts of *Hippocrates*, and his Medicine, the Character a celebrated Modern gives him, who was a most excellent Judge of his Merits; and for the sake of Truth I must confess, that many Censures, which, by the way, he passes on Medicinal Writers, are too applicable to the Medicinal Dictionary, whatever Pains I may have taken to avoid deserving such Reproaches.

'Tis universally allow'd, that the Duty of a Physician consists in preserving the Health of Mankind, and removing those Diseases which interfere therewith. The happy Man who is capable of rendering this important Service to those who demand his Assistance, may justly claim the Seat of Honour among the Sons of *Apollo*; and is a genuine Glory and Ornament to his Profession.

But whatever the unthinking Vulgar may imagine, yet the sagacious and discerning Few are well apprised, that such a Degree of Knowledge is not easily acquir'd; and that the Road to a competent Skill, much more to Perfection, in the *Healing Art*, is on all Hands obstructed, and beset with almost insurmountable Difficulties. For the Nature of Health, and of Diseases, lies; in a great measure, in Obscurity; their respective Causes cannot be fully and adequately discover'd; and though they could, yet still the Virtues of Remedies are not sufficiently known. All these extensive Branches of Knowledge must, however, be examin'd with Accuracy, by one and the same Man, before he can lay a just Claim to the Character of a perfect Physician.

Though it has always been disputed whether the *Healing Art* has receiv'd the most considerable Advances from the Lessons taught by Experience, or from the Deductions of Reasoning and Argumentation, yet luckily there have never been wanting some Men of a superior Genius, who have laudably endeavour'd to illustrate their mutual Subsistence to each other, and prove that the former is defective without the latter, which, in its Turn, is equally imperfect without the former. For before Medicine assumed the Form of an Art, and began to be regularly cultivated as a Science, the Sick, prompted by the Agonies of their respective Disorders, had recourse to unknown Remedies, in order to remove Distempers, the Symptoms of which they had learned from their own woful Experience. When by Chance, or a Concurrence of favourable Circumstances, any of these Medicines prov'd salutary, an Observation of the Effects produc'd by them laid the first Foundation for the Art of Physic, which has since prov'd so valuable a Blessing to the World. Afterwards exposing the Sick in the most publick Places of Resort, they enacted a Law, injoining every one who pass'd by to give his Advice to the Distress'd, on a Supposition, that he might have formerly labour'd under the same Disorder, and receiv'd Relief from some particular Remedy. This was the second Step which the *Babylonians* and *Chaldeans*, these most antient Sources of human Literature, made towards the Improvement of Medicine; which, when carry'd into *Egypt* in this imperfect State, was gradually more and more improv'd by that penetrating and industrious People; for by hanging up Tables in the Temples of the Gods, with the several Species of Diseases enumerated, and the most proper Remedies specified upon them, and by committing the Charge of each Disease to particular Physicians, they reduced their indigested and disorderly Experiments to a certain Form, more accommodated to Use and Practice than they formerly were.

At last Mankind being convinc'd, that Remedies alone were not sufficient to carry Medicine to a due Degree of Perfection, began to improve the Assistance of Ratiocination, the Use of which, in distinguishing and curing Disorders, they had long perceiv'd to be absolutely necessary. Upon this, as generally happens in Cases of a like Nature, Subtlety of Genius was prefer'd to the tedious Method of improving by Experience; and what ought to have gone Hand-in-hand, I mean Theory and Fact, were foolishly separated and disjointed; specious and fine-spun Speculations were, without considering their Influence on Practice, or their Conformity to Truth, obtruded on Mankind as the Basis of Physic, and the surest Foundations of Medicine. But though the *Healing Art* might, in this imperfect State, be clothed in all the gaudy Pomp of Eloquence, and recommend itself to those of a speculative and philosophical Turn, yet it soon discover'd its Defects by proving prejudicial and fatal to the unhappy Patients. Nor will this appear a Mystery to him who considers the Affair in an impartial Light; for Health, as well as Diseases, are no more than stated and necessary Effects arising from a certain particular Concurrence of all those Circumstances, which, taken in Conjunction, operate as a Cause in producing its Effect. But before this Cause can be so clearly investigated, as that its Method of acting shall become the proper Subject of a mathematical Demonstration, each of its Properties and Virtues must be discover'd, and consider'd separately and apart; after which their mutual Relations must be diligently compar'd, and the additional Properties resulting from these Relations carefully investigated. Now as these Properties only come under our Cognizance, and manifest themselves to our Senses by their Effects, it is obvious, that whether in a sound or a valetudinary State, the Cause, the Accidents, and Effects, must be investigated and describ'd, before we can either pronounce rationally, or prescribe judiciously: For the Physician is to encounter real Effects produc'd by their adequate Causes, which often, if not always, depend upon a Train of Circumstances of so peculiar and circumstantiate a Nature, that the Force of a general and abstruse Demonstration is by no means sufficient to qualify him for practising with Success. There is such an inconceivable Variety of Disorders, and in each of these so incredible a Number of Symptoms and Circumstances to be observed, that the short Period of human Life, the Frailties both of Body and Mind, to which Men are by the Condition of their Natures subjected, the Difficulties they have to encounter, and the Avocations with which they must unavoidably meet, can never enable any one Man to form a sufficient Number of Observations for establishing a rational and unexceptionable Theory, and practising according to it, like a real and skilful Physician. Hence 'tis obvious, that we must be indebted to the Knowledge of others, consult the Living and the Dead, peruse the Works of antient Sages, inquire into the Improvements of Moderns, and always make Truth the sacred Mark at which we aim. But lest we should at last miscarry in our Views, we must not wantonly drink at every Spring, nor draw our Stores of Knowledge from impure and turbid Fountains; for to read much is not always to be learned. The Physician therefore ought to contract his Views, form his Taste upon noble Models, despise the common Herd of Authors, and draw his Fund of Knowledge from those who represent Nature in her true and genuine Shape; from those who have too sacred a Regard to Honour to forge Facts for the Support of a favourite Theory; from those who follow Truth where-ever she leads them, and in their Accounts of Things disdain from partial and interested Views; either to add or suppress a single Circumstance. These are the sacred Fountains, of which the Physician can never take too liberal Draughts: These the Men whose Labours pave the Physician's Way to Glory and Honour. Ever since Physic assum'd the Appearance of an Art, the World has been blest'd with some one or other of this Stamp. *Hippocrates*, for Instance, in the very Dawn of Medicine, appear'd, and like the Sun in his meridian Splendor diffused a noble Light, which will for ever shine with distinguish'd Lustre. This venerable Man is to the Physician, what the Pole Star is to the Mariner, his Guide, his Director, and that of which when he loses Sight, he is sure to be bewilder'd, and err from his Course. The divine *Hippocrates* is always sure to represent Things as they are in their own Natures. He has no interested Views to serve, no particular Bias to draw him aside from Truth. He is always clear, always

concise,

concise, and intelligible. He no-where obscures his Meaning, throws a Cloud over the Natures of Disorders, or misrepresents their Symptoms and Terminations, by the unintelligible Jargon of the four Elements, or the still more absurd and ridiculous Whim of the four primary Qualities resulting from them. Vain and idle Controversies concerning the first Temperament of the simple Stamina of Life never hinder him from penetrating into the true Events of Things. The Purity and Glory of his Compositions are not stain'd and sullied with the useless Notions of the *Calidum Innatum*, and the *Humidum Radicale*. Subtile and uninstrusive Distinctions of Diseases, and their several Causes, are not to be met with in the Works of this venerable Parent of the Healing Art. The Man deserves rather to be laugh'd at, than confuted in a grave and serious manner, who imagines that *Hippocrates* was misguided by the unmeaning Whims of unintelligible Chymists, and drawn aside by the specious Dreams of Acids and Alcalis. These were Speculations which his exalted Genius, and well-formed Taste, despised. He was no less conspicuous for the Impartiality of his Representations, than the Force and Strength of his Genius; for he no-where asserts Things which he had not seen, nor does he ever neglect to give a faithful Account of real Circumstances. He represents, but does not disguise or change, the Operations of Nature, in order to procure Honour or Stability to any particular Hypothesis. This is the amiable, this the lovely, I had almost said the perfect Character of the divine *Hippocrates*. No Wonder then, if his Accounts of Things, and his Descriptions of Diseases, have in all Ages procured the Attention, and attracted the Esteem, of the Sagacious and Discerning. To him we may justly add *Aretæus* of *Cappadocia*, and *Rufus Ephesus*, who, from his Example, became skilful Physicians, and were equally religious Observers of the Laws of Truth. But few of the *Greeks* trod in his sacred Footsteps before the Days of *Galen*. When the Labours of other *Greek* Physicians are laid in the Balance with these of *Hippocrates*, how light, how defective and imperfect are they found to be! Some of them, blindly and simpliciter devoted to a particular Sect, espoused the Tenets peculiar to it, without regarding whether they were true or false; some of them dress up Things in false and fictitious Colours, whilst others, equally mistaken, are little solicitous about Facts, and are only taken up in investigating the physical Causes of Disorders, and their Symptoms. Besides, Penetration and Impartiality, a natural Simplicity of Style, a Clearness and Perspicuity of Diction, are requisite in the Physician. Health is of more Importance than Oratory; and Life a Circumstance of more Moment than striking Images, quaint Phrases, or well-turn'd Periods. The Physician must not trifle, or play the Fool, where Matters of the last Moment are at Stake. A foolish Affectation of uncouth and obsolete Expressions, the pompous Flowers of Rhetoric, or a pedantic Playing with Words, must never draw a Veil over his real Meaning, or divert the Attention of the Reader. An unseasonable Ostentation of an Acquaintance with ancient History, a pompous Enumeration of the Opinions of different Authors, or subtile Researches into the first Causes of Disorders, however effectually they may prove the Author's Learning, are yet of little or no Service either in the Cure, or in the Prevention of Diseases, in which the Whole of a Physician's Business consists. However agreeable Labours of this Kind may prove to speculative *Literati*, yet they never fail to create a Disgust in the Man who, being intent upon finding out the clear, the certain, and infallible Signs of Health and Sickness, thinks it his only Business to preserve the former, and find out proper Remedies for removing the latter. Despising therefore what the elegant Tongue, the fine Imagination, or the sparkling Genius, have wantonly advanc'd on physical Subjects, rather to display their Parts, than advance and improve the Art, we ought carefully to peruse the plain, the simple Writings of *Hippocrates*, in which the sacred Oracles of Nature herself are delivered pure and uncontaminated; where nothing is darkened by an Obscurity of Words; where every Line is richly pregnant with Thought and Sense; and where the most important Truths are told at once with *Laconic* Brevity, and *Attic* Perspicuity. This is the distinguishing Character of *Hippocrates*; in these respects none come up to him. For whoever applies to most other Authors for Improvement and Instruction, will, for the most part, either be glutted with nauseous Repetitions, or disgusted with barbarous Lumber; or, which is almost as bad, he meets with nothing but an affected and uninstrusive Ostentation of an Acquaintance with the Languages, Antiquities, Hieroglyphics, and Fables. So few there are who consult the real Glory, the true and genuine Interests of Physic. For as amongst the *Arabians*, and barbarous Interpreters of *Galen*, there is a detestable and disgusting Impurity of Language, so among the more learned and polite Commentators on *Hippocrates*, there is more to be found that has a Tendency to form the shining Orator, than to produce the knowing and the skilful Physician. But there are still other Circumstances of greater Moment, which render the divine *Hippocrates* justly preferable to all others: Witness his unwearied and indefatigable Attention of Mind, which enabled him to view every Circumstance in the most proper Light; witness his unwearied and incomparable Diligence, by which he investigated and discover'd every thing which had the least Tendency to clear his Subject; witness the noble and generous Freedom with which he convey'd his useful Labours to the World. Which ever of these the impartial Mind considers, the divine *Hippocrates* will be found great beyond the Possibility of a Rival, and lucky beyond the Fate of Mortals; a Competitor with *Apollo* himself; and the *Esculapius* of the *Coans*. He was so quick-sighted an Observer of Nature, that in every Disorder he plainly knew her first Deviations, her present Irregularities, and the Periods where she would terminate. If we attentively advert to the accurate Distinction he makes between those Symptoms that are the Effects of Ignorance in the Physician, Negligence or Rashness in the Attendants, or of the Medicines used, and these that are the natural Result of the Disease itself, we cannot forbear pronouncing him the most discerning, the most judicious and penetrating, of all the Physicians the World has hitherto seen. And, which is more, the joint Labours of all the physical Writers who have appear'd from the Infancy of Medicine to this very Day, scarce furnish us with so large a Number of the Symptoms and Phenomena of Diseases, as this great and incomparable Author has alone describ'd. He first discover'd the various Seasons of the Year to be the Causes of the particular Disorders which generally rage in them; and taught, that the Vicissitudes of the Air, the scorching Heats, and pinching Colds, the Showers and Fogs, the stagnating Atmosphere, and the impetuous Blasts of Wind, were productive of their respective Disorders. From the Situation of Countries, the Nature of Soils, the Motion or Stagnation of Waters, the Exhalations of the Earth, and the Position of Mountains, he accounted for the Causes of endemial Disorders; and by that means preserved whole Nations, sav'd Kingdoms, and, like the Sun, diffus'd an universal and a happy Influence. By examining the Course of Life, the Food, the Drink, and the Customs of particular Nations, he found out the Source of the Disorders to which they were most subject; and in all he does, he is so minute and circumstantiate, that to the shallow and superficial Genius he appears trifling; but to the Sagacious and the Judicious, distinct, accurate, and important.

His Work *De Aere, Locis, & Aquis*, is such a Master-piece, that it may be said not only to have laid the Foundation, but to have carry'd Physic almost to the same Degree of Perfection with which it now shines. Here we have the venerable old Man accurately describing epidemical Disorders, and sagaciously informing us, that we are not only to have a regard to the Differences of Age, Sex, and Constitution, but also to the Exercise, the Customs,

Customs, and the Method of Life, used by the Patient; and that an Account of the State of the Air alone is not sufficient for accounting why some should be more remarkably afflicted with epidemical Disorders than others. We shall here find him describing the Eyes, the Hair, and the Skin, in a just and accurate Manner; and making the most judicious Remarks upon the voluble and the stammering Tongue, upon the shrill and the grave Tone of Voice; and all this with a View to discover, and point out, the particular Temperament and Constitution of those who were more subject to raging Disorders, than others who wanted these Characteristics. Hence 'tis obvious, that none ever deliver'd the diagnostic Signs of Diseases with greater Exactness, described the Disorders with which these Signs were connected with greater Accuracy, or form'd a more just and infallible Judgment with regard to their Events and Terminations, than the divine *Hippocrates*. Nor was he less happy in discovering the Natures, Symptoms, and various Turns, which Diseases might take, than successful in relieving the miserable Patient from the Fury of their Assaults; for he was neither rash in applying his Medicines, hasty in judging of their Effects, afraid of confessing his want of Success, nor proud of his Skill, when every thing answer'd his Expectations. Diseases, like weak and feeble Enemies, yield themselves the willing Captives of his Skill; he leads them where-ever he has a Mind, and, at last, destroys the very Seeds of their Existence; and, for all these mighty Purposes, he used Medicines which were few in Number, but sure in their Effects, and of a small Price, but excellently accommodated to the Disorder. He was not solicitous about a Variety of Medicines, provided he found a few that were necessary, and knew how to exhibit them at proper Seasons, and in due Quantities. Accurately viewing the Stages and Periods of Diseases, observing their lucky or unlucky Days, checking or forwarding the Motions of the morbid Matter, digesting its Crudities, carrying what was concocted thro' Ways pointed out by the Disease itself, directing its Elimination, and bringing what was recrementitious and superfluous to a proper State of being expel'd, he was rather an Imitator and Assistant of Nature, than a bold Intruder upon her Province, or a rash Disturber of her Operations. After Chance or Skill had discover'd to him what Medicines were prejudicial, and what were salutary, and after he had found the Time and Manner in which Nature, left to herself, routs her Enemy, he then establish'd Rules for the safe and proper Use of Medicines. After these Medicines were recommended by a long Course of daily Experience, and had the Sanction of a thousand happy Cures in their Favour, he thought himself sufficiently qualify'd to describe the Virtues of Herbs, Fossils, and Animals, not in a dry, a barren, and uninformative Manner, but enrich'd with the most valuable Cautions and Admonitions, sufficient to deter the Ignorant, the Bold, and the Unskilful, from encroaching on the sacred Province of Physic. This, to speak with Impartiality, is the true, the only Method, to support the Dignity of Medicine, and afford proper Relief and Assistance to the Distress'd and Afflicted. This is the admirable, the useful, the divine Method, illustrated by the Writings, and recommended by the Practice, of *Hippocrates*. But, since his Days, Physic has assum'd various, but still less lovely Forms. Experience has been neglected, and the wanton Sallies of a roving Imagination been greedily listen'd to. At other Times, a supine Indolence has tarnish'd the Glory of Medicine. Fact and Observation have fallen lamented Victims to the Tenets of Philosophers. The Dictates of Nature have been shamefully banished, to make room for an unintelligible Jargon of Words; and monstrous Fictions have been prefer'd to the sacred and important Observations of *Hippocrates*. Surprising Cures are now impudently said to have been perform'd by such and such Medicines; but, when these are exhibited in parallel Cases, the miserable Patient is left to bewail his Misfortune, by having his Disorder increased and exasperated, instead of being allay'd and remov'd. The Condition of Humanity is already too wretched to call for the Addition of those intolerable Evils with which Avarice, and its deform'd Offspring Quackery, supply the deceiv'd and bewilder'd World. The Conceits and extravagant Whims of the Chymists have no less shamefully disguis'd the genuine Form, and chang'd the native Features, of Medicine; and the noblest of Arts has been prostituted to the meanest and most ignoble Purposes, by being made basely subservient to the Ends of Quackery and Empiricism. And, what is still more to be lamented, Men of Parts and Abilities, who might have otherwise prov'd Blessings to Mankind, have been fatally and wofully misled by Impositions of this kind. And, as if the Number of Simples was not already too great, the Confusion of compound Medicines too intolerable, and the Variety of Methods too insupportable, they must enlarge the Prospect, and add the impertinent Productions of Error and Impudence. But the Writings of *Hippocrates*, like pure and limpid Fountains, are neither stain'd with Falshoods, darken'd with Ignorance, nor fully'd with the boasting Frauds of Quackery, or the forbidding Vanities of Chymistry: He is every-where so clear, so distinct, so copious and full, that he may safely be pronounc'd the greatest and most perfect Master of the Healing Art, the World has hitherto seen. Some may possibly think this repugnant to Truth, because, say they, Medicine is improv'd by Observation, and has receiv'd incredible Advances since the Days of *Hippocrates*; so that, in his Time, the Art must have been rude, imperfect, and, as it were, in its Infancy. This is, in some measure, true; but 'tis equally true and certain, that *Hippocrates* had the Experience and Improvements of Numbers who had gone before him, to form himself upon; for we are told by authentic and unexceptionable Historians, that *Hippocrates*, lineally descended from *Apollo*, the first Physician among the *Greeks*, possess'd, by an hereditary Right, the Secrets of the Medicinal Art. *Æsculapius*, the Son of this *Apollo*, perfected the Secrets handed down by his Father, and left them enlarg'd with his own. From *Æsculapius* sprung those celebrated Physicians, *Chrysamides*, *Cleomistades*, *Theodorus*, *Sostrates*, *Nebrus*, *Cnossidicus*, *Hippocrates* the First, and *Heracledes*, the Father of the divine *Hippocrates*, of whom we now speak; so that the Art of Physic seems to have been convey'd from Father to Son, till it reach'd this divine, this incomparable Genius, who, according to the historical Accounts of the Family, was the nineteenth from the common Stock. To these Circumstances if we add his Care, his Diligence, the Length of his Life, his Travels thro' *Babylon*, *Egypt*, and the *Indies*, we shall easily perceive, that he must have had a large Fund of experimental Knowledge. But, unsatisfy'd with the Instructions handed down from his Ancestors, and the Stores of Wisdom he had treasur'd up in his Travels, he apply'd himself, with indefatigable Diligence, to gain an Acquaintance with the Opinions and Sentiments of others. There was, at this Time, a celebrated Temple in *Cnidus*, whose Walls were adorn'd with Tables, on which were wrote the choicest and most valuable Observations in Physic: These he visited, these he wrote out for his own Use, and acquired such a Degree of Reputation, that he was thought worthy to be let into all the Secrets of the *Cnidian* School. We have no Reason to believe, that Medicine was a Science so imperfect and barren as 'tis thought to have been in the Days of *Hippocrates*, when we are inform'd by the Histories of these Times, that it was divided into Sects, consign'd to Writing, and promoted by the Aid and Concurrence of other Sciences, as may be seen by any one who consults his Books, concerning the antient State of Physic, wholesome Food, the Regimen of Patients under acute Diseases, and his Chirurgical Pieces, all which are wrote in the genuine and uncounterfeited Style of *Hippocrates*. Among the numberless Instances in which he improv'd both that Knowledge he had receiv'd from his Ancestors, and that which he had learn'd in foreign Nations, there is one of a singular Nature, and entirely peculiar to himself; for he sent his elder Son *Thessalus* into *Thessaly*, *Draco* his younger Son to the *Hellepont*, *Polybus* his Son-in-law to another

another Quarter of *Greece*, and a large Number of his Scholars all over the Country, after having duly instructed them in the Principles of their Art, and furnish'd them with every thing necessary for Practice. These were order'd to cure the Sick expos'd on the Highways, to observe the Terminations of Diseases, to advert carefully to the Operations and Effects of Medicines, and to give a faithful and impartial Account of all to their great and worthy Constituent *Hippocrates*. These, to be sure, were a Set of the most fortunate Circumstances that ever yet concurred to the Formation of any one Physician; and the divine *Hippocrates* well knew how to make the best Advantage of them; for from the Labours and Observations of this large Number of Physicians, form'd upon his own Model, judging, as it were, with his own Eyes, and practising upon his own Principles, he form'd the most perfect, the most extensive, and the most judicious Body of Physic. Other Physicians see only with their own Eyes, but *Hippocrates* saw with those of a large Number of others. Most Practitioners draw their Knowledge from a scanty Number of Patients, but *Hippocrates* was supply'd from every Invalid in *Greece*. Few practical Authors have describ'd the Diseases which rage in a single Town, but *Hippocrates* has judiciously animadverted on all the Disorders that occur'd thro' all the Towns, Villages, and Provinces of *Greece*. This is, no doubt, a sufficient Reason why *Hippocrates* should appear so much superior to others, who were destitute of the like Opportunities; and plac'd in less favourable Circumstances: Hence it happens, that his Labours have stood the Shocks of Envy, the Assaults of Opposers, and the Malice of Critics, for so many Centuries, and, like burnish'd Steel, become the more bright and resplendent by Use. When perus'd with the nicest Judgment and the strictest Care, the smallest Inconsistence cannot be found, and Truth and Nature every-where appear in their most awful and commanding Shapes. Upon the whole, so accurate and extensive was the Skill of *Hippocrates*, that the learned *Greeks*, the polite *Romans*, and the industrious *Arabians*, have done nothing but repeat and confirm his Doctrines; whatever is or was excellent among the more celebrated *Greeks*, such as *Diocles*, *Aretaeus*, *Rufus Ephefius*, *Soranus*, *Galen*, *Aegineta*, *Trallian*, *Aetius*, and *Oribasius*, is originally borrow'd from *Hippocrates*. The more valuable and judicious of the *Romans*, such as *Celsus* and *Pliny*, had recourse to the Determinations of *Hippocrates*, as to so many Oracles. The *Arabians*, again, did nothing but transcribe from *Galen*, who, where-ever he conforms to Truth, is nothing more than a Transcriber from *Hippocrates*. The Worth of this Author is still confirm'd from a Circumstance, which, if inquir'd into, will, at least, be found, for the most part, if not universally, to prove true; and that is, that, in all Ages, the most celebrated and distinguish'd Physicians have either form'd themselves immediately upon *Hippocrates*, or upon those who had done so before them. His Merit could not be confin'd to particular Parts of the World; it diffus'd itself with irresistible Force, and procur'd him the Esteem and Veneration of the *Thessalians*, the *Coans*, the *Argives*, the *Macedonians*, the *Athenians*, the *Phocians*, and the *Dorians*. The *Illyrians* and *Peonians* ador'd him as something more than human, and *Barbarian* Kings publicly implor'd him as their tutelary Genius; powerful and opulent Nations rewarded his Merit by munificent Presents; and Histories inform us, that Physicians have, in all Ages, been recommended to Potentates, and loaded with Glory, Honour, and Riches, by treading in the Steps of *Hippocrates*.

As I am convinc'd, that the most important Service I can do to Physic is, to give Mankind a Relish for the Writings of the great *Hippocrates*, I shall add, to what has been already said, the following Quotation from *Hoffman*; in Confirmation of my own Opinion.

“As *Hippocrates* was the first who laid a happy and sure Foundation for a rational and successful Practice, so we have just Reason to be surpris'd, that, in succeeding Ages, the Healing Art has not been carry'd to a higher Degree of Perfection than it really is. This Misfortune is owing to the foolish Conduct of the Successors of that great Physician, who, forgetting Facts, and disregarding Observations, rather corrupted the Art, by reasoning upon precarious Principles, than enrich'd it by a proper Store of necessary and useful Observations. As then the Miscarriages of our Predecessors, the Barrenness of Physic, and the Imperfection of Medicine, have unquestionably been owing to this unlucky Turn, we ought to beware of splitting on the same Rock, and falling into a like Error, since, by treading in the Steps of the divine *Hippocrates*, by supplying his Defects by our own Industry, and by an accurate and unwearied Observation of Facts, we might render both the Theory and Practice of Physic far more perfect, than they at present are.”

Hippocrates left two Sons, *Thessalus* and *Draco*, who succeeded their Father in the Practice of Physic; and one Daughter, whom he marry'd to *Polybus*, one of his Pupils. Of these Sons *Thessalus* seems to have been the most eminent; for we learn from *Galen*, that he spent the greatest Part of his Life in high Reputation at the Court of *Archelaus*, King of *Macedon*. As to *Draco*, the other Son, we find nothing very remarkable relating to him, except that he had a Son nam'd *Hippocrates*, who was Physician to *Roxana*, the Queen of *Alexander* the Great. *Polybus* seems to have made a greater Figure in his Profession than the two Sons of *Hippocrates*, and is said to have been the genuine Author of some Treatises attributed to his Father-in-law. *Galen* commends him for his Industry, and celebrates him for his Experience. His System and Practice were, according to the same Author, exactly conformable to those of *Hippocrates*.

The first celebrated Physician who appear'd after *Hippocrates* and his Offspring was *Diocles Carystius*, whose Skill was so extensive, that the *Athenians* dignify'd him with the honourable Title of *Hippocrates the Second*. All antient Authors agree, that he appear'd soon after *Hippocrates*, and succeeded him at once in respect of Time and Reputation. He is said to be the Author of a Letter, still extant, address'd to *Antigonus*, King of *Asia*; a Circumstance which sufficiently intimates, that he liv'd in the Days of that Successor to *Alexander*, and not in the Time of *Darius Hystaspis*, as some modern Authors have affirm'd. But the Errors of Chronology, with respect to the pretended Letters of *Hippocrates*, lay a sufficient Foundation for our not putting a great Stress upon a Proof of this Nature, since the Letter, said to be wrote by *Diocles*, may be equally spurious with the rest. They who have made *Diocles* contemporary with *Darius* the Son of *Hystaspes*, have not sufficiently adverted to what they said; since, in that Case, he must have gone before *Hippocrates*, which Circumstances prove to be impossible. They who suppose him to have been contemporary with *Antigonus*, are not, whatever may be said to the contrary, much mistaken. *Diocles*, who certainly appear'd after *Hippocrates*, and who is found to have liv'd before *Praxagoras*, who was Preceptor to some Physicians, Contemporaries with *Ptolemy Soter*, may have possibly liv'd much about the Time of *Aristotle*. Taking this for granted, it is not impossible but *Diocles* might have surviv'd *Aristotle*, and consequently might have seen the Beginning of the Reign of *Antigonus*, and the other Successors of *Alexander*, who dy'd about two Years before *Aristotle*. This may be advanc'd for the Possibility of *Diocles* having wrote to *Antigonus*. Abstracting from these Circumstances, Mr. *Le Clerc* believes the former more antient than *Aristotle* by some Years.

This Letter of *Diocles* contains Precepts relating to the Preservation of Health. These Precepts consist in predicting Diseases by certain Signs, and preventing them by certain Remedies. The Body is, in it, divided into four Parts, the Head, the Breast, the Belly, and the Bladder. In it we have also Remedies for preserving these four

Parts from the Distempers commonly incident to them. With respect to the Head, Gargarisms are propos'd for purging it, and Frictions are recommended; with respect to the Breast, Vomits, either upon a full, or an empty Stomach, are prescrib'd; as for the Belly, 'tis order'd to be kept easy and open, not by Medicines, but by a proper Regimen, the Use of Blites, the Herb Mercury, boil'd Garlick, sharp-pointed Dock, Water in which Cabbage has been boil'd, and Preparations of Honey; lastly, with respect to the Diseases of the Bladder, some Medicines, which provoke Urine, are prescrib'd, such as the Roots of Apium and Fennel, boil'd in Wine, with Water in which wild Carrot, Alexanders, Elecampane, and Chiches, have been boil'd.

This is a succinct Account of the Contents of this Letter, which seems to be a kind of Extract from some Books of *Diocles*, in which he treated fully of the Preservation of Health, and of such Substances as are proper for that Purpose. One of these Books was address'd to *Plistarchus*. *Diocles* wrote some others, which are lost, as well as these we have now mention'd. *Athenæus* makes mention of a Book, in which that Physician treats of Fishes; and of another, in which he taught the Method of preparing Aliments. The same *Athenæus* also informs us, that several antient Physicians wrote upon the last of these Subjects. Among others who had done so, he mentions *Phibistion*, *Erasistratus*, *Philotimus*, *Eutbydemus*, *Glaucus*, and *Dionysius*. Their Design, in these Writings, was not, in all Probability, to direct what was agreeable to the Palate, but what contributed to the Preservation of Health. *Plato* nevertheless complains, that the Art of Cookery being introduced into Medicine, under a Pretext of rendering Aliments more salutary, produced a quite contrary Effect. This Philosopher also maintains, that the Art of Cookery is the same with regard to Medicine, as the Arts of Painting and Perfuming are with regard to the Gymnastic Art. From this Passage we must observe, that in the Times of *Plato* People had begun to write upon this Subject; and perhaps what that Author says, may relate to the Books of *Diocles*, who, in all Probability, wrote during the Life of that Philosopher.

Diocles compos'd another Book concerning Diseases, their Causes and Cures. Of this Work *Galen* quotes a Fragment relating to a Disease which *Diocles* call'd the melancholic or flatulent Disease, and which he described in this manner. "There is, says he, a Disease, by some call'd the melancholic Disease, by others, the flatulent or windy Distemper, in which the Patient, after eating Aliments of a difficult Digestion, discharges a large Quantity of clear Saliva. He is also afflicted with acid Eructations, Flatulences, Heat of the Hypochondria, and a Murmuring of the Intestines not immediately upon eating, but some time after. He feels sometimes also great Pains of the Stomach, and in some Patients these Pains affect the Back itself. When the Aliments are digested, all these Symptoms cease, but return when the Patient takes his next Meal. The same Symptoms sometimes also appear when the Patient is fasting, and sometimes immediately after his Meals; so that he often vomits up his Aliment crude, and often hot and bitter Phlegm, or acid Phlegm, by which the Teeth are set on Edge. These Disorders, for the most part, begin when the Patient is young; but at whatever time they appear, they generally last a great while. We may reasonably suspect, continues *Diocles*, that they who are afflicted with this Disorder, have a preternatural Heat in the Veins, which receive the Aliment from the Stomach; and, that the Blood which they contain is inspissated; for we have a manifest Proof, that these Veins are obstructed and blocked up, since the Nourishment is not distributed thro' the Body, but remains crude in the Stomach, and instead of passing into the Intestines, which ought to receive it, and carry it into the lower Belly, it is discharged the following Day by Vomit. Another Proof that there is a preternatural Heat in these Veins is, that the Patients are in reality very hot, and relieved by the Use of cooling Substances. *Diocles* adds, that some affirm, that in Disorders of this Kind the Orifice of the Stomach, which communicates immediately with the Bowels, is inflamed, and that this Inflammation causes the Obstruction, and hinders the Aliments from passing into the Bowels at the accustomed Time; so that, remaining in the Stomach, they produce the Inflation, the Heat, and the other Symptoms mentioned."

Diocles also treated of the Diseases peculiar to Women, and of Plants; he compos'd a Book intituled, *The Shop of the Physician*, which is the same Title *Hippocrates* has given to one of his Books. He also wrote a Book intituled, *αρεὶ ἐβδομάδων*, or concerning the Weeks, probably meaning the Weeks of Gestation.

As for the Practice of *Diocles*, it was almost the same with that of *Hippocrates*. He let Blood, and purged in the same manner, and for the same Intentions. *Cælius Aurelianus* gives us a fuller Account how he treated particular Diseases. The same Author also informs us, that he order'd Bulls-glew boiled in Water with Meal and Brambles to be drunk by those who were afflicted with a Spitting of Blood. He also prescrib'd swallowing a small Ball of Lead for those who were afflicted with the *Ileus*. This Remedy is not mentioned by *Hippocrates*. Besides, he made a Distinction between the *Ileus* and *Chordapsus*, two Names which *Hippocrates* seems to give to one and the same Disease. But *Diocles* was of Opinion, that the *Chordapsus* was a Disorder of the large Intestine.

Galen also informs us, that *Diocles*, as well as *Hippocrates*, practis'd Physic from a Principle of Humanity and Compassion, and not from the more base and ignoble Motives of Interest and Glory, as most other Physicians do. *Galen* elsewhere speaks of him as a great Physician, and asserts, that his Skill was very extensive. *Diocles* said, that those were not to be confided in, who imagin'd that there was a Possibility of accounting for every thing. He also affirm'd, that we might justly depend upon a Remedy we had often experienced, tho' we should be entirely ignorant of the Cause productive of the Effects which follow its Exhibition; but that it was nevertheless expedient to inquire after the Cause, that we might be the better able to assure those with whom we have to do of the Effects.

Praxagoras is the next Physician who made any considerable Figure. Mr. *Le Clerc* supposes him to have been somewhat younger than *Aristotle*. He was Son to *Nearbus*, of the Isle of *Cos*, and of the *Æsculapian* Family, of which he was the last, of any considerable Reputation. The celebrated *Herophilus* was his Pupil: He was of the Dogmatic Sect; but seems to have been one of the first who deviated from the Method of *Hippocrates*. For we learn from *Rufus Ephesus*, and *Galen*, that he account'd for Diseases from the Qualities of the Humours, of which he reckon'd ten Sorts, besides the Blood; and as this Theory probably had some Influence on his Practice, it would be more likely to lead him into Errors, than to guide him right. *Praxagoras*, as we learn from *Cælius Aurelianus*, made great Use of Vomits in his Practice, insomuch as to exhibit them in the *Iliac Passion*, till the Excrements were discharged by the Mouth. In this Distemper he also advis'd, when Medicines fail'd, to open the Belly, cut the Intestine, take out the indurated Fæces, and then to sew all up again; a Piece of bold Practice, which has not been followed by succeeding Physicians.

Celsus, L. 2. C. 9. takes Notice of *Petron* a Physician, who liv'd before *Herophilus* and *Erasistratus*, but after *Hippocrates*, whose Practice it was to cover his Patients, when labouring under a Fever, with Heaps of Cloaths,

Cloths, in order to excite a vehement Heat and Thirst. Afterwards, when the Fever began a little to remit, he gave them cold Water to drink; and if by such means he could get them to sweat, he judged that he had effectually relieved them. If no Sweat was procured, he gave them more cold Water, and then forced them to vomit. If either way he freed the Sick from the Fever, he immediately treated them with roasted Swine-flesh and Wine. If he failed of expelling the Fever, he boiled Water and Salt together, and made the Patient drink it, till it both vomited and purged him.

By the Account I have given of *Hippocrates*, and his Method, we may perceive, that if he did not bring the Art of Physic to the greatest Degree of Perfection of which it is capable, he, at least, left it in a fair way to be improved, and pointed out the most rational Methods for its Advancement. The present State of Physic, and the perpetual and too successful Attempts which have been made in all Ages by Philosophers of all Sects, to destroy the Progress it had already made, and retard its farther Improvement, give us abundant Reason to lament, that the Scheme of *Hippocrates* was not pursued; for in all succeeding Ages, we shall have the Mortification of finding subtle Hypotheses, trifling Distinctions, whimsical, or at best uncertain Causes; and an unmeaning Jargon of Words, substituted instead of Details of Facts established by accurate Observations, and of unquestionable Events confirmed by Experience. I am abundantly sensible, that Physicians in all Ages, who have founded their Practice upon Hypotheses built upon any Philosophy whatever, have this to say in Support of their Theory, That many of their Patients have recovered. This Argument might be of some Force, provided there were no Distempers so mild, and no Constitutions so strong, as scarcely to permit a Patient to sink under any sort of Treatment; but it does not amount to an Evidence, that Numbers have not perished, for one that has escaped.

Amongst those who have attempted to reason Experience out of Countenance, one of the first was *Chrysippus*, a Physician of *Cnidos*, whom Mr. *Le Clerc* places about the Time of *Philip*, the Father of *Alexander the Great*. *Pliny* reports, that he overthrew the Maxims of preceding Physicians by his excessive Prating (*multa garrulitate*). *Galen* tells us, that he disapproved of Venesection, and condemn'd Purgatives, tho' he sometimes made use of Emetics and Clysters. We cannot possibly be acquainted with the Reasons he had for his Conduct in these Particulars, because his Works, which were become scarce in the Time of *Galen*, have not reach'd our Hands; and because *Galen* does not take so much Notice of *Chrysippus*, as of *Erasistratus* his Scholar, who was of the same Sentiments with his Master.

Aristotle is more famous for his Philosophy, than for any Medicinal Knowledge he possessed. As it does not appear, that he was much concern'd in the Practice of Physic, I shall not trouble the Reader with a Detail of his Philosophical Romances, but proceed to his Pupil *Alexander*, who seems to have been the Cause of greater Improvements in Physic than his Tutor. This Prince by his Indian Expedition, and the Foundation of *Alexandria*, open'd a Commerce to the East unknown to the Egyptians and Greeks before his Days; and, in consequence of this, the *Materia Medica* was enriched with many Aromatics; and Medicinal Drugs, which we find no Account of before this Æra. The *Arabians* have a Tradition, that the Fleet of *Alexander*, in its Return from *India*, touch'd at the Island of *Succotra*; and finding Plenty of the best Aloes there, this Monarch transported the Inhabitants to some other Country, and settled a Colony of Greeks in their Island, to whom he committed the Care and Cultivation of Aloes. This Story receives no small Confirmation, from the Accounts given us of the above-mention'd Island by modern Travellers, who relate, that it is inhabited by two very different Sorts of People; some of which are black, and have woolly Hair; the others white, with long Hair like the *Europeans*. It is, however, certain, that no Author before the Time of *Alexander* takes Notice of that inspissated Juice, which is called Aloes; and that, soon after the Foundation of *Alexandria*, we find it mentioned by most Authors who wrote on Medicinal Subjects.

Erasistratus was a Native of *Iulis* in the Isle of *Cea*, or *Ceos*. *Suidas*, from whom we have this Account, adds, that this Physician was buried over-against *Samos*, upon Mount *Mysale*. This Circumstance perhaps, induced the Emperor *Julian* to think, that *Erasistratus* was a Native of *Samos*. *Stephanus Byzantinus* is evidently mistaken, when he affirms him to be a Native of *Cos*, the happy Island which gave Birth to the divine *Hippocrates*, since he took *Cos* for *Ceos*. *Cbios* is also by some Authors taken for the native Country of *Erasistratus*; because the Name approaches pretty much to that of *Ceos*.

There is also some Difficulty in ascertaining the precise Time in which *Erasistratus* lived. *Eusebius* is of Opinion, that he flourished under the Reign of *Ptolemy Philadelphus*, or about the hundred and thirty-first Olympiad. But in all Probability he must have been somewhat older, otherwise he could not have exercised his Profession, and acquired so great a Character in the Days of *Seleucus Nicator*, who died in the hundred and twenty-fourth Olympiad, twenty-eight Years before the Time specified by *Eusebius*. But that *Erasistratus* had acquired an uncommon Fame before the Death of *Seleucus*, is obvious, from the celebrated Story of *Antiochus* falling in Love with *Stratonice*, the second Wife of *Seleucus* his Father, and being cured of his Passion by this Physician.

The Character *Erasistratus* bore among the antient Physicians, renders it highly necessary to give some Account of his Practice. *Galen* then affirms, that this Physician, as well as his Master *Chrysippus*, entirely banish'd Venesection from Medicine; and in Support of his Assertion, produces the Testimony of one of the principal Scholars of *Erasistratus*, called *Strato*, who commends him for having treated without Venesection all those Diseases in which the Antients used it. He also proves it from this Circumstance, that in all the Works of *Erasistratus*, Venesection is only once mentioned, when talking of a Vomiting of Blood; and that with a Design to shew, that it was useless in that very Disorder. From the Writings of *Erasistratus* himself, it was also obvious, that he neglected to bleed one *Crito*, who died of a Quinsy, and a young Girl of *Cbios*, whose Blood regurgitated on her Lungs, in consequence of her Menstrues being obstructed, and who also died. One of the Remedies, by which *Erasistratus* supply'd the want of Venesection in Hæmorrhages, was the Application of Ligatures on the Extremities, the Arms for Instance, and the Legs. The rest of the Cure was principally performed by Regimen.

Tho', from what has been said, we might be tempted to think, that *Erasistratus* declared against Venesection in general, yet his Abettors and Followers maintain, that he did not absolutely condemn it, tho' he used it less frequently than other Physicians. *Cælius Aurelianus* is of the same Opinion; for he assures us, that, in Hæmorrhages, *Erasistratus* used Venesection; and adds, that only some of his Followers condemned that Practice. But this Assertion is directly contrary to that of *Galen*.

Galen assigns one Reason why *Chrysippus*, the Master of *Erasistratus*, disapproved of Venesection, which is, That the Abstinence enjoined to Patients, especially in Fevers and inflammatory Disorders, render'd it improper, for fear of weakening them too much. But he adds, that the Disciples of *Erasistratus* were not agreed among themselves

themselves as to the Reasons why their Master condemned Phlebotomy. *Apemantus* and *Strato*, continues he; advance very frivolous ones for his so doing. What they say on this Subject may be reduced to the following Particulars. "It is difficult to succeed in Venesection, because we cannot always well discern the Vein we intend to open, and because we are not sure but we may mistake an Artery for a Vein. Some have died thro' Fear, or in consequence of a Deliquium, either before or after the Operation. Others of his Disciples affirm, That we cannot know the precise Quantity to be taken. If, say they, we take too little, the Intention is by no means answered; if, on the contrary, we take too much, we run a Risque of destroying the Patient. Others of the Followers of *Erasistratus* affirm, that the Evacuation of the venous Blood is succeeded by that of the Spirits, which, on that Occasion, pass from the Arteries into the Veins. Others of them affirm, that as the Inflammation is formed in the Arteries by the Blood, coagulated in their Orifices, Venesection must of course be useless, and of no Effect."

As *Erasistratus* did not approve of Venesection, so neither did he prescribe Purgatives, except very rarely, tho' he exhibited Clysters and Vomits, as did his Master *Cbrysippus*. But he was of Opinion, that Clysters should be mild, and condemned the large Quantity, and the acrid Quality, of those used by the Antients. The Reason why Purgatives were not much used by him, is, that, in his Opinion, Purging and Venesection answered the same Intention, since they had an equal Tendency to diminish Plenitude; for which Purpose he maintained, with *Cbrysippus*, there were surer and more effectual Means than either Phlebotomy or Purgation. He asserted, that the Humours, discharged by Purgatives, were not the same in the Body they appeared to be after their Discharge; but that Cathartics change their Nature, and produce a kind of Corruption in them. This Opinion has been since embraced by a great Number of Physicians.

We must also observe, that *Erasistratus* did not believe, with *Hippocrates*, that Purgatives acted by Attraction; but he substituted in the room of this imaginary Attraction, what he called τὴν πρὸς τὸ κενούμενον ἀκολουθίαν, which Mr. *Le Clerc* imagines to be somewhat like the *Aristotelian Fuga Vacui*, Abhorrence of a Vacuum. With regard to particular Humours being evacuated by particular Medicines, some of his Disciples asserted, that the most subtle and attenuated Humours were discharged first, and the coarsest and thickest last; so that the weakest Medicines discharge only some Waters; such as are a little stronger discharge Bile; and those which are most drastic and powerful of all, purge black Bile: But *Galen* objected against this Explication, as not agreeable to the real Sentiments of their Master. *Galen* also makes mention of a Medicine in a solid Form, in which Castor was an Ingredient, and which *Erasistratus* used in order to purge, or at least keep the Belly soluble: But it is not known what purgative Ingredients he mixed with the Castor, since the Composition is not described by *Galen*, who adds, that if it was purgative, *Erasistratus*, in all Probability, used it very rarely.

The principal Remedy he substituted in the room of Venesection and Purgatives, was Fasting or Abstinence. When this, in Conjunction with Clysters and Vomits, was not sufficient to remove Plenitude, which, according to him, was the most general Source of all Disorders, he then had recourse to Exercise. *Erasistratus* not only look'd upon the Fulness of the Veins, as the original Cause of Diseases, but also maintained, that this Fulness was followed by a Transfusion of the Blood from the Veins into the Arteries, and consequently by a Fever and Inflammation. He also acknowledg'd another particular Species of Plenitude, which was that of the Part affected. Of this there is an Example, in the History given of the Disease under which *Crito* labour'd. This Disorder, which was a Quinsey, he calls synanchic Plenitude; that is, continues he, an Inflammation of the Amygdalæ and Uvula. He might, with equal Reason, have call'd an Apoplexy an apoplectic Plenitude; and a Pleurisy a pleuritic Plenitude, or a Plenitude of the Pleura. At this rate Plenitude was continually both the Cause, and the Genus or Kind, of the Disease.

But to return to his Method of preventing and curing Diseases by Abstinence and Exercise. He advises, "That those who have been accustomed to much Exercise, should use a little more than they ordinarily do, when they perceive a Plenitude in themselves, that by this they may prevent a Disease. After they have used sufficient Exercise, they are to go into a warm Bath, in order to sweat. After this, if they find themselves overheated, they are for some Days to use the cold Bath. When this is done, let them keep themselves in a State of Ease for some time longer, and use a very small Quantity of Aliments; abstaining from Dinner entirely, and Supping very moderately. They ought also to take care, that the Aliments they use, should possess as little of a nutritive Quality as possible. Of this Kind are most Species of Herbs, whether crude or prepar'd; as also Citruls, Cucumbers, Melons, Figs, and Pulses, which ought to be boil'd with Herbs. The Bread they eat ought also to be very good. By this Regimen they will not only keep their Bodies soluble, but live upon such Aliment as is not too strong. The Reverse of this would happen, if they should live upon Flesh, Fish, or Aliments either entirely consisting of Meal, or those in which Meal is an Ingredient; since these are too nourishing, and consequently ought not, on such Occasions, to be used at all, or at least very sparingly. This Regimen must carefully be follow'd, in order thoroughly to remove Plenitude, which is the Cause of Distempers. As for those who are not accustomed to strong Exercise, or hard Labour, they reap no great Advantage from exercising themselves much, though Exercise in itself is very proper for evacuating the Superfluities of the Body. For those who vomit easily, Emetics are always useful after Supper, provided too long a Time does not intervene between Supper and the Emetic to be taken, so that they may vomit almost at the very Time when the Chyle has fully distributed itself, and the remaining Mass of Aliments is still lodg'd in the Stomach. The following Day they must bathe and sweat, and afterwards return gradually to their ordinary and accustomed Course of Life.

As Plenitude, continues *Erasistratus*, occurs in various Parts, the Liver, for Instance, and the Abdomen, and as, in some Patients, it produces Epileptic Fits, and, in others, Pains of the Joints, the Cure of these Patients must, of course, be differently regulated. They, for Example, who are inclin'd to Epilepsies, ought not to be treated in the same manner with those who spit Blood: The former ought to be in continual Exercise, whereas the latter ought to avoid Fatigue and Labour, lest the Vessels, already open, should be render'd still more so. Patients, subject to the Epilepsy, ought continually to expose themselves to Labour and Fatigue, to eat and drink very little, to bathe rarely, and avoid every thing which has the least Tendency to produce either too great, or too sudden, a Change in the Body. On the contrary, they who are subject to the Gravel, ought to use Aliments of easy Digestion, bathe frequently, and drink often; lest their Urine, becoming acrid, should corrode the Parts thro' which it passes. To Patients of this kind, too much Exercise is prejudicial. Those, also, who are subject to Desfluxions on the Liver, or Spleen, ought to abstain from too violent Exercise, and the Use of cold Baths, and rather seek for a Cure in Abstinence from Meat and Drink, and in the Use of warm Baths."

These Words of *Erasistratus*, quoted by *Galen*, shew us, that, tho' he did not absolutely condemn Exercise, yet he only approv'd of it as a Remedy to be practis'd by those who were conscious of their Vessels being too full; and thought it entirely useless to such as enjoy'd a good State of Health. In this Particular his Sentiments were opposite to those of *Hippocrates*, as they also were with regard to Bleeding, Purgings, and Abstinence.

Galen informs us, that *Erasistratus* attributed so much to *Succory*, in Diseases of the Viscera and lower Belly, and especially those of the Liver, that he took particular Pains to describe the Method of preparing it; which was, "To boil it in Water till it was tender; then to put it a second time into boiling Water, in order to destroy its Bitterness; and afterwards to take it out of the Water, and preserve it in a Vessel with Oil; and, lastly, when 'tis to be us'd, to add a little weak Vinegar to it." So minute and circumstantiate was *Erasistratus*, with regard to the Preparation of his favourite *Succory*, that, if we may believe *Galen*, he gave Orders to tie several of the Plants together, because that was the more commodious Method of boiling them; "As if," says *Galen*, Cooks and Kitchen-maids "had not known how to boil a Bunch of *Succory*." What induc'd *Erasistratus* to this was, probably, that the Medicine of the Time in which he liv'd, consisted almost entirely in Regimen, to which this Physician added some topical Remedies, such as Fomentations, Cataplasms, and Unctions. He also approv'd of the most simple Medicines, and exclaim'd against the Royal Compositions and Antidotes, which his contemporary Physicians call'd the *Hands of the Gods*. He could not suffer, that Minerals, Plants, and animal Substances, Things taken from the Sea, and Things produc'd by the Earth, should be mixed together. It would, said he, be much better to use only *Prisan*, *Citruls*, and *Hydrelæum*. By *Prisan* and *Citruls* he understood the Diet, and by *Hydrelæum*, or Water and Oil, he meant Clysters, Ointments, and Fomentations. Thus he reduc'd Physic to a very simple and compendious Art.

Erasistratus was no less implacable an Enemy to superfluous and fine-spun Reasonings, than to too compound Medicines. He was afraid, lest the Errors he should fall into, in reasoning upon the Causes of Diseases, might influence his Practice, and deceive him in the Cure of Disorders. *Erasistratus* and *Herophilus*, says *Galen*, were but half Dogmatics; they would only treat with the Remedies suggested by Reason the Diseases of the organical or instrumental Parts.

It were to be wish'd we had still a Book, wrote by *Erasistratus*, intituled, *Of Causes*; if we had, we should, in all Probability, find something curious enough upon this Subject. This Book is quoted by *Dioscorides*, who informs us, that this Physician was not so much in the Empirical way of Thinking, as to believe it unnecessary to inquire into the Causes of other Disorders, besides those of the organical Parts, which *Galen* would insinuate. 'Tis true, he seems to agree with the Empiric Sect, which began almost in his own Time, that we cannot always discover the specific or particular Causes of several Disorders. But, said he, it does not follow, that it is so with the general Causes, which are apparent, sensible, and supply us with sure Indications. In order to illustrate this, he brought the Example of those who had taken Poison, or were bitten by some venomous Animal. This Poison, continu'd he, does not furnish us with a curative Indication, drawn from its specific Nature, which is unknown to us. But this does not hinder us from drawing a general Indication from the Effects produc'd by the Poison, upon which we may conduct ourselves in the Cure of this Disorder, by reasoning thus: The Cause of the Effects, we see, depends upon a venomous Matter, which, in a short time, destroys the Parts it touches, and causes Death, by quickly insinuating itself into all the Parts of the Body. We must, therefore, try to extract it as soon as possible, and prevent its penetrating farther and deeper. In order to answer this Intention, if any one has taken Poison; we must forthwith make him drink a great deal of Water, and afterwards cause him to vomit, that the Poison may be discharged from his Stomach. If, on the contrary, any one has been wounded by a venomous Animal, the Wound must forthwith be dilated, suck'd, and Cupping-glasses must be apply'd; the Part must also be scarify'd, cauteriz'd, and drawing Medicines must be apply'd to it; and, if there is an absolute Necessity for it, the whole Member must be cut off; and all this with an Intention to draw out the Matter of the Poison, and prevent its spreading.

It may, perhaps, be ask'd, whether *Erasistratus*, to the Medicines already mention'd, did not join Antidotes. It is probable he did; tho', at the same time, he did not approve of such as were very compound, and only used them as Remedies authoriz'd by Experience, without having, in that Particular, any Regard to the Cause of the Disease, or the Manner in which Antidotes acted; otherwise he must have reason'd a great deal, and had recourse to specific and particular Causes, a thing as contrary to his Principles as to those of the Empirics. Not that he entirely neglected these last-mention'd Causes, since he search'd for that of a Fever, the most difficult of all others to be discover'd. But, in all Probability, tho' this Physician thought it allowable to give a Loose to the Imagination in Researches of this kind, yet he did not look upon them as essential to the Practice of Physic, since he did not scruple to affirm, that we could only reason solidly upon sensible Causes, and that these alone could furnish us with certain and infallible curative Indications.

There are several Diseases on which *Erasistratus* wrote nothing, perhaps for want of an Opportunity of making sufficient Observations upon them. This appears so much the more probable, because, as *Galen* observes, it was reported of this Physician, that he neglected Practice, kept himself at home, and rarely saw any Patients.

He, nevertheless, apply'd himself to all the Parts of Medicine, and cultivated Surgery with as much Care as the Physicians who preceded him: He appears to have been a bold Surgeon, and a cruel Anatomist, if 'tis true, that he dissected Men alive. In a scirrhus Liver, or in Tumors of that Organ, *Cælius Aurelianus* observes, that *Erasistratus* made an Incision thro' the Skin and Integuments, and, having open'd the Abdomen, he apply'd Medicines immediately to the Part affected; but, lest it should be thought, that this is not the real Meaning of the Passage, the Words in the Original run thus: *Erasistratus in jecoris præcens superpositas jecori cutes atque membranam, utitur medicaminibus quæ ipsum jecur late amplectantur; tum ventrem deducit, audacter partem patientem nudans.*

Tho' *Erasistratus* was thus bold in performing Operations on the Liver, yet he did not approve of the *Paracentesis*, or Tapping, in the Dropsy; because, said he, the Waters being evacuated, the Liver, which is inflam'd, and become hard like a Stone, is more press'd by the adjacent Parts, which the Waters kept at a Distance from it, so that by this means the Patient dies.

This Physician also declar'd against drawing Teeth which were not loose. He used to tell those who talk'd with him on this Operation, "That, in the Temple of *Apollo*, there was to be seen an Instrument of Lead for drawing Teeth; in order to insinuate, that we must not attempt the Extirpation of any but such as are loose, and call for no greater Force for their Extirpation, than what may be supposed in an Instrument of Lead."

Erasistratus wrote several Books, the Titles and Fragments of some of which are preserv'd in *Galen* and *Cælius Aurelianus*. The former of these Authors informs us, that he wrote very accurately on the Dropsy. He also quotes the following Books; that in which *Erasistratus* treated of the Diseases of the Belly; that on the Preservation

of Health; that on Things salutary; that on Habit; that on Fevers and Wounds; that on Divisions, in which he related the several Observations he had made upon Diseases; that concerning Vomiting, and Spitting of Blood. Galen also quotes another Book of his, concerning the Evacuation of Blood, or Venesection. But this seems to be inconsistent with what Galen had said before, when he tells us, that Erasistratus did not write upon Venesection. It is probable there may be some Error in this Passage of Galen.

Erasistratus also wrote concerning the Palsy and the Gout. In the former of these Works he made mention of a Palsy of the Peritoneum, succeeded by a Retention of Urine: Because, said he, in this Case the Peritoneum does not press the Bladder, in order to discharge its Contents. He also spoke of another Species of Palsy, which he call'd Strange, or Extraordinary; because, by it, the Patient was suddenly constrain'd to stand still, without being able to walk, but, soon after, walk'd easily and freely. We know nothing of the Contents of his Book on the Gout, except that, in that Disorder, he condemn'd Purgatives, and promised King Ptolemy a Cataplasm for the Gout, of which he gave no Description. He also wrote against the Physicians of Cos, among whom was Hippocrates, whom he contradicted for the most part. He also wrote several Books of Anatomy, when he was pretty far advanc'd in Years.

Petrus Castellanus, in his Lives of the Physicians, says of Erasistratus, that when he was very old, and had suffer'd long under an incurable Ulcer of one of his Feet, he put an End to his Life, by swallowing the Juice of Hemlock.

This History of the Practice of Erasistratus and his Disciples will furnish us with Matter for a Remark of some Importance in Physic, and which a Practitioner should never forget, if he intends to make a Figure in his Profession, and satisfy his own Conscience, by a religious Discharge of his Duty to those who commit their Healths and Lives to his Care. It is, that the Instant Mankind began to dignify Imagination with the specious Title of Reason, and to prefer the Authority of the uncertain Dictates thereof, to that of Facts establish'd by the Experience of Ages, an Attempt was made to deprive Medicine of the most certain and effectual Means of Relief, which had at that time been discover'd, or even that at this Day we are acquainted with, I mean Bleeding and Purgings. But Physic is not the only Science which too justly complains of the Arrogance of false, and Deviation from right, Reason; for there is nothing serious or sacred, which has not been attack'd in the same manner; nothing certain, either human or divine, which has not been disputed; and nothing valuable and useful, which has not sustain'd some Injury by the Insolence of human Reason, which ten thousand Errors demonstrate to be not infallible.

Herophilus is generally thought to have been contemporary with Erasistratus, though somewhat his Senior. We have already given some Account of his Anatomy, under the Article ANATOMY. But this was not the only Branch of Medicine to which he apply'd himself; for he understood Surgery, cultivated Botany, and held Herbs in so great Esteem, that, according to Pliny, in the second Chapter of his twenty-fifth Book, he asserted, that those we tread under our Feet, were possess'd of very valuable Qualities.

Herophilus is said to have been the first Physician of the Dogmatic Sect, who made so great an Use of Medicines, both of simple and compound, that neither he nor his Disciples would undertake the Cure of any Disorder without them. Celsus, who makes this Observation, supposes, that preceding Physicians usually practis'd without them. Herophilus used to say, that Medicines were either nothing at all, or the Hands of the Gods, according as they were used and employed.

This Physician is also said to have been the first who treated with Accuracy the Doctrine of the Pulses, which before that Time had been much neglected. Pliny, indeed, asserts, that he carried Matters too far with respect to that Subject. According to Herophilus, says that Author, "it would be necessary to be both Musician and Geometrician, in order to know perfectly the Doctrine of Pulses, that is, to understand their just Measure and Cadence, according to the different Ages and Diseases of Patients."

But this Observation of Pliny is founded upon a vulgar Error, which represented Herophilus in this injurious Light, because he was unquestionably the first who, in treating that Subject, had used the Word *pulsus*, or Measure, a Term used by Musicians, but which he apply'd to the Pulse, and which has been retained by the Physicians of all succeeding Ages. Galen, indeed, by whom we are informed, that Herophilus wrote copiously on the Measure of the Pulses, asserts, that he has involv'd himself in Difficulties, and advanc'd Absurdities, in handling the Subject; but his having been the first who made such an Attempt, will sufficiently apologize for his Blunders.

What Pliny adds, with respect to the Sect of Herophilus being deserted, because his great Subtlety was not relish'd by every one, is by no means probable, since Herophilus had a great Number of Followers long after his Death. Besides, 'tis not easy to reconcile this great Subtlety, which Pliny ascribes to Herophilus, with the Account Galen gives of him, when he calls him half Empiric in his Sentiments; or when in another Part of his Works he classes him, and his Followers, among the Empirics.

Galen farther informs us, that Herophilus wrote against the Prognostics of Hippocrates, a Work which of all others has had the fewest, and at the same time the least successful Attacks made upon it. As Hippocrates did not much depend on the Pulse, and the Signs furnish'd by it, this, perhaps, is the Reason why Herophilus attack'd him in this Particular.

Caelius Aurelianus, who gives us some Instances of the Practice of Herophilus, informs us, that this Physician wrote nothing concerning the Cure of several Diseases, even such as most usually occur, as the Pleurisy and the Quinsy, though he treated of the Nature of these Disorders; since, among other Things, he maintains, that "the Lungs are the Parts affected in a Pleurisy; and that a Peripneumony does not differ from a Pleurisy, except that in the former the entire Lungs are affected, whereas in the latter a Part of them only suffers." He made mention of a Disease which is pretty rare, and which he call'd a Palsy of the Heart; but all he says of it is, that certain sudden Deaths are to be ascribed to it. Herophilus followed the Sentiments of Praxagoras his Master, and those of Hippocrates, with respect to the Humours, Health, and Diseases. His Practice was also very near the same with theirs. He repos'd a particular Confidence in white Hellebore, and compared this Remedy to a valiant Captain, who boldly marches out of the Gates of a City to meet the Enemy, after having sufficiently animated those who were to follow him.

If we may credit Celsus, it was near the Time of Erasistratus and Herophilus, that Medicine, which till then had in all its Parts been practis'd by one Person, was divided into three Branches, which became the Occupations and Employments of three distinct Classes of Men.

These three Branches were the Dietetic, the Pharmaceutic, and the Chirurgical Medicine. The first employ'd a proper Regimen in the Cure of Diseases, the second Medicines, and the third the Operation of the Hands. If this Division was to be understood strictly, according to the Letter, we might infer from it, that those who used

Regimen

Regimen could not prescribe Medicines; nor those who exhibited Medicines, and operated with their Hands, employ Diet. But *Celsus*, in the Preface to his fifth Book, explains himself thus: "All the Parts of Medicine," says he, "are so connected with each other, that they cannot be separated; that which treats the Patients by Regimen, sometimes adds Medicines; and that which employs Medicines, has also need of a Regimen: So that each Part takes its Name from that about which it is principally employ'd."

This Division lays a kind of Foundation for our believing, that *Celsus* intended the three Professions to which Medicine is at present confined, those of Physicians, Apothecaries, and Surgeons. But Matters did not then stand precisely on the same Footing they now do. Those who practised the first Branch, which was the Dietetic, were indeed the same with our Physicians; but the others were not equivalent to our Apothecaries and Surgeons. As the Physicians had the Care of internal Disorders, whose Causes are generally most difficult to be found out, they have, in all Ages, been held in the greatest Esteem. What made the People pay them a superior Deference, was their affirming, that in order to exercise their Art skilfully, they were oblig'd to be Philosophers, and have an Acquaintance with almost every Object in Nature.

Those who exercised the third Branch differ'd from our Surgeons in this, that their Art did not comprehend so many things. They meddled with nothing but Surgery, strictly so call'd, that is, barely with manual Operations; and did not undertake the Cure of Patients, who could find Relief by any other Method. They were not even allowed, according to *Celsus*, to treat Wounds, much less Ulcers and Tumors, except in Cases where there was an absolute Necessity for making an Aperture or Incision.

Wounds, Ulcers, and Tumors, belong'd to the Province of those who exercis'd the pharmaceutic Part. These they treated by the Application of Medicines which stop Blood, which consolidate, which deterge, which incarn, which suppurate, and which break or evacuate Abscesses. Upon the Whole, this Class of Men undertook all Disorders, the Cure of which is to be brought about by the external Application of Medicines. But when they could not succeed, and when there was a Necessity of having recourse to Fire, and the Knife, they then deliver'd over their Patients to the Care of the Surgeons, so that they differ'd very widely from our Apothecaries.

Before this Division was made, those call'd Physicians discharg'd all the several Offices belonging to the three Professions; and there were only two Kinds of Physicians, the one called ἀρχιτεχνονίται, who only gave their Advice to the Patients, and Directions to the inferior Class, who were call'd ἡμιουργοί, who labour'd with their Hands under the Inspection of the former, whether in performing Operations, in the Composition, or Application, of Remedies. The same thing, according to *Aristotle*, holds good in all Arts. But it happen'd, that the last-mentioned Order of Men, who were the Servants of the former, and sometimes their Children, or Disciples, began to perform alone, what they formerly did under the Inspection of another, and each profess'd what he understood best, either in Surgery or Pharmacy; so that Medicine was divided in the manner above-mentioned. Those who practised Surgery, bore the same Name they at present do. In the first Chapter of the twenty-ninth Book of *Pliny*, we also find the Name *Vulnerarius*, or *Vulnerum Medicus*, the Physician of Wounds; but this Appellation seems rather to belong to those who exercised the pharmaceutic Part of Medicine, since Wounds belong'd to their Province, according to *Celsus*; tho' 'tis possible *Pliny* might have intended a Surgeon by that Name, since these two Professions have not been so accurately distinguish'd, as to prevent the one from being taken for the other.

Those who applied to the Pharmaceutic Part were called *Pharmaceutæ*; for the Word *Pharmacopœus* was taken in a bad Sense, and generally importet a Poisoner, who was also called φαρμακός and φαρμακεύς, from the Word φάρμακον, which signifies indiscriminately every Drug or Composition, whether good or bad, and every Medicine or Poison, whether simple or compound. The *Latins* have in like manner used the Word *Medicamentum* for Poison, and the Word *Medicamentarius* for a Poisoner; tho' this last Word signify'd also an Apothecary, as did the first a Medicine.

The Word *Pharmacopola* among the Antients signified another Species of Profession. This Name was given to all without Exception who sold Medicines, tho' they did not prepare them: But the Name was in a particular manner applied to those we call Mountebanks, who stroll from Place to Place in order to sell their Medicines: For this Reason they were also called *Circulatores*, *Circuitores*, and *Circumforanei*. They were also called ἀγορῆται, from a *Greek* Word which signifies to assemble; because they gathered a Croud about them, and found Fools enough to believe what they said, as their Brethren of the Profession at this time do. They were also for the same Reason called ὀχλαγόροι. They were also called *Sellularii Medici*, ἐπίδικται ἰατροί. This is the Trade with which *Epicurus* upbraided *Aristotle*: This the Business followed by *Eudamus*: This the Profession of one *Chariton*, from whom *Galen* has taken some Descriptions of Medicines, and whom he calls ὀχλαγόρος. This, in short, was the Business of *Lucius Clodius* of *Ancona*, whom *Cicero* calls *Pharmacopola Circumforaneus*.

It cannot well be determined whether what they called the *Pharmacotribæ*, that is, Mixers or Compounders of Medicines, were the same with the *Pharmaceutæ*, or if those were only so called who composet the Medicines, tho' they did not apply them. These last might possibly be the Servants of the Druggists, who by the *Latins* are called *Seplasiarii* and *Pigmentarii*, and by the *Greeks* παρτοῦλαι, and καθολικοί, because they sold all Kinds of Drugs. They were also styled φαρμακῶν πωλῆται, and in the later Ages of *Greece* φαρμακταῖοι, a Name formed from the *Latin*.

The Shops of these Dealers were called *Seplasia* in the Plural Number, and Neuter Gender, and their Profession *Seplasia* in the Singular Number, and Feminine Gender. They sold to Physicians, Painters, Dyers, and Perfumers, all the Materials for which they had Occasion. These Venders, as well as Composers, of Medicines, were ready to sell bad and ill-prepared Medicines, and there were formerly, as well as now, incredible and wicked Frauds in these Professions. This Circumstance induced *Pliny* to censure the Physicians of his own Time, for not applying themselves to the Knowledge of Drugs, and for taking simple, as well as the compound Medicines, which they used upon the Word of those who sold them, and neglecting to inspect them, and compound them, as the antient Physicians did.

The Physicians purchased Medicines not only from the Druggists, but also the most common Simples from the *Herborists*, whom the *Latins* called *Herbarii*, and the *Greeks* ῥιζοτρίποι, or Cutters of Roots, and βοτανολογοί, or βοτανιστοί, Gatherers of Herbs, and not βοτανισαί, this latter Word being appropriated to those who cleaned the Corn, or took the bad and superfluous Herbs out of it. The *Herborists*, to raise at once the Dignity and Profit of their Business, superstitiously affected to gather Simples at certain particular Seasons, with various Precautions, and ridiculous Ceremonies. They were also very ready to give the Physicians one Herb or Root for another, when they happened not to be very skilful in such Affairs.

The Herborists, and those who exercised the Pharmaceutic Art, had also proper Places for holding their Drugs, their Simples, and their Compositions. These Places the *Greeks* called *ἁπλοῖαι*, a general Name signifying all sorts of Places in which any thing is kept or deposited.

The Shops of the Surgeons were by the *Greeks* called *ιατρεία*, from the Word *ιατρός*, a Physician; because all those who were concerned in any Branch of Medicine, were antiently called Physicians, and because the Physicians were also Surgeons. The Word *ιατρεία*, *Plautus* renders by that of *Medicine*; and as in his Time Medicine was not divided in *Rome*, but the Physician, the Surgeon, the Apothecary, and the Druggist, were all one; that Name, in the Comic Poet, agrees to all the Shops in general, where any Branch of the Medicinal Art was practised, whether Medicines and Drugs were sold in them, or whether they were designed for dressing the Wounded. In like manner the Word *Medicus*, with that Poet, signifies a Vender of Drugs.

But to return to the Division of Medicine, we have explained it precisely in the Sense of *Celsus*, whether the State of Things was actually such in his Days, or whether he only formed such a Plan as he thought should have been pursued. The Face of Affairs, however, changed afterwards; some encroached on the Professions of others, or exercised more Branches of the Business than one, or the same Names remained, tho' the Employments were no longer the same. Some Ages after *Celsus*, those who were by the *Greeks* called *ἀντιφάρμακοι*, and by the *Latins* *Pimentarii*, and *Pigmentarii*, and who, properly speaking, ought to be Druggists, also discharged the Office of an Apothecary. As a Proof of this, we may bring that Passage of *Olympiodorus*, an antient Commentator upon *Plato*: The Physician, says he, prescribes, and the *Pimentarius* prepares every thing necessary. We cannot precisely determine when this Change happened; but the Author now quoted lived about four hundred Years after *Celsus*.

The Division already mentioned did not, however, hinder several Physicians, both in the Time of *Celsus*, and afterwards, to adhere to the antient Customs; and tho' their Profession derived its Name from the Word *DIET*, yet they were not so rigidly attached to that alone, for the Relief of the Afflicted, but that they employed not only other Medicines, but had also Operators under them, who bled, scarified, applied Cupping-glasses, exhibited Clysters, applied Cataplasms and Plaisters, anointed, fomented, bathed, and prepared Medicines.

After the Days of *Herophilus*, in or about whose Time this Division was made, several famous Physicians wrote upon Surgery, and Pharmacy in particular; which proves, that they professed a Knowledge of every Branch of Medicine, as they had formerly done: And, first, with regard to Medicines, tho' various Descriptions of them were found in the Writings of preceding Physicians, such as *Hippocrates* and *Diocles*, yet these Descriptions were scattered here-and-there in their practical Works; and Books, on the particular Subject of Medicines, were, in these Days, very rare, as *Galen* observes; so that it was properly at the Time of the Division of Medicine, that People began to write on this Subject in particular, or to compose Works of this Kind; and the Physicians were the Persons who employ'd themselves in carrying on the Design. *Herophilus* began to make more Use of Medicines than had formerly prevailed. He was succeeded by his Disciples, who, by reason of the great Regard they had for their Master, did not fail to write in particular upon this Subject. Among the Followers of *Herophilus* who distinguished themselves most in this Way, *Celsus* mentions *Zeno*, *Andreas*, and *Apollonius Mus*; and to these *Galen* adds *Mantias*.

The first grand Revolution which happened to Physic, after *Erasistratus* and *Herophilus*, was occasioned by the founding of the Empiric Sect. This happened about 287 Years before the Birth of *Christ*. *Serapion* of *Alexandria* was, according to *Celsus* in the Preface to his first Book, the first who asserted, that there was no Necessity for Reasoning in Medicine, and that we ought entirely to depend upon Experience; or, at least, as he was the first who espoused this Sentiment vigorously, and was followed in it by others, he was erected Chief of the Empiric Sect.

Others have ascribed the same thing to *Philinus*, of the Isle of *Cos*, a Disciple of *Herophilus*, who is supposed to have furnished *Philinus* with an Occasion of establishing this Sect. We are not told how this happened; but we may easily conjecture at it, since *Herophilus* was half an Empiric; because he imagined, that we ought not to reason in Medicine, except in Diseases which depend upon some Disorder of the instrumental or organical Parts. *Herophilus*'s having so strongly recommended Medicines, and his Disciples being of the same Sentiments in that Particular, are two Circumstances which amount to an additional Proof; for it is well known, that the sole Design and Intention of the Empirics was the Investigation of Medicines. It is, no doubt, for this Reason, that *Herophilus*, and some of his Followers, such as *Zeuxis*, *Heracledes* the *Erytbrean*, and *Bacchius*, are, by *Galen*, class'd among the Empirics; tho' that Author well enough knew the Difference between the Sect of *Herophilus*, and that of *Philinus* or *Serapion*.

Others are of Opinion, that *Acron* of *Agrigentum* was the Founder of this Sect; and the Empirics themselves asserted, that he was so, in order to have the Advantage of Antiquity over the Dogmatic Physicians, who began only in the Days of *Hippocrates*. In order to clear up this Difficulty, we must observe, that there were two Kinds of Empirics among the antient Physicians. Those who lived from the Days of *Æsculapius*, or whoever first reduced Medicine to an Art, till the Time in which Reasoning and Philosophy were introduced into Medicine, were the first Empirics; but there is this Difference betwixt them and those of the Sect of *Serapion* and *Philinus*, that the former were Empirics without receiving that Name, so that they cannot properly be look'd upon as Sectaries, since they were the first of all Physicians; whereas the later Empirics made Choice of that Name for themselves, and affected to make a distinct Sect from the Dogmatics. Lastly, the Empiricism of the former was purely natural; whereas that of the latter was the Effect of their Meditation and Reasoning, which they well knew how to employ for the Support of their Party, tho' they declared themselves openly against such as reasoned in medicinal Affairs; conducting on this Occasion, somewhat like many of the Moderns, who notwithstanding their Contempt of Theory, are nevertheless attached to one of their own.

Philinus and *Serapion* must have lived pretty near each other; the former flourished in the Days of *Herophilus*, whose Disciple he was. *Athenæus* informs us, that he wrote concerning Plants, and commented upon *Hippocrates*; but we know not what particular Measures he took in order to establish his Sect.

As for *Serapion*, he probably practised Physic at *Alexandria*, the Place of his Birth. The Time in which he lived is not precisely known; but we may suppose he lived near the Days of *Philinus*, or was contemporary with the Disciples of *Herophilus*; because he came after *Hippocrates*, against whom he reasoned; and because he preceded the famous Empiric *Heracledes* of *Tarentum*. We are informed by *Galen*, that *Serapion* used *Hippocrates* very ill in his Writings, in which an intolerable Excess of Pride, Self-praise, and Contempt for all the valuable Physicians who went before him, were discovered. He wrote a Book concerning such Medicine as may be easily prepared; and we have some Sketches of his Practice in *Cælius Aurelianus*, which convince

vince us, that he retained the Medicines of *Hippocrates*, and the other Physicians who lived before him, tho' he rejected their Reasonings. We know not what Arguments he advanced for the Support of his Sentiments, since his Works are lost, as well as those of all the other Empirics; and we should know nothing relating to any of them, if their Adversaries had not quoted them in order to confute them.

Celius Aurelianus, when treating of the Cure of a *Cholera*, makes mention of certain Pills used by *Serapion* and *Heraclides of Tarentum*, compounded of the Seeds of Henbane, Anise, and Opium. In each Dose of these there was to be one Grain of Opium, and four Grains of the Seeds of Henbane. And indeed among all the antient Sects, we find none more attach'd to the internal Use of Opium than the Empirics. *Serapion*, if we may believe *Celius Aurelianus*, in the Cure of the Iliac Passion, used a Pill compounded of Filings of Lead, the Grana Cnidia, Salt, Elaterium, Refin, Castor, and Diagrydium. In this Composition there are two Ingredients worth our Attention; the Filings of Lead perhaps exhibited with a View of facilitating their Passage by their Weight, and the Castor with an Admixture of Purgatives; which last Ingredient is still the more worthy of our Attention, because *Erasistratus* used Pills with Castor for the Intention of purging. Besides, Castor was frequently used by the Empirics, as we learn from some other of their Compositions specified by *Celius Aurelianus*. I don't however apprehend, that Castor was intended as a Cathartic, but as a Corrector of the brisker Purgatives, in which Intention it is of considerable Efficacy.

When *Celius Aurelianus* proposes the Cure of an Epilepsy, he gives us, from *Serapion*, a long Catalogue of antiepileptic Medicines, such as Castor, the crusty Warts on the fore Legs of Horses, the Brain and Gall of a Camel, the Coagulum of the Sea-calf, a Medicine prepared of the Dung of the Land-crocodile, the Heart and Loins of a Hare, the Blood of a Sea-tortoise, or the Testicles of a Boar, a Ram, or a Cock. But before the Use of these Medicines he prescribed Venesection; and sometimes Emetics, such as white Hellebore, and sometimes Purgatives, such as Scammony and black Hellebore.

Celsus gives us an Account of a Medicine recommended by *Serapion* for the Cure of impetiginous Disorders. This Preparation consisted of Nitre two Parts, and Sulphur four Parts, made up with a large Quantity of Rosin; but by Nitre, what we now call by this Name is not meant. *Aetius* commends his *Emplastrum Melinum*, tho' he gives us no Description of it. In *Nicolaus Myrepsus* we read of a certain Preparation of his; which he calls *Antidotus Choragus*, so called, because it invigorated those who were impotent. The principal Ingredients in this Antidote were Satyrion and the Scink. From these Specimens we may form a Judgment not only of the *Materia Medica*, but also of the Practice of *Serapion*. But whether *Philinus* or *Serapion* was the Founder of the Empiric Sect, it must be both curious and instructive to inquire into the Principles by which the Physicians belonging to it conducted themselves.

They admitted only one Method of acquiring a genuine Skill in the Medicinal Art, which was by Experience, called by the *Greeks* *ἐμπειρία*. From this celebrated Word they derived their Name, and would not be denominated either from the Founder, or from any Champion of their Sect.

They defined Experience a Knowledge acquir'd by the Evidence of Sense. This Evidence, they said, was either fortuitous, as when, without any Design or Intention of a rational Agent, an Accident of such a Nature happens to a Patient as frees him from his Disease; when, for Instance, any one labouring under a Head-ach, casually cuts himself in such a manner as to open the frontal Vein, and get free of his Disorder by the Effusion of the Blood; or if a Hæmorrhage from the Nostrils should happen to a feverish Patient, and his Indisposition be remov'd by that Accident. Or this Evidence was acquir'd by Design, as when one bit in a Field, or on a Mountain, by a Serpent, applies to the Wound any Herb which occurs to him, and observes a salutary Effect from it; or when any one in parallel Cases frequently exhibits what has often prov'd beneficial, and observes the Events. This they called Imitation.

For acquiring a practical Habit, they recommended what they called *τῆσιν*, or one's own Observation, and the reading of Histories and Cases faithfully related by others; and which distinctly enumerate the several Accidents of Diseases, and give an Account of the Effects produced by particular Remedies. Hence they thought we might be enabled justly to know a Disease by its Similitude to another; and, when new Diseases occur'd, to conclude what was proper to be done from the Symptoms they had in common with others before known. This they called *Epilogismus*, or *ἀπὸ τοῦ ὁμοίου μεταβασίς*. Which the *Latins* translate *Transitus ad Simile*, or rather, according to *Le Clerc*, *Substitutio similis*.

Thus the Evidence of Sense, Histories of Cases, and the *Epilogismus*, or arguing from Analogy, or, as others express it, Sense, Memory, and Epilogism, were by them esteem'd the three principal Foundations of Medicine, or, in the Words of *Glaucias*, *ἡ τριπλοῦς τῆς ἰατρικῆς*, the threefold Foundation of Physic.

They asserted, that Observation ought to be principally employ'd in two Ways; first in discovering what things are salutary, and what are of an indifferent Nature; and secondly, what particular Disease is form'd or produced by a certain given Concurrence of Symptoms; for they did not call every Symptom a Disease, but only such a Combination of them, as from long Experience they found to accompany each other, and produc'd such Disorders as began, increas'd, rag'd, declin'd, and terminated in the same manner. Such a Complication of Symptoms they called a Disease, and gave it a particular Name.

Some of the Empirics, it must be own'd, differ'd from the rest, especially with regard to the Division of Medicine; but these Differences, as little interfering with the fundamental Principles of the Sect, were overlook'd, or at least not much regarded.

As my Design in this Preface is to specify the principal Revolutions Physic has been subjected to by the Introduction of new Theories, and the Influences these have had upon Practice, it will be necessary in this Place to give the Arguments of the Dogmatic Physicians, in Defence of Ratiocination in Medicine, and those of their Adversaries the Empirics, in Opposition to it.

The Physicians of the Dogmatic Sect maintain'd, that there was a Necessity for knowing the latent, as well as the evident, Causes of Disorders, and that the Physician ought to understand the natural Actions and Functions of the human Body, which necessarily presupposes a Knowledge of the internal Parts. By secret or latent Causes they meant such as related to the Elements, or Principles of which our Bodies are composed, and which are the Origins of a good or bad State of Health. They asserted, that it was impossible to know how to cure a Disease without knowing the Cause whence it proceeded; because, without Doubt, if Diseases in general proceeded from an Excess or Defect, as some Philosophers believ'd, of the four Elements, they ought to be treated in a quite different manner from what they should be, if they proceeded from the Humours, as *Herophilus* believed; and in another manner, if they drew their Origins from the Air, as *Hippocrates* imagin'd; and still in another, and a different manner, if the Blood passing from the Veins destin'd to contain it, into those

which ought to contain only Spirits, excites Inflammation; and if this Inflammation produces the preternatural Motion observable in Fevers, as *Erasistratus* believ'd. And lastly, in a still different manner, if they proceeded from small Bodies stopping in the minute Passages, and blocking up the Conveyances which Nature intended to be pervious and open, as others asserted. This being taken for granted, 'tis certain that the Physician who is least mistaken with respect to the original Causes of Diseases, must succeed best in their Cure.

The Dogmatics did not deny the Necessity of Observations; but they asserted, that these Observations could not be judiciously nor accurately made without the Help and Assistance of Reasoning. They added, that those who first began to practise Medicine, did not, in all Probability, prescribe what first struck their Imaginations; but that they thought over and over again upon the Matter, and that the Effects produced by the things prescrib'd afterwards enabled them to know whether they had reasoned well or ill. They said it was of no Importance to advance, that the Virtues of Medicines were first known by Experience, provided it was allowed, that the Experiments, which confirm'd their Use, were the Results of Reasoning in those who made them.

They said we often observ'd new Species of Diseases, against which Use and Experience had as yet taught nothing; and that it was consequently necessary to consider whence they proceeded, and how they began, otherwise no one could assign a Reason for his prescribing one thing rather than another for their Cure. These, according to the Dogmatics, are the Reasons which render a Research of the hidden and latent Causes of Diseases necessary. As for the evident Causes, which were of such a Nature as to be observ'd by every body, and where all that was necessary was only to know whether the Disease proceeded from Heat or Cold, from Hunger or Repletion, and the like, they confessed there was a Necessity for knowing these, and making suitable Reflections on them; but then they maintain'd, that we were not to content ourselves with discovering these alone.

With respect to the natural Actions, they said it was necessary to know why and how we receive the Air into our Lungs, and why it is discharg'd from them, after it has enter'd them; why we take Aliments, and how they are prepar'd, and afterwards distributed to all the Parts of the Body; why the Arteries rise and fall, and what are the Causes of Watching and Sleep: And they maintain'd, that we could not cure Disorders incident to these Functions, without knowing all these things. But to illustrate this Matter by an Example drawn from the Preparation of the Aliments: They are, said these Physicians, either triturated in the Stomach, as *Erasistratus* believ'd; or they putrify there, according to the Opinion of *Plistonius* the Disciple of *Praxagoras*; or they are there concocted by means of a particular Heat, according to *Hippocrates*; or, according to *Asclepiades*, all these Opinions are equally false, and nothing is concocted, but the Aliments are distributed thro' the Whole of the Body crude as they were taken. With respect to these various Sentiments, it must be allow'd, that one Species of Aliment is proper for the Sick, if the Doctrine of *Hippocrates* is true; and another, if that of *Erasistratus*, or any of the rest, is better founded. If it is necessary, that the Aliments should be triturated, such as are most easily reduc'd to a proper State ought to be chosen; if they putrify, those which most easily become putrid are most proper; if they are concocted by a particular Heat, such as are most proper for exciting that Heat are to be prescrib'd; but if nothing is concocted or chang'd, we have no Occasion for so much Trouble, or rather we ought to prescribe such Aliments as are least subject to have their Natures chang'd.

They also maintain'd, That as the most considerable Pains and Disorders proceeded from the internal Parts, it was impossible to cure these without a Knowledge of the Parts affected; that it was consequently necessary to open the Bodies of the Dead, with a View to examine their Viscera; and that it would be still more advantageous to imitate the Practice of *Herophilus* and *Erasistratus*, who dissected condemn'd Criminals, and such as the Kings made them Presents of, before they expir'd; a favourable Circumstance, which procured to those Physicians the Advantages of seeing openly what Nature in other Cases kept concealed, and of considering the Situation, the Colour, the Figure, the Bulk, the Order, the Hardness, the Softness, the Roughness, the Smoothness, the Eminences, and Cavities of every Part, in order to distinguish that which receives, from that which is receiv'd. They added, That when any one labour'd under an internal Pain, it was impossible to know what Part was affected, without being acquainted with the precise Situation of all the Viscera, and internal Parts; and that a Person unacquainted with a disorder'd Part would not be likely to cure it; that when the Viscera of a wounded Person appear thro' the Wound, he who is ignorant of the natural Colour the sound Part ought to have, cannot distinguish what is in a good State from that which is corrupted or alter'd; and consequently cannot apply a proper Cure; that, on the contrary, safe and proper Remedies may be applied by one who knows the natural State of the injur'd Parts; and that it is not the least Degree of Cruelty to make a few profligate Wretches suffer, in order to find out proper Means of Relief for an infinite Number of innocent Persons.

To this the Empirics reply'd, That they pretended to know only the evident Causes of Diseases, imagining that all the Disputes with respect to the obscure and latent Causes, or the natural Actions, were entirely superfluous, because Nature herself was incomprehensible. This Truth, said they, could not be denied them by any one who reflected on the Diversity of Opinions entertain'd by those who had wrote on these Subjects, since neither Philosophers nor Physicians had ever come to an Agreement about them. Why, said they, should we believe *Hippocrates*, rather than *Herophilus*, or *Herophilus* rather than *Asclepiades*? If we were to put up with Reasonings, perhaps those of both Parties may appear equally probable and conclusive. If we look for a Cure in these Reasonings we find it in none of them, and consequently cannot know to which Party we ought most reasonably to adhere: That if Reasoning were only requisite to constitute a Physician, the Philosophers would be the most skilful Physicians of any; but that unfortunately they were entirely ignorant of the Art of Healing, notwithstanding their happy Turn for Reasoning: That the Means of preserving and restoring Health were different according to the Difference of Climates: That one Set of Remedies were necessary at *Rome*, another in *Egypt*, and a third in *Gaul*; a Circumstance which would not happen, if the Causes of Diseases were universally the same. They said, That the Causes of Disorders were often manifest as in Wounds, but that it did not thence follow, that the Remedies to be applied to them are equally easy to be found out and discover'd. If then the Knowledge of evident Causes cannot suggest the Remedies necessary to be used, it is by no means probable, that the latent, obscure, and dubious Causes can furnish us with more Insight into the Natures of Disorders; and if these last-mention'd Causes are uncertain, and almost incomprehensible, is it not more reasonable to expect Assistance from things which are certain, and vouch'd by Experience on several Occasions? This they asserted to be the Practice with respect to all other Arts, and affirm'd, that a Labourer, or a Philosopher, did not become skilful in their respective Professions by Dispute and Argumentation, but by Use and Experience. They said we might certainly conclude, that these intricate Questions were not essential to Medicine, since Physicians of different Sentiments recover'd their Patients; which would not happen, if, instead

instead of conducting themselves by the latent Causes of Disorders, they did not adhere to the Experiments which have formerly succeeded with them. They affirmed, that Medicine did not draw its Origin from Questions of this Nature, but from Experiments, and Observations of the kind now mentioned.

Some Patients, continued they, who were at first without Physicians, took large Quantities of Aliments in the first Days of their Disorders, because their Appetite was good; others eat nothing at all, because they loathed Food of every kind. Upon this it was observed, that those who had taken nothing, found themselves in the best and most favourable Condition. Some took Aliments in the immediate Paroxysm of a Fever, some a little before, and others after the Fever had left them; and it was observed, that those who waited till the End of the Paroxysm, were least injured. Accidents of this Nature happening pretty often, some People were careful to make Observations of what had succeeded best, and afterwards advised Patients labouring under the like Disorders, to follow the same Measures: That thus Medicine had derived its Origin from Experiments, made sometimes to the Detriment, and sometimes to the Advantage, of the Afflicted; and that Physicians had first of all learned, at the Expence of their Patients, to distinguish between what was prejudicial, and what was salutary: That the Medicines proper for each Disorder being thus gradually discovered by this Method, Men began to reason, and inquire why these Remedies acted in such or such Manners; and that thus Medicine was not invented after Reasoning, but Reasoning after Medicine. The Physicians of the Empiric Sect asked those of the Dogmatic, Whether Reasonings taught them the same Things Experience did, or the contrary; and asserted, that, if Reasonings taught them the same Things, they were superfluous; and that if any thing contrary to Experience was deduced from them, they were prejudicial. They owned, that, at first, there was a Necessity for making Experiments with a great deal of Care and Application; but that, in their Days, there was a sufficient Stock made to their Hands, so that it would be criminal in them to make new ones at the Expence of their afflicted Patients; and that they had nothing to do, but to enjoy the Advantages arising from the Labours of the Antients.

They asserted, that we ought not to imagine, that new Species of Disorders, or such as require new Medicines, happen; but that if an unknown Species of Disorder should occur, there was, at first, no Necessity for having recourse to an obscure Cause; and that, in such a Case, the skilful Physician ought to consider some well-known Disorder, with which the new one has the most Analogy, and make Trial of the Remedies which have succeeded in the Cure of the former.

They also said, they were by no means of Opinion, that a Physician ought not to reason, or that an Animal without rational Powers could practise Medicine, tho' they were convinc'd, that the Conjectures, drawn from latent and occult Causes, were of no Importance; since the Business of a Physician was not to discover what caus'd the Disease, but what cur'd it; and that the Physician need not trouble himself to find out the Manner in which the Concoction or Digestion of the Aliments is perform'd, provided he knows those Aliments which are most easily concocted and digested. They also said it was to no Purpose to inquire how and why we respir'd; but that the Physician ought rather to know Remedies for a Cough, a Shortness of Breath, and the other Accidents which disturb Respiration: That there was no Reason to trouble ourselves about finding out why the Arteries beat; but that our principal Business was rather to know what the particular Changes and Alterations of their Pulsations denoted, which could only be learned from Experience: That, with respect to all the other Questions proposed by the Dogmatics, either Side of the Question might be disputed upon with equal Appearance of Truth; and that generally the brightest Genius, or the most voluble Tongue, carry'd the Victory. 'Tis not, said they, fine-spun Arguments, or elegant Discourses, but proper and well-chosen Remedies, which cure Disorders; and, if a dumb Person should have good Medicines, the true Use of which he has learn'd from Experience, he is, without Doubt, a more skilful Physician, than the Man who has the Use of his Tongue, but knows not how to apply Remedies.

Lastly, the Empirics affirm'd, that the Dogmatics were attach'd not only to things superfluous and useless, but also such as evidently shock'd the most obvious Principles of common Humanity. What valuable Purpose, said they, does it serve to dissect People alive, and make Medicine, which ought to be subservient to the Safety of Mankind, the cruel Instrument of its Destruction; since, by Methods so barbarous, we cannot discover what we wish; and since, on the other hand, we may acquire as much Knowledge as is necessary, without committing any Crime? Neither the Colour, the Softness, the Hardness, nor most other Properties of that kind, are the same in a Body we have laid open, as they are in a sound living Body; for, since Fear, Grief, Abstinence, too much Aliment, Weariness, and a thousand other slight Inconveniences, are able to produce a Change, with respect to these Particulars, in the external Parts of living Bodies, how is it possible, that the internal Parts, which are extremely tender, and which may be alter'd by the Air, or the Light alone, to which they were never before expos'd, should not, in like manner, be chang'd by Dissection, or by cruel Wounds; and that a still greater Change should not be produc'd by Death? What can be more ridiculous, than to imagine, that things must be still the same in a Person either dying, or already dead, as they were when he was alive? We may, indeed, lay open the lower Belly, and run over the Viscera contain'd in it, before Respiration is stop'd; but, as soon as the Diaphragm is broken, the Patient forthwith expires. This, however, is the only Means by which the Heart, and the Parts surrounding it, can be expos'd to the Eyes of the cruel and butchering Physician, not in the State in which they were during Life, but such as they are after Death. And thus all that such a Physician, or rather Butcher, has done, is to have kill'd a Man in the most barbarous manner imaginable, without being able, after all his Labour, to discover by that means how the Parts he saw were situated before the Patient expir'd. The Empirics added, That if there was any internal Part which could be seen whilst the Man was alive, Chance furnish'd the Physician with Opportunities of observing it: When, for Instance, a Gladiator in the Circus, a Soldier in the Field of Battle, or a Traveller attacked by Robbers, are severely wounded. They said this was a lawful Method of instructing ourselves with respect to the Situation and Figure of the Parts, and all the other Things that can be known concerning this Matter, by Acts of Compassion and Humanity, and not by detestable Cruelty; since the End of Inquiries of this Nature is not to inflict Death, but to preserve Life. They also maintain'd, That it was not necessary to dissect Carcasses; since, if it was not a cruel, it was at least a filthy Practice; and asserted, that things being much changed in the Body by Death, it was much better to abstain from dissecting the Dead, and rather content ourselves with the Knowledge which might be acquired by attending the Living.

Celsus, who relates these Arguments of the Empirics and Dogmatics, gives his own Sentiments with respect to both, in the following manner: " Since, says he, these important Topics have often been made the Subjects of large Volumes, and laid a Foundation for the keenest Disputes, and warmest Altercations among Physicians, I shall strip myself both of a fond Attachement, and a groundless Aversion, to either Party, endeavour to keep within the Bounds of a due Medium, and thus declare my Sentiments, with that Candour and Impartiality which become a sincere and unbiass'd Inquirer after Truth.

“ What the Causes of Health then are, what excites Diseases, the particular Manner in which the Spirits are distributed, or the Aliments digested, are things of a Nature so abstruse and remote from our Senses, that the most learned Physicians can only form Conjectures about them, without being able thoroughly to comprehend them. Now Conjecture, or Opinion, with respect to a Disease not perfectly known, can never discover a certain and infallible Remedy for its Cure; and it is an unquestionable Truth, that nothing more directly contributes to a safe and prudent Method of Cure than *Experience*. But as, in other Arts, there are many Things, properly not belonging to the Arts themselves, which have, nevertheless, a Tendency to excite the Curiosity, and form the Genius, of the Artist; just so it is with respect to Medicine; for tho’ a Contemplation of the Natures of Things does not form the Physician, yet it renders him better qualify’d for the Practice of Physic, than he would have otherwise been. ’Tis highly probable, that *Hippocrates*, *Erasistratus*, and others, not servilely confining themselves to the Cure of Ulcers and Fevers, but launching out, in some measure, into the Natures of Things, did not, by that means, become Physicians; tho’, ’tis certain, they had not been so great in their Way, nor such Ornaments to their Profession, if they had confin’d themselves to Experience only. The Deductions of Reason are highly serviceable and necessary to Medicine, if not always, yet at least very often, in discovering latent Causes, and accounting for the natural Actions: For Medicine is a conjectural Art, and sometimes neither the happiest Conjectures, nor the Skill acquir’d by Experience, are sufficient to answer its main Intention. Sometimes Fevers appear in different Shapes, the Digestion of the Aliments varies, and the Degrees of Sleep and Watching alter. New Diseases also happen sometimes, tho’ rarely; and to affirm that they do not, is a manifest Falshood; since, in our own Days, a certain Lady expir’d in a few Hours, in consequence of the Flesh becoming dry, and falling from the Pudenda; so that the most skilful Physicians neither discovered the Nature of her Disorder, nor a Remedy capable of curing it. They were, probably, deterred from trying Experiments upon this Patient, who was a Lady of Distinction, lest, by following their own Conjectures, they should have been thought to kill her, unless she recover’d. But ’tis probable, that if such a criminal Modesty had been laid aside, something might have been thought upon for her Relief, and, perhaps, the very Thing thought upon might, upon Trial, have answered the End. In Cases of this Nature, Similitude, or apparent Analogy, is not always to be our Standard; and when it is, yet it is still reasonable, that, amidst so many similar kinds of Diseases and Remedies, we should think and consider what particular Medicines are principally to be used. When such a Case, therefore, happens, the Physician must find such a Remedy as, tho’ perhaps not always crowned with Success, yet, for the most part, answers the Intention. He must also seek for new Information, not from latent Circumstances, which are dubious and uncertain, but from such things as are capable of being fairly investigated, that is, evident Causes; for it is of Importance to know whether the Disease proceeded from Fatigue, from Thirst, from Cold, from Heat, from Watching, from Hunger, from an Excess of Wine or Aliments, or an immoderate Indulgence of Venery. The Physician must also know the particular Constitution of the Patient, whether it is moist or dry, whether his Nerves are strong or weak, whether he is frequently or rarely indisposed; and, when he is actually so, whether his Disorder be severe or slight, long or short. He must also consider the particular Course of Life he has led; whether of the laborious, or of the easy and indolent Kind; and whether he has lived luxuriously, or frugally and sparingly; for from these Circumstances, and others of a like Nature, a new Method of Cure is often happily indicated; tho’, at the same time, these are not to be considered as admitting of no Dispute; for *Erasistratus* maintained, that Disorders did not arise from them, since many have been known to have endured these, without being subjected to Fevers thereby.”

The Dogmatics and Empirics seem to have conducted, on this Occasion, much like all other Disputants; that is, they have argued, not with a View of coming at Truth, but for Victory; otherwise the Dispute would be easily determined, as lying in a very narrow Compass. If, as the Dogmatics asserted, Remedies could not be adapted properly to the Cure of Diseases, without knowing their latent or remote Causes, miserable would be the State of Physic, as well as the Condition of the Sick; the former of which would make a very inconsiderable Figure, and the latter must submit generally to sink under a great many Disorders, which Nature, unassisted by Art, is not sufficient to remove.

On the other hand, as all things have some mechanical Cause, it would be of infinite Service to Medicine, if these could be demonstrated and made plain beyond all Possibility of Contradiction; for this would be a sure Guide to the Physician in the Application of Remedies already known; but whatever in Theory is doubtful, or admits of the least Dispute, is not to be depended upon in Practice, as being capable of leading into Errors. The Abuse, therefore, and not the Use of Ratiocination, is to be condemned. Hypothesis cannot easily mislead Men who have Judgment sufficient to enable them to distinguish it from Demonstration; but Theory, in the Hands of People destitute of Abilities, is not less dangerous than an Instrument of Death in the Hands of a Madman.

As to the Uses of Anatomy in Medicine, on which the Physicians of the Empiric Sect seem to lay no great Stress, I have, I think, given some irrefragable Instances in its Favour, under the Article ANATOMY. But I must confess, that I am afraid it has been very greatly misapply’d, and, instead of being made the solid Foundation of a rational Physiology, has sometimes been prostituted to the distorted Imaginations of trifling Dissectors, whose Dexterity at dividing a Muscle, tracing the Course of a Nerve, or a Blood-vessel, or, perhaps, discovering the Structure of some particular Organ, has encouraged them to erect Hypotheses not less extravagant than any contained in the *Wagadastirum* of *Malabar*; and, which is worse, upon these to establish Modes of Practice, not less absurd and destructive, than any we meet with Accounts of, even amongst the most barbarous Nations. And this is what Dr. *Freind*, with too much Justice, insinuates, in a Passage I have somewhere quoted.

Having thus given some Account of the Founders of the Empiric Sect, and of the general Principles by which they conducted themselves, we shall take some Notice of the most celebrated Authors who espoused their Tenets, and trod in their Steps. *Celsus*, in the Preface to his first Book, informs us, that *Apollonius* succeeded *Serapion*; but, among so many of that Name, ’tis no easy Task to discover precisely who the *Apollonius* there mention’d was. *Galen* mentions two by this Name of *Antioch*, the Father and the Son, as Champions of the Empiric Sect; and *Celsus* himself, in his Catalogue of celebrated Surgeons, speaks also of two. *Celcius Aurelianus* speaks of one *Apollonius Glaucus*, who wrote concerning internal Diseases; but there were so many of the Name, and the History and Chronology relating to them are involved in so much Obscurity and Uncertainty, that it would be both tedious and useless to attempt any farther Account of them.

After *Apollonius*, *Celsus* places *Glaucias*; some time after whom flourished *Heraclides Tarentinus*. The former of these is frequently mentioned by *Galen*, tho’ nothing memorable is said of him, except that he commented upon *Hippocrates*, and particularly upon the sixth Book of his Epidemics; he also praises some of his Medicinal Compositions. *Pliny*, in the twenty-third Chapter of the twenty-second Book of his Natural History, quotes him,

him, as maintaining that the *Boletus* is a good Stomachic; and that the *Dracontium Sylvestre* was the same with *Arum*; from which Circumstance we may collect, that he also wrote concerning Plants.

But the most celebrated and learned of all the Empirics was *Heraclides Tarentinus*, who, according to *Galen*, was the Scholar of *Mantias*, the Disciple of *Herophilus*; and who imitated his Master not only in rendering the *Materia Medica* more perfect, but also in cultivating the dietetic Part of Medicine. These two Authors *Galen* asserts to be the best who had wrote upon that Subject, since they had advanced nothing but what was founded on Experience.

Heraclides Tarentinus, if we may believe *Galen*, wrote concerning simple Medicines; and *Epiphanus* gives him a Place among the Authors who treated on Herbs. He is also said to have wrote upon Pulses, and to have dared to contradict *Herophilus* in that Particular. He also treated of Surgery, in a Work expressly on that Subject, the fourth Book of which *Galen* quotes, and bestows singular Encomiums on the Author. As the Passage of this Work, quoted by *Galen*, relates to an important Controversy, much agitated both in former Ages and at present, I shall give the whole Passage: "That the Thigh-bone sometimes stays in, when reduced, is sufficiently vouched by *Heraclides Tarentinus*, an Author who never advanced a Falshood in Confirmation of an Hypothesis, as most of the Dogmatic Sect did; and who was as good a Judge of Medicinal Subjects as any one." *Galen* subjoins a pretty long Speech of *Heraclides*, from which it appears, that he practised Surgery with Success, and reduced the dislocated Thigh-bones of two Boys in such a manner, that they remained in their due and natural Situation. By these Instances he intends to refute those who assert, that the Thigh-bone, when reduced, cannot be retained in its Place; because the Ligament, which fixes the Thigh-bone to the *Acetabulum Coxæ*, is broken.

Galen also informs us, that he wrote Commentaries on all the Works of *Hippocrates*: And *Cælius Aurelianus*, who quotes his *Libri Curationum interiorum Passionum*, every-where gives us Specimens of his Practice. The same Author also makes mention of a Work of his called *Liber Regularis*, and another intituled *Nicolaus*.

As for his Practice, *Celsus* approves of the Advice he gives to feverish Patients, where the Bile or Crudities are offensive. The Advice is, that, by drinking moderate Potions, they should mix new Matter gradually with that which is corrupted: But he does not approve of his Method of curing a quartan Fever; for he ordered Purging in the first Days of the Disorder, and Abstinence for seven Days afterwards; by following which Advice, the Patient, tho' he should get free of his Disorder, will scarcely have Strength enough remaining to recover; and if the Paroxysms are frequent, they are sure to prove mortal.

From what has been said it is obvious, that however *Heraclides*, and the other Empirics, might be attached to Medicines, yet they did not neglect the dietetic Part of Physic, which principally consisted in Abstinence, and a seasonable Use of Aliments; and that *Celsus* was in the right, when he asserted, "That the dietetic Part of Medicine was divided into two Parts," since some made it a theoretic Art, and others grounded it upon Experience.

Besides those already mentioned, there were several other Physicians who made a considerable Figure among the Empirics, such as *Dionysius*, *Crito*, *Menodotus*, *Theodas*, or *Theudas*, by *Galen* quoted as one of those who wrote best in Defence of the Empiric Sect; *Herodotus of Tarsus*, *Sextus* surnamed *Empiricus*, three of whose Books are still extant, which contain the Sentiments of the *Pyrrhonians*, and ten others, in which he disputes against the Sciences in general; *Saturninus*, surnamed *Cythenas*; *Calicles*; *Diodorus*; *Lycus*; *Æscbrion*, the Townsman and Master of *Galen*, of whom that celebrated Physician gives a great Character, and of whom, he says, he learned a Medicine against the Bites of mad Dogs; *Philippus*, *Plinius*, *Valerianus*, and some others of inferior Note.

As Opium is thought to be a Remedy of great Importance in Physic, I must, on this Occasion, remark, that the first Account we have of it is in *Homer*, provided the *Nepenthe* there mentioned is Opium, or a Preparation of it, which is very probable: But it does not appear, that it was used in his Days as a Remedy for Distempers, but rather as a sort of Entertainment, as it is at this Time in the East. *Hippocrates* takes Notice of the Juice of the Poppy, and of the somniferous Poppy; but his directing the Use of it very seldom amounts to an Evidence, that it was not in his Days a Remedy much in Vogue. *Dioscorides*, L. 4. C. 65. from *Erasistratus*, relates, that Opium was condemned by *Diagoras* in Disorders of the Eyes and Ears, meaning, I suppose, the external Application. Now *Diagoras* was, as is said, the Servant of *Democritus*, and consequently contemporary with *Hippocrates*; and this is a sort of Evidence, that Opium was not in great Repute in his Time. Afterwards we meet with very little relating to it, till the Establishment of the Empiric Sect, and then we find it much prescribed. The Empirics, therefore, were probably the first who brought it into Reputation as a Medicine.

I shall say nothing in this Place of the Introduction of Physic into Rome by *Archagathus*, and the Fate of that Physician, because I have treated this Subject under the Article ARCHAGATHUS.

The next grand Innovation in Physic was introduced by *Asclepiades*, who lived in the Century immediately preceding the Birth of *Christ*; and who appears to have been a Person of great Abilities, and one perfectly well acquainted with the Weaknesses of Mankind. I have given some Particulars of his Life under the Article of his Name, and shall now specify his general Theory and Practice.

Galen says, that those who would either understand themselves, or explain to others, the Writings of *Asclepiades*, must know what he means by *incongruous or dissonant Elements* (*ἀναρμὰ στοιχεῖα*), by *Molecules* (*σύναι*), by *Pores* (*πόροι*), and by a *particular Motion tending to subtilize the Parts of Matter* (*πρὸς τὸ λεπτομερὲς ποιεῖν*). This Account given us by *Galen*, supposes, that these Terms were familiar to *Asclepiades*, and made, as it were, the Basis and Foundation on which the Whole of his philosophical System was erected. *Galen* also, elsewhere, observes, that, according to *Asclepiades*, Matter, considered as such, was of an unchangeable Nature; and that all the Objects which came under the Cognizance of our Senses, were composed of a Number of small Bodies, between which there were several Vacuities, or Interstices, void of Matter. He adds, that this philosophical Physician thought the Soul itself composed of these small Bodies; and when he makes the Comparison between the Sentiments of *Asclepiades* and those of *Hippocrates*, in order to render the Disparity more conspicuous, he says, the latter believed, that Substance or Matter, considered abstractedly, was universally the same; but that it was susceptible of Changes and new Modifications: That Nature, who, in all her Measures, took the justest Steps, and acted according to the highest and most exalted Principles of Art, had, amidst the amazing Variety of her other Productions, formed Plants, and the Bodies of Animals, and liberally given them Appetites and Propensities, by which every Plant, and every Animal, eagerly desires, and, as it were, attracts what is suited and adapted to the Condition of its Nature; and, with a secret Kind of Horror, flies from that which is opposite to it, or destructive of it. That this same bountiful Nature, diffusing her Benevolence still farther, provided against the Necessities of each Species, especially Man, the Glory of her other Productions, whom she powerfully assisted in the Expulsion of Diseases; as we might, in a particular Manner, observe on what he called *Critical Days*: *Asclepiades* denied all this, sneer'd at the boasted Nature of *Hippocrates*, laughed at his imaginary Faculties, and still

still more at what he called *Attraction*; a Principle which *Asclepiades* did not admit in any Case whatever, not even with respect to the Load-stone and Steel, imagining that this Phenomenon was produced by a Concourse of Corpuscles, and a particular Disposition or Modification of the Pores.

Asclepiades, continues *Galen*, did not believe, that the Soul had originally any Fund of Knowledge implanted in it; that it had neither any darling Propensity, nor any natural Aversion, to any particular Object; that it was so formed as not to distinguish between these widely different Things, *Just* and *Unjust*, *Right* and *Wrong*; but that every thing, which seems to pass within us, is produced by mere Sensation, and depends entirely upon the Senses: That, besides this, the Animal is conducted and influenced to Action by certain *εἰκασίας*, that is, Images or Ideas represented to it, and by a certain Power of Memory, or Principle of Recollection. *Galen* informs us, that some of the Abettors of this wild Philosophy maintained, that the Soul was not dignified with a *rational Faculty*; but that we were necessarily and irresistibly led the miserable Captives of our Appetites and Passions, like the Brute Creation; and that we could neither wish nor hope for any thing but what was suggested to us, and forced upon us, by these cruel Tyrants; so that, according to these hopeful Philosophers, Generosity, Prudence, Moderation, Continnence, and, in a Word, all the moral Virtues, were mere Chimeras, and Burdens and Impositions upon Mankind. They also maintained, that we neither loved each other, nor our own Off-spring; that the Gods delighted in a State of profound Indolence, and were entirely regardless of the Interests of Mortals; and that Dreams, Auguries, Prodigies, and Astrology, were Vanities, that rather deserved the Contempt, than called for the Veneration of Mankind.

Galen, who was of quite opposite Sentiments, has given us this Account of the most considerable Principles of the Philosophy of *Asclepiades*, which, as every one must perceive, is almost the same with that of *Democritus* and *Epicurus*; in whose Writings, or in those of their Commentators, we find most of the Doctrines, now advanced, more fully explained.

But the only antient Author now extant, from whom we can learn the genuine Sentiments of *Asclepiades*, both with respect to Philosophy, and its Application to the Practice of Physic, is *Cælius Aurelianus*. *Asclepiades*, says that Author, established, as the constituent Principles of all Bodies, *Atoms*; which, according to him, are small Bodies, perceptible only by the Imagination, and are possess'd of no Quality; but which, from the Beginning of Time, being in an eternal and uninterrupted Motion, and happening casually to meet and dash against each other, by that means render'd themselves smaller, and are divided into an infinite Number of Particles, of different Bulks and Figures. He also maintained, that these Particles afterwards uniting, and mutually approaching each other, as they moved in their various Directions, form'd all the several Objects of Nature, which still preserve the same Disposition and Propensity to *Change*, as the Particles of which they were compos'd; and whose Bulk, Figure, Number, and Order, were casually altered and varied. When he was asked, Whence it happened, that these Atoms or Particles had no Qualities, since the Bodies compos'd and made up of them possess'd a considerable Number; he answer'd, That these Qualities were the direct and immediate Results of the Order, the Figure, the Number, and the Bulk, of many of these Atoms joined together; and for illustrating this Doctrine, he brought an Instance from Silver, which, when in the common Mass, was white, but black when filed down; and another from certain kinds of Horns, which, when entire, are black, but become white when rasped down.

From what has been said, it is obvious, there was some Difference between the Sentiments of *Asclepiades* and those of *Epicurus*, or *Democritus*, tho' both Parties acknowledged *Atoms*; for the Atoms of these two last-mentioned Authors were not divisible; whereas those of *Asclepiades* are supposed infinitely divisible, by their various Encounters and Collisions. What *Cælius Aurelianus* here calls Atoms, are, in all Probability, the same with what *Galen* calls *ὑλῆς*, *Molecules*. *Epicurus* acknowledged Molecules as well as *Asclepiades*; and *Lucretius*, who was precisely contemporary with this Physician, speaks of something of a like Nature. But there is this Difference between the two Systems, that *Epicurus* and *Lucretius* do not look upon their Molecules as the fundamental and constituent Principles of Bodies, but only as the first Results and Effects of an Assemblage of Atoms, which, according to them, were the first, the true, and genuine Principles of Bodies; whereas *Asclepiades* seems to deduce his *Atoms* from Molecules, tho', according to the Representation of *Cælius Aurelianus*, he gives the Name of Atoms to Molecules themselves. But we shall be induced to believe, that this Author either did not justly translate, or, at least, did not perfectly understand *Asclepiades*, if we reflect upon what *Galen* says in his Work *De Theriac. ad Pison. Cap. 11.* where he informs us, "That *Asclepiades*, retaining the real Sentiments of *Democritus* and *Epicurus*, with respect to the Principles of Bodies, did nothing but change the Names of Things, calling "Atoms *Molecules*, and a Vacuum *Pores*." But *Galen* himself established a formal Difference between the Sentiments of *Asclepiades* and those of *Epicurus* and *Democritus*, and represented them as directly opposite to each other; for, in his Work *De Hippocrat. & Platon. Decret. Lib. 5. Cap. 3.* he has these Words: "Whether the "Bodies of Animals are compos'd of Molecules and Pores, as *Asclepiades* believed; or whether they consisted of "small indivisible Bodies, as *Epicurus* maintained." The former of these Books is suspected not to have been wrote by *Galen*, but the latter certainly claims him as its Author. The Author of the Book intituled *Introductio*, which is also ascribed to *Galen*, tho' it is the Composition of another Hand, tells us, in the ninth Chapter of that Work, that the Elements of *Asclepiades* were *ὑλῆς τεταυσι*, small brittle Molecules or Masses; and that it was this Brittleness which properly distinguish'd between the Principles or Elements of *Asclepiades*, and those of *Epicurus*, which were Atoms indissoluble and indivisible.

Cælius Aurelianus also informs us, that *Asclepiades* maintained, that nothing happened or was produced without some Cause, but that every thing was carried on by a certain Necessity; and that what was called *Nature*, was in reality no more than *Matter* and *Motion*. From this last Principle he infer'd, that *Hippocrates* knew not what he said when he spoke of *Nature* as an intelligent Principle, and ascrib'd to her what he call'd attractive, retentive, and repulsive Faculties. He also ridiculed the Sentiments of that antient Physician, with respect to the Manner in which Nature puts a Termination to Diseases; or, in other Words, the Doctrine of *Crises*, which *Hippocrates* fixed to certain Days, such as the seventh, the fourteenth, and some others; adding, that these Crises are always most favourable when Nature is most strong, and always difficult when the Disease is superior to Nature; as if Nature and the Disease were two distinct Beings, acting with Intelligence, and exerting their mutual Endeavours to foil and rout each other. According to *Asclepiades*, all that *Hippocrates* observed, with respect to this, may be accounted for from Matter and Motion, two Principles which he thought sufficient to produce all the Effects commonly ascribed to Nature. According to *Cælius Aurelianus*, he maintained, that we were deceived, if we imagined, that Nature always did Good, since she often did a great deal of Harm. As for the Days particularly fixed for *Crises*, or the Days in which *Hippocrates* asserted we generally observed a Change in the Distemper, either for the better or the worse, *Asclepiades* denied that such Alterations happened on these Days rather than on others. He went still farther, and asserted that the Time of a *Crisis* did

did not happen of its own Accord, nor according to any particular Determination of the Gods for the Cure of Disorders; but that it rather depended on the Address and Dexterity of the Physician; that is, we must never wait without doing any thing till a Disorder terminates of its own Accord, in a certain Time, as *Hippocrates* did; but the Physician must, by his Care and Medicines, hasten on and advance the Time of the Cure. *Asclepiades* probably had this Inaction of *Hippocrates* in View, when he sneeringly said, *That the Medicine of the Antients was only a Meditation, or a kind of Study of Death*; by which he, no doubt, intended to insinuate, that the antient Physicians attended their Patients with a View to observe in what Manner, and by what Accidents, they died, rather than to prevent their Death, under a Pretence, that Nature ought, on such Occasions, to do all herself.

This is the Manner in which *Asclepiades* disputed against *Hippocrates*, and this the System he embraced, with respect to the Causes of Health and Diseases, at least in as far as we can collect it from *Caelius Aurelianus*, who is not always very clear, and who handles the Subject very briefly.

The particular Assemblage, said *Asclepiades*, of the various Corpuscles already mentioned, and represented as of different Figures, is the Reason why there are several Pores or Interstices, within the common Mass, form'd by these Corpuscles; and why these Pores are also of a different Size and Largeness. This being taken for granted, as these Pores are in all the Bodies we observe, it must of course follow, that the human Body has some peculiar to itself, which, as well as those of all other Bodies, contain other minute Bodies, which pass and repass by those Pores that communicate with each other; and as these Pores or Interstices are larger or smaller, so the Corpuscles which pass thro' them differ proportionably as to Largeness or Minuteness. The Blood consists of the largest of these Corpuscles, and the Spirits or the Heat of those which are smallest.

From these Principles *Asclepiades* infers, that the human Body remained in its natural State so long as these Corpuscles were freely received by the Pores; and, on the contrary, that it began to recede from that State when these Corpuscles found any Obstacle to their Passage; so that, according to him, Health depended on a just Proportion between the Pores, and the Corpuscles they were destined to receive and transmit; as Diseases, on the contrary, proceeded from a Disproportion between these Pores and the Corpuscles. The most usual Obstacle, on this Occasion, proceeds from the Corpuscles embracing each other, and being retained in some of their ordinary Passages, whether these Corpuscles arrive in too large a Number, whether their Figures are irregular, whether their Motions are too much accelerated, or whether, on the contrary, they move too slowly. But it also often happens, that the Passages or Pores themselves are ill-disposed for receiving and admitting the Corpuscles; when, for Instance, they become too small, or acquire an oblique Situation; or when they are braced up, or opened, and relax'd more or less than in a natural State they ought to be.

Among the Disorders produced by the Corpuscles stopping, of their own Accord, in the Passages, *Asclepiades* reckon'd Phrensies, Lethargies, Pleurisies, and burning Fevers. Pains, in particular, are class'd among the Accidents which derive their Origins from a Stagnation of the largest of all the Corpuscles, of which the Blood consists. On the contrary, he class'd, among the Disorders arising from the bad State and Disposition of the Pores, Deliquiums, Languors, Extenuations, Leanness, and Dropsies. These last-mentioned Disorders proceed from the Pores being too much relaxed and opened; and the Dropsy, in particular, proceeds from the Flesh being perforated with various small Holes, which convert the Nourishment, received into them, into Water. Hunger, and especially that Species of it call'd *Fames Canina*, is produced by the Opening of the large Pores of the Stomach and Belly; and Thirst by the Opening of their small ones.

Asclepiades seems to acknowledge still a third Cause of Disorders, which consisted in a Perturbation and Confusion of the Juices or Fluids, and of the Spirits; but he maintained, that these Juices and Spirits were only the antecedent, but not the concomitant or more immediate Causes of Disorders. He asserted the same with respect to Plenitude, which, according to him, often augmented the Disorder, tho' it was not the principal Cause of it.

Asclepiades, upon the same Principles, accounted for the Causes of intermitting Fevers. Quotidian Fevers, said he, or those whose Paroxysms return every Day, are caused by a Retention of the largest of the Corpuscles. Those of the tertian Kind, or such as return every third Day, depend upon a Retention of Corpuscles somewhat smaller than the former; and, lastly, quartan Fevers are produced by the Retention of the smallest of all the Corpuscles: This, in his Opinion, happens because the Pores may be sooner filled or emptied of the large Corpuscles, than of those which are small; at least this seems to be the Meaning of *Caelius Aurelianus*, tho' he speaks in such a manner, as to lay a Foundation for our thinking, that the Corpuscles, and not the Pores, emptied themselves.

The Practice of *Asclepiades* was, in a great measure, founded upon the System of which we have now given an Account. This Physician compos'd a Book concerning common Remedies, which he principally reduced to three, Gestation, Friction, and the Use of Wine, in every Disorder.

Asclepiades pretended to be the first who had treated of the two first of these Articles; but *Celsus* observes, that *Hippocrates* had done it before him, tho', in his usual Manner, he handled the Subject in a concise and succinct manner. All the Authors who treated of the Gymnastic Art, must also have made mention of these two Remedies; and *Herodicus*, the Inventor of that Art, did not neglect them. As for the Relief Patients might receive from the Use of Wine, *Asclepiades* received this Notion from *Cleophantus*, a Physician who was contemporary with *Erasistratus*, or lived soon after him, and who wrote on the Medicinal Uses of Wine.

Asclepiades propos'd, by various Exercises, to render the Pores more open, and to make the Juices and small Bodies, which cause Diseases by their Retention, pass more freely; and whereas former Physicians had not recourse to Gestation till towards the End of long continued Disorders, and when the Patients, being entirely free from the least Degree of a Fever, were yet too weak to take sufficient Exercise by Walking, *Asclepiades* went much farther, and us'd Gestation from the very Beginning of the most burning Fevers. He laid it down as a Maxim, that one Fever was to be cured by another; that the Strength of the Patient was to be exhausted by making him watch, and endure Thirst to such a Degree, that, for the two first Days of the Disorder, he would not so much as allow them to cool their Mouths with a Drop of Water. It may possibly be said, that this Practice of *Asclepiades* cannot be reconciled with the Indulgence he promised his Patients. This is also observed by *Celsus*, who adds, that tho' this Physician treated his Patients like a Butcher, during the first Days of the Disorder, he indulg'd them so far afterwards, as even to give Directions for making their Beds in such a manner, that they should lie most softly and delicately.

Asclepiades also us'd Frictions on several Occasions, with a View to open the Pores. The Dropsy was one of the Disorders in which he practis'd this Remedy; but the most singular Occasion on which he practis'd it, was when, by the Force of Friction, he endeavour'd to lull phrenetic Patients asleep. Upon the Whole, he plac'd such

such a Confidence in Frictions, that he wrote far more largely on it than on the other two Remedies mentioned.

'Tis pretty surprising, that *Asclepiades*, who so warmly enjoined Exercise to the Sick, should condemn it in such as were found and in Health, and affirm, that it was not necessary for them: An Opinion which he borrowed from *Erasistratus*.

As for Wine, the third Panacea of *Asclepiades*, he did not rigidly adhere to the Rules observed by other Physicians in exhibiting it to their Patients: He readily allowed it to such as laboured under a Fever, provided the first Violence of the Disorder was somewhat abated. He did not forbid the Use of Wine to phrenetic Patients; and, what is still more surprising, he ordered them to drink it till they were intoxicated, pretending, by that means, to make them sleep; because, said he, Wine had a narcotic Quality, and procured Sleep, which he thought absolutely necessary for those who laboured under that Disorder. For this very Reason, one would think that he ought not to have prescribed it for lethargic Patients, who sleep too much; but he, nevertheless, allowed them the Use of it, in order to excite and rouse their Senses: He also made them smell strong-scented Substances, such as Vinegar, Castor, and Rue, in order to make them sneeze; and applied to their Heads Cataplasms of Mustard made up with Vinegar. *Asclepiades* did not always give pure Wine to his Patients, but sometimes mixed it with Sea-water, imagining that the Salt with which that Water was impregnated, penetrated farther, and opened the Pores more powerfully than the Wine alone. He allowed a Pint of this Wine for one Dose. He also ordered those who had the Jaundice to drink salt Water, in order to render the Body soluble. He was not, however, so rigidly attached to the Use of Wine, but he sometimes prescribed Water, and ordered the Wine to be diluted for such as used it; except in some particular Cases, such as the Phrensy, which he pretended to cure by Intoxication. He ordered, says *Caelius Aurelianus*, those who had Catarrhs, to drink double or triple the Quantity of Wine they used to do. So that, continues he, he made them drink half Water, half Wine. By this we see, that the Antients were very temperate with respect to the Use of Wine, when in perfect Health; and that, for the most part, they only used a fourth or a sixth Part of it, mixed with Water. Thus it is not surprising, that, considering their Moderation in this Particular, some Physicians should not discard the Use of Wine in Fevers. For those who laboured under Fluxes, he prescribed the drinking Water very cold; and, in several Cases, strongly recommended cold Water, and cold Baths.

To the Remedies now mentioned *Asclepiades* joined a particular Regimen with respect to Diet. *Celsus*, in the fourth Chapter of his third Book, informs us, that, after this Physician had confin'd his Patients to Abstinence for the first three Days, he allowed them Aliments on the fourth. But *Caelius Aurelianus*, *Lib. 1. Cap. 4. Acutor*, speaks of no precise Time. "*Asclepiades*, says he, began to nourish his Patients as soon as the Accession was diminished, not waiting till an entire Remission, giving to some Aliments on the first, to others on the second, to others on the third, and so on to the seventh Day." 'Tis scarce credible, that Fasting could be carried on, and continued till this last-mentioned Term. *Celsus*, however, when speaking of the Manner in which the Predecessors of *Asclepiades* conducted themselves, with respect to their Patients, in this Particular, allows, that these Physicians enjoined an Abstinence for six Days; adding, that the Climate of *Asia*, or that of *Egypt*, might allow of such a Degree of Abstinence; by which it would seem, that he thought the same thing could not be practised in *Greece* and *Italy*; tho', in the fifteenth Chapter of his third Book, he observes, that *Heracides Tarentinus* ordered those afflicted with Quartan Fevers to fast till the seventh Day. Now *Tarentum*, from which that Physician derived his Surname, was in *Italy*, or in what was called *Græcia Major*; but we are not certain whether *Heracides* practised in his own Country. One would think, that a total Abstinence is not here meant, and that the Patients only refrained from solid Food, using clear Decoctions of Barley, like those prescribed by *Hippocrates*, in the very Height of the Fever. But, if it had been so, these Authors would have infallibly taken notice of such a material Circumstance, whereas they do not so much as mention it.

We must not form a Judgment of what Nature was then able to bear, by what she can at present support, since the Method of Life followed by the Antients was widely different from ours.

Almost the whole Practice of *Asclepiades* consisted in the Remedies above-mentioned, or, at least, these were the principal of them. And, as he banished from Physic the greatest Part of the Medicines generally used by other Physicians, this Circumstance made some affirm, that he discarded Medicines entirely. *Scribonius Largus*, who lived about an hundred, or an hundred and twenty Years after him, represents the Assertors of this as guilty of Falshood; and, after having treated them pretty roughly, concludes, that tho' *Asclepiades* did not generally prescribe Medicines in acute Disorders, believing that Aliments and Wine, seasonably exhibited, were sufficient for answering the Intention; yet this did not hinder him from using, as well as other Physicians, Medicines in chronical and long-continued Disorders. This *Scribonius Largus* proves by a Passage of a Book wrote by *Asclepiades*, and intitled Περὶ παθησέων ἀνδρῶν, in which he expressly asserts, That he was a wretched Physician who had not two or three Compositions in readiness, and whose Efficacy he knew with respect to all kinds of Disorders. 'Tis probable the Compositions here meant by *Asclepiades* were rather topical Medicines than such as were designed for internal Use. The former of these he used at least as much, and as frequently, as any other Physician. He anointed his Patients with Oil, covered them with Ointments and Cataplasms, used Perfumes, Stenutatories, and Gargarisms, besides Clysters, of which he made frequent Use.

But what has made some assert, that he disapproved of all Medicines, is, that he very seldom prescribed Purgatives, the Word *Medicamentum*, among the *Latins*, and φάρμακον, among the *Greeks*, which signify a Medicine in general of whatever kind, being also taken, in a more restrained Sense, for a purgative Medicine. It is obvious, that when *Pliny*, *Lib. 3. Cap. 26.* says, That *Asclepiades* declared against all Medicines ordered to be taken by Patients, as injurious to the Stomach, he only meant purgative Medicines. 'Tis in the same Sense *Celsus* has affirmed, that Medicines generally prove offensive to the Stomach. The Word *Medicamentum*, or *Medicamen*, is, by *Caelius Aurelianus*, placed alone, to signify a purgative Medicine. *Hippocrates*, says that Author, *Cap. 13. Lib. 2. Acutor*, waited till the fourth Day before he gave a Medicine; that is, as appears from what went before, a purgative Medicine. To these Authorities we may add that of *Hippocrates*, who uses the Word φάρμακον to signify Purgation in particular, opposing the Word to φλεβοτομήν, to bleed. In *Aphor. 47. Lib. 6.* he says, those to whom Venesection and Purgation are necessary, ought to bleed and purge in the Spring.

We have already observed, that *Asclepiades* followed the Opinion of *Erasistratus* in some respects; he also embraced his Sentiments with regard to purgative Medicines. *Erasistratus* thought, that what was evacuated by means of Purgatives, came from the Blood and solid Parts of the Body, which were, as it were, melted and colliquated; so that, according to him, Purgatives produced Humours, instead of evacuating them. Thus *Scammony*, for Instance, changed the Blood into Bile; *Flos Aëris* converted it into Water; Bastard-saffron, and the *Grana Cnidia*, into Phlegm. *Asclepiades* believed the same thing; and when it was objected to him, that several Patients

Patients recovered after an Evacuation of these Humours by proper Purgatives, he answered, that their Recovery was not owing to a Discharge of the bad Humours, as was commonly believed, but to a Diminution of Plenitude, or what was superfluous in the whole Body, tho' that superfluous Part was not more corrupted, nor in a worse State, than the rest of the Humours. According to *Cælius Aurelianus, Acutor. Lib. 1. Cap. 4.* he also asserted, that the Excrements are not naturally excrementitious, nor so useless and prejudicial as is commonly thought, since some Animals fed upon them, and were nourished by using them. But, tho' he believed, that some Relief might be obtained by Evacuations of this kind; yet he thought they were very rarely to be put in Practice, because the Good produced by them was counterbalanced by the Injury which Purgatives did, in other respects, to the Body.

Another Reason why *Asclepiades* purged so rarely was, his not thinking that Plenitude, or too large a Quantity of Humours, could be the conjunct and most immediate Cause of Diseases, that is, the Cause which produces, and supports or continues them, so that this Cause being removed, the Disorders must of course cease and terminate. "If it was so, said *Asclepiades*, it would thence follow, that, after sufficient and large Evacuations made in the Beginning of the Disease, the Patient must be forthwith cured; whereas the Disorder, instead of ceasing after these Evacuations, often increases." Plenitude, then, according to him, was no more than an antecedent or an accidental Cause of Diseases.

When the Patient was costive, *Asclepiades* thought Clysters sufficient to render the Belly soluble. These he exhibited almost in every Disease, tho' more rarely, and with greater Precaution, than other Physicians. But he was particularly afraid, lest the too frequent Use of this Remedy should make too large Evacuations, and, consequently, weaken the Patient too much. He also prescribed Vomits, which he ordered to be taken after Supper; but as for Purgatives, he almost banished them entirely from his Practice. What he thought, with respect to their manner of acting, must have influenced him to discard them. And the Authorities of *Celsus* and *Pliny* are not the only Foundations we have to believe, that this Physician rarely used them; since *Cælius Aurelianus*, who gives us an Account of the Practice of *Asclepiades* in several Disorders, never represents him as prescribing a Purgative, except in the Case of a Palsy and a Catalepsis.

But if *Asclepiades* followed *Erasistratus* with respect to Purging, he dissented from him with regard to Venesection, whether the manifest Relief afforded by this Remedy convinced him of the Necessity of using it, or whether he found it more consonant to his Principles than Purgation. "Tho' *Asclepiades*, says *Galen, de Ven. advers. Erasistrat.* has not suffered any of the Tenets of the Antients to pass without Censure, having spared none of the Physicians who went before him, *Hippocrates* himself not excepted; and, tho' he has been daring enough sneeringly to call the Medicine of the Antients a *Contemplation of Death*, yet he was not fool-hardy enough to banish Venesection from Physic."

Asclepiades laid a particular Stress upon Venesection in Pains, because, said he, these being produced by the Retention of the largest of the Corpuscles in the Passages, and these Corpuscles being composed of Blood, nothing but Venesection can draw them thence. For this Reason he bled in the Pleurisy, because that Disorder is accompanied with Pain; but in a Peripneumony, or Inflammation of the Lungs, he discarded Phlebotomy, because the Disease is generally unattended with Pain. Neither did he bleed in any Species of Fevers, nor even in a Phrensy. Since he did not bleed in these last-named Disorders, it appears surprising, that he should put this Remedy in Practice, in what *Cælius Aurelianus, Acutor. Lib. 2. Cap. 38.* calls *Cardiaca Passio*, or Passion of the Heart, the Symptoms of which are a small and frequent Pulse, a general Loss of Strength, sudden Deliquiums, cold Sweats, and Coldness of the Extremities. What induced *Asclepiades* to use Venesection in this Case was, his believing, that the Disorder was produced either by a Tumor formed near the Heart, or by too great a Congestion, or too violent a Compression of the Corpuscles in the Pores of that Organ, which could not be disengaged, or set at liberty, by any other Means than Venesection. He also bled in the Epilepsy, and, in general, in all convulsive Disorders, as also in Hemorrhages, and Losses of Blood of every kind.

According to *Cælius Aurelianus*, he used the same Remedy in the Quinsy, opening sometimes the Veins of the Arms, sometimes those under the Tongue, sometimes the frontal Vein, and sometimes those in the Corners of the Eyes, using also Cupping, with Scarification, and all with a View to open the Pores. If these Remedies did not answer the Intention, he made an Incision in the Amygdalæ, and even proceeded to what we now call the Operation of Bronchotomy, that is, the opening of the Larynx, or *Aspera Arteria*. But *Cælius Aurelianus, Acutor. Lib. 3. Cap. 4.* speaks of this last-mentioned Operation as fabulous and imaginary, affirming that none of the Predecessors of *Asclepiades* had mentioned it; that it was the bold Invention of that Physician; and that none were foolish enough to practise it.

Asclepiades declared himself also for the Paracentesis, that is, piercing the Abdomen, in the Dropsy; but he ordered, that only a very small Perforation should be made. These two Operations sufficiently shew, that he did not religiously and universally stand to his Promise of employing only the mildest and most agreeable Remedies. These few Sketches are sufficient to give us a general Idea of his Method.

This Theory and Practice of *Asclepiades*, which Mr. *Le Clerc* has, with great Judgment, collected from all the Authorities extant, will furnish us with some Remarks, which must not be omitted.

In the first Place, then, however detestable his general Philosophy may appear, as destructive of all Morality, his Principles, with respect to Physic, seem to differ very little from those which are at this time generally received; tho' our Knowledge of the Circulation of the Blood, and some other anatomical Discoveries, have enabled us to explain ourselves better, and render our Ideas more intelligible. Thus his *σύνεσις* (*Molecules*) cannot mean the same as the *Atoms* of *Epicurus*, but an Assemblage of these, forming small Bodies or Particles, blocking up the *πύλαι*, or Passages, in order to form a Disease. These Molecules resemble the Obstructions or obstructing Matter of the Moderns, as the *πύλαι*, or Passages, do the Capillary Vessels, in which they stagnate, or which they obstruct; for, by *Pores*, he does not mean what we call by that Name, but the Passages, or Interstices, thro' which the Molecules are conveyed. And the *προς το διαπνευστικόν όργανον*, or Motion tending to break and subtilize the obstructing Molecules, must mean the same thing which we understand by the Attenuation of the obstructing Matter, and which implies the very same as the *σύνεσις*, or Concoction of the Humours, so much insisted on by *Hippocrates*. According, therefore, to *Asclepiades*, Health consisted in a free Transmission of his Molecules, or little Masses, thro' the Passages, or Interstices, betwixt the solid Parts of the Body; according to us, in the uninterrupted Circulation of the Blood thro' the Vessels. Diseases were caused, according to his System, by whatever interfered with such a free Transmission of these Molecules; according to ours, by whatever interfered with the Circulation of the Blood and Juices thro' the Canals adapted naturally to convey them. The Cure of Distempers, in his way of Thinking, was brought about by subtilizing the Molecules or Masses, and opening the Passages destined to their Transmission; according to the modern Theory, by attenuating or dividing the Particles of the obstructing Matter, and rendering the Capillary Vessels pervious.

P R E F A C E.

The other Remark I would make is, that, with respect to the Application of particular Remedies, *Asclepiades* ought to have experienced first, and reasoned afterwards; whereas he first reasoned himself into a good or a bad Opinion of certain Things, and, on this Foundation, condemned them or extolled them, and that without Moderation, having no Regard to the Experience of many Centuries, which had either established the Reputation of their Efficacy, or banished them from Practice, as pernicious. Thus he almost discharged Purging, a Remedy without which Physic would be an Art, at best, very trifling. Thus, also, he debarred his Patients from cooling Liquors, at the time when they might have been used to great Advantage; and intoxicated those labouring under a Phrenitis; a Practice which, however execrable, is less deleterious than the other; for I have known more Instances than one of Patients, who have been cured of Fevers, attended with a strong Delirium, in consequence of having been suffer'd, by Accident, to make themselves excessively drunk.

It has happened, unfortunately for those Adventurers in Physic, in all Ages, who, like *Asclepiades*, have trusted to their Imaginations more than their Senses, and who, like *Don Quixot*, have framed to themselves chimerical Difficulties, in order to shew their Address in conquering them, that their Practice has, like that of the above-mentioned Knight Errant, been very offensive to many innocent People, who have had the Misfortune to be the Subjects of it; and has farther exposed them to the Ridicule and Contempt of the Judicious.

Several Ladies among the Antients have been celebrated on account of their Medicinal Knowledge, some of which have been already taken Notice of. To these we must add the famous *Cleopatra*, Queen of *Egypt*, who lived a very few Years before the Birth of *Christ*. There are still extant some Books which bear her Name, and which treat of the Disorders incident to Women. If these Books were not spurious, the Preface would not allow us to doubt of their being wrote by this Princess, since the Author there affirms of herself, that she is the Sister of *Arctinoe*. Now it is well known, that *Cleopatra* had a Sister of that Name, who was put to Death by *Marc Antony*, in order to gratify the Ambition of that haughty Queen. It may perhaps be said, that these Books and the Preface are equally spurious; and, in all Probability, they are so; but, at the same time, it cannot be denied, that there were other very antient Medicinal Writings published under the Name of *Cleopatra*, soon after her Death. *Galen* makes mention of several Compositions relating to the Ornament and Embellishment of the Body, taken from the Books of one *Cleopatra*, and he does not quote these Books as recent: Now *Galen* lived about two hundred Years after this Queen of *Egypt*, of whom we now speak. What lays a Foundation for our ascribing them to this Lady, is, that Historians speak of her as a Princess extremely curious and learned. *Plutarch*, in the Life of *Marc Antony*, informs us, that she spoke several Languages: He also observes, that she ordered Experiments to be made on all Poisons, in order to know which work'd most expeditiously, and with least Pain. We have still a more satisfactory Proof of the Curiosity of *Cleopatra*, with regard to Medicine, which is the Experiment she performed before *Marc Antony*, when she dissolved a Pearl of great Value in Vinegar. As for the Books of *Cleopatra* still extant, they contain nothing very particular; and we only find in them the same Remedies the Physicians used in Disorders incident to Women. Among these Books we do not reckon those concerning Chymistry, which are ascribed to her, but which are evidently spurious.

Cleopatra was not the only one of her Sex and Quality who applied to Medicine. The celebrated *Artemisia*, Queen of *Caria*, had also the Reputation of understanding the same Art. She is said to have given her Name to the Herb which the *Latins* call *Artemisia*, and to which we give the Name of *Mugwort*; but others think, that this Herb rather derived its Name from the Goddess *Diana*, whom the *Greeks* called *Ἀρτεμις*, *Artemis*. *Artemisia* lived about the hundredth Olympiad, more than four hundred Years before *Cleopatra*. There was also another *Artemisia*, more antient than this.

It may be said, that little Confidence is to be reposed in the fabulous Stories relating to the Women of Antiquity who practised Physic; but tho' important Truths are sometimes wrapt up in fabulous Relations, yet it is not upon this single Circumstance, nor on the Histories of *Cleopatra* and *Artemisia*, that we maintain there were formerly several Women who not only studied, but also practised Medicine.

The Reluctance of most Women to discover certain secret Disorders to Physicians obliged them to look out for other Women, to whom they might intrust the Secret, and who could afford them Relief. Formerly this Right of practising Physic was disputed with the Women; and, in some Places, their Establishment in that way was openly opposed. An antient Law, enacted by the *Athenians*, so strictly forbid Women and Slaves from being concerned in Medicine, that the Art of delivering Women in Child-birth, which was thought a Branch of it, could be exercised only by Men: But some of the *Athenian* Ladies choosing rather to die than admit of the Assistance of Men, it is said, that one of them, called *Agnodice*, who had learned Medicine, and the Art of Delivering, from one *Herophilus*, disguised herself in the Habit of a Man, in order to assist the others. This being discovered, the *Athenians* enacted another Law, permitting free Women to learn Medicine.

Long before this the *Egyptians* had Midwives; and the *Sacred History*, *Exod. Chap. 1.* has preserved the Names of two *Egyptian* Women who exercised this Profession, and who saved a great Number of *Jewish* Children from falling the guiltless Victims of *Pharaoh's* Cruelty. One of these was called *Siphrab*, and the other *Puah*.

The Midwives of *Greece* and *Italy* not only delivered Women, but also practised Medicine: Hence the *Latin* Words *Obstetrix* and *Medica* are used as convertible Terms, in the Writings of the antient Lawyers. Accordingly *Ulpian*, *Lib. 1.* has these Words: *Quoties de pragnatione dubitatur, quinque obstetrices, id est, Medicae, ventrem jubentur inspicere.* "In Cases where Pregnancy is dubious, five Midwives, or Female Physicians, are appointed to inspect the Womb." The *Greeks* had also their *ἰατρίαι*, a Word which exactly corresponds to the *Latin* Word *Medicae*. These Women treated all Disorders peculiarly incident to the Sex; and Hysteric Affections belonged principally to their Province, as we may infer from a Passage of *Galen de Locis Affectis*, *Lib. 6. Cap. 5.* where it is observed, that these Women themselves gave the Name *Hysteric* to the Disorder, which still bears that Name. These very Women, and the Disease now named, are mentioned in an Epigram of *Martial's*, which begins,

Hystericam vetulo se dixerat esse Marito.

They also applied to every thing relative to the Ornament or Embellishment of the Body; such as not only all kinds of Paints, but also all Medicines which remove or conceal the Imperfections and Deformities produced by Diseases, or any Accidents whatever.

Several of these Women also wrote Books upon Medicinal Subjects, which are cited by the antient Physicians. In *Ætius* we find several Fragments of the Books of one *Aspasia*; but we know not whether this *Aspasia* is the same with the beautiful Lady who was Mistress to *Cyrus* the younger, and *Artaxerxes*, Kings of *Persia*. *Ælian*, who

who gives us a pretty large Account of this Lady, makes no mention of this Circumstance; but since he represents her as of so vast and extensive a Genius, that the Princes above-mentioned consulted her in the most important Points of Politics, it is possible she might have also understood Medicine, and wrote upon it; or, at least, that her Knowledge of it may have given Occasion to publish the Books, now mentioned, under her Name.

There are some good Remedies among those *Aspasia* proposes, in several Disorders of Women; at least, *Ætius* was of this Opinion, since he gave them a Place in his Collections; into which he, in all Probability, put what he thought best in the several Authors he perused. Others of *Aspasia*'s Remedies were dangerous, such as those she ordered to procure Abortion, and render Women barren: Things which were equally criminal among the Pagans as among us, as we may infer from the Oath of *Hippocrates*, and from the Laws antiently enacted against them. *Aspasia*, however, asserted, that her Views, in this Particular, were by no means criminal; since she only proposed to preserve the Lives of such Women as cannot be delivered without a manifest and unavoidable Danger of their Lives.

Galen and *Pliny* mention one *Elephantis*, who also wrote concerning abortive Remedies, and Poisons. In all Probability, this is a different Person from her who became famous for her lascivious Verses, and who is mentioned by *Suetonius* and *Martial*.

Galen also gives us some Medicinal Compositions of one *Antiochis*, who probably was the same with her to whom *Heraclides Tarentinus* dedicated some of his Books.

We also find one *Olympias* of *Thebes*, one *Sotira*, one *Salpe*, and one *Lais*, cited by *Pliny*, who tells us, that *Sotira* was also a Midwife: Their Remedies were, for the most part, superstitious; but this is no surprising Circumstance, since Medicines of that Nature have, in all Ages, suited the Taste of the Vulgar, especially that of the Women.

In *Galen* there is mention made of one *Fabulla Libyca*, who is by some class'd with the preceding Female Physicians. *Cornarius* is of Opinion, that we ought to read *Livia*, and not *Libyca*; and he maintains, that this Woman did not practise Physic, but that *Galen* only mentions her as the Person for whom the Medicine was prepared.

Victoria, *Salviana*, or *Salvina*, and *Leoparda*, are quoted by *Theodorus Priscianus*. One *Africana* is also mentioned by *Marcellus Empiricus*; but whether this was the proper Name of a Woman who practised Physic, or an Epithet bestow'd on her from her Country, is hard to determine. *Scribonius Largus* speaks of an *African* Woman, of whom he purchased a Secret for the Colic.

To all these Female Physicians some add *Trota*, or *Trotula*, and one *Achromos*, of whom *Tiraqueau* thinks *Hippocrates* has spoke, and made mention of a Remedy which that Woman had for the Dysentery. See the Article ACHROMOS.

The Greeks had also their *αἰσθητές*, and their *ιατροίαι*, Words which answer to the *Latin Medicae*. The former of these Words occurs towards the End of *Hippocrates*'s Work *De Carnibus*; and, from what follows, it is evident he gives that Name to the Midwives, who were commonly called *μαῖαι*. The latter occurs in *Galen*, *de Locis Affectis*, Lib. 6. Cap. 5.

If it should be asked, whether these *ιατροίαι*, or *Medicae*, were all Midwives; and if there were none of them who, without meddling with Deliveries, treated Women in their other Disorders; it is possible, there were some who only exercised the last of these Branches, and that all the Midwives were Female Physicians; tho' all the Female Physicians were not Midwives.

I cannot finish this Account of Female Practitioners, without retracting an Error I have been guilty of, with respect to *Agamede*, and which I was led into inadvertently by many Authors who have wrote on the History of Physic. The Knowledge of *αἰσθητά*, which *Homer* attributes to this Lady, does not seem to import any Medicinal Skill she was possessed of, but that she was an infamous Sorceress; and it is in this Light that *Theocritus* places her, if I remember right.

The next grand Revolution in Physic was brought about by *Themison*, a Native of *Laodicea*, and Disciple of *Asclepiades*, who lived not long before *Celsus*, as we may infer from a Passage in this Author, who speaks of him as a Man whom he might have seen, but who was not alive at the Time he wrote; for in his Preface he has these Words: *Ex Asclepiadis successoribus Themison, nuper, ipse quoque quædam in senectute deflexit.* "Among the Successors of *Asclepiades*, *Themison* himself has lately, and in his old Age, made some Innovations in the System of his Master." The Word *nuper* implies, that this had happened a short time before *Celsus* wrote; now *Celsus* wrote towards the latter End of the Reign of *Augustus*, or about the Beginning of that of *Tiberius*.

The Sect which *Themison* founded was called the *Methodic*, because he endeavour'd to find a Method of rendering Medicine more easy, both to be learned and practised, than it formerly was. His Principles were the following:

I. He asserted, that a Knowledge of the Causes of Diseases was not necessary, provided we had a due Regard to what Diseases have in common, and analogous among themselves. This Foundation being laid, he ranked all Disorders under two, or at most three, principal Genuses: The first included Disorders arising from Stricture; the second those arising from Relaxation; and the third those of a mixed Nature, or such as partook both of Stricture and Relaxation.

II. *Themison* also observed, that Diseases are sometimes acute, and sometimes chronical; that for a certain time they increase; that at another time they are at their Height; and that, at last, they were observed to diminish. This is the same Distinction *Hippocrates* made before him. In consequence of this, *Themison* said, that acute Diseases must be treated in one way, and those which are chronical in another; that one Method must be follow'd with such as are in their Augmentation, another with such as are at their State or full Height, and still another with those which are in their Declension. He maintained, that the Whole of Medicine consisted in the Observation of that small Number of Rules which are founded upon Things altogether evident. He said, that all Disorders of every Nature, included under any of the above-mentioned Genuses, ought to be treated in the same manner, from whatever Causes they proceeded, whatever Parts they attacked, in whatever Country, or whatever Season, they should happen. Upon these Principles he defin'd Medicine to be a Method conducting to the Knowledge of what Diseases have in common with each other, and which at the same time is evident.

Thus *Themison* agreed with the Empirics in this, that he did not depend upon Circumstances of an obscure and uncertain Nature; and with the Dogmatics in this, that he admitted Reasonings as well as they. He also agreed with these last in this, that he established, as the Foundation of his Method, *Indication*; which, being the Result of Reasoning, was of course rejected by the Empirics. But if he agreed with the Dogmatics, with respect to the Doctrine of *Indication* in general, yet he differ'd from them in acknowledging no other Indication, than what was furnish'd by the Genus of the Disease; whereas the Dogmatic Sect maintained, that neither the Genus nor the

the Species of the Disease could indicate the Remedy proper to be used, and the Measures to be taken, for promoting a Cure; but that, on such Occasions, we ought rather to consider the Cause which originally produced, and still maintains and supports the Disorder. This Cause, say they, naturally indicates the Remedy; since, in all Diseases, the Remedy consists in removing the productive Cause. *Themison* also rejected the other Indications, which the Physicians of the Dogmatic Sect drew from the Age of the Patient, his Strength, his Country, his Manner of Life, the Season of the Year, and the Nature of the affected Part. In this respect he also differed from the Empirics, who, tho' they would not hear of Indications, had nevertheless a great Regard to the above-mentioned Circumstances.

'Tis not difficult to perceive the Difference between the System of *Themison*, and that of *Asclepiades* his Master. The latter thought, that Health consisted in a just Proportion between the Pores or Passages of the Body, and the Corpuscles or Masses which ought to pass thro' them; and that Diseases were produced by a Disproportion of these same Pores and Corpuscles. This Opinion of *Asclepiades* laid a Foundation for that of *Themison*; but tho' the former consider'd a Part of these Pores as Cavities, or invisible Interstices, produced by a Concourse of Atoms at the Formation of each Body, and reasoned upon this Topic like a Philosopher, yet the latter did not carry the Matter so far, but, in all Probability, only believed, that there were Pores of some Kind, tho' invisible, in various Parts of the human Body. This, at least, was the Sentiment of some of the Methodics who succeeded him, and who, for illustrating their Opinion, brought, as an Instance, the Skin; the Pores of which are not perceptible, tho' it is very certain, from the Sweats discharged from it, that it is furnished with a considerable Number. *Themison* could not admit the Pores of *Asclepiades*, since that would have been contrary to his Principles, which ought, as we have already observed, to be drawn from evident Circumstances. He acknowledged Pores, but would not determine of what Nature they were. The Pores, said he, are not subjected to our Senses; but I can form an Idea of them, from the Sweat discharged by them. In this Sense it was that the Methodics maintain'd Medicine to be a Means or Method of leading from one Thing evident and apparent, to another which was not before known.

But the principal Difference with respect to the Means of finding Remedies, between the Sentiments of *Asclepiades* and these of *Themison*, is, that tho' the former sought for the Causes of Health and Diseases in the Proportion or Disproportion of the Pores, yet he did not believe, that this general Idea was sufficient for a Physician, but that he must inform himself of other Circumstances of a more particular Nature. *Asclepiades* believ'd with *Hippocrates*, and all other Physicians except the Methodics, that we ought to observe what Diseases have in common with each other, and what they have peculiar to them. But *Themison* did not, like *Asclepiades*, apply himself to the Investigation of the Causes of Diseases. He wanted only to know their Genuses, which, he said, he discover'd by evident Signs in the same manner as the Empirics pretended to know, and distinguish Diseases by their Signs, and not by their Causes, which they took to be incomprehensible. In this the Empirics and Methodics agreed, for both inform'd themselves of the Nature of Diseases from their Signs, a Circumstance which made them very exact and circumstantial in enumerating all.

Most of these Particulars are taken from *Celsus*, and they are all we can discover with respect to the System of *Themison*, which appears to differ considerably from that of *Asclepiades*; tho' *Celsus* seems to insinuate, that the Difference is not great. 'Tis true, that *Themison*'s Practice came pretty near that of *Asclepiades*, as we see from some Extracts from his Works preserv'd by *Caelius Aurelianus*. But as he did not invent his Method till he was old, it is probable he had not Time to adapt and accommodate his Remedies to his Reasonings on the Nature of Diseases. "*Themison*, says *Caelius Aurelianus*, Lib. 1. Cap. 1. *Tardar.* was as yet involv'd in the Errors " of *Asclepiades*, and the Methodic Sect was then only in its Infancy, and not well form'd."

Among the Faults *Themison* committed against the Laws of *Method*, he is said to have order'd cold Water to be drunk by such as had been blooded; which, according to the other Methodics, was ordering two Remedies directly contrary to each other; Bleeding in order to relax, and cold Water in order to brace up, or contract. *Caelius Aurelianus* also observ'd, that in several Disorders, *Themison* order'd Cathartics. He purg'd, for Instance, in Asthmata with Diagrydium, and in Lethargies with Aloes dissolv'd in Water. In the Disease called *Catalepsis*, he also purg'd with Diagrydium, to which he join'd Castor, probably as a Corrector. He also used some other Purgatives, of which the Methodics afterwards disapprov'd. *Themison* also differ'd from the succeeding Methodics, with respect to the proper Times of taking Aliments, of using Exercise, of Bathing, of Bleeding, of applying Cupping-glasses and Leeches, which last Remedy was not, in all Probability, first introduced into Practice by *Themison*. This Remedy was however, continued by the Physicians of the Methodic Sect, who imagin'd that as the opening of the great Veins produc'd a general Relaxation thro' all the Body, so Leeches caused a Relaxation of the particular Parts, to which they were apply'd almost like Cupping-glasses, which they sometimes put on, after the Leeches dropt off, in order to extract more Blood, or, in their own Words, *to relax more*. Tho' it is probable, that the Use of Leeches was first observ'd by Peasants, upon observing the Effects they produc'd when they fix'd upon their Legs, yet we cannot precisely determine the particular Time at which Physicians began to use them as a Remedy.

Dioscorides informs us, that *Themison*, being once bit by a mad Dog, or, which is more surprizing, having only constantly attended one of his Friends, who was mad from this Cause, fell into the same Disorder; but was at last cur'd after having suffer'd a great deal. *Caelius Aurelianus* tells us, that *Themison*, being subject to this Disorder, frequently propos'd to write upon it, but that he relaps'd every Time he attempted to put this Design in Execution. *Juvenal* has upbraided this Physician, or at least a Physician of this Name, with the large Number of Patients he killed.

Quot Themison egros autumnno occiderit uno.

This Line, however sarcastical it may at first View appear, does not convey a very disadvantageous Idea of *Themison*, since it seems to amount to a Proof, that Numbers committed themselves to his Care. *Galen*, *Medicam. Local. Lib. 7. Cap. 2.* informs us, that *Themison* was the first who gave a Description of the *Diacodium*, which is a Medicine compos'd of the Juice and Decoction of the Heads of Poppies, and Honey. *Galen* also observes, that he wrote a Book concerning Plantain, in which he asserted, that he was the first Discoverer of that Plant. He also invented a purgative Medicine called *Hiera*.

Themison had in all Probability, several Disciples, but we have only the Names of two of them left upon Record, one *Proculus*, and one *Eudemus*, mention'd by *Caelius Aurelianus*. As for his Followers, all the Methodic Sect may be look'd upon as such, tho' they made considerable Innovations in his Principles, and each endeavour'd to erect himself as Chief of the Sect. We have very imperfect Accounts both of *Proculus*

lus and Eudemus. *Caelius Aurelianus* only informs us, that the latter of these gave Clysters of cold Water to those Patients who were called *Cardiaci*.

Veſtius Valens is by *Pliny* represented as the Founder of a new Sect, and, in all Probability, he struck into that of *Themison*, but began to make some Innovations in it; as did almost all the Methodics who came after him, every one of whom pretended for this Reason to be the Author of a new Sort of Medicine. *Pliny* informs us, that this *Valens* was very eloquent, and acquir'd an uncommon Reputation for his Skill in his Profession. In all Probability, this *Valens* is the same with the Person whom *Caelius Aurelianus* calls *Valens* the Physician.

Themison, as we have already observ'd, being old when he laid the Foundation of his Sect, and not having sufficient Time to meditate maturely upon his infant System, left the Charge of it to those who were to come after him. His Disciples, of whom we have already spoke, ought to have endeavour'd at once to establish and improve it. But we read of nothing they did in this way; nor do we hear of any Advances made by *Veſtius Valens*. In all Probability, the Methodic Sect was not so much promoted by the joint Endeavours of these Men, as by the single Attempts of *Theſſalus*, who lived under *Nero*, about fifty Years after *Themison*, and who first enlarg'd or corrected the Principles of that Physician so successfully, that he acquir'd the Reputation of having perfected the Method. This *Theſſalus* was a Native of *Tralles* in *Lydia*; and if we may believe *Galen*, the Son of a Wool-carder, by whom he was brought up among a Set of Women. But the Meanness of his Extraction, and the little Care which had been taken of his Education, did not prevent his rising in the World, and making a very considerable Fortune. The Means he used for this Purpose, were to get himself introduced to the Great, and, as he knew they lov'd Flattery, he forgot none of the fawning Arts that could gain him a Place in their Favour. He was of a singularly complaisant and submissive Behaviour, which, according to *Galen*, was a Character quite the Reverse of that sustained by the ancient Physicians, especially the Descendants of *Esculapius*, who commanded their Patients, as a General does his Soldiers, or a Prince his Subjects. *Theſſalus*, on the contrary, was as obsequious to his Patients as a Slave is to his Master. If they were inclin'd to bathe, he allow'd it; if they wanted Ice or Snow to quench their Thirst, he order'd it; and if they desired Wine, they might have it. These Reflections of *Galen*, who adds, that *Theſſalus* had many Fellow-labourers in the cozening Art, shew us, that long ago, as well as now, Mankind made a Distinction between the End of an Art, and the Profit of the Artist.

Galen and *Pliny* accuse *Theſſalus* of excessive Insolence and Vanity, and report that he gave himself the Air of despising all other Physicians, whether his Predecessors or Contemporaries, with a View, no doubt, of enhancing his own Character, a Practice too frequent amongst the Mean-spirited and Disingenuous, and the certain Characteristic of a Scoundrel. So intolerable was the Vanity of *Theſſalus*, that he assumed the pompous Title of Conqueror of the Physicians, which he caused to be put upon his Tomb in the *Appian Way*. Never was Mountebank, continues *Pliny*, attended with a larger Number of Attendants, than *Theſſalus* generally had about him; and this Circumstance is the less to be wonder'd at, if we consider, that he promised to teach the whole Art of Medicine in six Months; and in reality the Art might be learned much sooner, if it comprehended no more than what the Methodics thought necessary; for they cut off the Dogmatic Examination of the Causes of Diseases; and substituted, in the room of the laborious Observations of the Empirics, Indications drawn from the Analogy of Diseases, or the mutual Resemblance they bore to each other. So that scarce any thing remain'd for the Methodics to do, but to know and make a Choice of Remedies, which was also no difficult Task, since they used only two Sorts.

Galen gives us the following Account of the Difference between the Sentiments of *Theſſalus* and *Asclepiades*; by which we may be somewhat let into the System of the former. "*Theſſalus*, says he, *Method. Medend. Lib. 1. Cap. 6.* has reduc'd all Disorders curable by Regimen to two Kinds, as *Asclepiades* did. But he has abandon'd, as useless, several Particulars in the Practice of *Asclepiades*." That is, tho' *Asclepiades* look'd upon the Dilatation or Contraction of the Pores to be the Circumstances which constitute the principal Kinds of Diseases, yet he believ'd, that we must seek for more particular Differences, and distinguish what each Disease has peculiar to itself. *Galen, Method. Medend. Lib. 4. Cap. 4.* makes *Theſſalus* opposite both to *Asclepiades* and *Themison*: "*Theſſalus*, says he, has chang'd some things in the System of *Asclepiades* and *Themison*: For whereas these believ'd, that, as Health consists in the Symmetry and Proportion of the Pores, and Diseases in their Disproportion, the Restoration of this Symmetry was the Re-establishment or Recovery of Health; *Theſſalus* thought, that in order to cure a Disease, it was necessary entirely to change the whole State of the Pores of the affected Part. It is, adds *Galen*, from this Opinion that the Word *Metasyncrasis* has been deriv'd; which signifies nothing more than a Change happening in the Pores."

As for the other Circumstances in which the Systems of *Theſſalus* and *Themison* differ, we know nothing certain about them; only this in general we are assured of, that *Theſſalus* chang'd the Tenets of *Themison*, and was thought to have perfected the Methodic Medicine; so that we may ascribe to *Theſſalus* all the Principles of the Methodics who came after him. But we learn from *Galen*, that the Physicians of this Sect did not agree very well among themselves. Some of them, for Instance, maintain'd, that Relaxation and Stricture were common to all Distempers in general; others, that this Relaxation and Stricture did not serve as Indications, but in Diseases to be cur'd by Regimen only. By this means they in a particular manner excluded those Diseases which call for the Assistance of Surgery. 'Twas no doubt this Opinion which oblig'd the Author of the Book intitled, *The Introduction*, ascrib'd to *Galen*, to add new Relations or Resemblances to these of *Themison*; and 'tis possible, these new Relations or Resemblances are those invented by *Theſſalus*.

The Author of *The Introduction* observes, that there are not only Relations or Agreements with respect to Diseases, but also with respect to their Cures; and that the former are called passive, and consist in Stricture and Relaxation; and the latter curative, and consist in relaxing and contracting, besides another Kind of Relation which he calls temporary, and which respects the different Manners of proceeding in the different Stages of Diseases. After making these Remarks, which give us a general Hint of the Sentiments of *Themison*, he adds, that there are Relations which concern Surgery in particular, and which are different from the others. These last-mention'd Relations consist in taking away or removing what is foreign to the Body in its natural State.

Two Kinds of Things, continues this Author, may be called foreign with respect to the Body; that is, things external, and things internal. The external things are, for Instance, a Thorn, or an Arrow, or any other external Object which wounds, and which, remaining in the wounded Part, proves troublesome, and prevents its Cure. 'Tis obvious, that foreign things of this Nature ought to be extracted. As for internal things, the same Author makes three Sorts of them: There are, says he, certain things in our Bodies which are Parts of them, and which are, nevertheless, as troublesome and offensive as if they were foreign. When, for

Instance,

Instance, Bones are dislocated or fractur'd, these Circumstances demand, that they should either be remov'd from the Situation in which they are, or again reduc'd to their natural Position. Secondly, things become foreign by their Excess, such as their Largeness, Bulk, or Superfluity: Of this Kind are all the different Kinds of Tumors, all Abscesses, Excrescences, Warts, or a sixth Finger. Some of these demand only to be laid open, or to be discuss'd; others require Amputation, or being remov'd. There are also foreign things arising from a Defect, such as deep Ulcers, and the Hare-lip, which indicate a Necessity of supplying what is wanting.

These are the Relations of Chirurgial Disorders, and of the Remedies appropriated to them. This Author adds another Species of Relations, which he calls Prophylactic, and which regard Diseases caused by Poisons, venomous Beasts, and, in general, by every thing that can secretly, and without being discovered, produce Disorders of any kind.

Tho' we are not absolutely certain, that *Thebssalus* was the Author of all these Relations, yet 'tis highly probable, that he invented those which regard Surgery; since 'tis well known, that he established several different Species of the Genuses already mentioned. "Those, says *Galen*, *Method. Medend. Lib. 5. Cap. 1.* who followed *Thebssalus*, believe, that all Ulcers, in whatever Part of the Body, ought to be cured in the same manner. If they are hollow, they must always be incised; if equal with the rest of the Surface of the Body, they must always be cicatrized; if fungous and superfluous Flesh arises, it must always be consumed; if they are recent and bloody, their Lips must be forthwith united and consolidated."

Thebssalus also established a Relation or Analogy with respect to old Ulcers in particular. His own Words, taken from *Galen*, are as follows: "The Relations of inveterate Ulcers, which will not close, or which, being once cicatrized, open afresh, are of the highest Importance; since, with respect to the former, we must necessarily know what hinders them from closing, in order to remove it; and, with respect to those which break out again after they have been once cicatrized, we must know what is the Cause of their appearing afresh, that we may take effectual Measures for rendering the Cicatrix secure and durable, by changing the Habitude and Disposition of the Part affected, or of the whole Body; by inducing such an Alteration, as that it may not any more be subject to the like Infirmary; and that this End may be obtained by *metasyncritical Medicines*."

On this Occasion I cannot forbear remarking, that this Doctrine of *Thebssalus* has been embraced, with great Reason, by all succeeding Surgeons. Mr. *Sharp*, in the following Passage, means the same things. "It will be often in vain to pursue the best means of Cure by topical Application, unless we are assisted by internal Remedies; for, as many Ulcers are the Effects of a particular Indisposition of Body, it will be difficult to bring them into Order, while the Cause of them remains with any Violence; and, indeed, there are hardly any Constitutions where Ulcers are not assisted by some Physical Regimen."

Thebssalus, a little afterwards, goes on thus: "Inveterate Ulcers, which do not close, or which, being brought to a Cicatrix, open afresh, furnish the following Indications. First, those which cannot be cicatrized, indicate the Removal of the Cause which hinders their Cicatrization, the Renovation of the Parts affected; and that, after they have been reduced to the State of a recent Wound, they should be treated as such. If this should not succeed, we must use lenitive Medicines, and such as are prescribed in Tumors accompanied with Inflammation. As for Ulcers which, being once cicatrized, open afresh, when they are beginning to exulcerate, or appear a second time, they indicate, that they should be treated like a Phlegmon, or a recent Tumor with Inflammation; and that we should apply lenitive Cataplasms to them, till the Irritation is over, after which the Surgeon must endeavour to induce a Cicatrix, and afterwards apply, all-around the Part where the Ulcer was, a Plaster in which Mustard is an Ingredient, and which may produce a Redness of the Part, or some other Medicine which may alter the Disposition of the Parts, so that they may not, for the future, be susceptible of the same Disorder. If, by these means, the bad Disposition of the Part cannot be corrected, we must endeavour to change the Habit of the Body in general by a *Metasyncrasis*. This End may be obtained by performing various Exercises, with respect to which, those who are skilled in the Gymnastic Art are to be consulted, or by augmenting and diminishing the Quantity of Aliments alternately."

From what has been said, it appears, that *Thebssalus* did not adhere to the Relations of *Themison*; and that what the former meant by *Metasyncrasis*, was a Change he pretended to make either in the whole Body, or in some particular Part of it. See METASYNCRISIS.

If *Thebssalus* was not the Author of the *Metasyncrasis*, yet 'tis certain he was the first who introduced Abstinence for three Days, by which the Methodics began the Cure of all Disorders, and from which they were afterwards called *Diatritarii*, from the Greek Word *διατρίβειν*, the Name given by *Thebssalus* to this Abstinence.

Thebssalus's Arguments for not using Purgatives are almost the same with those of *Erasistratus* or *Chrysippus*, who were the first who declared against Medicines of this kind, and were afterwards supported by *Asclepiades*. Upon this Topic *Thebssalus* argued in the following manner: "Let us take, says he, an Athletic, as robust and vigorous as we can possibly find; let us give him a purgative Medicine, and we shall find, that, tho' before he had no Complaint, the Matter evacuated by the Medicine shall be corrupted. Hence we infer, that the corrupted Matter discharged was not before in the Body of the Man, since he was blessed with a good State of Health. Hence also we infer, in the second Place, that the Medicine has, on this Occasion, produced two Effects: The first of which is, the corrupting what was before uncorrupted, and the second, the evacuating or discharging it." *Thebssalus* adds, a little after, "That the Physicians of the Hippocratic Sect were Fools for not adverting, that, when they intended to purge Bile, they purged Phlegm; and, on the contrary, when they intended to evacuate Phlegm, they discharged Bile; whence he draws this Consequence, that Purgatives must prove prejudicial, because they produce Effects quite the reverse of what were intended by them."

By this way of arguing, without consulting the real Effects of Medicines as warranted by Experience, all the Remedies which have ever been employ'd for the Relief of the Sick, may be reasoned out of Practice, with an equal Appearance of Justice.

We have nothing more to observe with respect to *Thebssalus*, except that he wrote several large Volumes, a Piece of Conduct not to be reconciled with his professing to teach the Whole of Medicine in the Space of six Months, since, in all Probability, it would take a longer Time to read these Productions.

The most skilful of all the Methodic Sect, and the Man who put the last Hand to the Method, was *Soranus*. At least this is the Judgment formed of him by *Caelius Aurelianus*, who was of the same Sect, and who observes several Faults committed by *Thebssalus*, with respect to the Principles of the Methodic Sect, tho' others looked upon him as the Perfector of that Species of Medicine. 'Tis probable, that the Methodics being divided among themselves, one Party of them gave the Preference to one Physician, and another to another, and that *Caelius Aurelianus* only

prefers

prefers *Soranus* to *Theffalus*, because he was prejudiced in favour of the Sentiments of the former. But *Soranus* was esteemed by Physicians who were not of his own Sect. *Galen*, who does not spare the Methodics, and particularly abuses *Theffalus*, says nothing against *Soranus*. On the contrary, when giving a Description of some Medicines used by him, he says, that he himself had, from Experience, found them to be good. *Suidas* also informs us, that *Soranus* wrote several Books, which were very much esteemed.

Soranus lived under the Emperors *Trajan* and *Adrian*. He was a Native of *Ephesus*, and his Father's Name *Menander*, and that of his Mother *Pbebe*. He afterwards remained for some time at *Alexandria*, but at last settled at *Rome*, where he practised Medicine under the above-named Emperors. His Writings are lost, but this Misfortune is, in some measure, retrieved by the Works of *Cælius Aurelianus*, who tells us himself, that he has done no more than translate the Productions of *Soranus*.

There were three or four other Physicians of the Name of *Soranus*. The first was an *Ephesian*, as well as the *Soranus* already mentioned, but lived a great while after him. *Suidas* also observes, that the second *Soranus* wrote several Medicinal Books, one of which was intitled, *Of the Disorders of Women*, or *The Things relating to Women*. This was published in Greek at *Paris* in 1554, with *Rufus Ephesus*, by *Turnebus*. The third *Soranus* was a Native of *Malles* in *Cilicia*, and is distinguished from the others by the Surname of *Mallotes*. *Suidas* informs us, that a Physician and Philosopher of the Name of *Aclepiodotus*, on whom he bestows a great Character, placed this *Soranus* in the first Rank among all the Physicians who came after *Hippocrates*. Some believe, that the small Latin Book, intitled *Introductio ad Medicinam*, and printed at *Basil* and *Venice*, under the Name of *Soranus* of *Ephesus*, was wrote by *Soranus Mallotes*. *Vossius* thinks, that this belongs to neither: and, indeed, his Conjecture seems to be well founded. The Author of that Work addresses himself to *Mecenas*, in the fifth Chapter, with a View to make the World believe, that he lived in the Time of that Favourite of *Augustus*; but the Imposture is too palpable not to be detected.

But it would be superfluous to spend Time in giving a fuller Account of *Soranus*, since *Cælius Aurelianus* says a great deal of his Principles and Practice.

Cælius then wrote in Latin, and was a Native of *Africa*, as appears from his Style, which has something pretty singular in it. Besides, the Place of his Birth is ascertained by the Title of his Book, where he is called *Cælius Aurelianus Siccensis*. Now *Sicca* was the Name of a City in *Numidia*. Others have called him *Lucius Cælius Arianius*, instead of *Aurelianus*, as if he had been a Native of *Aria*, or *Ariana*, Provinces of *Asia*; but most of the Learned declare in favour of the former Name. In *Cassiodorus* we read of one *Cælius Aurelius*, who must have been the same with the Author of whom we now speak.

We know nothing certain as to the particular Time in which *Cælius Aurelianus* lived. Some think him more antient than *Galen*, because, among the several Authors whose Sentiments he relates, he makes no mention of that Physician. But *Cælius* might have lived after *Galen*, and yet not have quoted him, because he was a sworn Enemy to the Methodics. This is the Conjecture of the judicious *Reinesius*, who, from this Author's Air and manner of Writing, will have him to live in the fifth Century after Christ. Tho' *Cælius Aurelianus* confesses, that he translated *Soranus*, yet 'tis obvious, that he did not barely translate what that Physician wrote, since he often tells us, that such a Physician was of such an Opinion; but that *Soranus*, whose Admirer he professes himself to be, was of a contrary Sentiment.

Besides, what proves that *Cælius Aurelianus* was not a simple Copier of the Works of another, is his quoting several Books of his own Composition; and, among others, a Book of Greek Letters, addressed to one called *Prætextatus*, in which he strongly opposed the Use of *Hiera*, a purgative Medicine used by *Themison*. *Cælius Aurelianus* also quotes another Book, which he dedicated to one *Lucretius*, and which contained an Abridgment of Medicine, by way of Question and Answer. He also quotes his own Books upon Surgery; others concerning Fevers; the Causes of Disorders; common Remedies; the Composition of Medicines; the Diseases of Women; and the Preservation of Health. Now 'tis by no means probable, that all these Books were copied from *Soranus*. Whether it was really so or not, we have none of the Writings of *Cælius Aurelianus* now extant, except those Books, the principal Honour of which he ascribes to *Soranus*. But luckily these are of the greatest Importance, since they contain the Manner used by the Methodics in treating almost all Disorders, except such as demand the Aid of Surgery. Another Advantage we draw from them is, that our Author, in refuting the Sentiments of some celebrated antient Physicians, preserves some Specimens of their Practice; of all which we should have been entirely ignorant, except what relates to *Hippocrates*, of whom he also relates some things not to be found in his Works. The other Physicians he quotes most frequently are *Diocles*, *Praxagorus*, *Heraclides Tarentinus*, *Aclepiades*, and *Themison*. These are the Physicians whose Practice he has most carefully and accurately examined. He, indeed, joins *Erasistratus* and *Herophilus* to them; but, as these Authors did not write upon all Disorders, he does not make so frequent Mention of them as of the others. In several Passages he also quotes *Serapion*, and probably best in the System or Practice of the Empirics.

Cælius Aurelianus, in those Works of his which are still extant, considers Diseases either as acute or chronical; and, as this Division made one of the Relations of the Methodics, the Physicians of that Sect followed the same Distinction in the Titles of their practical Works. As the Methodic Sect took all Diseases, whether acute or chronical, to be produced by Stricture and Relaxation, from which arose a third Sort, of a mixed Nature, or partaking of both the former, we shall briefly enumerate the particular Disorders, which, according to *Cælius Aurelianus*, drew their Origins from each of these Sources.

As for the Diseases, then, produced by Stricture, and which, at the same time, are of the acute Kind, he gives the first Place to a *Pbrenitis*; tho' he owns another Species of it produced by Relaxation, or Solution, and which may be distinguished from the former by the frequent Discharges by Stool and continual Sweats. The next he mentions is a Lethargy, which, according to him, proceeds from a still stronger Stricture than that which produces a *Pbrenitis*. The next he mentions is a *Catalepsis*, which bears some Analogy to a Lethargy. From these Disorders he passes to a *Pleurisy* and *Peripneumony*, which, he says, are of the mixed Kind, and partake both of Stricture, and Solution or Relaxation; of the latter, because the Patients spit and expectorate Phlegm, and sometimes Blood; and of the former, because there is a Tumor in the Part affected, since every Tumor necessarily implies Stricture. All these Disorders are accompany'd with a Fever; but he makes others of the acute Kind exempt from that Misfortune, such as the various Sorts of Quinsys, the Apoplexy, Convulsions, the Ileus, and the Hydrophobia. Chronical Diseases, arising from Stricture, are Head-achs, Vertigoes, Asthmas, which he made to arise, in some measure, from Solution, because of the Discharge from the Lungs in this Disorder; Epilepsies, Madness, the Jaundice, Suppressions of the Hemorrhoids, and of the Menfes; *Polysarcia*, or Redundance of Flesh; Melancholy; which also depends, in some measure, upon Solution or Relaxation, by reason of the frequent Vomiting

Vomitings and Diarrheas of those afflicted with it. The Palsy, Catarrhs, the Phthisis, the Colic, and the Dysentery, also partake of both Stricture and Relaxation. The Dropsy is also of the same Kind. It is generally ascribed, says *Celius Aurelianus*, to Stricture; but the Symptoms attending it shew, that it partakes of Relaxation or Solution.

The acute Diseases, arising from Solution or Relaxation, are the *Cardiac Passion*, which is often a Symptom attending burning Fevers, a Disorder accompanied with Faintings, cold Sweats, and a very small Pulse; a *Cholera*, which *Celius Aurelianus* defined, *Solutio Stomachi, Ventris, & Intestinorum, cum celerrimo periculo*, “a Relaxation or Solution of the Stomach, Belly, and Intestines, accompanied with most sudden Danger.”

The chronical Diseases, produced by Solution or Relaxation, are, Spitting of Blood, Diarrheas, immoderate Discharges of the Menfes, Leanness, and the Hemorrhoids.

The Signs by which the Methodics distinguish'd Diseases proceeding from Stricture, were, a Retention of the usual Evacuations, and a Tumor or Hardness of the Parts: On the contrary, Diseases caused by Relaxation or Solution were known by an Increase of the usual Evacuations, a Discharge of some Things which ought to be retain'd in the Body, and a Softness and Extension of the Parts. As to some Distempers, the principal Symptoms of which cannot properly be deduced either from Relaxation or Stricture; these they rank'd in that Class, to which some less considerable Circumstances, attending it, directed them to refer it.

In order to form a Judgment of the Methodic Sect, it will be necessary to take a fuller View of their Practice, the Maxims on which it was founded, and the principal Remedies which they either recommended or disapproved.

We have already observed, that they maintained, that the Relations they established between Diseases ought to be evident; and that they had as great a Regard to what was evident in Diseases, as to what they had in common among themselves. *Celius Aurelianus* was so strong an Advocate for this Evidence, that he avoided Definitions as much as possible, for fear of involving himself in some obscure and intricate Disputes; by attempting to penetrate into the Essences of Things, which seems necessary, in order to define them exactly, according to the Rules of Logic. The same Consideration carried him farther, and made him assert, that we ought not to be at any Pains to discover the Part particularly affected, or the Part which suffers most, in every Disease. “The Physicians of other Sects, says he, *Autor. Lib. 1. Cap. 8.* have endeavour'd to discover what the Part affected in a Phrensy is. Some have asserted it to be the Brain, others the Heart, or the Diaphragm; but, as for the Methodics, we do not give ourselves a great deal of Trouble about Circumstances of that Nature.”

It is however certain, that, in some Cases, the Methodics thought themselves obliged to know the precise Part affected, tho' not with a View to vary the Cure. “Which are the Parts, says *Celius Aurelianus*, from which the Blood, discharged by the Mouth, flows? There are several of them; the superior Part of the Throat, the *Aspera Arteria*, the Lungs, the Breast, the Pleura, the Diaphragm, the Stomach, the Belly, and, according to some, the Liver, the Spleen, and the great Vein adhering to the *Spina Dorsi*.” After having given this Answer to the Question propos'd, he starts another: “Why, says he, do we endeavour to discover the Parts whence the Blood flows in certain Diseases? Our Intention in this is, that we may apply our Remedies immediately to the Parts affected, or those adjacent to them; and not, as some imagine, with a View to vary the Cure according to the Diversity of Parts, since the same Cure is adapted to them all.”

Another Maxim of the Methodics was, “That Physicians ought to attempt the Cure of Disorders by Things as simple as possible, and such as we use in a State of Health, such as the Air we breathe, and the Aliments we take.” It is universally agreed, that this Method would be, of all others, the best, provided it answer'd the Intention; and the antient Physicians endeavour'd to draw all the Advantages from these Things they possibly could. But the Methodics were, above all others, accurate and careful in this Particular; for they endeavour'd, as much as they possibly could, to render the Air the Patient breathed such as they thought might contribute most effectually to the Cure of his Disorder; and as they acknowledged only two Kinds of Diseases, those proceeding from Relaxation and Stricture, their great Care was to procure to their Patients either a relaxing or a constricting Air, according as their Case call'd either for the one or the other. In order to procure the former, they lodged their Patients in light, large, and moderately warm Chambers; on the contrary, in order to obtain a constricting Air, they lodged them in Rooms somewhat dark and cool. With this View the Methodics not only chose Apartments lying to the North, and on which the Sun rarely shined, but also sometimes Grottoes, and subterraneous Places. With the same View they also covered the Floor of the Apartment with the Leaves of the Mastich-tree, the Vine, the Pomgranate-tree, the Myrtle, the Willow, and the Pine; they sprinkled the Floor also with cold Water, used Bellows and Fans, and forgot no Circumstance that could render the Air cool. “It is necessary, said they, to have a greater Regard to the Air we breathe, than to the Aliments we use; because we only eat at stated Intervals; whereas we respire continually, and the Air, entering without Interruption into the Body, and penetrating into its most minute Interstices, more powerfully contracts or relaxes than our Aliments.”

The Methodics were also very solicitous and careful about the Manner in which their Patients lay, and ordered their Beds to be prepared in a manner suited to their particular Distempers. They carefully specified what Sort of Bed-cloaths they ought to be cover'd with; and determin'd whether they ought to lie on a Mattress, or a Down-bed, in what Posture they ought to lie, whether the Bed ought to be large or little, and how the Bed ought to stand with respect to the Windows: In a Word, they were extremely scrupulous with regard to all these Circumstances, which were almost overlook'd and disregarded by other Physicians.

As for Nourishment, the Methodics made it their principal Business to distinguish Aliments or Liquors which contracted or relax'd.

We must observe, that the Physicians of this Sect, or at least *Celius Aurelianus* and *Soranus*, did not admit of Specifics; since, for the most part, they consist of Substances to which People in Health are not accustom'd. *Celius Aurelianus, Tardar. Lib. 1. Cap. 4.* tells us, “That, in the Epilepsy, the dried Flesh of Wheasles is prescribed, or human Flesh, or a certain Excrecence which appears on the Legs of Horses, Asses, or Mules; and that Physicians exhibit to Patients, labouring under this Disorder, the Penis or Testicles of a Water-dog; Wood-lice, which are Insects produced in moist and watery Places, and by the Greeks call'd *Smogon*; then Filings of Steel, and Water in which hot Iron has been extinguish'd. They also give them the Brain of a Camel, dried in the Smoak, and cut small: But this Medicine is only to be smell'd to by Children and Infants; but, by Adults, it is to be taken in three Cups of *Mulsun* and Vinegar. The Heart of a Hare also, and the Brain of a Sea-fowl call'd *Gavea*, is prescribed. It cannot be said, that these Medicines were invented by Reasoning, or Attempts to penetrate into obscure and latent Causes. Neither can we say, that the Effects of these various Substances have been discover'd in the Epilepsy by Experiments accidentally made, as the Empirics

“believed

“believed the greatest Part of Medicines to be: ‘Tis not conceivable, how Chance should introduce these Substances into Medicine, since they are all so abominable, and opposite to those generally used, that we cannot suppose they were brought into Use without Peoples thinking on their Qualities. If we should say, that these Medicines being brought into Use is the Result of Experiments made by the first Physicians, either designedly, or from a Principle of Curiosity, we must be justly surpris’d, that these Physicians should choose to make their Experiments upon such disagreeable and nauseous Substances, and neglect to discover the great Advantages to be drawn from the Air, Watching, Sleeping, Aliments, and other things necessary to human Life, by regulating each of these, according to the particular Nature of each Disease.” *Celsus Aurelianus* adds, “That the Remedies of the former Class are dangerous, and quotes the Example of *Themistocles*; who died by drinking Bulls Blood, a Medicine also highly commended against the Epilepsy.” This Author passes the same Judgment upon all the Specifics used in other Diseases; and, in his Chapter on the *Hydrophobia*, concludes, “That those Remedies which People believe to be experienced, and, after repeated Trials, found effectual, are nevertheless good for nothing; because they are very often contrary to those prescribed by Art;” that is, some of these Remedies contract, when Relaxation ought to be the Intention; and relax, where Constriction is necessary.

This last Consideration determined the Methodics against specific Medicines, since they admitted none but such as had a Relation to Relaxation and Stricture; yet, on some Occasions, the Physicians of this Sect were obliged to have recourse to Specifics; and *Celsus Aurelianus* himself is forced to own their Effects in killing Worms. But as we have observed, that the Methodics had invented particular Relations with regard to the Diseases in which Surgery is concern’d, and as the principal of these Relations consisted in taking away or removing what was foreign to the Body, *Celsus Aurelianus* saved himself in this Particular, by ranging Worms and their Cure under this Relation; that is, he pretended that Worms being Things foreign to the Body, there was a Necessity for using Remedies which might kill and expel them from the Body.

The Methodics were very great Enemies to Cathartics, and admitted of their Use on very few Occasions; because, says *Celsus*, they are prejudicial to the Stomach; and offensive to the Nerves; and, besides, induce a Solution; which is itself, according to their System, a Disease. Clysters, however, they allow’d, but only those of the gentle emollient Kind. This Sect does not appear to have been more favourable to Diuretics, which *Celsus Aurelianus* only allows the Use of in a Dropsy. Narcotics and Cauterics were in no greater Esteem. But what particularly distinguished the Physicians of this Sect from all others, was their DIATRITOS, or three Days Abstinence, with which they began the Cure of almost all Distempers. See DIATRITOS.

As the Methodics allow’d of only two Sorts of Distempers, one from Stricture, and one from Solution or Relaxation, more than two Sorts of Medicines would have been superfluous in their System. Accordingly we find them attached to Remedies which relax, and those which contract or brace up, without considering any farther. Amongst the relaxing Remedies, Bleeding was one of the most considerable: In consequence of this Principle, the Methodics bled in all Disorders proceeding from Stricture; and even in those of the mix’d Kind, when Stricture prevailed. They bled, for Instance, in a Pleurisy, tho’ accompanied with a Diarrhoea; because they apprehended the Removal of the Stricture to be of the most Importance towards the Cure; but they generally waited till the third Day of the Distemper, before they administer’d this Remedy. They, however, blamed the other Physicians for bleeding excessively, that is, till the Patient fainted. They farther disapproved of opening the Veins under the Tongue, because they reason’d themselves into an Opinion, that it did more Injury than Good; nor were they to be convinced of their Error by Experience, persisting in their Opinion with all the usual Obstinacy of Disputants. They found Fault with those Physicians who confined Bleeding to young People; whereas we, says *Celsus Aurelianus*, bleed Patients of all Ages; when the Distemper demands this Remedy, and the Strength will permit it.

Cupping-glasses, both with and without Scarification, were employ’d by the Methodics, with a View of relaxing; as likewise Leeches. The rest of their Practice, with a View to Relaxation, consisted in Fomentations made with Sponges soak’d in warm Water, the external Application of warm Oils, and emollient Cataplasms, and the Regulation of the Non-naturals.

For constricting or bracing the Habit, they principally employ’d cold and restringent Topics, always taking care to make the Air, Exercise, and Aliment, as much as was possible, subservient to their Intention.

Those who are desirous of farther Information concerning the Methodic Sect, may read *Celsus Aurelianus*, or *Prosper Alpinus de Medicina Methodica*.

The Physicians of the Dogmatic Sect, in disputing against the Methodics, asserted, That it was not possible for the ancient Physicians to be ignorant of what Diseases have in common with each other; but that, on the contrary, they carefully attended to them. Thus *Hippocrates* says expressly, “That, in order to cure Diseases, a Physician must have a Regard to what belongs to them in common, as well as to what is peculiar to each Disease.” The Methodics, whatever they pretend, cannot help observing very essential Differences between Particulars of the several Genera of Diseases which they have established, and these Differences must make new Genera. Thus, for Instance, it is one thing to vomit Blood, and another to vomit Bile; and there is a vast Difference between a Diarrhoea and a Dysentery; between an Evacuation or Diminution of what is superfluous by way of Sweating in a State of Health, and an Emaciation which is the Effect of a slow Fever, which consumes the Body.

These Physicians assert also, that the different Parts which are affected by the same Distemper, occasion a Difference no less considerable than the former. The Eye and the Ear require different Treatment under the same Distemper; and there is scarce a Part of the Body which does not require a particular Management. Oil, for Example, (*Galen de Seltis, Cap. 8.*) which mitigates and mollifies inflammatory Tumors in all other Parts, causes an intolerable Pain in those of the Eyes, and increases the Disorder instead of diminishing it. *Galen*, in particular, urges very strongly against the Methodics, that they were so far from searching into the secret Causes of Diseases, that they even neglected the outward and evident Causes, upon a Persuasion, that it is not the Cause of the Disease which indicates the Remedy, but the Disease itself. To convince them of the contrary, he brings an Example of two Men, who, being bit at the same time by a mad Dog, address’d themselves to two different Physicians. It happened, that one of these Physicians, being informed of the outward Cause of the Disease, left the Wound a long time open, and applied Specifics. The other, without troubling himself about the Cause, regarded only the Disease, which was a Wound, and, following the common Indication of Wounds, endeavour’d to cicatrize it as soon as possible; the Consequence of which was, that his Patient died mad; whereas the other recover’d. *Galen* is no less severe upon them for their having no regard to the Season, nor Country, nor Age, nor other Circumstances of the Diseased.

The Methodics answer'd, That these Circumstances made no Alteration in their Method; that whenever there is a Relaxation, there is need of a Restriction, let the Country, Season, Age, or even Part affected, be what it will.

By all that has been said of the Methodics, it evidently appears, that these Physicians, like those of all other Sects, were more solicitous about establishing the Credit of their Theory, than relieving the Sick; and that they disputed for Victory, and not for Information. The Moderns have, however, found some Things, both in the Theory and Practice of these Physicians, highly worthy of being imitated in their own. Thus the Doctrine of Distempers, which proceed from the Rigidity or Relaxation of the Fibres, and the Practice depending thereon, exactly agrees with those of the Methodics. These, as I remember, were first revived by *Prosper Alpinius*: *Baglivii* afterwards wrote upon this Subject; and the celebrated *Boerhaave* gives a succinct and rational Account of every thing relating to this Doctrine, with some Improvements, in nine Pages only of his *Aphorisms*; tho' since the Publication of this Work in 1709, a Multitude of Authors have borrow'd his Plan, and spun out his Sentiments to a great Number of Volumes.

The Names of many other Physicians of the Methodic Sect are recorded by Authors, but few of them are of Importance enough in the History of Physic, to deserve farther Notice, as being principally servile Imitators of those already mentioned. Amongst these, however, Mr. *Le Clerc* takes Notice of *Mosebion*, whose Treatise of the Disorders of Women we now have; and of *Vindicianus*, who lived in the Time of the Emperor *Valentinianus*, and whom St. *Augustine* represents as the greatest Physician of his Age.

Theodorus Priscianus is also rank'd amongst the Methodics by the same Author, who says, he was Scholar to *Vindicianus*. He first wrote some Medicinal Books in the Greek Language, by the Persuasion of one of his Collegues, whom he calls *Olympius*; after which he wrote those four still extant in *Latin*, as he himself informs us. The first of these is intitled *Logicus*, tho' there is not the least Appearance of Philosophical Reasoning in any Part of the Work. On the contrary, the Author in his Preface declaims against philosophical or reasoning Physicians. "If, says he, Medicine was practis'd by illiterate Men, who had no other Master than Nature, and who knew nothing of Philosophy, Diseases would be more slight and gentle, and Physicians would use milder and cheaper Remedies than those commonly prescrib'd. But, continues he, the most natural Method of treating Medicine has been neglected, and that Art lies exposed to the Mercy of certain People, whose chief Talent consists in writing politely, and disputing subtilly against those of Sentiments different from their own." All the rest of this Preface is full of Exclamations against this Abuse, and the Author declares himself so strongly for the Empirics, that one would very readily take him for one of their Sect. 'Tis no easy Task to conjecture, why this Book in the Edition of *Aldus* should be intitled *Logicus*, since in the *Basil* Edition the same Book is called *Euporiston*, that is, *Remedies easily prepar'd on sound*. He dedicated this Book to his Brother *Timotheus*. He also dedicates the second to him, in which he treats of acute and chronic Diseases. This second Book is intitled *Logicus* in the last-mention'd Edition; and that Title appears well enough suited to it, because it contains Reasonings. The third relates to the Disorders of Women; for which Reason it is intitled *Gynæcia*. It is dedicated to a Woman, who in different Editions goes by different Names. That of *Aldus*, and that of *Strasburg*, call her *Victoria*, but that of *Basil* styles her *Salvina*. The fourth Book, intitled *De Physica Scientia*, is by the Author address'd to his own Son of the Name of *Eusebius*. The Beginning of this Book does not correspond to its Title, since it does not in the least treat of Physic; for we only find in it Descriptions of Medicines for various Diseases, or specific and empirical Medicines, some of which are sufficiently superfluous. Towards the Close of the Work, indeed, there are some Questions relating to Physiology. The Author there examines the Nature of the seminal Matter, that of some Parts of the Body, and some of the animal Functions, but all in a very barbarous manner.

Besides, it appears by the second of these Books, that the Author was of the Methodic Sect, in Imitation of whom he always begins his Cures by the Choice of a Chamber suited to the Nature of the Disease of which he treats; and that with respect to Relaxation and Stricture. In a Peripneumony, for Instance, which is a Disease proceeding from Stricture, he orders that the Chamber should be light and warm, because, he says, these Circumstances contribute to Relaxation. He also makes frequent Mention of the *Cyclus* of the Methodics, and orders Venesection almost in the same manner they do, during the first three Days of the Disease, tho' he is sometimes afraid of Venesection, either because he thinks it may be omitted, or that some other Remedy may be substituted in its Room, in Cases where 'tis generally believ'd to be indispensably necessary. But tho' our Author is of the Methodic Sect, he nevertheless recedes in several Instances from the Practice of the most ancient Physicians of that Sect. He often orders Purgatives, which the Methodics did not admit of; he also speaks of Specifics, and with respect to the Administration of other Remedies does not follow the precise Order adher'd to by *Soranus*. But this will not appear extraordinary, if we consider, that *Theodorus Priscianus* liv'd about three hundred Years after him, and that, even in the Days of *Soranus* himself, the Methodics were not all of the same way of Thinking; so that if, at the first Establishment of this Sect, the Physicians who embrac'd it could not agree with respect to several Articles, it was no Wonder, if those who came three or four Centuries after them, should in like manner be divided with respect to some Particulars. Tho' these later Methodics differ'd from the former, this does not hinder them from being look'd upon as Methodics, since they did not abandon the fundamental Principle of the Sect, which consisted in acknowledging only two Kinds of Diseases, those proceeding from Stricture, and those from Relaxation.

Our asserting that *Theodorus Priscianus* liv'd about three hundred Years after *Soranus*, who flourish'd under *Trayan*, is founded on what the former says of himself. That he was the Disciple of *Vindicianus*, who was Physician to the Emperor *Valentinian* the first. According to this Computation, *Theodorus Priscianus* must have liv'd under *Gratian* and *Valentinian* the second, and even somewhat later. His Style in some measure resembles that of *Cælius Aurelianus*, which lays a Foundation for suspecting, that he was an *African*, as well as that Author. The Works of *Theodorus Priscianus* were first printed at *Strasburg* in 1532: but in that Edition he receives the Name of *Q. Octavius Horatianus*, and the Title of *Archiatre*. This Edition is full of Faults, as *Reinesius* has observ'd, who in his Prelections has explain'd several Passages of our Author. The same Year there was another Edition publish'd at *Basil* under the Name of *Theodorus Priscianus*, but in this Edition the fourth Book is wanting. *Aldus*, or his Sons, at last gave a third in the Year 1547, where the Works of our Author, who there also appears under the Name of *Theodorus Priscianus*, are join'd to those of all the ancient Physicians who wrote in *Latin*. *Theodorus Priscianus* does not in this Edition, as in the other, assume the Title of *Archiatre*. The third Book of this Author, which treats of the Diseases of Women, is contain'd in a Collection of Works relating to the same Subject, publish'd by *Israel Spachius*. There is also a Book intitled

Diete, wrote by an ancient Physician of the Name of *Theodorus*, whom *Rainfus* thinks to be the same with *Theodorus Priscianus*.

These are all the ancient Methodics, whose Works or Names are still preserv'd. From the Days of *Theodorus Priscianus*, or those of *Olympius*, *Timothæus*, and *Eusebius*, to whom he dedicates his Books, and who were probably of his Sect, we hear no more of the Methodic Sect till the Time of *Gariopontus*, who did not write till about seven or eight hundred Years after the Persons now mention'd. Some call him *Warimpotus*, others *Rainpotus*, *Warmipotus*, *Guaripotus*, or *Garnipotus*, *Gariponus*, and *Garnipulus*. The particular Time, in which this Author lived, is much controverted; but it appears from the Testimony of *Petrus Damiani*, who died in the Year one thousand and seventy-two, that this Physician lived in the same Age; for he speaks of him, as of a Man whom he had seen. Besides, it appears that our Author was among the Number of Physicians belonging to the School of *Salernum*, from a Passage in *Moræus's Prolegom. in Scholam Salernitanam*, where he is call'd *Warmipotus*. He wrote seven Books, which contain his Practice. The five first treat of almost all Disorders except Fevers, which are the Subject of the two last. This Work was printed at *Lyons* in 1516. and 1526. under the Title of *Passionarius Galeni*.

After *Gariopontus* we know of no other Authors of the Methodic Sect, which from that time seems to have been entirely extinct, till towards the End of the sixteenth Century, or rather the Beginning of the seventeenth. *Prosper Alpæus*, Professor of Medicine at *Padua*, endeavour'd to revive it by his Book intitled, *De Medicina Methodica*.

Though *Themison* had at first a great Number of Disciples, and the Methodic Sect had been a long time established, yet there were several of *Themison's* Contemporaries, and some who lived soon after him, who did not declare themselves of his Sect. Some would not forsake the Dogmatics, but adher'd to *Hippocrates*, *Herophilus*, *Erasistratus*, or *Asclepiades*; others always profess'd themselves Empirics. The Methodics themselves, who were not all agreed, gave Occasion for introducing several new Systems; for out of their Sect arose two others, under the Titles of *Episyntetics* and *Eclectics*. Thus much at least, it seems, we may collect from the Author of the Book intitled, *The Introduction*, ascribed to *Galen*. That Author, *Cap. 40* having observed, that several Methodics, as *Olympicus*, *Menanachus*, and *Soranus*, did not wholly agree in Opinions with the rest, goes on to inform us, that some were call'd *Episyntetics*, as *Leonidas* of *Alexandria*; others *Eclectics*, as *Archigenes* of *Apamea* in *Syria*. Here the Author seems to comprehend these *Episyntetics* and *Eclectics* under the Methodics.

Celsus Aurelianus, *Acut. Lib. 2. Cap. 1.* quotes *Leonidas* the *Episyntetic*, where he gives us his Definition of a Lethargy; but that Definition does not in the least discover the Sentiments of that Physician, with regard to his Sect. *Aetius* also, *Tetrab. 4b. Serm. 3. Cap. 5. 6. 7. 8.* mentions some practical Treatises of one *Leonidas*, who perhaps might be the same; but we are never the wiser for them, as to the knowing any thing concerning his general System. The Name *Episyntetic* being taken from a Greek Word, which signifies to collect or assemble, it is possible, that *Leonidas*, and those of his Party, might profess to join the Maxims of the Methodics with those of the Empirics and Dogmatics, and to unite or reconcile the different Sects one with another. This is all we have to say concerning this Matter; for we know not even the Time when *Leonidas* lived, tho' probably it was some time before *Soranus* before-mentioned.

As for those whom *Galen*, or the Author of the Book before quoted, calls *ἐκλεκτοί*, *elect* or *chosen*, of whom *Archigenes* was one, I believe there may possibly be a Fault in the original Text, where *ἐκλεκτοί* is read instead of *ἐκλεκτικοί*. What confirms this is, that, fifty or sixty Years before *Archigenes* appeared, there was a Philosopher of *Alexandria*, call'd *Potamon* by *Diogenes Laertius*, and who lived under the Emperors *Augustus* and *Tiberius*, and was the Founder of a Sect of Philosophers call'd *Eclectic*, *ἐκλεκτικοί*, who made Profession of chusing or selecting out of all others whatever was best; whence those of that Sect ought rather to be call'd *ἐκλεκτικοί*, or *ἐκλεγκτικοί*, "chusing," than *ἐκλεκτοί*, "chosen." Now what *Potamon* had done with respect to Philosophy, *Archigenes* might very well be supposed to do afterwards with regard to Medicine. What farther relates to *Archigenes*, is specified under the Article of his Name.

I have given an Account of the Pneumatic Sect, which probably arose about this Time, under the Articles of *ARETÆUS* and *ATHENÆUS*.

Tho' *Celsus* was the Founder of no particular Sect, yet as he wrote judiciously on Medicinal Subjects, and with great Purity of Style, he deserves our Attention on the present Occasion.

Some Authors affirm, that *Celsus* lived under *Augustus*; others make him live under *Tiberius*, others under *Caligula*; some will have him cotemporary with *Nero*, and others place him in the Reign of *Trajan*; but most agree, that he lived under *Tiberius*; and it is probable, that he was born under *Augustus*, but did not write till the Beginning of the Reign of *Tiberius*; which it seems reasonable to conclude from this. *Columella*, who lived in the Time of *Claudius*, speaks of *Celsus* as an Author who wrote before him, but as one whom he might have seen. "*Cornelius Celsus*," says he, "in our Times, has, in five Books, comprehended the whole Body of Arts and Sciences." *De Re Rustica. Lib. 1. Cap. 12.* And again, *Lib. 13. Cap. 17.* "*Julius Agricola*, and *Cornelius Celsus*, two very celebrated Writers of our Age." We may draw another Proof of the Time when *Celsus* lived, from the Manner in which he speaks of *Themison*. "*Themison*," says *Celsus*, *Præfat. Lib. 1.* "one of the Successors of *Asclepiades*, lately when he grew old, deviated in some Things from the Opinions and Practice of his Master." The Word lately imports, that *Themison* did not live long before *Celsus*.

Now *Themison*, having been a Disciple and Successor of *Asclepiades*, must have lived forty Years before the Birth of *Christ*, and, dying old, as we learn from *Celsus*, might be alive some Years after it. This being supposed, we shall find, that he was still living twelve or thirteen Years before the End of the Reign of *Augustus*, which extended to the fifteenth Year after *Christ*; and consequently that *Celsus* having wrote but a short time after the Death of that Physician, it must be about the End of the Reign of *Augustus*, or, at latest, at the Beginning of the Reign of *Tiberius*.

We meet with some Difficulties too concerning the Name, Country, and Profession of *Celsus*. Most Editions of his Works give him the Prænomèn of *Aurelius*, because all the manuscript Copies have the following Title: *A. Cornelii Celsi Atrium Liber VI.* There is but one Edition, which is that of *Aldus Minutius*, that changes *Aurelius* for *Aulus*, and perhaps with some Reason, because the Prænomèn *Aurelius* being taken from the *Aurelian* Family, and *Cornelius* from the *Cornelian* Family, do not seem capable of being joined together, because we have no Example of such a Conjunction of Names of different Families.

As to the Country of *Celsus*, it is believed, upon the Credit of some Editions, the Titles of which make him a Roman, that he was born at Rome. Others, as *Carl. Rhodigin. Lib. 14. Cap. 5.* will have him to be of *Verona*, for which

which they also have no other Foundation than some Titles of his Books, which are not more to be depended upon than the others.

The Profession of this Author is no less hard to be determined. Several of the Learned have believed, that he was no Physician; and that the Works which pass under his Name are nothing but a Translation of some *Greek* Author. This they infer from a Letter ascribed to *Celsus*, addressed to *Publius Natalis*, and in which the Author does not lay Claim to the Character of a Physician, but only speaks of his Translation. But, besides that this Letter does not mention the Books of *Celsus* now extant, it is not wrote in his Style.

Others are of Opinion, that *Celsus* did not study Medicine, except as a Branch of Philosophy, not with a View to practise it, but to imitate *Democritus*, *Plato*, and other eminent Men, who endeavoured to make themselves acquainted with every thing relating to Physic. What seems to favour this Sentiment is, that *Celsus* wrote not only concerning Medicine, but almost all the other liberal Arts, as the Title of one of his Books evidences, and as *Quintilian* expressly observes. "*Celsus*, says he, who was a Man of a moderate Genius, wrote not only concerning all the Arts, such as Rhetoric and the Art of Poetry, but has also left us Precepts relating to the Military Art, Agriculture, and Medicine." But the strongest Proof, that *Celsus* was no professed Physician, is, that *Pliny*, who gives a List of all the Authors from whom he takes his History, and carefully separates the *Greeks* from the *Latins*, the Physicians from those that were not so, places him always among the latter.

Scaliger, however, with several other learned Men, thinks that *Celsus* was a real Physician, and oppose the Authority of *Galen* to that of *Pliny*; the first of whom quotes a *Cornelius*, whom he calls *Cornelius the Physician*, and who is supposed to be the same with our *Cornelius*. It may be added, that *Pliny* himself, in one Passage, *Lib. 20. Cap. 4.* quotes *Celsus* as the Author of a certain Medicine. "*Celsus*, says he, advises the Application of the Root of Marshmallows to the Gout unattended with a Tumor." The very same Prescription is found in *Celsus*; so that we cannot doubt but that he is the same as that *Celsus* quoted by *Pliny*. Besides, it is observable, that *Celsus* never hesitates to pass his Judgment upon every thing which regards the Theory, as well as the Practice of Medicine, and that he decides boldly, and as a Master, in the most difficult Questions relating to the Art; which it is very likely he would not have presumed to do, had he not been a Physician: He even, in some Places, speaks from his own proper Experience in Medicinal Cases; as in the Chapter where he treats of a Disease of the Eye-lids, called *Ancyloblepharon*. Here, after he has related, from several Authors, the manner of curing it, he adds, that he did not remember to have seen any one cured by this Method.

Among all the Works of *Celsus*, we have none but those relating to Medicine remaining, except some few Fragments of his Rhetoric.

All the Medicine of *Celsus* is contained in eight Books, the four first of which treat of internal Diseases, or such as are principally cured by Diet; the fifth and sixth relate to external Disorders, and contain several Formulas of Medicines, both for external and internal Use; the seventh and eighth comprehend those Disorders in which Surgery is necessary.

Hippocrates and *Asclepiades* are the two principal Authors to whom *Celsus* has been indebted; tho' he also takes some things from his Contemporaries. The former of these Authors he has followed with respect to Prognostics, and the various Operations of Surgery; for, upon these Subjects, he has literally translated a great many Passages of *Hippocrates*, for which Reason he is styl'd the *Latin Hippocrates*. But, for the other Parts of Medicine, he seems to have been much more attach'd to *Asclepiades*, whom he calls a good Author, and from whom, he owns, he has taken several things. This Circumstance has laid a Foundation for *Celsus* being placed, by some, among the Physicians of the Methodic Sect. But tho' we did not perceive, from the Manner in which he speaks of the three principal Sects then establish'd, that he is not attached to any of them in particular, yet we need only compare his Practice with that of the Methodics, in order to be convinced, that he does not agree with them, at least in every respect. If there is any kind of Analogy between his Manner of treating Diseases, and that of the Methodics, 'tis because their Principles are drawn from those of *Asclepiades*, who, as we have observ'd, was a favourite Author of *Celsus*, tho' he sometimes rectifies his Mistakes. If *Celsus* was not of the Eclectic Sect, yet 'tis certain he acted according to the Principles insinuated by that Name, since he chose, from every Sect, and every Author, what to him appeared best and most rational. But, as his Practice very much resembles that of *Asclepiades*, from which the Practice of the Methodics was borrow'd, this obliges us to put him, as it were, in the Rear of these Sectaries, that, with him, we may finish what concerns their Sentiments, or seems to have any Relation to them.

By what follows we shall see the Particulars in which *Celsus* receded from *Hippocrates*, in order to conform himself to the Sentiments of *Asclepiades*; and in what Instances he receded from them both. With *Asclepiades*, then, he laugh'd at the critical Days of *Hippocrates*, and imputed the Invention of them to a foolish and superstitious Attachment to the *Pythagorean* Numbers. He also rejected the Practice of *Hippocrates* with regard to Venesection, of which, in every respect, he made a more universal Use. "It is not," said *Celsus*, "a new thing to take Blood from the Veins; but 'tis a new Piece of Practice, that Physicians should, almost in every Disorder, prescribe Venesection. Formerly young Men only, and Women who were not with Child, were blooded; but, till our own Days, we have not heard of Venesection prescribed for Children, Women with Child, and old Men. The Antients," continues he, "believed that Infancy and old Age could not support this Remedy, and that a pregnant Woman could not fail to sustain an Injury by it. But Use and Experience have since convinced us, that, with respect to Venesection, we ought not always to follow the Practice of the Antients, but to be guided by other Observations than theirs. It is of Importance to know, not how old the Patient is, or whether a Woman is pregnant, but the Degrees of Strength left either with the one or the other. If a young Man is too weak, or a pregnant Woman brought too low, Venesection is then improper, because it would render them still weaker; but a vigorous Child, a robust old Man, or a strong pregnant Woman, support this Operation without any Danger."

These following are the particular Cases in which *Celsus* esteem'd Venesection necessary: When Patients labour'd under violent Fevers, when the Body was red, or when the Veins were full, he blooded. He also followed the same Practice in Pleurisies, especially when the Disorder was in its Infancy, and the Pain considerable. With respect to the Peripneumony, he ordered Venesection, if the Patient had sufficient Strength left; but if not, he said we were to have recourse to Cupping without Scarification. By this we see, that, in this respect, he was pretty much of the same Sentiment with *Asclepiades*; and that if, in Cases of this Nature, he did not absolutely condemn Venesection, yet, at least, he did not very much approve of it. *Celsus* also blooded in other Diseases of the Viscera, and practis'd the same Remedy in Palsies, Convulsions, Difficulties of Breathing which threaten Suffocation, Privation of Voice, and Apoplexies, with respect to which he remarks, that Venesection sometimes relieves, and sometimes kills the Patient. In Cases of intolerable Pains, our Author also had recourse to this

Remedy,

Remedy; which he practised in Ruptures, internal Contusions, and in Cases where the Patients spit or vomited Blood, on which Occasions he recommended repeated Venesections. In a Word, he bled in all acute Disorders, where he thought there was a Redundance of Blood. He also ordered this Remedy in Cachexies, no doubt because he thought, that in this Disorder the Veins were full of Blood. By these Instances we see, that he recommended Venesection more frequently than *Asclepiades*.

As for the Time most proper for Venesection, *Celsus* said it was not to be performed so long as Crudity and Indigestion prevail; and, with this View, he generally waited till the second or third Day, except when the Case was highly urgent; but he discarded Venesection after the fourth Day, because, by that time, he supposed the bad Blood either to be dissipated spontaneously, or to have made an Impression upon the Parts, and that in this Case Venesection could only weaken the Patient. He thought it was murdering a Patient to bleed him during a Paroxysm of a Fever. When the Blood flowing from the Vein was beautiful and red, he was for closing the Orifice directly; since, according to him, Venesection was, in that Case, more prejudicial than salutary. He also ordered Venesection to be performed at two different Times, rather than to take away as much at once as should be judged necessary, so far was he from bleeding till the Patient fainted away.

Tho' Cupping-glasses, for the Extraction of Blood, were used in the Days of *Hippocrates*, yet they were much more frequently used in the Time of *Celsus*. This Author, *Lib. 2. Cap. 14.* informs us, that there were two Kinds of Machines for Cupping, one of Leather, close at the Top, in which they burned Lint, in order to make it adhere to the Part. The other was of Horn, and open at both Ends. The Method of making this Kind adhere was, by extracting the Air with the Mouth from the superior Orifice, which was afterwards to be closed with Wax.

'Tis pretty surprizing, that *Celsus*, who appears to be highly exact, should say nothing about the other Method of Bleeding used by the Physicians, which is the Application of Leeches. This Practice was, however, in Use before his Days; for 'tis obvious, that *Themison* was no Stranger to this Method.

If *Celsus* receded from *Hippocrates* with respect to Venesection, he no less dissented from him with regard to Purging. Concerning this last Remedy he speaks thus, *Lib. 2. Cap. 12.* "The Antients," says he, "continually purged, and gave Clysters, almost in all Disorders. When they intended to purge, they took black Hellebore, or Polypody, or the Squamæ *Æris*, or the Sea-lettice, a Drop of which, mixed up with Bread, purges copiously, or the Milk of an Ass, a Cow, or a Goat, in which they put Salt, and, after having boiled it, and separated what was curdled, they made their Patients drink the Remainder. Purgative Medicines," continues he, "prove offensive to the Stomach, for which Reason 'tis necessary to join Aloes to all Purgatives. The Belly being put into too strong Commotions by Purgatives, or too much relaxed by Clysters, the Patient is, of course, rendered weaker; for which Reason neither of these Remedies is proper in Disorders accompanied with a Fever. Black Hellebore may be exhibited to the Atrabilious, to such as are melancholy mad, or to such as are in any Parts paralytic. But, in Fevers, 'tis better, and more adviseable, to give such Liquors and Aliments, as may at once nourish and keep the Belly open."

What we have hitherto advanced concerning the Sentiments and Practice of *Celsus*, is taken principally from his four first Books, in which also we find the Manner of using Gestation and Friction, which he employed almost for the same Purposes as *Asclepiades* did.

As for his Rules relating to Eating and Drinking, they may be reduced to the following: In the Beginning of Disorders the Patients must endure Hunger and Thirst, but they are afterwards to be nourished with good Aliments; but they are not to take too much, nor to fill themselves all of a sudden, after having fasted. He does not, however, specify how long the Patient ought to practise Abstinence, but affirms, that, in this Particular, 'tis necessary to have a Regard to the Disease, the Patient, the Season, the Climate, and other Circumstances of a like Nature, since it is impossible to lay down any fixed and stated Rule. *Celsus* also, in his four first Books, treats of Baths, Fomentations, the Means of exciting a Diaphoresis, and the various Substances used as Aliments, which he distinguishes by their respective Qualities.

The fifth and sixth Books of *Celsus* relate to Pharmacy; tho' we find very few Medicines for internal Use in them. All we meet with, of this kind, may be reduced to two or three Medicines to procure Sleep, to mitigate Pain, to remove the Cough and the Colic, to provoke Urine, and facilitate Labour. There are also, in these Books, three universal Antidotes. The first of these has no particular Name; the second is call'd *Ambrosia*, which, according to *Celsus*, was the Invention of *Zopyrus*, Physician to one of the *Ptolemies*; and the third is the Antidote of *Misbridates*. We there also find some particular Antidotes against the Wounds of venomous Animals, and certain sorts of Poisons. But, in these Books, we have a sufficient Number of Medicines for external Use; some to stop Hemorrhages, others to consolidate, others to dissipate or discuss an Humour, others to bring Abscesses to a Suppuration, others to deterge Ulcers, others to consume fungous or superfluous Flesh, others to cauterize, others to incarn, and others to cicatrize; and all these Intentions are answered by means of various Plaisters, Ointments, Cataplasms, Malagmas, Powders, and Troches.

The seventh and eighth Book relate entirely to Surgery, the last of which treats of the Bones, Fractures, and Luxations. In his Preface to the first of these he makes the following Remarks.

There is a third Part of Medicine, as I before took Notice, which is known by every one to cure by manual Operation; not that it neglects a due Care of Diet and proper Medicines, but because its Performances principally depend upon the Hand; and its Effects are more evident than those of any other Part of Medicine. For, since Fortune has a great Share in the Event of Diseases, and the same Remedies prove sometimes beneficial, sometimes ineffectual, it may reasonably be doubted whether the Recovery of the Patient be owing to the Medicines administered by the Physician, or to the Strength of the Constitution. And even in those Distempers where we make the greatest Use of Remedies, and with the most sensible Effect, it is well known, that we often seek Relief in vain from Medicine, and that Health is frequently restored without it. The Eyes, for Example, after they have been for a long time tortured, and tampered with by the Physician, being left to themselves, have sometimes recovered spontaneously. But in that Part of Medicine which cures by the Hand, it is evident, that, tho' it receives some Assistance from the other Parts, we are obliged for every good Event principally to itself.

Surgery is the most antient Branch of Medicine, and is, besides, more cultivated by that Father of all Physicians, *Hippocrates*, than it was by his Predecessors. Afterwards, when it came to be separated from the other Branches, and made a distinct Profession, it flourished also in *Egypt*, principally thro' the Skill and Industry of *Philoxenus*, who wrote an elaborate Treatise of Surgery, which contains several Volumes. *Gorgias* also, and *Softratus*, the two *Heros*, with the two *Apollonii*, *Ammonius* the *Alexandrian*, and many other famous Men, made each of them some Discoveries tending to the Improvement of the Art. There were not wanting some eminent Professors at *Rome* too; and particularly, of late, *Tryphon* the Father, *Euelpistus* the Son of *Pbleges*, and the most learned of

all these, as appears by his Writings, *Megetes*, who, making some Alterations for the better, contributed each of them something towards the Promotion of this Branch of Medicine.

A Surgeon ought to be a young Man, or, at least, but just past his Youth, of a strong and steady Hand, which never shakes, and one who can use his Left Hand as well as his Right: He must have a sharp and clear Sight, be of an undaunted Courage, and not too compassionate, that he may perform his Duty without Concern, and without being moved by the Complaints of his Patients so much as to hurry an Operation, or to cut less than the Case requires; always behaving as if he was unaffected with the Suffering of the Person under his Hands.

We must not forget to observe, that *Celsus* looked upon the several Signs drawn from the Pulse, as very precarious and uncertain. "For," says he, "some lay great Stress on the Beating of the Veins or Arteries, which is a deceitful Circumstance, since that Beating is slow or quick, and varies very much, according to the Age, the Sex, and the Constitution of the Patient. It even sometimes happens," continues he, "that the Pulse is weak and languid when the Stomach is disordered, or in the Beginning of a Fever, tho', in other respects, the Body be in a good State; so that we might, in this latter Case, be induced to believe, that a Man is very weak, when he is just entering into a violent Paroxysm, has Strength enough left, and may be easily recovered from it. On the contrary, the Pulse is often high, and in a violent Commotion, when one has been exposed to the Sun, or comes out of a Bath, or from using Exercise; when one is under the Influence of Anger, Fear, or any other Passion. Besides, the Pulse is easily changed by the Arrival of the Physician, in consequence of the Patient's Anxiety to know the Judgment the Physician will pass upon his State. To prevent a Change of this kind, the Physician must not feel the Patient's Pulse on his first Arrival: He must first sit down by him, assume a cheerful Air, inform himself of his Condition, and, if he is under any Dread, endeavour to remove it by encouraging Discourse, after which he may examine the Beating of the Artery. This, nevertheless, does not hinder us from concluding, that, if the Sight of the Physician alone can produce so remarkable a Change in the Pulse, there may also be a thousand other Causes capable of producing the same Effect."

This Author was not only highly esteemed in his own, but in all succeeding Ages. *Columella*, who was almost his Contemporary, or appeared very soon after him, places him among the most famous Authors of his Time, and *Pliny* classes him among those from whom he has extracted his Natural History. *Celsus* is also quoted in several Passages of *Quintilian*, especially with respect to Rhetoric; and tho' these Quotations seem to be little to the Honour of *Celsus*, since they are only made with a View to be confuted, yet they, at least, prove, that *Celsus* was looked upon as a great Master of that Art, since so celebrated a Rhetorician as *Quintilian* thought it worth while to animadvert upon him.

It will possibly be said, that if *Quintilian* had bore any Esteem for *Celsus*, he would not in plain Terms have call'd him an indifferent or middle-siz'd Genius. But we must observe, that he only calls him so, when the Comparison is made between him and *Homer*, *Plato*, *Aristotle*, *Cato*, *Varro*, and *Cicero*, the greatest Men that have ever appeared either among the *Greeks* or *Romans*; so that the running the Parallel between them is a Circumstance which reflects Honour on *Celsus*, however indifferent his Genius is said to be in comparison of theirs. If he has not come altogether up to the greatest Authors who wrote on the liberal Arts before him, yet 'tis still something glorious to have come near them; and we may justly apply to him what *Quintilian* says a little afterwards: *Verum etiam si quis summa desperet, tamen est, ut Cicero ait, pulcrum in secundis tertisque consistere.* "Tho' a Person may, perhaps, despair of a Place in the first Rank, it is, however, glorious, as *Cicero* says, to equal those of the second or third Class." What ought to augment our Esteem of *Celsus* is, that he treated of all the Arts before-mentioned, and had Courage enough singly to undertake a Task, which, divided among several Persons, would have lain very heavy upon every one of them. This Undertaking of his appeared so brave to *Quintilian*, that he could not forbear saying, that our Author deserves, that we should believe he knew all that ought to be known of the various Subjects he treats of, if it were for no other Reason, but because he had the Boldness to form a Design of writing upon so many different Matters. *Dignus, vel ipso proposito, ut illum scisse omnia illa credamus.*

There is an old *Latin* Epigram still extant, in which *Celsus* is introduced speaking after the following Manner:

*Diffantes medici quandoque & Apollinis artes,
Musas Romano iussimus ore loqui:
Nec minus est nobis per pauca volumina fama,
Quam quos nulla satis bibliotheca capit.*

That is, "In dictating the Art of *Apollo* the Physician, I obliged the *Muses* to speak *Latin*; and I have acquired as much Fame by my few Volumes, as those who have filled whole Libraries with their Compositions." This Epigram does not seem to be entire. The Words *quandoque &*, with which it begins, shew it to be a Continuation of some preceding Discourse, which, perhaps, was an Elogy on those other Works of *Celsus* which do not concern Medicine.

Among modern Authors, who have spoke in Commendation of *Celsus*, is that celebrated Professor in Physic and Surgery, *Fabricius ab Aquapendente*, who, in his *Chirurg. Dentium*, thus advises his Scholars: "*Celsus*," says he, "is admirable upon all Accounts, and ought to be your Study Night and Day." Others seem to esteem him only for his Latinity, and set a greater Value on his fine Language, than his Medicine. Those who form that Judgment of him, give no other Reason for it, but that, in their Opinion, our Author was too much attached to *Asclepiades*.

But it is unaccountable, that *Salmasius*, who was no Physician, tho' otherwise a very learned Man, should take such excessive Liberty as to speak of *Celsus* as a Person wholly ignorant of Medicine. The Foundation on which he grounded this Censure was, that our Author, in his Opinion, did not rightly translate some Passages of *Hippocrates*, which he seems to have copy'd. This is to suppose, that *Celsus* could have no other Originals of *Hippocrates* than what are now extant; and that he was not at Liberty to add or diminish, in any thing which he took from *Hippocrates*; tho' he translates him without naming him, and generally delivers what he says as his own Sentiments. But supposing that *Celsus* had been mistaken in some Passages, for want of well understanding the *Greek*, which might happen, must it thence follow, that he understood nothing at all of Medicine? It is true, he was a Follower of *Asclepiades* in particular, as has been observed; but was not *Asclepiades* an excellent Author for the Time in which he lived? And will it follow, that, because *Asclepiades* and *Celsus* had different Sentiments from those of *Galen*, for Example, or our modern Physicians, that therefore he must be denied to have understood Physic?

We shall put an End to what relates to the Medicine of *Celsus*, by giving a Translation of his justly celebrated Advice with respect to the Preservation of Health. "A Man," says he, "who is blessed with good Health, and has the Fortune to be at his own Disposal, should confine himself to no particular Rules, either with respect to Regimen or Physic. He must diversify and change his Method of Life; sometimes reside in the Country, and sometimes in Town; but most frequently in the Country: He must sail, go a hunting, sometimes indulge himself in Rest, but more frequently employ himself in suitable Exercise; for too much Indolence weakens and enervates the Body, whereas by Labour it is strengthen'd and invigorated. The former hastens on old Age, but the latter preserves Youth and Vigour for a long time. 'Tis also proper sometimes to use the hot, and sometimes the cold Bath; sometimes to anoint, and sometimes to let it alone; to abstain from no Kinds of Aliment commonly used; sometimes to make one at an Entertainment, and sometimes to forbear it; sometimes to eat more, and sometimes less; to make rather two Meals a Day than one, and always to eat heartily, provided the Stomach be found capable of digesting the Quantity taken. But as Exercises and Aliments taken in this way are necessary, so those of the Athletics are superfluous and hurtful; for if Affairs of any Nature should oblige a Man to interrupt and break off the Order and Course of the Exercises to which he has been accusom'd, his Constitution is by that means disorder'd. Besides, Persons who live in this manner soon become old, and subject to Infirmities. We ought neither too eagerly to pursue, nor too solicitously to avoid, Intercourses with the tender Sex: Pleasures of this Kind, rarely indulg'd, render the Body alert and active; but if too frequently repeated, weak, languid, and inactive. And as the proper Degree of these Pleasures is not to be estimated by the Number of Repetitions, but by the Constitution, the Age, and the Strength of the Person, so we may take it for granted, with respect to this Particular, that the Enjoyment which is neither followed by Weakness, nor succeeded by Pain, is not prejudicial. The Day-time is the worst Season for Pleasures of this Kind, especially if they are succeeded by a full Meal; the Night is less hazardous, but even then subsequent Fatigue, with long Waking, renders it improper. These Rules ought to be observ'd by Men in perfect Health; and so long as we are to enjoy this State, we ought not profusely to waste and dissipate what may be our Support, when we come to be sick."

As my Design in this Preface is not to specify the Condition of Physicians, but the State of Physic, I shall not enter into a Detail of Opinions relating to the former, either during the Commonwealth, or under the Emperors of *Rome*. It seems upon the Whole, that Physic was practis'd in *Rome* by People of much the same Condition as those who exercise this Art at present in all Parts of *Europe*; as Men of Learning and Distinction, no matter whether *Romans* or Foreigners; People who had not met with Encouragement in other Professions, as it happened in the Case of *Asclepiades*, who, on his first Arrival at *Rome*, taught Rhetoric; Surgeons, Mountebanks, Venders of Drugs, Preparers of Medicines, Midwives, and others of the lowest Rank. These Circumstances, however, by no means derogate from the Reputation of the Art of Physic, or Physicians, whose Honour must be deriv'd from Success in curing Distempers, and from nothing else; inasmuch that I believe every one labouring under a Distemper would hold a Slave, who could cure him, in greater Esteem, than a Prince, who could not.

I must not, however, omit taking some Notice of *Antonius Musa*, who is celebrated for curing *Augustus Caesar* of a Distemper he labour'd under, by directing him to use cold Baths, and thereby brought this Remedy into great Vogue. He had a Brother called *Euphorbus*, who was Physician (see *MUSA*) to *Juba* the Second, King of *Numidia*, who married *Selene*, Daughter to *Antony* and *Cleopatra*. This Prince was a great Naturalist, and described the Tree which produces Frankincense, and the Plant which yields Euphorbium; and the latter he nam'd in Honour of this Physician, in a Book he dedicated to *Caius Caesar*, Grandson to *Augustus*.

Mr. *Le Clerc* is of Opinion, that the *Artorius*, quoted by *Cælius Aurelianus*, as a Follower of *Asclepiades*, is the same Person who is, by *Suetonius* and *Plutarch*, call'd the Friend of *Augustus*, and who sav'd the Life of that Emperor on the Day the Battle of *Philippi* was fought, by advising him to be carry'd to the Field, sick as he was. This Advice was occasioned by a Dream which *Artorius* had, and *Augustus* had fallen into the Hands of *Brutus*, who, during the Battle, made himself Master of the Camp that Emperor had quitted, if he had not taken the Counsel of *Artorius*. This Circumstance makes him taken Notice of by all the Writers of the History of Physic, though in his Profession he makes no great Figure.

The Physicians who liv'd after those already taken Notice of, till the Time of *Galen*, seem generally to have embrac'd implicitly the Sentiments of one or other of the Sects above-mentioned, or to have drudg'd on in the beaten Track of Practice, without giving themselves any great Pain about any thing but making their Fortunes. The principal of those, however, who are mention'd with Honour, are *Andromachus*, Physician to *Nero*, and *Rufus Ephesus*, who liv'd under *Trajan*, of whom I have given an Account under the Articles of their Names.

But *Galen*, who was born at *Pergamus*, in the Reign of *Adrian*, about the hundred and thirty-first Year of the Christian Æra, affords us abundant Materials for the History of Physic.

At the Time when *Galen* made his Appearance in the World, the Dogmatic, the Empiric, the Methodic, the Episyntetic, the Pneumatic, and the Eclectic Sects, were still in Being. The Methodics were at this time held in great Esteem, and look'd upon as superior to the Dogmatics, who were strangely divided among themselves, some of them favouring *Hippocrates*, others *Erasistratus*, and others *Asclepiades*. The Empirics made the least considerable Figure of any. And the Eclectic Sect had not, in all Probability, the largest Number of votaries, though it appears of all others to have been the most conducted by Reason, since its Abettors profess'd only to choose from each what was best; and to strip themselves of every partial Attachment, for the sake of Truth. As for the Episyntetic and Pneumatic Sects, we have already consider'd them as Dependents, in some measure, of the Methodic.

We might suspect, that *Galen* was a Favourer of the Eclectic Sect, since he declares that he will not blindly follow any of the Physicians who went before him; and treats as low and servile Geniuses, those Men who, in his own Time, call'd themselves the Followers of *Hippocrates* or *Praxagoras*, and did not choose indifferently what was good and excellent from the Works of every Physician. But, notwithstanding this Declaration, *Galen* seems to be more attach'd to *Hippocrates* than to all the rest, or rather to have follow'd none but him. *Hippocrates* was his favourite Author; and though in some Passages he accuses him of Obscurity, want of Order, and some other Imperfections, yet he never fails to testify an uncommon Veneration for him, and own that he has surpass'd all others in laying down the genuine Principles of Physic. *Galen* was so fully persuaded of this, that instead of taking any thing from the Physicians of other Sects, or keeping any Medium, he compos'd several Books, in order to refute their Principles, and establish those of *Hippocrates*. Though before the Days of *Galen* several Physicians had commented upon *Hippocrates*, yet he pretended, that most of them had failed in the Attempt; and

and thought himself the only Author who had penetrated into the real Meaning of that antient Physician, though, as some learned Men have justly observ'd, he often strains his genuine Sense.

His first Attempt, then, was to explain *Hippocrates*, with which View he wrote a great deal. Besides, as he observed, that his Author was not only obscure in several Passages, but also that he was defective with respect to Order and Method, and that he had not a Knowledge of certain Things which were discover'd after his Time, he attempted from his own Stock to supply what was wanting in the general Principles of *Hippocrates*. Though *Galen* had done no more than represent in a clear Light the Medicine of *Hippocrates*, his Labours had merited well of Mankind, provided *Hippocrates* laid down the genuine Principles of the Art. It was, no doubt, a Task of the last Importance to represent these Truths in their genuine Light, and rectify the Mistakes of those Innovators, who, according to him, had shamefully wander'd from the antient Road. *Galen*, however, does not pretend to have merited any Honour from this Part of the Design, but boasts of having been the first who shewed a just and rational Method of treating the Art of Physic, a thing omitted by *Hippocrates*. In order to specify fully how *Galen* acquitted himself with respect to this important and extensive Task, it would be necessary to insert whole Institutes, and a complete Practice of Medicine, according to his Principles. But as our Design in this Place neither calls for it, nor our propos'd Brevity allows it, we shall only give such general Hints as are sufficient to point out how this Physician behav'd in this Particular, and represent the Analogy, and the Difference, between his Medicine and that of *Hippocrates*. In prosecuting this Design we shall first consider the Idea our Author form'd of Medicine in general, and then take a brief View of some of the Particularities of his System.

Galen, then, maintained, that in order to know an Art, it was necessary, previously, to be acquainted with the End propos'd by it; and that the same Method pursu'd in distinguishing other Arts, sufficiently enabled any one to know what the Art of Medicine was. Some Arts, said he, propose no other End than bare Contemplation, such as Arithmetic, Natural Philosophy, and Astronomy. Others produce also some Action; but as soon as they cease to produce this Action, they can shew none of their Effects, such as the Art of Dancing-masters. There are other Arts, the Effects of which may be seen afterwards, such as the Art of Building. There are also some Arts which produce nothing, but whose End is to take or acquire something, such as the Arts of Hunting and Fishing. Now Medicine is among the Number of those Arts which produce something, and still leave their Effects visible after the Action ceases. There is still another Distinction to be made among the effective Arts, or those whose Effects subsist after the Action ceases. Some of these produce a Thing which was not before. Others re-produce or re-establish what had exist'd before. Now Medicine is of this last Kind; it preserves or re-establishes the Body, by continuing Health, or restoring it when lost.

These Things being premis'd, we must, according to *Galen*, consider, that as an Architect must necessarily know all the Parts of a House, whether he intends to build a new one, or only repair one that is old: Just so the Man who intends to establish that Art whose Subject is the human Body, or the Art of Medicine, ought to know the various Parts of which this Body is compos'd, and be acquainted with their Substance, their Bulk, their Figure, their Situation, their Number, and the particular Relations they bear to each other. Again, as the Architect who attempts to build a House can never know the Parts which ought to compose it, if he has not examin'd one by one the Parts of another House like that he intends to erect; or if he has not seen all these Parts detach'd and separated from each other: Just in the same manner the Physician can never acquire a Knowledge of the human Body, but by an anatomical Examination of its component Parts. But there is this Difference between the Physician and the Architect, that the former ought not only to know the several Parts of the human Body, but also the Action peculiar to each of them.

I cannot forbear remarking on this Occasion, that without any of *Galen's* copious Reasoning, it would readily occur to any one who was not an Idiot, that the End of Medicine must be either the Preservation or Restoration of Health. The Comparison betwixt an Architect and a Physician can by no means be just, unless a Physician could build a Man, as an Architect does an House. Besides, a House neither performs Actions nor Functions; nor does it move, unless it tumbles down, and gives the Architect an Occasion of reasoning, like *Galen*, on the Causes of this Catastrophe, whilst he should rather be employ'd in rebuilding it. It must be confess'd, that in Houses, as in Men, there are Doors to admit Provisions; Sinks to carry off the Recrements of those Provisions, when the Ends are answer'd for which they were introduc'd; and Windows to let in Light: But these Doors, Sinks, and Windows, in a House, all perform their respective Functions, and are actuated by evident Causes, which cannot be justly said with respect to those in a Man. Here, therefore, the Comparison fails.

The Duty of a Physician instruct'd in all these Particulars is, first, to preserve the Parts in their natural State, so that they may answer the Ends for which they were destin'd, and freely perform their respective Functions: And, secondly, to re-establish or reduce to their first State those which have ceased to perform their Functions. He ought not even to stop here, but to attempt a new Production of such Parts as are wanting, when the thing is practicable. This Caution is added, because certain Parts, when wanting, cannot be again produc'd, as the Nerves and Tendons, since they are form'd of the *seminal Matter*. But there are other Parts form'd of the Blood, such as the Flesh, for Instance, which may be re-established, and restored by Nature, with the Help of the Physician. The Bones are among the Number of the Parts first mentioned. They cannot be entirely re-produced; but when they are fractur'd, or a Part of their Substance lost, they are again join'd by a Callus, which supplies the Room of the Part lost or remov'd. It must also be observ'd, that there are simple or similar, and compound or organical Parts, in the human Body; the former are the Bones, the Ligaments, the Nerves, the Membranes, the Veins, the Arteries, the Fat, the Glands, and the Flesh: They are called similar, because, upon being divided into small Pieces, each Piece resembles another. They are also called simple, with respect to those of a more compounded Nature, such as an Arm, or a Leg, one of which Parts is compos'd of almost all the similar Parts above-mentioned. These compound Parts are also called organical or instrumental, because they are the Instruments or Organs which perform the most sensible and perfect Actions. The Legs and Feet, for Instance, serve us to walk with; the Hands to feel, or hold any thing; the Eyes to see; and the Ears to hear.

The original or constituent Principles of all these Parts, as well as of other Bodies in general, are Fire, Water, Earth, and Air. The Qualities belonging to these Elements or Principles are Heat, Cold, Moisture, and Dryness. So long as one of these Elements, or one of these Qualities, does not predominate over the rest, but is proportioned to the natural Disposition of the similar Parts, these Parts are in a just Temperature, and perform their Functions as they ought to do. But when these Qualities become faulty, either with respect to Excess or Defect, an Intemperature succeeds, which, when arriv'd at a certain Degree, hinders the Functions from being perform'd as they ought. This Temperature and Intemperature also extend to the organical Parts, as they are compos'd of those

which

which are similar. It must also be farther observed, with respect to the organical Parts, that they either are, or are not, in the State they ought to be, according as they have, or have not, their ordinary Bulk or Figure; or according as they are, or are not, in the Number or Situation they ought to be. If to these Considerations we also add Union, or the want of Union, a Thing common both to the similar and the organical Parts, we shall have a Knowledge of the good and bad Disposition of the human Body, in which Health and Diseases consist.

Galen, I must observe, still reasons about a Man as if he was talking of a House; since all that he says about the former, is more applicable to the latter. Thus the Architect might say, that the Elements of his Fabric were Fire, Water, Air, and Earth; and that the Convenience or Inconvenience of his House depended upon a Proportion or Disproportion of these: If, for Example, there was too much Fire, it would be in danger of being burnt; if too little, his Mortar would not cement the Stones together; too much or too little Water would have the same Effect as too little Fire; too much Air would expose the Inhabitants to the Cold, and too little would render the House uninhabitable; too much Earth would make it clumsy, too little would produce Weakness in the Walls. The Qualities also of these Elements, as hot, cold, moist, and dry, if excessive or defective, would very much interfere with the proposed Convenience of the Habitation. Thus an Excess of Heat would be troublesome, especially in the Cellar; too much Cold would be detrimental, particularly in the Kitchen; Moisture, in a Bed-chamber or Parlour; and Dryness in the Cistern. What he goes on to say of the Bulk, Figure, Number, Situation, and Union of the Parts, may evidently be as properly said with respect to a House, as to a Man.

From what has been said, it is easy to be infer'd, that the Duty of a Physician is, on the one hand, to maintain the Temperature, and correct the Intemperature; and, on the other, to preserve the Bulk, the Figure, the Number, the Situation, and the Union of all the Parts; and to remove those Disorders which destroy this Bulk, Figure, and Number. In all these respects this Maxim prevails, *That it is necessary to keep the Parts in their natural State, by Means which have a Relation to that State*; that is, Heat is proper for preserving the Warmth of a hot Part, and Cold for maintaining that Quality in a cold Part; and so of the rest. The same is to be said of the Means employ'd for preserving the Bulk, the Figure, the Number, the Situation, and the Union of the Parts: These Means must have a Relation to these Dispositions. Thus, for Instance, in order to preserve the Situation of a Part, it is necessary to keep it in that Situation, and avoid every Accident which can produce a Change. In order to preserve the Number and the Union of the Parts, we must avoid Violence, and guard against every Accident which can cause the Loss of a Part, or break that Union which it ought to have with the others. This Maxim relates to the Preservation of Health; and the following relates to the Cure of Diseases. *The general End which we ought to propose in the Cure of Diseases, is to correct the Intemperature, and rectify the Disorders which happen, with respect to the Situation and Bulk of the Parts, by means which are contrary to that Intemperature, and those Disorders*. If, for Instance, a hot Part is become cold, it must be again render'd hot: If, in consequence of any Motion or Violence, it is removed from its natural Situation, it must, by a contrary Motion or Violence, be reduced to its former State: If it is fallen below its natural Situation, it must be raised to it again; and if it is forced above it, the Business is to thrust it downwards till it is again restored. In a Word, Disorders of this Kind are cured by their Contraries.

I must once more remark, that the same Rules will exactly serve for the repairing a House.

The Species, or rather the Cause of a Disorder, always indicates a Remedy proper for it; but as it cannot indicate, whether that Remedy is practicable or not, the Physician must, in this Case, know what is possible, and what is the Reverse. This Knowledge is suggested to him by his Acquaintance with the Parts: If one of those, for Instance, which is form'd of the seminal Matter at the Time the Body is produced, should prove wanting, it cannot be re-established or restored, as has been already observed; but if those produced by the Blood should happen to be wanting, Attempts may be made for their Restoration: With respect to which we must observe, that what is said of the Possibility or Impossibility of a Cure, equally relates to Nature, and to the Physician. Some Effects Nature can produce, and others are beyond her Power: She can, for Instance, reproduce Flesh in the Place of that which is wanting in a Wound, or consumed by an Abscess; because, as has been already said, Flesh is a Part produced by the Blood. But Nature cannot restore a Nerve, or render a Bone entire; because these Parts are produced by the seminal Matter at the Time of the Formation of the Man. What Nature cannot do, neither can the Physician, who is only her Servant; but he helps Nature by seconding her Efforts, or following her Intentions, in all those Cases where, of her own Accord, she sometimes proves successful. If Nature can fill a deep Ulcer with Flesh, the Physician, on his Part, endeavours to make that Flesh grow, by removing every thing which can prevent or retard its Growth. If Nature labours to concoct the Aliments in the Stomach, the Physician endeavours to assist her, by making Choice of such as are most easily concocted, and with-holding those, the Concoction of which is either impossible or difficult.

The Physician, being instructed in these general Circumstances, ought afterwards to enter into those which are more particular, with respect to the Knowledge of Causes and Signs, both of the good and bad State of the Body; and, last, of all the various Means that ought to be used in order to preserve Health, and cure Diseases, by applying to particular Cases the general Maxims laid down. This is a kind of Abstract of a Part of one of *Galen's* Books, intitled, *Concerning the Establishment of Medicine*. In this Work he does not give an express and formal Definition of the Art; but it is easy, from it, to infer, that he took Medicine to be *an Art, which teaches to preserve Health, and cure Diseases*; and this Definition is drawn from the End and Design of Medicine.

Our Author however, in a Book intitled *The Art of Medicine*, proposes another Definition, taken from the Object of the Art. *Medicine*, says he, *is a Science, which teaches what is sound, what is not so, and what is of an indifferent Nature, or holds a Medium between what is sound and what is the Reverse*. This Definition is also ascribed to *Herophilus*; but *Galen* explained it in a Manner different from that Author: He affirm'd, for Instance, that there were three Things which constituted the Object of Medicine, and which the Physician ought to consider as sound, not sound, or of a neutral and indifferent Nature. These three Things are the *Body itself, the Signs, and the Causes*. He esteems the human Body sound when it is in a good State or Habit, with respect to the simple Parts of which it is composed; and when, besides, there is a just Proportion between the Organs, form'd of these simple Parts. The Body, on the contrary, is unsound when it recedes from that State or Habit, and that Proportion just mentioned. And the Body is in a State of Neutrality, or Indifference, when it is in a Medium between Soundness and its opposite State. The salutary Signs, or such as import Soundness, are such as indicate present Health, and prognosticate that the Man may remain in that State for the Time to come. The insalutary Signs, on the contrary, indicate a present Disorder, or lay a Foundation for suspecting the Approach of one. The neutral Signs, or such as are of an indifferent Nature, denote neither Health nor Indisposition, either for the present or for the Time to come. The salutary Causes are those which either preserve Health, or restore.

restore it when lost. The unsalutary Causes are those which either produce a Disorder, or nourish and maintain it after it is produced. The Causes of a neutral or indifferent Nature are such as produce no sensible Effects, either with respect to the Preservation or Recovery of Health, or with respect to the Production, or the Nourishment and Support of Diseases.

These three Dispositions of the human Body, that is, Soundness, its Reverse, and a neutral State, include and comprehend the Differences between Health and Disorder or Indisposition; and each of these three States or Dispositions has a certain Extent peculiar to itself. A sound Body, as we have already observed, is one, the Whole of whose Parts enjoy a due Temperament and Proportion; or whose similar Parts possess that Degree of Heat, Cold, Moisture, and Dryness, which they naturally ought to have, without any of these Qualities predominating over the rest; and whose organical Parts have precisely the Bulk, the Disposition, the Figure, the Connection, and other Circumstances necessary to them. A human Body thus disposed is said to be of a sound Constitution, or of a Habit in which nothing is wanting: Such a Constitution or Habit is very rare, and even perhaps never to be met with; but this does not hinder us to suppose or imagine such a Model for regulating our Judgments, with respect to other less perfect Constitutions. *Galen*, upon this Principle, established eight other principal Constitutions, all of which decline or recede in some measure from the perfect Model now mentioned: The four first are those in which some one of the four Qualities above-mentioned is superior to the rest; so that each of these Constitutions receives the Denomination of hot, cold, moist, or dry, according as any one of these Qualities becomes more sensible than the rest. The four other Species of Constitutions result from a Combination of these Qualities; so that, according to *Galen's* Doctrine, there may be a hot and dry Constitution, a hot and moist Constitution, a cold and moist Constitution, and a Constitution that is cold and dry. These are the principal Differences of Constitutions, which may be infinitely subdivided, according to the various Degrees of Heat, Cold, Humidity, Dryness, and certain other inexplicable Properties and Peculiarities in some Constitutions, which have no manner of Relation to the above-mentioned Qualities, but depend upon occult and latent Causes: Such a Peculiarity of Constitution is called *Idiosyncrasy*. 'Tis in consequence of this *Idiosyncrasy*, that some have Aversions to one Kind of Aliment, and others to another; that some cannot endure the Smell of a Rose, and others are offended with that of certain other Flowers.

But tho' the eight last described Constitutions fall short of the Perfection of the first, it does not thence follow, that People of any of these Constitutions are to be class'd among the Valetudinary and Diseased. They are still included in the Number of the Sound and Healthy, so long as the Intemperature, which removes them from the Perfection above-mentioned, does not hinder the Action of the Parts: But as soon as the Intemperature rises to such a Degree as to hinder these Actions, the Body is no longer sound, but disordered, and in a bad State. Properly speaking, then, it is hindering the Action of the Parts which constitutes a Disease; or, in other Words, with such a Hindrance Health ends, and Disorder or Infirmary begins. The intermediate State is called neutral, or that in which a Man is neither sound nor sick: He is not as yet sick, because the Actions are not as yet sensibly hinder'd; neither can he be said to be entirely sound, because these Actions have a Tendency to be no longer performed in the Manner they ought.

Galen, at great Length, describes the Signs of a good and bad Constitution, as well as those of what he calls a neutral Habit. All these Signs are drawn from the original Qualities of hot, cold, moist, and dry, in the similar Parts; and from the just Proportion or Disproportion, with respect to the Bulk, Figure, Situation, and other Circumstances of the organical Parts. Our Author, after this, comes to consider the Causes of these three Constitutions, which he derives from the same Sources he does the Signs.

But that we may a little more particularly explain the general Idea we have given of the Medicine of *Galen*, we shall first observe, that, with *Hippocrates*, he established three Principles of an animal Body, *the Parts, the Humours, and the Spirits*: By the Parts he properly meant no more than the solid Parts; and these, as we have already said, he divided into similar and organical. He also, with *Hippocrates*, acknowledged four Humours; the Blood, the Phlegm, the yellow Bile, and black Bile. He entertained the same Notions with that ancient Physician, with respect to the Heat, the Coldness, the Moisture, and the Dryness of these Humours; that is, he took the Blood to be a red, hot, and moist Humour; the Phlegm a cold, white, and moist Humour; the Bile a yellow, hot, and dry Humour; and the Black a black and cold Humour. *Galen* established three different Kinds of Spirits, the natural, the vital, and the animal: The first of these are, according to him, nothing else but a subtle Vapour arising from the Blood, which draws its Origin from the Liver, the Organ or Instrument of Sanguification. After these Spirits are convey'd to the Heart, they, in Conjunction with the Air we draw into the Lungs, become the Matter of the second Species, that is, of the vital Spirits, which are again changed into those of the animal Kind in the Brain.

Galen supposed, that these three Species of Spirits served as Instruments to three Kinds of Faculties, which reside in the respective Parts, where, as we have said, these Spirits are form'd. The natural Faculty is the first of these, which he plac'd in the Liver, and imagined to preside over the Nutrition, Growth, and Generation of the Animal. The vital Faculty he lodged in the Heart, and supposed, that, by means of the Arteries, it communicated Warmth and Life to all the Body. The animal Faculty, the noblest of the three, and with which the reasoning or governing Faculty was joined, according to him, has its Seat in the Brain; and, by means of the Nerves, distributes a Power of Sensation and Motion to all the Parts, and presides over all the other Faculties. *Galen* also supposes three Sorts of Actions, produced by these three Faculties, the natural, the vital, and the animal Actions. These Actions he again divided into internal and external: The internal Actions of the animal Faculty are Imagination, Reasoning, and Memory: The external Actions are the five natural Senses, and, in general, Sensation and Motion. The internal Actions of the vital Faculty are violent Passions, such as Anger; and its external Actions are, the Motion or Pulsation of the Arteries, and the Distribution of the arterial Blood thro' the Body, in order to communicate Heat and Life to it. The internal Actions of the natural Faculty are Sanguification, the Concoction of the Aliments, with what depends upon it, and even Concupiscence: The external Actions are the Distribution of the venous Blood into all the Parts, which serves for the Nutrition, Augmentation, and Preservation of the Body, and for the Propagation of the Species. Besides these general Faculties, *Galen* admitted of other particular ones, which, as he imagined, resided in each Part of the Body, and provided against the Necessities of these Parts, or assisted in performing the respective Offices to which they were destin'd. The Stomach, for Instance, concocts the Aliments by means of its concoctive Faculty; attracts them by means of its attractive Faculty; retains them for some time by its retentive Faculty; and, at last, discharges them by its expulsive Faculty. If it should be asked, What is the original Source or Principle of Motion in all these Faculties? *Galen* answers, with *Hippocrates*, That it is Nature.

It was necessary to mention all these Distinctions and Terms, since upon them depend all *Galen's* Reasonings upon the Causes and Nature of Health and Diseases. This Physician thought, that a Man enjoy'd Health when these Faculties were in such a State as to produce their ordinary Actions, or so long as these Actions were entire and perfect; and, on the contrary, that these Faculties being hinder'd in their Actions, or the Actions not being performed as they ought, constituted a Disease. Now as the Actions cannot be free or entire, unless the Parts, as well as the Humours, are well disposed, it may be said, that Health depends principally on the Symmetry of the organical Parts, and on the Union or Connection of the one with the other. So long as the Parts and the Humours remain in this State, the Spirits, which partake of the Nature of the Humours, must necessarily be well disposed; and consequently the Actions performed by the Organ or Instrument of the Spirits, which are themselves directed by the Faculties, must be entire: On the contrary, when the Humours and Parts are changed, put out of Order, and disunited, the Spirits must of course run into disorderly Motions, and the Actions be interrupted.

Upon these Principles *Galen* defin'd a Disease, *Such a preternatural Disposition, or Affection of the Parts of the Body, as primarily and of itself, binder'd their natural and proper Action.* He established, as we have already seen, three principal Kinds of Diseases: The first relates to the similar Parts; the second to the organical; and the third is common to both these Parts. The first Kind of Diseases consists in the Intemperature of the similar Parts; and this Intemperature is divided into an *Intemperature without Matter*, and an *Intemperature with Matter*. The first discovers itself, when a Part has more or less Heat or Cold than it ought to have, without that Change of Quality in the Part being supported and maintain'd by any Matter. Thus, for Instance, a Person's Head may be overheated and indisposed, by being exposed to the Heat of the Sun, without that Heat being maintained by the Congestion or Continuance of any hot or warm Humour in the Part. The second Sort of Intemperature is, when any Part is not only render'd hot or cold, but also fill'd with a hot or cold Humour, which are the Causes of the Heat or Cold felt in the Part. *Galen* also acknowledged a simple Intemperature; that is, when one of the original Qualities, such as Heat or Cold, exceeds alone and separately; and a compound Intemperature, when two Qualities are joined together, such as Heat and Dryness, or Coldness and Humidity. He also established an equal and an unequal Intemperature; the former is that which is equally in all the Body, or in any particular Part, and which creates no Pain, because it is become habitual, such as Dryness in a hectic Constitution: The latter is distinguished from the former by this, that it does not equally subsist in the Whole of a Part, or in the whole Body, because it only begins to be form'd; or by this, that the Body is put out of Order by contrary Causes, such as Heat and Cold perceived at one and the same time. Of this Kind of Intemperature we have Examples in certain Fevers, where Heat and Cold equally, and almost at one and the same time, attack the same Part; or in other Fevers which render the Surface of the Body cold as Ice, whilst the internal Parts burn with Heat; or, lastly, in Cases where the Stomach is cold, and the Liver hot.

The second Kind of Disorders relating to the organical Parts results from Irregularities of those Parts, with respect to their Number, their Bulk, their Figure, their Cavities, their Situation, and their Connection; as when one has six Fingers, or only four; when one has any Part larger or smaller than it ought to be; or when that Part is not well form'd; or when the Perforations it ought to have, are either stopp'd up, or too open; or when it is ill situated; and out of its natural Position; or when it is separated from those to which it ought to be joined, or joined to those from which it ought to be separated.

The third Kind, which is common both to the similar and the organical Parts, is a Solution of Continuity, which happens when any similar or compound Part is cut, corroded, bruised, broken, violently strained, or burnt.

Galen, treading in the Foot-steps of *Hippocrates*, also distinguished Diseases, with respect to their Motion, into those of the acute and those of the chronical Kind; and, with respect to their Nature and Genius, into benign and malignant; and, lastly, into epidemical, endemial, and sporadic.

After having established the Kinds of Diseases, *Galen* comes to examine their Causes, which he distinguishes first into external and internal. The external Causes of Diseases are, according to him, six Things, which contribute to the Preservation of Health when they are well disposed, and properly used; but produce a contrary Effect when they are imprudently used, or ill disposed: These six Things are the Air, Aliments and Drink, Motion and Rest, Sleeping and Watching, Retention and Excretion; and, lastly, the Passions. All these external Causes of Diseases are called the procatartic or beginning Causes; because they put in Motion the internal Causes, which are of two Kinds, the antecedent and the conjunct Cause: The former of these is only discovered by Reasoning, and consists, for the most part, in a Peccancy of the Humours, either when there is a Plethora or Plenitude, or a Cacochymy or bad State of the Juices. When the Humours are in too large a Quantity, the Case is called a Plethora; but we must observe, that this Word equally denotes too large a Quantity of all the Humours together, or a Redundance of one particular Humour, which predominates over the others. According to these Principles there may be four Kinds of Plenitudes, a sanguine, a bilious, a pituitous, and a melancholic Plenitude: But there is this Difference between the sanguine and the three other Plenitudes, that the Blood, which is the Matter of the former, may far surpass the other Humours; whereas if any of the three last-mentioned Humours exceed the rest, the Case is no longer called Plenitude, but Cacochymy; because these Humours, abounding more than they ought, corrupt the Blood. *Galen* farther divides Plenitude into Plenitude with respect to the Vessels, and Plenitude with respect to the Strength: The former of these prevails when the Humours abound so much, that the Vessels, that is, the Veins and Arteries, contain them with Difficulty. The second Sort of Plenitude is to be estimated from the Strength of the Patient, which cannot support a certain Quantity of Humours, tho' that Quantity should be but very moderate. The second Imperfection in the Humours, which we have called Cacochymy, proceeds from their degenerating, and becoming either more hot or more cold, more dry or more moist, more acrid or more acid, more sweet or more salt, than they ought to be, or from their acquiring adventitious and hurtful Qualities, which they formerly had not. But we must not here forget to observe, that tho' *Galen* acknowledged, that the Humours might acquire all these Qualities already mentioned, some of which are different from hot or cold, moist or dry, which are the four Qualities already ascribed to the Humours; yet our affirming above, that he consider'd all the Causes of Diseases, with respect to these four Qualities, does not cease to be true, since he believed, that acid, saline, acrid, sweet, and bitter, derived their Origins from hot, cold, dry, and moist. When any of the three Humours, different from the Blood, predominates considerably over the rest, this also produces a Species of Cacochymy; because these Humours are not so familiar to Nature as the Blood, or because they forthwith corrupt the Blood. But when the Excess of one of these Humours is only moderate, the Case is rather esteem'd a Plenitude than a Cacochymy, as we have already observed. The second of the internal Causes, which we have called the conjunct Cause, is that which is more closely

closely connected with the Disease, and more immediately supports and maintains it; so that this Cause being present, the Disease still subsists, and being removed, the Disorder forthwith ceases. The following Example will sufficiently shew the Difference between this and the antecedent Cause: In a Pleurisy the conjunct Cause is that Quantity of Humour adhering to the Pleura, and producing the Inflammation of that Part. The antecedent Cause is the Mass of which this Humour is composed, consider'd as diffused thro' all the Body, and contain'd in the Vessels, whence it is pour'd upon the Part affected.

As for the particular Causes of those Diseases incident to the Parts, consider'd as similar or organical, it is easy to discover them, by what has been said concerning the Nature of these Disorders. It is easy, for Instance, to conceive, that Diseases which consist in a hot or in a cold Intemperature, must be caused by every thing which can heat or cool; and that, in like manner, those which depend upon the bad Conformation of the Parts, are caused by every thing that can produce that bad Conformation. The Kidneys, for Instance, or the Ureters, which ought to be open for the Conveyance of the Urine, may be obstructed by Gravel, coagulated Blood, or any other thick Humour, or by a Tumor which compresses or streightens the Passage; and in this Case the Tumor, the Blood, or the Gravel, are the Causes of the Disorder.

Galen, in the last Place, divides the Causes of Diseases into such as are manifest or evident, such as are not so, and such as are entirely latent or obscure. The first are such as spontaneously come under the Cognizance of our Senses, when they act, or produce their Effects. The second are not of themselves perceptible, but may be discovered by Reasoning: All the Causes before-mentioned are of the same Nature with these two. The third Sort of Causes, which are called occult or conceal'd, can be discovered by no means whatever. *Galen* probably places among this Number the Cause of the Hydrophobia, when he asserts, that the Remedies which cure this Disorder, act by a Property belonging to the Whole of their Substance; whence it follows, that the Cause of this Disease acts by a Property no less obscure and conceal'd than that of the Remedy. When we assert, that this Property is conceal'd, we express ourselves in Terms probably different from those of *Galen*, but which amount to the same Thing; since to say, that a Remedy acts by a Property belonging to its whole Substance, is no more than to say, that we know not how it acts. This *Galen* himself acknowledges, when he censures *Pelops* for attempting to account for the Effects of this very Remedy, which consists of the Powder of Craw-fish: His own Words are as follows. "My Master *Pelops*, says he, attempting to account for the Effects of Craw-fish in this Disorder, pretended; that it was useful, because it was an aquatic Animal, and because the Disorder depends upon an excessive Dryness, which produces a Dread of Water in those affected with it. He added, That the River Craw-fish was more proper, in this Distemper, than that of the Sea; because these latter partake of the Salt with which the Sea-water is impregnated, and which is of a very dry Nature. But some one having started this Objection to him; If what you advance be true, whence comes it, that all aquatic Animals are not equally proper for this Disorder? he answer'd, That it was because they did not all admit of the same Preparation with the Craw-fish, the Shell of which may be reduced to Ashes; which, being of a drying Nature, consumes and absorbs the Poison which creates the Disorder. *Pelops*, continues *Galen*, fell into these Contradictions from a Principle of Vanity, which prompted him to account for every thing; but as for me, if I am not thoroughly convinced of the Truth of a Thing, I never undertake to make Profelytes of others." It were to be wish'd, that all Physicians follow'd this Maxim of *Galen*; but a culpable Dread of being thought ignorant prompts Men to speak at all Hazards, tho' they often know not what they say themselves.

After having treated of the Differences and Causes of Diseases, *Galen* comes to examine their Symptoms or Accidents. Our Author defin'd a Symptom a *preternatural Affection which depends upon a Disease, or follows it as a Shadow does a Body*: By this Definition of a Symptom, we see that it agrees with a Disease in this, that both are preternatural Affections; but they differ in this, that the Disease precedes, and the Symptom follows or ensues, the Disease being, as it were, the Cause of the Symptom. *Galen* acknowledged three Kinds of Symptoms; the first and most considerable of which consisted in the Action of the Parts being injur'd or hinder'd; the second consists in a Change of the Quality of the Parts, their Actions in the mean time remaining entire; the third relate to the Defects, in point of Excretion and Retention. The Symptoms of the first Kind differ, in particular, from the Disease in this, that the Disease consists in a certain Disposition of the Parts which hinders their Action; whereas the Symptom of this Species is only a Consequence of such a Disposition. The following Example will render this Difference more sensible, and also point out the Distinction between the Disorder itself and its Cause. In a Pleurisy the Disorder consists in an Inflammation of the Pleura: This Inflammation so changes the natural Disposition of this Membrane, that its Action, which is to assist Respiration in Conjunction with other Parts, is hinder'd: The Symptom is the Difficulty of Breathing, which is a Consequence of the Inflammation, and of the subsequent Hindrance of the Action of the Pleura. The Cause, whether antecedent or conjunct, is the Humours, which are ill-disposed; a Part of which is pour'd upon the Pleura, and occasions the Inflammation. This first Species of Symptoms varies according as the Actions or Faculties, on which they depend, themselves vary. Thus there are Symptoms of the natural, the vital, and the animal Faculties. Bad Digestion is a Symptom of the natural Faculty, and consists in the Defect of the natural Action of the Stomach and Intestines, whose Office it is to digest and concoct the Aliments. A Syncope is a Symptom of the vital Faculty, and consists in a Defect of the vital Action of the Heart, which is to communicate Life to all the Parts. An Apoplexy is a Symptom of the animal Faculty, and consists in a Defect of the animal Action of the Brain, by which Motion and Sensation are communicated to the Parts. Madness and Phrensy are Symptoms of the governing Faculty, which is joined to the animal Faculty, and they consist in a Defect of the Action of this governing or reasoning Faculty. Here we must observe, that under these three general Faculties are comprehended the several particular Faculties already mentioned, and which have each their peculiar Symptoms. We must, besides, observe, that the Actions may be defective in three different Manners; first, when they are abolish'd, or cease entirely; secondly, when they are diminish'd, or only partially perform'd; and, thirdly, when they are depraved, or not performed as they ought to be. Blindness, for Instance, or the Loss of Sight, is a Symptom of the Action of the Eye being abolished: The Defect of those who are short-sighted, or who do not see, except in open Day, is a Symptom of this Action diminish'd: And the Disorder of those to whom Objects are represented as of another Colour, or in another Situation, than they really are, is a Symptom of the Depravation of this Action.

The second Species of Symptoms, which consist in a Change of the Quality of the Parts of the Body, derive their Differences from the Number of those Senses commonly called external. The changed Qualities which relate to the first of the Senses, which is that of Sight, are the extraordinary Colours which the Body assumes in certain Diseases; such as a yellow Colour, for Instance, in those who labour under the Jaundice. This Change

of Colour is not an Action hinder'd; but, however, is an Accident or Symptom of a Disease. Like Changes happen with respect to Hearing, Smelling, Tasting, and Feeling.

The third Kind of Symptoms relate to the Faults of Excretion and Retention, or of those things which are either discharged from the Body, or retained in it. These things are injurious, either with respect to the Whole of their Substance, such as Worms and Stones, which ought never to be in sound Bodies; or with respect to their Evacuation, such as the Excrements, which, tho' of the natural kind, are yet discharged by extraordinary Passages, as is observed in the Ileus, when the Fæces are discharged by the Mouth. It also happens, that Substances distinct from the Excrements are sometimes discharged, whereas they ought to be retained in the Body. This is daily seen in Hemorrhages, when the Blood is discharged by the Nose, by the Mouth, by Stool, or in any other manner; but the menstrual Discharges of Women are Exceptions to this Case. Another Fault of things discharged or retained relates to their Quantity; as when the Excrements are wholly or partly retained, or when they are evacuated in too large a Quantity; when the Discharge of the Urine is too profuse, too scanty, or none at all; when the hemorrhoidal or menstrual Fluxes either do not return at their stated Times, or are too copious. The last Fault relates to the Quality of these Substances, as when the Excrements are either too much indurated, or too liquid, or of a preternatural Colour and Smell; when Women labour under the Fluor Albus; or when the Saliva is either bitter or saline. Some of the Symptoms described under this third Class have a Relation to those of the first, which relate to the Hindrance of the Actions.

We must also observe, with respect to those Substances evacuated from the Body in some Diseases, that their Excretion is not always a Symptom, tho' they are sometimes discharged in great Abundance. Hemorrhages, for Instance, Sweats, and Diarrhoeas, which happily terminate Diseases, are not Symptoms. Evacuations of this kind are, by *Galen*, considered as the Work of Nature, which has surmounted the Disease, and put an End to it by a Crisis.

Having thus spoke of Diseases, their Causes, and their Symptoms, we now come to treat of their Signs. The Author of the Definitions ascribed to *Galen* defines a Sign to be *That which discovers, or makes known, what was formerly unknown.* *Galen*, as we have above observed, distinguished Signs into those which are salutary, those that are not so, and those which are of a neutral or indifferent Nature; but, for the sake of Brevity, we shall only here consider the Signs of Diseases. Of these *Galen* established two principal Kinds; the former he called *Diagnostic*, and the latter *Prognostic* Signs. The *Diagnostic* Signs are so called, because they enable us to know Diseases, and to distinguish them from each other. There are two sorts of *Diagnostic* Signs, the one called *Pathognomic*, which are peculiar to a Disease, make known its precise Species, and always accompany it, so that they begin and end with it. The other Species of *Diagnostic* Signs are called *Adjunct*; these are common to several Diseases, and only serve to point out or discover the Differences between Diseases of the same Species. In a Pleurisy, for Instance, the pathognomic Signs are a Cough, a Difficulty of Breathing, a Pain of the Side, and a continued Fever. The adjunct Signs are the various sorts of Matter expectorated, which are sometimes bloody, sometimes bilious, sometimes white, frothy, thick, or clear. Our Author drew the *Diagnostic* Signs, first, from the Essence or Nature of the Thing itself, that is, from the defective or disordered Disposition of the Parts, or from the Diseases themselves; secondly, from the Causes of Diseases; and, thirdly, from their Symptoms, among the Number of which are the various Pulses, and the Excrements: And, lastly, from the particular Dispositions of each Body, which are sometimes hereditary, or derived from Parents, from things which prove prejudicial, and those that do Service, and from epidemical Diseases.

In order to draw Signs from the injured Disposition of the Parts, we must previously know what are the Parts affected, or which are not in a good Disposition; whether, for Instance, it is the Foot or the Hand, the Liver or the Lungs. This, with respect to the external Parts, may be discovered by the Sight and the Touch; and by the same Means we may also judge of the Species of Disorder under which they labour. But this does not hold with respect to the internal Parts, to discover which a great deal of Labour and Skill are required. *Galen*, however, in order to answer this End, adverted carefully to five Things: First, the particular Action injured; secondly, the Nature or Species of the Pain felt; thirdly, the Situation of the Part in which the Pain, or any other preternatural Circumstance, is perceived; fourthly, the Accidents peculiar to each Part; and, lastly, the Excrements peculiar to these Parts, or which certain Parts usually discharge, and the Manner in which certain Substances are evacuated. A Knowledge of the Action or natural Use of the Parts contributes very much to the discovering which of them are affected; for as all the Actions, whether natural, vital, or animal, are performed by certain Organs or Parts of the Body, it follows, of course, that when an Action is hindered, the Part which should perform it is affected. Thus a difficult Concoction of the Aliments denotes, that the Stomach is affected, because 'tis the Office of the Stomach to concoct the Aliments. A Difficulty of discharging the Urine imports, that the Bladder, Kidneys, or Parts connected with them, are affected, because 'tis the proper Action or Office of these Parts not only to contain, but also to give a free Passage to the Urine. An Alteration of the Pulse signifies an Affection of the Heart and Arteries, because the Pulse is an Action of the Heart and Arteries. Blindness is a certain Sign, that the Eye is affected, because the Eye is the Organ of Sight. Immobility of a particular Part, or of the whole Body, witnesses that the Nerves are affected, because the Nerves are the immediate Instruments of Motion. But, as a Part may be affected in two Manners, either primarily, and by itself, or only by Consent, that is, by the Connection or Communication it has with some other Part; so the Affections thus produced are accordingly distinguished. We know the proper or primary Affection of the Part, when that Affection is unaccompany'd with any other, when it continues for a considerable Time, when it does not augment in proportion as some other Affection increases, when it continues after another Affection has ceased, and when the Remedies usually apply'd for its Relief produce their ordinary Effects; on the contrary, that Affection which is only produced by Consent, augments or diminishes in proportion as some other Affection does, and the Patient is not relieved by the Remedies proper for that Affection, when of the primary Kind. Thus Vomiting, which is an Affection of the Stomach, sometimes happens in consequence of the Consent or Connection between that Part and the Kidneys; so that the Kidneys being primarily affected, the Stomach suffers by Consent, tho' no Disorder acts directly and immediately upon itself. In this Case the ordinary Remedies for the Stomach are of no Use, and the Physician must direct his Views to the Cure of the Kidneys; whereas, if the Stomach was properly and primarily affected, his Care ought to be employed for the Relief of that in particular. The Nature or Species of the Pain felt indicates the Nature of the Part which suffers, or is affected. If the Pain is accompanied with Pulsation or Beating, 'tis a Sign, that there is an Artery, either in or near the Part in Pain. If the Pain is pungent, 'tis a Sign, that the Part affected is membranous; and, if it is convulsive, the Nerves suffer. The Situation of the Place pained also indicates the Part affected. Thus a deep-seated internal Pain, with Tension and Swelling of the right Hypochondrium, denote that the Seat of the Disorder may possibly be in the Liver, which is situated in that

that Place. The same Accidents or Symptoms inform us, that the Spleen may be affected, when they appear in the Left Side, which contains the Spleen. But, if the Pain and Tumor are external, they have their Seat in the Muscles which cover the respective Parts. The Accidents peculiar to each Part also serve to discover those which are affected. Vomiting, for Instance, the Hiccough, and a Nausea, shew that the Stomach suffers. A Delirium is a certain Sign, that the Brain is affected; and Hoarseness indicates a Disorder of the Aspera Arteria. The Nature of the Excrements also serves to discover the Part affected. Small Filaments of Flesh, discharged with the Urine, denote that the Kidneys are affected; and Scales, discharged the same way, are a Sign that the Bladder suffers. Soft fungous Flesh, and which suddenly arises in Fractures of the Cranium, denotes that the Membrane of the Brain is affected. When the Urine is discharged from a Wound of the lower Belly, 'tis a certain Sign that the Bladder or Ureters are wounded. When the Fæces are discharged from a Wound of this kind, 'tis a Sign that the large Intestines are pierced. The menstrual Evacuations come from the Matrix, the Seminal Matter from the Spermatic Vessels, Worms from the Intestines, Gravel and Stones from the Kidneys and Bladder. The Manner in which certain Substances are evacuated, also indicates the particular Parts from which they are discharged. The Blood, for Instance, which flows from a Wound by starts, flows from an opened Artery. The Blood, which is discharged from the Mouth in Coughing, comes from the Lungs. It is of so great Importance to the Physician to know the Part in which the Disease is seated, that *Galen* has composed six Books upon this very Subject, which are, perhaps, the best of any he has wrote.

After knowing the Part affected, we are afterwards to find out the Affection or Disorder of that Part; and that, as we have already said, by drawing Signs either from the Disease itself, or from its Causes, or from its Symptoms. As for the Signs drawn from the Disease, since the two principal Kinds of Diseases are Intemperature and bad Conformation, these sometimes discover themselves spontaneously, when they have arrived at a certain Pitch; and, in this Case, they may be judged of by the Senses. But, when these two Defects are not very perceptible, in order to discover them, we employ almost the same Means we use for discerning the Part affected. The Causes of Diseases also furnish various Signs for knowing their particular Natures: Thus we conclude, that a Disease produced by black Bile is malignant, and that one produced by the Blood is benign. If any one has taken a very acrid Medicine, or a Poison, we judge of the Species of the Disorder, produced by this Medicine or Poison, by the Knowledge we have of the Nature of the Cause. But the Symptoms of Diseases supply us with the largest Number of Signs; and, as there are three Kinds of Symptoms, each Kind furnishes us with particular Signs. The Symptoms, whether of the animal, the vital, or the natural Actions, are the first. If a Delirium, for Instance, which is a Symptom of the animal Action being injured, is accompany'd with Fury, it indicates a hot Intemperature of the Brain; but, if it is accompany'd with Terror and Sadness, it denotes a cold Intemperature of the same Part. Excessive Sleep, which is another Symptom of the same Action, denotes a cold and moist Intemperature of the Brain; and Watching indicates quite the contrary. A Privation of Motion, in any Part, discovers that the Nerves, distributed to that Part, are either obstructed, relaxed, or cut. Very considerable Signs are also drawn from a Defect of the vital Actions. The several Alterations of the Pulse, which are Symptoms depending upon this Defect, supply us with various Signs. A great and frequent Pulse indicates a hot Intemperature; whereas one that is small and slow, indicates a cold Intemperature. Those Symptoms which proceed from a Lesion of the natural Actions, are not of less Importance in furnishing us with Diagnostic Signs, or such as indicate the particular Species of the Disorder. A weak Appetite, accompanied with a violent Thirst, imports a hot Intemperature. A great Appetite, on the contrary, without Thirst, denotes a cold Intemperature. Various Signs may also be drawn from the Symptoms furnished by the Substances discharged from the Body, and their various Qualities. That Blood, for Instance, which is copiously discharged in Coughing, denotes a Rupture of some Vessel of the Lungs; but the Blood which is expectorated in a small Quantity, and mixed with Pus, indicates an Exulceration of the same Part. When the Aliments are discharged by Stool in the same State they were in when taken into the Stomach, this denotes a Lientery. An Alteration in the Colour of the Skin is also significant in various Disorders. Of this we have an Instance in the yellow Colour of those who labour under the Jaundice, this Colour being an Indication of an Obstruction in the Gall-bladder.

The same Sources from which *Galen* drew the Signs of the Species of Diseases, also served him to discover their Differences; and enabled him, for Instance, to distinguish a malignant from a benign, and an acute from a chronic Disorder.

The last Species of Diagnostic Signs are those taken from the Causes of Diseases. We shall exemplify the Manner of drawing this Species of Signs, with respect to a Plethora and a Cacochymy, which, as we have above observed, are the most ordinary Causes of Diseases. A Plethora, which is a Redundance of all the Humours, but especially of the Blood, may, according to our Author, be known by the following Signs: There is an extraordinary Fulness of Body, and a greater Corpulence than usual; the Vessels become turgid; the Pulse strong, large, and full; but Respiration is not very free, because the Lungs and Diaphragm are oppressed; one sleeps much, or, at least, has a strong Inclination to sleep; the Body is heavy and listless, and considerable Losses of Blood are sustained, sometimes from the Nose, and sometimes from other Passages. A Plethora, or Plenitude, may also be known from the Causes capable of producing it; such as an idle and sedentary Life, the Use of succulent and too nourishing Aliments, an Interruption of accustomed Exercise, or a Stoppage of some usual stated Evacuation. A Cacochymy, which is a Depravation of the Humours, or a Superfluity of those which differ from the Blood, varies according to the Difference between one Humour and another; so that, as there are three principal Kinds of Humours, besides the Blood, there are also three Species of Cacochymies; the one is produced by the Bile, the other by the Phlegm, and the third by black Bile. We do not here mention a sanguine Cacochymy, because the Blood cannot be depraved but by degenerating into one or other of these three Humours. To begin, therefore, with a bilious Cacochymy: It is discovered, first, by the Signs drawn from the ordinary Effects of the Bile. Now the Bile being an Humour yellow, bitter, hot, dry, or of a drying Nature, it produces Effects or Accidents, which have a Relation to the above-mentioned Qualities, such as a yellow Colour of all the Body, or some of its particular Parts, of the Eyes, for Instance, or of the Tongue; a pungent and drying Heat; a Bitterness in the Mouth; Discharges of yellow, bitter, and acrid Matter by the Mouth, and by Stool; Thirst, Nausea, and Cardialgias: The Patient, farther, can with Difficulty support Hunger; is hasty and prone to Anger, but has Vivacity, and a quick Pulse. All the Causes which are capable of producing a Redundance of Bile, also contribute to discover this Species of Cacochymy. These Causes are a hot and dry Constitution of the whole Body; Youth, the Summer-season, the Heat of the Climate, the Heat of the Liver in particular, the Use of heating Aliments, great Labour, or violent Exercise, Watchings, Abstinence, certain Passions, such as Anger, Resentment, and all others of the disturbing and uneasy Kind. There are also other Diseases which denote a bilious Cacochymy, because we have other Proofs, that they are produced by the Bile. These Diseases are a Tertian Fever, an Erysipelas, and

and some others. The various Depravations of the Bile are farther discover'd by the Change of Colours which sometimes happen to this Humour, as when it becomes green or black. These Changes are discover'd either by the Diseases they usually produce, or by the Colour of the Excrements discharg'd. Here we must observe, that the black Bile produces of all others the most formidable Symptoms or Accidents. The melancholic Cacochymy is also known first by the Effects of Melancholy. As this Humour is cold and dry, and also acid, black, and thick, it produces Disorders and Symptoms, which have a Relation to these Qualities. The black Excrements, for Instance, which are discharg'd in some Diseases, and the Disorder commonly called the Black-jaundice, are the Effects or Productions of Melancholy. The Hæmorrhoids, or Tumors of the Anus, and the Cancer. The Acidity of the Melancholy is discover'd by those Depravations of the Appetite, which oblige the Patient to eat Substances which cannot possibly nourish, such as Coal, Chalk, and Plaster; and sometimes by a Species of Hunger, which for its extraordinary Nature is distinguish'd by the Epithet *Canine*, and in which the Patient cannot be satisfied. Besides, this Quality of the black Bile is discover'd by four Eructations, and a Vomiting of Matter of the same Taste. Lastly, the Coldness and drying Quality of the black Bile are indicated by the large Quantity of Wind discharg'd, which indicates the Weakness of the Heat, and the Defect of Humidity. A small and languid Pulse, Sadness, Terror, and Taciturnity, denote the same thing. The Signs of a melancholic Cacochymy are, in the second Place, drawn from the Knowledge we have of the Causes which are capable of producing a Melancholy; the Autumn, for Instance, mature Age, a cold and dry Constitution, produce Melancholy. Coarse and dry Aliments are productive of the same Effect; but this Humour is principally augmented when one leads a discontented and uneasy Life. The Signs of a pituitous Cacochymy are these following: The Patient has a pale Countenance, a large and heavy Body, cold to the Touch, and with little Hair. The Urine is white, and the Patient is subject to Defluxions, and oedematous Tumors. He has little or no Thirst, and his Pulse is small, slow, and soft. He also greatly dreads the Cold. The Causes which generate Phlegm also discover it. These Causes are a cold and moist Constitution, a Country or a Season in which Cold and Humidity prevail, crude and aqueous Aliments, a sedentary Life, or too much Sleep. When the Phlegm, which is naturally mild, becomes acid or saline, it is discerned by the Saliva, which of course becomes acid or saline. The Patient feels frequent Itchings, and Pustules appear on several Parts of his Body. He has a greater Appetite than he ought to have, and is subject to Gripings, Rheums, and acrid Catarrhs.

These are the Signs of the three Species of Cacochymy, which correspond to the three Kinds of Humours, the Bile, the Phlegm, and the black Bile. *Galen* also reckon'd Flatulences among the Causes of Disorders. But as these Flatulences are, according to him, the Production of a pituitous or melancholic Humour resolv'd into Vapours, by a Heat too weak entirely to dissipate these Humours, we may properly enough say, that they are a Consequence of a pituitous or melancholic Cacochymy.

Having thus treated of the *Diagnostic* Signs of Diseases, we now come to consider those call'd *Prognostic*. Our Author gave this latter Name to those Signs which serve previously to discover what is likely to happen with respect to the Event of a Disease, the Time of its Duration, and the Manner in which it will terminate. He principally form'd a Judgment, with respect to the Event of a Disease, from its Species, from its Virulence, and from its peculiar Genius. Continued Fevers, for Instance, and those of the malignant Kind, are all dangerous; whereas those of the intermittent Kind are generally without Danger. A great Inflammation is more to be dreaded than one which is small; and a malignant Fever threatens the Patient more than a simple continued one. The Part affected, the Constitution and Disposition of the Body, the Cause of the Disease, the Time it lasts, the Age of the Patient, and the Climate in which the Disorder seizes, are Circumstances on which the Recovery or Death of the Patient depend. As for the Time of the Duration of a Disease, it is to be judged of by the Motion of the Disease itself. If that Motion is quick, the Disease soon terminates; but if it is too slow, it requires a longer Time. The natural Genius and Virulence of the Disease serve to discover the same thing. Thus we see Ephemeræ, and simple continued Fevers, terminate happily in a few Days; whereas those of the continued putrid Kind, and such as are malignant, kill the Patient in as short a time. A simple Disease is also sooner cur'd than one of a complicated Nature. The Causes of Diseases; farther, occasion a Variation in this Species of Prognostic; for the Diseases produc'd by Heat or Cold last for a shorter Time than those which draw their Origin from Dryness and Humidity. Those Disorders which are produc'd by the Blood, and yellow Bile, are acute or short; whereas those which proceed from Phlegm or Melancholy, are chronical or long. The Age of the Patient, the Season, the Disposition of the Air, Habitudes contracted, the Sex of the Patient, and the manner of Living, have also a considerable Influence on the speedy or slow Termination of Diseases. And, lastly, the Manner in which a Disease ought to terminate, whether gradually, or all on a sudden; by a slow Concoction of the Humours, or by a Crisis; or, supposing the Patient should die, whether he will die by Oppression, or a Dissipation of Strength. All these Circumstances are previously known by examining the State of the Disease, and that of the Patient. If the Disease has a slow Motion, in all Probability the Humours will be gradually concocted; but if its Motion is quick and violent, it will probably terminate by a Crisis. Besides, we conjecture that a Crisis will soon happen when on the Approach of the critical Days the Patient finds himself more uneasy than ordinary, and when the Accidents or Symptoms seem to increase. We may even predict the Species of the Crisis by an Examination of particular Symptoms. If the Pulse is large and quick, and at the same time soft and undulating, the Crisis will happen by a Diaphoresis. If the Belly is turgid, and makes an uncommon Noise, the Crisis will happen by a Diarrhœa. If the Patient's Countenance is very red, or if he imagines he sees something red, though there be really nothing of that Colour before him, a critical Hæmorrhage will very soon happen. *Galen* one Day adverting to this last Sign, which has been mentioned by *Hippocrates*, found a proper Opportunity of acquiring a great Reputation at Rome. A young Man, in the fifth Day of an acute Disease, was, by the Advice of his Physicians, about to be bled; if our Author had not accidentally put a Stop to the Execution of the Design. The Indications, said he, which you have follow'd, and which influence you to bleed the Patient, are very just. You have Reason to believe, that the Patient's Disorder proceeds from a Redundance of Blood; but you do not advert to this, that Nature herself is just about to produce the same Effect, which the Opening of a Vein would do. As *Galen* was pronouncing these Words, the young Man suddenly started from the Bed, crying, that he saw a red Serpent approaching to him. The other Physicians despising this new Symptom, as well as the Advice of *Galen*, still persisted in asserting the Necessity of Venesection; but the Blood which the Patient forthwith began to discharge, convinc'd them that our Author was more skilful than they themselves. What induc'd him to make this Prognostic was, his observing that the Patient had a Redness diffus'd from the Root of his Nose over his Cheek, and that this Redness always increased with respect to the Brightness of its Colour, which he took for a certain Indication of an Hæmorrhage from the Nostril of the same Side. This Indication was still more strongly confirm'd by

by the red Serpent which the Patient imagin'd he saw. *Galen* adds, that this Hæmorrhage was so great, that they were obliged to use means to stop it, which was effected not without Difficulty. As for those Signs which discover whether the Patient will die by Exhaustion or Oppression, they are particularly drawn from the State of the Patient, and the Nature of the Disease. If a Patient has languish'd for a long time, if he has had a Hæmorrhage or Diarrhœa, if he has neglected to support himself by Aliments, or if he has other Signs of Death about him, he may possibly die by Exhaustion. But if a Patient, threaten'd with immediate Death, has not been weaken'd by Evacuations of this Kind, or if the Disorder is recent, 'tis obvious to perceive, that he dies by Oppression.

This is sufficient for explaining the three Kinds of prognostic Signs already mentioned. But our Author, farther, established three other Species of them, with respect to other three Things, which also furnish Prognostics. "There are," says he, "three Kinds of prognostic Signs. Some relate to the Concoction or Crudity of the Humours, others to the Death or Recovery of the Patient, and the third relate to Crises in particular." All Prognostics in general are drawn from three different Sources. The first Source relates to the three Kinds of Faculties or Actions, that is, the natural, the vital, and the animal. The second Source, to the Excrements, or Things discharg'd from the Body. And the third Source, to a Change of Qualities. We shall not, on this Occasion, enter into a Detail of all that *Galen* has said with respect to these different Signs, and their various Sources; since that would be both tedious and inconsistent with our Design: However, for farther Satisfaction with respect to some other Particularities of this Author's System, we must refer our Readers to the Article *Pulsus*.

Having shewn the Nature of Diseases, with their Causes, Symptoms, and Signs, according to the System of *Galen*, we come now to point out the Method in which they ought to be treated. This Method is built upon two fundamental Maxims before-mentioned, which are, That a Disease, which is something contrary to Nature, ought to be subdued by its contrary: And that Nature is to be preserved by what has a proper Conformity with it. From these two Maxims arise the Indications, which are the Basis of practical Medicine. What *Galen* calls an *Indication* is an Insinuation, or Hint, of what ought to be done with respect to something, taken from the proper Nature or Condition of that Thing. These two Maxims, thus laid down, afford us, according to our Author, two general Indications; one of which is taken from the Affection contrary to Nature, which Affection indicates, or requires, that it should be removed, or subdued; the other is taken from the natural Constitution, and Strength, which insinuate, or put us in Mind, that they ought to be preserved. There are, as we have already observed, three Sorts of Affections contrary to Nature, which are the Disease, the Cause, and the Symptom. Of these three, the Disease being the principal, or being primarily and in itself contrary to Health, it is what we propose to cure, and consequently what properly affords the principal curative Indication, which is taken, as we said, from what is contrary to the Disease. But if we sometimes make use of like and not contrary Things, as, for Instance, a hot Remedy for a hot Distemper, that happens only accidentally through the Intervention of some other thing which is directly contrary to the Disease. In other respects we are to take care that Agents be proportion'd to Patients, and that the Contraries we employ have their Degrees suited to those of the Disease; lest, if they are too weak, they should be wholly ineffectual; and if they are too strong, should run Matters to the opposite Excess, which is no less contrary to Nature than what we intended to correct. It is farther to be observed, that the Contraries we speak of ought to be used by Degrees, because Nature cannot bear sudden Alterations. We must begin then with the weakest, and not proceed all on a sudden to the strongest. Besides, as there are several Kinds of Diseases, so there are also of Remedies: A simple Disease indicates a simple Remedy, a complicated Disease a compounded Remedy, or one that serves for several Purposes. But it is to be observed, that in complicated Cases we ought primarily to regard the principal Disease, or that which is the Cause of the rest, and, as long as it subsists, hinders their Cure. This Rule then is always to be follow'd, except in some Cases where the Physician is obliged to provide against the most pressing or dangerous Circumstance, as when there is a Malignity attending it, when it attacks some considerable Parts, or hinders some principal Action.

But tho' the first curative Indication be taken from the Disease, yet as it cannot be cured so long as its Cause subsists, it is necessary to begin the Cure, by removing or subduing that Cause. If there be several Causes, they must be remov'd, one after the other, each in its Order, in which Case *Galen* advises to begin with that Cause, which was, as we may say, first in Birth, but last in Discovery, by proceeding after an analytic Method. This Maxim appears to be necessary, principally by way of Precaution, when we endeavour to extirpate the Causes of Diseases, and by that means prevent their Rise or Increase, or to cure them the more easily, as soon as they are formed.

The Symptoms, consider'd as such, require nothing particular in their Cure, because the Distemper, on which they depend, being subdued, they disappear at the same time. However, it sometimes happens, that the Physician is obliged to neglect the Disease, in order to obviate the Symptoms, when possibly the Symptom may produce a worse Disease than what it accompanies, or when it causes a considerable Abatement of the Strength. But it is to be observed, that, in the first Case, the Symptom is consider'd as a Cause; and in the other, that the Indication is not taken from the Symptom, but from the Strength of the Patient.

The Strength and natural Constitution of the Body are, indeed, the second Source from whence we take, as we said, our Indications. As to the Strength, it does not, indeed, teach what is to be done to cure a Disease, and is as little concerned in indicating the Quality of the Remedies; but it regulates their Quantity. When, for Example, the Strength is too much depressed, it forbids the Use of so powerful a Remedy as the Greatness of the Disease would otherwise necessarily require. It is for this Reason that *Galen* says, that the vital Indication, or the Indication taken from the Strength, (for Life depends on the Strength) ought to be the first of all Indications, and to precede the curative Indication. According to this Maxim, we are, before all things, to examine what the Strength of the Patient is able to bear; and we often find ourselves obliged to prescribe such Remedies as are contrary to the Scope which we propose to ourselves in the Cure of a Disease, when the Condition of the Strength indicates them. This is by so much the more necessary, because the Remedies cannot produce their Effect but as they are assisted by the Strength of the Patient, which is to be so managed as that it may be able to resist the Disease, and to hold out during its whole Course. This sort of Conflict between two Indications, and Contra-indications, sometimes give a good deal of Trouble to the Physician; however, he must, as we said, attend to what is the most urgent. Under the natural Constitution of the Body are comprehended Temperament, Habit or Custom, Age, Sex, and Condition of each Part, and all these, as well as the Strength, supply us with particular Indications for their Preservation. The Temperament, whether natural or acquired, demands our Attention in the Cure of a Disease; and Custom is to be no less regarded, because a weak and diseased Body cannot, without Difficulty, support the Inconveniencies to which it is subjected by a Change of Management. Persons who are tender are not to be treated like those of robust Bodies; Children, adult Persons, the Aged, and Women, require also regard to those particular Indications which may be taken from their respective Conditions. With

regard

regard to the Condition of the Parts, there are seven Things to be considered: First, the Temperament of a hot Part, for Instance, seized with a hot Disease, does not require so potent a Remedy as a cold one under the same Disorder, because the first of these Parts is less altered from its natural Temperament by the Disease, and the other more. Secondly, we are to consider the Importance of the Part affected. The noble Parts require milder Remedies, and such as are necessarily strengthening, because those Parts are of common Benefit to all the Body, and their Preservation is of great Importance. The Liver and Stomach, which are of that Number, are always to be strengthened; and, supposing these Parts require to be refrigerated or mollify'd, we are to compound astringent and moderately heating Remedies with Refrigerants and Emollients, in order to avoid too great a Refrigeration and Relaxation. The better to shew the Necessity of such a Practice, our Author gives us a pretty long Account of what happened in his Time to one *Attalus*, a Physician, who killed, he says, a *Cynic* Philosopher, call'd *Theagenes*, by a continual Application of laxative Cataplasms to the Region of the Liver, where there was an Inflammation, against the Opinion of *Galen*, who advised the Mixture of Astringents with those relaxing Remedies. In the third Place, we are to regard the Sensation of the Part; for the more tender and sensible any Part is, the less it is able to bear acrimonious or violent Remedies; and it may happen, that the same Disease may require different Medicines, on account of its being seated in different Parts. The Eye, affected with an Inflammation, will not suffer the same Remedies as another inflamed Part. Oil, for Example, which mitigates Phlegmons, or inflammatory Tumors, in the Arms or Legs, augments Inflammations of the Eyes. Fourthly, the Contexture of the Part is to be considered: If the Part be dense, thick, and hard, the Medicines ought to be more penetrating, and stronger than such as are applied to Parts of a lax and soft Contexture. A fifth Indication is taken from the Figure of the Part, which teaches us to know by what Quarter that which incommodes it may most conveniently be discharged. The Situation of the Part affords a sixth Indication; for the more absconded, or deeply seated, any Part is, or the more remote from the Place where a Medicine may be applied, the greater is to be the penetrating Force of that Medicine. And, lastly, the Vicinity of a Part sometimes furnishes us with Indications, which make some Alterations in the Method of Cure. For we ought to regard not only the diseased Part, but those which are adjacent to it; for these last are oftentimes more tender and sensible than the first, so as to be incommoded by the Application of Medicines to the neighbouring affected Part, when they are too strong or penetrating.

Besides these two general Sources of Indications already mentioned, which are the Affection contrary to Nature, and the natural Constitution, *Galen* reckons a third, and that is, the Air which surrounds us, or what we breathe; and this also, in particular, deserves very much to be regarded in the Cure of Distempers.

All Indications, of what Nature soever, are answered by Diet, Pharmacy, or Surgery, which are the three general Methods by which Physicians treat the Diseased. With respect to these, *Galen* followed the principal Maxims established by *Hippocrates*. We shall only observe briefly, and that principally with regard to Pharmacy, that, as this Part of Medicine had been very much cultivated from the Time of *Hippocrates* down to *Galen*, the Number of Remedies, both simple and compound, was very much augmented; as may be concluded from what *Galen* himself has written on the Subject in many Books, some of which treat of simple Medicines, and others, of which there is a greater Number, of the Composition of Medicines. But it must not be forgotten, with regard to Medicines in general, that the Properties which *Galen* ascribes to them are derived from what he calls the primary Qualities, as hot, cold, dry, and moist; and that each of these Qualities has, according to him, four Degrees; for Example, a thing which is hot, is so in the first, second, third, or fourth Degree; Succory is cold in the first Degree, Pepper is hot in the fourth Degree. By virtue of these Qualities, and their various Combinations, the greatest Part of Medicines, according to our Author, perform their Operations; and tho' he acknowledges, that there are acid, saline, acrimonious, and other kinds of Medicines, yet he endeavours to prove, that these last Qualities depend on the first; as the saline, for Instance, depends on Heat, as the Principle of its Saltiness; that bitter depends on dry, that acrimonious is very hot, that acid is cold, and so of the rest. He observes, in the second Place, that whatever is hot, cold, or of any other Quality, is so either actually or potentially; Ice is cold actually, Mandrake and Hemlock are cold potentially; Fire is hot actually, Pepper potentially. Things which act not by virtue of those Qualities which distinguish them, act by their whole Substances; such are those Remedies which we call Specifics, and some Poisons and Counter-poisons: Of this Nature also are Cathartics; for they act by a particular Property of their whole Substance, in attracting each its particular Humour.

Surgery had also been a little improved since the Time of *Hippocrates*, as may be judged from what has been said concerning *Celsus*, who lived an hundred and fifty Years before *Galen*. As for *Galen*, he practised Surgery as well as all other Parts of Medicine: We have several Books of his, concerning Surgery, in particular, besides what he says on the same Subject in other Places; and he speaks of Cures in Surgery, which he himself had performed.

Having made these few Remarks on the Pharmacy and Surgery of *Galen*, we shall only add a Word or two of the Use which he made of the most common and general Remedies, such as Bleeding, Cupping, Purging, Somniferous and other Medicines already mentioned in the Practice of *Hippocrates*, whom *Galen* followed in the Manner of using these Remedies, or at least he observed his principal Maxims. All the Difference between them, with respect to Bleeding, in the first Place, was, that *Galen* used it somewhat more frequently than *Hippocrates*. In this, perhaps, he imitated the latter Physicians, who had made this Remedy so common, that *Celsus* says there was hardly any Distemper, in his Time, in which they did not use Bleeding. *Galen* took away more or less Blood, according to the Strength of the Patient: He supposes, that, on certain Occasions, one might bleed till the Patient fainted; and says, that he took away, in one Day, six Cotylæ (about three Pounds three Quarters). He drew off that Quantity principally in the Beginning of acute Fevers, under a Redundance and Æstuation of the Blood; supposing that, in such Cases, the best way to put a Stop to the Fever was, as soon as possible, to make a large Evacuation of Blood in this Condition. This Case excepted, he does not advise such plentiful Bleeding; but, in order to deter such as would make use of that Remedy without urgent Necessity, or considering the Strength of the Patient, he observes, that he had seen two Persons die under it. It will answer our End better, he says, to repeat the Bleeding the same Day, or the following Days, than to take away too much Blood at one time. Besides, with respect to Phlebotomy, *Galen* used all the Precautions *Hippocrates* had done, and which he took from the Season, the Climate, the Age, the Strength, the Constitution of the Patient, and some other Circumstances. He also depended very much upon the Indications furnished by the Pulse. When the Pulse was vigorous, he bled pretty boldly, and allowed the Quantity he judged necessary to flow, so long as the Pulse retained the same Force. With respect to ordinary Venesection, 'tis probable the largest Quantity of Blood he took from the Patient did not exceed a Pound or eighteen Ounces, and that the smallest did not come short of seven or eight. He himself gives us the History of a Woman whose Menstrues had been stop'd for eight Months, and from whom he took, the first Day, a Pound and an half of Blood, the second Day a Pound, and the third Day eight Ounces. Our Author then was, probably, the first who specify'd the precise Quantity of Blood to be taken away

away at a time. Neither *Hippocrates* nor *Celsus* have given Directions with respect to this Particular; and *Celius Aurelianus*, who so exactly describes all the Remedies used among the antient Methodics, neither specifies the Measures nor the Weight of the Blood they took from their Patients. *Arctaeus* is also silent on this Subject; and we find not the least Fragment of any Physician's who lived before *Galen*, which informs us how much Blood they allowed to flow when they bled any one. This our Author seems to insinuate, when, in the same Passage, he tells us, *That none of the Greeks had spoken of Pounds and Ounces*; which Words must either be complete Nonsense, or relate to the Weight of the Blood to be taken by Venesection. 'Tis probable, that *Galen* did not usually repeat Venesection more than three or four times. This we may infer from a Passage of his Work *De Curat. per Sang. Miss. Cap. 12.* where it is said, that if no Circumstance obliges to draw a large Quantity all of a sudden, we must, by a first Venesection, take a smaller Quantity, than would be necessary, if we intended by one Venesection to take away the Quantity the Disease required: We must afterwards, continues he, perform the Operation a second, and even, if we think it proper, a third time. Sometimes he performed the two first Venesections in one and the same Day; sometimes he performed the second on the following Day; and even on the third Day he bled twice, if Necessity required it. He bled at all Hours, whether of the Day or the Night, but chose the Time when the Fever was most moderate; and observed, as much as was possible, only to do it when the Digestion was finish'd. He laid it down as a Maxim, that the Blood should be taken from a Vein on that Side where the Disorder was lodged, or from that Vein which seemed to have the most immediate Communication with it. He opened all the Veins *Hippocrates* had done before him, and some others besides. He open'd three Veins in the Flexure of the Cubit; the external, the internal, and that in the middle. When, in that Part, these Veins were not apparent, he bled in the Middle of the Arm. He also bled on the Back of the Hand, between the three large Fingers, the two small ones, and betwixt the Thumb and fore Finger. He also bled in the large Angles of the Eyes, and behind the Ears. He also opened the jugular Veins, and even the Arteries in several Parts of the Body; and he cauterized both Veins and Arteries, when there was a Necessity for it. He did not bleed Children under fourteen Years of Age; but, when they were a little more advanced in Years, he began by taking at most nine Ounces from them; and, if there was a Necessity for performing the Operation a second time, he augmented that Quantity by four or five Ounces. But, if he dreaded to bleed Children, he had no manner of Scruple to perform that Operation on old Men, provided they were robust. His Intentions in Bleeding were the same with those proposed by *Hippocrates*; that is, he bled in order to diminish Plenitude, or to procure a Derivation or Revulsion of Blood. When a Cacochymy was joined to Plenitude, a Circumstance which equally indicated Purgation and Venesection, he always began with the latter, as *Sydenham* has since, with great Judgment, advised, and press'd with much Earnestness.

We have nothing particular to observe with respect to the Use our Author made of Cupping-glasses, since he applied them to the same Purposes *Hippocrates* did; and as for Leeches, it does not appear, that he used them at all.

Neither have we a great deal to say concerning his Sentiments with respect to Purgation, since, in this Particular, he rigidly adhered to the most important Precepts of *Hippocrates*: We shall only observe, that as he bled principally with a View to diminish Plenitude, so he purged with an Intention to evacuate Cacochymy. Besides, he knew a great many Purgatives to which *Hippocrates* was a Stranger, and, in all Probability, purged more frequently than that antient Physician.

Somniferous and anodyne Medicines were also greatly in Use in the Time of our Author: He himself teaches the Manner of preparing Diacodium, which is a Medicine compounded of the Decoction of the white Poppy, and Honey. He also describes various Compositions in which Opium is an Ingredient; but it appears, that he used these Compositions rather to stop Fluxions, and mitigate Pains; than to procure Sleep.

Galen did not often exhibit Sudorifics, at least internally. We find in his Works some Compositions in the Form of Antidotes, which, according to their Titles, serve to excite a Diaphoresis; but we do not observe, that our Author used them in order to procure critical Sweats; and, indeed, he proposes no Remedy of this Nature in his Method of treating Diseases. The Means which, on these Occasions, he most generally used to excite a Diaphoresis, were, the Bath and Frictions, Remedies much used by *Galen*, and by which he often cured Fevers caused by Cold; and those of the simple continued Kind.

He sometimes also exhibited Specifics, such as the Powder of the Craw-fish, which, as we have said, he used against that Madness which proceeds from the Bite of a mad Dog: But he only prescribed Specifics in Diseases which proceed from occult Causes, such as that just mentioned; for, in all other Diseases, he used those Remedies which the ordinary Indications suggested to him.

From what has been said 'tis obvious, that the Medicine of *Galen* had a very near Affinity with that of *Hippocrates*. There is, however, this essential Difference between their Systems, that the one is almost entirely supported by Experience, and consists of Observations, whereas the other depends almost wholly upon Reasoning. The Medicine of *Hippocrates* is a Collection of Facts which he himself or others had observed, and on which he reasons but little, at least for the most part. The Medicine of *Galen*, on the other hand, is scarce any thing but a Congeries of Reasonings and Disputes. Now, as it is more easy to be deceived in Reasoning than in making Experiments, since Reasonings are subject to be contested, whereas Experiments, duly made, are admitted by all the World, it has happened, that the System of *Hippocrates* has afforded very little Matter of Exception to the Physicians who came after him; whereas that of *Galen* has been the Subject of a great deal of just and well-founded Censure. But, that this may be the better understood, we must remember, that those Books of *Hippocrates*, in which there appears the greatest Strain of Reasoning, were antiently looked upon as spurious. Some modern Authors, who maintain that *Galen* never receded from the Principles of *Hippocrates*, assert that the Book intitled *Concerning antient Medicine*, is among the Number of those of which we now speak. Unless they asserted this, they could not make their Point good, because the Author of that Book establishes an Opinion which constitutes a second Difference between the Systems of these two great Men; which is as considerable as that we have already mention'd.

"The Antients, says the Author of that Work, did not believe, that cold, hot, or moist, or any other Quality, produced Diseases in the human Body; but they were of Opinion, that such an Excess of each of these Qualities, as Nature could not surmount, produced Disorders; and this Excess they attempted to remove or correct. Now among sweet Substances, that which is very sweet is the strongest; as, among bitter and sour Substances, those that are very bitter, or very sour, are also the strongest; in a Word, what holds the highest Degree in every Substance is the strongest. These last Things, or Excesses, continues that Author, the Antients believed to be in the Body, and to prove prejudicial to it: In a Word, there are in the Body Substances, bitter, saline, sweet, sour, sharp, insipid, and a thousand other things which have different Qualities, according to the Nature of the Body." ing

ing as they abound, or are excessive. These different Qualities are neither perceived, nor prove prejudicial to any one, so long as the Humours are mix'd, and, in consequence of this Mixture, prove Correctors to each other; but if the Humours are separated, and remain apart, then their Qualities become at once perceptible and prejudicial." From this Passage we may gather, that the Author did not mean, that the Humours he mentions acted by their primary Qualities, mentioned in the Beginning of the Passage, rather than by the others he afterwards enumerates: So far is he from asserting this, that, a little after, he says, "That it is not Heat, but Sourness, and Insipidness, which have great Strength, either within or without the Body, either with respect to what we eat or drink, or what is applied externally in whatever manner." And he concludes, That among all the Faculties none are endow'd with less Power than hot and cold. This is entirely inconsistent with the System of *Galen*, which is almost entirely founded upon the Action of the four primary Qualities, hot, cold, dry, and moist; and in which the secondary Qualities, such as sour and bitter, are only look'd upon as the Effects or Consequences of the other. There is, however, no great Probability, that the Book of which we now speak is a spurious Piece, since the Style, the Air, and the Manner of Reasoning, used by *Hippocrates*, are evidently conspicuous in it. We have no Commentary of *Galen's* upon this Book; and perhaps he declined commenting upon it, because he knew not how to reconcile these Sentiments of *Hippocrates* with his own, tho' he was sufficiently artful in making this ancient Physician speak his own Language when he thought proper; for we must observe, that tho' our Author calls himself the only one who had either well understood or justly explain'd *Hippocrates*, yet he often puts another Sense upon his Words than that which is genuine. But tho' these two illustrious Physicians do not agree in every respect, yet they embrace the same Principles in many, admit of the common Principle of *Nature*, and her attractive and expulsive Faculties, agree with respect to the Signs of Diseases, Crises, and critical Days; and, which is still more material, the Practice of the one has a very near Affinity to that of the other.

It must be confess'd, that the System of *Galen* is extremely ingenious, and very consistent; and that its Author was a Person of a lively Imagination, and ready Invention. As to the Uses of his Theory in Medicine, what *Celsus* says on another Occasion, may perhaps, with great Justice, be applied to this; that is, "As in other Arts there are many things, properly not belonging to the Arts themselves, which have nevertheless a Tendency to excite the Curiosity, and form the Genius, of the Artist; just so it is with respect to Medicine, for tho' a Contemplation of these Things does not make a Physician, yet they render him better qualified for the Practice of Physic than he would have otherwise been." When *Galen* illustrates or explains any important Doctrine of *Hippocrates*, relative to the distinguishing or curing Diseases, we are much indebted to his Sagacity and Industry: But when he harangues upon his four Elements, four Qualities, Faculties, Spirits, and occult Causes, after entertaining the Imagination with a Multitude of delusory Visions, he leaves us where he found us, that is, in the Dark. He reasons well, but to no manner of Purpose, since he reasons from Principles which are generally false or precarious; and, I believe, every one must allow, that a Theory, attended with these Circumstances, is not so likely to improve Medicine, as a concise and clear Account of incontestable Facts; I mean of the Symptoms which distinguish Diseases, and prognosticate their Events, and of the Methods of Cure most generally attended with Success, and these without any Theory at all, unless such a one as has Demonstration to recommend it; for, as I have more than once observed, whatever can be doubted, ought always to be suspected, and can never be depended upon in Practice, whatever speculative Men may think or say to the contrary.

All the Theories, however, or any of them, which I have already given an Account of, may be very usefully applied to one very good Purpose, which is, to satisfy the Impertinence of some certain Querists, and old Women, whether in Petticoats or Breeches; for there are many People so delighted with the Extraordinary and Marvellous, that they are never satisfied with what they comprehend; but require something sublime and unintelligible, which, tho' it may not satisfy their Doubts, confounds their Ideas, and exercises their Imaginations, in which they find something, as it should seem, superlatively agreeable. So true is the Observation of *Lucretius*:

*Omnia enim stolidi magis admirantur, amantque
Inversis quæ sub verbis latitantia cernunt.*

I shall not descend to particular Instances of Practice introduced or preserved by the Greek Authors subsequent to *Galen*, because these are specified under the Articles to which they belong, as the Circumstances relating to them, as Authors, are related under the Articles of their Names; of which, that the Reader may turn to them for farther Information, I shall give the following Catalogue, in the Order of the Time in which they lived:

Oribasius.

Aëtius.

Alexander Trallianus.

Ægineta (Paulus).

Azuarus.

Myropsus.

There are some few more, who have either already been spoke of as Followers of particular Sects, or who are of too little Importance to require Notice in this Place.

None of these Authors have attempted any general Innovation, either in the Theory or Practice of Physic; but have contented themselves, for the most part, with the Systems and Methods of their Predecessors, especially *Galen*, only deviating from them on particular Occasions. Their Works consist principally of Collections; and whoever reads them carefully, will find them extremely faulty, in neglecting to ascertain the Efficacies of known Simples, and seldom attempting to discover any Virtues in them, which had not been observed by former Authors, from whom they transcribed. Instead of being thus usefully industrious, they have shamefully mis-spent their Time in describing and recommending an infinite Number of compound Medicines, which has contributed to overload Physic, render the Practice of it precarious, and to retard its farther Advancement. They must not, however, be defrauded of the Praise which Dr. *Freind* gives them, who says, "They did not compile so as to have nothing at all new, and what we may call their own, in their very voluminous Works; for tho' I must confess, that there are not a great many things in them, in proportion to the Bulk of their Books, but such as may be found in *Galen* and others, yet some there are too, in regard to the real Improvement of the Art itself."

What I have said of these lower Greeks, is strictly true of the Arabian Physicians. These, however, have the Reputation of having introduced some Simples into Medicine, which were not known either to the Greeks or Romans, especially some of the milder Cathartics, as Manna, Sena, Tamarinds, Cassia, Myrobalans, and Rhubarb; tho' Dr. *Freind* says, that the last is first mentioned by *Alexander Trallianus*. The Arabians also brought Sugar into medicinal Compositions; and hence arose many Forms of Medicines unknown to the Antients, and indeed of

no great Use to their Successors : Amongst these are Syrups, Julaps, Conserves, and Confections, particularly the *Confectio Alkermes*, perhaps the best of them all. We owe, farther, to them the Introduction of Musk, Nutmegs, Mace, Cloves, and some other Aromatics ; but we are much less obliged to them for applying to medicinal Uses precious Stones, and Leaves of Gold and Silver. The *Arabians* likewise were acquainted with some few chymical Remedies ; but their Knowledge, in this way, seems to have reach'd no farther than distil'd Waters, and Oils.

But what principally recommends them to our Perusal is their having described, more distinctly at least, some Distempers to which the Antients are said to have been Strangers, amongst which are the Small-pox, Measles, and Spina Ventosa ; tho' there is some Reason to suspect, that *Hippocrates* had seen the first.

That I may convey a general Idea of the State of Physic among the *Arabians*, I shall give the Translation of a Letter, wrote by the Abbé *Renaudot* to Mr. *Dacier*, which is prefix'd to his Translation of a Part of *Hippocrates*, and which *Fabricius* in his *Bibliotheca Græca* has given us in *Latin*.

A Knowledge of the Oriental Languages would formerly have been very useful to a Physician, when there were no Books to instruct him in his Art, but such as were made or translated by the *Arabians*, which was the Case till the End of the fifteenth Century : But since we have begun to read the principal Authors in their own Language, we have entirely left off the Reading of the *Arabians* ; and there is scarce a Man of Learning who will read *Hippocrates*, *Dioscorides*, or *Galen*, in bad Translations from the *Arabic*. An Opinion, however, prevails among the Learned, that tho' the Perusal of *Arabian* Authors be not necessary, it is still useful for correcting the original Texts. This Opinion is owing to a too easy Faith in what they, who have made it their Business to study the Oriental Tongues, have spoken in Praise of the *Arabians*. It is true, that, in the Decay of Literature in *Europe*, the *Arabians* cultivated all the Sciences ; that they translated the principal Authors, some of whom, who wrote in *Greek*, are only to be found in *Arabic* Translations ; and this is what made so many Philosophers, Physicians, and Mathematicians, among the *Arabians*. We ought, therefore, to allow them their due Praises for cultivating the Sciences, without considering them as excellent Translators, which we can never do, if we are acquainted with them. *Salmasius* very much contributed to the establishing such an Opinion, by citing Books which he hardly knew, and promising to restore *Dioscorides* by an *Arabic* Version, which he had read in *Ebenbeitar*. But M. *Dodart*, who had seen some Essays of that Author, seems to think otherwise of that Affair ; and, indeed, there wants no more than the reading the History of those Translations, to enable us to form a Judgment of them. The most antient Translations, which were made by *Syrians* into their own Language, are entirely lost, and there remains nothing of them but the bare Titles ; but if they were like the Versions of the *Greek Ecclesiastic Authors*, which still remain, we cannot but think, that those who are so often mistaken in common Matters, were guilty of more considerable Errors with respect to medicinal Subjects, which were so difficult, that the *Greeks* themselves were oblig'd to make Dictionaries to explain them. We may judge of this Affair by many *Greek Words* which still remain in the *Syriac* Dictionaries, because there were no Words in *Syriac* to explain them ; and when the *Arabians* undertook to translate them into their own Tongue, they often misunderstood them. And yet we cannot deny, but that these first *Syriac* Versions were made when *Greek* was better known, and was even still commonly spoke ; whereas the most Part of the *Arabic* Translations were made under the second Race of the Caliphs, Successors of *Mabomet*, when the literal *Greek* was no more than a learned Language in the Countries belonging to them. The Time when these Translations commenced is commonly fix'd in the Reign of *Almamoun*, the Fifth of those Princes. He favour'd learned Men more than any Prince, and brought his Nation in Love with the Sciences of the *Greeks*. *Abn Jusar Almanzor*, his Grandfather, had begun to give great Rewards to learned Men, particularly those who translated *Greek Books* into *Arabic*, and thereby gave an Opportunity to the *Arabians* to cultivate Philosophy, Astronomy, Mathematics, and Medicine. Some of the principal Books were already translated into *Syriac* by *Sergius the Syrian*, who lived under the Emperor *Justinian*, and pass'd for the most antient Interpreter. *Almamoun* made a particular Search for *Greek Books*, sent to Christian Princes for them, and, when he had collected a great Number, made an Inquiry for Men of Letters to translate them into *Arabic*. It is commonly believed, that the greatest Part of these Translations were from the original *Greek*, and some of them perhaps were so. But the best Historians observe, that the greatest Part were made from *Syriac* Versions, which were in the Possession of *Syrians*. This Caliph, and his Grandfather *Almanzor*, who built *Bagdad*, generally resided there, and the *Syriac* was still commonly spoken, and even *Greek* was the vulgar Language in several Cities ; yet the Knowledge of the *Syriac* was almost confin'd to Christians, for which Reason these had the principal Share in this Work. One of the first of these Versions was that of *Hippocrates*, which was made by some Christian Physicians, who were in great Esteem at the Court of the Caliph *Almanzor* : 'Till that Time the *Arabians* set but little Value upon foreign Physic ; and we find, in the History of *Mabomet*, that a Prince sent him a Physician, who was a long Time among them without having any thing to do ; and that one Day he went to wait upon *Mabomet*, and complain'd, that, since he had been among the *Arabians*, not one Person had ask'd his Advice. *Mabomet* answer'd, That the *Arabians* never eat but when they were hungry, and always rose from Table with an Appetite. The Physician, bowing low, retired, saying, That it was the true Rule of Health ; and that where it was practis'd, the Physician had no Business. Historians take Notice, that among the *Arabians* was a Physician called *Hareth Ebn Chalda*, to whom *Mabomet* sent sick Persons, and that he treated them with very simple Remedies.

Almanzor being very much indisposed, and having tried all Sorts of Medicines, sent into *Persia* for *George*, the Son of *Boet-Jechua*, who was a long time his chief Physician. This Man was a *Syrian*, and a *Nestorian* Christian, and his great Skill was attributed to his having studied the Antients, the principal of whom he translated into his own Language. This Person gave the Mahometans a Relish for these Studies, in which the *Syrians* were their Masters, for we scarce meet with a Mahometan who had studied *Greek* ; and as the greatest Part of them had no better Knowledge of the *Syriac*, when they applied themselves to the Study of *Greek Books*, particularly *Almamoun*. The *Egyptians* also applied themselves very diligently to that Study. The *Greek Tongue* was preserved in *Egypt* longer than in *Syria*, especially among the orthodox Christians commonly called *Melchites*, who made use of that Tongue in their Offices of Devotion ; whereas the *Semi-Eutychians* or *Jacobites* perform'd theirs in the *Coptic* or *Egyptian Tongue*. But the *Egyptians* made very few Translations in Comparison with the *Syrians* ; because the Caliphs, who were Protectors of the Sciences, never went into that Country, which was govern'd by Emirs or Viceroy, under the Caliphs.

It is very probable, from the concurring Testimony of many oriental Authors, that there were Translations of *Hippocrates* from the first Times of *Almanzor* and *Almamoun*. But that which eclipsed them all was the Version of *Honain**, the Son of *Isaac*, who was in high Esteem with the Caliph *Elmotewakel*. This Prince began his Reign

* He was a Christian, but died excommunicated by the Patriarch, for some grand Piece of Irreverence committed against Images. *Herbelot. Biblioth. Orient.*

in the Year of the Hegira 232. *Anno Christi* 846. and dy'd in Hegira 247. *A. C.* 861. This *Honain* was the Disciple of *Joha*, surnamed the Son of *Masovia*, who is the same whom we commonly call *Mesue*. Historians observe, that this *Honain* undertook to make a new Translation of the *Greek* Books, because that of *Sergius* was very defective. *Gabriel*, the Son of *Bost-Jechua*, another famous Physician, persuaded him to this Undertaking, which he perform'd with so good Success, that his Work surpassed all others. *Sergius's* Version was in *Syriac*; and *Honain*, who had lived two Years in the Provinces where *Greek* was the vulgar Speech; in order to learn the Language, went afterwards to *Balsora*, where the purest *Arabic* was spoken; and, having perfected himself in that Tongue, set about the Translation. Most of the *Arabic* Translations of *Hippocrates* and *Galen* bear his Name; and the *Hebrew* Versions, made above seven hundred Years ago, were from that of *Honain*. The first Translators, who were *Syrians*, made their Versions in *Syriac*; most of them not having Skill enough in the *Arabic*, in the first Times of Mahometanism, to write in that Language, with that Beauty and Elegance of which it is capable, and which might render such a Work acceptable to the *Arabians*. Those who succeeded made their Translations more from the *Syriac*, than the original *Greek*; and as *Honain*, to his Knowledge in the *Greek*, added an Elegance of Style in the *Arabic*, his Translation surpassed all others both in Exactness, and Beauty of Expression. The first *Latin* Translations of *Hippocrates*, which were used by all the Physicians in *Europe*, in past Ages, were not made from the *Greek*. Some of them which were dispersed about after the Wars of the Holy Land, were made from the *Arabic*; and those which came through *Africa* and *Spain*, where the *Jews* were extremely diligent in cultivating the Art of Medicine, were, for the most part, done from *Hebrew* Versions made from the *Arabic*. It is very difficult to distinguish one from the other, because the Transcribers, and the Physicians themselves of those Times, often corrected their *Latin* Editions by any others they happened to meet with; and their Manner of translating them was so bad, that these Translations being corrected either by Physicians who neither understood *Arabic* nor *Hebrew*, or by *Jews* who knew nothing of Medicine, became unintelligible, as soon as that Author began to be read in the Original. The same might be said of all the Versions of *Greek* Authors, particularly of *Aristotle*. This Author had, in like manner, been translated into *Syriac*, thence into *Arabic*, thence into *Hebrew*, and it is from this third Translation that all those which have been read in the Schools, till the Revival of Learning, and the Study of the *Greek* Tongue, have been made and corrected. The Ignorance or Carelessness of Translators went so far, that if you compare an antient Translation of *Avicenna* with the Text, you will hardly know it, much less that of more difficult Authors.

But as to *Honain*, the Son of *Isaac*, he is the most considerable, and almost the only, Translator of *Hippocrates*; and it is from him that the *Arabians* have taken all their Knowledge of the History of Medicine. Besides this, there were in those Times two Translations, one *Syriac*, and the other *Arabic*. The first passed for a second Original; and we often find in the antient Copies of *Arabic* Translations, particularly of *Dioscorides*, that they had been compared with the *Syriac* Editions. The first are become very scarce for some Ages past, because the *Syriac* is become a learned Language, which is only used among Christians, who have so far forgotten it, that though they celebrate divine Service in that Tongue, they know no more of it than by rote. This has render'd the first Translation so scarce, that it is no longer to be met with. From what has been said it appears, that there is but little Advantage to be expected from these Versions in revising the *Greek* Text.

We may also conclude from hence, that it is very difficult to find, among the Orientals, any thing that may serve to illustrate the History of *Hippocrates*, which has not been mention'd by the *Greeks* and *Latins*. However, it cannot be deny'd, but that the Orientals have the Life of *Hippocrates*, of whom they speak with much Honour in their general Histories, regarding him as a Person of a bright Genius, and one of the greatest in Antiquity. There are but two of these Histories printed, the first of which is that of *Eutychius*, or *Sabid* the Son of *Patric*, Patriarch of *Alexandria*; the other was written by *Gregory*, surnamed *Abulfaragius*, who was Metropolitan of *Takrit*, a City of *Armenia*, and lived down to the thirteenth Century; but there is nothing particular in either of them which may be depended on.

Jobannes Leo Africanus gives us the ensuing Histories of some *Arabian* and *Jewish* Physicians.

Joanna, the Son of *Mesuech*, was a *Chaldean* by Nation, and a Christian of the Sect of *Nestorians*: He studied Medicine, Philosophy, and Astrology, at *Bagdad*, when *Aaron Rasid*, the twenty-third Caliph of *Bagdad*, determining to send his Son *Ebdullah*, surnamed *Mamon*, Viceroy into the Province of *Chorazan*, this *Joanna* was recommended as the most accomplished Person that could be found for all Kinds of Learning, and Skill in several Languages, and was for this Reason thought a proper Person to attend the Prince to his new Government, and to be near his Person. This Prince *Mamon*, coming afterwards to be Caliph, and having an ardent Desire to be acquainted with the Learning of the Antients, of which there was nothing at that time translated into *Arabic*, summon'd an Assembly of Doctors skill'd in several Languages, and inquir'd of them the Names of the Authors, and of the Books which were written in the *Greek*, *Persian*, *Chaldean*, and *Egyptian* Tongue, in all Arts and Sciences. He then got together as many as he could procure from all Parts; and selecting the best and most useful in Medicine, Physic, Astronomy, Music, Cosmography, and Chronology, order'd them to be translated, appointing this *Joanna* Overseer of the Translations from the *Greek*; and this was the Time when *Galen's* Books of Medicine, and all *Aristotle's* Works, were first translated into *Arabic*. He dy'd in the eightieth Year of his Age, and the Year of the Hegira 204. *Anno Domini* 819.

Abulbusen Ibnu Telnid was a Christian, of the Sect of the *Jacobites*, and born in *Bagdad*, his Father being the Head of the Ecclesiastics in that City. This *Abulbusen* apply'd his Mind to Study with so good Success, that in a short time he became a knowing Physician, and compos'd a Book, in which he gives an Account of all the Diseases and Infirmities incident to the human Body, beginning with the Head, and proceeding downwards through all the Members, to the Feet. This Book he intitled *Elmalibi*, that is, "the very Reality," and presented it to the Soldan then reigning. The Reputation of this Work procur'd him Admittance at Court, and the Place of Physician in Ordinary to the Household, in which Capacity he acquir'd not only Riches, but much Honour and Glory: For he never took Money of a poor or labouring Man, saying he could not sell his noble Art for trifling Sums; but he freely accepted Presents from Princes, Nobles, and rich Men. He was wonderfully covetous of Honour, and so proud, that if any of his Patients transgressed the Rules which he had prescribed, he would never visit or advise them any more, even though it were the Soldan himself. He dy'd *Anno Hegiræ* 384. *Christi* 994.

Rasid, called also *Alubecar Mubamed*, or, as others write it corruptly, *Abubeter*, *Alubeter*, and *Abubater*, was the Son of *Zacharias*, the Son of *Arabi*, or *Errasid*. *Leo Afer*, in his Account of him, calls him *Abubachar* and *Rasid*, and says he was a *Persian*, of the City *Rai*, the Son of a Merchant, and that he study'd Philosophy and Medicine at *Bagdad*, thence he went to *Cairo*, whence he was invited by *Elmanfor*, a Man of great Wealth and Reputation for Learning, to *Corduba*. He there lived in great Honour, and practis'd the Art of Medicine with great Profit and Applause.

Applause. He dy'd at *Corduba*, in the Year of the Hegira 401. of Christ 1010. being about ninety Years old. His Works which are extant are twelve Books, intituled *Elbavi*, or, as it is otherwise written, *Helcbavi*, *Elcbavi*, and *Elkavi*, which signifies *containing the Whole*, whence they are also called *Libri Continentes*; besides these, there are ten Books of his *ad Almanforem*, six Books of Aphorisms, and other Treatises. One *Ibn Chalicam*, in *Hottinger's Analecta*, relates; that he dedicated also to *Almanfor* a Book of Chymistry, and received of him a thousand Denarii as a Reward; but not being able to put his Schemes in Execution, or bring Matters into actual Operation, he was punished with Whipping and Banishment.

Arnaldus of Villanova, a Person of very good Judgment, says of *Rafis*, that he was a Man of clear Speculation, ready in Practice, cautious in giving Judgment, and of approved Experience.

Leo Afer relates the following Story of him: Passing one Day through a Street of *Corduba*, he saw a Croud of People; and inquiring the Reason, was told, that a Citizen, as he was taking the Air, suddenly dropt down dead. *Rafis* went to look upon the Man, and as soon as he view'd him, cry'd out hastily for a Parcel of Cudgels to be brought; which done, he immediately distributed them to the By-standers, reserving one to himself, and order'd them to strike and beat the dead Person in all Parts of his Body, but especially upon the Soles of his Feet, himself setting them an Example. The People thought he was mad; but, however, within a quarter of an Hour the Man began to move, and soon recover'd, amidst the Acclamations of the People, who cry'd out, A Miracle! a Miracle! *Rafis* then mounted his Mule, and made the best of his Way home. *Elmanfor* soon hearing of this strange Event, sent for *Rafis*, and complimenting him, said, "I knew you were an excellent Physician, but not that your Skill extended so far as to raise the Dead." *Rafis* answer'd, "I confess myself a Physician, but utterly unable to raise the Dead, because none but God can work such an Effect. But as to what I did this Day, I neither found it in any Book of Medicine, nor learn'd it of a Master; but once I happen'd to travel in Company from *Bagdad* to *Egypt*, and, as we went over the Deserts, some *Arabians*, Persons of Quality, joined us, one of whom, as we rode along, dropt off dead from his Horse. An old Man of their Company immediately alighted, and taking a Parcel of Sticks, distributed them to us, who exercised them in the same manner upon this reputed dead Person, as I and others did this Day on the dead Man in the Street, and with the same good Success. I did not know but this Man's Case might be the same as that of the *Arabian*; and my Care, under the Influence of your good Fortune, has been successful." *Elmanfor* was very well pleased, and could not forbear passing a Compliment upon him in these Words: "The Country which has you for an Inhabitant, may well and truly say, that she has *Galen* in the Midst of her." *Rafis* modestly answer'd, "Experience is of more Effect than the Physician."

Ezarbaragui was Physician to *Manfor*, a Counsellor of *Corduba*. He composed a very useful Work, like the Canon of *Avicenna*, on the Subject of Medicine, which is a Book in great Request among the Mahometan Physicians at this Day. He dy'd in the Year of the War of *Corduba*, aged an hundred and one, in the Year of the Hegira 404. Anno Domini 1013.

Ettabarani was a Native of *Tabarani*, a Province of *Chorasan*, and Physician to Sultan *Theckm*, King of *Ghazna*, a City of *Asia*, on the Borders of *India*. He composed a very celebrated Work in Medicine, intituled *Firdius Ulbecime*, that is, *the Paradise of Wisdom*, containing Medicinal Matters, with Descriptions of the Properties of Herbs, Animals, and Stones. He dy'd at *Ghazna*, Anno Hegiræ 474. Anno Domini 1081.

See the Article AVICENNA.

Mesuaeh, or *Mesue*, was a Christian, of the Sect of the *Jacobites*, born in the City of *Maridin*, on the River *Euphrates*. He learned Medicine and Philosophy in *Bagdad*, and was a constant Attendant on *Avicenna's* Lectures. He composed very useful Treatises on Potables, and another Work of the Composition of Medicines. He lived at *Cairo*, where he was in great Favour with the Caliph, and acquired very great Riches, as well as Reputation. He dy'd about the ninetieth Year of his Age, Anno Hegiræ 406. Christi 1015.

Tbograï was not only a Physician, but a Philosopher, Rhetorician, Alchymist, Poet, and Historian. He was born in the City of *Ispahan* in *Persia*, and being a very accomplish'd Person, was promoted to the Dignity of prime Minister to Prince *Maschud*, Brother to the Soldan of *Asia*, in which Post he acquir'd immense Riches. But his Master raising a Rebellion against his Brother, was taken and imprison'd; and *Tbograï*, being depriv'd of whatever he had acquir'd, was ty'd to a Tree, and shot to Death with Arrows, Anno Hegiræ 515. Christi 1121. Besides his historical and poetical Works, he left behind him a Book intituled *The Rape of Nature*, which treats of Alchemy.

Esseriph Effachali was descended from Mahomet, and born in the City of *Mazara* in *Sicily*. He was an excellent Philosopher, as well as Physician, and had not his Equal for Geography. He dy'd at *Ciudad* in *Andalusia*, Anno Hegiræ 516. Christi 1122. We have none of his Medicinal Works.

Ibnu Saigh was born at *Santa Maria* in *Andalusia*, his Ancestors were *Jews*. He was very well accomplish'd in Philosophy, as well as Medicinal Learning, and dy'd in the Year of the Hegira 550. of Christ 1155. at the Place of his Nativity, leaving nothing written in Medicine.

Ibnu Zobar, born in *Sicily*, was Physician to *Ibnu Habad*, the Rebel, and afterwards to his Son. Being involv'd in their Ruin, he had the good Fortune to be introduced into the Service of the King of *Morocco*. He never accepted a Fee from poor Men, or such as got their Living by their Hands, but never refused Presents from Kings or Princes. He bestowed many Gifts upon his Enemies, saying, that they hated him without a Cause, but only for Envy, and that he hoped to bring them to Repentance by his Beneficence. He dy'd in the ninety-second Year of his Age, Anno Hegiræ 564. Christi 1168. *Averroes* was one of his Auditors, and learned Medicine of him.

Ibnu Tbosail, of a noble Family, was born in the City of *Seville* in *Andalusia*. His Family was ruined in a Rebellion, which induced him to apply himself to Study, whereby he became an extraordinary Proficient in Philosophy and Medicine, and had *Averroes*, *Rabbi Moses the Egyptian*, and many others, for his Hearers. His Death happen'd Anno Hegiræ 571. Christi 1175. He is the same with *Abu Becr Ebn Tbophail*, the Author of an ingenious and well-written Piece, publish'd by Doctor *Pocock*, in *Arabic* and *Latin*, under the Title of *Philosophus arabicus*, and printed at *Oxford* 1671. and since several times reprinted, and translated into other Languages.

Ibnu Zobar, or *Zor*, the Son of the foremention'd *Ibnu Zobar*, learned the Art of Medicine of his Father, and came to be Physician to *Manfor* the Caliph, and King of *Morocco*. He dy'd aged seventy-four at *Morocco*, Anno Hegiræ 594. Christi 1197. He composed many Pieces of Medicine, particularly one about the Medicine of the Eyes.

Ibnu el Baitar was born at *Malaga* in *Andalusia*, and, besides his Accomplishments in Philosophy and Medicine, was an extraordinary Herborist; and, to perfect his Knowledge of Plants, travell'd over *Africa*, and almost all *Asia*; and returning from *India*, by the Way of *Cairo*, was received into the Service of *Saladin*, the first of the Soldans of *Egypt*, after whose Decease he returned to his own Country, and there composed an excellent Work

on the Virtues of Herbs, on Poisons, and Metals, and on Animals, in three Books, digested in alphabetical Order. He died at *Malaga*, *Anno Hegiræ* 594. *Christi* 1197.

See the Article *AVERROES*.

Abulbasan Ibnu Haidor was a Native of *Fez*, a Philosopher, Physician, and Astrologer, was Physician for many Years to the Kings of *Fez*, and died of the Pestilence, *Anno Hegiræ* 818. *Christi* 1415. He left a Piece intituled *The Cure of the Plague*.

Abu Babar Ibnu Cbalson, a Native of *Granada*, was a Philosopher, Physician, Astrologer, and an elegant Poet. He died in the Year of the *Hegira* 828. and of *Christ* 1424.

See *ALBUCASIS*.

See *AVENZOAR*.

An ACCOUNT of famous Physicians among the Jews, from J. Leo Afer.

Isaac, the Son of *Erram*, a Physician and Philosopher, was born in *Damascus*, studied at *Bagdad*, and was Physician to *Zaide*, Viceroy of *Africa*, who had another Physician, a Christian. The Viceroy happening to fall sick, whatever Medicine *Isaac* prescribed was condemn'd and rejected by the Christian; for which Reason *Isaac* forbore to attend his Master, and, being asked the Reason, said, "That the Disagreement of two Physicians over one Patient, was worse than a tertian Fever." He died *Anno Hegiræ* 183. *Christ* 799. He composed a Book on the Cure of Poisons.

Emram, the Son of *Isaac*, a Native of *Toledo* in *Spain*; was a Physician, Philosopher, and Astrologer. In his Time the King of *Spain* took the City of *Toledo*, where wanting a Secretary for the *Arabic*, *Emram* offer'd his Service, and was accepted. He was afterwards sent by the King to the Moorish Governor of *Seville*, to demand some Tribute; but speaking some Words, by which the Governor thought himself highly injured, he was order'd to be kill'd, *Anno Hegiræ* 387. *Christi* 997.

Haron, the Son of *Senton*, was of a very noble Jewish Family in *Fez*, and a Physician, Philosopher, and Astrologer. When he was a Youth, he enter'd himself into the Service of King *Habdalla*, who had a prime Minister of such Presumption as to take upon him to govern both King and Kingdom. *Haron* advised the Killing of him, and, after his Death, was taken into his Place: But the People of *Fez* having, on many Occasions, shewn a malecontent Spirit, the King appointed *Haron* for their Governor, which Post he enjoy'd seven Years. The King afterwards removing his Camp at an hundred Miles Distance, the Inhabitants of *Fez* made an Insurrection, and kill'd all the Jews; News of which being brought to the Camp, the Army rose against the King, and kill'd *Haron*, *Anno Hegiræ* 872. *Christi* 1467.

The greatest Revolution which ever happen'd in Physic, either with respect to Theory or Practice, was occasion'd by the Introduction of Chymistry into the Art. I shall not, in this Place, enter into Disputes concerning its Antiquity, as it is foreign to my present Purpose. I shall only observe, that the first Man who made any Metal, was the first Chymist; and this, History informs us, was *Tubal-Cain*, who is generally allow'd to be the same as the *Vulcan* of the Antients, who taught Mankind the Uses of Fire. The first Inhabitants of *Egypt*, in all Probability, brought the Art of making Metals with them from the East; and from this great Source of Learning it was convey'd to other Nations.

Whatever Experiments the Curiosity of the Antients may have led them into, with respect to the Transmutation of the baser Metals into Gold, we meet with no mention of Alchemy, either in this Sense or any other, till about the Middle of the Fourth Century, when *Julius Maternus Firmicus*, an Author of that Age, speaks of it as a thing well known. After him *Aeneas Gazeus*, who wrote at the Close of the Fifth Century, talks of it as no new Discovery. And in the Seventh Century *Georgius Syncellus* wrote professedly on the Subject, and was follow'd by a Multitude of Greek, Arabic, and Latin Authors.

Boerhaave thinks, very judiciously, that after the *Arabs* had begun to cultivate the Art of Chymistry, (including Metallurgy and Alchemy) the Metaphorical and Hieroglyphical Manner of Writing, which obtained among them, gave Rise to a Practice of calling the Means or Helps, made use of for bringing Metals to Perfection, by the Names of Medicines; the imperfect Metals, by the Name of sick Men; and Gold, by that of a sound, lively, healthy, durable Man: From whence the Ignorant at length fell into the Error of supposing, that these were to be understood in a literal Sense; especially upon finding the Impurities of the baser Metals call'd by the Name of a Leprosy, the most incurable of all Diseases. Hence first rose an Opinion, which has since been propagated far and wide, that the imperfect Metals might be transmuted into Gold, and the Bodies of sick Persons into sound ones, by one and the same chymical Preparation, to which they gave the Name of the *Philosophers Stone*, or the *Gift Azoth*, and call'd its Possessors *Adepts*. The Opinion seem'd confirmed, from a few simple Experiments of extracting medicinal Virtues from Drugs by Chymistry, which *Rhazes* gave the first Instances of; but which, in the Eleventh Century, *Avicenna* further illustrated, in a Description of the *Arabian Julab*, or distil'd Rose-water, and *Mesue* afterwards confirm'd more at large.

Hitherto we find Chymistry cultivated only amongst the *Arabians*; but in the Beginning of the Thirteenth Century, some successful Attempts were made by *Albertus Magnus*, a German, of *Swabia*, and *Roger Bacon*, an Englishman, born near *Ilchester* in *Somersetshire*, and commonly known by the Name of *Frier Bacon*, to introduce it into *Europe*. But, in the latter End of the Thirteenth Century, *Arnaldus de Villa Nova*, a Frenchman, contributed much more to the Introduction of Chymistry into Physic. He mentions Spirit of Wine, and Oil of Turpentine, with several other chymical Medicines, and specifies their Uses. He knew that his Spirit of Wine was capable of being impregnated with the Taste and Smell of any vegetable Substance; and this Knowledge was the Foundation of all compound Waters, which at present make so large a Part of the Shop Compositions, and which perhaps are generally of more Service to the Retailers of Medicines than to the Sick.

Raymond Lully, born at *Barcelona*, or, according to others, at *Majorca* or *Minorca*, in 1315. must consequently have been contemporary with *Arnaldus de Villa Nova*. This Author is one of the first who mentions an universal Remedy, that is, one calculated for the Cure of all Distempers.

The other Chymists who lived before *Paracelsus*, and were instrumental in making Chymistry subservient to medicinal Purposes, were *Johannes de Rupefissa*, *Isaac Hollandus*, *John Isaac Hollandus*, and *Basil Valentine*. It is not easy to fix the Time in which the last lived: I have, by Mistake, under the Article *ANTIMONIUM*, said, that he published his Treatise of Antimony about the Twelfth Century. *Helmont* endeavours to prove him elder than *Paracelsus* by a hundred Years: Some will have it, that he was born in 1394. and others say, that he flourish'd about 1415. He was a *Benedictine* Monk, and remarkable for first starting the Notion of the chymical Principles, Salt, Sulphur, and Mercury. The *Sal Volatile Oleosum*, which *Sylvius de la Boe* had in so great Esteem;

Esteem, and which he had the Credit of inventing, as well as many other Secrets boasted of as more modern Discoveries, was originally described by *Basil Valentine*. It was this Author who first used Antimony internally, and enrich'd Medicine with many Preparations of this Mineral. It is said, that having thrown away some Antimony, which he had used in the Fusion of Metals, he observed some Swine, who had accidentally eaten it, to purge considerably; and that, very soon after this, they became sleek and fat. This gave him the Hint of trying what it would do in human Bodies; with this View he made a Multitude of Experiments with it, as appears by his Treatise, intitled *Carrus Triumphalis Antimonii*, and determin'd its Efficacy. After him *Paracelsus*, *Mattbiolus*, *Angelus Sala*, *Jacobus Launeus*, and many other learned Men, pleaded the Cause of Antimony, and held it in great Esteem. There were, however, others who look'd upon the internal Use of Antimony as most pernicious, amongst whom was *Jacobus Grevinus*, who in 1566. publish'd a Treatise, in which he represents Antimony as a most dangerous Poison, and advises the Magistrates to prohibit the Sale of it, as they had done that of Quicksilver and Orpiment. His Council was taken, and the medicinal Use of Antimony was forbid the same Year, by a Decree of the Faculty of Physic at *Paris*, which was confirmed by one of the Parliament; and in 1609, *Paulmier*, a Physician of *Paris*, was expel'd the Faculty for using it in his Practice. In the Year 1637. the same Faculty allow'd its Use as a Cathartic; and in 1666. the free Use of it was permitted by the Parliament of *Paris*, in consequence of an Opinion of the Faculty of Physic given in its Favour.

Before I proceed to the History of *Paracelsus*, and the Innovations he made in Physic, it will be necessary to give some Account of a Distemper which appear'd in *Europe*, for the first time, a little before his Birth; and of another which was introduced, or at least began to be common, a Year or two after he was born. I mean the Sweating Sicknes, and the Venereal Disease. Dr. *Freind* says, "That the Sweating Sicknes was originally a Native of our Island; and, upon this Account, it is the less strange, that it should be the most accurately described by one of our own Countrymen, the great and learned *Caius*. It began at first in 1483. in *Henry* the Seventh's Army, upon his landing at *Milfordhaven*, and spread itself in *London*, from the 21st of September to the End of October. It return'd here five times, and always in Summer, first in 1485. then in 1506. afterwards in 1517. when it was so violent, that it kill'd in the Space of three Hours; so that many of the Nobility died; and of the vulgar Sort, in several Towns, half often perish'd. It appeared the fourth time in 1528. and proved mortal then in the Space of six Hours: Many of the Courtiers died of it, and *Henry* the Eighth himself was in Danger. In 1529. and only then, it infested the *Netherlands*, and *Germany*, in which last Country it did much Mischief, and destroy'd many; and particularly was the Occasion of interrupting a Conference at *Marpurgh*, between *Luther* and *Zuinglius*, about the Eucharist. The last Return of it with us was in 1551. In *Westminster* it carried off 120 in a Day; and the two Sons of *Charles Brandon*, both Dukes of *Suffolk*, died of it. At *Sbrevsbury* particularly, where our Author *Caius* resided, it broke out in a very furious Manner. The Description he gives of it is terrible, like the Plague of *Athens*." See SUDOR ANGLICUS.

With respect to the Venereal Disease, I shall not enter into a long Detail of the Arguments for and against its Antiquity. Upon the Whole, it seems to be certain, that, long before this *Æra*, Physicians had observed most or all of the Symptoms peculiar to the Venereal Disease; but these were rare Cases, and do not appear to have occur'd often. Upon its Importation however from *Hispaniola*, where it was endemial, into *Europe*, it made so rapid a Progress, and spread so universally, that, in a very few Years, it became the most profitable Distemper the Practitioners of Physic were ever acquainted with.

The first Instances we have upon Record of Poxes imported from *America*, were in one *Boyl*, a *Spanish Benedictine* Monk, who certainly had satisfied his Curiosity, of which his Order is reported to have a great deal in this way, with a Female of the new World; and in *Peter Margarit*, a noble *Catalonian*. This happened in 1494; but as *Columbus* had, the Year before, returned with several Mariners and Soldiers from *Hispaniola*, it is highly probable, that some of these might be infected, and that they served in the *Spanish* Troops which soon after defended *Naples* against the *French*. These *Spanish* Soldiers are said to have communicated the Infection to the *Neapolitan* Women, and these to the *French* Soldiers; who, at their Return, brought it into their own Country, whence it was spread over all the known World; which is the less extraordinary, as this Accident happened to an Army, and that of a Nation always remarkable for Gallantry, two Circumstances very favourable to its speedy Propagation.

This Disease is not more remarkable itself in the History of Physic, than for giving Occasion to the Introduction of many Remedies into Medicine, either unknown before, or differently applied. Amongst these are *Guaiacum*, which began to be used about 1517; *China Root*, which was first known in *Europe* about 1535; and *Sarsaparilla*; but the most celebrated of all was *Mercury*, an *Herculean* Remedy, and one which has laid the Foundation of great Improvements in the Art of Healing. This was applied externally for the Cure of the Venereal Disease, soon after it appear'd in *Europe*, that is, before 1498. The Hint was probably taken from the *Arabs*, and some of their Transcribers, who directed its Use in Unguents to kill Lice, and in cutaneous Foulnesses, long before the Appearance of the Venereal Disease; and as this Distemper was attended with Defecations of the Skin, the Probability of its being serviceable in this Distemper was very obvious. I have said, under the Article *Anatomy*, that *Jacobus Berengarius Carpensis* was the first who made use of mercurial Ointments in the Cure of the Venereal Disease: *Astruc*, however, will not allow this, but says, that he and *Johannes de Vigo*, his Contemporary, were great Promoters of its Use, and contributed much to establish its Reputation, by using it rationally, and with great Success. These two Authors flourished in the very Beginning of the Sixteenth Century; and the latter was the first who is known to have administer'd any mercurial Preparation internally. What he recommends is the *Mercurius Precipitatus ruber*, and that in a considerable Dose, in the Plague and Colic. 'Tis highly probable, that this, and all other chymical Preparations of *Mercury*, were originally made by the Alchemists, with a View of fixing this Substance, and converting it into Gold; and that, upon failing of the End proposed, they were encouraged to try what it would do internally, by the Success they had observed of its external Application.

I shall now proceed to give an Account of *Paracelsus*, and the great Innovations he made in Physic, after having observed, that he found Physic in a very deplorable State.

If subtle Disputations would have cured Distempers, if Phrases without Meaning, and Argumentation without Instruction, could have reliev'd the Sick, the *Galenical* Doctrine, and *Arabian* Practice, then only in vogue, would have rendered all farther Improvements impossible. But it happened, very fortunately for *Paracelsus*, that Physic was, at the Time he appeared, reduced by the Schools to Chicanery, reasoned almost out of the World, or, at least, disputed into an infinitely worse State than that in which *Hippocrates* left it. 'Tis not, therefore, surprising that *Paracelsus* should be able to make the Figure he did in the World, furnished as he was with many singular Advantages over the Generality of his Contemporaries.

Aureolus Philippus Paracelsus Theophrastus Bombast de Hohenheim was the Son of *Wilhelmus Hohenheim*, a learned Man, and Licentiate in Physic, tho' a slender Practitioner, but possessed of a noble Library, being himself the natural Son of a Master of the Teutonic Order. He was born in the Year 1493. at a Village in Switzerland called *Einsidlen*, which signifies a Village or Desert, about two German Miles from *Zurich*, where he got the Appellation of *Eremita* or *Hermit*, which *Erasmus* gives him in a Letter.

At three Years of Age he is said to have been mutilated, and made an Eunuch, by a Sow. Accordingly we always find him a bitter Enemy to the Women; and he is, perhaps, the only great Man upon Record without a Passion for their Sex; tho' his Picture, as taken from the Life, represents him with a Beard. He was instructed by his Father in Physic and Surgery, wherein he made great Proficiency; but, as he grew up, he was captivated with the Study of Alchemy, which occasioned his Father to commit him to the Care of *Tribemius*, Abbot of *Spanheim*, a Man of great Renown in those Days, from whom having learned many Secrets, he removed to *Sigismund Fuggerus* of *Schwatz*, a famous German Chymist, who, at that Time, partly by his own Industry, and partly by a Multitude of Servants and Operators, retained for the Purpose, made daily Improvements in the Art. And here, he assures us, he learned spagiric Operations effectually; after which he applied himself to all the most eminent Masters in the Alchemical Philosophy, who concealed nothing from him, and from whom, as he himself relates, he learned his Secrets.

But not resting here, he took a Journey to all the Universities of *Germany*, *Italy*, *France*, and *Spain*, in order to learn Physic: after which he visited *Prussia*, *Lithuania*, *Poland*, *Walachia*, *Transylvania*, *Croatia*, *Portugal*, *Illyria*, and the other Countries of *Europe*, where he applied himself indifferently to Physicians, Barbers, old Women, Conjurers, and Chymists, both good and bad; from all which he gladly picked up any thing that might be useful; and thus enlarged his Stock of sure and approved Remedies. He also learned from *Basil Valentine's* Writings the Doctrine of the three Elements, which, concealing its Author's Name, he adopted as his own, and published under the Appellation of Salt, Sulphur, and Mercury.

In the twentieth Year of his Age, making a Visit to the Mines in *Germany*, he travelled into *Russia*, where being taken Prisoner, on the Frontiers, by the *Tartars*, he was carried before the Cham, and afterwards sent, with that Prince's Son, on an Embassy to *Constantinople*; where, in his twenty-eighth Year, he tells us, he was let into the Secret of the Philosophers Stone. He was also frequently retained as Surgeon and Physician in Armies, Battles, and Sieges.

He set a high Value on *Hippocrates*, and the antient Physicians; but despised the Scholastic Doctors, and, above all, the *Arabs*. He made great Use of Remedies prepared of Mercury and Opium, wherewith he cured the Leprosy, Venereal Disease, Itch, slight Dropsies, and other Infirmities, which, to the Physicians of those Times, (who were ignorant of Mercury, and afraid of Opium, as cold in the fourth Degree) were utterly incurable.

By these Cures he grew daily more celebrated and daring; especially after recovering the famous Printer *Probenius* of *Basil*, whose Case appears to have been a violent Pain in his Heel, which, upon *Paracelsus's* Treatment, removed into his Toes, so that the Patient could never stir them afterwards, tho' he felt no Pain, and in other respects grew well; but soon after died of an Apoplexy. By this means he became acquainted with the great *Erasmus*, and was well esteemed by the Magistracy of *Basil*, who, giving him a plentiful Salary, made him Professor in the Year 1527. where he continued to teach philosophical Physic two Hours every Day; sometimes in *Latin*, but more frequently in *High Dutch*. Here he read Lectures to explain his own Books *De Compositionibus*, *De Gradibus*, and *De Tartaro*; which, according to *Helmont*, abounded in idle Drollery, and contained little solid Sense. Here, in a solemn manner, seated in the Chair, he burned the Writings of *Galen* and *Avicenna*; declaring to his Audience, that he would even consult the Devil, if God would not assist him, which is conformable to his express Declaration, in several Places of his Works, that no one need scruple consulting the Devil, to get Secrets of Physic from him.

Here he procured many Disciples, with whom he lived in great Intimacy: Three of these he maintained in Diet and Cloaths, and instructed in several Secrets; tho' they afterwards ungratefully deserted their Master, and even wrote scandalous Things of him, administering, with great Indiscretion, the Medicines he had taught them, to the great Disadvantage of those who employed them. He also retained Surgeons and Barbers in his Family, to whom he communicated useful Secrets; but all of them soon after left him, and turned his Enemies. His only faithful Disciples were *Dr. Peter*, *Dr. Cornelius*, *Dr. Andrew*, *Dr. Ursinus*, the Licentiate *Pangratius*, and Master *Raphael*, whom he speaks of with Commendation.

During his two Years Residence here, he cured a noble Canon of *Liechtenfels*, who had been given over by the Physicians, of a violent Pain at the Stomach, with only three Pills of his Laudanum. The sick Canon had promised him 100 French Crowns for the Cure; but finding it so easily effected, he refused to pay, alledging, with a Jest, that *Paracelsus* had given him but three Mice-turds. Upon this *Paracelsus* cited him before a Court of Justice, where the Judge, not considering so much the Excellency of the Art, as the Quantity of Labour and Cost, decreed him a trifling Gratification; with which *Paracelsus* was so exasperated, that, loading them with Reproaches of Ignorance and Injustice, he rendered himself in some measure guilty of Treason; and thus thought best to quit the Court, and make haste home: From whence, by the Advice of his Friends, he privately withdrew out of the City, leaving his whole Chymical Apparatus to *Joannes Oporinus*. After this he continued rambling two Years thro' the neighbouring Parts of *Alsatia*, accompanied by *Oporinus*, and, in the Course of a dissolute Life, wrought many extraordinary Cures, as we find related by *Zwinger*, who lived at the same time at *Basil*; and often heard the Account from *Oporinus* himself.

This *Oporinus*, who had been for some time his Servant and Amanuensis, was a Person of much Learning, well skill'd in the *Greek* and *Latin* Tongues, who, possessed with the vain Expectation of attaining *Paracelsus's* Secrets, left his own Family, and travelled about with him for two whole Years, without learning any one Thing, till, wearied out, he grew wise, and, quitting *Paracelsus*, he returned to *Basil*.

It happened, one Evening, that *Paracelsus* was called upon to visit a Countryman dangerously ill, near *Colmar* in *Alsatia*; but, being set in for a Drinking-bout with ordinary Company, he deferred visiting the Patient till next Morning; when, entering the House with a furious Look, he ask'd, If the sick Person had taken any Physic? as intending to administer some of his Laudanum. The By-standers answer'd, He had taken nothing but the Sacrament, as being at the Point of Death: At which *Paracelsus*, in a Rage, replied, If he has had recourse to another Physician, he has no Occasion for me; and ran immediately out of Doors. *Oporinus*, struck with this Piece of Impiety, bid *Paracelsus* the last Adieu; fearing the Barbarity of his otherwise loved Master should some time fall on his own Head.

From this Time *Paracelsus*, having forgot his *Latin*, continued wandering from Place to Place, always intoxicated, never changing his Cloaths, nor so much as going into a Bed, till the Month of September 1541. when, being

being taken ill at a public Inn at *Salzburg*, he died, after a few Days Sickness, in the 47th Year of his Age; tho' he had promised himself, by the Use of his Elixir, that he should live to an Age equal to that of *Methusalem*.

Thus far *Boerhaave*, in his Chymistry. Dr. *Shaw*, in his Notes to this Passage, proceeds to make the following Remarks.

No Wonder *Paracelsus*, in his Time, was esteem'd an excellent Physician and Surgeon; for Medicine was then in a low Condition: The Practice, and the very Language, was all *Galenical* and *Arabian*. Nothing was inculcated but *Aristotle*, *Galen*, and the *Arabs*: *Hippocrates* was not read; there was even no Edition of his Writings, and scarce was he ever mention'd. Their Theory consisted in the Knowledge of the four Degrees, and the Temperaments, and their whole Practice was confined to Bleeding, Purging, Vomiting, and Clysters.

What contributed still more to his Reputation, was his becoming acquainted with the Excellency of Mercury in the Venereal Disease, which had then newly broke out, and spread itself over *Europe*: And probably he had the Hint of this from *Jacobus Carpus*, a celebrated Anatomist and Surgeon at *Boulogne*, who alone had been Master of the Cure, which was effected by means of Mercury, applied so as to raise a Salivation.

'Tis probable, that the Bulk of the Pieces published under this Author's Name are not his; but that his Followers chose to usher in their Performances under that Cover. In Effect, they are so many, and so different from each other, that it is next to impossible they should all come from the same Hand: And yet, besides the three Books which he lectured upon in Public, there are some others which should seem to be genuine; such is that *de Peste*, of the Plague; that *de Mineralibus*, of Minerals; that *de Vita longa*, of long Life; and the *Archidoxa Medicinæ*, which was published by *Bodensijn*, while *Paracelsus* was living, or at least soon after his Death.

This Work is call'd *Archidoxa Medicinæ*, as containing the principal Rules and Maxims of the Art. Nine Books thereof were published at first; and the Author, in the Prolegomena to them, speaks thus:

"I intended to have publish'd my ten Books of *Archidoxa*; but finding Mankind unworthy of such a Treasure as the Tenth, I keep it close in my Occiput; and resolve never to bring it thence, till you have all abjured *Aristotle*, *Avicenna*, and *Galen*, and have sworn Allegiance to *Paracelsus* alone."

However, the Book did at length get abroad, tho' by what means is not known: It is confessedly an extraordinary Piece, and may be ranked amongst the principal Productions that have ever appear'd in Chymistry. Whether or no it be *Paracelsus's*, we will not affirm; but there is one Thing speaks in its Behalf, which is, its containing many Things which have been since cried up for great Nostrums; and *Van Helmont's* Lithontriptic and Alcabest are apparently taken hence. The following Passage of *Helmont* has occasion'd much Speculation: "To distil the volatile Spirit of Sea-salt, in order to dissolve the Stone in the Bladder, digest Sea-salt for a Month with Juice of Horse-radish, and then distil the Whole: What rises is the Spirit of the Salt, of singular Efficacy in dissolving the Stone, either in the Bladder or Kidneys." How *Helmont* came to know, that Sea-salt would ferment with Radish-juice, is surprising; there being no Hint of the Thing in any of his other Writings: But our Wonder will cease upon reading the Process in express Terms, in the tenth Book of the *Archidoxa*. And the whole Book of the *Alcabest* is apparently taken from the same.

Amongst the genuine Writings of *Paracelsus* are likewise reckon'd that *de Ortu Rerum naturalium*, *de Transformatione Rerum naturalium*, and *de Vita Rerum-naturalium*. The rest are spurious, or very dubious at best, particularly his Theological Works.

With respect to his Merits, as to Medicine and Alchemy, it must be own'd, that an arrogant assuming Air infected all his Writings, as well as his Actions: It was common with him to promise mighty Things, with complete Assurance, upon slender and unequal Grounds. A strong Instance of his Weakness in this Kind is his undertaking, by the mere Use of his Elixir, to prolong a Man's Life to the Age of *Methusalem*; and deliberating with himself to what Period he should protract his own. This argues his trusting to Imagination more than Experience; for, as he died a young Man himself, it is certain, he could not have Experiments sufficient to warrant any such thing; nor did he speak of his own Knowledge, as a Physician ought to do, but purely out of Caprice.

We know not how it is, but the Body of Chymists, both of his own and our Times, have complimented *Paracelsus* with the Knowledge of the universal Remedy, and he himself is at the Head of the Opinion: He swears by his own Soul, and calls every God in Heaven to witness, that with one single Remedy, prepared from Metals, he was able to cure all Diseases, be they what they would. But *Helmont*, who knew as much of *Paracelsus* as any Man, does not believe a Word of it; and, tho' he is always commending him, warns us not to trust him; adding, that his Writings are full of Babble. His own History affords no great Proofs of the Thing, nor have we any competent Testimonies of other Writers. But what effectually overthrows his Pretensions to such a Remedy, is his own dying at an immature Age.

His real Merit consisted, (1.) In being well skill'd in Surgery, and practising it with great Success. (2.) In understanding the common Practice of Physic, as well as his Contemporaries. (3.) In being alone Master of the Powers, Preparations, and Uses of Metals. (4.) In having the Use of Opium to himself, and working wonderful Cures thereby. And (5.) in being well acquainted with the Virtues of Mercury, in an Age when perhaps only he and *Carpus* knew any thing of the Matter.

As to his being possess'd of the Philosophers Stone, there are no sufficient Proofs of it, and many strong ones to the contrary.

Left I should be thought to have contradicted myself with respect to Opium, which I before said was introduced into Practice by the Empirics, I must remark, that the *Galenical* Physicians had utterly rejected its Use before the Time of *Paracelsus*, on a Supposition of its being too cold to be used with Safety.

As to the System of *Paracelsus*, the first of his Principles relates to the Attention the Physician ought to pay to the Analogy he supposes between the great World, and the little World, or the Body of Man. He did not confine himself to the Comparisons which had been, and still are, made between these two, but attempted to discover in this Analogy things infinitely more mysterious. In Man, for Instance, he discovers the Motions of the Stars, the Nature of the Earth, the Water, and the Air, all Vegetables and Minerals, all the Constellations, and the four Winds. He asserts in another Passage, that the Physician ought readily to know what in Man is ignorant of these things, continues our Author, he is good for nothing. From the same Author also, and his Followers, springs the Opinion of a pretended and imaginary Agreement between the principal Parts of Man's Body with the Planets, as of the Heart with the Sun, of the Brain with the Moon, of the Spleen with Saturn, of the Lungs with Mercury, of the Kidneys and Testicles with Venus, of the Liver with Jupiter, and the Gall with Mars; as there are also seven Metals or Minerals, which agree with these seven Planets. In another Passage

sage *Paracelsus* assures us, that in our Limbus, that is, the human Body, are the Heavens, the Earth, and the Properties of all Animals; and he elsewhere asserts, that a true Physician must be able to say, *This is a Sapphire in the Body of Man, this Mercury, this a Cypress, and this a Wall-flower.* He also establish'd an Analogy or Relation between Diseases and Plants: Hence he speaks of a Disease which he calls *Morbus Acorinus*, the Disease of *Acorus*. To this he adds some others which derive their Names from other Plants, or Parts of Plants; from the Anthera, for Instance, from the Pulegium, from the Melissa, from the Sabina, from the Terebinthina, from the Siler Montanum, and from the Helleborus.

With respect to the first Matter, he thought that all created Things sprung from one single Principle, or one single Matter. This Matter he calls the Grand Mystery. This, says he, is not any thing perceptible, any thing sensible, any thing that appears under a particular Form, or which has any Property or Colour, or which partakes of an elementary Nature. The Sphere of this Grand Mystery is extended as wide as the Region of the Heavens. This same Mystery is the Mother of all the Elements, and the Grandmother of all the Stars, and all Creatures; for all created Objects are born of the Grand Mystery, just as a Child is of its Mother. In a Word, from this Grand Mystery, Substance, Matter, Form, and Essence, have deriv'd their Origins, not successively, but by a single Creation.

From this first Matter, according to *Paracelsus*, and his Followers, sprung, among other things, the Seeds of Animals, Vegetables, and Minerals; and all these Seeds have from the Beginning lay concealed in the Bosom of this same Matter, as it were in Darkness, or in what he calls the Abyss, from which they were drawn by Generation.

According to this Idea, the Followers of *Paracelsus* believe, that what is commonly called Generation, consists only in the Exit or Passage of each Seed, or of each of the Individuals they contain, from Darkness to Light: So that, invisible as they were, tho' they always existed, they at last become visible. Upon this Footing, what is born To-day is not properly new, tho' it appear to be so; since it had a previous Existence in the Abyss from which it springs. In like manner a Thing which apparently corrupts, does not for that Reason perish, or cease to be, but only returns to the original Source from which it was drawn, after having perform'd the Functions for which it was destin'd. The Followers of *Paracelsus* found this Sentiment upon a Passage of *Hippocrates*, where that antient Physician says, *That nothing in Nature perishes, as also that nothing new is produc'd*, that is, nothing is brought into Being which did not exist before; but these Seeds cannot spontaneously leave the Places where they originally existed, and would not unfold themselves as they ought, if they were not assisted by a celestial Power or Virtue included in them, and which *Paracelsus* calls *Archeus*, that is, as his Commentators explain the Word, an Architect Spirit. This *Archeus* separates the various Elements, and all the Things they contain, placing each Object in its proper Place; and as for the Bodies of Animals, it in them separates what is pure from what is impure, just as Fire or Antimony purifies Gold. It happens indeed, that it operates imperfectly; and it is for this Reason, that Men are now-and-then afflicted with some Diseases; but, for our Comfort, these Diseases are not mortal like others. *Paracelsus* does not own for true Elements the four generally agreed upon and received as such in the Schools, that is, Fire, Air, Water, and Earth. He says, That these are lifeless Bodies, which only possess inefficacious and impotent Qualities, which can produce nothing, and are merely passive. He ascribes a much greater Energy to three Principles, which, he says, are found in all natural Bodies, and even in the Elements, and in each of them in particular. These Principles are Salt, Sulphur, and Mercury.

In order to explain, in some measure, what these three Principles are, he says we need only look on Wood when burning. That which burns is Sulphur, that which rises in Smoke is Mercury, and that which is reduc'd to Ashes is Salt. We find something of these three Principles in the Works of *Isaacus Hollandus*, and *Basil Valentine*; so that *Paracelsus* does not seem to have been the Inventor of this Notion. We shall not here attempt to explain the Difference which he and his Followers make between the visible and invisible Elements, since they themselves do not seem to understand each other with respect to that Point. Besides the ordinary Elements and Principles, *Paracelsus* thought there was in all natural Bodies something of a celestial Nature, which he calls *Quintessence*, and which he describes thus. "The Quintessence, says he, is a Substance which is corporeally drawn from all Bodies which increase, and from every thing that has Life, and this Substance is disengag'd from all Impurity and Mortality; it is of the highest Subtlety, and separated from all the Elements." He adds a little afterwards, that "this Quintessence is not of a different Nature from the Elements, because it is itself an Element." Upon the same Subject he afterwards says something in which he appears to contradict himself, or which is at least very hard to be understood. He also calls this Quintessence by the several Names of the Philosophical Tincture, or Philosophers Stone, the Flower, the Sun, Heaven, and ethereal Spirit. "This Medicine, says he, in *Lib. de Tinctura Physicorum*, is an invisible Fire, which devours all Diseases. "I myself have, with this Remedy, cur'd the Small-pox, the Leprosy, the Dropsy, the Colic, the Apoplexy, malignant Ulcers, the Cancer, Fistulas, Scirrhuses, and all internal Disorders." He brings a very singular Example, to shew the marvellous Virtues of this Medicine. "Some, says he, having made this Tincture, and not knowing how to use it, neglected it; upon which it happen'd, that some Poultry, finding it in their Way, eat it, or drank it; and their Feathers being before cast, they were forthwith renew'd, a Circumstance which convinc'd the People, that this Phenomenon was the Effect of the Medicine." One would think, that if *Paracelsus* had been Master of this universal Remedy, he had no Occasion to seek for others. *Severinus*, one of his principal Followers, says, it were to be wish'd, that such a Thing could be found; but confesses, that very few have had that Advantage. Perhaps his Master would not be much wrong'd, if we affirm'd of him, that he knew little more of this Matter than others. However, his Disciples have not adher'd to this universal Remedy, but acknowledge the Use of particular Medicines, of which they have proposed a large Number. They affirm, that as each Species of Disorder derives its Origin from a particular Seed, so there is a secret Remedy appropriated to each of them; and they talk of this Remedy, as if it had Intelligence, knew what it did, or was even more skilful than the Physician who prescrib'd it. When *Paracelsus* was ask'd, Why his universal and particular Remedies, which were both infallible, did not produce their design'd Effect, and prevent Death? He answer'd, That there was a Necessity for submitting to Destiny, which was irresistible. It was undoubtedly for this Reason that this Chymist was not able with all his fine Secrets, which he calls *Magnalia Dei*, to find the means of curing himself of the Gout, and some other terrible Disorders, which cut him off in the forty-seventh or forty-eighth Year of his Age.

When in some other Passages *Paracelsus* speaks of the Seeds of Diseases, he establishes two principal Kinds of them: The one he calls *Iliastrum*, and the other *Cogastrum*. The former draws its Origin from a Substance which exists from the Beginning, as Apples, Pears, Nuts, and other Fruits, which all spring from the particu-

lar Seeds destin'd to produce them. The Diseases depending on the first Kind are the Dropsy, the Gout, and the Jaundice. The second Kind proceeds from a Corruption of something, and the Plague, the Pleurisy and Fevers, are the Consequences of this Corruption. *Paracelsus*, and his Followers also, talk of the *Iliastum* and *Cagastum*, with respect to the equivocal Generation of Rats, which they believe to be sometimes generated by Corruption, and sometimes by the Seed of their Parents. The former of these is called a Generation *ex Cagastro*, and the latter a Generation *ex Iliastro*.

In other Passages he considers the Causes of Diseases under other Relations. These Causes he calls *Entia*, or Beings, and establishes five Kinds of them. The first of these Beings is *Ens Dei*, or God himself, who inflicts Diseases upon Mankind, as he himself pleases. The second he calls *Ens Astrale*; because he believ'd, that several Diseases proceeded as well from the Stars in Heaven, as from those in Man. The third, which he calls *Ens naturale*, relates to those Diseases which proceed from some Defect of Nature. The fourth of these Beings is *Ens spirituale*, or *Pagocum*, to which *Paracelsus* refers those Diseases which are the Effects of our own Imaginations, or those of others acting upon us; and under this Kind are comprehended the Diseases, which proceed from Witchcraft or Inchantment. The fifth and last Being is called *Ens veneni*, and comprehends all Poisons, whether natural or artificial.

Paracelsus will, farther, have all Diseases to proceed from what he calls *Iliadus*, which is, when any Separation or Corruption happens in the Body. *Petrus Severinus*, one of the most celebrated of the Followers of *Paracelsus*, affirms, that what *Hippocrates* call'd *Orcus*, and what others mean by *Nox Orphei*, and *Abyssus*, are the same with the *Iliadus* of *Paracelsus*.

Our Author, at last, passing from the general to the particular Causes of Diseases, affirms, "That the human Body is nothing but Sulphur, Mercury, and Salt; and that in these three Things, which he calls the three first Substances, Health and Diseases consist. 'Tis, continues he, in these three Things alone that we must look for the Causes of Diseases, and not in the Humours, or their Qualities, about which the Physicians make so great a Noise." A little after he adds, "That all Diseases depend upon these three Things, and not upon the four Elements." He also affirms, that we must not have a Regard to Constitutions, and to the four Humours, as those have done, who have spread so much Obscurity over Medicine. A Disorder, adds he, is either hot or cold; but this Heat or Cold are not the Causes, but only the Signs, of the Disease. When a Man has his Forehead hot, his Head and his whole Body inflamed, his Urine red, and his Pulse frequent, these are only the Signs of his Disease; but its Causes must be sought for elsewhere. In a Colic, for Instance, proceeding from Constipation, the Patient is afflicted with violent Belly-achs, a great Burning, accompanied with Thirst, Vomitings, and sometimes a Palsy; but when the Constipation is removed, all the Accidents or Symptoms forthwith cease. Thus again, in a Case of the Stone in the Bladder, the Symptoms accompanying that Disorder cannot be remov'd, without removing the Stone. We must not, in this Case, use either hot or cold Medicines; neither must we talk of Humours and Constitutions; the Knife alone can remove the Cause, the Knife is the only Arcanum or Secret for the Stone.

Paracelsus enlarges upon the Nature of those Diseases which are produc'd by the three Substances already mention'd, and considers the Manner in which they happen. On this Occasion he observes, first, with respect to Mercury, that the Kind which is in the Bodies of Animals, and which has a great Affinity with common Mercury, or Quick-silver, by its Volatility produces Madness, Mortifications of the Ligaments, and Tremblings; and that if to this Volatility a certain Degree of Acrimony is join'd, or if the Mercury is too much spiritualiz'd, then Madness, Phrensy, and Delirium, are produc'd.

He adds, That these Disorders are produc'd by the Spirit of the Mercury, which, when rising, and seeking for an Exit, wounds the Brain, and particularly those Parts of it which are the Seats of Memory and Judgment. If this Spirit in descending penetrates to the Nerves, and strongly adheres to the Brain, it then produces the Apoplexy; and, if it falls on the hinder Part of the Neck, it gives Rise to a Palsy. But if it becomes cold in its Course, it produces Tremblings of the Hands and Feet, or of the Head alone. It also occasions Lethargies, and Distortions of the Mouth and Eyes.

The Disorders produc'd by Sulphur are the various Kinds of Fevers, Impostumations, or Phlegmons, and the Jaundice. But if the Salt should be separated from the Sulphur, the later of these, becoming putrid, falls upon the Breast, and produces a Pleurisy. In the Stomach and Liver it produces Fevers; in the Head, the Megrim and other Disorders, as also Pains of the Eyes, the Teeth, and Ears.

Several Disorders also derive their Origins from Salt, and, among others, the Colic. From the same Principle proceed the Stone and Gravel, and other Concretions form'd in the Veins and Cavities of the Body, as also the Gout of the Hands and Feet, and the Sciatica. The Cause of these Disorders is the Spirit of the Salt, which mixes with the Body of the Salt, and coagulates in the Bladder, the Kidneys, and the Joints. Salt also, whenever it is dissolv'd, produces Fluxes of the Belly; but when it is indurated and coagulated, it produces Indurations and Obstructions, which are remov'd by dissolving and fusing the Salts which occasion them. But if the Salt should be too much subtiliz'd, it produces Eruptions, the Itch, and other cutaneous Disorders. The Erysipelas, malignant Ulcers, and the Cancer, proceed from the same Origin. And lastly, if the Salt is too strong, it produces the *Ignis Persicus*, and terrible Inflammations. These three Principles, both within and without the Body of Man, have each their different Species, which also produce different Kinds of Diseases. Virioli, for Instance, which is classed among the Salts, produces a Kind of Erysipelas. In another Place he tells us, that the peccant Matter of Fevers, in general, is no more than Sulphur and Nitre; for which Reason *Paracelsus* intermits Fevers in particular, that they proceed from a Motion of Nitre, which first produces Cold, and then Heat.

Besides the Causes of Diseases drawn from the three Principles of Salt, Sulphur, and Mercury, *Paracelsus* sought for others deriv'd from *Tartar*, and to which he ascribes almost all the same Effects he had done to the former, and several others besides. But we must here observe, that he was probably the Inventor of the Name in Latin, *Tartarum*, and which is nothing but that acid and hard Substance, as, he elsewhere tells us, concreted on the Sides of Wine-casks, whereas the Lees subside to the Bottom. He maintains, that the Stone of the Bladder, and the Gravel of the Kidneys, are generated or produc'd by what he calls *Tartar*, the Reason of which Name he gives us in the following manner.

I call, says he, the Stone, a Disease arising from *Tartar*, (*morbus Tartareus*) because of its Affinity to the true *Tartarus*, or Place of Punishment feign'd by the antient Poets. Now this *Tartar* is so called, because it contains an Oil, a Water, a Tincture, and a Salt, which inflame and burn the Patient, just as the Fire of Hell would do. Our Author, in his usual chymical Cant, gives still another Name to the Stone, which is, *Duelech*.

With

With respect to the Signs of Diseases, we find very little in the Works of *Paracelsus*. In some Passages he briefly mentions them; and in others testifies but a small regard for them. He establishes various Kinds of Pulses, which have all a Relation to the several Planets. There are, according to him, two Pulses in the Feet, which are ascrib'd to *Saturn* and *Jupiter*; two in the Neck, which depend upon *Venus* and *Mars*; two in the Temples, which are regulated by *Luna* and *Mercurius*; and the Pulse which is under the Influence of the Sun, is in the Left Side under the Heart. Hence it follows, says he, that if the Pulse beats quicker than usual, the seven principal Members suffer, that is, the Heart, the Brain, the Liver, the Gall, the Kidneys, the Spleen, and the Lungs. If any of these Members in particular is oppress'd by the Disorder, the Pulse beats more faintly, because the Air or Spirit of Life does not find a free Passage to it.

Paracelsus is more full and copious upon Urine, as may be seen in what he has wrote concerning the Judgments drawn from Urines. Urine, says he, is a dissolv'd Salt, with a Mixture of Sulphur and Mercury. We shall not here enter upon a Detail of the several Signs he draws from the Urine, in order to judge of the Natures and Consequences of Diseases. A Knowledge of this Kind must undoubtedly be of the last Consequence, if what *Jo. Rhenani*, in his *Urocritorium Chymiatricum*, asserts, is true; which is, that every good or bad Circumstance, with respect to the Termination of a Disease, is clearly, and, as it were, in a Glass, discover'd in the Urine.

We have already observ'd, that the most celebrated of the Followers of *Paracelsus* frankly confessed, that the Quintessence, or universal Remedy, mentioned by their Master, and of which he boasted so much, was something very rare. This Circumstance oblig'd both *Paracelsus*, and his Followers, to seek after several particular Remedies which they have propos'd. One of the Means which they say ought to be used in discovering these Medicines, is to observe what they call'd the Signatures of Things. They believed that certain Differences, with respect to the Colour, the Figure, and other external Marks in Animals, Vegetables, and Minerals, were so many Indexes of their respective Qualities, for the Cure of particular Diseases.

They maintained, for Instance, that *Euphrasia* bore a Mark which indicated its Virtues against Disorders of the Eyes; and this Mark is a small black Figure within the Flower, and which they said represented the Eye-ball. One of the Species of the *Dentaria*, Toothwort, whose Root resembles a Chain of Teeth link'd together, proves by that very Circumstance, that it is a proper Remedy for Disorders of the Teeth, and for the Scurvy. The Seeds of Pomgranates, and the Kernels of Pine-apples, having also the Form of Teeth, we ought, from that Circumstance, to infer, that they are Remedies proper for those Parts. *Pulmonaria*, or Lungwort, is good against Indispositions of the Lungs, because it is light and spongy like that Organ, and in some measure resembles its Figure. Lemons are good against Disorders of the Heart, because they, in some measure, resemble its Figure. And as that Organ has a relation to the Sun, as we have already observ'd, the yellow Colour of the Citron represents, in some measure, the Colour of the Sun; and, in like manner, denotes that Fruit to be of a cordial Quality. Gold having the same Colour, as also the Splendor of that Luminary, they said it was not, for that Reason, to be doubted, but it was the most excellent of all Cordials. The Root of the Plant *Satyrium* indicates still more strongly by its Figure, that it is destin'd for strengthening the Parts subservient to Generation. *Asarum*, which so exactly resembles an Ear, is, for that very Reason, a Remedy proper against Disorders of that Part. More Instances of this Kind may be seen in *Crollius*, who has wrote at great Length upon this Subject. But *Libavius*, tho' a great Chymist, frankly confesses, that a Conformity between the Figures of certain Simples, and their Medicinal Virtues, is purely an accidental and fortuitous Circumstance.

We must here observe, that, notwithstanding all these Signatures, *Paracelsus* and his Followers depended much more upon Metallic Medicines, than on those supplied by the Animal and Vegetable Kingdoms; in which respect they differ'd from the antient Physicians, who knew little more of Metallic Medicines than their Uses in external Applications. The Followers of *Paracelsus* also required, that Medicines, from whatever Substances they were extracted, should be prepared chymically; because, without that Circumstance, they are so far from being salutary, that they are prejudicial, since the poisonous Quality, naturally in all Simples, is not separated from them.

Paracelsus also believed, that certain Words and Characters could cure some particular Diseases, which would not yield to other Remedies; potable Gold, or the Quintessence of Gold, and that of Antimony, not excepted. He affirm'd, that Nature had communicated her Virtues, or imparted her Power, to Words, or engraved Stones, as well as to Herbs and Roots. He also maintained, that the Physician might have recourse to Magic for the Cure of Diseases.

Notwithstanding his embracing these Opinions, he did not neglect the two most common and universal Remedies of Venesection and Purgation; but he thought Clysters unnecessary, and tells us, that he wrote nothing on that Subject, because he look'd upon them as very prejudicial to the Constitution. He wrote five Treatises on Venesection, which shews us, that he did not disapprove of that Practice, though he thought it was not used as it ought, and subjected it to several Rules drawn from the Disposition of the Stars. We make this Remark, in order to shew, that the Chymists who came after *Paracelsus*, and who, for the most part, rejected this Remedy, have not, in this particular, followed the Sentiment of their Master. He used Purgatives; but preferred those chymically prepared, to such as were in Use among the *Greeks* and *Arabians*. *Oporinus*, in *Epistola ad Solenandrum & Wierum*, informs us, that when *Paracelsus* purg'd his Patients in any Disorder whatever, he, for that Intention, prescrib'd *Mercurius Præcipitatus*, reduc'd to Pills, and made up with a little Theriaca, or Mithridate, or the Juice of Cherries, or of Grapes,

Oporinus does not explain what kind of Precipitate his Master used. The Quacks frequently gave red Precipitate in Venereal Disorders, which is a very violent Purgative, and an Emetic, the Composition of which *Paracelsus* gives us. He orders this Medicine to be prepared by dissolving Mercury in Aqua fortis, and drawing it off five times by Distillation, more or less, till the Mercury has acquired a beautiful red Colour. Upon this Powder Spirit of Wine is afterwards to be pour'd, and drawn off by Distillation seven, eight, or nine times, till the Precipitate becomes white in the Fire, and is no longer subject to evaporate. He adds, that by this Process we shall obtain a diaphoretic Precipitate. The modern Preparers of red Precipitate follow all the Directions of *Paracelsus*'s for they first use Aqua fortis, and then Spirit of Wine: But in vain do they pour this Spirit upon the Powder, and draw it off, since it does not by that means become white, much less does it undergo such a Change as to become fix'd, incapable of evaporating, and of ever being reduc'd again to a liquid Mercury. By this we see, that the Words of *Paracelsus* are not greatly to be depended on; and here, as on every other Occasion, he pretends to instruct us in the Method of composing an excellent Remedy, which far surpasses the common Precipitate; but when his Directions are rigidly observ'd, the Experiment always fails of Success. We have just Reason to doubt, whether he knew the Secret of this diaphoretic Precipitate, the Preparation of which he pretends to describe. But whether he did or not, the Preparation, mentioned by *Oporinus*, was exhibited with a View to purge, and not to

excite a Diaphoresis; and it is highly probable, that it came very near to the ordinary red Precipitate, if it was not entirely the same. *Paracelsus* certainly knew other purgative Medicines drawn from Minerals; and we ought not to imagine that *Oporinus* affirms, that his Master never purg'd with any thing except Precipitate Mercury. It is impossible, that, having made so many Experiments upon Antimony, he should not discover, that; among other things, various purgative Substances might be obtained from it; for he asserts, in the first Place, that as Antimony is more proper than Fire, or any other thing, to purify Gold or Silver, so it, in like manner, purges the human Body, and carries off its Impurities. It is certain, that by the Name *Magistery* he does not mean a common Cathartic Medicine, since he tells us afterwards, that the *Magistery* of Antimony cures the Leprosy. This *Essence*, this *Arcanum*, this *Virtue* of Antimony, as he calls it; is, according to him, prepared in the following manner. "This," says he, "is what we call the Virtue of Antimony, of which no mention is made in any Medicinal Work whatever. Take care, in the first Place, that no Part of the Antimony be corrupted, but that it remain entire, without losing any thing of its Form, since under this Form the *Arcanum* of Antimony is conceal'd. It ought to be forc'd by the Retort, till no Caput Mortuum remains; and by three Cohobations reduc'd to a third Nature: Then this Arcanum is obtain'd. The Dose of which is four Grains mix'd up with Quintessence of Baum." These Directions have no great Tendency to render us more knowing than we were before. We do not observe, that *Paracelsus* often mentions any Purgative, properly so call'd, obtain'd from Antimony. In his Treatise *De Caducis*, he indeed mentions Flowers of Antimony, without describing the Manner in which they are prepar'd, since he only talks of a Preparation of which they are the Basis, and which he affirms to be an excellent Remedy against the Falling-sickness, though he gives us no farther Description of it. He however specifies its Dose, which is nine Grains before the Paroxysm; and eighteen under it. In another Passage he says something concerning the *Mercurius Vitæ*: He made almost as many Experiments upon Vitriol as upon Antimony; and mentions an Arcanum which he extracted from it, and which he preferred to that obtained from Gold.

We shall not, on this Occasion, run out into a Description of the Essences, the Magisteries, the Elixirs, and other important Secrets, which our Author calls *Magnalia Dei*, such as the Quintessence already mentioned, the celebrated Remedy call'd *Azoth*, which *Paracelsus* always carried about him, and his *Laudanum*. With respect to this last Medicine, we cannot forbear suspecting that it was a Composition consisting principally, if not entirely, of Opium. This is, in reality, an excellent Medicine, when judiciously used; and a great many Physicians are of Opinion, that it is not very necessary to prepare it, since the most laborious and expensive Preparations of it are not much more valuable than the most simple, or the Drug itself, such as it is brought to us from the *Levant*, or such as the *Turks* daily use. *Paracelsus*, indeed, affirms, that those Medicines in which Opium is an Ingredient, are of a poisonous Quality, that we ought not to repose any Confidence either in the Poppy, Henbane, or the Mandrake; and that we have no anodyne or narcotic Medicine which operates safely and easily, except Sulphur extracted from Vitriol, which, besides its other Uses, is an excellent Remedy against the Falling-sickness. However, in another Passage, he frankly confesses, that Anodynes, such as Opium, are of singular Efficacy in the Cure of the same Disorder; and immediately after proposes a Formula of a Medicine compounded of *Theban* Opium, Cinnamon, Musk, and Amber. It is true, indeed, he at the latter End adds the Arcanum of Vitriol, which is the same thing with the Sulphur. But if this Sulphur is alone so excellent an Anodyne, and so proper for the Cure of the Epilepsy, why did our Author join Opium to it? He was well enough apprised that this Objection might be made to him; and endeavours to answer it, by saying, that there might accidentally be some Fault in the Vitriol, and that the Artists were sometimes guilty of Overights in preparing it; which was the Reason why it sometimes fail'd of producing its Effect. This Answer shews us, that *Paracelsus* did not repose so great a Confidence in his Sulphur of Vitriol, as not to endeavour to assist its Effects by Opium, the Virtues of which are not so precarious. And this Circumstance seems to confirm our Conjecture with respect to his *Laudanum*. We shall not take upon us to determine, whether any one is at present Master of the Secret of this wonderful Sulphur, or this Arcanum of Vitriol, which our Author prefers to all the Remedies prepared of Gold, and whose Virtues he so highly extols in several Passages. The Secret must unquestionably be among the Number of those which are known by few, and concerning which our Author says, that if God communicates them to any one, they are not, for that Reason, made public, because God has given Prudence enough to those to whom he imparts them, to keep them conceal'd, as they shall always be till the Coming of *Elias the Artist*, when every thing that is now conceal'd shall be set in a clear Light.

The Surgery of *Paracelsus* has by some been more esteem'd than it may possibly deserve. Though he has composed two pretty large Works on this Subject, one intitled *The Great Surgery*, and the other *The Small Surgery*, yet in these voluminous Productions he scarce treats of any thing besides Wounds and Ulcers. For the Cure of these he does not depend upon common Remedies, and such as are obtain'd from Plants, but used Chymical Medicines, some of which are very good for answering these Intentions. But if these did not produce the design'd Effect, he did not hesitate to have recourse to *Characters*, *Words*, and the other delusory Arts of Superstition. With respect to Wounds, he says there are two Methods of extracting the Iron of an Arrow or Dart when it is lodg'd in a Wound; that this is ordinarily done by pulling it out, and attracting it by Medicines, if it is only sharp and long; or by pushing it farther in, and attempting to bring it out from the opposite Part, if it is bearded. He also observes, that the same Practice is to be followed when a Musket-ball is lodg'd between the Bones. He adds, that when the Intention cannot be answered by Herbs and Roots, which he owns are very often ineffectual, we must, in dislodging bearded Arrows or Balls from between the Bones, have recourse to certain *Verba Constellata*, or Words influenc'd by the Stars; and boldly affirms, that by the virtue of these Words alone, without the Assistance of any thing besides our Fingers, we may easily extract all kinds of Darts from Wounds. But, says he, the Malice of the Sophists has attempted to render this Art infamous, by prohibiting its Use, under the Penalty of being anathematiz'd, and committed to the Flames. I do not, for this Reason, neglect to practise it, since I know there is nothing in it but what is natural. *Paracelsus* says very little upon Tumors, Fractures, and Dislocations; and through the Whole of his Chirurgical Works, we find nothing relating to the Amputation of Members, and those Operations which are performed by the Knife, and the Fire. It even appears, that he did not approve of these last-mentioned Methods, though he commends the Use of the Knife as the only Remedy to be depended upon in the Stone.

Our Author enlarges pretty much on the Pox, examines its Causes, inquires into its Signs, and proposes a large Number of Remedies for its Cure, the principal of which are various Preparations of Mercury, but described in his own Manner, that is, so as to be understood by very few, or rather none at all.

In reading the Works of *Paracelsus*, it is easy to observe, that he had a heated and disorder'd Imagination, full of the crudest Notions; whence it is no Wonder he gave into Astrology, Geomancy, Chiromancy, and the Cabbala;

Cabbala; which were extremely common and popular Things in those ignorant Ages. He says expressly, That Medicine must be join'd to Magic, or it cannot be successful; by which he does not mean Natural Magic only, but declares, that no one need scruple getting certain Secrets of Physic from the Devil, and boasts of holding Conversation with *Galen* and *Avicenna*, at the Gates of Hell. In short, he has used all possible Means to persuade the World, that he was a real Magician; so that if he has failed in the Attempt, it is his Misfortune. Indeed it has been the common Opinion, that he was one; but, for my Part, I judge he was rather in some Instances an Impostor than a Conjuror.

But among the bad Things that his Works are stuffed with, there are some which are good, and contribute to the Improvement of Physic. What he says against the common Notions that had prevailed from the Time of *Galen*, as to the Effects of the primary Qualities of Bodies, hot, dry, cold, and moist, has somewhat open'd the Eyes of Physicians. He calls the Philosophy of *Aristotle*, a wooden Foundation; and, if himself has not laid a better, he has given Occasion for it, and promoted a Discovery of the Weakness of that old Basis. His Opinion of Seeds, all which he supposes existed from the Beginning, prevails to this Day among the most knowing, who have only explain'd it better. His Doctrine of Salt, Sulphur, and Mercury, has great Uses in Philosophy and Physic; if taken not as real Elements, but as active Principles in Bodies. It is also manifest, that he had a great Knowledge of the *Materia Medica*, and bestow'd much Time and Pains in working upon Animal, Vegetable, and Mineral Substances, so as to have made a very large Number of Experiments; but then he has this great Defect, that he studiously conceals what a long Course of Experience has taught him upon this Subject; so that the short Critic of *Gunterus d'Andernac* is extremely judicious: "I allow, says he, That *Paracelsus* was an excellent Chymist, and that he has deliver'd many good Things in his Writings; but, on the other hand, it is Pity he should have mixed them with a Number of others, which are false and frivolous; and at the same time should have involv'd the best in so much Obscurity, that scarce any one can understand what he says, or make the least Advantage of it. I wish *Galen* had been less diffusive, and more exact, in his Works, and *Paracelsus* more clear and candid; but, as every one has his Failings, we should retain what appears to be good, and leave the rest."

The Lord *Bacon* has given a just, tho' severe Censure of *Paracelsus*, in his Philosophical Capacity, to this Effect: *Paracelsus*, standing at the Head of the Chymists, deserves to be separately chastised as a Monster. What Bacchanalian Oracles are those he utters in Meteorology; whilst he is ridiculously aping *Epicurus*? All that *Epicurus* asserts upon the Subject, is but Opinion; which he unconcernedly left to its Fate; but *Paracelsus*, blinder than Fate, and more rash than Chance, is ready to avouch the absurdest Falshoods. What Dreams of Resemblances, Correspondences, and Parallels, are given us by this fanatical Linker together of Idols? His three Principles indeed, might be received with some Utility, as having a Foundation in Nature; but he is continually wresting them to every thing, according to his great Dexterity in Delusion. But this is not the worst of him; for, like a sacrilegious Impostor, he has mixed and polluted divine Things with natural, sacred with profane, Fables with Heresies, and human Truths with religious; so as not, like the antient Sophists, to have hid, but extinguish'd, the Light of Nature. The Sophists were only Deserters of Experience, but *Paracelsus* has betray'd it. At the same time, he is so far from understanding, or justly representing Experience, that he has added to the Trouble and Tedioufness of Experimenting. In short, he has every-where, to the utmost, magnified the absurd Pretences of Magicians, countenanced such Extravagancies, and encourag'd others to believe them from his own Assurance; being thus at once the Work and Servant of Imposture. His Disciples greedily swallow those Doctrines, which he has rather promulg'd and promised, than actually laid down and made good, and defended with Arrogance instead of Caution; being thus recommended with pompous Shew, Affinity with Religion, the Subterfuge of Obscurity, and other Impostures. And hence his Followers appear link'd to one another by the lying Spirit, that shews itself in their swoln Hopes and Promises. However, by wandering thro' the Wilds of Experience, they sometimes stumble upon useful Discoveries; not by Reason, but by Accident; whence proceeding to form Theories, they plainly carry the Smoak and Tarnish of their Art along with them, and, like childish Operators at the Furnace, attempt to raise a Structure of Philosophy with a few Experiments of Distillation; and their own Idols of Separation and Mixture, where no Traces of them are really found. Yet we do not accuse them all in the Lump, but make a Difference betwixt that little serviceable Set, who, being not very solicitous about raising of Theories, principally practise a certain mechanical Subtily in making new Discoveries, with their Uses, more after the manner of *Frier Bacon* than *Paracelsus*; and distinguish these from that impious Tribe, who endeavour only at procuring Applause to their Theories, and court and beg it under a pretended Zeal for Religion, large Promises, and the Arts of Imposture, which is the Way of *Basil Valentine*, and most of the Alchemical Authors.

Notwithstanding what Lord *Bacon* says of *Paracelsus* and the Chymists, they certainly deserve very great Praise, as they have contributed a vast deal to the Improvement of the Art of Healing. First, As they demonstrated the System of the *Galenists* to be false, and banish'd it from Physic; tho' it must be confessed, they did not substitute one which was more rational in its room. Their Theory, however, was less pernicious than any of those which preceded it, as it was less capable of leading into Error; for it was too romantic, and too manifestly false, to mislead so many as others had done, tho' some few Enthusiasts gave into it.

Secondly, They were Benefactors to Physic, as they introduc'd, or reviv'd the Use of many Remedies, of the greatest Importance in curing Distempers. Amongst these are Mercury, Antimony, Sulphur, Nitre, in the Sense we understand it, Opium, and Iron, from which they directed us to make various Preparations, and taught us their Uses. To these may be added, the volatile, urinous Spirits, as those of Hartshorn, Blood, or any other Animal Substance.

About ninety Years after *Paracelsus*, the famous *Van Helmont* appear'd, a Man of such infinite Industry, that he spent fifty Years in examining fossile, animal, and vegetable Bodies by Chymistry. He would undoubtedly have made a very considerable Figure, if he had made a right Use of his Discoveries, communicated them candidly to the World, and forbore running into the Notions of *Paracelsus*, whom he mimic'd in pretending, like him, to an universal Remedy. He was a Man of Learning, Abilities, and Eloquence.

All Europe soon came into his Opinions, and then none but purely Chymical Preparations were in request, and nothing but what was produc'd by Chymistry was to be confided in for the Preservation of Life and Health. And when afterwards *F. Sylvius de la Boe*, Professor of Physic in *Leyden*, made it his Business to promote Chymistry, and was continually extolling its Usefulness to a numerous Audience, his Authority, Eloquence, and Example, were sufficient to establish its Reputation every-where. Some indeed doubted, but almost all assented, as soon as *Otho Tacbenius*, with great Resolution and Success, undertook the Cause of Chymistry, in three learned and elaborate Treatises. They now began to be convinc'd, that Nature acts, and that the Life of

Man is actuated, by chymical Instruments: By these, all that Variety of Motions by which all Effects in the Universe, and in the Body of Man, may be produc'd, but without them nothing, are excited, directed, increased, diminished, and destroy'd. These were the only Maxims current in the Universities, and in the Writings of Physicians. Did Acids by their Acidity corrode Metals? An Acid was provided for the Dissolution of Aliments in the Stomach. Did Acids generated by the Fire, and mixed with the highly acrid Oils of Aromatics, produce a violent Effervescence? We must believe, that the acid Chyle, mixed with the Balsam of the Blood, rouses the natural Heat of the Body; or, if both these should happen to be acrimonious beyond measure, they must be supposed the Cause of burning Fevers. Nitre, Sea-salt, but especially Sal Ammoniac, refrigerate Water: Immediately the cold Fit of a Fever was ascribed to them. The Exhalations of the Particles of Wine during boiling, receiv'd in a Vessel placed over them, shew us how our Spirits are generated. Acids mix'd with Alcalis cause a violent Effervescence, and are ready to break the Vessel which incloses them: Just so the Chyle, mix'd with the Blood, raises the like Tumults in the Ventricles of the Heart, the Veins, and the imaginary Rhomboidal Receptacles in the Muscles.

The human Stomach is made an Hermetic Pot, in which the tepid Acor of a Ferment excites a Fermentation of the Aliments: Hence the Chyle contracts an Acidity, and, passing out with an Effervescence, meets with that alkaline Incentive, the Bile; here begins a Combat between the two Champions, the pancreatic Humour being a Spectator and Encourager of the Fray; the Work goes on briskly, the Diumviri are hotly engag'd, being supported by their respective Guards; part of them by a natural Impetus rush into the Canals of the lacteal Veins, and by their own proper Efforts penetrating through the Meanders of the lacteal Rivulet, fall into the Torrent of the Blood, where, instead of finding Peace, they are attack'd by more Enemies which lay in Ambuscade, and a new Fight commences. In the mean while others resolutely pass the Streights in Pursuit of the Runaways, and, coming up with their Enemies in the Chancel of the Blood, renew the Battle, which becoming general, part of them rush into the first Ventricle of the Heart, and thence in the first Heat of their Fury through the Isthmus of the Lungs, breaking thro' the Myriads of little Tubes. Nor is here an End; for the Concourse of the pulmonary Vessels reassembles the scatter'd Bodies, and throws them into the other Ventricle of the fervid Heart, where, animated with fresh Spirits, they break through all Obstacles, and diffuse themselves throughout all the most intricate and secret Recesses of the Body, whence they return full of Spirit and Alacrity to the Cells of the Heart. All this has much the Air of a Romance; but some modern Physicians, it is certain, have seriously maintained, that the natural Actions of Life were perform'd after this manner. He that has a thorough Notion of all the Parts of this Farce, may in an Hour's time become a great Artist. First, be careful to get right Ideas of *Acid* and *Alkali*; you may soon after be taught the Signs of each, and you will easily see which is the most prevalent. You have nothing more to do, then, but to come in with some Auxiliaries to the Relief of the weaker, and so restore the Balance of Power between them. And thus is the Sum and Substance of all that *Sylvius* and *Tachenius* taught, and which the World so much admir'd and follow'd, comprehended in very few Words.

Such Chymists might have been forgiven all these trifling Vanities, and been look'd upon only as ridiculous, if they had not founded upon their Fooleries some Pieces of Practice, highly destructive to the Lives and Health of Mankind. Of this I shall give one memorable Instance. *Galen*, as we have seen before, started the Notion of Animal Spirits. Some of the Chymists improv'd upon this Chimera, and pretended to determine the Manner in which they were produc'd, comparing it to the Generation of vinous Spirits by Distillation. Others went a Step farther, and affirm'd they were subject to Diseases, as Inflammation, and capable of being infected with something deleterious; and observing farther, that many Diseases of the acute Kind terminated by copious Sweats, they concluded, that the most expeditious way of curing acute Disorders was, to resolve this imaginary Inflammation, or to drive out from these imaginary Spirits, the pretended deleterious *Something*, but they knew not what; and this by means of profuse Sweats extorted by violently hot Remedies, if those may be honour'd with this Appellation, which do much more Injury than Good. Herein they seem to agree with *Asclepiades*, who was of Opinion, that one Fever ought to be cur'd by raising another, or rather by making the present Fever worse: They, however, ran counter to the Doctrine of *Hippocrates*, and his Guide Nature, who both, if attended to, would have inform'd them, that this sort of Evacuation is highly prejudicial, unless the Humours are previously concocted, or, in other Words, till the obstructing Matter, which causes the Disease, is sufficiently attenuated by the vital Powers, to be capable of passing thro' the Pores of the Skin.

Thus were heating Medicines first introduc'd into Practice, to the great Dishonour of Physic, and the Destruction, in all Probability of Millions. And not less than the Experience of an Age was requir'd to convince the Generality of Physicians, that such Medicines, thus applied, were more pernicious than the dreaded Inflammation, and more deleterious than the *Something* they dream'd of.

In the Beginning of the seventeenth Century, the ever memorable Dr. *William Harvey* discover'd the Circulation of the Blood. And this gave Occasion to the Introduction of Mechanics into Medicine, upon the Ruins of the chymical Theory. These are more likely to improve it, than any thing relative to Speculation, which has yet occur'd to us; provided nothing be taken for granted which can admit of a Dispute, and the Facts we reason upon are sufficiently ascertain'd. In order to set the Uses of these in a true Light, I shall give the Substance of an Oration wrote by the celebrated *Boerhaave* expressly on this Subject.

Those who make Geometrical Calculations of the Powers of Bodies from their Bulk, Figure, and Velocity, either assumed, or taken by Observation, are called *Mechanics*. Their Art depends on a very few, certain, and well-known Principles, which are the Foundations of all the subtle and difficult Inventions that have been made in it. And tho' it has been highly esteem'd in all Ages, and thought necessary to other Arts, it meets with Contempt among Physicians, being commonly overlook'd, or not regarded, as being of little or no Service.

So slight an Opinion of Mechanics I take to be so unbecoming a Physician, and the Source of so many Errors, to which he may be liable in his Practice, that I shall make it my present Business to prove, *That the Knowledge of Mechanics is highly useful, and even necessary, in Medicine.*

That the general Nature of Body is by none better defin'd than by Mathematicians, I suppose every one will allow; but the peculiar Properties of every single Body, as existing in the Nature of Things, were never rightly deduced *a priori*, from this universal Idea of the Geometricians, which being form'd only of a Collection of common Qualities, exclusive of whatsoever distinguishes one from another, will never furnish us with an Argument from whence we may draw a Conclusion explicatory of the peculiar Nature of a Body, tho' on this very Thing primarily depends the Power of Acting, with which one Body is endu'd above another; and consequently this being unknown, the other must remain a Secret. Whoever, therefore, has a Mind to discover the Nature of an unknown Body, must search out such Qualities in single Bodies, as may limit his Ideas, and

restrain

restrain his Ratiocinations to the peculiar Nature of one individual Subject, which cannot be certainly known but by sensible Experiments, and Observations of the Effects of each Body. For these Effects are to be reckoned among such Things as flow from the peculiar Nature of the Subject we examine: One Effect, therefore, denotes a single Property, and a Collection of all the Effects together constitutes the whole Nature of the Thing, as far as it is discoverable by the Senses. Having obtained a Knowledge of these Properties, if we proceed to demonstrate, in a geometrical Way, such other Properties as, by clear and necessary Consequence, follow from the former, we discover a far greater Number of Things, than we could have known by the Help of our Senses, and yet no less certain or useful than those others. Besides these two, there is no third Method of attaining to the Knowledge of the peculiar Construction of any corporeal Machine; and both these Methods convince us of one Truth; which is, that the human Body is of the same Nature with the whole Universe of Things which we contemplate; and by the Testimony of Sense, and in the Judgment of Reason, contains nothing extraordinary above the rest, if its Principles be seriously examined, except that it consists of more and different Machines, agitated by the Influx of Humours, and is qualify'd, by its Construction, to produce more Effects, and that great Variety of Motions, which, by the Laws of Mechanics, flow from the Bulk, Figure, Solidity, and Connexion of the Parts; and this is evident; if we consider, that if the mechanic Motion of one of these Parts be destroyed, or the Band of its Connexion loos'd; the same Effects are no more to be expected. Hence the human Body is of a true mechanical Structure, and, therefore, possess'd of all the Properties which belong to a Subject the best qualify'd for mechanical Speculation. Therefore a mathematical or mechanical Frame, and the human Machine, are, from the same Laws, explicable by Geometry, provided we assume for *Data* not such Things as a fruitful Imagination may form to itself out of an infinite Variety of Possibles, but such Properties as are well known, from the Testimony of the Senses, to be peculiar to them. Very many of these Properties have been discovered by Anatomy, in observing the Size and Structure of the larger Parts of which we are compos'd, and more have been disclosed in the lesser Parts by the Help of Microscopes, which demonstrate, that the larger and lesser Parts of the human Structure are of the same Nature. Hydrostatics also, or the Knowledge of Liquids, has inform'd us of many Things which determine the Qualities, Forces, and Directions of the Humours which circulate in our Vessels.

All these Things being considered, either no Conclusion at all, according to the Laws of Science, can ever be drawn from them, or we must own ourselves principally oblig'd to Mechanics for the Knowledge, and, consequently, the Management of the human Body. But who can assert or believe, that nothing of Truth, Certainty, or Use, can be collected from so many manifest Observations, whether the Nature of each be duly consider'd apart, or all of them compar'd together with the justest Ratiocination? He who should speak at this rate would betray a dull Indisposition and Weakness of Mind, and an ungrateful Neglect of the finest Inventions we can boast of. But if he should grant, that, according to the Laws of Ratiocination, Things before unknown may be discovered and illustrat'd, but deny that this is done by the Benefit of Mechanics, let him assign some other Art which gives us a greater Insight into the Nature of Bodies. In attempting so to do, it is necessary for him to suppose, that the Nature of Things can best be explained by such Principles as are quite foreign to the Nature of the Thing into which we inquire, and by such Persons as keep at the widest Distance from the only Method of searching after Truth which is approved by Men of Sense; and, therefore, he must involve himself in so many and great Absurdities, that I shall take my Leave of him, and look upon the Proposition as demonstrat'd.

But this, you will say, is too dry a Way of Convincing, and too remote from common Apprehension, to gain much Assent; and this is certainly true, if the Weight of a Demonstration is to be judg'd from the Multitude of those who are capable of understanding it. For their sakes, therefore, who are the major Part, I shall endeavour to display the thing in the clearest Light.

That the greatest Part of our Body is made up of Arteries, by whose Assistance it is maintain'd in Strength and Vigour, is too evident to need a Demonstration. That those Arteries are Canals which confine the Blood, and direct its Course; that the greatest of them are about the Heart, and that their Cavities gradually lessen, so as at last to become imperceptible, is what every Butcher knows. It is as well known also, that one Trunk of these Arteries, which proceeds from the Heart, spreads itself into lateral Branches, shaped like the Trunk, and divided again, and decreasing after the same Manner; but so contriv'd, that the Trunk, which goes directly forwards, is commonly of a larger Capacity, at the Place of Separation, than the Branches, which run out at the Sides of this Division. That all these Vessels are incurvated in such a manner, that the Sides of their Cavities are every-where bent into an infinite Number of very large Angles, and that the Effects of this spiral Course of the Vessels upon the Blood, which passeth thro' them, are very considerable, is an Observation made a few Years ago by some who applied Geometry to Medicine. The wise Author of our Machine has, by an admirable and effectual Contrivance, made these Canals flexible, that they might be capable of Distention from the Pressure of the contained Liquid, and yet be in no Danger of Laceration; and also qualify'd them in such a Manner, that, after reciprocal Dilatation, they might recur with a strong Impetus upon the Humour, as it ceases to dilate the Vessels, and be able to restore themselves to a narrower Capacity.

Malpighius was the first who observ'd, that the last Branches of an Artery, running into minute Divisions, dispose themselves on a Membrane as on a firm Base, and there open into one another by the mutual Intercourse of small Canals. The same Author first trac'd out these Canals through a thousand Mazes and Windings, through which they hurry the contained Fluid. But here, with the greatest Admiration of the divine Mechanism, observe that the small Branches, dispos'd with the greatest Accuracy, extending over equal Spaces, and destitute of lateral Shoots, as being no longer subdivided, changing their Figure, constitute the Origins of the Veins and Lympheducts, with their Sinuses. These are Things which either the naked Sight, or Microscope, the Ligatures of Vessels in living Bodies, or Injections of Mercury into dead ones, the Contemplation of a diseas'd Subject, or Comparisons of Brutes, Fishes, Insects, and Plants, have discover'd; and this is all that we know of the Arteries, tho' there are a Multitude of Fictions on the Subject.

The greatest Part of the Body, then, and what is of great Efficacy towards Life, is, according to mechanical Description, a conic, elastic, inflected Canal, divided into similar lesser ones, proceeding from the same Trunk, which being at last collect'd into a retiform Contexture, about cylindrical Vertices, mutually open into one another. If this be true, as nothing can be truer, then all the Effects which the Arteries work upon the Blood, depend only upon their Make as describ'd, and, consequently, are to be account'd for and demonstrat'd from the same. Now I appeal to every capable Judge, Who is the Person qualify'd to demonstrate in Order the Things which shall arise only on this Head? None, I say, but he who, being accus'tom'd to the Contemplation of mathematical Schemes, and the Calculation of oscillatory Forces, well knows what important Truths he can demonstrate by virtue alone of such Assistances; and such a Person is the Mechanic Philosopher, and none else. But let

us take the Artery into farther Consideration, the Knowledge of which comprehends almost that of the whole Body.

The Artery, having constituted the retiform Figure before-mentioned, emits cylindrical Tubes of so small a Diameter, as not to admit the red Globules of the Blood, but only the thinner and colourless Part thereof; and hence you are furnished with the true Idea of a lymphatic Vessel. The same Artery, again, at the same Place, extends itself in a Trunk, which runs directly forwards, and, being larger than the lymphatic Vessels, conveys the red and thicker Part of the Blood, deprived of its thinner and serous Part; and here is the genuine Original of the Veins. These, beginning first with a narrow Cavity, have it soon after enlarged by the Concourse of new veiny and lymphatic Tubes; whence it comes to take the Figure of a Cone, similar and vertically opposite to the arterial Cone.

If you imagine Arteries, Veins, Lympheducts, with their Apparatus, as before described, affixed to a membranaceous Plane, interwoven with Nerves, and, adding thereto some elastic Filaments, suppose them all rolled up together, you will have the Structure of a Gland, which as often as I contemplate, I consider it as the fruitful Source of many wonderful Effects, as well as the Occasion of many ridiculous Fictions, which, by the incredible Labour and Industry of the acute *Malpighius*, who has fully demonstrated the Simplicity of its Construction as aforesaid, are now exploded. Such a Demonstration will appear to be of very great Importance, if we consider, that the whole Body is but little more than an Aggregate of Glands. The Brain, which, by the divine *Hippocrates*, was accounted a Gland, is described by *Malpighius* as made up of Veins, Arteries, Sinuses, and Branches of Nerves. The Liver, Spleen, and Kidneys, are conglobate Glands. The very Laboratory where the genital Humour is prepared, is an artificial glandulous Conglomeration of cylindrical Canals. The Receptacle of the Embryo, the Placenta, and the Breasts themselves, are composed of Glands. The Bones and Membranes are much of the same Contexture, as none doubts who has read the ingenious Works of *Malpighius*, *Kercicringius*, and *Havers*.

Let us now examine carefully the muscular Parts, and we shall find them to be Working-instruments, contrived by the most subtle mechanical Art. For every Muscle is composed of lesser similar ones; but where must they end? Or what is the last of these? A Filament? It is no other than a dilated and attenuated Pellicle, of a nervous and very narrow Canal, forming a Cavity larger than the Canal whence it arises, which Cavity is inflated only with Spirit. The immense Force of such a Machine as this is well known to those who have compared the Hydraulic Experiments of *Mariotte* with *Des Cartes's* Mechanics.

If we take a View of the Lungs, which are of a different Structure from the rest of the Parts, we shall find them to be a Composition of elastic spheroidal Bags, hung at the Vertex of the vocal Cone. The Superficies of these Bags is adorned with Veins in Net-work, but is almost destitute of Lympheducts, for Reasons which remain a Mystery.

Could you believe, that so admirable and artificial a Machine as the human Body was perfected by such a simple Apparatus? But so it is, and the more to be admired for that Simplicity. A Man versed in Mechanics highly magnifies the Wisdom of the Author of that Instrument, which is best accommodated for producing any desired Effect, and is, at the same time, the most simple of all that are capable of producing the same.

What can we conclude from the Premises, but that the Body of Man is a Machine, whose solid Parts are some of them appointed as Vessels for confining, directing, changing, separating, collecting, and discharging Fluids; others mechanic Instruments, which by their Figure, Hardness, and Connexion, are qualify'd to support other Parts, or to exercise some determinate Motions? This twofold Distinction of the Solids comprehends all that was acknowledged or discovered by *Hippocrates*, with all the *Babylonian*, *Egyptian*, and *Grecian* Naturalists, whom he copied, and all the *Greeks* his Followers. Nor have the *Arabians*, with all their Industry, nor the many excellent modern Restorers and Improvers of Anatomy, with all their Art, assisted by Instruments, or the Force of Reasoning, been able to discover more than these two which we have assigned. We have no need then of having recourse to Elements, Qualities, Forms, with chymical, animated, or metaphysical Causes: The human Body is a proper Subject for Mechanics; nor is there any thing in all its Solids but what will fall under their Consideration. They are the only Persons then who are to be regarded, and their Principles, their Method, are to be used and followed in our Inquiries concerning the Effect of an organical Part, and no Demonstration of that Nature can be valid; but what comes from an expert Master in Mechanic Learning.

What Account is to be given, or what Uses can be assigned, of the simple Figure of the Cornea; of the aqueous Humour, the crystalline Lens, with the determinate Superficies and Spiffitude of the vitreous Humour in the Eye? Shew me how the Spiral of the external Ear, or the Way of the Meatus Auditorius, being freighter and more inflected in the Middle, but wider and more direct at each End, conduce to the Reception and Direction of a Ray of Sound. Contemplate the Thinness of the Membrane of the Tympanum, its elliptical Figure, its Convexity towards the interior Parts of the Os Petrosum, the Mutability of its Form into a Variety of curve Figures, by means of the affixed Malleolus, agitated by its proper Muscle, and then tell me the Effects of so operose a Structure, which is never wanting even in the vilest Animal. Give me a Reason for the Intricacies of the Labyrinth, the Uses of the Concha, Vestibulum, the double Spiral in the turbinated Cochlea, and the Fensstra Ovalis, and Rotunda. I will be bold to say, that, without a profound Knowledge of Mechanic Powers, you will never be able to understand, or give a Reason for any of these Particulars.

Thus briefly have we spoken with respect to the Solids: We come now to say something of the Fluids, in whose Motion Life consists, and on whose free and undisturbed Motion through their Vessels Health depends. Now, in order to have a right Notion of the Nature of Fluids, we are to know the minute and agitated Corpuscles, whose Collection constitutes a Fluid. Every one of these, taken singly, must be consider'd as a Solid, and consequently performs all its Effects, by virtue of its Bulk, Motion, and Figure; and these Effects are known only to the Mechanic by Experiments. Each of these Particles of a Liquid is in a spontaneous State of Fluidity; but this Part of the Doctrine of Liquids is not improv'd to such a Degree as to be of so much Service to us as might be wish'd. But if we consider the whole Mass of our Fluids together, we shall find, that Gravity and Fluxility, spiffitude, Fluidity, and Resistance, with the Momentum of the Force with which it is carry'd, and the Direction of its Course, are the principal things which distinguish one Fluid from another; and all these Properties are of such great Efficacy, that an Infinity of Accidents which happen to sound Persons have no other Original. Wherefore, necessary for perfecting the Art of Medicine. But how can a Person propound, explain, and demonstrate the Force of these Qualities, if he be ignorant of Hydrostatics, which is a subtle Part of Mechanics, in which, assuming

assuming for Data some of the forementioned Affections; we proceed in a Geometrical Way to find out some very useful and practical Theorems? Neglecting therefore the Physical Cause, or the Nature of every single fluid Particle, we learn from what affects our Senses in a Mass of Fluids, how solid, how useful in Life, this Part of Science becomes, when treated in a Mathematical Way. To be farther convinced, read but the Writings of *Archimedes, Des Cartes, Stevinus, Borelli, Mariotte, Newton, and Bellini*. How much is it to be wish'd; that some happy Genius would arise and make such Discoveries as are necessary to complete so excellent a Branch of Science, from which more Improvements might be made in the Art of Medicine, than from all other Parts of Learning! They who have attempted to explain the Force of the Liquids in the human Body, being themselves ignorant of the Mechanic Powers, have, by so doing, render'd themselves, and Medicine, which, more than other Arts, deserves to be seriously treated, ridiculous; and I dare assert; that none who are ignorant of Mechanics can know the Actions of the vital Humours.

They who assume to themselves, I know not by what Right; a Name from *Hermes*, and have erected themselves into a Sect, under the Title of *Hermetical Philosophers*, will object here, and ask me; Whether I can, from this universal Doctrine of Liquids, deduce the Properties which belong to each of them? Or whether I can explain the stated Motions of Ferment, the fervent Conflicts of different Liquids, and the surprising Effects of spontaneous Putrefaction, by the Laws of Mechanics? In Answer to these Gentlemen, besides referring to what has been already said, I shall farther observe, That the Experiments of the Chymists will indeed afford us a narrow View of single Events, as far as they produce some sensible Effect under some determined Circumstances. Therefore Chymistry is very necessary to Medicine in furnishing it with Observations, and shewing us the most compendious Way of making them. For the Chymical Art can afford Data, and determine their Conditions; but will never supply us with Rules of arguing from them. Therefore the Professors of this Art have but little Reason to boast, as their manner is, that all the Treasures of Medicinal Knowledge are contained in Chymistry: For we are well assured by common Experience, that with relation to our Health and Sickness, more is effected by those common Properties of Liquids which fall under Geometrical Considerations, than by those artificial and dubious Properties which are produc'd generally by the Chymists. One Man drinks Water; another Wine; one lives abstemiously upon Bread and Fruits, another fares voluptuously, and loads his Table with all the Variety that Sea and Land can afford, render'd palatable by the most exquisite Seasonings and Sawces. Some again are perpetually stimulating their Intestines with salted, acid, and acrimonious Foods. And yet so great a Multiplicity of Diet shall prolong Life and Health for many Years in those who saturate their Humours with such different Corpuscles; a plain Argument that the Actions of Life are more owing to the common Nature of Fluids, explain'd by Mechanics, and produced by the Power of the Viscera in the Body itself, than to the peculiar Influence of any kind of Particles. If my Lord *Bacon's* excellent Treatise on Life and Death, with the Rules of *Hippocrates* and *Celsus* concerning the Diet of Persons in Health, or common Observation, be not sufficient to confirm our Belief in what has been said, I could add the Testimony of *Lower*, a Man of excellent Sagacity, as well as perfect Sincerity, who relates that a young Man, quite exhausted by the Loss of a vast Quantity of Blood, was revived only by pouring down his Throat Fleth Broths, which enter'd his Veins, circulated in them, and even flow'd out of his Wounds, the Colour of them unchanged. What Physician, when he is to attend the Sick, does not find himself a thousand times oftener obliged to inspissate, in Cases of too great Fluidity, to resolve Coagulations, move Stagnations, check Dissolutions, dilute the Humours when too thick, or consolidate them when too thin, than to employ his Thoughts about the Conflicts of Salts, the Flames of Sulphur, or the hidden Nature of Mercury? Those very Gentlemen who are never so much attach'd to Chymical Notions, when call'd to Practice, dare not trust to them, but direct their Thoughts to the accomplishing of one or other of the Intentions above-mentioned. Therefore if such a Multitude and Variety of Effects proceed from the Properties of Fluids, and if these Properties, by universal Consent, are best explain'd by Mechanics, it appears that a Physician, in order to understand the State of the vital Fluids, wants the Assistance of Mechanic Philosophy.

Consider the Effects of Liquors flowing through Vessels, and you will be the more clearly convinced of the Power of Mechanic Truth. For if the Liquids in this human Machine continue at Rest, you see a Carcase; but when there is a free Passage for the Humours through their Canals, we behold a living Body. Who doubts of this, may be convinced by his Eyes; for let us consider a Person of a pusillanimous Temper, who at the Sight of the Blood springing out of his Vein falls into a Swoon: You see him dead; but after what manner? Why, here are all the Solids which are necessary for Health, and all the Fluids too; there only wants a Circumgyration of the Liquors; and let there be, by what means soever, a Concussion of the Nerves, which may impel the Fluid to move the Heart, Life returns with the usual Circulation of the Humours, Heat, Colour, Agility, Cogitation, and every vital, natural, and human Action. What Ferment in this Case, what Effervescence, what inimical Salts, what Oil or Spirit, is generated or destroy'd? Except Motion, there is nothing added or diminished, and yet the lost Life is restored. Thus Birds and Insects, when frozen to Death, are immediately reviv'd by a gentle Warmth. Some, though convinced by the Force of Truth, often entertain some Distrust on account of the Clearness of the Evidence to vulgar Apprehensions. I shall therefore remove their Doubts, by inviting them to a more uncommon Spectacle, that of a dead Animal, whose Thorax is destroy'd; but is immediately revived by blowing into its Lungs with Bellows apply'd to the Larynx; as related by *Hook*. If you cannot help being surpris'd at a Life so mechanical, what think you of *Glisson*, who, by means of a Bladder, infusing a Liquid into the Veins of the Carcase of a Man long since dead, imitates the vital Actions after a surprising Manner? All these Specimens, with infinitely more which might be brought, are enough to prove that almost all those Things which either constitute or flow from Life and Health, depend on that Motion by which the Humours move, and act upon one another by a perfectly mutual Agitation; in their respective Vessels, the Effects and Laws of which being rightly understood, explain'd and demonstrat'd; only by Mechanics, under the Heads of Hydraulics and Pneumatics, I conclude again, that they are all the Subject of Mechanics.

On this Part of our Subject the Patrons of Ferments boast mightily of their Advantages, and set a great Value upon themselves: "For if, say they, the free Flowing of the Liquors through the Vessels be the Cause of Life, the first Principle of Motion must be in and from the Fluid, and consequently from an internal Agitation of extraordinary Force; and sufficient Constancy, or such as is excited in Liquids only by Ferments." But they ought to know, that the first Cause of the Motion of the Fluid in an Embryo is always to be derived from the Parents; that it is maintained and cherish'd by the Mother, while the Foetus depends upon her; and is perpetuated afterwards by the very Frame of the Solids. Whoever inspects the admirable Structure of the Auricles of the Heart with their Connexion to its Basis, and, what necessarily follows from them, the alternate Influx and Expulsion of the Blood transmitted from the Heart to the Arteries, from them to the medullary Substance of the Brain, the Processes, Nerves, Muscles, and Veins, will satisfy himself with accounting for the Continuation of Life from the

Mechanic Power of the Viscera; for it will be easy for him to demonstrate, Mathematically, that one Pulse of the Heart in a sound Body is the Cause of the Continuation of that Motion. The Means of preserving Life are much fewer in Number, and of a much more simple Nature, than we are subject to fancy; the Alterations made in Things which we receive into our Bodies, are much slighter than is commonly imagined; and the Causes of human Life are less complicated than we suppose them to be. If we had an exact Knowledge of the human Structure, or a right Notion of the Nature of the Humours, as cognisable by the Senses, the Science of Mechanics would soon teach us that those Things which being unknown, now raise in us the greatest Admiration, flow from very simple Principles. We shall illustrate the Truth of this Paradox by one Example, which will shew by what simple and perfectly mechanic Means a Change in what is accounted the greatest Operation in our Bodies is effected. The pellucid Part of a living Animal view'd by a Microscope plainly shews, that the Blood is propel'd merely by the Pulse of the Heart to the Extremities of the Arteries, where, by the elastic Contraction of the Artery, it is a little repel'd, at which Moment the Stroke of the Heart ceasing, and its Valves falling, there is room made for its Regress. By this reciprocal Impulse and Repercussion the Parts of the Blood of various Sizes are every-where apply'd to Orifices of various Dimensions, and receiv'd by some, and repell'd by others. By this simple Artifice is the Blood secreted into Fluids of different Colours and Consistence, which are soon after to be thoroughly mixed together again in the Veins. Here one who is versed in Chymistry, and the Conflicts of Bodies, will be convinc'd by his Eyesight in the clearest manner, that all these things described are performed merely by external Impulse, and the Elasticity of the Vessel, without any Sign of Ferment. Oftentimes when I have been fix'd in contemplating these things, I have doubted whether what I saw was Part of a breathing Animal, or Ducts devised by the Contrivance of the most complete Mathematician, cut out by the Hand of the most skilful Mechanic, for the drawing, separating, and mixing of Liquors, under the Direction of the most consummate Master of Water-works.

Some Things, the Knowledge of which a few Years ago was despaired of, are now from simple and indubitable Experiments of the Senses demonstrated in a Geometrical Way by Mechanics. Consult to this Purpose *Borelli*, who applies the Doctrine of the Mechanical Powers to Medicine. Read over what *Bellini* has discover'd from the same Principles, assisted by the Invention of *Malpighius*. Peruse also those Problems which *Pitcairn* propos'd to the learned World, and demonstrated. Examine what *Scheiner*, *Des Cartes*, *Huygens*, have written of the Eye; and what *Kircher*, *Schelhammer*, and *Morland*, have taught us concerning the Ear and Hearing. All these prove, beyond Contradiction, the Usefulness of Mechanic Knowledge in Medicine; and shew what might be expected, were the Use of it introduced into the salutary Art by some skilful Physicians, and persisted in for so long a time as human Patience has been able to endure the idle Systems of some Sects in Medicine.

All these things will be allow'd to be true, and the Usefulness of Mechanic Learning in Medicine is acknowledged with respect to the Theory; but it is very commonly said, that Mechanic Knowledge is of no Service at all to a practical Physician. This plausible Distinction, made with so much Confidence, does not appear to me to be consistent; for I do not suppose that by Theory they mean any other than what clearly shews, from proximate Causes, what is the Life of a Man in Health. If this be admitted, as it ought to be, it will follow, that this Science affords us the best Assistances for the Knowledge and Cure of Diseases. For he who knows the Causes of perfect Health, must, whenever they are deficient, be very well qualified to comprehend the Original and Nature of such Defect, that is, the Disease; and certainly he who has the clearest Notion of the immediate Cause of Sickness, is the fittest Person to encounter with it; just as it is in a Clock, where every one observes when the Hand deviates, but none knows how to correct it according to Art, but he who, knowing the exquisite Structure of the Machine, can both find out the Defects of the Parts, and Remedies for the same. So there is not a Truth in the Theory of Medicine, which a skilful Artist does not know how to apply to his own Advantage in Practice; and, consequently, to confess the Excellency of the Mechanic Science in Theory, is to grant its Usefulness in Practice.

That most antient and useful Branch of Medicine, Surgery, owns itself much oblig'd to the Arts of Mechanics; for who is so well qualify'd to invent Instruments for the remedying of Defects as a Mechanic? Those minute Images which seem to dance before the Eye, were treated by those who were ignorant of Mathematics, as the Beginning of a Cataract in the aqueous Humour, with acrimonious Medicines, which often corroded that tender Part the Eye. But since *Willis*, from Geometrical Reasonings, has fixed their Seat in the Retina, and assign'd their Cause to the Arteries, and *Pitcairn* has given a Demonstration of the same, how is the Method of Cure alter'd! The external corroding Topics are rejected, and the Defect is soon remedy'd by Phlebotomy and a Purge, if severe enough to require any sort of Treatment. A depraved Vision, from a wrong Collection of the Rays, would be very injudiciously treated with a Collyrium, or a Medicinal Potion, but is very successfully remedy'd by Spectacles, for the Construction of which *Huygens* has given Rules adapted to each particular Defect: And I wish, that they who discard the Mechanic Science from Medicine, would first take the Pains only to understand *Huygens's* Treatise of correcting the Defects of Sight, where, assuming for Data the Structure of the Eye, as describ'd by Anatomists, and one Property of the Disease he designs to cure, he soon finds a Remedy for it in the Mathematics, which is adapted only to this peculiar Disorder, to whose Property his Problem was confined. Thus, without touching the Eye, he removes this Effect of the Disease, and compensates a Defect in itself irremediable with the supplemental Glass. Here we behold a fair Specimen of the Method, Use, and Success, of Mechanic Ratiocination on Medicinal Subjects; and if all other Points were handled after the same manner, as by degrees they might, Medicine would have more of Certainty, and not be subject to Hypotheses, nor mutable at every Turn, but a fix'd and eternal Science.

It signifies nothing to say, that it is not yet confirm'd, that the Disorders of the Fluids, and consequently the internal Cause of Sickness, with its Cure, are subjected to mechanic Remedies. For the Question is, either, Whether this Benefit from mechanic Studies be impossible to be obtained? or, Whether it be already acquir'd? If the latter be meant, the Objection is unfair and vexatious; for how can it reasonably be expected, that a few Mechanics, who have studied Medicine but a short time, should bring things to Perfection, in which the joint Labour of all others for three thousand Years has scarce made a Beginning? It is even an utter Impossibility; for since the Laws of applying Mechanics to Medicine require, that the Structure of the Solids, with the Nature of the Fluids, and their sensible Effects in Sickness and Health, should serve as Data, it would be very absurd to expect, that so laborious an Art should be perfected without Rudiments. But, if any one should be of Opinion, that nothing is to be done or brought to Perfection by the Mechanic Way, I desire him to consider orderly flowing of that Fluid thro' the Vessels, as appears from the Experiments of *Hippocrates*, compar'd with those of *Sanctorius*, and what are commonly made. Now a Person who has been diligent in comparing the Phenomena of Life, Health, Diseases, Death, and dead Carcases, will, for the most part, ascribe the internal

Impediment

Impediment of Circulation, either to the Weakness of the impulsive Force, or a convulsive Contraction of the Vessels, or to some Fault in the Fluids, with respect to Quantity, Motion, Thickness, or Thinness. And, upon serious Reflection, we shall find, that those Remedies which we administer to sick Persons, are beneficial principally on account of their removing the before-mention'd Disorders. Compare the invaluable Observations of *Sydenham*, with the Demonstrations of *Bellini*, concerning Venesection, Stimuli, and contractile *Villi*; and when you are convinc'd, that common Remedies relieve by an Operation plainly mechanic, you will entertain some Hopes, that their Virtues and Applications may, by Degrees, be reduc'd within the Rules of Demonstration. And I can hardly forbear, tho' perhaps too prematurely, pronouncing that the Causes of even the most complicated Diseases are more simple and mechanical, than any Physician imagines; for the least and most simple Disorder of one Part, by Communication necessarily resulting from Union, suddenly perverts the Powers of the most healthful Machine. Prick but the smallest Fibre of a Tendon or Nerve, with the finest Needle of the purest Steel, and you will soon see what a Train of frightful Symptoms are the Consequences of so slight a Wound; for then follow Pain, Redness, a Tumor, a burning Heat, Pulsation, a Fever, Thirst, Delirium, Convulsions, and at last Death. A Thorn, or a slight Splinter, fixed in a membranous Part, produce the same Effect; and the like also proceed from the Spicula of Poisons, the Lancets of Pestilences, and the Points of Salts. What wonderful Alterations are produced in a sound Body by external Motion only! Let a Person turn round for some time, or be tossed upon the Waves in a Boat, when unaccustomed to it, and he will find himself molested with a Vertigo, Paleness, Nausea, Vomiting, and Anxiety, with a Multitude of other Disorders, and surprising Alterations, produced in the vital Fluid only by Motion. He, then, who considers, that the Humours remain incorrupt as long as they are agitated and propelled in their Vessels; that if they stagnate in a hot and moist Place, they presently grow morbid, and communicate the Infection; and that one simple Disorder is immediately followed by an Infinity of others; will very easily perceive, that the most expeditious Remedies, in these Cases, are to be expected from the mechanic Physician; for what is there that may not at length be found out by comparing the Causes of the Impediments of Circulation, the Rules of overcoming Resistance, restoring the elastic Motion, and augmenting the Force of the Heart, with the Phenomena of the Disease?

But, say some, the Power which the Mind exercises over the Body shews, that Life, Health, and Diseases, have no Dependence upon mechanic Principles: Vain therefore are all Attempts of that Kind, and mechanic Speculations can be of no manner of Service to a Physician.

It were to be wish'd, that those who make this Objection were not involv'd in one common Ignorance with the rest of Mortals; for, who among all Mankind could ever find out the Force of this wonderful Commerce in any thing that constitutes either the Body or Mind? We ought however, to know that the Virtue of Cogitation, as soon as it comes into the Body, renders every thing which it produces therein corporeal, and consequently obedient to mechanic Laws. What Matter is it, if the first Cause of an Alteration be not mechanic, since it is the Business of the mechanic Physician, not to concern himself about that first Cause, but to know, examine, and direct the Effect, which is corporeal?

There is one thing on which they who differ with me in Sentiments lay their principal Stress, which, that I may not be thought artfully to decline answering, I think myself bound to refute. Those Philosophers, they cry, and mechanic Reasoners, whenever they apply themselves to the Practice of the Medicinal Art, meet with nothing but Disgrace and ill Success: There is no need therefore of disputing, since it is certain from Fact and Experience, that the Knowledge of Mechanics is prejudicial to a Physician.

If their Objection be directed against those who assume the glorious Title of Philosophers in the Schools, what they say is very true, as appears from History, and the Books which these Philosophers have wrote on medicinal Subjects. For, while they undertake to create the first Principles of all things out of their own Imaginations, and afterwards, from those Qualities with which their Fancy had before endu'd them, endeavour'd to explain the peculiar Nature of every Body, that very Doctrine of Mechanics, here recommended, demonstrates that they erred in every Point. The Conclusions which they drew from Ratiocination, could never be applied to things in general, unless it could first be prov'd, that what they assumed as the Foundation of their Reasoning, really existed in every Individual. But, since the Nature of Things admits of infinite Variety, it is not likely, that Truth should be discover'd by random Guessing. But if these Scholastics before-mention'd, as well as many others versed in Mechanics, and Followers of *Des Cartes*, had not made it their Business to regulate the human Body by the Laws of their imaginary Principles, but by those things, of which, according to Observation, Man was really constituted, they would then have laid the Foundations of our Art by the Application of Mechanics.

But, if this reproachful Objection be intended against a mechanic Physician, such as I have described, I expect some Instances in Justification of the Calumny. None, who rightly understands our Meaning, will deny, but that an excellent Mathematician may make a very bad Physician. We do not require, that a Man skill'd in Mechanics should be a Physician; but that a Physician should be skilful in mechanic Learning. He who prefers one versed in Mechanics, but unpractis'd in the Cure of Diseases, to an experienced Physician, is a Madman; but, what I affirm, and have endeavour'd to demonstrate, is, that of two equally experienc'd Persons, the Man who is furnish'd with the greater Stock of mechanic Knowledge, is the best qualify'd for improving the Art of Medicine.

For the avoiding of all Misrepresentations, which are but too frequent, I shall give you a Description of a Physician, according to the Idea which I have form'd of him in my own Mind. I imagine him, first, laying the Foundations of his Art in the Contemplation of Geometrical Figures, Bodies, Weights, Velocity, the Fabric of Machines, and the Power of acting upon other Bodies thence arising. While he employs his Thoughts about these Matters, he is taught by plain Precepts, as well as Examples, to distinguish Truth from Falshood, Evidence from Obscurity, and acquires Prudence of Mind, from a Slowness to pass a Judgment upon things. When he knows how to estimate the bare Actions of simple Bodies, and to deduce them from true and manifest Causes, I think him qualify'd for learning the Properties of Fluidity, Elasticity, Tenuity, Weight, and Tenacity of Liquids, from Hydrostatics. His Reason being by this time much improv'd, he proceeds to study the Forces of Fluids upon Machines, and of these upon Fluids, and to demonstrate them by Mathematics, confirm them by Hydraulics and Mechanics, and illustrate them by chymical Experiments; and entertains himself with Speculations on the Nature and Actions of Fire, Water, Air, Salts, and other homogeneous Bodies. I now look upon him as sufficiently furnished and qualified for entering upon the Study of Medicine; and here he employs his Eyes, illuminated with Geometry, in viewing Dissections of human Carcasses, or the open'd Bodies of living Brutes; and contemplates the Structure, Figure, Firmness, Original, Bounds, Connection, Curvature, Flexility, and Elasticity of the Vessels. Being excited by so wonderful a Spectacle, he applies what

he fees to the Rules of Mechanics, in which he was before instructed, and discovers the hidden Uses of those Parts. What a Variety of fine and useful Discoveries, with which later Ages have enrich'd Anatomy, employs his Attention! While he accommodates the Inventions of others, acquir'd with the utmost Labour and Industry, to his own Use, he forms to himself a clear Idea of the human Fabric. To this he joins the Knowledge of the vital Fluids, and examines them with the Assistance of Anatomy, Chymistry, Hydrostatics, and even of the Microscope; and soon after he runs over a most accurate History, artfully collected from all Parts, of all the sensible Effects produced in a healthful Body; and so now you see him furnished with *Data* for writing a Theory of Health. From these *Data* being each of them well understood, examin'd, and compar'd with one another, by the Assistance of Mechanics, and with the Strictness, Method, and Prudence of a Geometrician, he deliberately draws such Conclusions as the Subject naturally furnishes, and which, tho' hidden from the Senses, are evident to Reason. By this Method the proximate Causes of every Effect are investigated, the Nature of them being evidently known, as it is an Aggregate of the Properties of the Phænomena they collected, understood, and compared together. Now what may we not expect from one who directs his Studies by this Method? A Knowledge thus acquired would be immutable, and coæval with human Nature, from which it is deriv'd, and on which it is founded. It must have Certainty, as it proceeds with the utmost Caution in giving Assent, and depends on what is alike evident to all. It must be sufficiently determinate and useful, as it investigates the proximate Cause, by considering the certain and sensible Properties of the Body, and that in a way not capable of leading into Error. It increases slowly, I confess, and insensibly; but then the least Progress is always a sure Step to higher Attainments, and an infallible Cause of new Improvements. Thus you see him aspiring to Perfection, and now qualified for reading *Hippocrates* and the *Greeks*. Now behold him busied in furnishing himself with medicinal Collections from all Quarters; here again he is taken up with the curious Inspection of dead Carcases, whose Diseases he had observ'd; there he marks the Symptoms of Sicknes procur'd by Art in Brutes, and now at length collecting together all the Effects of Diseases, with their Remedies, which he had either learnt from his own Experience, or found in the best Authors, he digests, considers, and compares them with those which are demonstrated by Theory, from whence he may at last compose a solid History of Diseases, and their Cures. This is the Idea which I have of a consummate Physician; to this I have always endeavour'd to conform myself, and to render those who commit themselves to my Care conformable.

Thus far *Boerhaave*; and it must be confessed, that Mathematical Reasoning is the most certain Guide to Truth, provided always that nothing is taken for granted as the Foundation of our Reasoning, which admits of any Disputes. But it has happen'd very unfortunately for Physic, that the warm Imaginations of Theorists and Anatomists have represented to them many things in themselves extremely precarious, as certain Truths; and these have been warmly embrac'd as contributing to the Confirmation of some favourite Systems, which their Authors were determin'd to establish right or wrong. Now all Reasonings whatever, from such uncertain Principles, are more likely to be prejudicial to Physic than to improve it; and I am inclin'd to believe, that the Misapplication of Mechanics to Medicine has done the Art of Healing more Prejudice, than a proper Use of them has done it Service. The Abuse, therefore, of mechanical Learning in Physic is highly to be condemn'd, as the Tinsel of the Art, which makes a Noise and a Shew, without communicating any real Value.

It is a very difficult thing for People even of the greatest Abilities, and soundest Judgment, when they are once determin'd to explain all the Phænomena relative to the Animal Œconomy mechanically, to forbear representing things which please their Imaginations, as Realities, upon very slender Evidence. Even *Boerhaave*, in the Oration made on Purpose to recommend Mechanics in Physic, deviates from his own Rules, and boldly supposes some things as certain, which would give him a great deal of Trouble to prove, if they should be denied. Thus, speaking of the ultimate Fibres of the Muscles, he represents them as minute Tubes inflated with Spirits. Now, the Existence of these Spirits has never been demonstrated, and I believe never will. Whatever therefore is deduc'd from a Supposition of their Existence, is extremely precarious, and subject to infinite Controversy.

It may be farther asked, Whether, since the Introduction of Mechanics into Medicine, any Cure has been discover'd for Distempers before esteem'd incurable; and, Whether they have suggested any better Methods of Relief for Diseases which before admitted of a Cure. I must acknowledge, I can bring no Instances of the first Kind in their Favour, and very few of the last; but I have known frequent Attempts made to reason Remedies of Reputation, establish'd by Experience, out of Practice, because inconsistent with particular Theories pretended to be founded on the Laws of Mechanics, and to introduce others in their room, which Experience has prov'd to be of much less Efficacy.

Tho' the Abuse of mechanical Learning has yet had no salutary Influence on the Art of Healing, I am, however, convinc'd, that under proper Restrictions, this Kind of Learning may be of infinite Use, and contribute greatly to the Advancement of Medicinal Knowledge.

To what has been already said concerning the State of Physic, I shall add the Sentiments of the illustrious *Hoffman*, upon the Methods of improving it; the best and most successful of which, in his Judgment, consist,

First, With the greatest Attention and Diligence to write out full and accurate Accounts and Histories of the several Diseases which occur in Practice.

Secondly, By an attentive and minute Dissection to investigate, as far as possible, the curious and surprising Structure of the human Body; and

Thirdly, By the Assistance of experimental Philosophy, which includes Mechanics and Chymistry, to search for the hidden Causes which produce particular Effects.

Give me Leave to add a fourth Way of improving Medicine, which is carefully to attend to the Effects of Simples, whose Virtues are unknown, upon Brutes.

In former Ages, the Practice of Medicine sustain'd an incredible Injury by an intolerable Farrago of absurd and useless pharmaceutical Compositions, and a supine Neglect of what we call the Simples. Nor in these Ages did Medicine suffer less thro' a Penury of such Observations as lay down the full and accurate Histories of Diseases. But, to come nearer to our own Times, Medicine has been greatly injur'd by the Chymists, who rashly and imprudently extolled the most drastic Medicines of the Mineral Kingdom, as Specifics, and infallible Secrets for the Cure of Diseases, whilst they neglected and despised the safer Method of Diet, and the Use of such Simples as are easily obtain'd. If, then, we intend to advance the Medicinal Art, and make it shine with genuine Lustre and Glory, we must collect a sacred Treasure of select practical Observations, rest satisfied with a few,

few, but safe and well-chosen Medicines, be thoroughly acquainted with their Virtues and Efficacies in different Constitutions and Diseases, despise the cumbersome Load of Recipes with which practical Authors of an inferior Class abound, reject the so much extoll'd Medicines of the Chymists, and attempt the Relief of the Patients rather by Diet and Regimen, than the Preparations of the Shops. Whatever has hitherto contributed either to render the Theory of Physic rational, or its Practice happy and successful, has been drawn from practical Observations, a Knowledge of Anatomy, and Natural Philosophy.

Since the Discovery of the Circulation of the Blood by the incomparable *Harvey*, it is much more easy to account for Life, for Health, and for Diseases; as also in a Pathological Manner to explain the Doctrine of Fevers, Hæmorrhages, Inflammations, and several other Diseases.

Since the Conveyances of the Chyle from the Intestines to the Blood have been discovered; since various small Glands and glandular Coats have been detected in the intestinal Duct; and since we have adverted to the winding Situation of the Duodenum, which is justly call'd a second or a kind of auxiliary Stomach, in which two Humours meet the Bile and pancreatic Juice; we are able to give a better and more rational Account of Digestion, Chylification, Sanguification, and the Generation of Diseases, which have their Seat in the first Passages.

Since the Lymphatic Vessels have been discovered by *Bartoline* and *Rudbeckius*, and afterwards farther investigated by *Nuck* and *Ruyseb*; since the Structure and Use of the Glands have been more fully display'd by the Researches of *Wharton*, *Nicolaus Steno*, *Nuck*, *Cowper*, *Malpighi*, and *Morgagni*; and since the Conveyances of the Chyle through the Lacteal Vessels, and Thoracic Duct, have been detected by *Pecquet*, *Bartoline*, *Van Horne*, and others; we are much more able to explain those Diseases which arise from a Fault of the Glands and Lymph, or from a depraved Nutrition.

Since the Structures of the Viscera, Lungs, Brain, and Liver, have been investigated by the accurate *Malpighi*, and that of the Kidneys by *Bellini*, we far better understand the Origins and Causes of Disorders incident to these Viscera, such as a Phthisis, a Dropsy, and nephritic Disorders. We are also much indebted to the Pains which *Steno*, *Vieussens*, *Willis*, *Ridley*, *Lewenboeck*, *Ruyseb*, and others, have taken, in inspecting the Brain and Nerves more narrowly than any had done before them. We are also highly obliged to the Labours of *Glisson*, *Bianchi*, and *Morgagni*, for their accurate Accounts of the Structure of the Liver; and to those of *De Graaf* and *Brunnerus*, for our Acquaintance with the Pancreas.

Since *Casseri* and *Ruyseb* have evidently shewn the Compages of the Spleen to be vascular and cellular, we have fairer Opportunities of discovering the Diseases incident to this Organ, and finding out a proper and adequate Method of curing them.

Since we know the peculiar and surprising Structure and Distribution of the Vena Portæ, which performs the Office at once of an Artery and of a Vein; and since we now know the Number, the Origin, the Situation and Course of the Hæmorrhoidal Vessels; we are the better able to explain and account for all those Diseases which flow from the Faults of these Vessels, and an Interception of the progressive Motion of the Blood through the abdominal Viscera, of which Class the hypochondriac Disorder is none of the least considerable.

Since we know the surprising Fabric of the Uterus, and are assured of the manner in which the Blood circulates thro' its contorted Vessels, we can easily discover the Diseases incident to that Organ, as also the Disorders arising from Irregularities of the Menstrues, and account for their Origins, and several Symptoms, upon clear and intelligible Principles.

Since the Origin of the Nerves from the Brain and Spinal Marrow, and their admirable Distribution into curious Ramifications, have been investigated by *Vieussens*, and some others, we can readily account for spasmodic and convulsive Disorders, particularly for hypochondriac and hysteric Affections, and explain their most formidable Symptoms. In Consequence of this Discovery, we are also better enabled to understand the Consent of the Parts, especially those of the nervous Kind, and the Method in which disorderly and preternatural Motions are communicated.

Since *Swammerdam* and *De Graaf*, and after them *Cowper*, *Morgagni*, *Santorini*, and other celebrated Men, have investigated the Parts of Generation in both Sexes, we have the Diseases incident to these Parts subjected to our Senses, and their Causes, as it were, exposed to open View.

Since the admirable Organ of Hearing has been accurately and anatomically describ'd by *Du Verney*, *Valsalva*, and *Cassebbomius*, the Impediments and Defects of Hearing are far better understood than they were before.

Since the small Glands of the Joints have been discover'd in the Bones by *Havers*, the Origins and Causes of arthritic Disorders are far more plain and conspicuous than they formerly were.

Since the incomparable and accurate *Ruyseb*, by injecting ting'd Liquors into the Vessels, has discover'd the innumerable and strangely varying Windings of the Capillary Vessels, we have a far clearer and more distinct Knowledge of the Use of the Glands, and secretory Organs, and consequently of the several Disorders to which they are subject.

'Tis obvious that the Geometrical-mechanical Structure of the Muscles, as described by *Borelli*, *Steno*, *Winslow*, *Santorini*, and *Albinus*, and the muscular Compages of the Heart, detected by *Lower* and *Lancisi*, are Discoveries of singular Service in determining the Motions of the Joints, understanding the Force and Pressure of the Heart, and the Impulse of the Fluids.

In a Word, all the anatomical Discoveries of the Moderns have contributed to illustrate, to beautify, and adorn the Healing Art: For Proof of this see the Article ANATOMY.

Nor have Physico-chymical Discoveries contributed less to the Advancement of Medicine; for since by various Experiments we have discovered the Gravity and Elasticity of the Air; since we know the Causes of Fire, Heat, Cold, Gravity, and Levity; since we have investigated the Natures of Solids and Fluids; since we have discover'd the Causes and Nature of Fermentation and Putrefaction, as also the Effects, whether natural or artificial, produc'd by various Salts and Sulphurs; since all these important Discoveries have been made, we can clearly account for the Power of the Air in changing the Motions of our Fluids, either for the better or the worse, and for the Generation of material or immediate morbid Causes. In Consequence of these Discoveries the Virtues and Efficacies of Medicines are also far better known than they formerly were.

Chymistry also, and Pharmacy, so much and so happily cultivated in our own Days, have contributed to the Perfection of the Art, by teaching us to prepare and make up the most salutary and efficacious Medicines.

Since the stated Laws of Motion have been ascertained and demonstrated by Statical, Mechanical, and Hydraulic Experiments, we better know whence proceed the moving Forces of the Muscles, the elastic Power of the Heart and Fibres, their Strength, their want of Tone, their spasmodic Constrictions, their Pressure or Impetus upon the Fluids; as also the wonderful and surprising Effects produc'd by the Inequalities of the Circulation of the Blood.

By what I have endeavour'd to inculcate in many preceding Passages, my Readers will readily understand, that the grand Labour incumbent on a Physician is to extirpate all Superfluities out of Physic, clean the *Augean* Stable, an *Herculean* Undertaking! and reduce the Art of Healing to that noble, useful, and intelligible Simplicity, from which 'tis probable the Supreme Being, in Compassion to human Infirmities, intended it should always be inseparable. This, at least, was the Opinion of the incomparable *Boerhaave*, whose Dissertation on this Subject highly deserves Perusal.

Truth, says he, has such Charms, that, as wise Men say, "Mortals cannot sustain the Sight of her naked;" but whoever shall be blest'd with such a Contemplation, will find nothing so admirable, so taking in her, as Simplicity. For Truth, being founded only on the clear Contemplation of Ideas, requires nothing of its Votaries, but to compare these Images, when placed in a fair Light, and seriously to judge of their Agreement or Disagreement, which is best effected by a close Attention of the Understanding to those Ideas, whencesoever they arise, which it beholds imprinted on itself. And as these Ideas, when pure and divested of whatever may darken or fully them, are inconceivably simple, so that very Attention, which is fixed on them alone, is, of all Acts of the Mind, the most simple. Consequently Truth, the Result of such an Act, though reputed the Parent of all Admiration, is the most simple of all Attainments. I appeal to those strict Votaries of Truth, the Mathematicians, whether the most intricate Problem does not lose all that it has of the Marvellous, when the Knot comes to be untied, and Truth appears in its native Simplicity. It is out of regard to this Simplicity, that from a Multiplicity of Solutions to the same Question, the most simple is always chosen and preferred. Or were I to ask the most useful of Geometricians, I mean those versed in the Mechanics, they will tell you, That out of a Multiplicity of Instruments for performing the same Work, they approve only of one, and that the most simple. He who makes the greatest Progress in his Researches after Truth is preferred before others, in Honour, as well as Success, on account of his knowing how to reduce, by the most proper and skilful Methods, Things naked and divested of all that is foreign, to their genuine Simplicity. The same is most true, with respect to all Kinds of human Wisdom, as appears from the History of all Ages. *Aesop*, *Socrates*, *Democritus*, *Hippocrates*, *Lord Verulam*, and *Des Cartes*, all the World will acknowledge to have been very great and successful Inquirers after Truth. But if we take a View of their Lives and Writings, we shall find, that the principal Means of their Excellency was that Simplicity which is always the Characteristic of Truth, and the surest Mark by which it may be discover'd.

Whoever rightly considers these Things, will be inclin'd to think, that the same holds good with respect to the Healing Art, which, when study'd and cultivated with an Integrity and Purity worthy of the Subject, I shall prove to carry in it a Facility, as well as Simplicity; and this I am the more willing to do, because there are many who purposely run out and expatiate on the Difficulty of the Art, and the infinite Labour necessary to attain it; by which Industry is discouraged, and taught to despair of ever surmounting those Obstacles, which these Men would throw in its Way.

That nothing belongs to Medicine, but what tends to preserve the Life and Health of Man from the Injuries of Diseases, is a Point, which, I think, cannot be deny'd. But an Opinion has prevailed, which is taken upon Trust, that there is an Infinity of Things of this Kind, and that their Numbers and Qualities are unlimited; so that Medicine being the most diffus'd of all the liberal Arts, with respect to its Subject, for that Reason commonly passes for the most difficult. But the Man who is wise enough to distinguish Things dubious from certain, true from false, will find himself oblig'd to rest contented with a few Conclusions of undoubted Verity, which are deriv'd from the genuine Principles of this Art; for in Matters which concern our Lives nothing is to be taken for granted, the Truth whereof is suspected by skilful Men of the Profession; and common Prudence teaches us, by all means, to guard against Errors, which are most effectually avoided by exploding whatever is peculiar to particular Sects, and embracing nothing but what all well-qualified Judges, with one common Assent, embrace and approve. Let Medicine be reformed and regulated according to this Rule, and it will soon be reduced from its enormous Dimensions to a very small Compass.

To confirm my Assertion, it will be proper to take a View of the principal Men of Reputation and Parts, in Comparison of whom the rest are but Compilers. The Books of the divine *Hippocrates*, to whom we are oblig'd for most Things in Medicine, if sifted and examined, will afford us but few things of Certainty, and those of the most simple Kind. For, expunge but his Fire and Water; his Elements, with their Powers; Nature, with its Inclinations, Aversions, Attractions, Repulses, and Ratiocinations; natural Heat, celestial Causes, and the anatomical Errors, with all that depends upon the before-mentioned Heads; and there will remain only a small Body of Observations, not very remote either from the Senses or Understanding. If we consider the harmonious and eloquent *Plato*, the Author of a numerous Sect, who have fill'd whole Libraries with their Writings, and divest him of his Triangles, Numbers, Ideas, Elements, Humours, Genii, Appetites, Harmonies, and Parables, with all their sacred Mysteries, and false Corollaries, what will there be left of him, but a very few Things, which *Hippocrates* had said before him? And if we divert our Thoughts to his proud Disciple, the famous *Aristotle*, the Oracle of Medicinal, as well as all other Learning, from *Plato* down to *Paracelsus*, we shall find nothing in him, or his Followers the Schoolmen, conducive to Medicine, but what is wholly borrow'd from *Hippocrates*; all the rest is either obscure, or so false, or general, as to contribute little or nothing to the Improvement of Medicinal Knowledge. What is there to be found in the voluminous Writings of *Galen*, except those of Anatomy, that is of Use, for which he is not oblig'd to the great Physician of *Coos*? All the rest is low and mean, and destitute of Force. I should now make my Conclusion from the Premises, but that I think myself oblig'd to pay some Respect to the venerable Company of *Arabians*, who, with their numerous and specious Appearance, would tempt me to change my Opinion, did I not know by Experience, that their Writings contain nothing but *Aristotle* and *Galen* speaking in *Arabic*. These Things, then, being taken for granted, of the Truth of which the Learned are satisfy'd, it will follow, that from the Beginning of the World, to the Era of Chymistry, all that has been written necessary to Medicine, may be comprehended in a very few Leaves, and are of a very simple Nature.

Much the greatest Difficulty, then, which a young Student has to encounter in acquiring the Knowledge of the antient Medicine, is to know how to avoid those which are only Compilers and Transcribers of those which went before them, and to apply himself to the few original Authors. He is not, therefore, to busy himself in turning over all the Antients, but to read these only, which being well understood, the rest may be neglected, unless he can be thought to make the greatest Progress, who leaves the strait Way, and goes round about. Ignorance, Folly, precarious Hypotheses of false Principles, and a lazy Assent without Examination, are the Faults of Men, not of the Age, and were of pernicious Consequence to the Antients, as they are to the Moderns. They who despise every fine and useful Invention of the Moderns, and reverence the Antients as so many

many Deities, are led by a Zeal for Parties, and do not weigh things in the Balance of Reason; and there seems to be a Spirit of Envy in favouring the Antients, to the Prejudice of Persons of Merit among the Moderns. But there are far greater Numbers who run to the other Extreme, and think very meanly of the Labours of the Antients, but launch out, on all Occasions, in Praise of their own Times, boast of the mighty Improvements and Enlargements of the Bounds of Medicine, and are very witty and satirical upon the Ignorance of the Antients. They who labour'd in the Improvement of Medicine, upon the Principles of a very great Mathematician of the last Age (*Des Cartes*), introduced strange Errors and Corruptions into the Art, by ascribing Events in Medicine to imaginary Causes of their own Invention. But such is the Condition of human Knowledge, that from the Observation of the Phenomena of Bodies, the Intellect arrives ultimately at an Insight into the Nature of the hidden Causes of Effects, which may lead to farther Knowledge thence deducible; whereas the Followers of *Des Cartes*, deducing most things from fictitious Principles, and relying only on Generals, made a monstrous Transition from thence to Singulars. Hence the *Cartesian* Philosophy has been so far from being useful in Medicine, that it has been discarded as a heavy Burden laid upon it.

The Chymists, by a diligent Observation of the Effects resulting from the Application of Bodies to Bodies, made very good Discoveries of the Virtues peculiar to some of them, and of the Actions of these Virtues, as far as lay within the Bounds of this Art. The Usefulness of such Labours, and their Necessity in Physic and Medicine, it would be unfair to deny; but when upon such a Footing they presumed to prescribe Laws, to which all Bodies must of Necessity be subjected, they soon fell into most shameful Errors. For, as, while they devoted themselves to the making of Experiments, they deserved much Commendation; so, when from the narrow Bounds of *Singulars* they made Excursions into the immense Spaces and vast Extent of *Generals*, they soon lost their Way, and fell into dangerous Mistakes. Manifest Instances of this their unmeaning Elements, pretended Ferments, and imaginary Actions of effervescent Bodies, furnish us with. Opposite Salts were, according to them, the only Instruments of the Operations of Nature; nothing less than Immortality would serve the Turn; Chymistry produced nothing but what was salutiferous, and the Practice of a Physician was to be made conformable to these idle Chimeras. See here the fruitful Sources of infinite Error! and take away all that is to be found of this Character in the Writings of *Paracelsus*, *Helmont*, *Tachenius*, and the old Chymists, and then tell me how much there remains of real Use in Medicine.

Not a great deal, and that only of a simple Nature, which that honest and skilful Chymist Mr. *Boyle* has with the greatest Openness, as well as Prudence, explained to all Capacities. Does Medicine now appear of so formidable a Bulk? Are the Matters, about which it is properly employ'd, of so vast an Extent? No, but a very few things; and such as have a Simplicity conspicuous in their Fewness, are the proper Subject of our Art; whatever is more than this, and seems to enlarge its Capacity, is merely adventitious, and no more regards the Medicinal, than any other Science.

But, granting that this Simplicity belongs to Medicine in its low and imperfect State, have we not Reason to be apprehensive, that the Art is more and more difficult and complicated, as it tends to Perfection? I answer directly in the Negative, and, if I mistake not, with very good Reason. For every Thing has its own peculiar Nature; and the Person who is so happy as to distinguish this Peculiarity, will never imagine otherwise of that Thing: But, he who inconsiderately disputes about things unknown, the farther he goes from the Truth, the more will he multiply Error, and embroil himself. Thus he who goes the direct and strait Way, arrives at his Journey's End with Ease and Speed; but those who deviate from this Way, which is always one, run off into innumerable By-paths, and wander about in uncertain Pursuits. Thus also it is with the Man who attains to Perfection in Medicinal Knowledge; the more happy he finds himself in the Possession of Truth, the more amiable will it appear to him for its Simplicity. In former Times, when a lazy Negligence, and an unbridled Licentiousness of Fiction, without taking the Pains to inspect the Structure of our Bodies, dressed it up in Imaginable Oeconomy, of the human Frame! But when, by the Industry of later Ages, the Contexture of our Bodies came to be subjected to the Cognizance of the Senses, how sudden and surprising was the Alteration made in the Affairs of Medicine! What is now become of the hidden Forms of Solids, the close Recesses of the Archeus, the vast Numbers of single Ferments, the infinite Variety of Strainers, with their different Meatuses, together with the numerous Troops of most efficacious, but unintelligible and unaccountable Faculties? Medicine would be a difficult Acquisition indeed, if it were only to be attain'd by the Knowledge of such precarious things as these. Scarce had the famous *Harvey* led the Way in which he was so well seconded by the industrious *Malpighi*, to the Discovery of the human Machine, when those imaginary Beings, and Creatures of the Brain, vanished like Mists before the Sun; and so clear was the Evidence, so great the Simplicity, that the Discoverers themselves could hardly believe their own Eyes. Encourag'd with this, their Successors pursued their Researches, and in their Progress found the Ways of Nature still plainer, as they went farther; so that after they had set in the plainest View the most hidden Parts of the human Fabric, they could not forbear confessing, that their Art was reduc'd to a narrower Compass by their Discoveries. Who could have expected a farther Insight into the Structure of the human Viscera, than what is afforded by means of the Microscope, which discovers the same Things in the least; as the naked Eye had before observ'd in the greatest Vessels? The Nature, the Figure, the Simplicity, and even the Action, are every-where the same; so that the nicest Inspection best convinces us of the Mistakes of former Times, in imagining any Difference in them. How well is the same illustrated by that fine, delightful, and of late wonderfully improv'd Artifice, by which minute things are magnify'd, obscure render'd conspicuous; Things hidden shewn in open Light, and from Confusion reduc'd to Order, I mean the Injection of a Liquor into the minute and intricate Canals of the human Body, which, when empty, disappear! The Effects of this Art are a sufficient Confutation of those who dream'd of such a wonderful Variety in the hidden Parts of our Bodies, as was almost above human Comprehension; since it appears, by all the Artifices used to inquire into them, that the least Parts bear an exact Resemblance to the greatest, the hidden Parts to those which are most exposed. As none, therefore, complains of any Difficulty or Mystery in the larger and more exposed Parts, there is as little Reason to imagine any thing more wonderful or mysterious in those Parts which are the most minute, and most remote from Sight; on the contrary, the more we know of the human Machine, the more simple it appears.

The Subject requires, that I should remove some Difficulties concerning the Humours, which being observ'd by knowing Persons to be productive of innumerable Effects, they concluded there was as great a Multiplicity in their Nature. But tho' it be true, that every single Event depends on its proper Cause, yet it is falsely assum'd, that these Causes are wholly dependent on the Variety of Humours; for the same Action of the same Liquid, applied to different Canals, produces wonderfully different Effects. Or, if you examine the Liquids themselves,

themselves, you will not find so great a Multiplicity in them as is commonly imagin'd, as will appear by the following new Way of Argumentation. The Parts separable by Art from our Fluids are Water, volatile Salt, Oil, and Earth, which, tho' few, and easily reducible to the most simple Bodies, do not thus exist in a living Man, whose Body contains only the Matter, which is so alter'd by the Labour of the Chymist, as to afford such Productions. Therefore the natural Humour is even more simple than what Art produces, which, you see, is far from including a Multiplicity.

Dioptrics will represent the Thing I contend for to the Sight. How wonderful is the Simplicity of the vital Liquids, when view'd through a Microscope! There a salt Water is a Vehicle for red Globules, which change their Colour according to the various Bodies with which they mix in their Course, till at length, crouding into the narrow Canals they circulate by themselves, and changing their Colour, by degrees, from red to pellucid, at last disappear.

The Simplicity of the Aliment which supplies our Humours, furnishes us with another Argument: Hay or Grass, and Water generate, in a Cow, Humours very like our own. The Milk of that Cow by Transmutation generates the human Fluids, which are recruited in an abstemious Man, by the sober Aliment of Bread and Water. The deeper Insight, then, we have into the Nature of our Fluids, the more simple will they appear. And what is now become of all those vain and empty Hypotheses, concerning the wonderful Cause of the vital Heat, the different Functions of Ferments, so many intestine Motions of the Fluids, of chymical Products actually existing in the Blood, of extremely opposite and jarring Salts, which by their Conflict in the Blood strike out the Sparks which maintain the Flame of Life, of the Balsam which enlivens the vital Faculties, of Sulphur as the Cause of the purplish Colour of the Blood, of Salt seasoning the Fluids, and preserving them from Putrefaction? All these Fictions, with their infinite Corollaries, which were formerly so much regarded, as if Medicine must stand or fall with them, being thus discarded, how great is the Simplicity of the human Fluids, as far as we have any Knowledge of them!

But is not Medicine oppressed and overloaded with the Copiousness of its Subject on another Account? The Number of Diseases is not yet settled: Of these there is such a Multitude and Variety, and they impose upon us in so many Shapes, that a whole Age would not suffice only to enumerate them; consequently these alone must create an infinite deal of Trouble and Perplexity.

I know this is a common Objection, but most frequent in the Mouth of those who are least exercised in the Practice of the Art; and of this I am very well satisfied. But I would ask these Gentlemen, Whether the most simple Disorder of the most simple Part does not, by prejudicing the Action of that Part, occasion a peculiar Disease? Nobody can doubt, but that the adjacent Parts, by Connection, are subject to be affected by the Sufferings of the Part originally disorder'd; and this also interferes with the Actions of the Parts secondarily affected, and an Impediment to these Actions is frequently consider'd as a new Disease. Hence many Effects, arising from one primary Disorder, and appearing distinctly under various Shapes, impose upon the unwary Physician, who, in his turn, imposes upon others, as if they were of a really different Nature, and oblige him to enter them in his Catalogue of Diseases. But, upon strict Examination, these Disorders proceeding from one and the same Cause, may be extirpated together with it.

It has been pretended, that the Knowledge of Remedies alone completes the Physician; but these are infinite in Number, and yet each is suited only to its particular Disease. Were this true, and if nothing could be done, or ought to be attempted, but by such as knew how to adapt each Remedy to its particular Case, which is the Drift of the Objection, the Study of Medicine ought to be exploded; for none but a Madman would be ambitious of learning an Art, of which he knew it was impossible to make any good Use. But is this Pretence warranted by the Practice of *Hippocrates* and *Sydenham*? No: In treating acute Diseases, they moderated the Violence of the Distemper, excited in case of a Torpor, and supported the Strength by a proper Regimen of Diet. But by what means did they answer these Intentions? To moderate the Impetus in acute Disorders, they made Evacuations, blunted Acrimony, dilated too thick Fluids, and condensed too thin, brac'd up Parts too lax, and relax'd where there was too great a Stricture, deriv'd the Humours to Parts where they would be least prejudicial, upon Occasion mitigated Pain, and in Languors they used stimulating Attenuants. Water, Wine, Vinegar, Barley, Nitre, Honey, Rhubarb, Opium, Fire, and the Lancet, answer'd these Purposes. *I must remark, that Boerhaave does not here mean, that Hippocrates used Nitre and Rhubarb; but, in what he says of Hippocrates and Sydenham, he confounds their Practice together.* *Sydenham* ingenuously declares, that an experienc'd Physician is seldom without a Remedy. But he complains, that he found so troublesome a Variety in Diseases, when he made it his Business to examine their Nature, that no Time nor Strength of Man were sufficient for the Labour necessary in acquiring a Method of Cure proper to each Disease. He does so indeed in his younger Years, and writes too, that every Disease requires a peculiar Treatment; but when he grew old, he gave us better Hopes, and acknowledges with Pleasure, that all of them might be cured by one general Method, which consists in Bleeding, Purging with a subsequent Opiate, and Regimen. You see on what Simplicity in the Knowledge of Diseases and Remedies the Princes of the Art rely'd; and have others succeeded better with a vast Increase of the *Materia Medica*? By no means; for the Goodness of a Remedy is to be rated by its Simplicity, since multiplying of Medicines is not without Danger. What need then is there of such a pompous Apparatus, collected in so many Ages, and digested by so many Hands? What mighty Matters have this operose Pharmacy and Chymistry effected? Are the Remedies now successfully used in chronical Cases to be accounted numerous? Mineral Waters, Salts, gentle Diaphoretics, Soap, Mercury, Steel, with a few Vegetables, and proper Exercise of the Body, answer all Intentions. To what End then are so many natural and artificial Remedies from Fossils, Plants, and Animals? Any Person of common Sense may see, that they serve principally to hide the Ignorance of the hesitating Physician, and, by amusing the Patient, to prevent his Despondence. As to Drugs recommended by *Hippocrates*, *Theophrastus*, *Pliny*, and *Dioscorides*, we are, and always shall be, ignorant of them, except perhaps a very few; for the Antients contented themselves with giving their Virtues, but omitted the Delineations of Herbs so commonly known amongst them. And the Moderns have indeed been accurate in their Descriptions and Delineations, and very ingenious in ranging of Plants under their proper Genera and Species; but have given us very little concerning their Virtues, except what they transcrib'd from the Antients, and this upon an uncertain Supposition, that the latter meant the same Vegetables which the former describe.

To conclude, what is there in the most elaborate Preparation, that is worth half the Pains taken about it? Mercury, Opium, the Peruvian Bark, Fire and Water, are acknowledg'd as the surest Remedies, by the best Masters of the Art; and these are found to be more efficacious in that crude State, in which bountiful Nature has imparted

imparted them to us, than after the most operose and artificial Preparation. We can despair of nothing, while we follow Simplicity; but the Event of intricate Labour is fallacious.

I must not finish this Preface, without taking Notice of some Complaints which the Booksellers concern'd in this Work have sufficiently teiz'd me with, relative to its Length. As it is not possible to alter the Plan of the Work at first laid down, and since pursu'd, without utterly embroiling the Whole, and rendering it much less valuable and useful, I should have very little Regard to their Remonstrances. But for the Satisfaction of the Purchasers, whose Interests, in the present Case, I apprehend to be inseparable from my own, I shall submit the following Reasons for my Conduct to their Consideration:

First, As it was absolutely necessary for every one who reads this Work for Information, to have a perfect Idea of what Authors mean by ACIDS and ALCALIS, in order to his understanding almost every Article relating either to Medicines, Aliments, or Distempers, I judg'd it proper to give full Information upon these Subjects in the Beginning of the Work; and this Consideration oblig'd me to anticipate several things, which would otherwise have come under other Articles in every Letter, and from which the Reader will find References, without Repetitions; another Convenience attending this Method. Thus what has been said under the Articles just mentioned, concerning Diseases generated by, or accompanied with, a redundant Acid or Alkali in the Humours, ought to be consider'd in every Distemper to which the Body is subject; and the Regimen proper in acute Diseases, specify'd under the Article ALCALI, must have been repeated in treating of every acute Distemper, if I had not dispatch'd it in one Article, to which I might refer.

Secondly, As all the Parts of the *Materia Medica* are call'd by different Names, for the sake of Method I have made it a Rule, from which I have very seldom deviated, to treat of every Animal, Vegetable, and Mineral, under the first of their Names which occurs in the Alphabet. As Instances of this are innumerable, I shall only specify one, which is Amber, in *Latin Succinum*; but as it is also call'd *Ambra*, I have finish'd the Account of it under the latter Name.

Thirdly, Under every separate Article of any considerable Importance, I have endeavour'd to include every thing relating to it, tho' properly belonging to some future Article, in order to save the Trouble of turning to a Multitude of Articles, and to give the Reader a full Idea of the Subject at one View. Thus, under ALCOHOL, which is the most perfect Production of the first Fermentation of Vegetable Juices, I have specify'd every thing relating to this first Fermentation; and under the Article ACETUM, the most perfect Production of the second Fermentation, every thing relating to the second. This therefore anticipates the Article FERMENTATIO.

Fourthly, The Lives of the antient Physicians have swell'd the Letter A considerably; and this was not to be avoided, unless I could have chang'd their Names, or omitted them, contrary to the Promise I made in my Proposals; for it happen'd, that most of their Names whom I judg'd it necessary to give some Account of, occur'd in the Letter A. Instances of this are *Aëtuarius*, *Aëgineta*, *Aësculapius*, *Aëtius*, *Aretæus*, *Albucasis*, *Avicenna*, *Averroes*, *Avenzoar*, *Archagatbus*, *Asclepiades*, and some others. As I have given the Life of *Raysch* under ANATOMY, together with an Account of the other Anatomists; under BOTANY, a Detail of the Physicians celebrated for their Knowledge in this Science; and under CHYMIA, taken Notice of the Chymists omitted in the Preface; the Lives of very few Physicians will occur in the Remainder of the Work.

It is obvious, that the Anticipations and Circumstances above-mentioned must necessarily render the remaining Letters of the Alphabet shorter, in Proportion as those already publish'd are longer.

That the Work is a single Sheet longer than at first propos'd, is owing to an unforeseen Accident, which, though it has given me an infinite deal of Trouble, will, I apprehend, be advantageous to the Purchasers of this Work. After a few Numbers of the Medicinal Dictionary were publish'd, I observ'd in the foreign Papers the following Title of a Book, which was advertis'd to be publish'd some time after.

Introductio in Notitiam Rerum Naturalium & Arte factarum, quarum in communi Vita, sed præcipue in Medicina Usus est. Per Alphabeti Ordinem digestit Joannes Christophorus Rieger. Hagæ Comitum 1742.

I found Means to get this Book, as soon as it was publish'd; and as it is a most excellent Performance, I thought myself oblig'd to insert in the Medicinal Dictionary whatever I had omitted in my Collections; and to cancel what I had wrote upon several Articles, in order to make Room for better Materials, which I frequently found in this Work. Dr. Rieger, if I am well inform'd, was employ'd by the late Czar, Peter the Great; and after his Death retiring from *Russia* into *Holland*, he liv'd in a Bookseller's House, where he had the Use of the best Collection of Medicinal Authors that was ever expos'd to Sale in *Europe*; an Advantage which I never had the Satisfaction of enjoying.

If, therefore, this Work is a little more prolix than was at first propos'd, the Purchaser will find his Account in it; and will, it is presum'd, be more inclinable to pardon it, when he reflects upon the Mortification an Author must suffer, whilst he sacrifices to the Interest of his Readers entire Pages of his own Productions; provided he can believe me to have a Tendernefs for my own Literary Offspring, equal to that of most other Writers for their Works; a Supposition by no means unreasonable, especially when I assure him I have taken infinitely more Pains to divest myself of Prejudices in favour of any Theory, System, or Mode of Practice whatever, than I have to conquer my Affections.

With respect to the Preface, I must remark, that it was absolutely necessary for the Person who peruses the following Volumes, to be made acquainted with the Characters and Sentiments of the Physicians, whose Opinions concerning the Treatment due to Diseases are quoted; otherwise, when the Practice, for Example, of *Diocles*, *Erasistratus*, *Asclepiades*, or *Themison*, is specified, it would be in some Degree unintelligible and useless, unless he previously was inform'd of the Theory peculiar to these Physicians, upon which such Practice was founded. In order, therefore, to avoid repeating their particular Systems every time their Names are mention'd, I have given a Detail of them once for all in this Preface.

BEING A

A B A

ABACUS MAJOR. A trough used in the mines, wherein the ore is wash'd. *Rulandus.*

A B A

ABARNAHAS. This is a term used by some of the alchymists, particularly Senior Zadith, in the *Theatrum Chymic* vol. v. p. 205. He tells us it is the same as the full moon, or *Magnesia*. I believe he means the Philosopher's Stone, or some menstruum necessary for the transmutation of metals, because he calls it the sea, and the perfect and round stone. 'Tis used also much in the same sense by an anonymous author in the same collection and volume, said to be translated from the Arabic, p. 449. where he calls it the Divine Water, and Philosopher's Stone.

ABARTAMEN. LEAD. Rulandus. See **PLUMBUM.** SATURNUS.

ABARTICULATIO, Ἀβάρτιση, Gr. A species of Articulation of the bones admitting of a manifest motion, call'd also by anatomists *Diartbrofis*, and *Dearticulatio*, to distinguish it from another sort of Articulation, which admits of a very obscure motion, or none at all, which is call'd *Synartbrofis*. See **ARTICULATION.**

ABAS. See **TINEA.** It sometimes signifies the Epilepsy: *Constantine.*

ABAVI, ABAVO, or ABAVUM: A large tree growing in Æthiopia, which bears a fruit like a gourd: *Ray's Hist. Clusius.*

ABBREVIATIO. The principal uses of medicinal abbreviations are in prescriptions. *Abbreviatio* is used by some of the alchymists to express a process in epitome, or a short way of performing it. See *Theatrum Chymicum*, vol. vi. p. 556, 557, 558.

ABDELAVI. An Ægyptian plant very like a melon, except that the fruit is more oblong, and acute at the extremities. *Ray's Hist.*

ABDITUS, included. Thus *abditus vesica* signifies included in a bladder, in *Scribonius Largus*.

ABDITÆ CAUSÆ, are the secret or remote causes of distempers, which the physicians of the dogmatic or rational sect affirmed were necessary to be known, in order to establish a right method of cure (*cum vero recte curaturum, quem prima origo causæ non fecerit.* Celsus in his *Preface*). These causes cannot be understood without a knowledge of the principles of which our bodies are formed, and of the specific nature of sickness and health; for according to these physicians, 'tis not easy to accommodate remedies to distempers, without first knowing what health is, and the exact manner in which any distemper deviates from it.

Thus the gout is a deviation from health, which it would be less difficult to cure, if we knew precisely what constitutes health, and how the gout deviates from it in order to form a distemper. See **SECTÆ.**

ABDOMEN. Anatomists have generally divided the body into three great cavities, which they call *bellies*. The *head*, or the *upper belly*; the *thorax*, or the *middle belly*; and the *abdomen*, or *lower belly*. The Arabians, and some writers in the barbarous ages, call'd the *Abdomen*, or at least the external part of it, *Mirach*; and the *Peritonæum*, *Siphac*. *Zacutus Lusitanus.*

The *Abdomen* is accurately describ'd by Winslow thus.

The *Abdomen* begins immediately under the Thorax, and terminates at the bottom of the Pelvis of the *Ossa innominata*. Its circumference, or outer surface, is divided into regions, of which there are three anterior, *viz.* the *Epigastric*, or superior region, the *Umbilical*, or middle region, and the *Hypogastric*, or lower region. There is but one posterior region, named *Regio lumbaris*.

The *Epigastric* region begins immediately under the Appendix *eniformis*, at a small superficial depression, call'd the *Pit* of the stomach, and in adult subjects ends above the navel, at a transverse line, supposed to be drawn between the last false ribs on each side.

This region is subdivided into three parts, one middle, named *Epigastrium*, and two lateral, termed *Hypochondria*. The *Epigastrium* takes in all that space which lies between the false ribs of both sides, and the *Hypochondria* are the places cover'd by the false ribs.

The *Umbilical* region begins in adults, above the navel, at the transverse line already mentioned, and ends below the navel at another transverse line, supposed to be drawn parallel to the former, between the two *Cristæ* of the *Ossa ilium*.

This region is likewise divided into three parts, one middle, which is properly the *Regio umbilicalis*, and two lateral, call'd *Iliæ*, or the *flanks*, and they comprehend the space between the false ribs and upper part of the *Ossa ilium* on each side.

The *Hypogastric* region is extended downward from the inferior limit of the *Umbilical* region, and is divided into three parts, one middle, call'd *Pubes*, and two lateral, call'd *Inguina*, or the *groins*.

The *Lumbar* region is the posterior part of the *Abdomen*, and comprehends all that space which reaches from the lowest ribs on each side, and the last Vertebra of the back, to the *Os sacrum*, and neighbouring parts of the *Ossa ilium*. The lateral parts of this region are termed the *Loins*; but the middle part has no proper name in men.

Lastly, the bottom of the *Abdomen*, which answers to the Pelvis of the skeleton, is terminated anteriorly by the *Pudenda*, or parts of generation, and posteriorly by the *Clunes*, or buttocks, and Anus. The buttocks are separated by a Fossa, which leads to the Anus, and each buttock is terminated downward by a large fold, which distinguishes it from the rest of the thigh.

This *Lumbar* region takes in likewise the *Musculus quadratus lumborum* on each side, the lower portions of the *Sacro-*

lumbares of the *Longissimi* and *Latissimi dorsi*, the *Musculus sacri*, &c.

The space between the Anus and the parts of generation is called *Perinæum*, and is divided into two equal lateral parts by a distinct line, which is longer in males than in females, as we shall see in another place.

The cavity of the *Abdomen*, formed by the parts already mentioned, (all which are covered by the skin and *Membrana adiposa*) is lined on the inside by a particular membrane, called *Peritonæum*. It is separated from the cavity of the Thorax by the *Diaphragm*, and terminated below by the *Musculi levatores ani*.

This cavity contains the stomach, and the intestines, which are commonly divided into three small, named *Duodenum*, *Jejunum*, and *Ilium*; and three large, called *Cæcum*, *Colon*, and *Rectum*. It contains likewise the *Mesentery*, *Mesocolon*, *Omentum*, *Liver*, *Gall-bladder*, *Spleen*, *Pancreas*, *Glands of the Mesentery*, *Vasa lactea*, *Receptaculum chyli*, *Kidneys*, *Renal glands*, *Ureters*, *Bladder*, and the internal parts of generation in both sexes. *Winslow*, p. III. tom. II.

The principal Arteries of the *Abdomen* are these:

<i>Arteria Epigastrica superior,</i>	<i>Arteria Spermatica.</i>
which is the lowest portion	<i>Arteria Mesenterica Inferior.</i>
of the <i>Mammaria Interna.</i>	<i>Arteria Lumbares.</i>
<i>Aorta Inferior.</i>	<i>Arteria Iliaca.</i>
<i>Arteria Coeliaca.</i>	<i>Arteria Hypogastrica.</i>
<i>Arteria Mesenterica superior.</i>	<i>Arteria Epigastrica Inferiores.</i>
<i>Arteria Renales, called Emul-</i>	<i>Arteria Hemorrhoidales.</i>
<i>gentes.</i>	<i>Arteria Pudica.</i>

The principal Veins of the *Abdomen* are these:

The inferior portions of the	<i>Vena Porta Ventralis.</i>
<i>Vena Mammaria Interna.</i>	<i>Vena Porta Hepatica.</i>
<i>Vena Renales.</i>	<i>Vena Mesaraica Major.</i>
<i>Vena Lumbares.</i>	<i>Vena Splenica.</i>
<i>Vena Spermatica.</i>	<i>Vena Mesaraica Minor sive</i>
<i>Vena Iliaca.</i>	<i>Hæmorrhoidalis Interna.</i>
<i>Vena Hypogastrica.</i>	

The principal Nerves of the *Abdomen* are these:

<i>Nervi Stomachici</i> , form'd by	<i>Plexus Hepaticus.</i>
the extremity of the Sym-	<i>Plexus Splenicus.</i>
pathetici medii, or eighth	<i>Plexus Renales.</i>
pair.	<i>Plexus Mesentericus Superior.</i>
<i>Nervi Sympathetici Maximi,</i>	<i>Plexus Mesentericus Inferior.</i>
the inferior portion.	<i>Nervi Lumbares.</i>
The two <i>Semilunar</i> , or <i>Plexi-</i>	<i>Nervi Sacri.</i>
<i>form Ganglions.</i>	<i>Nervi Crurales</i> , their origin.
<i>Plexus Stomachicus.</i>	<i>Nervi Sciatici</i> , their origin.

The whole fore part of the *Abdomen* forms an oblong convexity, like an oval vault, more or less prominent in the natural state, in proportion to the quantity of fat upon it, and of food contained in it, or to the different degrees of pregnancy in women. The *Hypogastric* and *Umbilical* regions are more subject to these varieties, than the *Epigastric* region.

On the sides, between the *Hypochondria* and *Ossa ilium*, or haunch, the *Abdomen* is commonly a little contracted; and backward, about the middle of the *Regio lumbaris*, it is gently depress'd, forming a kind of transverse cavity, answering to the natural incurvation of the *Lumbar* portion of the *Spina dorsi*.

This anterior convexity, and posterior cavity change as we sit, stand, kneel, lie at our full length, or with the thighs bent; and these variations depend on the particular situation of the *Ossa innominata*, in these different postures.

In standing, the convexity of the belly, and cavity of the loins, are more considerable, than in most other situations; for then the lower extremity of the *Os sacrum* is turned very far back, and consequently the *Os pubis* very much down. In this situation of the Pelvis, the Intestines fall naturally forward, and thus increase the convexity of the *Abdomen*; and as the Vertebrae of the loins are very much bent at the same time, the cavity in that place must likewise be very considerable.

In kneeling, the *Ossa pubis* are still lower than when we stand; and this not only increases the hollow of the loins, and throws the *Abdomen* and its Viscera more outward, or forward, but also, in some measure, strains the abdominal muscles; which is so uneasy to some persons, as to cause them to faint away.

This depression of the *Os pubis* in kneeling, depends partly on the tension of the two *Musculi recti anteriores*, the lower tendons of which are, in this situation, drawn with violence under the *Condyloid pulley* of the *Os femoris*.

When we sit in the common manner, that is, with the thighs stretch'd out in a plane parallel to that of the seat, the convexity of the belly, and hollow of the loins diminish.

For the Pelvis being in this situation, supported on the *Tubercula ischii*, and these tubercles being very near the fore part of the Pelvis; the trunk of the body pressing on the *Os sacrum*, must lower the Pelvis behind, and raise it before.

When

When we lie upon the back at full length, and with the thighs extended, the belly is less convex, but more stretch'd and hard; whereas, when the thighs are bent, it is soft and lax. In this situation, the Regio lumbaris is almost flat, and very little depress'd.

When we lie on the back, and raise the head, or endeavour to raise it, we feel a tension in the fore part of the *Abdomen*, which increases in proportion to the force we use in raising the head.

These varieties of the external conformation of the *Abdomen* have a near relation to so great a number of other phenomena, in the animal oeconomy of the human body, that it would require a whole volume to explain all the particulars thereof; neither are details of this kind very proper in a work designed to be purely anatomical, in which, consequently, the main business is to give a full and accurate description of the true structure of the parts, and only to point out in general their principal uses.

Fewer Papillæ appear in the skin of the belly than any-where else. The anterior portion of it is not only thinner and more compact than the posterior, but it has this likewise peculiar to it, that it may be naturally increased very much in breadth, and sometimes in a very extraordinary manner, without losing any thing of its thickness, in proportion to what it gains in breadth.

This peculiarity likewise belongs to the Epidermis. I here speak only of what is observable in the natural state of corpulency or pregnancy; but I have not as yet been able to discover what it is in the texture, or structure of this skin and the Epidermis, on which this peculiarity depends. All that I have been able to remark about it, was in the dead body of a woman, whose belly was contracted and fallen; namely, that on the surface of the skin there was a great number of lozenges disposed in a rectangular manner.

The marks of these superficial lozenges were in the Epidermis. They were composed of several fine lines, which all together extended to a sensible breadth. The areas or meshes of these lozenges, which seem'd to be about the sixth part of an inch in breadth, were very flat and thin.

In the manner which Steno used to open bodies, by making two longitudinal incisions in the integuments, and so leaving a middle band made up of the skin and fat, in their true places, it is easy to demonstrate the union of the Aponeurotic or tendinous productions with the arteries, veins and nerves, in order to form the skin of the *Abdomen*; and the same use might be made of this method, in other parts of the skin.

The cells of the Membrana adiposa, which covers the convex part of the *Abdomen*, are disposed in a very regular manner, as I have discover'd by my method of opening bodies. This method is to make two oblique incisions in the integuments, from the navel to the groins, and to separate this angular portion of the integuments, and throw it down over the parts of generation, that they may be cover'd, during the demonstration.

This triangular portion being thus inverted, there appears on the inner surface of the Membrana adiposa, a longitudinal line, like a kind of Raphe, produced by the meeting of these cellular rows, which form angles successively, one above another, opposite to the Linea alba of the *Abdomen*. The cells in these rows are more oblong than the rest, and in a manner oval, or like a grain of wheat.

The Appendix ensiformis of the Sternum, the cartilaginous portions of the last pair of true ribs; those of the first four pairs of false ribs, all the fifth pair, the five Lumbar vertebrae, the Os innominata, the Os sacrum, and Os coccygis, form the bony sides of the cavity of the *Abdomen*.

The diaphragm, the muscles called particularly Musculi abdominis, the Quadrati lumborum, Psoai, Iliaci, the muscles of the Coccyx, and of the Intestinum rectum, form the chief part of the circumference of this cavity; and its whole inner surface is lined by a membranous expansion, term'd Peritonæum, all these parts being covered by the integuments already spoken to. As additional, or auxiliary parts, we might likewise add some portions of the Sacro-lumbares, Longissimi dorfi, Vertebrales, Glutæi, &c.

The cavity of the *Abdomen* is of an irregular oval figure, but still symmetrical. On the fore-side it is uniformly arched or oval, and its greatest capacity is even with the navel, and nearest part of the Hypogastrium. On the upper side it is bounded by a portion of a vault, very much inclined. On the back-side, it is in a manner divided into two cavities by the jutting out of the Vertebrae of the loins. On the lower side, it contracts gradually all the way to what I call the little edge of the Pelvis, and from thence expands again a little, as far as the Os coccygis, and tubercles of the Ischium, terminating in the void space between these three parts. Winslow, 128 ad 130. part ii.

As wounds of the *Abdomen* differ in some respects from other wounds, I shall insert in this place the chirurgical treatment that is peculiar to them.

Wounds of the *Abdomen* may be divided into four sorts.

1. Such as affect the integuments alone.
2. Such as affect the muscles, together with the integuments, without penetrating the peritonæum.
3. Such as with the integuments penetrate into the cavity without wounding any of its contents.
4. Such as penetrate into the cavity, and wound some or other of its contents.

The first sort, or superficial wounds of the *Abdomen* are not esteemed dangerous, and require no treatment different from other wounds. However Arcæus (l. ii. c. 4.) and Vigo (l. iii. c. 11.) agree in pronouncing those more liable to bad accidents which are received within two or three fingers of the navel. And our countryman Wiseman, from Galen, tells us, "That wounds in the middle of the belly are worst, by reason of the nervous body that lies there, and consequently more painful to be stitch'd, and more difficult of cure, because of the intestines and cawl pressing upon that part." I suppose he means by their nervous body, the membranous tendons of the oblique ascending, descending and transverse muscles, which are inserted into the Linea alba.

These wounds are easily distinguishable from the other three sorts by inspection; but the probe readily puts it beyond all doubt.

The second sort are distinguished from the two last by the probe; for if the patient is carefully placed in the situation he was in when the wound was given, and the probe introduced, it will generally pass into the cavity of the *Abdomen*, if the Peritonæum is perforated. Another way of distinguishing these wounds is by injecting warm water into them, and then if it returns immediately, there is reason to believe the wound only muscular; but if any considerable part remains in the wound, it has certainly penetrated the cavity.

It will also give us some light into the nature of these wounds, to compare the wounding instrument with the direction of the wound.

Some farther direction we may have by viewing also the instrument immediately, where it can be found; when if it was not designedly wiped or cleaned before, we may sometimes discover how far it has been stained by the blood or Halitus of the body, which will give us more light as to the depth, than the outward dimensions of the wound. Turner.

This was practised in the case of Henry III. of France, where the knife which the villain made use of, was found to be a foot long, and bloody for the breadth of four fingers! Dionis.

The cure of these wounds is rendered more difficult by their perpetual motion in respiration, and the necessity of straining more or less for a stool.

If such a muscular wound reaches pretty near to the Peritonæum, the integuments in that part being weakened, and the Peritonæum capable of great distension, there is danger of a Hernia succeeding. As soon therefore as the surgeon is satisfied in regard to the nature of the wound, his next consideration must be, whether a suture is necessary, or whether bandage alone is sufficient to guard against a Hernia.

When the wound is small, or in a longitudinal direction, a Suture is frequently superfluous, and even mischievous, by bringing on great inflammation and pain, and then bandage is sufficient to guard against a Hernia.

The dressings must be the same as in a common wound, (see VULNUS) and the lips must be united by the double-headed roller, or Fascia uniens, and then the whole secured by the Scapular with the napkin, or Mantile cum scapulari. See BANDAGE.

But when a wound is very large, transverse, or oblique, a Suture is necessary to guard against a Hernia, which is thus performed.

Take two crooked needles, threaded with a strong thread as many times doubled as will secure it from breaking, that is, two, three, or four times, and let it be waxed; then pass one of these needles through the muscles, fat and skin, from the inside of the wound outwards, the breadth of an inch from the edge of the wound, lest the stitch should break out, always beginning at the superior lip of the wound; and then pass the other needle in like manner through the inferior lip, always leaving a sufficient length of thread at each extremity. If the wound is not above two inches long, one stitch is sufficient; but if longer, more stitches are to be made at about the distance of an inch from each other. When all the stitches are pass'd, an assistant must press both edges of the wound together, whilst the surgeon ties the threads, first with a simple, and then with a bow-knot, that it may be relax'd upon occasion. The knots are to be made upon the wound; but must be secured from hurting it by placing a small bolster of linen, or silk wax'd, betwixt the wound and the knot.

When the Suture is finish'd, proceed as in the cure of a common wound, with respect to dressings, and secure the whole with the double-headed roller, or Fascia uniens, and Scapular with the napkin, or Mantile cum scapulari.

Tents in this case are superfluous, and even dangerous. Some farther precautions ought to be taken in order to guard effectually

effectually against a Hernia. Thus bleeding is seldom omitted; and the patient must not be suffered to sneeze, cough, or strain hard for a stool; first, because these would endanger a Hernia; and secondly, because during these efforts, the stitches of the Suture would be subject to break.

The best way of preventing a cough is to bleed, and take occasionally a small quantity of *syrupus e meconio*. Sneezing, if there is any tendency towards it, may be prevented by snuffing up the nose a little warm milk.

The patient may be secured against costiveness, by emollient clysters, and a spare laxative diet, consisting altogether of liquids.

We may know, that a wound has penetrated into the cavity of the *Abdomen*,

1. If the finger, or probe, passes very deep into it, when the patient is plac'd in the posture he was in when he received the wound.

2. If part of any liquor injected into the wound does not immediately return.

3. By comparing the wounding instrument with the direction of the wound. That is, if the instrument is sharp, and its direction strait forward, there is reason to suspect it has penetrated the cavity; but the contrary, if the instrument is somewhat blunt, and its direction either upwards, downwards, transverse, or oblique, and by examining how far the instrument is stained.

4. If any of the contents of the *Abdomen* appear out of the wound, the case is out of dispute. Sometimes a piece of fat will be protruded out of the wound, and in some degree resemble the Omentum, from which it is distinguish'd by the smoothness of its surface, that of the Omentum being unequal.

The contents of the *Abdomen*, which usually appear at the wound, are,

1. The Ros abdominis, or fluid separated from some glands in the *Abdomen*, for the lubrication of the Viscera or bowels contained in it.

2. Grumous blood, or large quantities of florid blood, if a large artery is penetrated; or blackish blood, if a vein is wounded.

3. Some one or more of the Viscera, which generally are the Epiploon, intestines, or both.

But because 'tis possible that a very thin-pointed instrument may penetrate the cavity of the *Abdomen*, and wound some of its contents, and leave the orifice so small, that a surgeon may not be certain that it has passed through the Peritonæum, by the signs described above, it may be proper in this place to insert the symptoms that generally attend a wound of the particular contents of the *Abdomen*.

In case the liver is wounded superficially, the external parts about the region of the liver and stomach are drawn inwards to the back, in order to fix the liver and adjacent parts as much as possible, that the pain may not be increased by their motion, which notwithstanding is very pungent on the right side, and in some cases extended as far as the neck. Mean time blood is discharged by vomit and by stool. The case is also attended with frequent faintings, a fever and looseness.

But if the wound penetrates deep into the liver, all these symptoms are increased, till at last the patient vomits bile, and falls into frequent and violent faintings, and cold sweats, the forerunners of death. From the beginning the patient receives a sort of pleasure by lying on his belly.

The same symptoms attend a wound of the spleen, except that the pain is on the left side.

A wound of the stomach is attended with frequent bilious vomiting and hiccoughs; whatever aliment is taken into the stomach, is immediately discharged again by vomit; and sometimes convulsions and cold sweats on the extremities come on, the prefaces of death. Mean time the aliment passes through the wound into the cavity of the *Abdomen*, and makes the belly swell, especially that part of it near the stomach. If the wound is near the orifice, 'tis reckoned mortal.

A wound of the small intestines is attended with an acute pain, continual bilious vomiting, and chyle is discharged from the wound into the cavity of the *Abdomen*, which makes it swell, as in wounds of the stomach.

In wounds of the large intestines, the symptoms are less violent, and generally excrement is discharged, or the smell of it is perceived, at the external orifice of the wound.

When a kidney is wounded, a pain is felt in the groin, as well as in the part affected, which is propagated to the testicles. A difficulty in making water ensues, and sometimes the urine is bloody, sometimes blood alone is discharged instead of it.

Wounds of the ureters are attended with much the same symptoms, except that the urine is discharged into the cavity of the *Abdomen*, and stagnating there, putrifies, and makes the belly swell considerably.

A wound of the bladder is distinguished by a pain about the region of the Pubes, and at the same time, either a suppression of urine, or a discharge of it mix'd with blood, bilious vomiting, and hiccough.

When the Uterus is wounded, a great pain is felt in the part, which is propagated to the Os pubis, and loins, the patient vomits incessantly, and blood is discharged from the Pudenda.

A very acute pain under the pit of the stomach, or at the spine almost opposite to it, slow respiration interrupted with fobbing, and hiccough, convulsions, delirium, want of sleep, and great anxiety, are symptoms which accompany a wound of the diaphragm, by which it may be distinguish'd from others.

If none of these symptoms appear, and yet the patient feels violent pain, we are to conclude some large nerve or nervous part is wounded, particularly the mesentery.

Continued heat and thirst, great anxiety, a quick, or intermitting pulse, uneasy and laborious respiration, and frequent fainting, with an elevation or tumor of the *Abdomen*, are signs of a considerable internal hæmorrhage, from a wound of some large vessel.

If any of the above-mentioned symptoms appear, there is reason to fear the wound penetrates into the *Abdomen*; tho' it cannot be discover'd by the probe, injections, or egress of any of the contents thereof.

But if all the symptoms are favourable; if there is little or no pain; no fever, or a very slight one; little or no inflammation; if no blood is discharged when the patient lies upon the wound, and liquors injected return unalter'd, we may reasonably hope, that none of the Viscera contain'd in the *Abdomen* are injured.

When the surgeon is satisfy'd, that the Peritonæum is perforated, and neither the Epiploon nor intestines come out of the wounds, he is to consider whether a Suture is necessary or not.

A Suture is superfluous, when the wound is small, or longitudinal; for in these cases the intestines and Epiploon may be secured from falling out in the following manner: First introduce a soft tent into the inferior part of the wound, and lay over it an adhesive plaister. Then keep the lips of the wound together by bolsters, a little larger and longer than ordinary, laid on each side, and secure the whole with the double-headed roller or Fascia uniens, and upon that the Scapular with the napkin; then bleed the patient, direct an exact regimen, and let him rest upon the wound.

In this case, the first dressing is not to be removed for three days, unless some bad symptom makes it necessary; and afterwards it will be sufficient to dress once a day, or every other day, doing it more frequently being likely to retard the healing of the wound.

This is the opinion of Heister, and the reasons he gives for it are, the difficulty of making a Suture in these parts, especially in fat subjects, and the pain and inflammation it causes. He therefore concludes, that a surgeon would be guilty of a piece of cruelty, in giving his patient the unnecessary pain and trouble of a Suture, when he may be cured without it.

The same author thinks the Suture absolutely necessary, when the intestines cannot possibly be retained in their proper situation without it; and when the wound is large, transverse, or oblique, even though the Peritonæum remains intire.

Boerhaave is of a different opinion from the author above-mentioned; his general directions are to make a Suture. He tells us the part must be immediately defended from the air; and if any air is got into the *Abdomen*, it must be got out again by suction, and making strong efforts in expiration; probably for fear it should rarefy in the cavity, and cause a sort of Tympanitis; mean time it should seem necessary to secure the contents of the *Abdomen* in their proper places, by applying a linen cloth to the wound, strong enough to sustain the pressure of the intestines and Epiploon against it during these efforts, and thin enough to permit the egress of the air.

Fallopian, Guido de Cauliaco, Chalmet, Fabricius ab Aquapendente, Theodoric and Roland recommend the Suture universally, in penetrating wounds.

When a Suture is necessary, it must be perform'd in the manner directed above for muscular wounds of the *Abdomen*, with this farther caution, that the needles must be first pass'd through the wounded edges of the Peritonæum, which must be stitched together with the muscles, fat, and skin. The lips of the wound must also carefully be laid hold of and drawn asunder, and the point of the needle must be indifferently covered with the fore-finger, in order to secure the intestines from being wounded.

The French surgeons have contrived an instrument for making these Sutures more commodiously, which they call Portaguille. This is intended as a kind of handle or Manubrium for the needle, to prevent it from hurting a surgeon's hand when a considerable force is required to thrust it through the Peritonæum, muscles, and skin; and in this case the convenience of the surgeon promotes the interest of the patient, the operation by this means being sooner perform'd, and consequently with less pain.

Heister advises to begin tying the threads of the Sutures at the upper part of the wound, when there are more than one, and to proceed regularly downwards, introducing a soft tent, arm'd with some digestive balsam, about the thickness of the little

little finger, into the wound at the lower extremity, before the last thread is tied, that any impurities contained in the wound may come away before the wound is closed. A thread must be fastened to the tent, which must be left hanging out of the wound, that it may be pulled easily out of the *Abdomen*, if it should happen to sink into it. Boerhaave, Garengeot, Belloste, and many others forbid the use of tents, and some of them produce cases in confirmation of their opinion, of which I shall produce two, one on each side the question.

From HEISTER.

Some modern surgeons, and particularly Garengeot in his chapter of *Gastrographia*, discard the use of tents in wounds of the *Abdomen*. In imitation of their example, in the year 1734, a young surgeon in a neighbouring city tried the experiment on a young man, who received a wound, by a sword, between the navel and the Pudendum, the cut penetrating into the *Abdomen*. The first two days the patient seemed to be in a fair way; but died on the fourth day after he had received the hurt. His body being opened, a vast quantity of putrid matter was found in the *Abdomen*, and the cawl was quite rotten. All besides was whole and sound, and nothing of a hurt or scratch appeared. Had this been kept open with a tent, the bloody and purulent matter might have been drawn out, which being retained; for want of the aforesaid help, without doubt killed the patient. Heister.

In the year 1688, a soldier of the regiment of Montferrat, called Sans Soucy, was wounded by a bullet, which entering before at the region of the navel, came out behind at that of the reins, piercing the Ureter as it passed along. He was at first dressed by one of the master-surgeons of Turin, who used to assist us; which he performed after his own way.

The orifice which was in the belly, notwithstanding the tents which he used, was closed up, after the falling off of the Eschar of the teguments; but it fared otherwise with that in the back; for that surgeon was careful to keep it open with a thick and long tent, hindering also the reuniting of the Ureter, which occasioned the urine to come forth at the wound. I having seen him one day, advised the surgeon speedily to take away the tent; if he would avoid an incurable Fistula, but my words were to no purpose; for had he complied with them, he would have thought he had offended against the rules of art, and ancient received maxims, with which my advice was inconsistent.

Some days after, seeing this wound in a very bad condition, being covered with a whitish flesh, almost without sense; and ready to become a Callus; I was willing to prevent the fatal consequences of that indiscreet dressing; wherefore with a dissolved caustic I consumed all that appeared callous about the lips of the wound, causing also some of it to pass into the cavity thereof; and leaving out the tent; I expected the discharge of what the caustic had mortified. When the flesh had regained its usual colour, without loss of time I syringed into the wound some balsamic water. I also used the balsam of Peru alone for some days, and after that, the styptic plaster of Crollius, with little longish compresses that were placed on the two sides of the wound, to press together the brims. Thus the wound began to be filled up, and the urine did by little and little resume its former course; and in about eighteen or twenty days, the wounded person was perfectly cured.

In the progress of this cure, may evidently be perceived the difference between the method used by many surgeons fondly conceited of their own opinions, and that I practise; for, in this case, had the first been continued but for eight days time, the wound had become either extremely difficult, or impossible to be cured. This is confirmed by the wound in the belly; the speedy cure whereof is to be attributed to the motion of the Intestines, which, contrary to the design and desire of the surgeon, expelled the tent so soon as applied, in such sort, that it was completely cured a little after the falling off of the Eschar.

Wherefore we can never too much blame those who are so obstinately wedded to the use of tents in wounds of the lower belly; they ought altogether to be laid aside, in spite of all the objections may be made in their behalf, for which, undoubtedly, there is no real ground. Experience gained by practice has so undeceived me, touching the use of tents, that I have left off the use of them; not only in the lower belly, but even in all other places of the body, unless upon a very pressing necessity. But in the wounds of the emulgent vessels of the reins, ureters, and bladder, as also in those of the joints, they occasion accidents which oftentimes prove mortal; or otherwise, leave behind them infirmities that ever after render life miserable. Belloste.

Fallopian is of opinion; that though some extravasated blood should purify in the *Abdomen*, it can do the Intestines and other Viscera no hurt, but will subside to the Inguina, and there form an abscess. But that it is more likely to be absorbed by the vessels, and discharged by stool, before it putrefies at all. Chalmet and J. deVigo seem to be of the same opinion, as is Albucasis, to which F. abAquapendente seems to assent, though he seems before to be apprehensive lest the blood extravasated into the *Abdomen* should cause a dropsy.

From these cases we may infer, that tents are sometimes necessary, sometimes superfluous, and even dangerous. It must therefore be left to the judgment of the surgeon to determine when to make use of them, and when to discard them. When he has reason to think any thing is contained in the *Abdomen*; which ought to come away, or that the putrefaction will be considerable, he will do well to keep open the lower part of the wound with a tent, for some little time. Mean while it is certain, a tent must in every other respect be prejudicial; and therefore must be omitted, when there is nothing considerable to be discharged by the orifice it is intended to keep open.

Upon the whole, we may venture to say, that the use of tents in general has done a great deal of hurt; but that some cases occur in practice, that make it imprudent to prohibit the use of them intirely. See TENT.

Gabriel Ferrara in his *Sylva Chirurgica*, Botallus in his *Treatise de Sclopetorum Vulneribus*, Arcæus, and Paré, agree in advising the use of tents, till the *Abdomen* is cleared of all manner of Sordes.

When the Suture is finished, the wound should be anointed with some vulnerary balsam, as in other wounds, and pledgets of lint laid upon it, which must be kept on by some adhesive plaster; and upon these proper bolsters must be placed to keep the lips together, and the whole must be secured with the bandage mentioned above; and the belly should at every dressing be swathed round, not only for the security of the dressings, but also for the support of the parts in case of coughing, sneezing, and going to stool; but not so tight as to cause pain or uneasiness.

Heister advises to take off the dressings every day; and let the patient lie for some time upon the wound, after the tent is taken out, that the impurities may discharge themselves; and if these appear in any considerable quantity, he advises to inject into the orifice twice or three times before the dressings are again put on, a decoction of some vulnerary plant, as Agrimony, Sanicle, or St. John's wort, with a little Mel rosarum, somewhat warm; and then the patient must be laid upon the wound in such a situation, as to suffer it to be discharged again after every injection, together with the blood, pus, or whatever ought to come away.

After this, a fresh tent, armed as before with a digestive, is again to be introduced, and the dressings are to be renewed; and this is to be repeated every day, till it appears, that little or no impurities remain in the *Abdomen* to be discharged; and then the tent is to be used no more, but the orifice is to be carefully healed up; as in other wounds.

Other chirurgical writers utterly disapprove the use of injections, because, in their opinion, they only irritate the wounded parts, and retard their union; and besides this inconvenience, are attended with that of being very difficult sometimes to get out of the *Abdomen* again. They are also said to relax the parts too much, and to destroy the natural balsam which should promote the union of the part.

Turner advises, at each dressing, to apply three or four warm stuphs expressed from the hot decoction of mallows, mullein, St. John's wort, centaury, with the flowers of chamomile, elder, and melilot, made in spring water, with the addition of a little brandy at the time of using.

Boerhaave advises to dress but seldom, and is certainly right, where, according to his system, no tents are made use of.

But all chirurgical writers agree, that repeated clysters do a great deal of service; that a mild, relaxing, and very parsimonious diet, is of great importance in the treatment of these wounds; that very little, or no solid food should be allowed; that broths are the best sort of aliment during the whole course of the cure, as generating less Fæces than any thing else, provided no accidental circumstance make them improper; and that rest, and lying upon the wound, with a soft pillow laid under it, accelerates the cure very much, as it serves as a kind of compress to keep the lips of the wound together, and as the posture favours the egress of any thing that ought to be discharged by the wound.

Palsyn prefers the Quilled Suture, or Sutura clavata, to that described above, as better securing the stitches from tearing out; during the motion of the *abdominal* muscles in respiration, rising up, coughing, sneezing, or straining for a stool. *Vide SUTURE.*

But most other surgeons reject this Suture; as causing by the extraordinary pressure, pain, inflammation, and other bad accidents. *Dioms.*

In case a wound of the *Abdomen* is attended with an acute pungent pain, a considerable fever, an elevation and hardness of the belly, great internal heat, thirst, want of sleep, weakness, uneasiness, and anxiety, a very quick or intermitting pulse; if a large quantity of blood, ichor, the aliment as received into the stomach, chyle, bile, pus, urine, the excrement, or the smell of it, are discharged from the wound; but especially if paleness, cold sweats, and frequent faintings, come on soon after the wound is received, we may be sure some considerable vessel, or some of the Viscera of the *Abdomen* are wounded.

A careful attendance to the external part wounded, compared with the situation the patient was in when he received the wound, and with the wounding instrument, will assist us in forming a judgment of the part that is hurt: And these circumstances again compared with the symptoms usually attending wounds of the particular Viscera, as given above, and with the discharge from the external orifice, reduces it near to a certainty.

These wounds create great trouble, and are attended with some circumstances that render them very dangerous.

It is known to anatomists, that the circulation of the blood from the Viscera of the *Abdomen*, by the Vena porta, to the liver, and afterwards in the liver, is carried on, or at least greatly promoted, by the alternate compression which the contents of the *Abdomen* receive from the diaphragm, and abdominal muscles. And they who have been much concerned in dissections of living animals, have observed, that when the cavity of the *Abdomen* is exposed to the air, this circulation of the blood towards the liver by the Porta, is greatly impeded, or totally obstructed.

Hence it follows, that in proportion as the action of the muscles of the *Abdomen* is impaired, and the cavity laid open, this circulation, so necessary to the animal oeconomy, must be obstructed.

These wounds are also dangerous, in proportion as the function of the wounded bowel is necessary to health and life.

Another inconvenience attending these wounds is, that the extravasated blood, now exposed to the air, corrupts, and corrodes the intestines, and other adjacent parts to which the fineness of their texture renders them subject.

Nor is this the only injury which the patient receives from the air; for when it is included in the *Abdomen*, the heat it meets with there rarefies it more or less, and then it interferes with the action of the particular bowel or bowels it presses upon.

Hence it happens, that these wounds frequently become mortal.

If any of the abdominal Viscera receives a wound so considerable as to be seen, or come at with the fingers, at the first dressing the wound must be stuffed gently with lint, dipped in highly rectified spirit of wine, or spirit of turpentine, which is to be secured with compress and bandage; for this is generally sufficient to stop the flux of blood, unless some very large vein or artery is laid open. In the subsequent dressings the same method is to be pursued as is directed above.

But in case the injury lies so deep as not to be come at, the surgeon's care must be directed to the management of the external wound, which must be kept open with tents so long as any impurities are discharged from the wound, and vulnerary injections must every day be thrown into the *Abdomen*, so long as the perforated bowel discharges any thing into the *Abdomen* which ought to be brought away.

Mean time, an exact and sparing regimen must be observed, the patient must be let blood occasionally as the degree of inflammation requires, emollient and carminative clysters must be from time to time administered, and he must be confined to his bed, and enjoined strictly to abstain as much as is possible from motion even there.

The medicines in general must be vulnerary and balsamic. But I must refer the reader to the article of WOUNDS for particular ingredients and forms.

The Intestines, and Epiploon, or Omentum, are the parts which usually protuberate out of a wound in the *Abdomen*, and require a particular management. But as the sentiments of authors with respect to the treatment of these cases, are very different, I shall give the sum of what Celsus, Boerhaave, and Heister, have said on this subject, as they are writers of good authority, and seem to have collected from, or examined carefully the best of their predecessors.

Sometimes the belly receives a wound, and the intestines fall out through the orifice: The surgeon is then immediately to consider, first, whether they are injured; and then, whether they preserve their colour. If one of the small Intestines is pricked, there is nothing to be done; a great intestine may be sewed up, not that we can warrant a cure, but because doubtful hope is better than absolute despair; for sometimes the gut unites and heals. If any of the Intestines are livid, pale, or black, and, what necessarily follows in such cases, void of feeling, all remedies are useless. If their colour be not altered, be very speedy with your assistance; for the outward air, to which they are utter strangers, changes them in a moment.

The patient then must lie upon his back, with his hips somewhat raised; and if the wound is too small for the intestines to be put back in their proper place, it must be enlarged with the knife. If the intestines are dry, you must moisten them with water, mixed with a very little oil. Then must the assistant with his hands, or two hooks, that take hold of the inner membrane, gently open the lips of the wound, and the surgeon must take care to put in those Intestines first which fell out last, that each fold may lie where it was before.

When they are replaced, the patient must be gently shook, by which means the Intestines will retire back to their proper places.

The Omentum, or Cawl, is next to be considered, of which if any part be black and mortified, it must be cut off with the scissars; and whatever part of it is sound, put gently back upon the Intestines.

As to the Suture, it is not sufficient to sew either the outward skin or the inner membrane alone, but both must be united. Two threads must be used, and the stitches sewn thicker than for other parts, because they are subject to be broken by the motion of the belly; and besides, this part is less liable to inflammations than others. Two needles then are to be threaded, and held in both hands, and the inner membrane must be first sewn after the following manner: Begin at the extremity of the wound, and pass the needle in your right hand through the left lip of the wound, and the needle in your left hand through the right lip, from the inner to the outer part of the lips, by which means the point will always be farthest from the Intestines, and the blunt end nearest. After you have passed once, you are to change hands with your needles, that is, the needle that was in your right-hand must come into your left, and your left-hand take that which was in your right; and so for every pass till the wound is sewn up. After this, the same needles and threads must be used to the skin, which must be also sewn in the same manner; the needles always passing from the inner to the outward part, and shifting hands every pass as before. Then agglutinants are to be applied, and upon these a sponge or greasy wool (*Lana succida*) first dipped in vinegar, and then squeezed; after which an easy bandage is to be applied. *Celsus, lib. vij. cap. 16.*

If the wounded Intestines present themselves at the external orifice, they must be sewed up if the wound is large; but if small, they may be replaced without Suture; and the rest of the cure is then to be performed in the manner the reader has before been taught.

If any of the Intestines are protruded out of a large wound, they must be fomented with living animals, just slit and applied to them; or with proper fomentations, amongst which the following is recommended.

Take the clean intestines of any young animal just killed, boil these three or four minutes in a proportional quantity of water;

Then add to it half a handful of the flowers of chamomile, lavender, and centaury, and one handful of mint-leaves. Let these stand in infusion about three or four minutes longer.

The liquor of this decoction is to be applied by means of stuphs.

If these ingredients are not at hand, warm new milk will answer the end.

But if the wound is small, and the Intestines so much swelled by wind, inflammation, or excrement, that they cannot be reduced, the surgeon must endeavour to discuss the wind, or soften the part by carminative or emollient fomentations; or if that is ineffectual, small perforations may be made in the Intestine with a needle, to let out the included wind. The last refuge is to dilate the wound.

This must be done with a great deal of care, and is a hazardous operation, because the Intestine is in the way, and in danger of being wounded. The surgeon for this reason must introduce a Director, and cut upon it.

If any part of the intestinal tube is cut away by the wounding instrument, or is lost by suppuration, or gangrene, the superior part of it, that is, the part nearest the stomach in the course of the Intestines, though it may happen to be the inferior part with respect to their present situation, is to be found, and sewed to the orifice of the wound.

In this case the patient must frequently submit to the necessity of parting with the excrement by the wound as long as he lives. *Boerhaave.*

This was the case of an inn-keeper at Rotherham, which may be worth relating as it is somewhat uncommon. And to the best of my remembrance was thus, as related to me by the surgeon that attended him; for I was not acquainted with the man himself till some years after he was recovered.

He was first seized with a violent pain, about the mid-way betwixt the Umbilical region and Os pubis, three inches on the right side the Linea alba. A considerable tumour at last appeared upon the part, which broke of itself; and by a large discharge of excrement, mixed with pus, convinced the surgeon the Intestine was perforated. The dressings, as far as I could learn, were nothing different from those generally applied upon the breaking of a common abscess; and no care was taken to unite the orifice of the Intestine with that of the ulcer. However, I knew him many years after this, with all the appearances of being hearty and in full health, and with no other inconveniences remaining from this accident, than those of parting with some excrement every day at the ulcer,

ulcer, and of being sometimes put out of countenance by a sudden eruption of wind, which, for want of a sphincter, it was not in his power to prevent.

Of the same nature is the case of Margaret White related by Mr. Cheselden.

In the fiftieth year of her age she had a rupture at her navel, which continued till her seventy-third year, when, after a fit of the colic, it mortified; and she being presently after taken with a vomiting, it burst. Mr. Cheselden went to her, and found her in this condition, with about six and twenty inches of the gut hanging out mortified. He took away what was mortified, and left the end of the sound gut hanging out at the navel, to which it afterwards adhered. She recovered, and lived many years after, voiding the excrements through the Intestine at the navel; and though the ulcer was so large after the mortification separated, that the breadth of two guts was seen, yet they never at any time protruded out at the wound, though she was taken up out of her bed, and sat up every day.

If the Omentum is thrust out of the *Abdomen*, and continues warm and moist, and the arteries appear vivid and red upon it, it must be immediately replaced, either with or without dilating the wound.

But if the surgeon finds it dry, cold, and livid, he must make a ligature upon the sound part, and cut off all that is mortified, and then replace it, after having fomented it in the manner directed above for the Intestines.

When the surgeon has performed his duty, the physician will find his account in plentiful bleeding, which is the most effectual preservative against inflammation, gangrene, and fever. Clysters are also in the beginning excellent, provided the large Intestines remain intire; but are not so proper when those are perforated, because a clyster, or part of it, may pass through the wound of the Intestine, into the cavity of the *Abdomen*, and there cause a great deal of mischief.

The following form of a clyster is recommended by *Borrhaave*.

Take of barley water seven ounces, honey three ounces, common salt a dram.

Let such a clyster be given every morning and evening for the first three days.

The diet during the whole cure should be of broths only, with a little salt.

The following observations from *HEISTER* will illustrate the surgery of the *Abdomen*:

In wounds which penetrate into the cavity of the *Abdomen*, the first thing to be considered is, whether the Intestines or Omentum come out of the wound or not. If they do not, the wound must be compressed on each side by the hands to keep them in, whilst the patient is laid on his back with his hips somewhat higher than his head, till the wound is taken care of, in such a manner, that the Intestines and Omentum are no longer in danger of falling out.

But when they are already protruded out of the wound, immediate assistance is necessary, because the air inclines them to mortify in a very little time: The surgeon then must first examine whether they remain intire, and whether they preserve their natural heat and colour. For if they are wounded, or appear cold, livid, and dry, they must not be returned into the *Abdomen*, till they are treated in the manner to be described hereafter.

An unusual flaccidity of the intestine protruded out of the wound, is a sign, that either the part exposed, or else some other part of the intestinal tube, is wounded. If therefore the part in view is collapsed, but appears intire, the rest of the Intestines must be gently drawn out of the external wound, that the perforated part may be found, and treated properly.

If it appears, that the intestines are neither wounded, cold, livid, nor dry, they must be immediately returned into the *Abdomen* in this manner:

Place the patient in such a situation as is described above, for preventing the Intestines from falling out; but let him be turned a little to the right side, if the wound is on the left; and on the left side, if the wound is on the right. Then let an assistant separate the lips of the wound with his fingers, or proper hooks, whilst the surgeon thrusts the protruded Intestine into the *Abdomen*, with the fore-finger of each hand, which must act alternately, one being never removed from the orifice of the wound, till the other supplies its place, otherwise the Intestine would be likely to come out again. Mean time it must be recommended to the patient to forbear respiration as much as is possible.

If the Intestines are cold and dry before they are replaced, they must be fomented with warm water, or milk, applied by means of linen stuphs, or a sponge, or in a bladder; or else they must be wrapped in the warm Omentum of a calf, lamb, swine, or some other animal just killed, till their natural heat and colour are restored; for without it there are no hopes of a cure.

However, if the dryness and coldness are moderate, and the Intestines not yet mortified, they ought to be immediately replaced,

the natural heat and moisture of the *Abdomen* being more effectual for their recovery, than all fomentations whatever.

If the Intestine protruded out of a small wound, is so distended with wind, that it cannot commodiously be returned, it will not be amiss to pull a little more of the Intestine out of the wound, that the Flatus being distributed into a larger space, may render the reduction thereof more easy. Then the assistant must keep the lips of the wound, and divided parts of the Peritonæum asunder, either with his hands or hooks, whilst the surgeon returns that part of the intestine first which came out last; that their natural order may be preserved when replaced. This done, the Intestine must be secured from falling out again by the hand, till the wound is filled with twisted lint, or a soft tent, if any considerable quantity of blood remains extravasated in the *Abdomen*; these must be secured by plaisters, bolsters, and bandage. The patient mean time must be kept very quiet, and must lie as much as is possible upon the wound.

After the first dressing, the wound is to be dressed once or twice a day, if there is a great discharge of matter, with some vulnerary balsam. By this method these small wounds may be cured without Suture, an operation not less troublesome to the patient than the surgeon.

When these methods cannot be pursued, or are ineffectual for the reduction of the Intestine, the wound must be dilated sufficiently to admit of its restitution. But great care and caution is to be taken in performing this operation; for the *Linea alba*, the Arteries that run under the *Musculi recti*, the *Vena umbilicalis*, and the Intestines themselves must industriously be avoided. For the greater security, a Conductor, or sulcated Probe is generally introduced at one extremity of the wound, by which the common knife may be directed, or a knife alone, with a button at the point, of which *Heister* gives a figure, *Tab. v. F. 3.* and is of his own invention, and which he recommends as preferable to the *Syringotomus*; an instrument made use of in cutting for a *Fistula in Ano*, and mentioned by some surgeons as useful for this operation, of which see the description under the name.

But whilst the orifice is enlarging by any of these instruments, an assistant should keep the intestines out of the way of danger, first covering them with a staph wrung out of a proper fomentation, or with the warm Omentum of some animal.

But if it happens, that the knife or Director cannot commodiously be introduced, by reason of the great inflation of the protruded Intestine; the surgeon must, with his left-hand, remove the Intestine out of the way, whilst, with his right, he cuts through the skin, fat, and muscles. Then wiping off the blood carefully with a sponge; he must endeavour to reduce the Intestine, without cutting the Peritonæum; which may sometimes be done, when the strangulation is in this manner lessened; but if it cannot, the Conductor, or knife, may now more readily be introduced, in order to enlarge the wound of the Peritonæum.

When the bulk and hardness of the excrement prevent the reduction of the Intestine, emollient fomentations or Cataplasms may be applied to it, and the Intestine may be drawn a little farther out; for by this artifice the excrement may be softened; and the thickness of it diminished by gentle pressure with the hand; so as to make the return of the gut feasible without dilating the wound.

Paré, *Severinus*, and some other surgeons, advise letting out the included wind; by making small punctures in the inflated gut with a needle, that it may be replaced without dilatation; but *Heister* prefers enlarging the wound, because many surgeons are of opinion, that these punctures are neither so innocent as they are represented, nor effectual for the purpose for which they are recommended.

When through a wound of the *Abdomen* the Intestines fall out, and are found to be perforated, the surgeons think themselves obliged to sew up the perforation before they are replaced; for by this means they expect that the wound will the more easily be agglutinated, and that it will prevent the chyle or excrement from getting into the belly, and affecting the sound parts. Now though wounds of the Intestines, and especially of the small ones, are extremely dangerous, and a cure seldom or never to be warranted; yet because the great Intestine may not only be sewed up, but sometimes also healed, as *Celsus* observed, *Surely doubtful hope*, according to this author, *is better than absolute despair*. A surgeon must therefore neglect nothing which is likely to contribute to the cure of a perforated Intestine.

Small perforations, scarce bigger than a quill, are by no means to be sewed up, but intrusted to the goodness of nature; for such commonly heal better of themselves, than when they are irritated with sewing, which, for the most part, is attended with pain, inflammation, and other ill consequences. It is by far the best way, therefore, with all due care, to replace the Intestines, and, after bleeding, to prevent an inflammation; seriously to recommend rest and abstinence to the patient.

Larger wounds of the Intestines, though hardly ever cured, were, till of late, and still are by some, sewn up with a Con-

tinued

Sanctified Suture, or *Glover's stitch*; for it seems better and more humane to cherish and support the precarious hopes of the patient, by an industrious care of him, than by neglect to abandon him to certain despair. In order then for the operation, get a pretty slender needle, and thread it with linen or silken thread, finer than ordinary. Then let the assistant, with a piece of fine linen, take hold of one part of the wound, and let the surgeon hold the other part in his left hand, and with his right few up the gut with a Continued Suture, or such a stitch as glovers use, with the distance of a mathematical line, or a little more, between the stitches. Pass each extremity of the thread, both at the beginning and end of the Suture, under the stitch immediately next it, in order to fasten it, yet so as that the last shall be made into a knot, the first hanging out of the belly about a foot, that the thread may the more conveniently be pulled out after the intestine is conglutinated. Some prefer the Interrupted Suture much before this, because it requires fewer punctures, and is, for that reason, less subject to inflammation; the threads also left within, as being smaller, are less troublesome. Garengeot shews another way of making the Glover's Suture; but whatever Suture is used, very few in such cases are saved, as experience shews.

The orifices of the perforated Intestines being thus sewn up, the surgeon must next think of closing, or, if need be, of sewing up the belly. Here I would repeat this monition, which can never be too often inculcated, *viz.* That in all wounds of the *Abdomen* the tent is to be kept in till the collection of preternatural humours, or at least the greatest part of them, is discharged; or till the thread that hangs out of the Suture, the Intestines being conglutinated, is pulled away.

The surgeon is also to take care, when two threads hang out of the belly, that is, one from the tent, the other from the Suture of the Intestines, that they be of different colours, lest perhaps when he designs to draw out the tent which is slipped in too far, he should take hold of the wrong thread, and so twitch and irritate the Intestine.

But since our modern surgeons have observed, that none, at least very few, recover of wounds in the Intestines; and that those very wounds, if the patient survive, because of the extraordinary thinness of the coats of the Intestines, do not so often conglutinate as grow to the wounded part of the belly, the inner membrane of the Peritonæum, the cawl, or some other Intestine; 'tis no wonder, that they have lately abstained from Sutures of the Intestines, especially the Continued, or Glover's Suture. And this the rather, because, for the most part, the frequent punctures bring on a grievous inflammation, most acute pains, convulsions, cancers, gangrenes, and death itself. In order, therefore, to treat their patients with a little more gentleness, they have established the following method of cure:

They pass a fine needle with a waxed thread through the middle of the wounded part of the Intestine, and after fastening it with a knot, bring the Intestine to the internal part of the wound, and there fix it with all imaginable accuracy, the wound being first closed by some of the methods above directed. The thread which hangs out they secure by glutinous plaisters laid upon the wound, so that the Intestine can neither slip back, nor any thing be discharged from it into the cavity. This being rightly managed, not only the perforated parts of the Intestines will grow to the inside of the belly, but the patients are cured in a milder and safer manner, than by a Continued or Interrupted Suture; provided also they take due care of their diet, and the bandage of the wound. I would prescribe the same method for conglutinating wounds of the stomach, provided we can come to handle them, because it has been practised with success.

If a part of the Intestines happens to be cut quite off, the wound will not admit of conglutination, and therefore nothing but despair attends the patient. No wonder then that such as have been wounded in this manner, whether they have had no assistance from the surgeon, or have had the wound sewed up, have, in former times, almost to a man miserably perished. But since Hildanus, Blegny, Dionis, Palsyn, Hoffman, Scacher, Vaterus, Cheselden, myself and several others, have observed that the orifice of the mutilated Intestine has, as it were, spontaneously united with and grown to the exterior wound of the belly, a benefit unexpected by the patient, what should hinder a surgeon from doing the best he can to imitate a method of cure pointed out by nature, his best guide, for the relief of the wounded? Whenever therefore a case of this nature offers, the surgeon ought to know, that he is not to leave the patient to his destiny; but that his business is first narrowly to inspect the superior part of the mutilated Intestines, and then by help of the Continued or Nodose Suture, or any other way, to join it with the orifice of the external wound; for by this means not only the wounded are oftentimes delivered from impending danger of death, but the wound of the Intestine itself is conglutinated in such a manner, that what before used to pass off by the Anus, is now intercepted, and comes out of this opening of the belly, as it were through another channel. And however irksome such a condition may seem, as requiring a

tin pot, or some linnen rags, always at the hole to receive the Fæces; yet it is far better to lose some of the comforts and conveniences of life, than to have no use of life at all. Besides, what passes off this way is not so offensive as what goes off by the Anus.

The afore-mentioned method will be of service when a part of the protruded Intestines is corrupted and mortified; for in such a case, the mesenteric arteries being first tied very tight, all the corrupt part of the Intestine is cut off, and the outermost sound part is conglutinated with the external wound of the belly; for it is better, as Celsus says, to try a doubtful remedy than none, and to save some, though never so few, than to abandon all to despair and death.

When the Intestines are wounded, yet do not fall out, and, consequently, the wound is quite hidden, the method in use amongst almost all surgeons, is to put a tent into the external wound of the belly, then to bleed, if the strength will bear it; after this they injoin fasting, rest, and lying on the belly; and for the rest, rely on divine providence, and the goodness of nature. But here a question arises, whether it be not advisable, in such cases, to enlarge the wound of the belly, so as that the hurt Intestine might be found out, and then, by the help of Sutures, joined to the external wound? Indeed if we consider every thing attentively, it seems the best way to search out the wounded part of the Intestine, having before sufficiently dilated the wound in the belly for that purpose, and then, by the most proper method, to join the part to the wound, as before; otherwise the patient is left in the jaws of death, which few or none in this condition escape. Scacher, in his *Programma*, published at Leipzig, 1720, informs us, that the experiment has been tried with success. And Cheselden, in an Hernia, attended with a strangulation of the Intestine, opened the belly, drew up the Intestines out of the Scrotum, and afterwards perfectly cured the patient.

But what opinion are we to have of the use of clysters in wounds of the Intestines? For physicians have differed widely in their sentiments as to these remedies, some magnifying, and others as much vilifying them. For my part, (for I shall freely declare my thoughts) I am of opinion, that they are not wholly to be condemned, nor always to be commended. But if they must be allowed to take the best care of their patients, who take a method of cure most accommodated to the nature of the wound, I think the use of clysters in wounds of the great Intestines pernicious; but for those of the small ones, they may be very seasonable, and prove very beneficial. For as in the first case they cannot be discharged into the belly without damage to the wounded parts; so in the latter, that is, the case of the small Intestines wounded, they are usually administered with success; for they are not only restrained by the valve of the Colon from running into the *Abdomen*, but are of singular benefit and service, by cleansing the large Intestines of excrement, restoring an equable course of blood, assuaging, if not taking away, fevers and inflammations, and wonderfully mitigating pain itself.

IF THE OMENTUM FALLS OUT.

In wounds of the *Abdomen*, if the Omentum happens to fall out, either by itself, or with the Intestines, the surgeon is instantly to examine whether it is still warm and moist, and of its natural colour. If so, it ought to be put in gently with the fingers, if it can conveniently be done; but if, through the straitness of the wound, as it sometimes happens, this cannot be effected, all that is fallen out must be cut off close to the wound, and the wound must be healed like other wounds. So will the Omentum, without any damage or inconvenience to the patient, grow to the wound. But when the Intestines are fallen out together with it, the assistant is to hold it in a linen cloth, moistened with warm water or milk, till the Intestines are replaced in their proper situation, and then to put it carefully in.

But if, what may very easily happen, any part of the Omentum is cold, dry, black and mortified, or rotten, all that is any way corrupted must be carefully cut before it is replaced, lest the sound part should be infected within, and the patient killed thereby.

The corrupt part of the Omentum may be cut off with all the ease and convenience imaginable, in manner following: Take a pretty strong needle and waxed thread, and run it through the sound part of the Omentum near the corrupt; then, winding the thread three or four times about, fasten it with a knot, that no blood may be discharged from the cut veins and arteries of the Omentum. This done, cut off the corrupt part with scissars or a penknife, and gently return the rest to its proper place upon the Intestines, leaving the thread to hang out of the belly about a foot, till the Omentum healing up, it comes away.

As to the rest of the management, that is, detarging, bandage, and conglutinating, the same rules are to be observed as before prescribed: but a larger tent is to be introduced into the lower part of the wound, in order to preserve an opening for the

the discharge of any Sordes that may be contained in the *Abdomen*. But that the thread which hangs to this tent may not be confounded with those that hang from the Omentum, they are to be each of a different colour.

After six or seven days, those threads which hang out of the wound of the Belly are to be drawn gently every dressing, till at length the Omentum healing up, we find they may be taken out, but without violence. This being effected in the most gentle manner, and the place ceasing to run, the tent must be removed, and the external wound duly dressed and healed; but at the very first some blood is to be taken from the patient, except he hath lost enough before by the wound, to prevent inflammation; and rest and abstinence must be enjoined him.

But what can we think of that strange advice of Dionis, in which he would fain persuade us never to cut off any part of the prolapsed Omentum, but rather follow the example of Marechal, chief surgeon to the king, who, as Dionis says, oftentimes replaced the Omentum, without cutting or tying, or any bad consequences from omitting them. Now to speak my mind freely, this tale of Dionis seems to me to be dressed up in so careless a manner, that I dare pronounce it deficient in point of justness and accuracy. For it does not appear by his relation, whether the Omenta were great or small, sound or rotten, which he says Marechal replaced without amputation. If they were found, he needed not to have been so solicitous to have us imitate Marechal's example; for no surgeon ever denied or doubted that it was proper to replace a sound Omentum. But if the Omenta which Marechal thus restored without amputation were corrupt and mortified, which Dionis does not tell us, it must be a wonder indeed that no mischief happened to the patient, especially if a considerable part were rotten; and wonderful it is what became of the corrupt Omenta in the belly, and by what ways they were purged out. Therefore I think that this advice of Dionis is by no means to be regarded, before we receive some plain and certain information concerning this matter; and this the rather, because Palsynus in his *Chirurgia* infers a case, in which Marechal himself tied and cut off a corrupt part of the Omentum, before he replaced the sound part upon the Intestines, which, he also says was the practice of other noted surgeons at Paris.

Garengot embraces this opinion of Dionis, though he does not name him; but he does not clearly inform us how great a part of the corrupt Omentum it was, which Marechal, or any other thus returned without damage. Indeed I am persuaded, that it is not impossible for a very small corrupt part of the Omentum to be digested in the belly, but a large one by no means, unless it can be proved by various and undeniable instances. For one observation, even supposing it true, will not put the matter out of doubt, much less afford an example to be imitated; because miracles are now and then observed in the most dangerous wounds; and because any other corrupt matter or impurities of this kind cannot be kept, even in external wounds, without often creating very bad symptoms. But what may we not dread from them, when shut up among the internal parts, nay willfully thrust into them? Nor is it the same thing, as this author supposeth, whether the suppuration be small or great, as long as there is a suppuration. But because a great corrupt piece must cause a great suppuration in the Belly, whereas in the tied Omentum, where all the corrupt part is cut away before the sound is returned, there must be a very small, at least a far less suppuration; therefore less mischief is to be feared from this than from the former; especially since we endeavour to discharge even that small matter produced by that suppuration through the external wound, kept open by the use of tents. But Garengot soon after advises to close up every opening, by throwing aside all tents whatever, contrary to Marechal himself, who used them with success. Hence, so much the less can a great part of the Omentum resolved into Pus be discharged out of the Belly. I think therefore we ought carefully to distinguish between a great and small suppuration, for there is more difference between them than Garengot imagines; and since this matter, in my opinion, is not sufficiently cleared up, but still subject to great doubts, and even hazard, Palsynus an eye-witness, affirming the contrary; and Garengot does not seem to have learned by his own experience, the happy success of replacing a great corrupt part of the Omentum, I think it a better and safer way, to tie and cut it off, especially if the unsound part be large, as the best surgeons have hitherto done, than to lodge it in the Belly to the imminent danger of the patient's life. *Hist.*

Roland, Laufranc, Gulielmus de Saliceto, and Rogerius, advise, in case an Intestine is wounded, to defer the Suture of the external wound, till the Intestine is healed.

Paré is of opinion, that all wounds of the Intestines are not mortal, of which we find many instances related by Hildanus, Cæsar Magatus, Plazzonius de *Scoloporum vulneribus*, Petrus de Marchettis, Fallopius, Arcæus, Cabroleus, Tulpus, and Schenkius.

As Mr. Sharp is the last and best of our own country writers in surgery since Wiseman, I shall give his opinion of Gastroraphy, and wounds of the Intestines.

The account of this operation has employed the ingenuity of many chirurgical writers, and occasioned much debate about the proper rules for performing it; and yet what makes the greatest part of the description can hardly ever happen in practice, and the rest but very seldom. Mr. Sharp has been told, that Du Verney, who was the most eminent surgeon in the French army, a great many years during the wars, and fashion of duelling, declared, he never had once an opportunity of practising the Gastroraphy, as that operation is generally described; for though the word in strictness of etymology signifies no more than sewing up any wound of the Belly, yet in the common acceptation it implies, that the wound of the Belly is complicated with another of the Intestine. Now the symptoms laid down for distinguishing when the Intestine is wounded, do not with any certainty determine it to be wounded only in one place, which want of information makes it absurd to open the *Abdomen* in order to come at it; if so, the operation of stitching the bowels can only take place, where they fall out of the *Abdomen*, and we can see where the wound is, or how many wounds there are: if it happens that the Intestines fall out unwounded, the business of the surgeon is to return them immediately without waiting for spirituous or emollient fomentations; and in case they puff up so as to prevent their reduction by the same orifice, it may with a knife, or probe-scissors, be dilated sufficiently for that purpose, or the Intestines may be pricked to let out the wind, laying it down for a rule in this, and all operations where the Omentum protrudes, to cut off so much as shall be mortified before it is replaced.

Upon the supposition of the Intestine being wounded in such a manner as to require the operation, for in small punctures it is not necessary, the method of doing it may be this: taking a strait needle with a small thread, lay hold of the Bowel with the left hand, and sew up the wound by the Glover's stitch, that is, by passing the needle through the lips of the wound, from within outwards all the way, so as to leave a length of thread at both ends, to hang out of the incision of the *Abdomen*; then carefully making the Interrupted Suture of the external wound, pull the Bowel by the small threads into contact with the Peritonæum, for the more readily uniting afterwards by adhesion with it; though it would be more secure to pass the threads with the strait needle through the lower edges of the wound of the *Abdomen*, which would more certainly hold the Intestine in that situation. In about six days it is said the ligature of the Intestine will be loose enough to draw away, which must be done without great force. Mean time the wound is to be treated with superficial dressings, and the patient to be kept very still and low. *Sharp.*

The following case preserved in a letter to Hildanus from Claudius Deodatus, physician to the bishop of Basil, is very remarkable, and worth perusing, which I have therefore inserted.

About a year ago; a young man upwards of twenty; by trade a woollen weaver, having drank plentifully of wine, took a walk out in the dead of the night with his companions; to cool themselves. Rambling about the town, which is called Bruntrute, they met with some young students as drunk as themselves, and a quarrel arising, they drew on both sides; in the scuffle, one of the scholars, with a sword (which they call a stiletto) stabbed the weaver a little above the Navel, towards the left, so that the weapon came out at his Back, downwards toward his Loins. The weaver fell, and was carried off half dead to the surgeon, while the scholar doubting he had killed the man, secretly conveyed himself out of the town. The wounded person was put into the hands of two able surgeons, who were John Glanz belonging to the court, and Werner Cramory of Bruntrute, whom the poor man earnestly intreated to save his life, every one expecting he would soon give up the ghost. They were prevailed upon jointly to undertake him, though they gave but very little hopes of a cure. They examine with all possible care, the size, the depth, the place, and other circumstances of the wound, and conjecture, that if the Stomach itself should happen to be untouched, at least its orifice, or the extremity of the small Intestines, must have been penetrated and opened, though both orifices of the wound were so strait, that its innermost parts were with difficulty searched by one of the smallest probes. After they had well considered the difficulty and hazard of the undertaking, they betook themselves to the application of all such remedies, both inward and outward, as long use and daily practice had taught them, such as oils, balsams, ointments, plaisters, not omitting vulnerary potions and apozems. In a little time, as it usually happens, came on various and perplexing symptoms, as a fever attended with shiverings, thirst, watchings, restlessness, faintings, and costiveness: I advised the use of emollient clysters now and then, in order to discharge any clotted blood that might chance to stick in the Stomach or Intestines, and by its putrefaction, inflame the fever, or heighten the symptoms. This was thrice put in practice,

and every time there came off abundance of caked, black, and putrid blood; a certain sign that the Intestines were wounded. At length, after some weeks, both orifices of the wound were cicatrised; the patient thought himself cured, and went home. But he still felt a pricking pain about the part affected, which was accompanied with a hard swelling, so that he was forced to go with his body very much bent. Quite tired out with this pain and swelling, he consulted another surgeon, who suspecting something, I know not what, of Pus to be in the fault, applied things to soften the tumour, and promote the ripening of the Pus, and afterwards opened it twice with a lancet; but his pains were to no purpose, for there came out nothing but a little serous matter, and the pain still continued.

Now because he was of a cachectical habit of body, and had been for a long time troubled with obstructions of the Liver, Spleen, and the Meseraic veins themselves, I advised such remedies as were proper for removing obstructions of the Viscera. These were also tried upon him in vain, and the whole business resigned over to nature, the rather because the man could make a shift to walk, and do his business in some measure.

Towards the end of the year, returning home one day, after he had dispatched his business, he was taken in the midst of his walk with a violent motion to ease himself, and with vast pain and torment voided the tip, or very point of the weapon that wounded him. The surgeons struck with the novelty of the thing (though the patient would not confess it, till awed by the command and authority of the magistrate) left no stone unturned to get it into their possession, in order to shew it publicly, and compare it with the weapon to which it belonged. They were satisfied that it was the tip of a sword's point, but wanted the sword to which it belonged.

That there was a piece of the truncated sword left in the patient's body, is evident from the lasting and continual pricking pain, which still remains fixed, though the cause is removed. And it is abundantly evident from the premises, that the wound was mortal, because either the Stomach or Intestines were hurt, and the tip of the sword deeply rusted lay a whole year hid in the winding labyrinths of the Intestines in defiance of all stimulating expellers; for whatever makes its way downwards, must pass through all the orbs of the Intestines. Now whether the sword were broken by the man's falling to the ground, and afterwards in drawing it out, the point that is come away, or even the part wanting, might not stick in the Stomach or Intestines? And by what means the patient yet survives after his Stomach or Intestines were penetrated? And how, or where the iron could lie without doing more prejudice? And whether the other part of the weapon, as we suspect, be left in the body? These, and many other such doubts, which might be raised, are left to your well-known judgment, and long experience for a solution.

HILDANUS'S Answer.

That the wound you write of was mortal, no man of sound judgment can doubt; both Hippocrates and experience itself attesting that wounds of the Intestines are so. Besides, it was very near the Medulla spinalis, and the Nerves proceeding from it, and therefore more liable to pains, inflammations, and other grievous symptoms.

But that the Stomach was not pierced, much less the Pylorus, as your surgeons thought, appears from the situation of the wound. For the Pylorus, or right orifice of the Stomach, is seated on the right side, over-against the Liver, and the Stomach lies too high for the wound to reach it, and I doubt whether the small Intestines were hurt; for being bloodless, they seldom or never close. Wherefore Hippocrates, Book vi. Aph. 18. with good reason pronounces them mortal. However, we meet with instances in Marcellus Donatus, and others, of wounds of the small Intestines, which have been cured. Therefore it seems most probable to me, with submission to your better judgment, that the stiletto went through the Intestine called the Colon, and through that part of it where it is very firmly connected to the left Kidney, and hit with its point against the Processus of the second or third Vertebrae of the Loins, which are of a firm substance, when the wounded person falling to the ground, and rowling, the weapon being of the best steel snapped and broke off, the point remaining in the Intestine, or part there, and part in the Muscles.

That the Colon was wounded the want of stools is a good argument. For that Intestine, as you know, being pretty strait, where it runs by the left Kidney, the passage of the excrements in that place might easily be intercepted by the affluence of the humours, and inflammation and tumefaction of the part caused thereby. That plenty also of clotted blood, which the patient voided, indicates a wound in the Colon. You acted therefore with good sense, in prescribing clysters, to which, I doubt not, the man, in a great measure, owes his preservation.

From what has been said, you will see, venerable and worthy Sir, in answer to your queries, that the weapon was

broken by the patient's falling to the ground, and that the point remained in his body. But if any one should maintain that it stuck in the Process of the Vertebrae above-mentioned, in my opinion he is not far wide of the truth.

You ask besides, by what means the patient could survive a wound in the Stomach or Intestines? I answer with Averrhoes, that very often wonders are wrought in diseases, that is, such things as surpass human understanding; and that wounds of the Stomach have been sometimes cured, not to mention Nicholas Nichols, and Matthias a Cornace, we have the testimony of Marcellus Donatus, in his 5th book, chap. iv. See a remarkable example in Crollius, in his preface.

Some years since, Galenus Wierus, a physician of great repute, in a letter he wrote me, has these words: "I remember, says he, that at Montpellier my master Laurentius Goubertus, a very famous physician, and Regius professor, shewed us a blunt knife, which a shepherd wrapped in a cloth, and forcibly thrust into his fellow's mouth, and crammed it down his throat. The same lay a long while, as I remember, two years, in the body, till at length it came out at an Abscess in the Groin, which was cured by the surgeon, and the man lived seven years afterwards." So far Wierus.

Moreover, that wounds in that part of the Intestine, where your patient was hurt, are not quite desperate, I myself am an eye-witness. You have an example in my *Observ. xiv. cent. 1.* and indeed the Intestine in that part is thick, fleshy, and next to the fleshy parts, and even connected to them; so that when the rest of the Intestines are almost perpetually thrust this way and that way by the excrements and flatulences, this part only of the Colon remains in a manner immoveable, and therefore easily closes.

You ask, in the third place, how iron could lie so long in the body without doing prejudice? It was not altogether without prejudice; for you write that the patient was afflicted with constant pains. Besides, provident nature, which is always at work to relieve us, takes care to sheath those foreign and unwelcome guests which harbour within us with a callous sort of matter, in order to defend the adjacent parts from the injury which they might do them. You have an example in my *Observ. lxii. cent. 1.* of a knife fixed in the Loins; and another, *Observ. ii. cent. 2.* of a leaden bullet that lay six months in the Brain, without any supervening symptom.

Your fourth query is, whether the other part of the sword, which is wanting, do somewhere or other lie hid in the body? That, indeed, is a difficult matter to determine; but the constant and fixed pain is enough to convince us, that something preternatural, whether it is that part of the sword, or a fragment of the Appendix of the Vertebrae, lies hid in the part affected. For it seems to me very likely that the point of the sword struck against the Appendix, or Ala vertebrae, since I do not see how it could be broken in the flesh.

In this history, and the observations upon it, both Deodatus and Hildanus call the wound mortal, though the man recovered. This expression must not be taken literally. I suppose they mean that such a wound would generally be mortal.

The Muscles of the *Abdomen* are subject to inflammations, which are attended with some singularities, and require a peculiar treatment.

Physicians have sometimes mistaken an inflammation of the Muscles of the *Abdomen* for an inflammation of the Liver; but Galen tells us that inflammatory tumours of these Muscles preserve the figure of the Muscle, which that of the Liver does not. Besides that an inflammation of the Liver is attended with worse symptoms.

Heurnius gives a history of a woman, whose Muscles of the *Abdomen* were almost as hard as a stone, but preserved the form of Muscles. He applied Emplastr. e Mucilag. and when the parts grew red, and yielded to pressure, he ordered them to be laid open, upon which there was a great discharge of Pus, and the woman recovered.

He says these Muscles have a very thick Membrane, which will not permit the Pus to break out, without laying open. He adds, that he has seen these tumours, when not laid open, turn to a stony hardness; and also the whole Mesentery.

He says also that he has seen an Abscess of these Muscles turn into such a hardness, which has in like manner affected the parts underneath.

In order to prevent these consequences, and also hinder the Abscess from bursting internally, and discharging a quantity of matter into the cavity of the *Abdomen*, Hildanus advises to lay open by incision a Phlegmon of the *abdominal* Muscles when tending to suppuration, or suppurated, sooner than other Abscesses.

Because an inflammation of the Muscles of the *Abdomen* much resembles an inflammation of the Liver, they are to be distinguished by proper signs, such as follow:

In an inflammation of the Muscles of the *Abdomen*, the skin about them is so tense and stretched, that you cannot pinch it

up with your fingers. Tumours of the Musculi recti are of an oblong figure, and extending themselves over all the Belly, inclose the Navel. And so inflammations of other Muscles, in some measure, also represent their figure.

On the contrary, an inflammation of the Liver conforms itself, both in figure and measure, to the part affected; the Muscles also, when handled, seem to give way to the touch, and the tumour appears deeper seated. Besides, the colour of the whole Body is very much to be regarded in distinguishing these affections. For in an inflammation of the Muscles the colour continues lively, and much as in a state of health; but in an inflammation of the Liver it appears pale and yellowish, inclining to a Jaundice. You have a remarkable example to this purpose in *Gal. v. de Locis affect. c. 7.* of one Stefanus, who was judged by the physicians to have an Abscess in his Liver; but Galen being sent for, and only viewing his countenance, immediately pronounced that there was no Abscess in the Liver, and afterwards searching the Belly, found that it lay in the Muscles of the *Abdomen*.

What determined his judgment was, that the colour of the patient's face was not altered in the manner usual in an inflammation, or Abscess of the Liver.

A like example you have in *Valeriola, Observ. lib. iv. cap. 5.* of a woman, who was judged by another physician to have an inflammatory tumour in her Liver. "But I," says he, "as soon as the sick employed me, was of opinion that the tumour did not lie in the liver, but in the muscles placed over it." And a little after he says, "As soon as I came I felt the place, and discovered in the right Hypochondrium an oblong tumour, which reached to the navel, and soon after grew hard enough to be sensibly felt. The colour of the face was ruddy, fresh and rosy, with a mixture of white, and so continued during the whole course of the distemper. The urine, as to colour, consistence, and contents, of the most healthy sort; from all which signs I found that it was not the Liver, but the Muscles of the *Abdomen*, that lie over it, that were affected. For where the Liver is diseased, the colour of the face must necessarily be altered." Galen himself, *lib. v. cap. 7. de Locis affectis*, writes; that he discovered many disorders of the Liver by the colour of the face, which usually inclines to a pale yellow, mixed with a dusky green. *Riverius*.

In the year 1588, a gentlewoman of Lausanne complained of a very great and pungent pain in the Stomach. I was sent for, and examining the place, felt a hardness between the Muscles of the *Abdomen*, just opposite to the Stomach, by the side of the *Linea alba*, towards the Liver, which however could not be perceived without handling; for no outward sign appeared. The patient had a continual fever, with a great, pungent, and throbbing pain; whence I easily inferred, though no disorder appeared in the skin, that there must be an Abscess between the Peritonæum and the Muscles of the *Abdomen*. Being thoroughly sensible that the case was dangerous, and that nothing but an untimely death could be expected, if the Muscles of the *Abdomen* were not lanced, I advised to consult the most famous and learned Dr. John Aubert of Vindon, the most celebrated physician at that time in Lausanne. He was sent for, and clearly agreed with me in opinion that there was an inflammation, which, if not seasonably opened, would bring on death, or some tedious and stubborn distemper. But when we had declared our opinion to the attendants, they were amazed, because no tumour or disorder appeared on the skin, and they could not believe any thing of an internal Abscess; wherefore they utterly and unanimously rejected our advice of opening and cutting the Muscles, but begged of us to try if by any means, as Anodynes externally applied, the pain might be mitigated, and by proper medicines taken inwardly, the fever, nausea, and eructations might be removed. We, having first forewarned them of the danger, did what in us lay, and carefully provided all things according to their desire. After some days, about midnight, the pain remitted on a sudden, and the patient fancied herself quite well. Soon after, when we went to visit her, at seven o'clock in the morning, and had scarce entered the doors, the husband met us with joyful looks, to assure us that his wife was quite easy, which we presently found to be true in fact. The pain was scarce sensible, and the tension, eructation and nausea were quite gone, the hardness in the *Abdomen* could scarce be felt, the fever, in some degree, remitted, with the Pulse much mended. From these signs it was easy for us to conclude that the Abscess had broke inwardly, and discharged its contents into the vacuities of the *Abdomen*, and also to foretell the husband the event of the disease. After a few days, the pain arose anew in the Lower belly, followed by a burning and continual fever, that ended in cold sweats and faintings, under which the patient piously and placidly departed out of this life. I have been the longer in this instance, that young students may know how to judge and prognosticate in like cases. *Hildanus*.

A man 33 years old was much bruised by a very heavy coach-wheel, that passed over his right Hypochondrium, but with-

out breaking his Ribs. The hurt produced a looseness and great pain, which hindered him from sleeping, and by neglecting the proper methods of cure he fell into a fever, lost his strength, and died. I suspected, upon considering the situation of the parts, that the Liver was impaired; but upon laying open the Hypochondrium, found it remarkably soft and yielding; from whence it was obvious, that the Liver was not originally injured, indurated, or inflamed.

Having made an incision in the form of a cross through the Muscles of the *Abdomen*, I observed a pint and a half of Pus to run out of the right side, without any apparent Abscess in the Liver, the Aposteme being between the Peritonæum and the Muscles of the *Abdomen*.

Part of the Omentum adhered so strongly to the Abscess, that I was obliged to separate them with a knife.

The Liver was found out of its natural place, under the middle of the Diaphragm, inclining to the left Hypochondrium, and adhering every where to the Bastard ribs of the Sternum by Membranes, which I broke with my fingers.

The Abscess was large enough to contain the head of a bulky man, the Liver being displaced by the force of its compression.

The Stomach which was large, was forced by the same imposthumation towards the right side. *Bonst. Sepulch. Anat.*

A woman of quality about twenty years old, having been troubled for some months with a general weariness, heaviness and fatigues, for which she had taken mild purges, and strengthening physick, such as chalybeates joined with gentle purgatives, preparations of tartar, volatile salts, &c. finding her illness not abated according to her hopes, committed herself to the care of an ignorant empirick, who gave her pills made of the dried seeds of the Indian spurge, and other medicines of the same kind, which purged her strongly, and produced a sudden flow of spirits, and appearance of health. But the humours agitated by the violent operation of those medicines, produced a tumour in the Lower region of the Belly, which, notwithstanding the means that were made use of to disperse it, not only increased in one year to an enormous size, but caused very excruciating pains, and brought an acute fever upon her. To remove these symptoms many remedies were tried, with so good effect, that the fever was taken off, the tension of the parts was relaxed, and the inflammation ceased, only the tumour still continued, but without pain. This we endeavoured to dissipate by proper medicines, such as mineral waters, and artificial preparations; both of vegetables and minerals; but to so little purpose, that the swelling increased, and all the Belly was bloated to a prodigious bulk, and the fever nine months after it had been removed, returned with so much violence, that she was confined to her bed. Then the swelling extended itself from her Belly to her Thighs and Legs, and excoriated the parts in many places. Being now no longer able to move herself, and feeling a kind of laceration in the vessels of the Lower belly, she intreated me to open the tumour; and in compliance with her desire, I thrust a pointed Cannula into the cavity, and in ten days let out thirty pints of Pus corrupted to the highest degree. By this evacuation she was greatly relieved, but nevertheless died on the thirteenth day after the puncture, with great piety and calmness. When the *Abdomen* was laid open, we found at least forty pints of fetid and viscid Pus still remaining, in which the Intestines had floated so long, that their outward membrane began to mortify. The right Testicle, or Ovary, was by the pressure of the tumour, which I shall next describe, become so flaccid, that it was not without difficulty discoverable. What most deserved our regard was a tumour in the Mesocolon, which beginning on one side of the Colon where it enters the Rectum from a basis of about three inches diameter, passed under the Intestines to the right side, where it produced a body of no less than a foot diameter; then turning upward, it united itself to the Peritonæum, and continuing, extended itself to the left side, towards the part where it took its rise, and rested upon the larger Intestines, which were almost encircled by it, while the smaller were, together with the Stomach, forced upwards, and more at liberty. This tumour was glandulous and membranaceous, and contained, through its whole course, wells or cavities of various forms and sizes; many of them had a communication with each other, and were filled with substances of different kinds, as watry, mucilaginous, greasy, or almost of the consistence of tallow, all intolerably fetid. The tumour, with its contents, weighed about thirty pounds. All the other parts were found. *Bonst. Sepulch. Anat.*

A maiden of unblemished character was, in the year 1691, afflicted with an offensive and scabby eruption, which discharged a great deal of Sanies, and spread over her whole body; and in opposition to all the methods that were used, continued to the year 1696, and was believed by many to be the true Elephantiasis, because when the scabs fell off, the skin appeared livid and callous. At the beginning of the year 1696, the eruption

eruption, either by the help of medicine, or of its own accord, intirely disappeared; but was soon succeeded by pains over the whole body, and those were accompanied by a contraction of the Muscles which bend the Leg. At the same time her appetite, which had always continued good, increased to a prodigious degree of voracity. Her whole Body, and particularly her *Abdomen*, were so swelled, that she seemed to have at once an *Ascites* and *Anasarca*. In May, 1696, she died in her thirty-fifth year.

On the next day we opened her body, and observed there appeared no remains of the Scabies in any part of her body, that her countenance was livid and moist, and that a large quantity of purulent matter issued from her Nostrils and Eyes. That the tumour of the *Abdomen* was produced by a kind of anomalous or unnatural fat, which had extended the cells of the Panniculus adiposus to such a degree, that it was in some places three inches thick; but was crowded in vast quantities between the Membranes of the Mesentery, and in the Omentum itself. The Mesentery was transformed by it into a confused mass, in which neither Vessels nor Glands could any longer be distinguished. But our attention was more strongly attracted by the Omentum, of which the Vessels called *Vasa adiposa* by Malpighius, seemed to be extended by a general Hernia, or Rupture, and being filled in all its divisions to its utmost capacity, formed a multitude of cavities, or bags, of about an inch in compass, which hung down from the parent vessels of the length of three or four inches. The substance with which the cells of the Omentum and the cavities arising from them were filled, was like oil of olives congealed in the winter, and dissolved so readily by the warmth of the hand, that it gave us some reason to conclude with Malpighius, that it had some degree of circulation, and communication with the neighbouring vessels of the Mesentery and Panniculus adiposus. The other parts were without disorder. *Bonet. Sepulchret.*

I shall add to this account of the diseases peculiar to the *Abdomen* a remarkable case, which happened to fall under my own inspection.

In the year 1728, I attended a boy of about fifteen, who had been ill a great while, but, for six weeks before I saw him, he complained of a pain on the right side of his Belly, like that which attends an inflammation of the Intestines, except that it was not so acute, and had continued much longer than any common inflammation could do. In my first visit I was desired to observe one very extraordinary symptom, which was, that he was perfectly easy when he put himself in that situation which people usually call standing on their heads; and this he frequently was tempted to do for relief. The boy was wasted very much at this time, and died about fourteen days after.

Being permitted to open the Body, as soon as it was laid on the table, I perceived the whole *Abdomen* was considerably swelled, though not so much as is usual in a Dropsy.

As soon as the integuments and abdominal muscles were removed, I perceived the Peritonæum discoloured, and upon making a small perforation in it, a Flatus was discharged with some violence, which was attended with a stench almost insupportable. When the Peritonæum was removed, I found some Faeces in the *Abdomen*, and soon discovered a large perforation in the Cæcum, not far from the Appendicula vermiformis; but was surpris'd at the extraordinary figure of this part, which seemed to be very much enlarged, and formed into a kind of bag not unlike the Stomach. The hole in the Intestine was about as large as a six-pence, and a hard substance lay just upon it, of the size of a tennis-ball. I opened the Intestine, and took out the hard body, which much resembled an oak-ball. Upon cutting through it, I found it had been formed of the grosser part of the excrement, which had concreted round a plumb-stone, which lay in the middle. I took eight more of the same sort, but not quite so big, out of the Colon, and a great number of lesser, both out of the Colon, and small Intestines, each of which had for its basis a plumb or cherry-stone. And I was then told, he had discharged above fourscore small ones before his death, at different times, by stool.

These appearances account for the ease he found by standing on his head, for in that posture the ball would fall from the bottom of the enlarged Cæcum, and no longer press on the painful part, as it must do when he was erect.

Such cases as these sometimes occur, though they have not been much taken notice of. Bonetus mentions one somewhat like it. *Sepulchret. Anatom. l. 3. sect. 17. obs. 27.*

The *Abdomen* is subject to many other disorders, which will be specified under their particular names, or under the anatomical account of the particular parts affected by them.

But I must not omit taking notice, that the Muscles of the *Abdomen* are subject to a Rheumatism, which is sometimes mistaken for the Colic, and sometimes for an inflammation of some of the Viscera, which are situated underneath, especially of the Mesen-

tery, from which it is not very easy to be distinguished. However, it may be discovered by the absence of those symptoms which always attend inflammations of the particular Viscera, by the inefficacy of those medicines which usually relieve the Colic; by an accurate enquiry into the particular species of pain which the patient feels, and by an increase of it during any considerable action of the Muscles, whether in expiration, inspiration, or straining.

If there is reason from these considerations to suspect a Rheumatism, it will be a farther confirmation of it, if the patient has been subject to rheumatic pains in the other parts.

As young anatomists meet with some difficulty in beginning the dissection of a body, the following directions may afford them the instructions they stand in need of, and facilitate their way to a knowledge of the parts of the *Abdomen* in particular.

In the regular administration of a human body we must begin our section with the Lower belly, lest the speedy putrefaction of its Viscera should become troublesome and offensive. For this purpose, incision must be made through the common integuments of the body, in a crucial form; the first and direct line of division beginning at the Cartilago ensiformis, must be continued to the Os pubis; the other transverse from the Navel on each side, to the region of the Loins; after which, the Skin, Fat, and Membranes, of each portion being raised from their respective angles, the Muscles which cover the *Abdomen* will appear in their proper situation. These may be comprehended under the general title of Epigastrick, whereof some are anterior, seated in the fore part only; some lateral, others posterior, best referred to the back and loins.

OBLIQUUS DESCENDENS SEU DECLIVIS.

This Muscle derives its name from the progress of its Fibres. It arises with several acute productions, partly fleshy, and partly tendinous, from the lower margin of the fifth, sixth, seventh, and eighth, Ribs, where its several separate originations lie between the indentations of the Serratus major anticus. These for better distinction we choose to call its former origin; besides which it continues to derive more heads in like manner from the ninth, tenth, and eleventh, and sometimes from the extremity of the last Bastard rib, where it is also indented with the Serratus inferior posticus, as Vesalius has well observed. From its former origin, its oblique descending fleshy part expands itself into a broad membranous Tendon, before it marches over the Rectus to its insertion in the Linea alba and Os pubis. From its latter in the same manner descending, its ends partly tendinous in the Ligamentum pubis, but chiefly fleshy on the superior and fore-part of the circular edge of the Os ilium. It adheres not to the transverse Processes of the Vertebrae lumbares, as Spigelius, Vellingius, and with them most anatomists have imagined. But its largest, last and most fleshy digitation, leaving the lowest Bastard rib at its extrem point, and in its oblique descent declining forwards, still recedes gradually more and more from the Vertebrae, forming a triangular Interstice, comprehended by the Sacrolumbus, Os ilium, and its lower side; in which Area the Fibres of the subjacent Muscle plainly appear.

Besides the actions vulgarly ascribed to this Muscle, and its partner, together with the rest of their fellows, viz. compressing the Intestines and Bladder, either in excluding the Faeces and urine in both sexes, or Foetus in women; they have still a farther and more noble use.

That part of either of them that is interjacent between their latter origin and spine of the Os ilium, bearing an analogy in its position to the Mastoideus of the head, serves for the circumrotation of the trunk upon the axis of the Vertebrae, when we convert the body to the contrary side, the feet remaining unmoved, for which necessary motion authors have assigned no instrument, though this, I think, did not escape Dr. Glisson's judicious reflection.

For the better dissection of these abdominal muscles, observe the following method. The body being supported on its side, the Dorsi latissimus of the contrary must be freed from its divers fleshy originations at the curvated parts of the Ribs, as also the tendinous part of it, which arises from the edge of the Os ilium. This done, the blood being dried, and the fat cleared, which caution, to prevent confusion, must perpetually be observed, the originations of the described Obliquus descendens will appear.

Begin its separation by introducing your fore-finger between it and the following Muscle in the above-noted Interstice, then raise that part of it which springs from the lowest Rib, and terminates in the spine of the Os ilium, proceeding to free the rest of its digitations from between the four above-named Serrati, being cautious not to wound its Tendon, in dividing it from its subjacent Muscle, especially as it marches over the Rectus; nor may their separation be attempted in every subject by reason of their strict adhesion; wherefore, in preparing these Muscles, when they are to be demonstrated after dissection, you may proceed in the following order.

The Obliquus descendens being raised on either side (as before) to the Rectus, cut through and raise both Tendons together,

ther, leaving them at their insertions in the Linea alba, taking sufficient care in their separation from the intersections of the Rectus. This done, on the contrary side raise its fleshy part only, beginning in the Linea semilunaris, by making an aperture in its Tendon towards its lower part, where it is separable from that of the following Muscle, and thrusting a probe between the two Tendons, divide this superior one through the length of the *Abdomen*. Then the fleshy part on this side being also raised, and cleared to the extremities of its digitations, and left there, raise the Oblique Ascendent; and on the same side you raised the former towards its origination, raise this *e contrario*, so pursuing it to the Linea alba, where it is to be left: On the contrary side, its fleshy portion must be raised to its origination. The rest of these Muscles appearing *in situ* require no dissection.

OBLIQUUS ASCENDENS SËU ACCLIVIS;

So called from the oblique ascent of its Fibres. The same error noted in the preceding description is here committed by vulgar anatomists, neither of these Muscles having any communication with the Lumbar Vertebrae. It arises fleshy from the whole circular edge of the Os ilium and Ligamentum pubis, without any thin Membrane springing either from the Loins, or Os sacrum, as Vesalius would persuade us, or from the Apices of their transverse Processes, as others pretend; thence mounting with an order of Fibres inclining forwards, forms a broad membranous thin Tendon, implanted into the whole length of the Linea alba; and the Cartilages of the eighth, ninth, tenth, eleventh, and twelfth Ribs.

Besides its known use in compressing the *Abdomen* and its contents, that part of it which arises fleshy towards the back-part of the edge of the Os ilium, by the oblique ascent of its Fibres to the Cartilaginous endings of the Ribs, not only depresses them; and freights the cavity of the Thorax in expiration, but, in regard the order of Fibres of this intersect those of the former Muscle on the same side, may antagonise it in the circumrotation of the Trunk of the Body on the Axis of the Vertebrae; as on its contrary side, its series of fleshy Fibres being parallel to those of the said Descendens, on the opposite side, may act in concurrence with it in discharge of its office. In the structure and reciprocal co-operation of these Muscles, the Ascending on the right, and the Descending of the left, turning the Body to the right; and *vice versa*, the Ascending in the left, and Descending in the right, in like manner turning it to the left, the art of nature indeed is very admirable;

PYRAMIDALIS VËL SUCCENTURIATUS.

This Muscle lying on the Rectus, presents itself next in order of Dissection. It has its name from its figure, aptly representing a pyramid, from a broad basis ending in a point. It arises from the superior part of the Os pubis, and in its ascent lessens itself gradually till it becomes a long Tendon inserted in the Navel. Riolan has observed the left to be most commonly the lesser; and if either be absent, it most usually is that. Fallopius (who first discovered these Muscles) conjectures they compress the Bladder of urine; Fabritius ab Aquapendente imagines they support the *Abdomen*, and hinder the superior parts from pressing too violently on the inferior; but this opinion seems to take its rise from observing the anatomical subject in a supine position. The use which we think most genuine and natural is this: When the Diaphragm has pressed the Viscera, whereby the *Abdomen* is become tumid, these pull the navel downwards, by which means they make a more adequate compression of the Bladder in the expulsion of urine, than any other Muscle of this part; though it must be confessed they all contribute their assistance in that action. They are called Succenturiati by their author, or Auxiliary muscles, from a supposition, that they are only supplemental to the following in their action, the order of Fibres in both agreeing, and these being always absent, when those are continued fleshy to the juncture of the Ossa pubis.

RECTUS;

So called from the rectitude of its position. Anatomists differ in assigning the origination of this Muscle, some deriving it from the Sternum, others from the Os pubis; but it seems a matter more of controversy than use; since either part is indifferently moved by it, the opposite remaining stable. Little can be added to the common and well-known description of these Muscles, they being continued according to the length of the Lower belly, from the Cartilago ensiformis, and two of the Cartilages of the true, and two of the Bastard ribs, down to the Os pubis, and divided into four or five portions by three or four intermediate Perigraphæ, or transverse tendinous Intersections. The vessels which pass underneath its upper part are the Mammary Artery Descending, and its Vein Ascending. Those of its lower part are the Epigastric Artery Ascending, and its Vein Descending. The inclosure of this Muscle in the double Tendon of the Ascendens we could never yet discern, rather suspecting that the adhesion of the Ascending Tendon to that of the following Muscle in the Linea semilunaris might occasion the mistake.

TRANSVERSALIS.

So called because its Fibres run transversely over the *Abdomen*. This Muscle does not arise, according to the vulgar tradition, from any Ligament, whether springing from the Os sacrum, or covering the Sacrolumbus; but, as Realdus Columbus truly writes, from the transverse Processes of the Lumbar Vertebrae, Spine of the Os ilium, Ligamentum pubis, and Cartilaginous endings of the Ribs below the Sternum, from whence its fleshy part passes over the convex surface of the Peritonæum, and becomes a broad expanded Tendon before it runs under the Rectus to its implantation in the whole longitude of the Linea alba. When this Muscle with its partner act, they press the *Abdomen* directly inwards, as in expiration. Caspar Bartholin observes in bulls and animals of the larger size, that part of this Muscle is continuous with the Diaphragm at the Cartilaginous endings of the Ribs below the Sternum; whence he supposes the Diaphragm to be a Trigastrick Muscle. But whether this observation will quadrate to a human body, whose posture is erect, and manner of respiration different from that of Quadrupeds, we leave undecided till farther enquiries afford us better information: The Spermatic Vessels pass through this and the Ascendant Muscle near the Inguina, in the mid-way between the fore-part of the Spine of the Os ilium and Os pubis, whence descending for some space between the fleshy part of the last named, and Tendon of the Obliquus descendens, they run through a Fissure of the said Tendon, near the last-named Bone. These perforations not exactly corresponding to each other, is an artifice in nature to prevent a Prolapsus of the Intestines through them, not much unlike that oblique insertion of the Ureters and Ductus biliaris passing between the Membranes of the Intestines and Bladder, whereby the retrocession of the Bile in one, and the Urine in the other, is prevented.

In the dissection of these Muscles care must be taken not to wound the Cremaster on either side:

Galen in his *Treatise on the Dissection of the Muscles*, and that on the *Preservation of Health*, remarks, that the action of the *Abdominal* Muscles is necessary to the action of expiration, as they pull down the Thorax; and is very useful in efforts to speak loud:

In several places the same author takes notice, that without the contraction of these Muscles, we could have no stools, neither could we make water; for the actions of the Sphincter Muscles of the Anus, and Bladder, are overcome by the actions of the *Abdominal* Muscles, and Diaphragm (*De administrationibus anatomicis. De sanitate tuenda*).

He farther observes (*De Locis affectis*) that some people who find a difficulty in going to stool, or have a suppression of urine, relieve themselves, by pressing the *Abdomen* with their hand.

He also tells us, that the expulsion of the Fœtus is the work of the *Abdominal* Muscles. *De Naturalibus Facultatibus*.

ABDUCERE, is used, by Scribonius Largus, for *Bibere*, to drink.

ABDUCTIO. A species of fracture; when a Bone near the joint is so divided transversely, that the extremities of the fractured Bone recede from each other.

These fractures are said by Galen to be made *καυδῶδες*, that is, in the manner the stalk of a plant is broken.

Abductio, in *Caelius Aurelianus*, signifies a Strain. It is mentioned as one of the causes of Ischiadic and Psoadic pains. *Morb. Chronicorum*, l. v. c. 1. *Item vehemens Abductio vel raptus in Exercitio factus*.

ABDUCTOR, is a name given by anatomists to the following Muscles.

ABDUCTOR AURIS.

See *Retrahens Auriculam*, or *Triceps Auris*.

ABDUCTOR MINIMI DIGITI MANUS,

Hypothenar Riolani, or *Abductor Auricularis*, arises fleshy from the thin protuberating part of the Eighth bone of the Wrist;

Is inserted by a pretty long and round Tendon, on the inside of the short Tendon of the above described Muscle, near the upper part of the First bone of this Finger.

It serves not only to abduce the Little-finger from the rest, but also to bend it a little.

ABDUCTOR INDICIS

Arises broad and fleshy from the superior part and outside of the First bone of the Thumb;

Is inserted by a short Tendon into the upper part of the First bone of the Fore-finger, laterally, next the Thumb.

Its use is to bring the Index towards the Thumb, by drawing it from the Middle-finger.

ABDUCTOR MINIMI DIGITI PEDIS

Arises fleshy and tendinous from the semicircular edge of a cavity on the outside of the inferior Protuberance of the Os calcis; it has another tendinous beginning from the Os cuboides, and a third from the upper part of the Os metatarsi minimi digiti;

Is inserted into the upper part of the First bone of the Little-toe externally laterally.

ABE

Its use is to draw the Little-toe outwards from that next to it.

ABDUCTOR OCULI

Arises tendinous and fleshy from the Foramen lacerum, without the Orbit;

Is inserted by a thin Tendon into the Sclerotic, where it respects the great Canthus.

Its use is to move the Eye outwards, from the great to the little Angle.

ABDUCTOR POLLICIS MANUS, or THENAR.

Arises by a broad tendinous and fleshy beginning from the transverse Ligament of the Carpus, and from one of its Bones that articulates with the Thumb;

Is inserted tendinous into the second Joint of the Pollex digitorum manus.

Its use is to draw the Thumb from the Fingers.

ABDUCTOR POLLICIS PEDIS

Arises fleshy from the inside of the lower Protuberance of the Os calcis laterally, and tendinous from a little Tubercle in the same Bone, near the Os cymbiforme. It only adheres to the other Bones on the inside of the Foot, filling up the hollowness in the Os metatarsi pollicis;

Is inserted into the internal Os sesamoideum of the First bone of the Great-toe, its Tendons being farther continued upon the same Bone laterally.

Its use is to pull the Great-toe from the rest.

ABDUCTOR FEMORIS PRIMUS

Arises by a strong roundish Tendon from the upper part of the Os pubis next the Pectineus above the Gracilis; which turning into a compact fleshy belly, it begins to be

Inserted tendinous about the middle of the Linea aspera, being continued down upon the same five or six inches, sending out a Tendon which joins in with that of the fourth Head.

ABDUCTOR FEMORIS SECUNDUS

Arises from the Os pubis, immediately under the Gracilis, by a broad tendinous, but chiefly fleshy beginning; and

Is inserted into the Linea aspera, from a little below the lesser Trochanter, to the first insertion of the last described Muscle.

ABDUCTOR FEMORIS TERTIUS

Arises lower down than the former, from the outer edge of the Os pubis and Ischium; and, running obliquely towards the Trochanter minor,

Is inserted near the Gluteus maximus.

ABDUCTOR FEMORIS QUARTUS

Arises from the Protuberance of the Ischium, and the adjoining interior part of that Bone, by a tendinous and fleshy origination;

Is inserted by a round and long Tendon, into the upper and rough part of the inner and lower Appendix of the Os femoris, being affixed to that Bone a little above the Condyle; as also to some part of the Linea aspera.

The use of all these four Muscles is to adduce or move the Thigh-bone inwards, according to their different directions. *Douglafs.*

ABEBÆOS. Ἀβέβæος. Infirm, weak, inconstant. *Castell.*

ABELE. A species of Poplar. See POPULUS.

ABELICEA. The name of a very tall tree, growing principally in Crete, called also Santalus adulterina, and Pseudofantalum.

Honorius Bellus thinks this was not taken notice of by the antients, unless perhaps it may be the Ulmus montana of Theophrastus. *Ray's Hist.*

ABELMOLUCH. A sort of Ricinus, or Palma Christi. *Ray's Hist.*

ABELMOSCH. Blancard informs us, that this is the seed of an Egyptian plant, which has the smell of musk; which, for its agreeable flavour, the Arabians mix with their coffee.

The plant of which this is the seed, is the Alcea Egyptia Villosa of Casp. B. Egyptia moschata of Parkinson, Belmofchus Egyptia of J. Bau. and Ab-el-mosch five Mosch Arabum of Vellingius. *Ray.*

ABESAMUM. This is by Rulandus, and from him by Johnson explained *Lutum Rotæ*. But the High Dutch word, by which Rulandus translates it, signifies no more than Dirt, or Clay.

ABESSI. The same as Rebis. They signify the matter that remains of the aliment after the Chyle is separated from it, that is, Excrement.

ABESUM. Unslacked, or Quick Lime. See LIME.

ABEVACUATIO signifies a partial or incomplete eva-

ABL

cuation of the peccant humours, either by the force of nature, or assistance of art.

ABICUM, the same as Coopertonium. A covering. *Castell.* See COOPERTIO.

ABIES. The Firr.

There are three sorts of Firrs mentioned by Dale, as used in medicine.

The first is the silver Firr, of which the tops and leaves are recommended in diet-drinks for the Scurvy; and Miller tells us, a good quantity of them are said to be used in making Brunswick. I am informed a decoction of the wood, or saw-dust, is much used by the people of the countries where it grows in plenty, in disorders of the urinary passages, and for the Fluor albus.

The Strasburg turpentine is the product of this Firr, and is called its Liquid resin, to distinguish it from the Dry resin, which has somewhat the appearance of Frankincense. See TURPENTINE, ROSIN.

This Firr is distinguished.

ABIES, *Offic. Ger.* 1181. *Emac.* 1363. *Park. Theat.* 1539. *Raii Hist.* 1394. *Synop.* iii. 441. *Merc. Bot.* ii. 15. *Phys. Brit.* i. *Mer. Pin.* i. *Ind. Med.* i. *Mont. Ind.* 35. *Abies conis sursum spectantibus five mas*, C. B. *Pin.* 505. *Jonsf. Dendr.* 329. *Buxb.* i. *Abies fœmina five Extern Saxia.* *J. B.* i. 235. *Abies fœmina*, Chab. 68. *Abies Taxi foliis*; *Raii Hist.* ii. 1394. *Abies Taxi folio, fructu sursum spectante*; *Tourn. Inst.* 585. *Elem. Bot.* 457. *Boerb. Ind. A.* ii. 179. *Rupp. Flor. Jen.* 270.

The second mentioned by Dale is, the Virginia, or Canada Firr-tree, which produces the Balsamum Canadense, or Balsam of Canada.

This is called *Abies Canadensis.* *Ind. Med.* i.

ABIES minor pectinatis foliis Virginiana Conis parvis subrotundis. *Pluck. Phytog. Tab.* 121. *Almag.* 2.

The third is the Pitch-tree, or common Firr.

This produces a sort of Turpentine, of which is made,

1. White Rosin. See ROSIN.

2. Tarr. See TARR.

3. Common Pitch. See PITCH.

4. Burgundy Pitch. See PITCH.

This Firr is called

Picea, *Offic. Ger.* 1173. *Picea vulgaris*, *Park. Theat.* 1538. *Picea major*, *Jonsf. Dendr.* 325. *Picea major*, *Ger. Emac.* 1454. *Picea major prima, five Abies rubra*, C. B. *Pin.* 493. *Picea Latifoliorum*, Chab. 68. *Picea Latinorum, five Abies mas Theophrasti*, *J. B.* i. 238. *Abies*, *Picea*, *Volck. Flor. Nor.* i. *Ind. Med.* i. *Abies rubra*, *Picea*, *Mont. Ind.* 35. *Abies mas Theophrasti*, *Raii Hist.* ii. 1396. *Synop.* iii. 441. *Abies tenuiore folio, fructu deorsum spectante*, *Tourn. Inst.* 585. *Elem. Bot.* 457. *Boerb. Ind. A.* ii. 179. *Dill. Cat. Giff.* 49. *Rupp. Flor. Jen.* 270. *Abies Conis deorsum spectantibus*, *Buxb.* i.

There are a great number of Firrs besides these, which it will be sufficient just to mention, as being little concerned in medicine.

ABIES Taxi folio; fructu longissimo, deorsum inflexo. The Yew-leaved Firr-tree, with long hanging Cones, commonly called, the Long Coned Cornish Firr.

ABIES Piceæ foliis brevibus; Conis minimis. *Rand.* The pitch-leaved Firr-tree with small Cones.

ABIES Piceæ foliis brevioribus; conis parvis biuncialibus laxis. *Rand.* The shortest pitch-leaved Firr-tree, with loose Cones.

ABIES Taxi foliis; Odora Balsami Gileadensis. *Raii Hist. App.* The Balm of Gilead Firr, vulgo.

ABIES Taxi folio; fructu rotundiori obtuso. The Yew-leaved Firr-tree, with round Cones. By some called, the Balm of Gilead Firr.

ABIES foliis prælongis, pinnam simulans. *Raii Hist.* Firr-tree with long leaves, resembling those of the Pine-tree.

ABIES ORIENTALIS, folio brevi et tetragono, fructu minimo, deorsum inflexo. *Tourn. Cor.* Eastern Firr-tree, with short square leaves, and small fruit hanging downward.

ABIES MAJOR SINENSIS, pectinatis taxi foliis, subtus cæsiis, Conis grandioribus sursum rigentibus, foliorum et squamarum apiculis spinosis. *Pluck. Almath.* Great Firr-tree of China, with Yew-leaves, large Cones growing upright, and the points of the leaves prickly.

ABIES MAXIMA SINENSIS, pectinatis taxi foliis, apiculis non spinosis. *Pluck. Almath.* Greatest China Firr-tree with Yew-leaves, not prickly at their points.

ABIGA HERBA. An herb called also *Chamæpitys*, or *Ground Pine*. It is probably called *Abiga*, from *abigo* to expel, because it is said to promote Delivery. Or, perhaps from the similitude of its leaves to the *Abies* or *Firr*. *Blancard.*

ABIT, or ABOIT. Cerufs. *Castell.*

ABLACTATIO. Ablactation, or weaning a child.

An infant ought to be nourished by milk till it has acquired a firmness; after which you may feed it with crumbs of bread in Mulsam, (wine mixed with hony) sweet wine, or milk; and, after a little while, with a poached egg; for food which requires chewing, is filled too much with Saliva in their Mouths.

Mouths. His drink must be diluted wine. When you can safely venture to give him food made of corn, (which is commonly about the twentieth month) by degrees, and in an artful way, diffuse him to the Breast. If he falls into a distemper after he is weaned, put him to the Breast again; when the disease is gone, use your best care to nourish and put him in good heart, and then set about weaning him as before. *Ætius, Tetrabib. 1. Serm. 4. c. 28.*

Weaned infants must be diverted and recreated all manner of ways, and their aliment must be light, and of good juice. But the child, who has a good temperament of body, must not be suffered to drink much wine; for, in hot and moist Bodies, wine fills the Head with vapours. Nor is it my opinion that they should be utterly debarred from cold water; for, in hot weather especially, and the intervals of eating, I allow them the drinking of it, provided it be very good. *Ætius, Tetrab. 1. Serm. 4. c. 29.*

As nature has taken care to provide an aliment suitable to the tender stomachs of new-born infants, so has it given us plain directions when to change it for a diet that is more solid and difficult of digestion.

It is well known to observers of nature, that exercise and motion are the grand promoters of digestion, inasmuch that a labourer of a moderate strength and constitution, shall digest aliment of any kind without difficulty; whereas sedentary people, though much more robust originally, shall in time scarcely be able to sustain a diet of the most innocent food without the symptoms of indigestion. Digestion then seems to be, *ceteris paribus*, in proportion to motion.

Whilst therefore a child is incapable of sufficient exercise and motion to digest solid food, a thin fluid is provided for his sustenance, which is almost converted into nourishment, before it is taken into the Stomach of the infant. And for fear the mother should be so imprudent as to offer it improper aliment, Providence seems to have secured the tender Stomach in some degree from the mischiefs of indigestion, by a singular artifice; that is, by denying the child the use of teeth for the first months.

From these observations it will appear, that a child ought not to be weaned, till nature points out the proper time, by giving it teeth, and making it capable of motion sufficient to comminute, and afterwards to digest an aliment more solid, and more difficult to dissolve, than the milk of its mother.

But because an infant is furnished by degrees with the instruments of mastication, and the power of using exercise, the transition from milk to solid food should not be sudden.

Agreeable to this are the directions given by authors for the nourishment of young children. They tell us the milk of the parent should be the only food of children for the first two or three months, provided a sufficient quantity can be supplied without inconvenience; that afterwards pap, panada, and bread boiled with milk, must prudently and gradually be introduced into their diet, till their abilities for mastication and motion render them capable of digesting more solid aliment; and at last flesh.

Hence it appears how little those mothers consult the health of their children, who wantonly, and without any necessity, take them from the breast soon after they are born, and substitute a diet not to be digested in their tender stomachs, in the room of that which nature has provided for them, and accommodated to their constitutions.

A very few observations on the usual food of infants will set this in a clearer light.

The milk of a healthy woman in the flower of her age, is the most easily digestible of any aliment whatever, provided she uses moderate exercise, and a proper diet; and for that reason is the greatest restorative in nature. Many instances occur in authors, of grown people, reduced by distempers to the utmost degree of weakness, who have been restored by sucking the milk of women provided for that purpose.

These salutary effects of milk are very easy to be accounted for, if we consider the Stomach as the laboratory of health, and milk as a fluid, either secreted from the mass of blood in the Glands of the Breast, or else communicated immediately to the Breast from the receptacle of the Chyle, by some Ducts not yet discovered. When this is taken warm as it comes from the Breast, it gives the Stomach very little trouble to digest it; having lately passed the digestive Organs of the woman. It is therefore easily convertible again into Chyle, from which it differs but very little.

But I must not omit observing, that milk, like all animal fluids, loses most of its virtues when it has been suffered to grow cold, and this irretrievably; for warming it again will not restore them. But if milk is boiled, the qualities that rendered it an eligible food, are utterly destroyed, and from that moment it becomes an improper aliment for weak and tender Stomachs.

Bread boiled in water is a food for children frequently substituted for milk; but is not by far so proper; for bread thus boiled will grow glutinous, and viscid, if not well fermented,

but if well fermented, it soon turns sour. In both these cases a considerable action of the Stomach is required to convert it into Chyle; for otherwise, violent gripings, difficulty of breathing, inflammations of the Belly, convulsions, and death, must be the consequence.

It is not possible to lay down rules for the weaning children, adapted to every case that may occur. Regard is to be had to the strength and health of the mother, as well as of the child. Upon the whole we are to pursue the method which nature seems to point out, unless some circumstances interfere, which make it impracticable. Rules may be drawn from what has been represented above, which may, with a little variation, be accommodated to particular cases.

ABLATIO. This signifies the taking away any thing from the Body that is useless or prejudicial to it; and comprehends all manner of evacuations.

It sometimes is used to express the subtraction of part of the usual diet, with a medicinal view.

It also signifies the interval betwixt two fits of a fever, or the time of remission.

Chymical *Ablation* is the removal of any thing that is either finished, or else no longer necessary in a process. *Rulandus, Johnson, and Castellus.*

ABLUENTIA MEDICAMENTA. Diluting medicines, or medicines made use of to dissolve and carry off the acrimonious and stimulating salts in any part of the Body, especially the Stomach and Intestines.

ABLUIREN. Washing, or purifying. *Rulandus.*

ABLUTIO. Ablution, or washing either the external parts of the Body by baths; or the internal, by thin diluting fluids, as whey, &c.

Chymical *Ablution* is the purification of a body by repeated affusions of a proper liquor. The usual way of doing this is by Cohobation, or pouring the liquor distilled from the body upon it again, and repeating this, if necessary, several times. See **COHOBATION**.

Or else by making the containing vessel a Circulatory; that is, either closing it at the top, or luting another vessel inverted upon it; then when the vessel is committed to a proper furnace, the liquor which distils to the top, returns again upon the ingredients to be purified, till the operation is finished. See **CIRCULATORY**.

Isaacus Hollandus in his *Treatise of Minerals*, or *The Philosopher's Stone*, mentions an alchymistical *Ablution* of a fetid earth, in order to the production of a stone endued with extraordinary qualities. But I do not know what he means, nor did I ever meet with any body that could understand him. The reader may consult his work in the *Theatrum Chymicum*, p. 435. vol. iii.

The Chymists also use *Ablution* in the common sense of the word, which wants no explanation.

ABOIT. Cerus, or white lead. *Rulandus.*

ABOMASUM. The name of the Fourth stomach of a beast that ruminates, or chews the cud. The first is called Venter, the second Reticulum, and the third Omasus.

ABOMINATIO. By some barbarous writers this is used to signify the same as *Fassidium ciborum*, or a loathing of food.

ABORTUS, or ABORSUS. A Miscarriage.

Some authors tell us, that *Aborsus* signifies a Miscarriage during the first months of pregnancy; and *Abortus* one that happens near the full time of gestation. But there is no foundation for such a distinction, both signifying exactly the same thing.

Miscarriages happen at any time, and from various causes; but most frequently about the end of the third month, as was observed by Hippocrates. The first history of a Miscarriage upon record is one of six days, as related by Hippocrates. The Grecian courtesans made no scruple of procuring *Abortion*, because being with child interfered with their interest, as it sunk their value, and spoiled their market; and it appears, that it was not esteemed dishonest for a physician to direct the means; otherwise Hippocrates would not have told us in plain terms, that he advised the method that made the young woman, of whom the above-mentioned history is given, miscarry.

This author informs us, that what was discharged from the Uterus six days after conception, had the appearance of an egg without a shell, except that it was round and red. He discovered some white thick Fibres on the inside the Membrane, inclosed in a thick red Ichor; and on the outside of the Membrane, something that had the appearance of thick, black blood. (*αἰμακώρις*).

La Motte also observes, that a very young Fœtus involved in its Membranes, has the appearance of an egg without a shell.

Galen in his *Commentary on the third Book of Epidemics*, says, a Miscarriage is often caused by too violent dancing, by a fright, by poison, a purge, or forcing medicines; by excessive bleeding, whether from a wound or the Hæmorrhoides. But there are many other causes of *Abortion*, of which I shall give particular examples.

A continued and obstinate looseness in a woman with child, endangers her fruit. If milk flows out of her Breasts, it is a sign of the weak condition of her child; but plump and hard Breasts, are evidences of a sound and healthy Fœtus.

In a woman with child, if her breasts grow soft and flabby on a sudden, there is danger of a Miscarriage. A woman who has neither lain in, nor is with child, but yet has milk in her Breasts, has a deficiency in her Menfes. *Celsus, lib. ii. cap. 8.*

The signs of a future Miscarriage are an evacuation first of an aqueous, and then a sanious and bloody matter. But when the infant approaches, first comes away pure blood, then clots of blood, and after them the Fœtus either shaped or unshaped. Many complain of an heaviness in their Loins and Hips, of pains about the Navel, in their Head and Eyes, a gnawing at their Stomach, coldness of the Extreme parts, fainting, shivering as under an Ague. Some fall into Convulsions, as in an Epileptic fit. But these symptoms, for the most part, happen only to such as have taken medicines to procure *Abortion*. As for those who use no violent means, the preceding signs of a Miscarriage, according to Hippocrates, are an unaccountable falling away of the Breasts, with a coldness and weight in the Thighs, which reaches to the Loins. Healthy women, and such as have naturally a loose Belly, and moist Uterus, and have brought forth large infants with easy labour, are of ripe years, lean, and not abounding with Blood; bear Miscarriages better than others: *Actius Tetr. iv. Serm. iv. cap. 19.*

If the infant is separated from the Uterus, and fallen down into the passage, and is there detained, anoint the Body, and especially the parts about the Uterus, all over with Oil of Cypress mixed with Turpentine; and let the parts be daily embrocated with the same after delivery. If this does not succeed, let the woman sit over a decoction of aromatics, and let her use Sternutatories, or a fumigation of dry Resin, Bitumen, or Bee-glue, Cray-fish and Galbanum. These and such-like methods are to be tried, if an inflammation does not forbid it; but in that case we must be contented with Inseffion, or causing the woman to sit over such things as have a relaxing and mitigating virtue. If the infant be detained, from the closing of the womb, without an inflammation, let a pessary of paper and dry sponge, first a slender, afterwards a thicker one, be used; and anoint the extreme parts with Opopanax, or root of Panax, with Honey, and bruised Turpentine. If the Secundine does not follow the infant, we are not to extract it by violence; nor is the Navel-string to be cut, and the Secundine left behind; for strangulation, and other mischiefs, would certainly be the consequence. But if the extracting of the Secundine is long about, let the Navel-string be cut, and tied to the woman's Thigh, and let all endeavours be used to extract them. *Actius Tetr. iv. Serm. iv. chap. 19.*

Women of a tolerable constitution of Body, who miscarry at the term of two or three months, without manifest cause, have their Acetabula, or Cotyledons, says Hippocrates, loaded with Mucus; which therefore are incapable of sustaining the Fœtus, and for that reason break off from the Womb.

They are to be cured by Phlegmagogues, which evacuate from every part. For he that begins with evacuating the part affected, before he purges the whole Body, and by that means prevents the influx of the humours, is like a man who labours at exhausting a well that is constantly supplied by never-failing springs. When we have finished the evacuation of the body, we may proceed to purge the Uterus of Phlegm. A very good purging lotion for Phlegm in the Womb is thus prepared: Cut a large Colocynthis, or bitter Apple at the top, and throwing out the seeds, extract the pulp, and fill up the cavity with *Oleum Irinum*, (Oil of Orris) stopping it with the piece before cut off as with a cork, and let it soak a day and a night. Then set it in hot embers to boil, and afterwards strain out the oil; inject this oil warm into the Uterus. This medicine has made many a barren woman fruitful, by powerfully evacuating the pituitous redundances which hindered conception. The diet must be warming and drying, moderate exercise and frictions are to be used, and every thing that refrigerates is to be avoided.

As for those women who miscarry through weakness of the retentive faculty, the skin of a hedge-hog burnt, and drank in wine or water, by some natural property, proves beneficial in their case; the like effect follows if the Labia pudendi be anointed with the same. The hedge-hog and shell-fish calcined have the same virtue, which belongs also to myrtle-berries in wine, and *Oleum lentiscinum*, or *Susinum*, if the parts are anointed therewith. A lotion also with the decoction of bramble, and myrtle, and such-like is advised. *Actius Tetr. 4. Serm. 4. c. 21.*

Thus far the ancient medicinal writers. The moderns have made very considerable improvements in regard to Midwifery in general, and have excelled their predecessors in the methods of treating women under the hazardous circumstances of a Miscarriage, as well as in the directions they have given to prevent one, as will appear by what follows.

Miscarriages in general are produced by causes immediately

affecting either the child, the Placenta, with the Membranes, and *Funis umbilicalis* (Navel-string) or the Mother.

With respect to the child, whatever is the occasion of its death, certainly causes *Abortion* either sooner or later.

A tenderness of the Membranes involving the Fœtus, as it makes them liable to rupture upon very trivial occasions, often causes a Miscarriage.

There are frequent instances of a scirrhoty of the Placenta, and shortness of the Umbilical cord, both which have had the same effect.

In regard to the mother, all distempers, either acute or chronical, all passions of the mind, too violent exercise, lifting a weight, a fulness of blood, weakness from any cause whatever, stimulating medicines, straining in order to speak loud, and sometimes even a disagreeable smell, as of musk, amber-grease, civet, the match of a lamp, or snuff of a candle, are capable of causing abortion.

But the most frequent causes of Miscarriages are either too great stricture, or too great laxity of the Uterus. In the first case, the Uterus is not capable of a dilatation sufficient to make room for the Fœtus, as it increases in bulk. This is known by a great tension and hardness of the Belly, and violent pain therein. In the second, the Uterus is too weak to support the infusions of the Vessels of the Placenta into itself, after the Fœtus with the Membranes and Placenta are grown to a certain size and weight; and this of all other happens most frequently.

In both these cases the woman always miscarries at a stated time of her pregnancy, and seldom brings the Fœtus to maturity, till the general habit of the Body, or the particular state of the Uterus, is altered.

These two causes of *Abortion* are particularly pointed out by Hippocrates, who was also acquainted with most of the other causes specified above, from whom they have been transcribed by later authors.

I must not omit taking notice of the effects of coffee, which are said to promote the Menfes, and all Hæmorrhages, and therefore must be improper in pregnancy. *Geoffroy*.

Aloes ought never to be given to women with child, because it inclines to Hæmorrhages by rarefying the blood. *Geoffroy*.

No medicine prepared with sulphur is proper during pregnancy, because it inclines to *Abortion*.

The signs of an approaching Miscarriage, as represented by authors, are,

A sudden flaccidity of the Breasts.

A spontaneous discharge of a serous liquor from them.

An extenuation of the Belly, the upper part of it, and the sides sinking on a sudden.

A sensation of weight and heaviness in the Hips and Loins, succeeded by pains.

An incapacity, or great reluctance, for motion.

A pain in the Head and Eyes.

Grinding pains of the Stomach.

Coldness of the Extremities.

Faintings, a fever, shiverings, and convulsions somewhat like Epileptic fits.

A languid and less frequent motion of the Fœtus than usual, when pregnancy is so far advanced as to admit of feeling it.

The immediate forerunners of a miscarriage are; increased pains in the Loins and Hips, extending towards the Womb; a dilatation of the orifice of the Womb; formation of the Waters; a discharge of the same, at first a little sanious, afterwards more bloody, then of pure Blood, and lastly of grumous Blood.

A frequent inclination to make water is reckoned amongst the symptoms of an approaching Miscarriage. *La Motte*.

Daily experience confirms the opinions of all authors, that a Miscarriage is more dangerous than a birth at the full period. There seems to be in the fruit of animals something analogous to that of plants. A walnut may serve for an example, which drops spontaneously from its *involucrum* or hull, when arrived at maturity; but whilst immature, is not separated without violence.

In like manner the Vessels of the Placenta inserted into the body of the Womb are easily detached from it at the full period, but before that time they adhere more firmly, and their cohesion is not dissolved without difficulty.

The danger of a Miscarriage is from the Hæmorrhage attending it; for the mouth of the Womb is more solid and more difficult to dilate than when the woman is at her full time, inasmuch that the Fœtus cannot so readily come away. Mean time, if any part of the Placenta is separated, the Vessels of the Uterus will not cease to bleed so long as the Fœtus or Placenta remain in it, because these contents prevent the part from contracting itself, and thereby diminishing the orifices of the bleeding Vessels.

These Hæmorrhages are often so violent, as to bring on faintings, to deprive the patient of the use of reason for the time, and to cause convulsions, which last are usually fatal, whether they happen during a Miscarriage, or soon after it. *Hippocrates*.

Some-

Sometimes the internal surface of the Uterus is so lacerated by the separation of the Placenta, as to render impregnation for the future impossible.

The Uterus is very subject to inflammations on these occasions, by reason of the force necessary to dilate its Orifice, and to separate the Placenta from it, and the great afflux of humours to the part. These inflammations are generally fatal, if considerable. See UTERUS, where the symptoms are described, and the method of cure related.

Miscarriages are often attended with great pain in the back-part of the Head. *Galen.*

A Miscarriage is more troublesome and dangerous in the first, than in any subsequent pregnancy, because the parts are not so easily dilated the first time, as after they have been accustomed to it.

Women either extremely thin, or very fat, are esteemed to be in more danger from a Miscarriage, than others.

A Miscarriage in the sixth, seventh, or eighth month, is more dangerous and difficult, than those which happen more early in pregnancy.

Women of a lax habit in general, or whose Womb is much relaxed by particular accidents, often miscarry easily, and without any ill consequences, especially during the first months.

Sometimes, according to the doctrine of Hippocrates, a Miscarriage which happens within the first sixty days after conception, does service, by regulating the Menstrual flux, which was before deficient; and this is confirmed by observation. Hence women who have been barren for many years from a deficiency of the Menfes, continue to breed after a Miscarriage, or the expulsion of a False conception.

A Miscarriage from the Small-pox, Fevet, or any acute distemper, is esteemed fatal; yet many cases occur, which are exceptions to this rule.

When a woman is with child that has been accustomed to miscarry, and especially when any of the symptoms usually preceding a Miscarriage appear, some precautions must be taken, in order, if possible, to prevent it; but if these prove ineffectual, and the woman miscarries, methods may be directed, which, if pursued regularly till she is again with child, will be more likely to be attended with success, and enable the woman to bring her infant to a mature birth.

The precautions to be taken during pregnancy, must be adapted to the causes that threaten a Miscarriage. And it will be prudent to distinguish these causes with all imaginable accuracy, and consider all the preceding and present circumstances that can give us any information, lest, by mistaking the cause, we should pursue a method that is superfluous, or, what is worse, dangerous.

A Miscarriage impending through the imbecility of the Foetus, is to be distinguished by a deficiency in the signs of advancing pregnancy, a languid motion of the Foetus at the age it should move with vigour, but particularly by the health of the mother compared with these.

The only precaution which can be taken in this case, is to cure the mother of the particular distemper she labours under, which it will be more prudent to attempt by regulating her diet, exercise, and the other Non-naturals, than by quantities of medicines, at that time never agreeable, and not always safe.

I once lived in a country where a medicine was vended which had so much reputation for these imbecillities of the mother and Foetus, that few women went through their time without it; and I had reason to believe it had been in some instances attended with success, inasmuch that I thought it of importance enough to be worth taking some pains to find out. It proved to be the *Mistura aurea* of Fuller, without the least alteration.

Dr. Fuller says this medicine deserves the name of *Golden* more with respect to its virtues than the ingredients. He affirms that it very much invigorates both the mother and Foetus, and that it is capable of procuring the mother an easy labour, and of making the child healthy and strong, if a spoonful is taken twice a day for the last month of pregnancy.

If the Foetus is already dead, nothing is to be attempted to prevent a Miscarriage; nor on the contrary is any thing to be done to forward it, because nature will generally find out a proper time for its exclusion. For this reason the dangerous operation recommended by Celsus ought seldom or never to be put in practice; I mean that of delivering a woman by force of a dead child. Nor can forcing medicines be proper, because there are many instances of women who have gone to their full time, and then been delivered of a living child, after their pregnancy has been attended with most of the signs mentioned by authors of a dead Foetus.

There is no reason in general to fear the ill consequences to the mother that may attend the putrefaction of the Foetus in the Womb, because so long as the Membranes remain intire, the Foetus will not easily putrefy: and as soon as they break the Waters are excluded, and the Foetus is commonly expelled very soon after. *Mauriceau. La Motte.*

The signs of a dead Foetus in the Uterus are,

1. A cessation, or want of motion of the child, if pregnancy is far enough advanced to admit of its being perceived.
2. A sensation of a weight in the lower part of the Belly, which falls to which ever side the woman lies on.
3. Pains in the Belly, especially about the Navel and Loins; and an uneasy sensation in the Stomach.
4. An unusual coldness of the Belly, and of the internal Orifice of the Womb, perceivable by the touch; as also of the Nose and Ears of the woman.
5. An offensive Breath.
6. The Eyes seem hollow, sunk into the Orbit, and are deprived of their usual lustre; the Eye-lids are swelled, and the sight is less acute than usual.
7. The Face swells, and becomes of a dusky pale colour.
8. Frequent shiverings, fainting fits and convulsions, like Epileptic fits.
9. Want of sleep, uneasy dreams, and grinding of the Teeth.
10. A Tenesmus, or Strangury.
11. But the most certain sign is a discharge of foetid Sanies from the Uterus.

Those Miscarriages which are caused by the tenderness of the Membranes involving the Foetus cannot be foreseen, and consequently are not to be prevented by any precaution that can be taken. However a woman that has once miscarried from this cause, will do well to avoid all violent and sudden motion, which may give occasion to their rupture, in future pregnancies.

A Miscarriage from a scirrhusity of the Placenta, or shortness of the Umbilical cord, can neither be foreseen nor prevented.

A Miscarriage threatened by any distemper either acute or chronical, is to be prevented either by curing the distemper, if that is possible, or by moderating the symptoms. This admits of so much variety, that 'tis impossible to lay down rules accommodated to every particular case.

If a woman has been subject to Miscarriages, she must be careful to avoid the usual causes of it; but especially the particular accident that has formerly made her miscarry.

For this purpose she must regulate the passions of the mind, and her friends and domesticks must take care that she is not surprized by any thing that may give her either sudden pleasure or pain. She must avoid all exercise, unless that which is very moderate; speaking loud; lifting of weights; all strong perfumes, and disagreeable smells, and above all things the embraces of her husband; which, by the universal consent of authors, are numbered amongst the most frequent causes of *Abortion*.

As an Hæmorrhage from the Uterus always precedes a Miscarriage, authors have in general regarded it as the immediate cause thereof, and accordingly have calculated their remedies to prevent or stop it. Therefore bleeding is on all hands recommended upon the very first symptoms of a Miscarriage, provided no considerable evacuation of any sort, or weakness on the part of the mother render it improper; but this is absolutely necessary, whenever there is any reason to apprehend a Plethora, or fulness of Blood.

Rest is not of less importance; the woman must therefore be confined to her bed, upon the very first approach of the symptoms of Miscarriage, and enjoined to rest there till they intirely disappear, or till a Miscarriage is unavoidable; mean time she must be kept very cool.

As pain is always a forerunner of a Miscarriage, gentle Opiates are greatly recommended, mixed with Restrictants, and seem admirably adapted to prevent an increase of the symptoms, and the consequences thereof, as they take off the stimulation, and consequently remove one great promoter of the Hæmorrhage so much to be dreaded.

The following form, and method of administering it, is recommended by Boerhaave.

Take Blood-stone powdered;
Armenian bole,
Dragon's blood, of each a dram;
Syrup of Myrtles, an ounce;
Solid Laudanum, three grains;
Plantain water, six ounces.

Let the patient take half an ounce of this mixture every quarter of an hour. See HÆMORRHAGE.

Astringent medicines and applications, and an astringent Regimen, as they prevent Hæmorrhages in general from the Uterus, are particularly recommended for that reason, as preservatives against *Abortion*.

For this reason all those medicines that are found effectual in moderating a profuse Flux of the Menfes, are also serviceable in this case. See MENSES.

For this purpose Tincture of Roses is frequently prescribed, and Sydenham directs the following Electuary:

Take Conserve of Dried Roses two ounces.
Troches of Lemnian Earth, a dram and half.
Pomegranate Peel and Red Coral, of each two scruples.
Blood-stone, Dragon's blood, and Armenian Bole, each a scruple.
Syrup of Coral a sufficient quantity to make an Electuary.

Let the patient take the quantity of a large Nutmeg in the morning, and at five in the afternoon, drinking after it six spoonfuls of the following Julap.

Take of the simple water of Oak-buds, and Plantain, each three ounces.

Of Barley Cinamon-water, and Syrup of Red Roses, each an ounce.

Spirit of Vitriol enough to make it agreeably acid.

Refringent Plaisters are ordered to be applied to the Region of the Loins by Sydenham, made of equal parts of Diapalma, and the Rupture-plaister. Others direct the same, with an addition of the Red-lead plaister, or Plaisters of other refringent ingredients, as Dragon's blood, Armenian bole, Mastich, Galls, Bistort-root and Red Coral, made up with Cyprus Turpentine into the consistence of a Plaister.

It would be endless to give forms of medicines, and frequently prejudicial, because they are capable of being misapplied, unless particular regard is had to the causes of the disorder they are intended to remove, to which they must be adapted as circumstances shall direct. The reader will be more instructed by the following cautions.

1. Let nothing refringent be either given internally, or applied, when an approaching Miscarriage is so far advanced as to make the preventing it improbable, or impossible; for whatever then retards it is pernicious. Refringents then are particularly prejudicial, as they oppose the Relaxation of the internal Orifice of the Uterus, at this time so necessary to the expulsion of the Foetus and Secundines.

2. When there is reason to believe the Foetus is dead, let no astringents of any kind be made use of, because whatever then prevents a Miscarriage does harm.

3. When a Tension and Stricture of the Uterus make it incapable of a sufficient dilatation, and thereby endanger a Miscarriage, astringents are improper, as they increase the Tension, and consequently the danger.

I am sensible some authors are of opinion, that astringents are sometimes necessary, even in the cases last mentioned, to moderate a violent Flux of Blood. But they cannot answer the end proposed, so long as the Foetus, Placenta, or any part of it, or the Clotted blood keep the Uterus distended, and the Blood-vessels thereof open; and when these are brought away, they are generally superfluous, because the Hemorrhage usually ceases without any farther assistance, unless a Laceration of the Uterus, or some extraordinary accident render the regimen and medicines necessary, which are specified under the article HÆMORRHAGIA.

The precautions that are taken against a Miscarriage during the time of pregnancy, are seldom so effectual as those which are taken in the interval betwixt a Miscarriage and the next impregnation. These consist in restoring to the woman a perfect state of health in general, particular regard being had to the disorders of the Uterus.

If from the symptoms of great Pain, Tension and Hardness about the Region of the Uterus, antecedent to a Miscarriage, there is reason to suspect the Uterus is too tense to admit of sufficient dilatation, the general Habit of Body must be relaxed by the methods directed under the article STRICTURA. Or the Fibres of the Uterus may be softened by emollient Fomentations, Cataplasms, Injections, or Pessaries.

But at least nineteen out of twenty habitual Miscarriages are caused by a general Laxity of the Habit, or particular Relaxation of the Uterus; this case seems of importance enough to deserve some farther consideration.

By habitual Miscarriages, I mean such as have happened more than once at a stated period of pregnancy, without any evident cause.

'Tis remarkable that women of the lowest class are very little subject to this sort of Miscarriage; theirs generally proceeding from frights, falls, or acute distempers.

But with women in a higher sphere it is otherwise, many of them being scarce able to bring their Foetus to maturity without the utmost care and caution, though no accident intervenes sufficient to account for their Miscarriages.

If we consider the usual causes of Relaxation, the reason of this difference will appear very plain.

I must anticipate here a little of what I have to say on the subject of Relaxation as a distemper, and observe, that the great causes of Laxity are, want of exercise, sitting up late at night, and sleeping long in a morning, and heat.

Women then in the lower classes of life, prevent or remedy this Relaxation, by a great deal of exercise, by going soon to rest at night, and rising early in a morning, and by exposing themselves to cold, all which are necessary to their subsistence.

But women in a higher sphere, who are not under these necessities, induce a Laxity, by using insufficient exercise, or none at all; by sitting up late, and sleeping long in a morning, and by keeping themselves always warm.

Women of distinction have for the last half century accustomed themselves to a very pernicious habit, which much contributes to the Relaxation of their Fibres; I mean that of

drinking their liquors warm. This, in some morbid cases, may be necessary as a medicine; but it is the utmost imprudence to make it habitual in a state of health. For as heat always relaxes, the part which first receives the warm liquor must in time be relaxed by it, and this Relaxation must be communicated to the rest of the body. Hence Indigestion, Lowness of spirits, Hysterics and Obstructions of all kinds, the parents of Chronical distempers.

I am sensible that all these effects have been charged upon Tea, by a very obvious mistake. But warm water is capable of all these mischiefs, if drank in the same quantities, without any Tea infused in it.

The causes of this universal Laxity direct us to the cure, which must be attempted as soon as the woman is recovered of one Miscarriage, in order to prevent another the next time she shall be with child.

The medicines and regimen most likely to answer this end, will be particularly specified under the article LAXITY.

But if it happens that the disorder is local, the rest of the habit being in a tolerable state of health, and the Uterus only relaxed;

In this case the remedies must also in some measure be local. Thus Refringent plaisters applied to the Region of the Loins are not to be neglected. As to Fomentations and Injections, they must be used with caution, lest if they are a little too refringent, they should interfere with the natural evacuation, so necessary to the health of the sex.

A Fluor albus frequently attends a Laxity of the Womb and parts adjacent, which must be cured by the methods directed under that article, whether it be the cause, or the effect of Relaxation.

But the light Chalybeate waters are of all remedies the most effectual preservatives against most sorts of habitual Miscarriages. These must be drank at the fountain-head by six o'clock in the morning, or sooner; and in the quantity of three, or at most four half-pints. Mean time the patient must use as much exercise as her health and strength will admit of, and in all respects conform to a strict regularity of life during their use, which must be for two or three months during the summer.

I have often known the Pyrmont or Spaw-water substituted for our own country Chalybeates, but must own I never saw any very extraordinary effects from them in this case; but whether their inefficacy has been owing to their adulteration, or to the loss of their virtues at this distance from the fountain-head, I cannot determine.

Chalybeate waters, drank under the above-mentioned regulations, are admirably well adapted to prevent Miscarriages, both as they contribute to restore the Uterus to its natural elasticity, and as they mend the whole Habit of Body, and have great virtues in removing Obstructions, the grand sources of Indisposition.

I could produce many instances of considerable cures performed by these Waters, which have fell under my own observation; and can affirm of them, what few physicians can say of any other remedy, that I do not recollect any one patient that ever made use of them with regularity, without a manifest alteration for the better.

Zacutus Lusitanus recommends in the strongest terms an Issue for preventing Miscarriages, a thing not unlikely to succeed, as it may contribute to keep both the mother and child in health; and consequently be a preservative against Miscarriages from disorders to which either are subject.

As the internal Orifice of the Womb is more solid, and difficult to dilate in a Miscarriage, than a legitimate birth, the exclusion of the Foetus in this immature state must consequently be less easy, and attended with more danger. In both cases a violent Flooding is the circumstance the most to be dreaded, and can neither be prevented, or cured by any method whatever, so long as the Foetus, or any considerable portion of the Secundines remain in the Womb.

In a mature birth the Placenta is commonly detached from the Uterus without much difficulty, and excluded by natural pains soon after the child, even though the midwife does not take care to bring it away the minute after the birth; but if it adheres, as it does sometimes, and is retained till the Flooding begins to grow excessive, a hand may be introduced, and the Secundines separated from the Womb, and brought away without much violence to the woman, the Orifice of the Uterus at this time usually admitting of a dilatation sufficient for this operation.

But in a Miscarriage it is otherwise, where a moderate Flux is often continued for many days, before the internal Orifice will admit the exclusion of the small Foetus; much less will it suffer the introduction of a hand in order to separate the Placenta from the Womb, which in such cases is very subject to adhere to it.

When there is no longer any hopes of preventing a Miscarriage, and the Foetus is retained, in case it does not lie across the Orifice, Hippocrates advises to make the woman sneeze; and during the effort to stop her Nose, and Mouth, that the whole

whole force of the Convulsion may as much as is possible be directed towards the Uterus. This I mention, because I find the women in the country make use of the same artifice with success.

But the general directions of the best authors, amongst which is La Motte, are to commit the whole affair to nature, even though we are satisfied the Fœtus is dead, and attempt nothing either by medicine or manual operations, unless the Flooding should increase to such a degree, as to become formidable, or Convulsions should render a forceable delivery, with all its inconveniences and dangers, preferable to inevitable death.

This advice seems the more reasonable, as it is difficult to contrive any medicine to promote the expulsion of the Fœtus and Secundines, which do not at the same time rarefy the blood, and increase the Hæmorrhage, from whence the principal danger is to be apprehended; and as the manual operation is not less hazardous than painful.

When the dangerous symptoms mentioned above render immediate Delivery absolutely necessary, it must be performed without waiting for strong pains; because they seldom or never return after the Flooding is grown so excessive, as to bring on Faintings and Convulsions. Nor must we stay for a large dilatation of the Orifice of the Womb, which without pains is not to be expected; and it is less necessary in this case, because amongst the great inconveniences of weakness and Flooding, they are attended with the advantage of mollifying and relaxing in some measure the Orifice, thereby rendering the operation somewhat less dangerous and painful.

The situation convenient for the operation is thus, according to Celsus.

Place the woman upon her Back across a bed, and let her Thighs be bent forwards to her Belly, so that they may touch the Ilii, or Flanks.

Mauriceau advises to place the woman in the same manner across a bed, with the Head and Breasts somewhat higher than the lower parts, for her ease, and more convenient respiration. Then to bend the Knees so that the Heels may approach the Seat, whilst the Thighs are kept far asunder by two strong women, and a third lays hold of her under the arms to prevent her from sliding forwards.

Mauriceau also directs the operator, for his own convenience, to place himself on a seat directly before the woman, in such a manner that his Elbows, as he sits, may be just as high as the Pudenda.

Then the operator must anoint well his Hand with oil, fresh butter, or unsalted lard; and introduce it into the Vagina as far as the internal Orifice, into which he must first get one Finger, Celsus says the Index or Fore-finger, and then another; with these he must dilate the Orifice sufficiently to admit a third, and a fourth, till there is room for the whole Hand.

All this must be done by degrees, and with the utmost delicacy, avoiding, as much as the operation will permit, all manner of violence.

The Pudenda must also be well anointed with the ointments recommended for the operator's Hand, in order to facilitate the operation.

When the Hand is in the Womb, if the Membranes are yet intire, they must be broken; and then the Feet of the Fœtus must be laid hold of, by which it must immediately be brought away.

The next thing to be taken care of is the Placenta, which, if it sticks, must be separated from the Womb by the Fingers; and extracted, so that the least portion of it may not remain.

The Womb must farther be cleared of all grumous and coagulated Blood, which will cause the Flooding to continue, if suffered to remain in it.

In case the Fœtus is excluded, and the Placenta, or a portion of it, is retained, it is not always necessary to introduce the whole Hand into the Womb. La Motte gives some instances where a single Finger has been sufficient to separate the small Placenta, and afterwards to bring it away, by bending a Finger, and making it a sort of blunt hook. But these happened in the first weeks of pregnancy, when the Placenta was very small, and the Womb very little distended by it.

It has been observed before, that the operation ought not to be undertaken, unless absolutely necessary on account of violent Floodings; and the danger of forcing medicines has been remarked. I must add, that Cordials are attended with hazard, as they increase the Flooding in proportion as they raise the spirits.

When therefore the Placenta is retained, and the Flooding is not so violent as to render the operation immediately necessary, Opiates are the most likely medicines to promote the separation and exclusion of it, by relaxing the parts concerned, and removing that stricture which always accompanies pain.

To this end a single grain of Opium, an ounce of Diacodium, or twenty drops of Liquid laudanum, are often given in a convenient vehicle, with great success.

I think Boerhaave was the first that introduced this method into practice.

The same physician observing the inconvenience and danger of Forcing medicines, and Cordials in cases of large Uterine Hæmorrhages, occasioned by the retention of the Placenta, substituted in their room broths, which he directed to be taken in the quantity of a very few spoonfuls at a time, and to be repeated every four or five minutes, just as warm as new milk.

By this means the Stomach easily digests and converts into Chyle this small quantity of aliment, in its own nature easily digestible, and the patient is gradually supplied with Blood, in the room of that which she loses. Mean time she must be kept cool.

I have anticipated thus much of what will be explained more at large under the article Hæmorrhage, because no instructions should be wanting that might be of use to a woman under the hazardous circumstance of a Miscarriage.

For this reason, and for the sake of those who shall make the disorders of women their peculiar study, I shall end this article with a considerable number of cases, which will instruct much more than any general rules that can be laid down, and will in some degree supply the place of practice.

These cases are principally extracted from some few authors of our own country, Mauriceau, and La Motte.

I must not omit remarking a singular excellence of the last mentioned author. He seems to have observed nature with great diligence, and to have given the history of her operations with great accuracy; inasmuch that many of his cases seem almost made with a view to confirm some important maxims of Hippocrates, whom, I dare say, La Motte never read; otherwise he would not have failed to mention him, with a degree of ostentation peculiar to his countrymen.

OBSERVATION I.

A Miscarriage from a Stone in the Kidneys.

A woman of quality was many years afflicted with tormenting pains in the Kidneys, especially on the Left-side; where she was first seized; and though she was no less than fourteen times with child, she constantly came before her time in the eighth, or beginning of the ninth, month.

When I dissected her, I found the Left Kidney quite wasted; but the Right swelled to a prodigious bigness, in which, after I had cut through it, appeared a large Stone. *Bonetus.*

OBSERVATION II.

A Miscarriage from Water at the Origin of the Nerves.

A certain lady had been many years subject to Convulsive disorders, like Hysterics, but whenever she was with child, used to be taken with strong Convulsions like Hysteric fits. At the end of the third month, at which time she constantly miscarried, her Menstrues appeared, which continuing for two or three days to come away, accompanied with bits of torn Membranes, put her in expectation of miscarrying, which she always did soon after. At last she died of an Apoplexy.

Because I suspected the Womb to be principally affected, my curiosity led me to inquire first of all there; but I found that part perfectly sound, and in its right situation. There was nothing about the Womb, or its Appendage, that could be looked upon as the cause of this disorder; therefore we resolved to search for the principal and original cause of the distemper in the Head. Nor was our labour in vain; for the Brain had as it were suffered an inundation; all its Cells and Meanders were full of water, which had moreover insinuated itself near the Origin of Nerves that go to the Viscera, in such plenty, as to separate the Pia Mater from the Trunk of the Medulla oblongata the breadth of two Fingers. By means of these Nerves, the matter of the disease descending from the Head upon the Mesenteric plexus was doubtless the cause of all these Spasmodic pains and disorders, and the *Abortion* that followed. *Bonetus.*

REMARK.

Hippocrates seems to have directed the author of this case to search for the cause of the Miscarriage in the Head; though he does not name him. If he had not Hippocrates in view, the case is an instance of the great knowledge, and prodigious sagacity of the last mentioned author, who tells us, in his first book of *The Diseases of Women*, "That if the Head of a woman with child abounds with water (*φειμαρῶν*), the acrid water descends with violence from the Head to the Belly, and causes a slight Fever, and Convulsive motions, (*κράμπε*) which sometimes increasing become excessive. If such a case is attended with inappetency and weakness, there is great danger of an immediate Miscarriage."

OBSERVATION III.

Instances of Miscarriages from too much exercise.

Feb. 25. 1685, I attended a woman about three months gone with child, who miscarried while I was with her of a small Fœtus no bigger than a bee. The cause of this accident

dent, as it appeared, was a journey in a stage-coach, of a hundred leagues in five days, when she was about a month gone. The great agitation and shaking of the Body in that journey, it seems, destroyed intirely, or in part, the principle of life in that little Foetus, who then ceased to grow. A month afterwards the woman voided some small quantity of Blood from the Womb, though only for a day or two. But the same symptom appeared again at the end of another month, and ended in her miscarrying of that little Foetus, which ought to have been as long as one's Middle-finger towards the end of the third month, at which time Nature expelled it wrapped up in its Membranes with its Waters, in compass about the bigness of a small pullet's egg.

Now had this woman been blooded in the Arm before she undertook her journey, as I would have advised her; had she consulted me, she might have been preserved from this misfortune. For women with child are so much the more liable to receive hurt, as their Vessels are full of Blood; because the great stirring of the Body heating the Blood, and giving it a brisker motion than ordinary, the Vessels of the Womb, which are too full of it, expand to an extraordinary degree, and even sometimes break; wherefore Big-bellied women who are forced to take long journies, can use no better remedy to preserve themselves than Bleeding, which takes off the too great fulness of the Vessels. *Mauriceau.*

OBSERVATION IV.

April 1. 1685, I attended a woman who had miscarried an hour before of a small child of four months, which I judged, from its corruption, to have lain eight or nine days dead in the Womb, before Nature of itself expelled it. The Body of this Foetus being very small and quite shrivelled, had, for that reason, very little dilated the internal Orifice, so that I had no room, for the present, to bring away the After-birth, and therefore left it to Nature, which did the business twelve hours after. For I judged it better to do so, than to offer violence to the Womb by dilating it so much as was necessary for extracting this foreign mass. This misfortune was owing to the woman's being too much shaken and agitated, by always using a very uneasy coach. *Mauriceau.*

OBSERVATION V.

April 22. 1687, I delivered a woman of a small male infant alive, being four months grown, about eight inches long, and proportionably big.

This woman had hurt herself, as I fore-told, and fore-warned her against it, by going to Versailles in a very uneasy stage-coach. The great agitation and shocks she received in that journey, brought upon her, ten or twelve days before the Miscarriage, a small Flux of Blood, which continued till the day she miscarried, without anything besides remarkable. This child unfortunately perished by the imprudence of its mother, who, by neglecting the good advice I gave her, not to undertake that journey, in which she was thus injured, was herself, if I may so say, the murderer of her own child. *Mauriceau.*

OBSERVATION VI.

April 19. 1689, I delivered a woman of a male infant, five months and a half grown, who was still alive, though the mother had laboured under a moderate Flux of Blood, which was almost continual, the space of two whole months, increasing at last to such a degree as to hazard an *Abortion*. In this situation I advised the woman to keep her bed, or at least her chamber, that so she might, if possible, preserve her Great-belly to the end of her term. But instead of hearkening to my good advice, she undertook a journey in a coach, which was the direct way to destroy her infant, who lived but half an hour, though the mother was as well, after I had delivered her, as if she had lain in at the end of the natural term. *Mauriceau.*

OBSERVATION VII.

August 11. 1689, I attended a woman who had just miscarried of a small Foetus, wrapped up in its Membranes and Waters, and supposed to be nine weeks grown, but no bigger than a French-bean, by which it appeared, that it did not continue to grow during all that time, being no larger than the Foetus of a month. But as this little Foetus was not at all corrupted, and the mother told me, that she had been very severely shaken in a coach five weeks before, I was of opinion, that it had only preserved a languishing life, since this violent agitation, and had not grown at all; or rather, that it ceased to live from that time, but was preserved from corruption in its Waters, till Nature expelled it. *Mauriceau.*

OBSERVATION VIII.

August 17. 1690, I delivered a woman of a False conception, which had excited a considerable Flooding, in which I found a little Foetus no bigger than a grain of wheat.

This affords an undeniable proof that all these sorts of supposed False conceptions, are in reality nothing but After-births of abortive Foetuses of this nature.

The woman then reckoned herself about two months and a half gone with child, and told me, that three weeks before she had been very much shaken and jumbled in a stage-coach, which probably destroyed the principle of life in the Foetus from that time, and so was the cause of the *Abortion* that ensued. To which we may add, as another reason, the natural weakness of this Foetus, which ought to have been much larger, had it been vigorous from the time of its conception. *Mauriceau.*

OBSERVATION IX.

November 7. 1681, I attended a woman who had miscarried of a dead child in the sixth month.

Twelve or fifteen days before this accident, she had been too much shaken and jumbled on the road in travelling. This brought upon her pains in the Belly, which lasted all that time, till at the end her Waters flowed off in great abundance, without any real pain. As the infant presented an Arm, the midwife believing at first sight it was the Foot, took no care but drew it out as far as the Shoulder, which put the child in a more unnatural posture than it was in before. In this situation of affairs, being ordered to attend the woman, I pushed back the Arm into the Womb. But as all the Waters were intirely run off a day before, and the Orifice of the Womb was too strait and too dry for me to introduce my Hand without violence, in order to turn the child, I judged it more prudent to trust Nature with the expulsion of the child, than attempt it by a too forcible extraction, plainly foreseeing that, since it was very small, it might easily come away in the same posture it was in, when the Womb should be sufficiently dilated; because the woman had already been mother to a child that was full grown, and gone out her term. It happened as I foretold, twelve hours afterwards, Nature of its own accord expelling the child, by means of some pains, which were excited by a clyster I had prescribed, and which had sufficiently dilated the Orifice. But the midwife who stayed to attend her, missing the opportunity, let the Womb close itself, and could not bring away the After-birth, which remained six hours longer, after which Nature of itself expelled it, as it had done the child; and the woman being thus happily delivered, did very well afterwards. Now I do not know, but if I had tried to take away the child by force, as I was desired when I first came, the violence I must have used in dilating the Orifice, so as to be able to introduce my Hand, might have been very prejudicial to the mother; whom I preserved by prudently committing the business to Nature, for reasons declared before. *Mauriceau.*

OBSERVATION X.

October 12. 1689, I delivered a woman of a child of four months, which she carried a whole month dead in her Womb, that is, since she took a journey into the country, which had very much fatigued her. The little Foetus was all shrivelled, yet without any cadaverous corruption, being preserved all that while in its own Waters, which ran off the day before the mother miscarried.

Nothing extraordinary attended this *Abortion*, but the mother was as well afterwards as if she had gone out her time with a living child; for which she was not a little obliged to my good counsel, in advising her by no means to attempt bringing away the dead child by purgatives, as some physicians had proposed to her, before Nature itself endeavoured to expel it. For these sorts of remedies do nothing but irritate to no purpose, if they are given before she has begun her operation; which is very observable in those pangs which women feel, when Nature strives to disengage itself from a dead child, which differ in nothing from those that happen when she sets herself at work to bring a living child into the world. *Mauriceau.*

OBSERVATION XI.

July 19. 1687, I delivered a woman of a small child of five months, who was then alive. The mother had hurt herself by the fatigue and shaking of a journey of 150 leagues performed in haste, when she was two months and a half gone. This brought upon her, at that time, a distillation of reddish serosities from the Womb, with now and then some Blood, for the space of fifteen days, after which she was a little better, and even felt her child to move but a month before this accident. But this did not hinder her from miscarrying, as I plainly foretold four days before, since she neglected to keep herself in that state of rest and composure, which was necessary to preserve the fruit of her Womb.

We see by this example, that nine days rest, which Big-bellied women, who fear they are hurt by some considerable agitation of body, used to keep, is not always sufficient, since

since this woman could not secure herself from miscarrying by a rest of two whole months. *Mauriceau.*

OBSERVATION XII.

Madam the countess of — came into this country in May, 1703, having gone at this time three months with child. She sent for me, and when I came, I found her in bed, and perfectly well, except that she was fatigued with her long journey. She told me that Mr. des Forges at Paris had ordered her to lie in bed nine days, after her journey, and desired I would come to bleed her at the end of three weeks, after which she was to keep her bed nine days longer by the advice of the same gentleman.

I returned to bleed her at the time she appointed; and after this she punctually pursued the directions of Mr. des Forges. I visited her every week for two months, during which time she took all imaginable care of herself. But on Tuesday night I left her after supper perfectly well, and the Thursday following a servant came in great haste to let me know his lady had felt some Colic pains ever since midnight. Before I could set out, another servant came to let me know his lady was very ill, and desired I would make all imaginable haste. When I came to her, I found her with all the signs of an approaching Miscarriage. The Waters were formed, and the Membranes ready to break, which they did a few moments after, and the child, being in a good position, came away, together with the After-birth.

It was a boy, which lived an hour. The mother recovered in eight days, and six weeks after returned to Paris. *La Motte.*

REMARK.

By this case we may learn, that the utmost precautions sometimes are insufficient to prevent a Miscarriage.

OBSERVATION XIII.

November 17. 1703, the wife of an officer of justice sent for me about three o'clock in the morning. She told me she had been at a wedding, that was celebrated with great demonstrations of joy, where she had been over-persuaded to dance; that since that time she had been heavy, and oppressed, and felt such a weariness, that she could scarcely move; that she had perpetual inclinations for a stool, without being able to do any thing; and that she apprehended some ill consequence from these accidents, because she was at this time three months gone with child, and had since midnight perceived pains not unlike those she had formerly felt when in labour.

She then submitted to a proper examination, and I found matters so well disposed, that when I withdrew my Hand, I at the same time brought away a very small Foetus, together with its Membranes, and the After-birth.

She soon recovered without the least accident. *La Motte.*

Instances of Miscarriages from Strains, Bruises, and Hurts.

OBSERVATION XIV.

January 12. 1693, I attended a young woman, who, after having gone with her first Big-belly near five months, had just then miscarried of a small infant all corrupted, which in all probability she had carried above six weeks dead; for it had only the proportions of a child of three months; and as the woman told me that about that very time of her pregnancy she had been extremely afflicted with a most violent vomiting for some days, I am of opinion that the Strainings in that vomiting did much more contribute towards injuring the mother, and causing her child to perish, than a pretty long journey which she took before, whence she returned in good health, and so continued for fifteen days, till she was seized with that violent vomiting; which also ought the more to be esteemed the true cause of this *Abortion*, because the woman had been sickly ever since that time, till the day that Nature of herself expelled the corrupt Foetus, after which she recovered her perfect health. *Mauriceau.*

OBSERVATION XV.

The 10th of November, 1670, I attended a woman six months gone, who, for eight days past, had a moderate Flux of Blood, in which were some clots, occasioned by the shocks of a violent cough, which had enlarged the Orifice of the Uterus to a Finger's breadth; for this reason I told her she would certainly miscarry in a little time, although she felt no pain at present, because I was assured, from the opening of the Orifice, and discharge of Blood, that it was impossible for the agitation of so violent a Cough not to accomplish the mischief it had begun. The event answered, for the next day the woman miscarried of a child, which lived but a day and a half. *Mauriceau.*

OBSERVATION XVI.

February 12. 1690, I attended a woman who had just before

miscarried of a small Foetus, no bigger than a little bee; though she reckoned herself near three weeks gone with child. For the last four or five days she had been afflicted with a small Flux of Blood, which might be owing to a stumble she told me she had made some days before, in conjunction with a fit of anger. But since the Foetus was no bigger than one of fifteen days, it is probable, that having thrived so little since Conception, the mother would have miscarried if the stumble had not happened, because of the weakness of the Foetus, whose principle of life might possibly be destroyed by some other cause, unknown to the mother. *Mauriceau.*

OBSERVATION XVII.

March 13. 1687, I delivered a young woman of eighteen; at the term of eight months, of her first child, which was a girl, and alive. The mother's travel being accompanied with a considerable Flux of Blood, made us dread the consequence, and the more because it proceeded from a violent stumble she had made some days before, which had somewhat loosened the After-birth. This obliged me to cut the Membranes, as soon as I could conveniently get at them; lest coming to be strained by the mother's Pangs, they should yet further loosen the After-birth, in which, when I had extracted it, after the child came away, I found hardened clots of Blood bigger than my Fist, and sticking very tenaciously on that side where the After-birth had begun to be separated from the Womb, when it was loosened by the shock received from the stumble.

The child was proportioned in bigness to those of its age; that is, a third less than a child of nine months; and a third bigger than one of seven. But though it was born exactly at the end of eight months, and its birth too early by a full month, it lived and did well. This example confirms me in the opinion that children of eight months are always much stronger, and incomparably more lively, than children of seven months, who, by reason of their smallness and feebleness, die almost every one in a few hours, or at most a few days after their untimely birth. *Mauriceau.*

REMARK.

Mauriceau makes this last observation, to confute an opinion which had prevailed from the most early ages, that a child at the term of seven months is more likely to live, than one born in the eighth.

This, though contrary to all manner of reason and experience, was probably founded on the Pythagorean doctrine of *Numbers*; according to which the number *seven* was endued with great virtues.

OBSERVATION XVIII.

January 4. 1712, the wife of a farmer, about a quarter of a league from this city, gone about three or four months with child, feeling considerable pains in her Belly and Loins, which bore downward upon the Uterus, sent for me. As these pains much resembled those of Labour, and as I found she had imprudently lifted a large quantity of corn, and carried it on her Back, I did not doubt but she was on the point of miscarrying; but upon touching her, I found nothing that could confirm me in this sentiment.

I therefore directed a clyster to be given, which was attended with so good success, that her pains ceased for several days.

Now as a vulgar prejudice has prevailed amongst the women, that the danger of a Miscarriage is over, when nine days are past from the time of the accident that threatened it, and as this period was over without any worse symptom supervening than what had appeared every one of the preceding days, those about her, who knew I apprehended a Miscarriage, began to exult, as believing there was no longer any reason to fear it. But as the pains continued, my suspicions did not cease; I therefore enjoined her strictly an uninterrupted rest, so long as she should be in this condition, and engaged to see her every day.

On the twentieth day in the morning, I was not much surprised to see a messenger who was dispatched to tell me his mistress's disorder was increased, and that she desired me not to be out of the way. Instead of waiting for another message, I made what haste I could to her, and found she had miscarried of a Foetus about five inches long, and thick in proportion, which the midwife received, who had constantly attended her by my orders. I asked this midwife what was become of the little After-birth; she told me there was none, and that such small children never had any. Without disputing the point with her, I put the woman in a proper posture, introduced two Fingers into the Uterus, separated the little After-birth, brought it away betwixt the two Fingers, and shewed it the midwife, at which she was very much surprised. The woman was quite recovered in five or six days. *La Motte.*

OBSERVATION XIX.

February 14. 1679, I attended a woman who had just miscarried of a child six months grown, fifteen days after she had injured herself by lifting up her arms too high, in order to pull a nail out of some hangings.

As soon as she had strained herself, though in this slight manner, she was taken with a small Flux of Blood, which held her the two first days, after which, during the rest of the time, she only voided a bloody Serosity, like the washings of Flesh, with which she fouled two napkins every day. But notwithstanding this accident, she had a favourable lying-in with this child, who was yet alive. The reason why Big-bellied women are hurt by straining to lift up their arms, is, because the great Muscles which enable them to stoop, being very much stretched by that action of the arms, violently compress the sides of the Belly and Womb, whereby the After-birth is in some measure loosened, and a Flux of Blood ensues, which is the cause of *Abortion*. Some women are so tender, that they cannot strain the least, when they are with child, without hurting themselves, and afterwards miscarriage, as the woman did of whom I speak. Others, on the contrary, are of so robust a constitution, that I delivered one, who, when she was seven months gone, fell three stories. For the house where she lodged being on fire, she fastened the sheets to the window, and swung off by them; but being frightened to find herself suspended in the air, she let go her hold, and though she was very big with child, and fell upon great stones, where she broke one of the Bones of her Arm, dislocated her Wrist, and bruised all her Body, she was cured, went out her time, and was well delivered of a lusty child.

This story, for its singularity, might pass for fabulous, were it not confirmed by a great number of eye-witnesses. *Mauriceau*.

OBSERVATION XX.

July 25. 1696, a young woman, the wife of a fadler, in the twenty-second week of her pregnancy, diverting herself in the shop with the apprentice, endeavoured to give him a kick with her Foot; but the boy being out of her reach, her Leg suffered a violent extension by the force with which she directed the blow. Hence she immediately felt such a violent pain in her Loins, her Groin, and all over the Belly on that side, that if there had not accidentally been a chair to receive her, she must have fell down in the middle of the shop. From the extreme weakness she immediately perceived, there was reason to apprehend the utmost danger, both in regard to the mother and child. The violent and continual motions of the latter, which were perceivable to us that were about her, witnessed the great agitation it was in, and made me apprehend an approaching Hæmorrhage, or Convulsions, which could be remedied no other way than by an immediate Delivery. All the directions I gave her were, to lie in bed, which it was the more easy to comply with, as it was the only posture she could bear.

For six weeks the only inconvenience she laboured under from this accident was, excessive weakness; mean time I endeavoured to support her with broths of various kinds, and jellies of flesh, and twice I took away some Blood, for which she was neither stronger nor weaker. I also gave her some gentle cordials, which in appearance neither did her good nor harm, for which reason I discontinued them, and persisted in the use of good aliment, giving her occasionally a toast in wine.

In this situation matters continued till the seventh month, when she was seized with Labour-pains, and sent for me. I found the Waters formed, and felt the child through them presenting the Buttocks. I then placed her in a proper posture across a bed, broke the Membranes, pushed back the child till I could lay hold of the Feet, and brought it away in an instant. I then delivered her of the After-birth, and took all the care of her during her lying-in that I could. Every thing relating to Childbed proceeded very regularly, but in a manner somewhat different from what she had been used to in former lyings-in.

In three weeks she got up, something stronger, but yet very weak, in comparison of what she used to be before this accident. But a Cough and Fever immediately succeeding, precipitated her into a Consumption, of which she soon after died. *La Motte*.

OBSERVATION XXI.

November 15. 1692, I delivered a woman who had miscarried of a child of three months and a half, with so great a Flooding, that she fainted several times; and as this Fœtus had been dead ten or twelve days, which appeared by its withered state, and had made an opening of the Internal orifice only in proportion to the smallness and tenderness of its Body, I had no opportunity of bringing away the After-birth till five hours afterwards.

This woman had felt several fits of an Ague some time before

her Miscarriage, and had also strained herself the day before in pulling down a curtain-rod; which she imagined was the true cause of this misfortune; but as the infant was quite withered, and appeared to have been dead a much longer time, we may conclude, that this last cause had only concurred to the more speedy expulsion of the Fœtus, which the first, that is, the Ague, had already deprived of life, ten or twelve days before.

As soon as I had taken away the After-birth the Flooding stopped, and the woman recovered her health, which I could not have warranted, had I gone rudely to work immediately after Nature had expelled the Fœtus, whose bigness did not equal a third of the After-birth, of which I delivered her when the Womb had been sufficiently dilated to admit of it without violence; the Flooding itself also, by moistening and relaxing the part, contributing by accident to make the work more easy, in bringing off that foreign mass, which, by remaining there, was the cause of it. *Mauriceau*.

OBSERVATION XXII.

July 4. 1692, I attended a woman who had just then parted with the remainder of a fleshy Membrane, which was left behind in the Womb, being separated from another and larger part, which had been expelled two days before with a moderate Flooding, supposing herself to be then about ten weeks gone with child.

In this first part of the Membrane, which resembled what is usually called a False conception, there was a small corrupted Fœtus, of the bigness of a common bee, which had received no nourishment for above a month, at which time the mother injured herself by overstraining.

This is a further confirmation that all these pretended False conceptions are no other than After-births of small abortive Fœtuses, in which the Womb, by contracting itself after the Waters contained in their Membranes are discharged, changes the natural figure which they had before, and gives them that of its own cavity, which is round and oblong. *Mauriceau*.

OBSERVATION XXIII.

June 16. 1691, I attended a woman, who, the day before, had been delivered, by herself, of a Fœtus five months grown, which came dead, though the mother had felt it move but the day before. The cause of this misfortune was, that the woman, when she was but two months gone, was hurt by a friend of hers, a man, who not knowing her to be with child, had taken her in his arms, and squeezed her pretty closely, in order to get her out to dance for diversion. At that moment, it seems, she felt a great pain in her Belly, and the next day, all on a sudden, voided a good deal of water by the Womb, but nothing else at that time. But a month after, she had a Flooding, which lasted almost six weeks, with some cessation at intervals; and one day in particular, she voided several hard clots of Blood, which a physician, who was a near relation of hers, and a brother-surgeon, unadvisedly took to be real pieces of membranous Flesh; whence they entertained a notion that she was not with child, though I had assured them of the contrary, by letting them plainly see, that these supposed bits of Flesh, which they had taken for parts of some foreign mass, of the nature of a Mole, or False conception, were nothing but pure clots of Blood. But they would not believe me, so strongly were they prepossessed with their error, till the woman was brought to bed of this abortive Fœtus, some days after our conference, according to my predictions.

We learn, by this example, that we have no reason to wonder that nurses and midwives are often deceived in taking these clots for False conceptions, since physicians and surgeons are sometimes mistaken about them. But I was really much surprised to see a surgeon, who hath for a long time made a particular profession of the art of midwifery, so grossly mistaken as not to know when a woman is with child, and to take pure clots of Blood, which she voided some days before she miscarried, for foreign masses, of which he thought the Womb was now entirely delivered, not dreaming that a child and its intire After-birth remained. *Mauriceau*.

OBSERVATION XXIV.

On the 21st of April, 1676, I attended a woman who had miscarried three hours before of a dead child of four months. Three weeks before this she had received some hurt in a crowd at church, from which time she always felt great pains in her Belly, and about the ninth day after this accident, began to void a little Blood. From that time she never felt her infant move, but had the misfortune to lose it without the After-birth, which remained behind, the midwife not being able to bring it away, because the Womb closed immediately upon the expulsion of the child. Having myself examined whether there could be any means found out to ease this woman, and having discovered that the Orifice of the Womb was only open enough to receive one Finger, I judged

judged it the safest way at present to trust Nature, and postpone the doing her any violence by endeavouring to extract this After-birth by so narrow an Orifice, the remedy in this case appearing to me worse than the disease. So I deferred it to the next day, when finding the Womb much more dilated, I happily delivered her of her Burden, and though she had at that time a Fever upon her, she did very well afterwards. *Mauriceau.*

OBSERVATION XXV.

July 19. 1693, a labourer's wife of the parish of Gourbeville had such a violent fall from her horse, that she remained a considerable time insensible. At this time she had been with child six months. I was immediately called, and found her come a little to herself; but upon examination could not find her Head had received any injury, nor could I discover any signs of approaching Labour, except that the child moved in an extraordinary manner, which was no wonder, considering the concussion she had received from the fall.

I ordered her to be laid on a sort of litter, and carried home; and then directed that she should take some good nourishment, and keep her bed for seven or eight days. From this time she never felt the child move, but it seemed like a weight which fell spontaneously to the side she lay on, which incommoded her much, but especially when she stood up; when pressing on the Bladder, it caused frequent inclinations to make water. In this situation she remained till her full reckoning was compleated, her fall having neither advanced nor retarded the Birth. At this time I was called to deliver her, but the child was born long before I arrived, but was so weak that it died a few hours after, and the mother did very well. *La Motte.*

REMARK.

From this case we may learn that the exclusion of the Foetus should never be precipitated, unless some dangerous accident renders it necessary for the preservation of the mother. Because all the symptoms usually attending the gestation of a dead Foetus may occur, and yet the child may be born alive at the full period.

OBSERVATION XXVI.

On the 7th of December, 1688, a carrier's wife at the end of the fifth month of her pregnancy, as she was loading one of her horses with panniers, let one of them rest on her Belly. For the two next days and nights she perceived her child to move much more than usual, and after that never felt it stir; but it seemed as a dead weight, which fell to which ever side she lay on, and by its pressure downwards, gave her frequent inclinations to make water. Upon this she lost her appetite, her Skin became of a lead-colour, and she complained of Lassitude all over, which circumstances obliged her to consult me. I immediately perceived that all these accidents were caused by the death of the child, which had been killed by the wound received from the pressure of the pannier.

I advised rest, which indeed was superfluous, because her extreme weakness would not permit her to stir. Seventeen days after, upon perceiving Labour-pains, she sent again for me. I found her in excessive pain, and almost spent, so that I was obliged to support her with some wine and cordials; after this I delivered her of the child, which came with the Feet first. The After-birth readily followed, which was very black, but not foetid. This patient at last recovered, but with more pain and trouble than she had in all her former lyings-in. *La Motte.*

REMARK.

Two things occur in this case worthy of notice. The first is, that the child, after receiving the injury, moved in an extraordinary manner before it died; and this, *La Motte* in many other places tells us, generally happens before the death of a child. The second is, that though the author was satisfied of the child's death, he did not endeavour to promote its expulsion by Forcing medicines, or to extract it by Force. An example worthy of imitation in almost all cases that can occur.

OBSERVATION XXVII.

A. D. 1678, February 4, I delivered a woman of a dead child, fourteen weeks after Conception, which presented an Arm with the Navel-string. This woman had then five children living, and had been easily delivered of them all. But she told me that four years before she was laid by a surgeon, whom she named, who used her very roughly, and that she could never go her full term with any child since that time, but had miscarried just as she did of this last, and that she had like to have died in one of those Miscarriages in which the same surgeon left the After-birth in the Womb, of which she was not delivered till four days after, and then not without dangerous accidents. As the cause of these frequent Abortions seemed to me to proceed from the woman's conceiving before her Womb, which had been weakened by the former rough treatment, was perfectly re-established, I

advised her to part beds with her husband, at least for five or six months, that by this long rest, which was necessary for a part so much enfeebled by frequent Miscarriages, she might the better go out her full time, whenever for the future she should breed. She took my advice, which was the means of preserving several children she has had since, with whom she lay in as happily as she did with those she had before these Miscarriages. *Mauriceau.*

REMARK.

Mauriceau seems to have judged very well in this case. The Chalybeate waters would have greatly assisted this woman in fortifying the parts, and re-establishing her health.

OBSERVATION XXVIII.

November 24. 1687, I attended a woman, who had just before miscarried, at the end of two months and a half, of a small Foetus no bigger than a bee, which Nature had expelled with a considerable quantity of Blood, which had been preceded by a distillation of reddish Serosity for several days. When I was called to deliver her of the After-birth, I found the Womb was intirely shut, and that there was no way to bring it off but by violent means, which might be more prejudicial to the mother, than the relief I could promise her from the extraction would have been beneficial. For this reason I thought proper to trust Nature with the business, which was not accomplished till the twelfth day after, and the foreign mass lay all that while in the Womb; and then was expelled half suppurated, after which the woman did well.

The principal cause of this *Abortion*, as I supposed, was a great costiveness in the time of pregnancy, which in this woman was so extraordinary, that she was sometimes fifteen whole days without going to stool; so that the great efforts she made to ease herself of excrements excessively baked and hardened by so long a stay, did at the same time very forcibly compress the Womb, which might very well be supposed to shake and loosen, and at last expel the newly-conceived Foetus, as was the case with this woman, who had miscarried several times before. *Mauriceau.*

OBSERVATION XXIX.

July 22. 1691, I delivered a young woman of an After-birth, who had just before miscarried of a child of four months and a half; this the midwife received, but could not bring away the After-birth, which had its String broken.

Twelve days before this accident the woman happened to fall upon her Knees, and instead of retiring and composing herself to rest, took coach the same day. The next she was taken with a great pain in her Belly, for which I advised her to bleed in the Arm, and to keep her bed. This done, the pain went off intirely; but some days after, a Looseness came upon her, which lasted three days. This new disorder brought on the pain afresh, which at last ended in a Miscarriage as above. The child presented the Foot, with the Navel-string, by the beating of which I knew it was alive, as soon as the Membranes of its Waters were broken; but as it was this woman's First child, and the Womb very little dilated, I advised the midwife to wait till the Womb became more open, in order to avoid violent means, which might be hurtful to the mother, and could do no service to the child, whose tender body might have been dismembered, if any attempt was made to extract it before the Orifice of the Womb was sufficiently dilated. She was delivered the next day, with the success above related. *Mauriceau.*

OBSERVATION XXX.

July 12. 1681, I delivered a young woman of twenty of a small dead infant, four months and a half grown, the mother having hurt herself the day before by falling on her Knees; but the child appearing to me very corrupt, as well as the After-birth, and the woman telling me that she had not felt it move for some time past, and that her Urine had been extraordinary thick, I believed that the External cause, her fall, had only accelerated what the Internal cause would certainly have excited in a little time.

This woman, who was of a sanguine constitution, being with child a second time, was very apprehensive of falling into the same misfortune as before. But taking my advice, which was to bleed at the second month of her time, she was preserved from it, as she has been whenever she has since been with child, having six living children, of whom I happily delivered her at the usual time. *Mauriceau.*

OBSERVATION XXXI.

October 3. 1681, I delivered a woman of a child six months grown, which she had carried dead almost a month after a hard fall upon her Knees, not having felt the child all that time. She was in pretty good health for all this, only she felt now and then some risings of her Belly, as is common with women, whose children are dead. These risings proceeded

ced from an ebullition of the Waters of the child, and the other humours contained in the Womb, when heated and putrefied by the residence of the dead infant. Notwithstanding this accident the woman had a favourable time with this dead child, and enjoyed her health afterwards. *Mauriceau.*

OBSERVATION XXXII.

The 12th of August, 1678, I delivered a woman of a child five months grown, which came with its Feet foremost. This woman was so subject to fall and hurt herself, that this was the fifth child she had miscarried of successively from a like cause. When I was ordered to attend her, I found the Waters formed, which appeared of the bigness of a hen's egg, and the internal Orifice of the Womb open in proportion to the bigness of those Waters. But as that Orifice was only wide enough to receive a Finger, and made a strong strangulation in that place, I thought it the surest way to defer laying the woman for a little while, which I did for four hours, in order to avoid the violence I must have done to the Womb in its present condition.

During this delay, the Orifice being sufficiently dilated by some moderate pains, which were excited by a clyster I had ordered for that purpose, gave me an opportunity of taking away the child with ease, which could not have been done before, without very great difficulty, and perhaps hurt to the mother, who did well afterwards. It will be useful here to observe, that Big-bellied women being more subject to fall than others, not only from the weight they carry in them, and the weakness of their Legs, but because the prominence of their Belly hinders them from seeing where they put their Feet when they walk, they who are apt to hurt themselves by such falls, ought to lie in bed, or at least keep their chambers, as I advised this woman to do, in order to guard, as much as possible, against so melancholy an accident, which had happened to her five times one after another, for want of this precaution. *Mauriceau.*

OBSERVATION XXXIII.

March 30. 1693, I attended a Woman, who, after a Flooding, which held her two days, had just miscarried of a small Foetus no bigger than a barley-corn, and still inclosed in its Membranes and Waters.

The mother thought herself two months gone with child when this mischance happened, and fancied, as her husband told me, that the cause of it was the too great attention she had given some days before to a frightful story of a lady who had her thigh cut off. But the minuteness of this Foetus was a plain evidence that the true cause of *Abortion* was rather a violent fall she had six weeks before, which destroying at that instant the principle of life in the little Foetus, it remained of the same bigness which it had then attained, and was preserved intire and incorrupt in its Membranes and Waters, the whole being of the shape and size of a pullet's egg without the shell, till discharged as above. As this Miscarriage was attended with no other accident than a moderate Flooding, the woman soon recovered her health. *Mauriceau.*

OBSERVATION XXXIV.

March 15. 1688, I delivered a young woman, at the end of six months and a half, it being her first pregnancy, of a female infant, proportioned in size to the time of its growth. This misfortune was chiefly owing to a fall which the mother received three days before, and was not a little furthered by the shortness of the infant's Navel-string, which was no longer than a quarter of an ell, Paris measure, and no more than a third of the ordinary and due length. For this reason the After-birth had been greatly shocked by the fall, where it must unavoidably be pulled by the child, on account of the shortness of the Navel-string.

This infant lived but a few hours, but the mother did very well, and I have since delivered her of two other children, which came at the full term, thrived very well, and had their Navel-strings of a due length. *Mauriceau.*

OBSERVATION XXXV.

A young lady of this city, when she had been with child about three months, made a party of pleasure with some of her acquaintance. The horses they rode on happened to be very uneasy, and she, by some accident, leaped from hers, and lighted on her Feet, but without perceiving any inconvenience from it for the present. But at night some reddish Serosities began to be discharged from the Uterus; Labour pains immediately followed, and the Foetus came away. The lady was unwilling to acquaint any body with this accident, except her chamber-maid; but as the After-birth remained, there was a necessity of consulting somebody. This obliged her to commit the secret to her surgeon, who came to me, and took me with him, without telling me

for what, being willing I should have the recital of what had happened from the lady herself.

The Foetus was extremely small, with a small piece of the Umbilical cord hanging to it.

I plac'd her in a proper situation, and finding the remainder of the Cord, I follow'd it to the internal Orifice of the Womb, which I found so much contracted, that it was not without difficulty that I introduced one Finger, with which I separated the Placenta from the Womb. After this I pulled gently the Umbilical cord, which was of more service to me than I could reasonably expect from the size of it. By means of this, and with the assistance of my Finger, which I employed as occasion required, to dilate the Orifice a little, I extracted the Placenta. But the purgation stopped, and a Fever ensued.

Notwithstanding this, she would not suffer the secret to be divulged to any body, so I was obliged to treat the case under the name of a Fever from a suppression of the Menfes. She lost some Blood both from the Arm and Foot; and I gave her a Pufan, made with the Roots of Quich Grafs (*Chien dent*) the roots of wild Succory, Scorzoner, and a little Cinnamon. She had repeated clysters, made of a decoction of Mallows, Marshmallows, Mugwort, Chamomile, and Melilot, with an addition of Honey, of Fumitory, and Violets. At night she took Emulsions made of Sweet Almonds, sweeten'd with Syrup of Maiden-hair, and with this a few drops of strong Cinnamon-water.

All these medicines, though administred with great regularity, were of no service, for she died the fourteenth day after the Miscarriage. Some days before her death she became blind. *La Motte.*

Instances of Miscarriages from Frights.

OBSERVATION XXXVI.

March 10. 1687, I delivered a woman of a Foetus of four months and a half, whose Waters were all run off two days before, without pain to the mother; and though it came away dead, it appeared to have been alive the day before by the beating of its Navel-string. But as the Womb was not at that time sufficiently dilated to attempt the Delivery, without offering too much violence to the mother; and the infant, who was otherwise very weak, would have certainly perished in the operation, I was obliged to defer it, till the proper Pangs coming on upon the mother might dilate the Orifice to a degree sufficient for the extraction.

The Miscarriage of this woman had no other manifest cause than a great fright which she had fifteen days before, when being in a coach, the horses started and ran away with it.

This example clearly shews, that great agitations of mind, and especially sudden Fear, make as effectual impressions on Big-bellied women, when surpris'd with it, as violent commotions of the body, and are equally causes of such sort of *Abortions*. Notwithstanding this accident the woman did very well after I had delivered her. *Mauriceau.*

OBSERVATION XXXVII.

From a Fright and Falls.

Sept. 30. 1684, I delivered a woman, who had a Miscarriage, at the term of two months and one week; and after I had examined the Afterbirth, I found in the middle of its Membranes a small Foetus no bigger than a bee, not having thrived for five or six weeks past, because its principle of life had been destroyed by a violent agitation of mind and body, which the mother had undergone at the time when she could be no more than eighteen or twenty days, at most, gone. For not believing she was then with child, because the time of her purgation was not past, she took no care, but diverted herself with mounting and running after an ass for two days together, in which she received two unlucky falls; besides this, she had been under a great fright, having lost herself in a wood, where she was in great dread of robbers; so that the principle of life in this Foetus being destroyed at that time, it never exceeded the dimensions it had then attained, but remained in that state a month or five weeks, and then the mother began to void Blood during ten days, at the rate of six or seven drops a day only.

But at the end of this term, she was seized all on a sudden with so excessive a Flux of Blood, as to run a risk of her life, if I had not at the same time delivered her of the After-birth of this little Foetus, which seemed to be of the figure and magnitude of those foreign masses, which are commonly called False conceptions, but are in reality nothing but the After-births of those sorts of little *Abortives*, to which the Womb by contracting and closing, after the Waters contained in their Membranes are discharged, gives the figure of its cavity.

The woman afterwards recover'd her health by little and little, but continued from time to time, for near two months, to part with some small quantity of Blood, or tinctured Serosity, except that one time this ceased for ten days, and several other times stopt for two or three days, complaining at intervals of pains like those of the Colic: But, what is very extraordinary,

fifty two days after I had delivered her of this Miscarriage, she voided a small Membranous and Fleſhy ſubſtance, of a glo-
bous figure, and no larger than a middling French-bean, and
not at all corrupted, ſeeming to be newly ſeparated from the
Womb. The expulſion of this little foreign maſs was pre-
ceded by a moderate evacuation of Blood, for three or four
days, with Pains of the Belly and Loins. The diſpoſition of
this little ſtrange maſs might tempt one to believe, that it
was rather a little new Falſe conception, engendered ſince
the firſt Miscarriage, during the ten days in which the wo-
man had no evacuation from the Womb, than a remnant of
a root of that After-birth, of which I had delivered her two
and fifty days before, and which ſticking about one of the
Cornua of the Womb, was there, having always ſome
communication with it, preſerved incorrupt: this latter,
however, we muſt believe, if it be true, as ſhe aſſur'd me,
that ſhe had no communication with her husband, which
might beget a ſuſpicion, that this ſmall fragment of a Mem-
brane might proceed from a new Conception. *Mauriceau.*

A great Fright from Thunder.

OBSERVATION XXXVIII.

Auguſt 9. 1691, I attended a woman, who had miſcarried but
two days before of a Foetus of three months, which had been
dead ſeven or eight days, after a ſudden fright of the mother,
occationed by a great clap of thunder, which made her ſwoon
away. The next day a Flooding came upon her, which at
laſt brought on an *Abortion*.

The violent agitation and diſorder of the Mind alone had the
ſame effect on this woman, as a too great agitation of Body
often has on others. *Mauriceau.*

Frighted at Thunder.

OBSERVATION XXXIX.

Auguſt 11. 1693, I attended a woman, who had juſt then
miſcarried of a ſmall Foetus, quite withered, and of the
length of the Middle-finger. She was then near three
months gone with child, but had received, nine days before,
a ſudden and terrible fright from a great clap of thunder,
which the ſooner diſpoſed her to miſcarry, for that ſhe had,
ſome days before, felt Pains in her Belly, towards the Re-
gion of the Womb; beſides, ſhe was a little woman, and
of a very tender conſtitution, though ſanguine enough, and
had miſcarried twice before of Falſe conceptions, at ſome
interval of time from each other. This obliged me to order
Bleeding in the Arm at the beginning of the ſecond month
of her pregnancy, that I might preſerve, if poſſible, this
third Conception from turning to a Falſe one, as it happened
in the two preceding.

For it is to be obſerved that oftentimes the too great abundance
of Blood drowns and ſuffocates the principle of life in the
Conception, at the very beginning, and converts it into what
is vulgarly called a Falſe conception.

This Bleeding had produced the good effect I hoped from it,
and would have contributed very much to the preſervation of
the child, with which the woman was really big, if the accident
of the great clap of thunder had not cauſed its death, by the
fright. It might however be doubted, whether the great fright
alone cauſed the Miscarriage, or whether this miſfortune was
owing to the Pains ſhe had felt before, near the Region of the
Womb, which proceeding from the redundancy of Blood in
the Veſſels of that part, might be ſigns and forerunners of
that miſfortune. But it is certain that both theſe cauſes
might have acted in conjunction towards producing the event.
The woman, after ſhe had thus got rid of the dead Foetus,
and its After-birth, by the ſole benefit of Nature, enjoyed
her health. *Mauriceau.*

Inſtances of Miscarriages from Grief.

OBSERVATION XL.

November 14. 1685, I attended a woman of twenty-fix,
who three hours before had miſcarried, at the end of ſix
months of her firſt pregnancy, of a child, which ſhe had
carried dead in her Womb five or ſix weeks; for ſo long ſhe
had not felt it ſtir.

This woman had been very unhealthy for ſeven or eight years,
after which being married, and proving with child, ſhe had
been very much diſordered till the end of four months and a
half, having all that time her Legs very much ſwelled. And
as the child of which ſhe miſcarried at the end of ſix months
had been dead ſix weeks, as I ſaid before, it had only the
proportions of a child of four months and a half, which
was the reaſon that Nature of herſelf expelled it with eaſe.

As ſhe had a great deal of vexation and trouble of mind, I ſup-
poſe that, beſides her ſickly conſtitution of Body, theſe
might alſo contribute not a little to the death of the child;
which however was preſerved ſo long a time without any
great decay, becauſe its Waters, which preſerved it from
putrefaction, ran off but two days before the mother miſ-
carried of it.

The woman, notwithstanding this accident, did very well after-
wards, and from a ſickly creature, as ſhe was for ſeven or
eight years before marriage, grew ſound and luſty, and in
a little time grew big with another male infant, of whom I
happily delivered the mother at her full term, as I did of
ſeveral more afterwards.

Hence we may ſuppoſe that marriage was of more efficacy in re-
ſtoring and eſtabliſhing this woman's health, than all the reme-
dies ſhe had ever uſed. The natural cauſe of this ſalutary event
may be assigned to her lying-in; for by that the paſſages that
ſerve to carry off the Menſtrual ſuperfluities, which were
ſtraightened and obſtructed when ſhe was a maid, were enlarged
and opened; whence that evacuation was much better per-
formed after childbirth than before. The ſame thing happens to
many other women, who enjoy a much better ſtate of
health after marriage than before. *Mauriceau.*

OBSERVATION XLII.

March 21. 1687, I delivered a young woman of twenty of a
dead Foetus, at the term of four months, it being the firſt
time of her going with child, which I drew away intirely
incloſed in its After-birth and Membranes.

This miſfortune was owing to the great trouble ſhe received
eight days before about a theft committed by one of her
domestics. Beſides the hurry and diſorder of ſpirits on that
account, ſhe had greatly fatigued herſelf by haſtily running
up and down ſtairs, in order to diſcover the thief.

The corruption of the Body of this Foetus proved it to have
been dead ever ſince that time; but the mother, notwith-
ſtanding this unhappy accident, was as well after Delivery,
as if ſhe had lain in naturally of a living child at the end of
the term. *Mauriceau.*

OBSERVATION XLIII.

The 26th of February. 1678, I delivered a woman of a Foetus
of ſix months old. She had laboured under a Flux of Blood
for the laſt fifteen days, which was moderate in the begin-
ning, but at laſt became ſo exceſſive, that if I had not taken
the child from her, which was yet alive, it would undoubtedly
have perished with the mother, who had fainted ſeveral times,
from the exceſſive Flux, occationed by the ſeparation of
part of the After-birth, as appeared after her Delivery, by
ſeveral portions of clotted Blood, which were found firmly
attached to that piece of the After-birth that was ſeparated
from the Womb, the other part which adhered to it having
ſerved to nourish the child, which, though very weak, was
yet living when I brought it away from the mother, who,
by this ſeaſonable aſſiſtance, was preſerved from the great
peril of dying in a few hours, had I not immediately broke
the Membranes, turned the child, and extracted it by the
Feet.

The husband of this woman told me, that her Flooding was
owing to the great affliction ſhe had been under for the
death of a gentlewoman her friend. This is not at all unlikely,
becauſe it is very certain, that great ſorrow, as well as fear,
is capable of producing this effect, by ſuddenly drawing the
Blood in too great abundance towards the Interior parts, and
ſo overcharging their Veſſels till they burſt. *Mauriceau.*

OBSERVATION XLIII.

On Monday, October the 4th, 1725, I was, about four
o'clock, called upon to ſee one Mrs. Jackson, a water-
man's widow at Rotherhith; her husband died the Friday
before, and was buried the night before I came. She at-
tended his corſe to the grave, by which attendance, and
through ſorrow, ſhe fell into the illneſs ſhe then laboured
under, which was a Flooding. Upon examination I found
the Inner orifice of the Womb ſpread, and both the Feet
of the Foetus paſſed through it; ſhe was about ſix months
gone with child. I judged it adviſeable to deliver her im-
mediately; and well greaſing my Hand, I introduced my
two Fore-fingers into the Outer orifice, with which I took
hold of one Ankle, and pulled with all tendereſs, and the
other Foot following, I was able to take hold of both Legs;
the Parts were ſo tender, that the Foot of the Leg I firſt
took hold of, was almoſt ſeparated at the Ankle; however,
I drew the Legs on gently till the child advanced to the
Shoulders; then paſſing up my Hand, I brought down the
Arms on each ſide. I now endeavoured, by laying one
Hand on the Breaſt, and with the other taking hold above
the Shoulders, to extricate the Head; finding it ſtick there,
I paſſed up my Fore-finger into the Mouth, but the child
being very tender, the Jaw ſplit and gave way; ſo I en-
deavoured to bring it out by pulling at the Shoulders, but
this would not do, the Body ſeparated from the Neck,
and left the Head behind; wherefore I immediately paſſed
up my Hand, and got my two Fore-fingers above the
Head, and preſſing with them bent upon it, I brought it
away.

I should have observed, that after the separation of the Body, the After-burden presented itself before the Head, and came away; but as I brought the Head immediately afterwards, there was no great Loss of Blood. *Giffard.*

Instances of Miscarriages from a Diarrhæa, or Dysentery.

OBSERVATION XLIV.

May 3. 1683, I attended a woman who had been a month afflicted with a Diarrhæa and Tenesmus, which had reduced her very low. She was suspected to be about five months gone with child, but two physicians who had consulted on her case being somewhat dubious, had recommended me to the patient, that they might know my opinion. I examined her in their presence, and assured them that she was really with child, though the Internal orifice of the Womb appeared to me considerably open in its Exterior part; but it was quite closed up in the Interior, which, in conjunction with other signs, made me judge that she was most certainly with child. But contrary to my opinion, which was the real truth, her midwife had assured these physicians that she was not; and another surgeon, who examined the patient after me, with as much obstinacy as ignorance espousing the sentiments of the midwife, advised her to take a Clyster with four ounces of Honey, instead of Clysters of milk, or of a simple decoction of Bran, which I had ordered for her. This Clyster immediately increased the distemper to such a degree, that she miscarried of a child six months grown, who was yet alive. But the mother, who had been extremely weakened by that dismal distemper, died the second day after miscarrying, thanks to the ignorance of that surgeon, who knew no better than the midwife. *Mauriceau.*

OBSERVATION XLV.

June 9. 1683, I attended a young woman of twenty, who had just before miscarried, at the end of five months and a half, of her first Big-belly. The child lived half an hour; but the midwife could not bring away the intire After-birth, but left a third part of it in the Womb, which having quite closed itself when I came to assist, and not being to be opened without violence, obliged me to commit the expulsion to Nature, which threw off its burden by pieces half suppurated for five or six days together.

All this time I ordered Emollients to be injected into the Womb three or four times a day, as well to wash away the fetid excretions, as to promote the expulsion of the remainder of that foreign mass. This woman had for several days before been troubled with a Looseness, which was a principal cause of her miscarrying; and after she got up, was seized with a double Tertian, which held her a month, after which she recovered her health. *Mauriceau.*

From a Dysentery.

OBSERVATION XLVI.

In the year 1692, there came abundance of soldiers into this country, and brought with them a Dysentery, which spread itself in Valogne, and raged with great violence, carrying off almost all, both old and young, whom it once seized. But those of sound constitutions and the rich escaped best. It spared no sort of men from the magistrate to the peasant, except physicians, surgeons, and apothecaries, or, to speak more properly, surgeons, for we of that fraternity carry on three fourths of the medical business in this place. In October the wife of a glover, six months and a half gone with child, who had been my patient six days under this melancholy distemper, which I thought from the first day she would never get over, sent in the afternoon to tell me that she felt violent Pains, and begged that I would come to her. I went immediately, and found her in the pangs of travel; the child in its right place, the Waters formed and ready to pierce, which happened after some throes. The child soon followed, and I delivered her of her After-birth, which was very small, without any difficulty. The child after this lived two days, and the mother eight. *La Motte.*

Cause, a Dysenteric Flux.

OBSERVATION XLVII.

February 8. 1686, I attended a woman six months gone with child, who was almost reduced to extremity by a very bad Dysenteric Flux, which had tormented her for three months. As she felt extreme pains in her Belly at this instant, and voided matter like the lees of red wine diluted, which were certain marks of an inflammation and erosion of the Intestines, I told her husband she was in the utmost danger of her life; and as to what he said, that he hoped, agreeable to the sentiments of a physician who had seen his wife, that if she were delivered there would be more room to expect a recovery, I told him I was of a contrary opinion, and since her distemper was come to such a height as it now stood, I believed she would certainly die in a few days. The event justified my prediction, for the poor woman died two days after I had seen her in that condition, and on the same day

that the violence of that mortal distemper brought on a Miscarriage.

For it is to be observed, that if there be any grounds to hope that lying in will relieve the distempers under which women with child labour, it is true only with respect to those disorders which are caused by their pregnancy, and not of other distempers which have no dependance thereon; for these, instead of being lessened, or relieved by lying in, as is too often hoped, become more dangerous than they were before; because Nature, which was already embarrassed with a disease of a dangerous nature, cannot at that time well manage the evacuation of the Lochia, the suppression of which immediately causes a reflux of the humours upon the principal parts which were indisposed before. *Mauriceau.*

Instances of Miscarriages from unseasonable bleeding and purging.

OBSERVATION XLVIII.

March 15. 1689, I attended a woman four months gone with child, who, by advice of two physicians, had been bled in the Foot in the beginning of her pregnancy; which they knew nothing of, and had afterwards taken a vast quantity of most unseasonable medicines, which having sufficiently racked her, at last forced a Miscarriage, the infant expiring as soon as born.

A few days before this unfortunate event, I visited the patient, and found her in a bad state, and labouring under a Flux of bloody Serosities, by which I knew she was in danger of miscarrying in a short time; for I assured her she was with child, notwithstanding the contrary sentiments of the two physicians, who had always ascribed the disorders caused by her pregnancy to the suppression of the Menfes, which they endeavoured to provoke by remedies not at all suited to the nature of a Big-bellied woman. But their error lay in not well considering the difference of treatment due to the different states of maid and wife under such a circumstance, which though it proved unlucky to the infant, yet I hope this example has made them wiser and more cautious. *Mauriceau.*

OBSERVATION XLIX.

A. D. 1672, June 18, I had under my care a young woman of twenty, of a very fine complexion, six or seven months gone with her first child. She had kept her bed fifteen days, labouring under Pains of the Kidneys and Belly, which at last brought on a Fever, preceded by Shiverings. For this reason the physicians who ordinarily attended her directed her bleeding no less than six times in eight days, contrary to my sentiments, who was for using that remedy with moderation, and bleeding no more than twice, which I thought sufficient to preserve her as much as possible from miscarrying, which at last was the consequence of these frequent bleedings, as I had foretold, the child dying in her two days after the Fever came upon her, preceded by Shiverings. So that the same remedy which, if used with moderation, had been beneficial, by excess brought on that mischief which it was intended to prevent. It would signify nothing here for people to affirm in confutation of my opinion, that they have known women with child bled twelve and fifteen times, and even more, for distempers that have seized them, and yet went out their time very happily; for I shall only answer, that I have much oftener observed, that two or three unseasonable bleedings have brought on a Miscarriage. *Mauriceau.*

OBSERVATION L.

March 31. 1688, I delivered a woman, aged thirty-three, of a girl, after sixteen years barrenness, for which there was no manifest cause, except that in the second year of her marriage she proved with child, but by the prescriptions of a physician, who did not suspect she had conceived, was purged, and bled in the Foot, though with much repugnance, after which she miscarried of a Fœtus of two or three months growth. Since that time she had taken a strong aversion to that physician, as being persuaded that her Sterility was owing to that Miscarriage, which might have altered the disposition of the Womb.

I have often known the like faults committed by other physicians, who have not been acquainted with the cases of women, and imputing those slight indispositions which accompany pregnancy to other distempers, have by their unseasonable remedies procured Abortions in married women as well as others, without considering that they might be with child. *Mauriceau.*

OBSERVATION LI.

April 1. 1693, I delivered a woman at the term of five months and a half, of an infant who had been dead a whole month; for so long she had not felt it move, that is, after the third purge she had taken by order of her physician, which had worked too violently with her.

This

This woman, when she was but three months gone, had the Small-pox, of which, however, she was well cured, and felt her child move very strongly for fifteen days afterwards, till the violent working of the last purge much disordered her, and killed the infant within her, which was plain, because it had not made the least motion since that time, and because fifteen days before this Miscarriage she was seized with a great Flooding, which continuing upon her all that time; made way for the expulsion of the infant, which seemed to be no bigger than a Foetus of four months. Its Body was so corrupt, that it was quite stripped of the Epidermis, but it had no marks of the Small-pox, as I have seen in other children, whose mothers have had the Small-pox in the time of their pregnancy. The After-birth of this child was as big as that of one which comes at the full term, so that I had much ado to bring it away, because the Womb had only opened wide enough for the child; but this After-birth was not at all corrupted as the child was. The mother being thus happily delivered, was so brisk afterwards, that I believe if her physician had not unfortunately given her that third purge, on pretence of intirely evacuating the ill humours, which he supposed might remain in the Viscera after the Small-pox, though she was well cured, she would have gone out her full term, and have been the joyful mother of a living child. *Mauriceau.*

OBSERVATION LII.

The 25th of August, 1669, I attended a woman about five months gone with child, who had a continued Flux of Blood for three weeks past, but very moderate. Her Menfes before this had been regular every month, though not quite so plentiful as usual; but she had not as yet felt the child move. These were arguments to make the physician who saw her believe she was only big with a Mole, though I assured him she was really with child, telling him several examples of women I had seen, who had been delivered of living children at the usual term, notwithstanding the like accident. But this physician obstinately persisting in his opinion, ordered the woman, some days after I saw her, a purging medicine; which instead of promoting the expulsion of the Mole, as he pretended it would, made her miscarry of a child, which expired soon after. Now she might have saved her infant, had she consented to bleed in the Arm, and indulge herself in rest, as I advised. *Mauriceau.*

OBSERVATION LIII.

August 28. 1690, I attended a woman who, but an hour before, had miscarried of a little Foetus three months and a half grown, whose Heart still continued to beat.

This unlucky accident was occasioned by a purgative medicine, which she had taken the same day, by advice of her physician, who pretended to purge her Stomach of Bile; which was the cause of a Nausea, of which she complained, not considering that those disorders are the usual attendants on pregnancy. Besides, all purgatives were quite improper for a woman in her present condition, for she had then a small Flooding, which had continued on her for five or six days. So that her Big-belly, though endangered by this small Flooding, might however have been secured, and all things set to rights, had not the vigor and vitality of this little Foetus been utterly destroyed by that unlucky purge, so unseasonably prescribed by this physician, who could not believe the woman was with child, though I assured him of it, but fancied she went with a False conception, which Nature tried to expel by means of the Flooding before-mentioned.

The woman having thus miscarried of a living Foetus, the After-birth remained in the Womb, which closing immediately after expulsion, that foreign mass could not be brought away without offering too much violence to that part, and therefore the business was intrusted to Nature. But the After-birth, thus suffered to remain, three days afterwards excited a great Flooding, which threw the woman into very frequent faintings. This obliged me to bring away the foreign mass, finding the Matrix now enough dilated to do it without violence. After this the woman recovered her health by degrees, but had always a very sensible regret for not following the wholesome advice I gave her before she miscarried, which was, to use no remedy but rest, and once bleeding in the Arm, which I had ordered on account of the small Flooding she had upon her. *Mauriceau.*

OBSERVATION LIV.

July 21. 1691, I attended a woman aged 25, newly returned from Bourbon, where she had been to drink the mineral waters for a Palsy of the Right leg and thigh. This disorder was the relics of an Apoplectic-fit, which terminated in a Palsy of the Right-side, though this too went off, except from the parts before-mentioned, where it settled itself till the woman's last lying-in, which was a year and a half before. Having tried abundance of remedies, she was at last

advised to drink the waters, and setting out with her husband, who was to conduct her to Bourbon, she became with child on the road. After this, she was extremely afflicted with convulsive Hysterics, and imagining that all her disorders were owing to the fatigues she underwent in her journey, she drank the waters very duly, had them pumped on her lame Thigh, used the Baths, bleeding in the Foot, and a multitude of other remedies, ignorantly prescribed, which at last made her miscarry of a child four months old from its Conception, though it had been dead a long time in the Womb, as appeared by its corruption.

But she had not the good fortune to be delivered; at the same time, of the After-birth, whose retention excited Convulsive motions, and Hysterics, which obliged a surgeon to attempt the bringing it away. This he indeed effected six hours after the birth, but with much difficulty, as not being very expert in such operations. The violence then used probably contributed to raise a very painful Tumour near the Left ilium, which communicated itself to the adjacent part of the Womb on the same side, which was opposite to that of the Paralytic thigh. This Tumour, which lay deep, was occasioned by a Flux of humours, which from time to time took their course towards the Left-side, the other side of the Womb, which was that of the Paralytic thigh, being no ways affected, but rather depressed than swelled.

But the principal cause of these disorders was the woman's not having her Menstrual purgations in such abundance as before she had miscarried. Since that time, which was ten months, she had been subject to a continual Fluor albus, whose Acrimony was very troublesome to her, and gave reason to fear that it proceeded from some Ulcerous disposition of the Womb. But I found no Ulcer at this time actually formed in the Womb, that was perceptible by the touch; though she had so painful a sensation above the Left-side, which was that where the Tumour was, that I imagined there was a free communication between them, and that this continual Fluor albus was nothing but a kind of purulent excretion from some Ulcer, which lodging in the Interior part of the Womb could not be sensible to the touch. As this woman took a journey to Paris on purpose that she might consult me on her indispositions, she returned to her place of residence in the country, after she had taken my advice, so that I do not know what has happened to her since; but I then thought she could not live above a year. *Mauriceau.*

Instances of the Effects of Abortive Medicines.

OBSERVATION LV.

September 20. 1682, I attended a woman, whom I found five or six weeks gone with child, though she had done all that lay in her power, for twenty days past, to make herself miscarry, with the assistance of a wicked midwife, who deserved the gallows. This wretch had given her several pernicious medicines for that purpose; and had handled her very roughly, in order to open the Womb, without being able to accomplish her wicked intention. All she could do had no other effect than to cause racking Pains all over the Belly, especially near the Region of the Womb, which was inclined to an inflammation; and even discharged a small quantity of Blood. I represented to her, that besides the horror of her crime, which I displayed before her in as strong colours as her confessor could have done, she had run the risk of murdering herself in endeavouring to destroy the fruit of her Womb. She told me that she would not have done it; if she had not thought, that the child, being neither shaped nor quickened, there could be no great harm in procuring a Miscarriage. But I convinced her that such a sentiment was very ill founded, and that it was as pernicious, as the action she had endeavoured to commit was wicked. This false persuasion, though of long standing, that the Foetus is not animated till a considerable time after Conception, has encouraged abundance of profligate women to procure themselves a discharge of the Embryo after Conception, and an Abortion in the first months of their pregnancy. Wherefore I think it would be very convenient, for avoiding so pernicious an abuse, to oblige every one to believe, what to me seems very true, that from the first day, and immediately after Conception, the Soul is actually introduced into the little speck of matter, which being no bigger than a grain of millet at its first beginning, and the matter thereof exceeding fine, must be imperceptible to the sight of any one who should dissect a woman that died, by some accident, the very day, or the day after Conception. But we see with the eyes of the Mind what we cannot discern with those of the Body, and clearly understand that the extreme minuteness, the softness, and the delicacy of that point of matter, is no obstacle to the infusion and permanence of the Soul which resides there. It is sufficient for the purpose, that this same point of matter be organized by the perfect arrangement of all the little atoms of which it is formed

formed immediately after Conception. As to the rest, when I had convinced the woman by my reasons, and given her what advice I thought proper to secure her pregnancy, which had been very much staggered by the medicines she had taken to destroy it, I left her in a resolution, as she testified to me, of following the good counsel I had given her. But as she was unknown to me, I could not learn the event, except that eight days after I understood she was much better, and there were great hopes she would proceed with her Big-belly. *Mauriceau.*

OBSERVATION LVI.

In the month of June, 1685, I was sent for by a woman, who wanted my advice about a very great Flux of Blood she had been afflicted with for a day past, complaining also of her being at the same time extremely fatigued with a Dysenteric Flux. I was shewed a vast quantity of linen all over bloody, and abundance of clots of Blood which came from the Womb, not without racking pains of the Loins, and I was told that she voided nothing else. But when I had touched her, and found no tokens of one gone three or four months with child, as I had discovered in her upon examination at two different times before, I told her that I really believed she had voided something else besides all those clots of Blood she took care to shew me; and that I had observed her before to shew a great deal of trouble and concern when I assured her that I believed she was with child; and that she had, contrary to my advice, taken medicines to provoke a Miscarriage, which by their sharp and irritating property had drawn upon her that continual Flux of Blood, and bloody Serosities, which had held her above two months; that continuing in her evil intentions, as I supposed, she had this last time taken such violent medicines, that she had at last effectually provoked a Miscarriage; that she had not sent for me before she had accomplished her ill designs, and for fear I should be a witness of her damnable practices, had concealed the child of which she had miscarried from my sight, imagining she could persuade me, after a while, to think myself mistaken when I believed her with child, which she durst not confess, for fear her husband, who had not lain with her, as he said himself, should find out her infidelity.

This example shews us, that as there are some women who are mistaken in thinking themselves with child, so there are others who would fain deceive the physicians and surgeons, and conceal their Great-bellies to preserve their reputation. *Mauriceau.*

OBSERVATION LVII.

September 2. 1685, I attended a woman about two months gone with child, who two days before had received from a wicked midwife, who deserves to be hanged, a potion to make herself miscarry, which worked so violently with her, that she had been, as she told me, upon the seat above a hundred times, with extraordinary efforts, so as to void Blood by the Fundament. Yet, for all this, she could not bring to pass her wicked design, though she had also caused her to be blooded in the Foot, three days before she gave her the potion, besides offering several violences with the Hand to the Womb, which I found very much irritated, and extremely fallen, but quite close, and in a condition which gave hopes of preserving her pregnancy, provided the patient followed the wholesome advice which I gave her, in order to mitigate those intolerable Pains which that execrable drench had brought upon her, by resting continually in bed, and by the use of milk, both by the Mouth, and by way of Clyster.

She expressed her intention to follow this good counsel, and a great regret for consenting to the wicked action of the midwife, but would not tell me her name, for fear I should bring her to punishment for her crime. Two days afterwards I attended the same woman, whom I found in a pretty good condition; all those dismal symptoms, which I had before observed in her, having ceased, and given way to the salutary directions I had given her, when I convinced her at the same time of the enormity of their crime, who, without much scruple, voluntarily make themselves miscarry in the first months of their pregnancy, erroneously imagining that the infant is not as yet animated. A mistake as pernicious as it is great; for it is certain that the Body of a Foetus, though never so small, is intirely formed and animated from the first day of Conception, all the rest of the term serving only to strengthen it, and to give it the necessary growth. *Mauriceau.*

OBSERVATION LVIII.

July 19. 1677, I delivered a woman of twenty five, of a dead child at the term of six months, which presented the Arm. This *Abortion* she had designedly procured by taking forcing medicines some days before, with an intent by this unnatural means to hide her shame. The Flooding was so

excessive, that I verily believe she would have died without my assistance, which however she did not deserve, because of the heinousness of her crime; and though such procured *Abortions* are usually much more dangerous than those which are accidental, she at last recovered and did well, it pleasing God to spare her for this time.

Instances of Miscarriages from a Rigidity or Stricture of the Uterus.

OBSERVATION LIX.

April 23. 1691, I attended a woman who had just miscarried of a small Foetus no bigger than a bee, which Nature had expelled of itself without any considerable accident.

This woman was supposed to be two months and a half gone with child, and this was the fifth Miscarriage she had in the space of two years, and all of them nearly at the same term.

This example shews us, that some women are as prone to miscarry as to conceive. The best advice I can give these women in order to preserve them from such frequent Miscarriages is, to abstain intirely from the marriage-bed for five or six months, that so their Womb being strengthened by so long a rest, may be the better enabled to retain the Conception, when after this they breed. It is good also to avoid going in a coach, and much more in other carriages which shake the Body more, during the time of pregnancy. It is sometimes even necessary, for the greater precaution, that they keep themselves in bed; and that they abstain from their husbands, that they might not, by too much motion, or efforts, endanger their weak and precarious pregnancy. But there are few women who can prevail upon themselves to follow this wholesome advice, so necessary oftentimes to preserve the Fruit of their Womb, and make them joyful mothers. *Mauriceau.*

OBSERVATION LX.

A lady at fifteen leagues distance from this city, whom I had always seen delivered safely, and without accident, during her pregnancy, came into this country about some family affairs with her husband. Being at this time with child, and staying in these parts longer than she expected, upon finding herself not well, she consulted me once or twice by letter, and then desired I would come to see her.

I found her as big as she usually had been before at her full term, and much more incommoded, though she was then only in the latter part of the sixth month. She had for more than fifteen days suffered continual Pains, not like those which precede Delivery, but which made her Belly seem as if it was going to open.

When she lay on her Back with her Knees elevated, her Belly appeared much swelled and very tense, and so little room was left for the Stomach, that a great part of whatever she eat was brought up again, before it could have time to digest. Besides these, she felt the child move but very little.

All these circumstances made me conclude she was big of more than one child; and that the bulk of what was contained in the Uterus, distending it to a greater degree than it could well bear, caused all her Pain and Uneasiness, which increased daily as her pregnancy advanced, and her burden augmented.

I took away some Blood, with an intent to relieve her by emptying the Vessels, and advised rest in whatever situation she should find most commodious, without confining her to any.

Eight days after this visit she sent for me again, but I could not make haste enough to come before she was delivered of two children, which lived but a few hours. The lady soon recovered, and has since lain in of several children without any accident, having only one at a time. *La Motte.*

OBSERVATION LXI.

A young woman at two leagues distance from this town, in the fifth month of her pregnancy, was seized with violent Pains, which she took for the Colic. Her mother sent for me in all haste, suspecting the disorder to be Labour, as in effect it was, for I found the child born, and alive when I arrived. As the After-birth was come away, I had nothing to do but leave her to the care of her mother, and return home.

Some little time after she was again with child, and at the term of five months miscarried a second time, but so suddenly, that they could not send to me. However she got over this Miscarriage, as easily as the first.

Being with child a third time, she was more upon her guard, and though always very regular, she now took care to avoid every thing she thought might give occasion to the former Miscarriages. I took away some Blood three times, the last of which was in the sixth month, and made her pursue an exact and relaxing regimen, which enabled her to carry her infant till the seventh month, and then she miscarried. The child lived a few days, and then died.

As she attributed her going a little longer this time than she had done before, to her regular conduct, she resolved to be yet more cautious the next time she should breed. And that she might succeed the better, as soon as she was recovered of the last Miscarriage, I took away some Blood twice, and purged her as often. I repeated Bleeding as soon as I knew she was with child, and continued to do so every month. Mean time I made her take whatever I thought capable of cooling and relaxing, not suffering her to eat so much as a toast, and forbidding her to drink almost every thing that was spirituous.

Either by this conduct, or for some other reason, to me unknown, she was enabled to support her pregnancy to the full term, when I delivered her happily of a living child. She afterwards went through a second, and a third pregnancy, with the like success.

But being again with child, and much more incommoded at the end of three months, than in the three preceding pregnancies at nine, she was at the term of six months surprised with Pains equal to those she used to feel in former Labours; and the Waters piercing the Membranes, left no room to doubt of her condition. Upon this she sent for me, and I delivered her of two children, which died soon after they were born; and then of a large Placenta common to them both. In a few days she recovered.

Since then I have delivered her many times of one single child; which she brought always to maturity without any great difficulty. *La Motte.*

REMARK:

Here we have a remarkable instance of a too great Rigidity of the Uterus, which rendered it incapable of a Dilatation above a certain degree. Hence when the bulk of the Foetus, together with the Membranes, Placenta, and Waters, became so large as to distend the Uterus farther than it could bear without Pain, a Miscarriage immediately ensued.

But when the general habit of the Body was sufficiently relaxed by Bleeding, and a relaxing Regimen, the woman went her full time, till at last the Uterus was too suddenly distended by twins, and then she miscarried again.

This woman's case confirms the doctrine laid down by Hippocrates, who, in his *Treatises on the Diseases of Women*, represents this Rigidity of the Uterus as a frequent cause of Miscarriage. And, in his *Dissertation on the Seed*, he gives it as a reason, why the children of robust parents are often born very weak.

OBSERVATION LXII.

Instances of Miscarriages from a Scirrhus of the Placenta:

May 31. 1681, I visited a woman, aged thirty-five, of a very Atrabilious constitution; who had just miscarried at the period of six months and a half; the child dying ten or twelve days before, without receiving any hurt. She had already undergone three or four such Miscarriages, near about the same time, with the like accident, that is, about the fore-mentioned time she could no longer feel her infant move; but only some risings of the Womb, and voided a small quantity of Blood for ten or twelve days before *Abortions*.

The Placenta of this woman was all over Scirrhus, to which her Atrabilious temperament did not a little contribute. *Mauriceau.*

OBSERVATION LXIII.

February 1. 1679; I delivered a woman of a child six months and a half grown, which presented its Breech. It had been dead ten or twelve days, not having been felt by the mother all that time; and was the fifth Stillborn she had brought forth successively after that manner, without any fright or hurt, or other manifest cause, that could occasion the death of all her children in the Womb, just at the end of six months and a half, and twelve or fifteen days before she was delivered. And though during her last pregnancy she had taken all the precautions I advised her; the two principal of which were, keeping her bed, or at least her chamber, and separating from her husband, the same misfortune still attended her. But as the After-births of this woman's children were commonly all over Scirrhus, I concluded that this ill disposition, which hindered the infant from receiving sufficient nourishment, of which it had the more need when it began to grow large, was the true cause of its death, and of the Miscarriage that ensued. *Mauriceau.*

OBSERVATION LXIV.

June 20. 1686, I attended a woman, who had miscarried the day before of a child six months and a half grown, which died in the Womb, without any manifest cause, five or six days before, during which the mother had not felt it move.

As the After-birth was all over Scirrhus, and the woman, who was of a very Atrabilious complexion, had miscarried five times before this last, from the term of four or five months, to that of six or seven, I imagined, that this Scirrhus dispo-

sition of her After-birth, which appeared alike in all her other *Abortions*, and proceeded from a too Atrabilious temperament, had been the true cause of the death of all her infants; and of all the consequent Miscarriages at times when she was pretty far advanced in her pregnancy. For this Scirrhus disposition of the After-birth causing a great obstruction in all its substance, was the cause why the infant, not receiving sufficient nourishment from it in order to its support, must come by that defect to be deprived of life.

To remedy this misfortune, which had so often happened to this woman, I advised her to moisten and temper the extreme dryness, and excessive heat of her Atrabilious constitution, to use the Bath for some time before Conception, and asses-milk all the time after, with a temperate and moistening regimen, wholly to abstain from wine, and even from her husband when she knew she was with child; that so, by this regimen, she might do all that in her lay, to rectify her too Atrabilious constitution; and by that means be enabled, for the future, to carry her children from the time of Conception, to the end of the natural term, without ever miscarrying, as she has unfortunately done by all she has yet had. *Mauriceau.*

Instances of the After-birth retained, and discharged by Suppuration, &c.

OBSERVATION LXV.

The 8th of February, 1674, I and two of my fraternity were ordered to attend a woman who had miscarried four hours before of a child of three months. The After-birth, which remained behind, had occasioned a great Flooding. It was my opinion, that she ought to be delivered of it instantly, finding it possible from the opening of the Womb, which, though moderate, was sufficient for the purpose; considering also, that the Flux of Blood, by moistening the passage, facilitated the extraction. But my two colleagues, who were never the wiser for being older than myself, over-ruled my sentiments, alledging the danger of doing Violence to the Womb by that operation, which would increase the Flux; not considering that the sole cause of that Flux was the Retention of the After-birth. The term *Violence*, which they made use of, in contradicting my opinion, determined the patient for the present to commit the expulsion to Nature, as they advised her, rather than suffer me to deliver her, which I could have easily done, had she pleased, without deferring it till the next day, when she sent to me in order to do it; but the opportunity was then lost: for the Womb closing, there was no possibility of extracting the After-birth; which being thus retained, put her in danger of her life for three weeks together; by accidents which happened, as I had fore-told her, from the Suppuration of the Placenta, whose infection produced, as it usually happens on like occasions, very sharp pains about the Region of the Womb and Kidneys, a continual Fever, Hysterics, sanious and very foetid Excretions from that part, and frequent fits of Fainting during all that time. *Mauriceau.*

OBSERVATION LXVI.

April 4. 1687, I attended a woman, who was near the brink of the grave, it being the third day since she miscarried of a child of four months, whose After-birth was left intire in the Womb, for the midwife was not able to deliver her of it, because of the great difficulty she found, as she told me. Whence that foreign mass there remaining for three days, had caused a prodigious Flooding; and as Nature had not yet expelled it, and there was no hopes of bringing it away but by violence, because the Womb was quite closed, when I saw the woman, it turned at length to a most virulent putrefaction, which caused a continual high Fever, with two or three Exacerbations every day, accompanied with Faintings, and other symptoms usual on these occasions. But, for all these disorders, and a bad Diarrhœa besides, she recovered her health, after a most grievous and troublesome fit of sickness for five whole weeks. I had some years before attended the same woman, when she was extremely ill in the same manner, after another Miscarriage, where the After-birth had been likewise left behind, the midwife not being able to bring it away, and was expelled by Suppuration like this last.

But it is to be observed, that tho' those symptoms, which are caused by the Retention of the After-birth, are formidable, yet they are not so dangerous as those which might happen from an Inflammation of the Womb, by the great violence done to that part in order to bring away the After-birth by force: and as of two evils the least is to be chosen, we are obliged sometimes to trust Nature with the expulsion of those foreign masses, when they cannot be taken away without offering great violence to that part, in dilating it, when too much closed. *Mauriceau.*

OBSERVATION LXVII.

July 12. 1684, I attended a woman who was but just beginning to recover, after she had been very dangerously ill, three whole weeks, of a continual Fever, with Exacerbations, and other threatening symptoms, proceeding from the Suppuration of the After-birth left in the Womb, after she had miscarried of a child of three months; for her midwife was not able to bring it away, by reason of the difficulty she found, the Womb, as she told me, having quite closed immediately after the child came away. This obliged her to trust the expulsion of it to Nature, which she performed her usual way, by an intire Suppuration of the foreign mass, which held three weeks. For, though women, commonly, in these sorts of *Abortions*, get intirely rid of the After-birth the same day, or a few days afterwards, yet we meet with some who are obliged to Suppuration, which proceeds in a slow and tedious manner, and is always accompanied with a Fever, a great Pain of the Head, and Hysterical symptoms, with frequent Faintings, occasioned by the corruption, which is also attended with a strong Cadaverous smell. None of these symptoms cease till the Suppuration is intirely finished, which it is known to be, when the Excretions of the Womb are pure, and have wholly lost their offensive odour; as they began to appear in the woman I speak of, when I saw her, who, after she had so long laboured under all these melancholy accidents, recovered at last. *Mauriceau.*

OBSERVATION LXVIII.

April 2. 1679, I attended a woman thirty-five years old, of a very melancholy complexion, who had just miscarried of a small Foetus of three months, quite wasted. As the Womb had only opened in proportion to the smallness of the *Abortion*, the After-birth remained behind, and could not be expelled, nor taken away, because the Womb was almost quite closed after the expulsion of that small Foetus, and it could not be sufficiently dilated without suffering too much violence. This disposition obliged us to commit the operation to Nature, in hopes that it would bring matters to a good issue without assistance, as it frequently does in like cases, where the After-births of such small Foetuses are expelled without any extraordinary symptom, two or three days, and sometimes nine or ten, after the Miscarriage. But this came all away by Suppuration, which lasted three weeks, during which time the woman was forced to make use of Emollient injections into the Womb, which were of service in daily cleaning and washing away all the purulent and foetid Excretions of that part, which came from the Suppuration of the retained After-birth. And to the time that the Womb was intirely delivered from that foreign and adventitious mass, which resolved itself by Suppuration, the woman was incommoded with a Fever at intervals, a great Pain in the Head, and Hysterics, which are the ordinary symptoms on such occasions, after which she enjoyed her health. *Mauriceau.*

OBSERVATION LXIX.

The same day I attended a woman, who had miscarried 27 days before of an infant of four months, a surgeon attending her, who not being able to bring away the After-birth, had trusted Nature to expel it. During its Suppuration the woman laboured under all the disorders usual on the like occasion; such as a great Weight and Pain in the Belly, a continual Fever, with several Exacerbations every day, a great Pain in the Head, with continual purulent and very foetid Excretions. In this bad state I found her, when she told me that, but two days ago, she had parted with a piece of the suppurated After-birth as big as her Little-finger. But as I found her Belly was pretty soft, and she had no Pain near the Region of the Womb, that her Fever was inconsiderable, and Respiration free enough, I thought her intirely out of danger, though her husband and all her relations were under great apprehensions of losing her, as knowing how ill she had been for a long time.

However, I gave strict orders that Injections should be made use of to wash away the purulent matter, and forbid all purgative Medicines, though her physician had very improperly prescribed a Purge a few days after the Miscarriage, in hopes to procure the expulsion of the After-birth by that means, which, on the contrary, exciting an inflammatory disposition in the Womb, much irritated before by the residence of the foreign mass, instead of relaxing, caused it to swell, by which means it shut itself more closely than before, and was the less capable of expelling the After-birth.

Hence the Suppuration became so extraordinary long, that the patient told me some time afterwards, that she had voided bits of the After-birth for near forty days together; and after that was over, she still continued to discharge some Serosities every day till the Catamenia resumed their ordinary course, which was six weeks after my first visit.

But though this woman's Womb had been much weakened by

so long a Suppuration, it did not hinder her from conceiving and going out her full time with one of the lustiest girls I had ever seen, of which I happily delivered her in November the year following. The mother went ten days above nine months with this girl, who appeared so extraordinary large, that I had the curiosity to put her in a pair of scales, and found her to weigh above thirteen pounds, Averdupoize, without the After-birth, which was proportioned to the size of the infant. *Mauriceau.*

OBSERVATION LXX.

January 23. 1687, I attended a Woman, who, after she was thought seven months gone with child, had miscarried eight days before I saw her of a small Foetus, all corrupted, which she shewed me, and it was no bigger than one of three months. But as the After-birth of that corrupted Foetus was not brought away; from that time she continued to void purulent matter from the Womb, which came from the detained After-birth, that wasted by Suppuration.

The woman told me that she had reason to think herself seven months gone with child, because she had so long missed her monthly purgations; but that her Belly ceasing to rise these three or four last months, she thought no more of it; the infant probably remaining dead all that time, though Nature did not expel it till at the seventh month.

It might seem pretty difficult to believe that a dead infant can remain so long a time in the mother's Belly without being expelled, and with so little inconvenience, did we not every day see such instances, which convince us that some dead infants are preserved in the Womb a very long time, without any considerable corruption, before their Waters run off; these Waters serving, if I may so say, as a sort of Brine, to keep them from a cadaverous corruption, which immediately follows after their efflux, and obliges the Womb to expel them. Hence it was that the woman we speak of so long retained the little dead Foetus, and yet had her health, as soon as the After-birth, which remained, as I said, in her Womb, turned to Suppuration, only taking care, as I advised her, to inject simple Barley-water three or four times a day into the Womb, to assist in cleansing that part from the foetid matter of this Suppuration, which might otherwise injure it. *Mauriceau.*

OBSERVATION LXXI.

May 28. 1686, I attended a woman, who had just then miscarried of a child three months grown, after she had been a month troubled with a Flux of reddish Serosities, which is the common forerunner of *Abortions*. But as the Womb had only opened in proportion to the Body of the child, which was very small, the After-birth being much larger, remained within; and as it could not be extracted by the Hand without too much violence, the Orifice of the Womb being shut, and there being no pressing necessity for it, I judged it the surest way to commit the expulsion to Nature, who, in her own time, freed herself by means of Suppuration, in which the After-birth came away by little and little, nothing appearing but purulent Excretions, which usually succeed the retention of these sorts of foreign masses, and so continue till the Suppuration being finished, the Excretions of the Womb become pure, without that offensive smell which those that are purulent are commonly attended with. But that the part just mentioned may receive no ill impression from the too long continuance of the corrupt matter in it, injections are every day, for ten or twelve days, to be used, as I directed in this Woman's case, in order to preserve her from any ill effects of the Suppuration, after which she did very well. *Mauriceau.*

OBSERVATION LXXII.

November 29. 1685, I attended a woman who had miscarried seven days before of a child four months grown, whose After-birth remained in the Womb, the midwife not being able to bring it away, because the Womb closed immediately after it had expelled the Foetus, which it did with ease enough, as being a small, soft, and withered Substance. So that the Womb at that time not opening itself but just in proportion to the size of the child, the After-birth being much larger, was retained, and had no way to come off but by Suppuration, which was accompanied with a high continual Fever, with Exacerbations, a great Pain in the Head, and other frightful symptoms, which made her life despaired of. However she recovered at last, using no other means than what I advised, which was only to inject into the Womb, three or four times a day, a decoction of Barley, Agrimony, Mallows, and Marshmallows, mixed with a little Oil of Sweet Almonds, in order to dilute the infectious matter proceeding from the Suppuration of the retained After-birth, that the Womb might receive no ill Impression from the too long continuance thereof.

It often happens that the midwife, and the surgeon, to avoid being blamed for not delivering the woman of the After-birth, when she has thus miscarried, do their utmost to bring it away with the Hand; which I would advise by all means to attempt, provided the operation can be performed without violence, but not otherwise. For there is much less danger in trusting Nature with the work, than in going too rudely about it, in order to extract it from the Womb by violence, which might cause an Inflammation in that part, and so put the woman in far greater danger of her life, as I have known it sometimes happen. *Mauriceau.*

OBSERVATION LXXIII.

March 7. 1682, I attended a woman gone with child no more than two months and a half, who miscarried in my presence of a living child, that plainly moved its Legs and Arms, and even opened its Mouth for the space of half an hour. It came into the world without assistance, with a great Flooding. But as it was very small, and the Womb had only dilated itself in proportion to it, the After-birth remained behind, there being no room to bring it away; because the thickness and hardness of the Internal orifice, which was very close shut, could not bear to be stretched without too great violence, which might have brought on a very dangerous Inflammation in that part. But the Flux of Blood was so increased by this retention of the After-birth, that the poor woman had several bad Fainting fits the first day; after that it stopped a little, but only for a day or two, and then returned in a dismal manner, which it did, at several intervals, for the space of three weeks, the Womb all the while not sufficiently dilating so as to be able, of itself, to throw off its burden, nor to admit assistance to get rid of it without violence. And as it stuck all that time to the bottom of the Womb, so its sticking there was the cause that it did not at first resolve by Suppuration, as it usually does, when, being intirely loose from the Womb, it has no longer communication with it. So that the true Suppuration of the After-birth not beginning till at the end of three weeks, the patient was afterwards more than eight days in voiding it piecemeal, and consequently was a full month in getting rid of the Appendage to this diminutive Foetus, though most women are no longer about it than three or four days, and seldom above eight. But what contributed very much to lengthen out the time was, that the living roots of this foreign mass hindered its separation from the Womb, where it stuck close, and could not be expelled without Pain, which was not a little aggravated by the straitness of the Internal orifice. In these eight days of the Suppuration, the woman, as it usually happens under such circumstances, had a Fever, with several Exacerbations, accompanied with a great Pain in the Head, and Hysterical fits.

The part being afterwards purified from the infection of the Suppuration, the woman recovered her health, having run the less risk by committing the work of Expulsion to Nature, which if I had tried by Hand, as I must have used violence, the remedy might have proved worse than the disease. It is remarkable that this little *Abort*, which I saw living half an hour, had strength enough to move its Arms and Legs, but had not the power to put forth a cry, though I plainly saw it open its Mouth several times. For *Abort*s have commonly no Voice till the end of the third month, their Lungs not having strength enough till then to push the air with an impetuosity sufficient to form a cry. *Mauriceau.*

OBSERVATION LXXIV.

A. D. 1676, I attended a woman, who two hours before had miscarried of a dead child at the term of eighteen weeks, and two thirds of the After-birth were left in the Womb. The midwife not being able to deliver her, sent to me for my assistance. But I found the Womb of this woman, who had never been with child before, so closed inwardly, and so straitly embracing the After-birth, that I judged it improper to attempt the taking it away forcibly, because the violence, I must have used, might have been more prejudicial than the disease itself. Besides, the woman was very faint, and extremely impatient. For these reasons I attempted to fetch it away, but very gently; and having taken away about half the mass, left the rest for Nature to discharge, having no inclination at that time to use farther violence, because the Internal orifice of the Womb being contracted like the neck of a bottle, so forcibly retained the foreign mass, that it was impossible at that time to get it away without putting the woman in great danger of her life. However, to assist Nature in discharging it, I ordered several Clysters, and Emollients to be three or four times injected into the Womb. These remedies did not fail of promoting the expulsion which happened the fourth day; and the woman afterwards enjoyed her health. *Mauriceau.*

Instances of Flooding with Miscarriages.

OBSERVATION LXXV.

April 4. 1675, I delivered a woman of a child that had been dead a considerable time. It seemed no bigger than a child of three months, though the Mother had gone with it near seven. She had almost continually discharged some small quantity of Blood from the Womb for four months past, having all that time laboured under Pains in the Kidneys, and dispositions to miscarry. This at length happened after a great and sudden Flux of Blood, which stopped immediately upon Delivery, and the woman recovered. The almost continual loss of Blood for four months had made that little *Abortion* of the human species like those abortive or untimely fruits, which never grow from the moment they are deprived of the sap of the tree that nourishes them, but grow dry, wither away, and fall off long before maturity. *Mauriceau.*

OBSERVATION LXXVI.

March 8. 1689, I delivered a woman of an infant of five months, which presented the Breech, and was alive, though the mother had, for three weeks before, continually discharged a vast quantity of Waters tinged with Blood, a sure fore-runner of *Abortion*.

For it is to be observed, that though some women are known to preserve their pregnancy, after voiding a pretty large quantity of pure Waters by the Womb, the case is otherwise when these Waters are tinged with Blood, for then it is a sure sign that the Womb begins to open considerably, and that it can no longer retain the infant, at what term soever it happens, after a great discharge of Water of this tincture. However the woman did very well, after miscarrying of this little Foetus, which lived an hour. *Mauriceau.*

OBSERVATION LXXVII.

July 25. 1683, I attended a woman who had just then miscarried of a small Foetus, no bigger than a bee; but the Secundines being left in the Womb, a pretty large Flux of Blood ensued, which however was not succeeded by any considerable weakness. The Womb had only opened in proportion to the size of that Foetus, so there was no room at present for the operation; but two days afterwards, finding it in a better disposition, I took from it the foreign mass, which exactly resembled what we commonly call a False conception, and was of the bigness of a middling pullets-egg. This experiment convinced me, and confirmed me in the belief, which I always had, that all those pretended False conceptions, which come from women about the third month, were True conceptions in the beginning; and that they are, in effect, no more than little Placenta's, whose Membranes are stuffed with clots of Blood, which swell them up; that after the Waters which they contained are run off, they are all compacted into a globular form by the contraction of the Womb, and being, as it were, moulded in its cavity, and blended with those clots of Blood, and the substance of those little After-births, take the figure of a fowl's gizzard. And as we many times perceive no Foetus in these sorts of False conceptions, because of the extreme minuteness and softness of these little *Abort*s, which lose their figure, and confound their substance with the clots of Blood, which are voided by women on those occasions; and as we see nothing come from them afterwards, but those kinds of foreign masses, we commonly take them for simple False conceptions, though they are in effect true After-births, as was that which I took from this woman, who then reckoned herself gone about two months and a half. But as she had been very much disordered all the first months of her reckoning, and especially the last fifteen days, when she voided every day bloody Serosities, and even pure Blood in small quantities, at intervals, from the Womb, here we see the cause why this diminutive Foetus, which had for some time past withered away for want of nourishment, did not arrive at the bigness it ought to have had by the mother's reckoning. *Mauriceau.*

Miscarriages less difficult where a Flooding has preceded.

OBSERVATION LXXVIII.

March 28. 1677, I attended a woman who had just miscarried of a dead child, at the term of fourteen weeks. For three whole weeks before this accident, she had been troubled with a small Flux of Blood, which at the end was considerably increased for the space of two hours, till it brought away with it the little Foetus as aforesaid, with the After-birth at the same time. It is to be remarked, that in these sorts of *Abortions*, the After-birth is easily expelled with the Foetus, when the woman has, for a long time before her miscarrying, felt considerable Pains, with some loss of Blood. For these Pains help, in a great measure, to loosen the After-birth from the Womb. But it is usually otherwise when the Miscarriage comes suddenly, and almost without Pain. For the infant,

infant, which is small and tender, is easily enough expelled; but the Womb not being sufficiently open, in proportion to the bigness of the After-birth, for that reason retains it, where it continues to stick, and cannot be excluded without much Pain. *Mauriceau.*

OBSERVATION LXXIX.

October 18. 1730, A carpenter near Russel Court, in Drury lane, came to me, and desired I would go to his wife, who judged herself to be nine or ten weeks gone with child. She had for some days laboured under a Flooding, and had lost a very large quantity of Blood, so that she was very much sunk and dispirited, and had fainted several times. Upon my coming, I first felt her Pulse, which I found very low and weak; she complained of a grinding Pain in her Back, and a forcing down and weight upon the Os tincæ; I therefore thought it necessary to touch her, believing whatever was to come away was lodged upon, and stopped up, the Os tincæ, which might occasion those complaints. I found the Vagina and Os internum choaked up with coagulated Blood, the latter very little open, and not wide enough to admit the passing up of one Finger; however, with the end of my Finger I felt a soft substance within, lying at the Mouth of the Womb: at that time I thought it adviseable not to attempt the fetching it away, in hopes that the Os internum would sink lower, and spread wider; and therefore I only ordered her the following draught and mixture, promising to see her again in a few hours.

Take of Plantain water two ounces;

Strong Cinnamon water half an ounce;

Liquid laudanum twelve drops,

Diatodium three drams,

Japan earth a scruple;

Make a draught to be taken immediately.

Take of Plantain water, and the water of Oak buds, of each three ounces;

Small Cinnamon water, and strong, of each an ounce;

Syrup of Lemons an ounce,

Japan earth a dram;

Take two or three spoonfuls occasionally.

About three hours after I called again, when I was informed, that the draining continued, but in a lesser quantity; she had a Pain in the Back, and a greater weight and pressure upon the Os internum. I touched her again, and found the Os internum sunk lower, and opened wide enough to admit one Finger to pass into it, with which I felt a soft substance. This I judged to be the Placenta sunk low down, and lying at the Os tincæ; I therefore passed one Finger up into the Uterus, where I found the aforesaid substance lying loose in the Uterus; whereupon I thrust my Finger further up, and bending the end in the manner of a hook, over the said substance, I drew it out, upon which the Flooding, and the grinding and forcing Pains went off. I then ordered her a Cordial bolus to be taken immediately, at night, and the next morning, with three or four spoonfuls of Julap after each Bolus; or at any other time, in case she was faint or sick. I called the next day, and found her very brisk, and free from all her former complaints; and, that she had had no return of her Flooding from the time I brought the substance away. *Giffard.*

The author forgot to inform us what became of the Foetus.

OBSERVATION LXXX.

August 20. 1730, I was called upon to go to a woman in Durham-yard, the wife of a porter, who, the preceding day, found (as she thought) the child to give a sudden slip, and fall lower. A few days after she was seized with a violent Flooding, and grinding Pains in her Back. I found her upon my coming very much dispirited, her Pulse low, and clear Blood continually dribbling. Upon touching, I found the Os tincæ wide enough to admit the ends of three Fingers, and therefore gave it as my opinion, that she ought to be immediately delivered, and that delays might be dangerous, since she had lost so much Blood already. There was no prospect of its stopping before both the child and Placenta were brought away, for as long as the Uterus was kept distended by them, the Mouths of the Vessels (before inosculated into the Placenta, which then wholly adhered to the Uterus, but was now in part, or wholly separated from it) would continually pour the Blood into the Womb, so that the whole mass would be exhausted, unless she was delivered. Then indeed the Womb would contract and be collapsed, by which the Mouths of the Vessels are stopped, and the Flooding generally ceases. All that were present submitted the matter intirely to my conduct; immediately I passed up my Hand well greased into the Vagina to the Os internum, which I endeavoured to dilate with the ends of three Fingers passed into it, and soon made way for the Fourth and my Thumb; then, by gently spreading them, I dilated it wide enough to admit my whole Hand, which I passed into the Uterus, where I first met with the Membranes; those I

broke with the ends of my Fingers, and laid hold of a Hand; which I put aside, and went on in search of the Feet. I soon met with a Foot, and brought it out. The child was small, and the parts having been dilated by former Labours, I was not solicitous about the other foot; and therefore taking hold of that already brought out with a soft cloth, I drew it gently towards me, at the same time advising the woman to assist by bearing strongly down; the Hips presently followed, as also the Body and Head. The *Funis Umbilicalis* was twisted round the Neck of the child; and upon the Head's sinking down the preceding day, the Placenta was in part, if not wholly, separated from the Uterus, which separation was occasioned by the contraction of the Navel-string. The Placenta being separated, a Flooding of course ensued. Passing my Hand, after the child was brought out, I found the burden sunk down, and partly out of the Womb, lying in the Vagina, so that I had no difficulty in bringing it away. The child was born dead, which I judged it to have been several hours, the woman not having perceived it stir all the time of her Labour. This woman was in the eighth month of her reckoning: She died about eight or nine hours after her Delivery, notwithstanding all proper applications were made use of. This, I imagine, wholly proceeded from her great loss of Blood before she was brought to bed. *Giffard.*

OBSERVATION LXXXI.

April 1. 1730, I was sent for to a poor woman in Knaves-acre, the wife of a smith, who was about six months gone with child, and had been seized with a Flooding some days before, for which her midwife had, not long before, come to consult me, when I ordered an astringent mixture to be taken three or four spoonfuls now and then, and a quieting astringent draught to be taken at night, which I ordered to be continued every night, in case her Flooding did not stop, with orders to give me an account of her the next day, at the same time telling the midwife, that in case it continued, the only means left to save her life, was to deliver her; but as the method I ordered had in some measure the desired effect for the present, I heard nothing farther for two or three days; but her Flooding returning again, her husband came to me, and desired I would go to her, which accordingly I did, and upon examination found the Os internum not dilated enough to admit the End of one Finger, and not easily to be dilated; wherefore I advised a repetition of the medicines before prescribed; and on the next day he called again to tell me, that the draining continued, but was not so violent; however, as she became weaker, he desired I would see her; I then found the Os internum as it was the preceding day, and as I could not dilate it with my Fingers, I advised a continuance of the mixture and draught; on the third day the midwife sent me word, that the draining continued, but that the Os internum was dilated somewhat more than the preceding day, which gave me encouragement to hope that I might dilate it wide enough to pass my Hand and bring the Foetus. Upon my touching, I found an opening large enough to admit the end of three Fingers, wherefore I endeavoured to dilate it with my Fingers, and stretching them wide from each other, I got in my Thumb, and afterwards my whole Hand. The first thing I met with was part of the Placenta separated from the Uterus, and passing my Hand by it, I felt the child inclosed in the Membranes, and floating in the Waters. I readily broke the Membranes with my Fingers, and passing my Hand within them, soon met with a Leg, which I drew out, and taking hold of it with a soft cloth, I gently pulled towards me, at the same time advising the woman to assist by bearing strongly down; and by this method I presently drew out the Foetus whole and intire: I was indeed afraid, as it was very tender, that the Limbs would have separated from the Body. The Placenta readily followed, being before in part, if not wholly, separated from the Uterus; the Flooding stopped immediately upon the Delivery. *Giffard.*

OBSERVATION LXXXII.

January 23. 1729-30, A woman came to me about seven o'clock in the evening, desiring me to go with her to a grocer's wife in Leather-lane, near Holbourn; the woman had miscarried about an Hour before of a Foetus of about five months old, which had been dead for some time, and the Navel-string, being both very small and tender, broke by the midwife's endeavours to draw out the Placenta. Immediately upon my coming I passed up the two Fore-fingers of my Left-hand, and found the Placenta in part protruded out of the Os internum, and stopping up the same: I therefore took hold of the part protruded between my Fingers, and drew it gently outwards, by which method, the part remaining in the Womb, and which stopped up the Os internum, readily followed, and the Flooding stopped. This woman had for some days laboured under a Fever and violent Cough, which I judged occasioned the death of the Foetus, and the Miscarriage afterwards.

Instances of Miscarriages from a Plethora.

May 22. 1682, I delivered a woman who was in her third month; she was of a very sanguine constitution, and I had advised her to bleed at the end of the first month, in order to preserve herself from such an accident. But she would not hearken to good counsel, but chose to follow a bad custom, which many others have, of staying till they are half gone, before they think of such a misfortune, which generally happens before the end of the third month. As the woman had a great Flux of Blood, I took from her the After-birth, of a good Finger's thickness, and the breadth of two thirds of the Palm of a Hand, though the Fœtus, which was still shut up in its Membranes, whose Waters were all run off an hour before, was no bigger than a large bee. We cannot however infer from hence, that the child had been no bigger than it was at the time of the Miscarriage; for it did not seem above twenty-five days grown; about which time it probably began to wither, its principle of life having been destroyed: and though not growing for a long time, it remained in the Womb, and preserved itself in its Waters, till this Miscarriage happened to the woman, who did mighty well afterwards. *Mauriceau.*

OBSERVATION LXXXIV.

August 22. 1685, I attended a woman who was thought to be more than three months gone with child, but had just then miscarried of a little Fœtus, wrapt up in the After-birth and its Membranes, and scarce bigger than a common fly, the whole being about the size of a pigeon's egg. The woman had, for two months past, laboured under a continual Flux of Blood, which was so great when she miscarried, that her husband thought she would have died.

As the principle of life was destroyed in this Fœtus from the beginning of the mother's pregnancy, it must have rested at the same dimensions as when deprived thereof by some accident, which might probably be the same as excited that Flux of Blood, which never ceased till Nature had discharged itself of that useless burden, after which the woman, who had suffered very much so long a time, recovered her health.

It is worth observing, that Big-bellied women are often known to be thus injured without any manifest cause, merely by their own sanguine temperament, their redundances of Blood suffocating, and, if I may so say, drowning the infant as soon as it is conceived, if not seasonably prevented by Bleeding in the Arm. *Mauriceau.*

OBSERVATION LXXXV.

July 9. 1685, I brought away an After-birth, which belonged to a small Fœtus of six weeks growth, of which the woman miscarried two hours before, and with it abundance of large clots of Blood were discharged, though she had never received the least hurt or injury, as she told me herself.

This accident may serve to prove, that Bleeding, which it is the custom to defer till after the fourth month, would be of more service in the first months, than at the end of four months and a half. For it is most certain, that the meer abundance of Blood is frequently the cause of miscarrying before the end of the third month, from which women might preserve themselves, if they took care to bleed in the first months of their pregnancy, during which the infant being very small, wants but very little Blood to nourish it. For which reason not being able in that state to dispense with all that is retained by the Suppression of the Catamenia, the Vessels of the Womb which are overloaded, open, and discharge their contents in an extraordinary manner, and thus cause those exuberant Fluxes of Blood, which almost constantly accompany this sort of Miscarriage. *Mauriceau.*

A Miscarriage from a great Swelling of the Labia.

OBSERVATION LXXXVI.

June 2. 1672, I attended a woman who had laboured fifteen days under a very great Swelling of the two Labia Pudendi, as well as of the Legs and Thighs. This was occasioned by a great load of humours deposited on those parts, and on the Womb itself, where she felt a great Pain from a moderate pressure of the Hand upon the Belly, which also was swelled big enough to give a suspicion of her being with child, though she had been without her Menfes for fourteen months, since she was delivered of her second child. Their suppression might be owing to the ill state of health she had been in, having been troubled with Fevers during the first eight months of the fourteen; or to her becoming with child upon her recovery to a good state of health, which she had enjoyed for some months past. But as she had not as yet felt any motion like that of a child, and her Breasts were not swelled, and there was no touching of her below, to examine the state of the Womb, because of the prodigious Swelling of the Labia which hindered it, I told her, that though I could not posi-

tively assure her that she was with child, which I very much suspected, I would advise her to manage herself like a Big-bellied woman; and that she might, for all that, suffer some scarifications to be made on the outside of the Labia, in order to give vent to a vast quantity of serous humours, which had caused so extraordinary a Swelling, as to endanger a Mortification. The operation was performed two days afterwards by an ordinary surgeon, and a vast quantity of water was discharged for several days, whereby the Swelling of all the parts round about was considerably abated; and some days after the woman was delivered of two children, with which she had gone about four months. One of the children was alive, the other was dead; and was probably the cause, by the ill impression its corruption made on the Womb, of an Inflammation, which communicating itself to the Exterior parts, drew on a Mortification, of which the woman died the third day, as I had with assurance foretold the day before. It is what almost instantly happens, when this sort of Outward Swelling from the Inflammatory disposition of the Inward parts grows Erysipelatous. But when they are no more than Oedematous, as it pretty often happens to women who have had many children, towards the last months of their pregnancy, they are not commonly so dangerous. *Mauriceau.*

A Miscarriage from a Quick-silver girdle:

OBSERVATION LXXXVII.

February 11. 1685, I attended a woman, who, when she was two months gone with child, had put a Quick-silver girdle round her waist, by advice of some ignorant person, to cure a simple Itch. The poisonous remedy in a few hours raised a plentiful Salivation, with so great a Swelling of all the interior parts of the Throat, that, for fear of Suffocation, or a Delirium, they were obliged, as her surgeon told me, to bleed her four times, and to give her several Purges to divert the Course of the humours downwards, not imagining she was with child. But the consequence was a plentiful Flux of Blood, which threw her into Faintings, that came one upon another, and ended at last in a Miscarriage. It is more than probable, that the Purges that were given her, as well as the repeated Bleedings before administered, were the principal and leading causes to this misfortune.

But though the patient seemed to be very weak, and almost harrassed out by such a train of accidents, when I saw her, I did not think her in danger, but could safely venture to foretell, that the great evacuation before Miscarriage, and that which ought to follow, would infallibly put a stop to the Salivation, which accordingly happened; and the woman was well afterwards. *Mauriceau.*

A Miscarriage of Twins.

OBSERVATION LXXXVIII.

October 6. 1730, I was sent for about four o'clock in the morning, to the wife of a snuff-box maker, in Dean-street, near Red-lion-square, who was, according to her calculation, about seven months gone with child; I had been with her about three months before, when she was under some apprehension of miscarrying, but by proper applications I cured her at that time; but now one Fœtus was brought away before I was sent for, and the midwife not being able to bring away the Placenta, occasioned my being sent for. I immediately would have endeavoured to pass my Hand in search of the Placenta, but the woman could not be readily persuaded to admit me, and made some struggle, until she was overcome by the persuasions of her friends, and the apprehensions of the danger she was in, should it not be brought away; so that at length she admitted me to pass my whole Hand into the Vagina, and so on to the Os internum, which I found so much contracted, that it would scarcely admit the ends of four Fingers; but having by degrees dilated the Orifice, I got my Hand into the Uterus, and found something harder than a Placenta. This proved to be another Fœtus inclosed in its Membranes, which were much distended by the Waters; I broke the Membranes immediately with the ends of my Fingers, and then putting my Hand within them, I searched for the Feet; the first part I met with was the Head, which I passed by, and went on in search of the Feet, and soon met with one Foot; this I brought out, and as I had sufficiently dilated the Os internum, the Fœtus being likewise very small, I judged I might easily draw it out by the Leg already brought down, without giving her fresh Pain by passing up my Hand again to fetch down the other: I therefore took hold of the Leg I had secured, and gently drew it forwards; I say gently, for had I used any force I might have torn it from the Body, the Leg being very small and tender; at the same time I advised the woman to assist by bearing strongly down, which much contributed to the bringing out of the Hips, Body, and Head, all which soon followed; and upon passing up my Hand to fetch away the After-burdens, there being two entirely separate, I met with the burden belonging to the Fœtus first born protruded,

truded, and lying in the Vagina; this I immediately brought away; and then, repassing my Hand, I found the other lying within the Uterus, but wholly separated from it, so that I had no more difficulty in bringing away this than the former. *Giffard.*

Instances of Miscarriages without manifest cause.

OBSERVATION LXXXIX.

July 23. 1685, I attended a woman who had just before miscarried without any manifest cause, of a small infant, no bigger than a bee, inclosed in the After-birth and its Membranes, which still contained all the Waters, the whole being of the size and figure of a pullet's egg. The woman reckoned herself three months and a half gone, though what she had brought forth was no bigger than a Foetus of a month, being hindered in its growth by some Fluxes of Blood, with which the mother was from time to time visited, almost regularly in the ordinary season of her natural purgations. From this symptom, the woman not thinking herself with child, though I had assured her of it, had neglected to keep herself quiet, and take her repose in Bed, as was necessary to preserve her Big-belly which had been endangered since these Fluxes came upon her. Nor did she take care to bleed in the Arm, as I advised her, after I knew she was with child.

Now I was certain that she had conceived, notwithstanding those evacuations, which came at the ordinary seasons, signified the contrary; for their coming at those times was merely accidental and by chance, as I observed; because after these evacuations had ceased, the ordinary signs of pregnancy continued as before, whereas they would have vanished after a genuine Menstrual purgation. *Mauriceau.*

OBSERVATION XC.

December 12. 1685, I attended a woman who, at the end of three months, according to her own reckoning, had just miscarried of a small Foetus, which came from her without much Pain, inclosed in the After-birth and its Membranes and Waters, the whole equalling the bigness of a duck's egg. The Foetus was no bigger than one of five or six weeks growth. The mother before she was delivered of it, had a moderate Flux of Blood for three weeks, so that being deprived of life long before Nature expelled it, a stop was then put to its growth.

As this Miscarriage had no violent cause to force it, the woman was as well afterwards as if she had lain in naturally of a child at the full term. *Mauriceau.*

OBSERVATION XCI.

January 14. 1687, I delivered a woman, aged twenty nine, at the term of five months, of a little infant alive, which presented the Feet, with a considerable Flux of Blood, and was the sixth of whom the mother had miscarried successively, not having gone a longer term with any of her children than with this, which was five months complete, with others three months, and one of them four months and a half. But, what is extraordinary, the woman miscarried thus six times, without any injury or evident cause, and in spite of all possible precautions which she had taken to secure herself against this melancholy accident, to which she was so subject, that I delivered her of four children since, of whom she miscarried in like manner without manifest cause, two of four months, one of six months and a half, and the last of seven months, not being able to preserve any one of these Big-bellies to a longer date than the last, where the infant, though living when I laid the mother, survived but seven hours, as being, by reason of its immature birth, too early by two months, very small and very feeble, as all those infants are which are born at seven months.

This example shews how easily some women miscarry, as this woman actually did of ten children, which her unhappy Fecundity conceived only to see them all perish in the birth. She was above a middle stature, of a pretty full Habit of body, and her Complexion was sanguine and phlegmatic, which not a little contributed to the untimely relaxing and opening of the Internal orifice of her Womb, at the least agitation of Body or Mind.

I had advised her, as the best remedies against a relapse into the same misfortune, to abstain from her husband all the time of her pregnancy, to bleed in the Arm, when gone six weeks, and to repeat it every two months, and to keep herself in perfect composure of Mind and Body. But this good counsel served only to make her go a little the longer with the last children than with the first, for she went with the last, of which I delivered her, February 11. 1692, to the end of the seventh month, which lived only seven hours, as I said before. However, there is room to hope, that by continuing to follow the good counsel I have given, she may hereafter go out her full time with a child, and have a more happy lying-in with it than she has had with all the rest. *Mauriceau.*

OBSERVATION XCII.

January 17. 1688, I attended a woman, who, after a day's moderate Flux of Blood, had just voided a sort of False conception, some slight membranous fragments of which had come away the day before. This supposed False conception was of the size of a large pigeons-egg, and its figure much resembling that of the cavity of the Womb. I opened it, and found a small Foetus in the middle, no bigger than a corn of wheat, though the mother believed herself three months gone. I knew by this that the principle of life in this Foetus had been destroyed a short time after its Conception, whence a stop was put to its growth. *Mauriceau.*

OBSERVATION XCIII.

August 22. 1689, I delivered a woman of a small Foetus, inclosed in the After-birth, its Membranes, and its Waters, which, to all appearance, had been dead a very long time. The woman thought herself six or seven months gone, though the little Foetus, which was never felt to move, was no bigger than one of two months and a half, or three months at most.

When I delivered the woman, there ensued such a copious Flux of Blood, that she fell into Faintings, which might have put her in great danger of her life, had I not speedily succoured her by stopping the Flux, which ceased as soon as I had taken away this foreign mass which caused it. After this, the poor woman, who had been in a very languishing condition a long while, did very well. *Mauriceau.*

OBSERVATION XCIV.

February 29. 1690, I attended a woman, who had miscarried seven days before of a child four or five months grown, and now lay almost at the point of death. Her midwife, who was incapable of delivering her, had broke the String of the After-birth, and had very much fatigued the patient for an hour, without being able to bring away more than some pieces of the After-birth, the greatest part remaining in the Womb.

Hence extraordinary Floodings, and plenty of very foetid Excretions, accompanied with a continual high Fever, which had several Exacerbations every day, a great Tension of the Belly, Faintings, and other symptoms, of which the patient died, two days after I had seen her in this melancholy condition, as I had foretold, more from a consideration of the injury done to the Womb, when the midwife endeavoured to bring away the After-birth, than out of regard to the meer Retention of that foreign mass. For it is to be observed that there is less danger in committing the expulsion of the After-birth to Nature, than in offering too much violence to the Womb in order to force it away from thence, which always causes an Inflammation, a disease the more fatal as it is augmented by the Suppuration of the remaining part of that foreign mass. *Mauriceau.*

OBSERVATION XCV.

March 16. 1691, I delivered a woman, who had miscarried two hours before of a Foetus of three months, which had been dead eight or ten days, as appeared by its corruption.

The midwife, for want of sufficient knowledge in her business, being incapable of bringing away the After-birth, so excessive a Flooding was excited by its Retention in the Womb, that the woman must have run a great risk of her life, if I had not speedily delivered her of it, and so put a stop to the Flooding, after which she did very well. *Mauriceau.*

OBSERVATION XCVI.

May 12. 1692, A lady sent for me to her house, to shew me a small Foetus and its After-birth, which were all corrupted and decayed, though without any offensive smell. She asked me, of what term I supposed that small Foetus might be, which was of the length of the Middle-finger? I answered, that, by its bigness, it did not appear to have been alive in the mother's Womb above two months, but that it might have been preserved there as long a time after its death, its Waters not being discharged before the time of travel, and perhaps longer. She then told me that it was a domestic of hers, who had miscarried that very day of this infant; and that as her husband had been absent these four months and a half, she believed, seeing the infant so small, that another man was the father. As for my part, the fear of imputing a crime to the woman, of which she might possibly be innocent, made me leave the question undecided. For I could not come at an intire certainty, by examining the Body of the Foetus, because I had seen as small ones, whose mothers have not been delivered of them till five months after their Conception, having carried them dead two or three months, they being preserved without much corruption in their own Waters, as some sorts of fruits in a proper pickle, so that they did not exceed the size which they had arrived at when their principle of life was destroyed. *Mauriceau.*

March 8. 1693, I delivered a woman of a small child of five months, of which she miscarried without any manifest cause, except that the After-birth began to be loosened, because the infant, who presented the Arm before the Head, with part of the Navel-string, was so intangled in the String, that the After-birth had been considerably shocked by it, as I found by several clots of black Blood which closely adhered to that side of the After-birth which was loosened from the Womb.

The child was alive two hours before I brought it away, which I knew by the beating at the Navel-string; but as the Womb was not opened enough for me to extract it at that time, without dismembering it, I was obliged to wait till it was sufficiently dilated to permit me to extract it without violence. For this purpose I ordered the woman a Clyster, which quickening her languishing Pains, contributed to the sufficient dilatation of the Orifice, and exclusion of the Foetus, whose Waters were all run off two hours before I was called. The woman, though of a very delicate constitution, did very well after I delivered her. *Mauriceau.*

OBSERVATION XCVIII.

August 31. 1693, I delivered a woman of the After-birth of a small Foetus of two months, of which she had miscarried three hours before without any manifest cause.

The After-birth being retained in the Womb after the expulsion of the small Foetus, occasioned such a Flooding, that the woman had several times Fainting fits, out of which she recovered as soon as I had delivered her of that foreign mass; for the Flux then ceased, and the woman did very well. This was the eleventh child of which she had miscarried. *Mauriceau.*

OBSERVATION XCIX.

September 15. 1693, I delivered a woman of a False conception as big as a man's fist, in which I found a small Foetus quite withered, which was no bigger than a bee, though the woman had suspected herself with child near seven months, by the signs of Conception she had upon her from the first month after her last Menstrual evacuation.

Three full months ago she had been troubled with a continual Flooding, which shewed that Nature had attempted, from the beginning of that Flooding, to clear the Womb of its contents; but failing to accomplish it had been the cause that this False conception, being so long harboured there, and not quite loose from it, had received a considerable increase, and was grown to double the ordinary bigness of those False conceptions which women very seldom exclude but in the second or third month after Conception. And as this little Foetus, which was lodged in this great False conception, was no bigger than a Foetus of fifteen days, I suppose that the principle of life had been destroyed in it, from the beginning, by some other cause antecedent to the Flooding. *Mauriceau.*

OBSERVATION C.

November 3. 1697, A woman of this city gone about ten weeks, or three months, with child, felt some Colic pains, which were followed by Pains in the Loins, that at last bore down upon the Uterus. As she was a woman of good understanding, she was equally sensible with me, that this unhappy disposition tended to a Miscarriage; and we were confirmed in this sentiment by a frequent inclination to make water, which obliged her to make use of the chamber-pot, before I had time for a proper examination. During this effort to make water, she perceived something fall from her, which proved to be the Waters, followed immediately by the Foetus, which was so small, that being laid upon a paper, it was by the next morning shrivelled into the form of a thick dry Membrane.

This accident was followed by another much more dangerous, which was a violent Flooding, caused by the Retention of the little After-birth, the Navel-string of which was too small and tender, to be of any service for its extraction.

I did all that was possible to bring this After-birth away, and even proceeded to extreme violence, not regarding the advice of *Peu* and *Mauriceau*. I made use of one Finger in this operation, not being able to introduce a second, and by moving this round the Internal surface of the Uterus, I separated the Placenta from it, and extracted it, by bending the Finger, and making it serve as a blunt Hook, betwixt which and the opposite side of the Uterus I pressed the little After-birth; and brought it away at last intire, after which the Flooding immediately stopped.

The extraction of this After-birth, however little, was absolutely necessary, otherwise the woman must have perished by the Flux of Blood, which was so violent, as to make her in this little time very faint. *La Motte.*

August 2. 1692, I delivered a woman six months gone with child, who laboured under a great Flooding, occasioned by the intire separation of the After-birth, which presented first. She had several times fainted, and was in great danger of losing her life in a few hours, had I not speedily taken the child from her, which was dead before through the excessive Flux of Blood, which ceased as soon as I had laid her. Wherefore I was obliged, under the doubt I was in whether the child were alive or no, to return it, that I might take it by the Feet; which I did. But the operation signified nothing to the child, who was dead before, as I said; but it was beneficial to the mother, who recovered her health afterwards.

You are to observe that on these occasions, where the After-birth presents first to the passage, you are never to expect that Nature, who is extremely debilitated by the excessive Flooding, which always attends such a disposition, should of herself expel the infant. And therefore you are, with all expedition, to take it from the mother, if you desire to save her from death, and her infant too, if it be still alive. For if they are not speedily succoured, they must both die, because of the excessive Flooding, which cannot be stopped before the Womb is intirely delivered of both the Infant and the After-birth. *Mauriceau.*

OBSERVATION CII.

December 24. 1692, I attended a woman who, four days before, had miscarried of a Foetus of four months, but the After-birth still remained in the Womb, which had closed itself immediately after the expulsion of the child. The midwife finding herself at that time incapable of bringing it away, left it to Nature, who took care to discharge itself of it with a considerable Flooding in my presence. But as this Flooding had been excited only by the residence of that foreign mass in the Womb, it stopped as soon as Nature had expelled it, and the woman, recovering from the great weakness caused by the Flooding, enjoyed her health. *Mauriceau.*

Instances of Miscarriages from Acute Diseases.

OBSERVATION CIII.

The 1st of March, 1671, I attended a woman five months gone with child, who, after a continual Fever of three weeks, miscarried of an infant, which immediately expired, and she herself died two days after. The extreme danger she was in, was yet farther increased after her *Abortion*, as I plainly foretold the physicians who attended her, and who had flattered themselves that the evacuations of Child-bed would have mitigated the Fever, and disposed it to give way to proper medicines. Far from this, the Fever usually increases immediately after Delivery, and gains double force from the suppression of the Lochia, which almost constantly happens at that time, whence the Humours, which were the first cause of the disorder, immediately return back on the Internal parts. After this the patient has not long to live, because Nature, which is already oppressed with a distemper in its own nature dangerous, can by no means regulate and accomplish the necessary evacuation of the Lochia. For this reason, a physician who attends pregnant women during their illness ought, by all ways and means he can devise, to hinder *Abortion*, since most women, to whom that accident happens, die very soon after, especially such as have their Fever accompanied with a Defluxion on their Breast, of which I have seen many instances resembling the case of the woman I speak of, whom I opened after her death, and found the Lungs on the Left-side all suppurated, and abundance of serous and bloody matter on both sides the Breast, and the Liver quite dry and shrivelled. *Mauriceau.*

OBSERVATION CIV.

On the 16th of March, 1678, I delivered a woman twenty two years old of an infant six months grown, who lived but three hours. The mother had for nine days past laboured under a great Defluxion upon her Breast, and a continual Fever, for which she was five or six times bled by advice of the physicians, who attended her every day. But though she had been delivered with much ease, after no more than two short hours travel, I was yet persuaded that her illness, which was of a mortal kind, would grow upon her after her Delivery. For in order to entertain any hopes that the mother would receive benefit or relief by this accident, as the physicians vainly assured her, it was necessary that Nature should have been very regular in the due evacuations of Child-bed, which it could not well perform, being already oppressed with another distemper. And besides, towards the second or third day after Delivery, there usually happens a reflux of Humours to the Breast, for the generation of Milk. On these accounts I might well conjecture that this lady would die, as it actually came to pass the fourth day after she had been brought to bed. For her distemper had its principal

cipal seat in the Breast, where it had before made such a progress, that she began to have a Stertor from the time that I laid her. *Mauriceau.*

OBSERVATION CV.

June 19. 1685, I attended a woman who miscarried of a small child, three months grown, through the violence of a continual Fever, and was even growing delirious at the time of her miscarrying, which happened in the twelfth day of her illness. But though she was almost reduced to extremities, and the After-birth remained in the Womb, the midwife not being able to bring it away, yet she began to mend immediately upon Delivery, so that five or six hours afterwards the Fever was much decreased, and went off the next day, Nature also having in that time of itself expelled the After-birth, which remained behind.

This woman recovered contrary to my expectation; for I have often observed that it is extremely rare to see women who have a Fever, accompanied with a Defluxion on their Breast, survive these sorts of distempers. For they die, almost every one, in a few days after they are delivered in that bad condition; and I suppose that what mightily assisted this woman in such dangerous disorders was the soundness of her Lungs, which did not seem at all affected. *Mauriceau.*

OBSERVATION CVI.

February 3. 1692, I was sent for to deliver a woman who had miscarried the day before of a small Foetus of three months. I took from the Womb a small After-birth, all hardened, which Nature could never have discharged, and whose Retention had caused so excessive a Flooding, as to throw the woman several times into very great Faintings.

As she had a small and very quick Pulse, with very great inequalities, when I delivered her, which was not intirely owing to the Fever, of which she had been ill three weeks, but also to potions of Savin and Mugwort, and other heating medicines, which were prescribed for her, in order, as it was pretended, to procure the expulsion of the After-birth, I very much doubted her recovery, though I had delivered her without using any violence. However she did well enough afterwards, the relief I gave her in ridding her Womb of that After-birth being of more service to her, than all the Diuretic and Cathartic potions she had taken, which were so far from producing the effects expected from them, that they served only to increase the Flooding yet more and more. *Mauriceau.*

OBSERVATION CVII.

July 1. 1693, I delivered a woman of a Foetus of five months, which had been dead above twelve days, as appeared by its corruption. But the String of the Afterbirth, being very weak and rotten, broke; by which means the whole substance of the After-birth, which was very large, and as it were scirrhous, remained in the Womb, which immediately closing upon it, gave me no room to extract it till half an hour afterwards, when its Internal orifice being sufficiently relaxed to suffer an extraction without violence, I did the same with my Hand, only carrying it to the entrance of that Internal orifice, where I took hold of the Body of the After-birth which presented.

This woman, for ten or twelve days before, had laboured under a continual Fever, with Exacerbations, which had killed the child in the Womb, of which distemper, however, she had the good fortune to recover five or six days before this Miscarriage, and so escaped the great danger of life she must have been in, had the Miscarriage happened in the time of that disease, which it would not have failed to increase, as it usually happens, when Nature is weakened by so dangerous a distemper. *Mauriceau.*

OBSERVATION CVIII.

March 30. 1687, I attended a woman extremely ill, who had miscarried six days before of a dead child at the term of four months, having at that time upon her a continual Fever, with Pains in her Breast, and a Spitting of Blood. Her midwife had much ado to deliver her, and had even left a part of the After-burden in the Womb, which had no way to come off afterwards but by Suppuration, as I made appear before her physician, who had sent for me that we might consult together. But I found the patient in so bad a condition, that she could not hope to recover, and that her greatest disorder proceeded rather from the Fever, and Pain in the Breast, than from a small part of the After-birth left behind, which Nature would easily have got clear of, had it not been oppressed with the load of that pernicious distemper, which in a few days after put an end to the patient's life, as I had, with good reason, foretold.

Experience had taught me, that almost all women who have a continual Fever, with Pain in the Breast, at the time of a Miscarriage, die in a little time after, through the increase

that fatal distemper receives from the Suppression of the Lochia, which usually happens under those bad circumstances, whence all the Humours flow to the Breast, which was over-heated and disordered before, and there laying load upon load, compleat the Suffocation of the patient. *Mauriceau.*

OBSERVATION CIX.

December 8. 1681, I attended a woman, who, in the third month of her pregnancy had been seized with a considerable Flux of Blood, and had just then voided, amongst clots of Blood, a Membranous bag, of the bigness of a pullet's egg, full of water, in the middle of which I found a little Foetus of the bigness of a very small bee, which, to all appearance, ceased to grow and live six weeks before, at which time the mother was taken with a Quartan ague; the Body of this little Abort remaining in the same proportion which it probably had when the violent fit of the mother's Fever deprived it of the principle of life. *Mauriceau.*

OBSERVATION CX.

June 14. 1684, I attended a woman who lay at the point of death, from a continual Fever, with a Defluxion on her Breast, which caused her to miscarry three days before, in her third month, of a small dead child, corrupted all over. When I was told that two hours after the expulsion the woman voided some Membranes mixed with clots of Blood, which the midwife and the physicians who attended her took for the After-birth, I assured the husband and the midwife, who were present, that if the patient had voided nothing else since the child came away, she was not yet delivered of the After-birth, as indeed she was not. For these small Aborts are always expelled before the After-birth, which frequently remains in the Womb in these kinds of Miscarriages, if it is not expelled together with the child, as it happens when it comes enveloped in its Membranes. This woman's miscarrying under a distemper in itself mortal, joined to the corruption of the After-birth remaining in the Womb, a circumstance mistaken by the physicians and the midwife, hastened her death, which happened the next day after I saw her in that desperate condition, as I foretold to her husband. *Mauriceau.*

OBSERVATION CXI.

In the year 1704, a very uncommon distemper prevailed, both in town and country, which proved mortal to most of those whom it seized; but the old, the feeble, and the poor, escaped better than the young, the vigorous, and the rich. The patients were afflicted either with violent Heat, or a continual Shivering, with an Oppression, Pain in the Side, Cough, Spitting of Blood, and Vomiting.

June 22, a lady about three months gone with child was seized with the fore-mentioned distemper, and the symptoms seemed to have come all at once as it were to overwhelm the poor patient; only instead of the Heat she had an extreme and continual Shivering. I was sensible of the danger as soon as I saw her taken with so violent a disease in the time of her pregnancy, and therefore advised her to settle her affairs. As she had the Spirit of a man in the Body of a woman, she did it with resolution. And as I never knew her guilty of the least weakness in all the times of her lying in, during which I attended her, and as she had a perfect confidence in me, I began with Bleeding, as the only remedy that could relieve her, an Emetic being forbidden on account of her pregnancy, and the violent oppression she laboured under. But the great Chilness that seized her, had so concentrated her Blood, that the Extremities seemed to be deprived of it. I tried to recall the Heat into one of her Arms by vehement Friction; and holding under it a chafing-dish of coals, wrapped it up afterwards in towels heated very hot, till at last I found a Vein which appeared tolerably full. I opened it, and after a good deal of time, and several essays, drew from it several porringers of Blood.

I deferred a second Bleeding till the next day, in hopes that Heat would succeed that terrible Chilness, which was the more surprising as it was Midsummer: But I got nothing by it, the Chilness continued the same, as well as the Oppression, and the Stomach could bear no remedy because of the continual Vomiting; so that the absolute necessity I was under of relieving the patient, or suffering her to perish in this deplorable manner, determined me, notwithstanding the Lowness of the Pulse, to a Second Bleeding, whatever difficulties I might meet with, or how loth soever I might be to do it, in a case so desperate as hers. In short, I resolved upon it, and made use of the same means as the day before, however inconvenient the Artificial heat might be to the sick. I made a shift this time to draw off three good porringers of Blood, which relieved the patient considerably; the Chilness, the Cough, and the Spitting of Blood went off at the same time. There remained only a slight Pain in the Side, with some little Oppression, for the effectual removal of which I should have

have renewed the Bleeding, had she not complained of some slight Pains in the Belly, and about the Kidneys. Upon this I assured her that she was going to fall in Labour, which actually came to pass an hour afterwards.

I could not choose but foresee the nature of those Pains, which, slight as they were, yet increasing every moment, made me take precautions not to be surprised; and these Pains growing stronger and quicker, I touched the patient that I might be perfectly satisfied. I found the Waters formed, which broke away at the first Pain, and the child presenting in the right posture, came away, and was about the size of a mouse. I then delivered the mother with more trouble than I had about the child. And, though this is no proper place to mention it, I take occasion to say, that the String of so small an infant cannot be supposed thick or strong, so that I was obliged to follow it to the root, and with two Fingers to separate it from the Womb, before the Inner orifice had closed up; and then brought it away.

This lady was very ill for three or four days, though her Child was gone off. The resolution with which she took the Decoctions, the Jellies, the Hippocras of water with a little wine, and generally every thing which I prescribed for her, brought on the Lochia in abundance, as though she had lain in at the full term, which succeeded so happily that all symptoms vanished, and the Miscarriage, so dreaded by us both in the beginning, was in its consequences the means of health to this lady, who in the space of six weeks was perfectly recovered. *La Motte.*

OBSERVATION CXII.

August 7. 1704, A lady about four leagues from this city, ill of a continual Fever, with an Oppression of her Lungs, Pain of her Side, and spitting of Blood, sent for me.

As I had several times delivered her before, she had a great confidence in me, and therefore conjured me not to leave her, telling me she would rely intirely on my assistance.

I began by bleeding her in the evening, and at night I directed an Emollient clyster, and as the Fever with the above-mentioned symptoms continued, I determined to repeat Bleeding in the morning. Mean time I advised her not to neglect what was necessary on the part of religion, and endeavoured to comfort her by insinuating, that as she was only about five or six months gone with child, a Miscarriage would be no great misfortune, but on the contrary might be of service with respect to her other disorders. I then continued to do what I thought proper to mitigate her Fever, and divert the Flux of Humours from her Breast, which seemed by the perseverance of the Cough, Pain of the Side, and Fever, to threaten the patient with a great deal of danger. Thus I proceeded till the fifth day, when Labour-pains began to be felt. I had not been in her chamber above a quarter of an hour before they became so considerable, as to leave no room to doubt of an approaching Miscarriage, and for this reason I examined into the state of the Uterus, and found the Waters formed and the Membranes ready to break, inso-much that at the very next Pain the child was excluded alive.

As the Navel-string of so small a Foetus could not be very strong, I used all my endeavours to manage it to the best advantage, that it might give me some assistance in extracting the After-birth; but I could not succeed, because the Orifice of the Uterus, as is usual in such cases, contracted itself almost to its former dimensions, immediately after the expulsion of the Foetus, inso-much that, notwithstanding all the care I could take, it broke upon this motion of the Uterus, though I scarcely pulled it at all. But without losing a moment, I pursued my point so closely, that I found means to introduce four Fingers into the Uterus before it had time to contract itself intirely, and with these I separated the Placenta from it, and brought it towards the Orifice, till I laid hold of it with my Thumb and a Finger, and so brought it away.

The lady was very ill all the rest of the day, but got better the next, and continued mending for three weeks, at which time she was perfectly recovered. *La Motte.*

REMARK.

La Motte, in his reflection upon this case, says, that notwithstanding the encouragement he gave this lady, a Miscarriage was the accident from which he apprehended the most danger. And that he attributed her recovery to the abundance of her purgations, which did not cease in this case, as they usually do after Miscarriages caused by an acute distemper.

As therefore the life of the patient depends upon the continuance of the Lochia, in Miscarriages of this sort, the principal attention of a physician should be directed to encourage their discharge by all possible means.

OBSERVATION CXIII.

On the 23d of September, 1678, I attended a woman, who, after two days suffering great Pains in the Loins, with a

Fever and Head-ach, miscarried of a little Foetus about three months grown, four fingers breadth in length, and quite emaciated and withered, the After-birth being retained in the Womb, which had not been able to expel it, because the small dilatation, which that little shrunk Foetus had made, was not sufficient for its exclusion, being of a much greater bulk. As I found the Womb just open enough to receive one Finger, and no more, I thought it more prudent to leave the expulsion to Nature, than to attempt its extraction in that condition, because the violence necessary to be used in making a sufficient dilatation of the Orifice might have injured the patient, whose Body the day after the Miscarriage appeared covered all over with the Small-pox. But the second day, a small Flux of Blood coming on with some Pains, which a little dilated the Orifice, I made the most proper use of the opportunity, and brought away the After-birth effectually. But the Small-pox, which was very malignant, and accompanied with a continual Fever, and a violent Pain in the Head and Throat, carried off the patient the ninth day after her Miscarriage; to which perhaps the too frequent Bleedings in the Arm, no fewer than ten, prescribed by a physician, her brother-in-law, contrary to my sentiment, might not a little contribute.

OBSERVATION CXIV.

In 1687, the Small-pox raged in Valognes with much more than common malignity, so as to prove mortal to the greater part of those whom it seized, sparing neither age, condition, nor sex. Among others, a woman of fashion, gone about six months with child, was attacked with this melancholy distemper, which proceeded in the most favourable way that could be desired. The Fever was moderate, the Pustules large, round, and white, so that nothing seemed wanting or wished but an end of the distemper, which will have its time. Under this favourable situation, all on a sudden the woman was seized with a Convulsion. I happened to be present, and ordered her a glass of wine, on which her Pains came on, and I delivered her in a moment of a living child, which was followed by a Convulsion, and death immediately after. *La Motte.*

OBSERVATION CXV.

August 10. 1688, I attended a woman, who had just then miscarried of a child of six months, which she had carried above six weeks dead in the Uterus. For she had not gone above four months when she was seized with the Small-pox; since which time, though well recovered of the distemper, she had not felt the infant move. Before her Miscarriage she had a moderate Flux of Blood for five or six days, as a Forerunner of the same; but she did very well after Nature had, unassisted, expelled the dead child, which had only the proportions of one of four months and a half, about which term it died in the Womb. *Mauriceau.*

In the general account of the causes of Miscarriages, I have omitted *Longing*, which frequently occurs, though taken no notice of by the ancients, that I remember, and but little by any modern author of credit; though I have seen a few treatises wrote with a view to prove or disprove the reality of many effects attributed to it.

The accurate Hippocrates is silent on this head; Galen and Aetarius mention the word *σιόρα*, and Pliny takes notice of the distemper commonly called *Pica*, or *Picatio*, and other authors give an account of a distemper named *μαδαρία*. But *σιόρα*; *μαδαρία*; *Pica*, and *Picatio*, signify an inordinate desire to eat things, which are not properly the subjects of Appetite, as chalk, cinders, lime, and dirt; whereas the *Longing* of women with child is not confined to such trash; and besides, virgins who labour under Obstructions of the Menfes, are perhaps more subject to such unaccountable Appetites, than breeding women. Upon the whole, I am acquainted with no language, except the German, that has any word limited to the signification of that affection, which in English we call *Longing*; *des envies des femmes* of the French, the *voglia*, or *donna sugliata* of the Italians, have at the same time other significations. But we must not infer from hence, that the disorder, for such I must call it, is peculiar to our own country, for we know that the women of all other nations are subject to it as well as our own.

That a disappointment of the thing *longed* for is the cause of frequent Miscarriages, it would be superfluous to endeavour to prove, since I believe there is scarcely a man concerned in the practice of any one branch of physic, who has not been a witness of it: and daily instances put the thing beyond dispute.

I know no way of preventing a Miscarriage from *Longing*, except by indulging the woman in her Appetite, if the circumstances are such as render it possible. But if from the impossibility or neglect of this, any symptoms of an impending Miscarriage should appear, it would be prudent to endeavour to

avert it, by such rest, regimen, and gentle evacuations as the case requires, according to the rules above laid down; provided the Miscarriage is not too sudden to admit of such precautions, which is often the case.

ABRABAX, or ABRAXAS. A magical word, comprehending the days of the year in numeral letters. *Castellus from Libavius.*

ABRACADABRA. A cabalistical or magical word, recommended by Serenus Samonicus as a cure for that species of Fever, which physicians call a *Hæmitriteus*.

In order to have this good effect, the word must be wrote on paper, and repeated, dropping every time the last letter, so as to make it, when wrote, a kind of cone, thus:

ABRACADABRA
ABRACADABR
ABRACADAB
ABRACADA
ABRACAD
ABRACA
ABRAC
ABRA
ABR
AB
A

In this manner it is to be suspended about the Neck by a linen thread.

ABRACALAN. This is also a cabalistical word, to which the Jews attribute virtues equal to those of *Abracadabra*, and so far they are probably right. *Buxtorf.*

St. Chrysostom and St. Augustin are not pleased with these Amulets, which they look upon as idolatrous. But I would not propagate their doctrine, for fear of interfering with the sale of the famous Anodyne Necklace, the author of which has found means to make the Christians equal at least to the Heathens and Jews in point of superstition and folly.

But I must do the justice to *Abracadabra* and *Abracalan*, to say they have a meaning, which I don't find the Anodyne Necklace has; for *Selden de Diis Syris* informs us, that the two words mentioned above express the name of a Syrian idol. This charm therefore must be intended as a sort of invocation of that pretended deity.

ABRAHAM. This patriarch is esteemed by some to have understood physic, and to have taught it the Egyptians during his residence in their country. There is no foundation for this in scripture. What has given a hint for this tradition is, that the Persian Magi make Abraham the same as Zoroaster, the founder of the Chaldee and Persian religion and philosophy. *Schulzius. Herbelot.*

ABRASA. Ulcers attended with *Abrasion* of part of the substance; or Ulcers where the Skin is so tender and lax as to be subject to *Abrasion*.

ABRASAXAS. This is another magical word, said to be borrowed from Basilides, the Egyptian, which if inscribed in a circle, is said to keep flies from coming within the circumference. *Castellus from Libavius.*

ABRASIO. *Castellus* explains this, Superficial exulceration of the Membranous parts, attended with a Loss of substance in very small fragments.

Thus there is said to be an *Abrasion* of the Intestines, when the Internal Membrane is ulcerated, and very small pieces of it are excluded with the Excrement.

ABRASUM. The part *abraded* from the Ulcer.

In *Abrasions* the Skin is not to be cut off, but restored to its place, and some proper medicine to be laid over it; for by this means the *abraded* skin, though turned black, is often conglutinated. To preserve the parts affected from an Inflammation, anoint them with Powder of red Sumach, mixed with Honey; or the Beard of a Bull-rush burnt, and mingled with Honey like the former. *Oribas. de Morb. Curat. lib. iii. cap. 18.*

ABRATHAN, is *ABROTANUM*, Southernwood, numbered by the Jewish writers amongst the seven species of Hyssop. *Salmasius.*

ABRIC. Sulphur.

ABROTANOIDES. A kind of Coral, or, as the botanists call it, a *Porus*, which grows in the form of *Abrotanum* on the rocks at the bottom of the sea, as *Clusius*, who describes it, imagines. *Ray's Hist.*

ABROTANUM. SOUTHERNWOOD, called also *Old Man*, and *Lad's Love*. It is said to derive its Latin name from *αβροτα*, soft.

There are several sorts of this plant, but that meant by the college is the *Abrotanum mas Officinarium* Ger. 947. Emaculat. 1105. *Raii Hist.* 1. 371. *Abrotanum vulgare* J. B. 3. 192. *Abrotanum* Chab. 376. *Abrotanum mas vulgare* Park. 92. *Abrotanum mas angustifolium majus* C. B. 136. *Tourn. Inst.* 459. *Boerh. Ind. A.* 127. *Abrotanum mas vulgare Fuchsi.* *Hist. Oxon.* 3. 11.

Southernwood is very well known, being cultivated in most

gardens. It is a shrubby plant, which as it grows old will increase into a bush or little tree, having several brown woody twigs, or branches clothed with fine tender leaves a little like Fennel, but shorter, and of a hoary green colour underneath. The flowers grow upon the tops of the branches, and are very numerous, consisting of small naked round heads, of a yellowish green colour, in which lie small longish solid seed, or seeds, not inclosed in down. The leaves and flowers have a pleasant grateful smell, but with a little sourness. It flowers in July, the Leaves falling off from the Branches in the winter, and shooting out afresh every spring. *Miller.*

Ælian relates some singular virtues of this plant. He represents it as the gift of *Æsculapius* to mankind, and says it effectually cures difficulty of Respiration; and that it kills those monstrous worms, that sometimes grow to a prodigious length in the Intestines; but it cannot always in the last case be depended on.

Gulielmus Menens, in his treatise intitled *Vellus Aureum*, tells us, that if a Branch of *Southernwood* is laid under the pillow, it effectually preserves against those enchantments which induce Imbecillity. This I only mention as an instance of that extravagance to which a warm imagination, and a little enthusiasm, may expose men even of sense and learning.

Galen says it diminishes the cold fit of an Intermittent, if the patient is rubbed with it first before its invasion, and adds, that it kills worms.

The Leaves and Tops are in use, and the virtues attributed to them by modern authors are, that they are good against Putrefactions and Poisons, and the Bites of venomous creatures, as Scorpions and Spiders. They kill worms; and are sometimes used for the Suppression of Urine, and the Terms, and in Hysteric disorders. They are frequently put in warming and strengthening ointments. The Juice of the Leaves, as also a Lixivium of the Ashes, is highly commended against the falling of the Hair and Baldness. *Miller from Ray and Galen.*

The Tops boiled in wine or water, with an addition of sugar, are of service in difficulty of Breathing, Asthmas, Coughs, and other disorders of the Lungs.

It is also said to cure the Jaundice. *Ray. Dale. Miller.*

Matthioli recommends the dried powder of the Leaves in a Fluor albus.

The ancients used to infuse this in oil, in order to give the oil an aromatic agreeable smell.

A decoction of *Abrotanum*, in sea or salted water, is much recommended by *Heister* for stopping a Gangrene.

The second sort referred to by the College, is the

Abrotanum fœmina (*Chamæcyparissus*) Lavender Cotton, Off. and Ger. *Abrotanum fœmina vulgaris*, ordinary Lavender Cotton, Park. *Fœmina foliis teretibus*, Female *Abrotanum*, with roundish Leaves, C. B.

This is also called *Santolina*.

It is a shrubby plant, holding its Leaves all the winter. It has many woody, brittle, hoary Stalks, beset with longish, white and hoary Leaves that appear four square, and somewhat resemble the Leaves of our common Heath; of a very strong, though not unpleasant scent, and a hot and bitter taste. On the tops of the Branches stand long Stalks, each bearing a single naked Flower, made up only of a thrum of small yellow fistular five-corner'd Flosculi, without any border of Petala, standing together in a scaly Calyx. The Seed is small, longish and striated; and the Root firm, hard, and durable, divided into several fibrous Branches.

It grows naturally in Italy, and the warmer countries, but is planted with us in gardens, where it frequently serves for borders and edgings. It flowers in July and August.

The Leaves, and sometimes the Flowers are used, and are reputed to have great success in destroying Worms, the Leaves and Flowers being boiled in milk, and taken fasting. The ancients commend it as good against all sorts of poisons, and the bites and stings of venomous creatures, as likewise against Obstructions of the Liver, the Jaundice, and to promote the Menstrues, being given infused in wine. *Miller.*

Dale mentions a third sort used in medicine, thus described.

Artemisia tenuifolia, Offic. *Hist. Oxon.* 3. 6. *Artemisia tenuifolia seu Leptophyllos*, aliis *Abrotanum*, J. B. 3. 194. *Artemisia tenuifolia seu Leptophyllos*, quibusdam *Abrotanum sylvestre*. Chab. 375. *Abrotanum campestre*, Ger. 948. Emac. 110. 6. *Raii Hist.* 1. 371. Synop. 3. 190. C. B. Pin. 136. Park. Theat. 94. *Tourn. Inst.* 459. *Boerh. Ind. A.* 1. 27. *Abrotanum inodorum*, Schwenck. 5. Fine-leaved Mugwort.

This is sometimes substituted for the *Abrotanum mas*, and is said to mitigate Pains of the Stomach, and Nerves. *Dale.*

Miller reckons eighteen sorts of *Southernwood*, the first and last above-mentioned included.

1. *Abrotanum mas angustifolium majus*. C. B. Pin. Common Southernwood.

2. *Abrotanum mas angustifolium minus*. C. B. P. The lesser and narrower-leaved Southernwood,

3. *Abrotanum mas angustifolium majus*. C. B. P. Greater narrow-leaved Southernwood.

4. *Abrotanum latifolium inodorum*. C. B. P. Broad-leaved Southernwood without scent.

5. *Abrotanum mas angustifolium incanum*. C. B. P. Hoary narrow-leaved Southernwood.

6. *Abrotanum campestre, cauliculis albicantibus*. C. B. P. Fine-leaved wild Southernwood, with whitish Stalks.

7. *Abrotanum campestre, cauliculis rubentibus*. C. B. P. Fine-leaved wild Southernwood, with reddish Stalks.

8. *Abrotanum campestri simile Tingitanum*. H. L. Tangier Southernwood, resembling the wild sort.

9. *Abrotanum campestre incanum, Carlinæ odore*. C. B. P. Hoary Field Southernwood, with a smell like the Carline Thistle.

10. *Abrotanum humile, corymbis majoribus aureis*. H. R. Par. Dwarf Southernwood, with larger golden Flowers.

11. *Abrotanum Hispanicum, Absinthii Pontici folio*. Tourn. Spanish Southernwood, with a Pontic Wormwood Leaf.

12. *Abrotanum Hispanicum maritimum, folio crasso splendente & rigido*. Tourn. Spanish sea Southernwood, with a thick shining, stiff Leaf.

13. *Abrotanum mas ex Surinam molli hirsutia canescens*. Pluk. Almag. Hoary Male Southernwood from Surinam.

14. *Abrotanum elatius subincanum, foliis creberrimis, secundum caulem in metæformam fastigiatis*. Pluk. Almag. Taller hoary Southernwood, with frequent Leaves gathered into a kind of pyramid.

15. *Abrotanum Orientale annuum, Absinthii minoris folio*. Tourn. Cor. Annual Eastern Southernwood, with a Leaf of the lesser Wormwood.

16. *Abrotanum Orientale, Chamæmeli folio*. Tourn. Cor. Eastern Southernwood, with a Chamomile Leaf.

17. *Abrotanum Africanum, foliis argenteis angustis, floribus spicatis capitulis copioso tomento donatis*. D. Sherard. Raii Supp. African Southernwood, with narrow silver Leaves, spiked Flowers, and very woolly Heads.

18. *Abrotanum Africanum, foliis argenteis angustis, floribus umbellatis, capitulis tomentosis*. Raii Supp. African Southernwood, with narrow Silver Leaves, umbellated Flowers, and woolly Heads.

ABROTONTES. A Wine mentioned by Dioscorides impregnated with *Abrotanum* or *Southernwood* in this manner:

Take of *Southernwood* bruised and sifted a hundred Ounces (*Oxyria*, an Ounce, is eighteen Penny-weight five Grains $\frac{1}{2}$ Troy) inclose it in a linen bag, and put it into a vessel containing about seven gallons (*κεράματα*) of Must.

It is good in disorders of the Stomach, Loss of Appetite, and in a Jaundice, for it is Diuretic. *Dioscorides*. l. 5. c. 62.

ABRUPTIO. The same as **ABDUCTIO**.

ABRUS. A kind of Red Phaseolus, or Kidney-bean, growing in Ægypt and the Indies. *Ray's Hist.*

ABRUS, Offic. Veslin. Obs. 25. *Phaseolus ruber Abrus vocatus*, Alp. Ægypt. 76. *Phaseolus Glycyrrhizites folio alato, Piso coccineo, atra macula notato*. Cat. Jamaic. 70. Hist. Jamaic. 1. 80. Tab. 112. *Phaseolus alatus major, Fructu coccineo, macula nigra notato*, Corneil. in Not. Hort. Mal. 8. 72. Flor. Mal. 211. *Phaseolus Indicus ruber Bontio*, Raii Hist. 1. 889. *Phaseolus secundus ruber, qui Abrus Prospero Alpino dicitur*, Bont. 136. *Phaseolus ruber Abrus vocatus, minor coccineus, nigra macula notatus* Hist. Oxon. 2. 71. *Phaseolus arborescens alatus et volubilis major Orientalis, fructu coccineo, hilo nigro notato*, Pluck. Phytog. T. 214. F. 5. *Pisum Indicum minus coccineum, aliis Abrus*, J. B. 2. 263. *Pisum Americanum coccineum vel nigrum, Abrus quibusdam*, Chab. 403. *Glycyrrhiza Indica vulgo*, Herm. Cat. 494. *Glycyrrhiza Indica siliquis & seminibus Pisi coccineis, hilo nigro notato*. Par. Bat. Prod. 337. *Glycyrrhiza vel (si mavis) Glycyrrhiza affinis arborescens Americana, floribus ex luteo & rubro variegatis, folio acuminato, siliqua latissima*, Breyn. Prod. 2. 53. *Arachis Indicus sive Africanus*, Parkinson. Theat. 1071. *Konni*, Hort. Mal. 8. 71. *Olinda, Olida*, Herm. Mus. Zeyl. 16. **ANGOLA SEEDS.**

It is imported from both the Indies. The seeds are used; there are two sorts in the shops; one of the size of a large pea, of an ash colour, inclining to black; the other a little bigger than a common tare. Both are of a scarlet colour, with an eye of black. They are much commended for Inflammations of the Eyes, to dry up Rheums, to strengthen the Optic nerves, refresh the Spirits, disperse Cloudy vapours of the Brain, and to clear the Sight. The lesser sort is worn as an Amulet about the Necks of children. *Dale.*

ABSCEDENTIA. Decayed parts of the Body, which in a morbid state, are separated from the sound, or lose that Union which was preserved in a perfect state of health.

ABSCISSIO. *Ἀπόρριξις*. This signifies exactly the same as **ABSCISSUS**.

ABSCISSUS. *Ἀπόρριμτος*. The words *ἀπόρριξις* and *ἀπόρριμτος*, used very frequently by Hippocrates, are translated by Celsus *Abcessus*, and sometimes *Vernix*. Hence the word *Abcessus*, generally used by modern authors to signify a Suppurated Phlegmon, or Inflammatory Tumour, though sometimes it signifies a Tumour of any other kind, which will not admit of discussion, as all Encysted Tumours.

These words seem originally, by their derivation, to import any sort of exclusion of morbid matter, *ἀπόρριξις* and *ἀπόρριμτος* signifying to recede and retire. Accordingly they are generally used by Hippocrates to express any critical removal of offending humours from the vital parts, either to some of the emunctories for an immediate discharge, as the Glands of the Intestines, Kidneys, or Skin, whence they are eliminated by plentiful Stools, Urine, or Sweat; or to some part where they find an easy egress by the rupture of a Blood-vessel, as the Uterus, or Nose; or to some Muscular part, or Gland, whence they cannot so easily be expelled, and therefore stagnate and putrefy, and at last are separated in the form of Pus, or Matter.

Sometimes also Hippocrates means by these words the transmutation of one distemper into another, as of a Quinsey into a Peripneumony, or of a Continual fever into a Quartan. And sometimes the mutilation, or destruction, of a part by the morbid matter of a distemper fixing upon it.

Hippocrates also uses the word *ἀπόρριξις* to express the fracture, or exfoliation of a Bone, when the parts of it, which were contiguous in a state of health, recede from each other.

Paulus Ægineta seems to have limited the signification of *Abcessus* to Suppuration, by defining (*ἀπόρριμτος*) *Abcessus*, a corruption of the Flethy parts, Muscles, Veins, and Arteries.

Amongst the many significations of an *Abcessus*, I shall confine myself principally to that which is the consequence of an Inflammation, this being what surgeons usually mean by it. See **INFLAMMATION**.

When the Tumour of an Inflammation increases, as well as the Pain, Heat, and Pulsation, attending thereon; when the Fever persists obstinately, and these symptoms continue for three days, notwithstanding all endeavours for Resolution, we may expect that Matter will be formed in the part. And we may be sure that it is forming, if the patient feels frequent shivering fits, resembling the access of an Intermitting fever. *Hippocrates, Boerhaave.*

When this is the case, the intention of resolving is intirely to be laid aside; because if applications proper to resolve the Tumour are continued when resolution is no longer possible, the most fluid and volatile parts of the obstructing Humours will be dissipated, and the more gross and inactive particles will be dried and hardened, so as to prevent Suppuration, or render it difficult, and then a troublesome induration of the part will remain, or, if Glandulous, a Scirrhus will be formed. For this reason, Camphorated Spirits, as a Topic, are particularly improper; and high Cordials, when the Inflammation is Internal.

Particular regard is to be had to this caution in Inflammatory Tumours of the Breasts.

Instead therefore of persisting in the use of resolving applications, the chirurgical indications are

1st. To ripen the contained Humours, as yet somewhat crude, into a well digested Pus, or Matter, and at the same time to soften the containing Tumour, and adjacent parts; and invite the matter outwards, that when ripe, it may more readily be discharged externally, either by breaking spontaneously, or by an artificial opening.

2d. To let out the Pus or Matter when matured, then to mundify the Ulcer, and afterwards to cicatrize and heal it.

It is to be observed, that when the Matter is discharged, the *Abcessus* loses its name, and becomes an Ulcer, which must be mundified, till it looks red at the bottom, before it can heal.

The first indication is answered by applications which stimulate and increase the heat of the part, or of the general habit, or which, at the same time that they increase the heat, mollify the Tumour, and by obstructing the Pores, confine the volatile and fluid parts, that they may not perspire thro' the Skin, and be dissipated.

For this purpose the following Gums are recommended, Ammoniacum, Bdellium, Elemi, Galbanum, Opopanax, Sagapenum. *Boerhaave.*

All emollient and relaxing applications contribute to this end, of which the following forms may serve for examples.

Take of Rye meal four ounces,
Of Vinegar two drams,
Of Gum galbanum, dissolved in the yolk of an egg, one ounce;
Boil them with water to a Cataplasm, to which add
Of Oil of White lillies, one ounce. Mix.
Take of green leaves of Wood-sorrel four handfuls,
Of Butter unsalted one ounce;
Let them be boiled gently over the fire, adding by a little at a time
Of Barm two ounces,
Of Gum sagapenum dissolved in the Yolk of an egg four drams;
Make a Cataplasm according to art.

Take

Take of Honey boiled a little thick four ounces,
Of Onions roasted under the embers three ounces,
Of Fat figs four ounces;
Boil them with a very little Water to a Cataplasm, to which
add

Of Linseed powdered one ounce and a half. Mix.

Take of Oat-meal one ounce,
Of Linseed fresh powdered two ounces,
Of White lilly roots three ounces,
Of Flowers of marsh-mallows one ounce;
Boil them in New-milk, and add,
Of Unsalted butter two ounces;
Make a Cataplasm. *Boerhaave.*

Take of the herbs Mallows,
Marsh-mallows, } each one handful;
Wall-wort, and
Chamomile,
Linseed, or Foenugreek powdered, two
ounces;
Boil them in Milk or Water over a slow fire to the consistence
of a Cataplasm, afterwards add
Of Barm two ounces,
Gum galbanum dissolved in the Yolk of an egg one ounce,
Spread it upon a double cloth, and apply it warm to the Tu-
mour, and repeat it very often.

Take of the Leaves of Mallows, and Brank-Ursine. each two
handfulls,
Fat figs bruised, number six;
These must be boiled in the manner above-mentioned, to
which add
Of Onions roasted under the embers, and Butter unsalted,
each two ounces; and lastly, as much of powdered Linseed
as is sufficient to make a Cataplasm.

Take of White lilly roots two ounces,
Of the herbs Wall-wort,
Mercury, and } each one handful,
Melilot,
Fresh Figs bruised, number six;
Let these be well boiled in Water, and mixed with
Gum Ammoniacum and Sagapenum dissolved in the Yolks
of eggs, and good Vinegar, each one ounce,
Linseed oil an ounce and a half;
Mix and make a Cataplasm.

Take of Wheat flower two or three handfulls,
Boil them in a sufficient quantity of Milk, to which add
Of Gum Bdellium, and Opopanax dissolved in the Yolks
of eggs, each one ounce,
Of Saffron one ounce;
Make a Cataplasm. *Heister.*

Mean time the motion of the Blood must be regulated in such
a manner, that the Fever may be great enough to produce heat
sufficient for the formation of Matter, and at the same time not
so excessive as to cause a mortification.

Here a great deal of judgment is required to regulate the Re-
gimen, Medicines, and Topical applications; for it is not possible
to specify an exact method suitable to every case that occurs.
The general heat of the Body must be considered, and if it ap-
pears deficient, it must be increased by a warmer Regimen, and
warmer Medicines; because a certain degree of a Fever is ab-
solutely necessary to the formation of Matter.

But if the Fever appears already too great, it must be mode-
rated by an opposite Regimen, and contrary Medicines.

The same regard is to be had to the actual and potential Heat
of Topics.

Thus when a Tumour of this kind happens in a constitution,
that is Hypochondriac, or worn down with a Quartan, or in
the Breast of a woman of a lax habit, who gives suck, attended
with little or no Fever, the heat of the Regimen, Medicines and
Topics must be increased, in order to promote Suppuration.
But if the Tumour happens in a young florid constitution,
and the Fever and Heat are excessive, the Regimen and Medicines
must be relaxing, and the applications emollient, without any
mixture of warming ingredients.

The Small-pox will illustrate the doctrine I would inculcate
in regard to *Abcesses*, where if the Fever and Heat are not suffi-
cient to bring the Pustules to Suppuration, those little inflamma-
tory Tumours collapse, and the Morbific matter finding no
other way of being excluded, the patient dies.

On the contrary, if the Fever exceeds the proper bounds,
and becomes excessive, Ichor is formed instead of Pus, and
the parts under the Pustules appear livid, and mortify.

But if the Heat is neither deficient, nor redundant, the
Suppuration proceeds regularly, and the patient by means
thereof recovers.

Particular care must be taken that the Tumour is not opened
till all the obstructing Matter, and injured Vessels are converted
into Pus; otherwise that part which remains unsuppurated will

harden, and the Ulcer will discharge Ichor instead of digested
Pus, when exposed to the Air.

On the other hand, it is dangerous to let the Pus remain in
the Tumour after it is once perfectly formed. Because it will
putrefy, and becoming acrid, corrode the adjacent parts, and
form Sinusses and Fistulas, which in many parts are very difficult to
cure, and oftentimes fatal. Or else when the more fluid parts
are dissipated by Perspiration, or are absorbed by the Vessels
opening into the *Abcess*, the remainder concreting causes an
Induration of the parts, or a Scirrhus if it happens to be glandu-
lous.

But in large Suppurations especially, it is of great impor-
tance to discharge the Pus, or Matter, when perfectly formed,
or, to use the common expression, when ripe, for another rea-
son, which is, that otherwise it will be absorbed by the Vessels,
whose Orifices are already opened, and hourly enlarged by the
Erosion of the confined Matter.

Hence Pus is mixed with the Blood, which is thereby in-
fected, the consequences of which are a Hectic fever, and fre-
quently a Metastasis, or translation of the Morbid matter, which
ought to be discharged, to some of the Viscera, which last is
more or less fatal, in proportion as the function of the part
which receives it is necessary to health and life.

But the part most subject to receive ill impressions from
the absorbed matter is the Lungs, and then the last scene of
the tragedy is a Consumption, which terminates frequently in
death.

The Liver also is not free from danger, being often infected
by the purulent matter deposited in some part of it. However,
in this case, the Pus sometimes finds a way through the Biliary
ducts into the Duodenum, and is thence excluded by a puru-
lent Diarrhoea.

Or it sometimes happens that the Matter, before it is de-
posited on any particular part, is by a singular happiness of
Constitution determined to the Intestines, or Glands of the
Kidneys, and thence discharged by Stool or Urine.

Hence appears the manner how the Matter of internal *Ab-
cesses* is taken into the Circulation, and again separated from the
Circulating fluid by the Intestinal or Renal glands.

I am sensible there are some bold enough to deny, that this
Resorption of the Matter, in case of Internal *Abcesses*, is possible.
But I may safely appeal to the experience of every physician in
Europe, who has regarded such cases with an attention equal to
the importance of his profession, for the truth of the fact.

When the Integuments of the *Abcess* and the parts adjacent
are softened and relaxed by the Topics specified above, and their
resistance is so far diminished, as to yield to the pressure of the
included matter, which at this time tends outwards, Boerhaave
recommends Emollient and Oily applications, mixed with some
ingredients moderately acrid. By means of these he expects
the Integuments will be rendered more thin, and less sensible,
and consequently that the *Abcess* may be laid open with less
pain and trouble.

The example he gives of a form is thus:

Take of old Barm two ounces,
Venice Soap scraped two drams,
Honey half an ounce,
Oil of Chamomile by infusion two drams;
Make a Cataplasm.

Much like this is that recommended by Heister.

Take of Barm three ounces,
Honey an ounce,
Venice Soap scraped half an ounce,
Oil of white Lillies, a sufficient quantity to make it into
the form of a Cataplasm.

When the Tumor is grown soft and white, and the surgeon
feels a fluctuation of Matter within, when he presses it with
his Fingers; when the Pain, Heat, Redness, Tension and
Pulsation of the Part cease, and the Fever disappears, and at
the same time the Tumour rises in the form of a Cone, be-
ing attended with a sensation of weight, we may be sure the
Pus is sufficiently matured, and must then immediately pro-
ceed to give it vent. But as an Aneurism is attended with some
of these appearances, care must be taken not to mistake that
for an *Abcess*. See ANEURISM.

Celsus thinks it the most adviseable way to treat the Tumour
with emollient Cataplasms till it breaks spontaneously, provided
the Matter does not lie deep. For he says those *Abcesses*, which
are thus left to the conduct of Nature, are less subject to leave
unseemly scars.

But because the Matter when pent up may have the ill
effects mentioned above, most surgical writers agree that it
should be let out either by Incision, or Caustic, and of these
Incision is generally preferred.

The Incision is to be made in this manner. Let the opera-
tor with one Hand press the Matter into the most prominent
part of the Tumour, and with the other thrust the Incision-knife
into the *Abcess*, till the Pus appearing at the Orifice, convinces
him that he has penetrated far enough. Then let him elevate
the Knife, and by that means enlarge the Wound; or else pass the
the

the point through the opposite side of the rising Cone, and then divide the intermediate Skin and Flesh, always taking care to begin the Incision at the lower part of the Cone, for the more convenient discharge of the Matter.

Mean time the operator must carefully avoid the subjacent Nerves and Blood-vessels, especially if any that are considerable are in danger; and must take care that he does not divide any Muscle transversely.

Galen, Paulus, and Fabricius ab Aquapendente agree, that the Incision should be made according to the rectitude of the Fibres, as they express it, by which they mean, that the wound should be made parallel to the course of the Fibres of the part which lies under the Skin.

This caution is principally intended to prevent cutting a Muscle or its Tendon transversely, or dividing a Nerve or large Blood-vessel, each of which would be attended with accidents very troublesome always, and generally irreparable. Thus the division of a Blood-vessel would cause a great Hemorrhage with all its inconveniencies; the division of a Nerve; a Palsy of the part to which it communicates sensation and motion; and the transverse section of a Muscle would infallibly be followed by an utter deprivation of motion in the part it was destined to move.

The course of the Fibres is so various in different parts, that it is not possible to lay down particular rules for the direction of the Knife. The surgeon therefore, before he attempts making an Incision, ought to be perfectly well acquainted with the Anatomy of the part intended to be cut; for this alone can instruct him how to take his measures, in order to avoid the accidents mentioned above.

I have met with three instances, where, for want of this necessary knowledge, the Muscle which elevates the Supercilia has been divided transversely, the consequence of which was; that they immediately fell down upon the Eye. This was the more inexcusable, because Aquapendente, an author every surgeon is supposed to read, cautions particularly against it.

When the Incision is made, the sides of the *Abscess* may be pressed gently with the Hand, in order to express out of it all the Pus that is formed. But in some *Abscesses*, where the quantity of Matter is very large, chirurgical writers advise to let a part of the Pus remain till the next dressing, for fear the patient should faint when it is discharged all at once. But this caution is seldom necessary.

When all this is done, the Aperture must be considered as a common wound, and treated with Mundificative, Suppurative, Digestive, Balsamic, Detergent, and drying Applications, varied according to circumstances, as is amply specified under the article VULNUS, but without Tents, which are extremely pernicious; mean time guarding it as much as possible from the access of the Air.

When a Caustic is preferred to Incision, it must be laid on that part of the Tumour, which appears to the surgeon most convenient for the discharge of the Matter.

Proper forms of Caustics, and the manner of applying them, will be specified under the article CAUSTIC, which see.

When an *Abscess* is already burst, we are to be guided by the Probe where to dilate. The usual method of opening farther is with the Probe-scissars; and indeed in all *Abscesses*, the generality of Surgeons use the Scissars, after having first made a Puncture with a Lancet. But as the Knife operates much quicker, and with less violence to the Parts than Scissars, which squeeze at the same time that they wound, 'twill be sparing the patient a great deal of pain to use the Knife, wherever it is practicable, which is in almost all cases, except some Fistulas in Ano, where the Scissars are more convenient. The manner of opening with a Knife is by sliding it on a Director, the groove of which prevents its being misguided. If the Orifice of the *Abscess* be so small as not to admit the Director, or the Blade of the Scissars, it must be enlarged by a piece of a Sponge-tent, which is made by dipping a dry bit of Sponge in melted Wax, and immediately squeezing as much out of it again as possible between two pieces of tile or marble; the effect of which is, that the loose Sponge being compressed into a small compass, when any of it is introduced into the Orifice of an *Abscess*, the Heat of the Part melts down the remaining Wax that holds it together, and the Sponge sucking up the moisture of the *Abscess* expands, and in expanding opens the Orifice wider, and by degrees, so as to give very little pain. *Sharp*.

If during the treatment of an *Abscess* the patient sleeps well, and breathes easily; if he has a tolerable Appetite, and little or no Thirst; if the Fever, which accompanied the formation of Pus, disappears; if the Pus discharged is white, of an equal consistence, and not foetid, from these circumstances we may draw a favourable prognostic.

On the contrary, want of Sleep, difficulty in Breathing, Thirst, Inappetency, or loathing of Food, a Fever, Pus that is black, of an unequal consistence, and foetid, eruptions of Blood, a generation of spongy Flesh, or a Callosity of the Lips of the wound before Incarnation is completed, are esteemed very bad symptoms. But Faintings either during the dressings, or afterwards, are still worse.

Some regard also must be had to the original distemper, of which the *Abscess* is as a Crisis; for if that disappears on a sudden, and the Tumour immediately follows, or if it continues after the discharge of the Pus, danger is in both these cases to be apprehended. *Celsus*.

To this general account of *Abscesses* I shall add the opinions of some of the ancients, and the chirurgical writers of our own country, that I may omit nothing which may tend to the information of those whose interest or inclination it may be to understand this subject. Some repetitions of what has been already taken notice of are unavoidable, and may possibly have their use, as contributing to the confirmation; or farther illustration of the doctrine already advanced.

Suppuration is an effect of many Distempers. If a long Fever without Pain continues without manifest cause, the Disease bends its force to some particular part, I mean in young persons; for in the aged it generally turns to a Quartan. A Suppuration happens in like manner, when a Hardness and Pain in the Præcordia fail to carry off the patient before the twentieth day, and there is no Hemorrhage from the Nostrils; especially in the younger sort; but Dimness of Sight, and a Pain in the Head, were among the first symptoms. In this case the *Abscess* forms itself in some of the lower parts. But when there is a soft Tumour of the Præcordia, which does not go off within sixty days, the Fever continuing all that while, expect an *Abscess* in the Upper parts, which, if there was no Hemorrhage from the Nostrils at the very beginning, will break out about the Ears. And since almost all inveterate Tumours tend to Suppuration, a Tumour of the Præcordia inclines that way more than one in the Belly, as does a Tumour above the Navel more than one below it. If there be also a sense of Lassitude in a Fever, there is an *Abscess* forming in some of the Joints, or in the Jaws. Sometimes a thin crude Urine continues so long, till other salutary signs supervene; in which case there will be an *Abscess* below the Septum transversum [Midriff] which the Greeks call διάφραγμα [the Diaphragm]. Pain in the Lungs, which cannot be alleviated by Spitting, Cupping, Bleeding, or Regimen, sometimes excites Abscesses, [Vomicæ] about the twentieth, thirtieth, or fortieth day; or, though but seldom, about the sixtieth, counting from the day when the patient began to be feverish, or shivering, or felt a heaviness in that part. But these Abscesses rise sometimes in the Lungs, sometimes on the Ribs. The Suppuration excites a Pain and Inflammation of the part which it affects. A greater heat is felt in that place than elsewhere, and the patient in lying on it fancies he lays a weight upon it.

A Suppuration before it comes in sight may be thus discovered: if the Fever does not leave the patient, but remits by day, and increases in the night, much Sweat arises, there is a desire to cough, but little or nothing spit out; the Eyes are hollow, the Cheeks red, the Veins under the Tongue look white, the Nails of the Fingers are crooked; the Fingers, especially the tops of them, burn; the Feet swell, there is a difficulty of Breathing, with a Nausea, and Pustles arise all over the Body. But if the Pain and Cough, with the difficulty of Breathing, afflicted the patient from the beginning, the *Abscess* will be formed on, before, or about the twentieth day; if these symptoms appeared later, they will of necessity increase, but the later they came, the slower will be their Solution. When the distemper is very violent, the Feet with the Toes and their Nails use to turn black; in which case, if the patient escapes from death, yet his Feet mortify. *Celsus*, lib. ii. cap. 7.

ABSCESSSES IN THE URETHRA.

Small *Abscesses* in the Urinary passage, called by the Greeks, φέμματα, are healed by the evacuation of Pus from that part. *Celsus*, lib. ii. cap. 8.

AN ABSCESS OF THE LUNGS.

Such as labour under a Peripneumony, attended with a collection of Phlegm, which is not dissolved, survive; but after the distemper has spent its rage, are afflicted with an Empyema, or *Abscess* of the Lungs. Now when this comes to perfect Maturation, it requires not so much Care and Pains to break and evacuate it, as one that is seated in the solid parts of the Body; for the Pus is easily expelled, being more readily diffused through the thin Vesicles, than through the Habit of the Body. For the Lungs are a soft and fine substance, and full of pores like a sponge, and can never be hurt by moisture, but propels it from narrower to still wider passages, till it comes at last to the Trachea. The circulation of Liquids is not difficult, and the Pus is a flexible lubricous substance, and forwarded in its Expulsion by Respiration. The patients generally recover, except perhaps one here and there, who is suffocated by the sudden Eruption and Redundancy of the Pus, which stops the Trachea, and intercepts the air; though some die lingering of a Consumption or Empyema. The Pus in this case is white and frothy, mixt with Spittle, sometimes of an ash colour, or blackish. Sometimes when there is a great Exulceration, and the *Abscess* is very deep, a small branch of the Aspera Arteria, and with it some fragments of the Lungs themselves are expelled by Coughing. The patient is hoarse, breathes

breathes short, speaks in a deep tone; the Thorax is enlarged, yet seems too narrow for the redundant Phlegm; the Black of the Eye is shining, and the White of an extreme whiteness as if it was fat; the Cheeks are red, and the Veins of the Face prominent. What is real matter of admiration in this case is, that the tone of the Nerves as far exceeds the Habit of the Body, as it is itself surpassed by the vigor and alacrity of the Spirits. *Aræteus επι αὐτῶν καὶ σπλῆνις χροῖα παλὴν. Lib. i. cap. 10.*

AN ABSCESS OF THE LIVER.

If the Liver be affected with an Inflammation, and the Matter be converted into Pus, the Pain extends to the Throat, and extremity of the Shoulder. For the Liver by its weight draws the Diaphragm, by which it is suspended; and the Diaphragm draws down with it the Membrane that lines the Ribs, because it is connected to it, which Membrane is known to reach as far as the Throat, and Top of the Shoulder; and all these parts together are forced downwards. While the Suppuration goes on, a burning Heat, with Shiverings, and a dry but not very frequent Cough afflicts the patients, who become of a green herbaceous colour, or, if inclined to a higher degree of the Jaundice, somewhat pale, and their Sleep is not altogether free from troublesome dreams; they preserve their senses, unless perhaps some sudden cause makes them delirious for a time, from which they soon recover. A Tumour arises under the Paps, or the Ribs, which has been often mistaken for a Tumour of the Peritonæum. If the Tumour be under the Bastard-ribs, the Liver is painful if touched, and swells, being full of Humours. If these appearances are not limited to the Hypochondrium, it is a sign that the Tumour is in the Peritonæum; the distinction is easy; for in touching the place, after you have carried your Hand over the Lobes of the Liver, you meet with nothing further but the Vacuities of the Abdomen. But the Hardness of the Peritonæum is not circumscribed, and the Limits of its progress are not manifest. See what is said about the Distinction of these Tumours under ABDOMEN.

If the Abscess be formed in the inward parts, Nature is by far the best physician, by diverting the Pus to the Intestines, or the Bladder; the latter of which is much the safer way. But if it tends outwardly, it is not safe to neglect Incision, for want of which the Liver is corroded by the Pus, and death soon follows. If you venture on Incision, the patient is in danger of being suddenly carried off by an Hæmorrhage, which from the Liver is not to be stopped. But if you find it necessary to make a Perforation, intrude a red-hot iron as far as the Pus, which will perform the operations of Incision and Cauterising at the same time. And if the patient has the good fortune to recover, the Pus will be white, ripe, uniform, inodorous, extraordinary thick; the Fever and other symptoms will be much alleviated, and perfect health be restored without much trouble. But if the Pus be discharged into the Intestines, the Excrements are first aqueous, then like Water in which raw Flesh has been washed; after this, like those which are voided in a Dysentery, accompanied with Exulceration of the Intestines. Sometimes concremented Blood comes away; sometimes yellow Bile, deeply tinged, or porraceous, and at last, when death is at hand, black.

But if the Tumor does not come to Suppuration, an offensive Smell attends the Excrements, as if they were putrefied; the food passes through the Body crude and indigested, because of the weakness of the Stomach and Intestines; for the Liver, under so great a disorder, is incapable of giving it a second Concoction. Some patients are much afflicted with a sharp corroding Heat, and grow worse every day. There is a Colliquation of the Flesh, a small Pulse, with a difficulty of Breathing, and death is not far off. Some recover of the Dysentery and the Abscess, and afterwards fall into a Dropsy. But if all these symptoms remit, and the Pus that comes off by Stool is white, equal, uniform, void of Smell, and the Food is digested, there is good hope of the patient. But the best Crisis of the distemper is by Urine, for by this way the Pus goes off most safely and inoffensively. *Aræteus επι αὐτῶν χροῖα παλὴν, lib. i. cap. 13.*

ABSCESSSES OF THE SPLEEN.

The Spleen is very subject to a chronic Distemper called a Schirrhus, but is seldom affected with a Suppuration. In the former case it is hard, and resisting to the touch, like a stone; but under this latter disorder it is softer, and at its most eminent part, where the Pus gathers, yields to the touch; though in those parts where there is no Pus it is hard, and resists. Sometimes the whole Spleen hangs loose in the Belly, and may be moved this way or that way, as long as it is small enough, and has room for Fluctuation. The Nausea and Anxiety are most grievous when the Abscess is ready to break.

This distemper, in its progress, is generally accompanied with a Fever, Pain and Shiverings; though sometimes the Heats are but gentle, and without the other symptoms, which is the reason why an Abscess in the Spleen sometimes escapes our notice; for it is but a slender part, and void of sense, even in its sound state.

Persons afflicted with an Abscess of the Spleen swell, and overflow with Moisture, as if they were in a Dropsy. They are all over of a black colour mixt with green, are restless, and fetch their Breath heavily, as if they were oppressed with a load at their Breasts; for this disorder is very dangerous. Their Belly even to the Upper region is inflated with a gross Vapour, moist only in appearance. They have great inclinations to cough, but expectorate only a little dry Matter. If they feel a motion downwards, the Fæces are watery, but the patient is relieved by it at first; but if the Stools increase, he finds himself indeed extenuated, but however relieved by it.

If the Abscess comes to break, there issues from it not pure and digested Pus, but a whitish, or ash-colour'd, and sometimes a fæulent, or livid kind of Matter is discharged. And if the Abscess lie deep, a black sort of Humour, together with some of the Juice of the tabid Spleen, are evacuated; from some, whole pieces of that Bowel come away; for the Spleen is of a dissoluble nature. If the Ulcer continues a long time without healing, an intire loss of Appetite comes on, with a Cachexy: the sick person is bloated, looks dismal: there arise all over the Body, especially in the Legs, round, hollow, livid, foul Ulcers, which are difficult to cure; and the patient finds no remedy for his evils but death. *Aræteus επι αὐτῶν χροῖα παλὴν. lib. i. cap. 14.*

In Abscesses, if there appears no probable way to hinder their breaking, anoint them with Bread boiled in Hydrelæum [a Mixture of Water and Oil] or apply to the place Barley-meal prepared after the same manner, and foment it with a Decoction of the Root of Marsh-mallows. When the Tumour is with difficulty brought to a Suppuration, and no less difficult to discuss, a Cataplasm of dried Figs is to be used. You must take the fattest and sweetest Figs, and boil them in Water, till it become of the thickness of fine Honey, sometimes adding Barley-meal, and sometimes fine Wheaten bread. If the Diffusion of the Tumour do not proceed so well as it ought, boil Hyssop, or Origanum with your Figs, and, for more efficacy, put Salt in your Decoction; but great care is to be taken that, while you make use of vehement Dryers, you do not render the part callous. If any such thing appear, boil the Roots of Wild cucumber, Marsh-mallows, or Bryony in Water, or, which is more effectual, and a more powerful Digestive, the Root of the Dracunculus. Boil this Root sometimes by itself, sometimes with Figs, adding some Meal and Fat. Maidenhair also is a Digestive, and so is Oil of Dill, which also maturates crude Humours, and Tumours of indigested Matter. Pitch, especially the liquid sort, added as an ingredient in Cataplasms, digests all crude and hard Tumours.

Here follows a compounded Medicine, which cures Abscesses where the Matter is concocted, without any trouble, bringing away the Pus in the dressings, and perfectly digests them when they are crude: Take of the Lapis pyrites, and Ammoniac, of each twelve drams; of Bean-meal six drams; make them into a Plaister, with Liquid Rosine, and spread it on Leather, and let it stick to the place till it falls off of itself. But this medicine must be prepared not long before it is used, because it soon grows dry. *Oribas. de Morb. Curat. lib. iii. cap. 43. Paulus Ægineta, lib. iv. cap. 18.*

ABSCESSSES OF THE KIDNEYS AND BLADDER.

An Abscess of the Reins, or Kidneys, is attended with Pains about the Iliæ, and unusual Shiverings at Intervals, with an anomalous Fever. The digested Pus which is voided by Urine plainly indicates an Ulcer, that requires speedy help, without which it will be difficult to cure. Ulcers in the Kidneys are to be distinguished from those in the Bladder by the Situation, Action, and Properties of their Substance and Faculties. First by the Situation; for when the Bladder is affected, the Pain is felt in the Pubes, and the Bottom of the Belly; but when the Kidneys suffer, the Pain lies in the backpart of the Loins. Secondly, by their Action, as thus: When the cause of the disease lies in the Bladder, there is a difficulty or total suppression of Urine; but when the Kidneys are in fault, the Urine passes off freely. Thirdly, by the Properties of the Body; as for instance, fibrous pieces of Flesh are voided from the Kidneys, but Membranous scales come off from an ulcerated Bladder. Lastly, they are distinguished by their Faculties. A violent Pain is felt in the Bladder, when that is ulcerated; but when the Kidneys are thus affected, there is a dull Pain of the part, accompanied with the sense of a weight on the Loins. Sometimes the Ureters are ulcerated, and Pus and Blood are voided with the Urine; for these are seated between the Reins and the Bladder; but if the Pudendum be ulcerated, Pus and Blood come away unmixed with the Urine.

FOR ABSCESSSES IN THE REINS AND BLADDER.

Take Linseed, the Seeds of Cucumber, and of white Poppy, Tragacanth, of each eight drams, of Amylum four drams; make them into Troches.

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For ULCERS of the BLADDER, attended with an INFLAMMATION.

Take twenty Pine-kernels, forty Seeds of Garden Cucumbers, of Amylum, Spikenard, each a dram, Seed of Smallage five drams. Let the Spikenard and Smallage be boiled in a pint of Water, and one sixth of a pint of the Decoction be mixed with the beforementioned ingredients.

For an HÆMORRHAGE from the BLADDER.

Take of Sciffile Alum, one dram, of Tragacanth eight drams, of Gum Arabic two scruples and a half. Administer them in Passum. *Oribas. Synopsis. lib. ix. cap. 27.*

An ABSCESS of the UTERUS.

When an Inflammation begins to suppurate, the Suppuration is to be promoted by a Cataplasim of Fœnugreek and Linseed, or rather of Barley-meal, to which let a Fig be added; sometimes Pigeons-dung is used. Frequent Inseffions are recommended, and Pessaries of a heating and irritating nature. But it ought to be observed, that the *Abscess* discharges itself sometimes by the Orifice of the Uterus, sometimes into the Bladder, and oftentimes into the Intestinum rectum. *Oribas. Synopsis. lib. ix. cap. 51.*

The Seed of Treacle-mustard is of so acrid a quality, as to break Internal *Abscesses*, if drank. *Orib. de Virt. Simpl. lib. ii. cap. 1.*

If a disease turn to an *Abscess*, the patient being in a good way, we are to divert our thoughts and concern to this new disorder. While the Fever keeps its course, and the Urine appears always thin and crude, never depositing a Sediment, if there be felt in any of the Lower parts, as in the Legs, or about any Joint, a Weight or a Tension, a Heat or a Pain, without manifest cause, we are to expect an *Abscess* in that part. If the patient be suddenly taken with a difficulty of Breathing, and is soon relieved, and be afterward seized with a Heaviness or Pain in the Head, a profound Sleep, or Deafness, he will unavoidably have an *Abscess* in the Glands about the Ears. *Abscesses* happen principally in Winter, and to those who are past thirty. *Actius Tetrab. ii. Serm. 1. cap. 51.*

If the Inflammation continues, and inclines to a Suppuration, we are by all means to endeavour that the Transmutation may be perfected as soon as possible. Wash the part affected therefore with a Decoction of Marsh-mallows and Figs, and apply Bread or Barley-meal, with Water and Oil, to the place. If the Suppuration be difficult, apply Barley or Bread boiled in a Decoction of fat Figs and Marsh-mallows. If it continue still obstinate, we must add Pigeons-dung, Nitre, (not our Nitre, but a fix'd Alcaline salt) and Turpentine. The transmutation into Pus being perfected, the place is to be opened at the most eminent part, for there the Skin is thinnest; and if any part of the suppurated place appear putrefied, it is necessary to cut it off. But the Refection must be in the figure of a Myrtle-leaf, which indeed ought strictly to be observed in *Abscesses* under the Arm-pits, and of the Groins; but in the Head, and such like places, no more than a simple Incision is used, after which we strew fine powder of Frankincense in the cavity of the wound, and put Lint therein. Our author goes on with prescribing the same treatment of an *Abscess* where several Incisions are made, as is quoted below from *P. Ægineta*, and then recommends for a Detergent the Egyptian plaister, which, says he, consists of equal parts of Liquid turpentine, Honey, and Oil of roses; but for strong Bodies, and very foul Ulcers, he recommends an equal measure of Turpentine and Honey, without Oil, as a wonderful Deterfive. But for Ulcers that are difficult to cleanse, the yellow Egyptian ointment, which they call Coctum, does good service. It consists of *Ærugo rasa* and Honey boiled together till they become of a yellow colour.

An approved SUPPURATORY for ABSCESSSES is this, viz.

Take of Wild-mallows bruised and boiled, Meal of wheat, Hogs-dung, of each equal parts, boil them in Sapa (they must boil to a consumption of one half) and apply it to the place, and a Suppuration will very soon be brought about.

Here follows another Remedy, called the PHILOSOPHICAL MEDICINE for INFLAMMATIONS, particularly in the Breasts and Glands.

Take of the Fat of hogs an ounce and a half, the Whites of two eggs, Honey as much as will fill the two Egg-shells, two ounces of Nitre, of Meal of dried Barley, called Polenta, as much as is sufficient. Melt the Fat, and mix it with the Eggs and Honey; then add the Nitre, and lastly, as much of the Meal as will make it into a Plaister.

Some prepare it thus:

They take eleven eggs with the Yolks, one pound of Meal of dried Barley, called Polenta, one pound of Hog's fat, Honey as much as is necessary; for if they intend to discuss, they put the more Honey; but if Mitigation only be designed, they add the less. Some add Nitre; but

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what has Nitre in it is more discussive; what has none rather mitigates. Use also that which is prepared with the Juice of Fleabane.

To break ABSCESSSES

Take Nitre and Gum Ammoniac worked up together with Vinegar, and apply them to the place as long as you intend to break it. Some, instead of Ammoniac, use Frankincense.

To discuss an *Abscess* even after alteration, use the Emplastrum Ariobarzanum, or that called Dionysianum. See below.

The ÆGYPTIAN DETERGENT of ORIBASIIUS.

Take one pint of clarified Honey; two pints of Vinegar, one ounce of Squama æris, four drams of *Ærugo*. Boil the Vinegar and Honey to the consistence of Honey, and then mix up the rest.

Another excellent DETERGENT of the same author for foul ULCERS.

Take of Lees of oil, Clarified honey, and liquid Alum, equal quantities.

Another Medicine, to discuss or break an ABSCESS, and evacuate it without Pain:

Take of Spuma Argenti, Cerus, Ammoniac, each one pound; Oil a sufficient quantity, the Refine of the Pine-tree, Propolis, (Bee-glue) Opopanax, of each an ounce and a half, of Castor four ounces, of Galbanum, Myrrh, Frankincense, each two ounces, Vinegar a sufficient quantity. Boil the Spuma Argenti and Cerus in the Vinegar; bruise the ingredients, that are proper to be bruised, in the Vinegar, and melt the rest, and mix them with the things that are boiled, and adding them to the bruised, cool and work them altogether. *Actius Tetrab. iv. Serm. 2. cap. 32.*

The EMPLASTRUM ARIOBARZANIUM.

Take of Spuma Argenti one ounce, of Cerus one pound five ounces, of Sea water twenty five ounces, of old Oil one pound, of Whelks calcined seven ounces, of yellow Wax nine ounces, of Turpentine six ounces, of Frankincense three ounces and three scruples. *P. Æginet. lib. vii. cap. 17.*

EMPLASTUM DIONYSIANUM.

The celebrated DIONYSIAN PLAISTER for ABSCESSSES, and for TUMID BREASTS and GLANDS.

Take of old Oil, Water, each a pint; let them boil a little, and then put in six ounces of Aphronitre, an ounce or two of Misy, and boil it till it will not stick to the Fingers, then add of grained Frankincense, Wax, Turpentine, each six ounces. *P. Æginet. lib. iv. cap. 17.*

ABSCESSSES of the NAILS, called PARONYCHIAE, in English WHITLOWS, or FELONS.

At the beginning of a Paronychia, whether on the Nails of the Fingers or Toes, before it comes to a Suppuration, apply Wool, dipt in cold Water, to the part affected, or refrigerate it continually with a Linen cloth, dipt in cold water, and squeeze it over the place; or apply Frankincense and Galls bruised with Honey, either separately, or mixed together; or sprinkle it with the Juice of Myrtle-leaves bruised, or apply Cerate of Myrtle, or Ear-wax, and it will be healed. If there be an Inflammation, apply Bread moistened with Water, with Oil of roses, or the tender Leaves of Olives, or the Powder of Cadmia. The Flesh ought to be separated from the Nails all round, and Lint interposed, and the applications well bound on. Powder of Spodium may also be sprinkled on the place. Another medicine for an Exulcerated Paronychia is as follows: *Ærugo*, Spuma Argenti, each four drams, Sarcocolla one dram, reduce them to powder, and sprinkle the place well with the same; or apply the Meal of the bitter Vetch. When you have raised the Flesh from the Nail, as before advised, apply a Linen cloth, squeezed out of Wine, and upon that a Sponge dipt in Wine, which is my common practice. Another Medicine which I use is the following: Nitre, Squama æris, Pumice-stone calcined, each one ounce, Fullers-earth three ounces, beat them in Vinegar, mixed with a little Honey, and make them into Troches, and when you have occasion to use them dilute them in Water, and spread it on a Linen cloth. Another famous Troche, which I also make use of, diluted also in Wine, is called the Iris, and is thus prepared: Take of Liquid alum one hundred drams, of Saffron, Myrrh, each eight drams (some add eight drams of Aloes). Pound them, and make them into Troches, and use them with Wine, and tie over them a Linen cloth dipt in Wine. Mafsa's Troches is a good medicine in this case, and so are others of the like kind. If the *Abscess* eats and spreads, its progress may be stopped by plentifully strewing on it the Powder of burnt Orpiment, laying on it a Linen cloth squeezed out of Wine. I use Orpiment and red Arsenic, powdered in equal quantities together; and to

heal the place mix the foresaid with liquid Turpentine. If the Paronychia be suppurated, first pierce it, and evacuate the Humour; then apply the Meal of Lentils, mixed with Honey, to the place, or else fresh Roses, or dried ones after they have been bruised and moistened with Water. *Actius Tetr. iv. Serm. 2. cap. 75.*

For Internal ABSCESSES an ECLEGMA, so powerful a DE-TERGENT that it brings off large Films or Pellicles.

Take of Cardamoms eight drams, of Sagapenum and Myrrh each four drams, of Opium two drams, of Castor two drams, of Pepper one dram; reduce them with Water into the form of Troches of the weight of twenty Grains, and give one of these at a time in warm Water.

The THESPIANA for Internal ABSCESSES.

Take Seeds of Smallage, of Opium, wild Fennel flowers, each three drams, of Castor two drams, wild Carrot seeds, Orris, Mustard, each seven drams; make them into an Eclegma with clarified Honey, and give the quantity of a Hazle-nut in Water for a dose. *Actius Tetrab. ii. Serm. 4. cap. 65. From Archigenes.*

AN ABSCESS of the INTESTINES.

An *Abscess* is sometimes formed in the Intestines, and when it breaks, quantities of aqueous Pus are voided by Stool, which the ignorant and unexperienced mistake for a symptom of a Dy-sentery; and indeed, if the Exulceration continue long after the breaking, it is treated in the same manner as a Dy-sentery; but in the beginning their treatment is very different. And it is certain that some patients have been endangered by un-skilful physicians, who have begun with Infusions, and other things proper for a Dy-sentery. These distempers therefore are carefully to be distinguished, and indeed they are easily known one from another. Before an *Abscess* there is always a throbbing Pain, which is felt near the part affected, but no biting sensa-tion, that shifts from place to place, which is the usual Fore-runner of a Dy-sentery. Again, the beginning of a Suppu-ration is attended with unequal Shiverings, which increase and remit, and a Fever, with an Exacerbation of the symptoms in the evening. But after a perfect transmutation of the Hu-mour [into Pus], the Symptoms are much abated, and the Pain mitigated, till the time of breaking approaches, and then the Pain increases anew, and sometimes the Belly is quite bound up. After Breaking, the Stools are as has been said, whereas none of that nature attend a Dy-sentery.

In this disorder we apply Cataplasms of Linseed, mixed with Astringents, such as Dates, Quinces, and the like. To prevent the increase of the Flux, we use Infusions of the Pisanæ Succus, Alica, with some moderate Astringent; for we are cautious of causing too great an Astringency in these cases. By Cataplasms and Infusions as aforesaid, we mitigate the Inflammation. If the breaking of the *Abscess* is suspected, we promote it by Epi-themis of Figs and Marsh-mallows mixed with Pigeons-dung. If there be room to hope that the Inflammation may be dissolved and vanish, we apply Epithemis prepared of such ingredients as are remarkable for their dissolutive and digestive qualities. One of the best compositions in this kind is the Emplastrum Anicetum (the Invincible plaister). If we are assured that the *Abscess* is broken, we have recourse to Infusions, first of the Pisanæ Succus, with which afterwards we mix a little Honey, to cleanse the Ulcer. If what comes off indicates an extraordi-nary foulness, we add to the Pisan and Honey a Decoction of Lentils and the outer Rind of Pomegranates (Malicorium). When the Ulcers are cleansed, we are to omit the Honey in the Infusion, and substitute in its stead a little of the Troches of Winter Cherries, in order to induce a Cicatrification. When this is accomplished, we are yet to see that the particles thus restored be mollified and subside; for there is danger of a fresh collection of Humours in the same place. If any Sinus remain, go on with the same remedy as before; if the Matter issuing from the Ulcers corrode the adjacent parts, you are to have recourse to the remedies proper to be used in the beginning of a Dy-sentery. *Actius Tetrab. iii. Serm. 1. cap. 42.*

ARTHRITIC, or GOUTY ABSCESSES of the INTESTINES.

A gouty Dy-sentery sometimes degenerates into an *Abscess*, just in the same manner as an Hæmoptoe does into an *Abscess* of the Lungs.

This *Abscess* ends like all other *Abscesses*, in Health, a Scirrhus, or a Gangrene.

This sort of *Abscess* is sometimes so large, as to contain two or three pints of Pus.

Celsus, lib. v. c. 28. observes, that large *Abscesses* generally follow Fevers, or Pains of any particular part, especially of the Belly.

This *Abscess* is more subject to a Relapse, than any other *Abscess* whatsoever.

If this *Abscess* happens in the Anus, it must be cured as a Primigenial *Abscess* of the part.

An *Abscess* often happens in the Oesophagus, Stomach, or Intestines, without giving any reason to suspect it, till the

Vomica breaks, and the Pus is discharged. The only things that can give any warning of it are, a previous vomiting of Blood, or an Arthritic Dy-sentery. And when either of these have preceded, we should guard against returns of them; and at the same time, and by the same means, against an *Abscess*.

As soon as ever the Vomica is broke, let the patient keep his bed, or at least indulge rest as much as possible.

If the Pus be discharged, either by Vomit or Stool, too copiously, let it be moderated by Laudanum, but by no means stopped.

Let the Temples, Nose and Tongue be moistened with Laudanum, till the Flux is restrained within moderate bounds.

Then, in order to dilute the Pus, bring it away by degrees, and deterge the Ulcer, let the patient take every fourth, fifth, or sixth hour, a glass of the following Apozem.

Take of clean Barley half an ounce,

Roots of the lesser Comfrey an ounce,

Tops of Betony and Sanicle, each two drams;

Boil these ingredients in three pints of water to two, and add to it when strained, Honey of Roses two or three ounces.

Make an Apozem.

Mean time, in case of great Faintness, let the patient take a glass of generous Wine, or some Cordial Julap. And let no-thing be done to hinder the discharge of the Pus.

When the Vomiting, Diarrhoea, and Evacuation of Pus cease, the patient should take a scruple or half a scruple of Turpentine, mixed with the yolk of an Egg; or half a scruple of Lucatellus's Balsam, with Myrrh sufficient to make it of a consistence fit for Pills. And this should be repeated twice a day with a draught of the Apozem.

All Acids and Acrids must be avoided, and even all Cardiacs, which are strong enough to exagitate the Blood, and promoting a discharge from the wounded Vessels. Let the patient's food be Jellies of Calves-feet, Hartshorn, or Ivory; or Broths made with Barley, Oatmeal, Chicken, Mutton, or Veal.

If the patient has too many Stools, let him drink the white Decoction; if he be costive, Hydromel.

In order to prevent a Relapse, the Diuretic waters are most effectual; to which may be added Salt and Crocus of Mars, Myrrh, and Japan Earth, with Syrup of Quinces, in the form of Pills. For by them the wounded and debilitated Parts are strengthened and contracted, and the offending Matter is carried off by Urine.

Bleeding in Plethoric habits may be proper, where nothing contra-indicates. Walking exercise, Frictions of the Feet, and warm bathing, may be useful; but purging is to be avoided. *Musgrave de Arthritis Anomala.*

An *Abscess* is a Corruption and Alteration of the Flesh, or fleshy parts, as the Muscles, Veins and Arteries. Some *Abscesses* are contained in a Bag, as Atheromata, Steatomata, Melicerides; others have no Bag, and these are *Abscesses* properly so called, of which only we intend to speak.

An *Abscess* is generally preceded by an Inflammation; though sometimes, as Galen says, it is found without, as it happens when it is generated of good Blood. For immediately from the Beginning, says he, on account of some other Humour, of what kind soever, the Skin comes off, and in time the Matter which constitutes the sore abscedes from the other parts. So that, after Incision, such *Abscesses* have seemed to contain all sorts of Humours and solid Bodies; for there have been found in them Corpuscles resembling Excrement, Urine, Clots of Blood, Melleous and Mucous Juices, Bones, Nails, Hair, and even Animals very much like those which owe their rise to Pu-trefaction. He even says farther, that there have been observed in them things like stones, sand, shells, wood, coals, clay, chips, lees of Oil or Wine, especially in old *Abscesses*, which owed their formation to an impetuous Flux of Humours to their receptacle.

To prepare the way for an *Abscess* after an Inflammation, there comes on a vehement heat and increase of the Tumour, which grows redder and hard, with a pricking Pain and Throb-bing, and a weight as if something hung to the part. If a noble part be affected, a Fever accompanies the *Abscess*, with Shiverings; and at night the Pain and Fever are exasperated, by which means the Inflammation sometimes spreads to the adjacent Glands. When the *Abscess* is perfected, the symptoms are for the most part mitigated. The pricking Pain turns to an Itching, which is succeeded gradually by a Stupidity. The Tu-mour grows to a Head, becomes soft, and yielding to the touch, and at length the Skin breaks, or is perforated at the point. If the Tumour breaks of itself, or by the Help of Medicines, it is treated by applying linen Rags to receive the Pus, which is evacuated time after time; if it is opened by a surgeon, it is managed according to the rules of his art. *P. Ægineta. lib. iv. cap. 18.*

After a perfect alteration into Pus, which is known by the mitigation of the symptoms, as the Fever, Pain, Redness, Throbbing, the gathering of the Tumour to a head, and the subsiding of the Pus under the pressure of the Finger, especially if

if the *Abscess* lie shallow just under the Skin, we betake ourselves to surgery. But if it neither subsides under the touch, nor comes to a head, by reason of its deep situation, we content ourselves with the other signs of alteration, and so proceed to operation. But you are to observe, that we make an Incision before a perfect mutation into Pus, if the *Abscess* be seated near a Joint, or some principal part, for fear, while the Suppuration proceeds, some Ligament, or necessary part should be corrupted. We are directed by Hippocrates to cut a crude *Abscessus*, if it lies near the Anus; to prevent a Fistula. We are then to cut, tho' not to make an Incision always alike, but with regard to the place. As for instance, we are to follow the traces of the natural lines, if it be in the Face; or the way of growth of the Hair, if it happen about the Head; and, universally speaking, all possible care is to be taken of the natural comeliness of the part affected. When we make an Incision in the Limbs, we do it lengthways, as in Muscles and Tendons, avoiding the Nerves, Arteries and principal parts, with an eye to the safety of the patient, which must be consulted, sometimes by cutting lengthways, at other times by dividing transversely, as the particular case requires. In small *Abscesses* we make but one Incision; in large ones more, according to their bigness, cutting every where smaller Orifices convenient for the Efflux of the Pus. *Abscesses* that rise with a very sharp head, crude, thin, and mortified, are to be amputated triangularwise, or according to the figure of a Myrtle-leaf, or some other angular figure; for that of a circle is unfit to cicatrize. Such as do not rise to a head are to be treated with a bare Incision. If we discover a large Sinus, and the incumbent skin be carnosous, and capable of Glutination, we make Incisions on the place only, to make way for the Efflux of the Matter: but if the skin be thin, and void of Flesh, we divide the whole, by making an Incision lengthways; and afterwards, if the Corpufcles on both sides the Section be very thin, and quite bare of Flesh, we cut them off. After the operation, and wiping out the place with a Sponge, if the *Abscess* be small, and there be but one Incision, we dress with nothing but Lint; but if it be large, with several Incisions, we thrust a Tent into them, which may be drawn through. We also fill up with Lint those *Abscesses* which are amputated; and if the Blood bursts out, we use cold Water, or Posca; but if the place continues to bleed, we sprinkle a little Powder of Chalcitis, which is often used also when the Flesh is flabby and putrid. Moreover in winter, and to Nervous Constitutions, we apply Bolsters moistened with Wine and Oil; but in summer, and in a fleshy Habit of Body, it is enough to dip them in Water and Oil, or Wine and Oil cold, and then apply the Bandage, embrocating the place next day with the same liquors. The third day, after taking off the Bandage, and Deterfion with a Sponge, we use the Tetrapharmacum spread on Lint, and if there be no Inflammation, repeat the Embrocation to keep the dressings moist. But in case of an Inflammation, after we have well washed the place, we lay over it a digestive Cataplasma. The Inflammation being repressed, the cure goes on by suppurating and incarnating Medicines, and the Sinus is healed by Conglutinants. *P. Aegineta, lib. vi. cap. 34.*

The Emplastrum regium Tetrapharmacum is prepared of equal quantities of Wax, Colophony, Pitch and Bulls Fat. *P. Aegineta, lib. vii. cap. 17.*

A CATAPLASM for ABSCESSES, ERYSIPELAS, HERPES, PAROTIDES, and BURNINGS.

Take a pound of the fresh tender leaves of Marsh-mallows, and boil them in Vinegar, and bruise them well; then add Oil of Roses four ounces, of Spuma Argenti, Cerufs, each two ounces and a half, and bruise it all with the Juice of Coriander, or Houfleeek, or Nightshade; this done, with crumbs of Bread make it up into a Plaister, and lay it on. Or use the following Plaister:

Take of Oleum Cecinum and Oil of Myrtle each one pound, of Wax five ounces, of Spuma Argenti three ounces, of *Ærugo rafa* two ounces; let the *Ærugo* and Spuma Argenti be pounded with Vinegar. *P. Aegineta, lib. iv. cap. 21.*

A PLAISTER of NITRE for ABSCESSES and harden'd TUMOURS.

Take of old Oil, Wax, Aphronitrum, Sops, Lye, each one pound; of Turpentine six ounces, of Galbanum, Bee-glue, Gum Ammoniac, each one ounce; let the Wax, the Oil and the Lye be strained through Lime, and beat the Nitre in the Lye. *P. Aegineta, lib. vii. cap. 17.*

To break an ABSCESS.

Since some delicate persons cannot bear an Incision, we are to try what can be done by drawing medicines, such as the Roots of Narcissus, Honey and Water boiled with Oil of Orris; or the tender Roots of the Reed bruised with Honey; or, if they are hard, first boiled in Honey and Water; or apply Birchwort with Honey.

Dry Pitch; and Bee-glue of Crete, an equal quantity of each; both breaks and cicatrizes *Abscesses*. *P. Aegineta, lib. iv. cap. 18.*

To break an *Abscess* caused by an Inflammation of the Liver, we use a Cataplasma ex *Trispermis*, with Refine, Grains of Frankincense, Pitch, Roots of Marsh-mallows, and the Dung of Pigeons and Goats: The patient must drink the Decoction of Poley Mountain, or Fumitory that grows by the Hedge, boiled to a third Part; or the Decoction of Thlaspi, or of Succory, or of Germander. When the *Abscess* is broken, he must drink Water and Honey, and such things as are proper for ulcerated Kidneys: outwardly we use the Plaister of Mnaseas (prepared of Marsh-mallows) and other Emollients, or the Icesian Plaister, or that which is prepared of Willows. *P. Aegineta, lib. iii. cap. 46.*

The ICESIAN PLAISTER for STRUMÆ, ABSCESSES, the SPLEEN, GOUT, and SCIATICA.

Take of Spuma Argenti one hundred and twenty drams, of old Oil two pints, of Vinegar one pint, of *Ærugo* one dram, of the Bark of Fir eight drams; of the Chamæleon with its root, Euphorbium, Juice of Hypocistis, Beegle, Myrrh, Pellitory of Spain, and Elecampane, each sixteen drams, of Wax three pounds. *P. Aegineta, lib. vii. cap. 17.*

The EMPLASTRUM SMILIIUM for ABSCESSES.

Take a pound and a half of old Oil; of Spuma Argenti, red Nitre, Sal Ammoniac, of Lye of the Ashes of the Fig-tree, made with an addition of Lime, Refine, each one pound, of Galbanum, Gum Ammoniac, each a quarter of a pound; of Vitriol four ounces, of Wax six ounces, of *Ærugo*, Opopanax, each one ounce, of Vinegar a sufficient quantity. Boil the Spuma Argenti and *Ærugo* in the Oil till it will not foul, and then add the rest. *P. Aegineta, lib. vii. cap. 17.*

If the *Abscess* resists the Medicine, and there be Pus in it, an Incision ought to be made, and the Pus evacuated. After this use no more Oil or Water; but if the place require washing, use Honey and Water, Posca, or Wine, or Wine and Honey for that purpose. If there be an Inflammation, apply a Cataplasma of Lentils: If there be none, any approved Plaister in such cases will serve, especially one prepared with Chalcitis, and over it lay a Sponge, or piece of Wool dipt in rough Wine; but apply no fat Medicine, such as the Tetrapharmacum; for the wound requires vehement Driers. *P. Aegineta, lib. iv. cap. 18.*

When the serous humour in the Veins grows redundant, and putrefies, a Fever arises, and the Urine becomes for the most part thick and turbid; and Nature now hurrying to a Crisis, plenty of thin Urine, much above the quantity of what is drank, comes off, and this is called a Crisis by Urine: but when the humour is crude, and the season of the year unfavourable, and the expulsive faculty drives out what is superfluous, if the noxious humour makes its way to the Head, and there make an eruption, *Abscesses* are generated under the Ears, which are called Parotides: Sometimes an Erysipelas, and Protuberances in the Neck arise from bilious and other corrupt juices. If the humour takes its course downwards, there arises what we call a *Translation* [*ἀνέσχυση*]; but if the humour turn inwards, there is form'd an *Abscess* [*ἀπόστημα*]. Of these, such as appear in sight are much the better, and easier to be managed; but such as lie deep and out of reach, have need of a great deal of care and good fortune to attend them: for unless they are discharged downwards by Stool or Urine; or, when they affect the Breast, break, and are brought up by coughing, tho' they are posterior in point of time they are sometimes accounted worse than the distemper which preceded them. *Actuarius, lib. ii. cap. 2.*

For *Abscesses*, take the Root of the white Reed, and beat it up well with Fat, and anoint the place with it, and you will see wonders; for it mollifies, breaks, and discusses in a surprising manner. *Myrepsus, sect. xxxviii. cap. 107.*

For ABSCESSES, TUBERCLES, and PAIN, a much approved and wonderful Medicine.

Take the Leaves of Nettles, bruise and beat them, and rub them warm on the place. Or take the Leaves of Pellitory of the Wall, pounded and bruised, and anoint the part affected. *Myrepsus, sect. xlv. cap. 11.*

The following cures BUBOES, and all sorts of PHLEGMONS.

The Leaves of the wild Olive bruised, and rubbed on the place; or pound the Leaves of Fleabane, and anoint the place with them well warmed. *Myrepsus, sect. xlv. cap. 11.*

An approved Remedy against ABSCESSES, STRUMÆ, ATHEROMATA, MELICERIDES, and TUBERCLES.

Take of Ladanum, Bdellium, Galbanum, Gum Ammoniac, Bee-glue, Turpentine, of each one ounce. Pound and mix them well together. *Myrepsus, sect. xlv. cap. 16.*

As almost all *Abscesses* are the consequences of Inflammations, and these produce a variety of events as they are differently complicated with other disorders, it will be proper to make

some inquiry into their disposition. Inflammations from all causes have three ways of terminating, either by Disperſion, Suppuration, or Gangrene; a Scirrhus after an Inflammation of a Gland is always mentioned as a fourth, but I think with impropriety, ſince it ſeldom or never occurs but in Venereal, Scrophulous, or Cancerous Caſes; and then it is the forerunner, and not the conſequence of an Inflammation, the Tumour generally appearing ſome time before the diſcolouration. *Sharp.*

The uſe of too hot applications, at an improper time, or in the beginning of an Inflammation, frequently cauſes an *Absceſs*; a remarkable obſervation of which is as follows:

A decayed old gentleman walking in the ſtreets one evening, was cruſhed up to a wall by a cart; the wheel paſſing too near him, bruſed the outſide of his Left-leg, but did not break the Skin: it was ſuddenly ſwelled, and very painful. His friends chafed it with Brandy, and dipping a cloth in the ſame, bound it about the part. By this way of dreſſing, that ſide of his Leg ſwelled and inflamed very much. Others adviſed him Lucatellus's Baſam; by which improper application the Fluxion was increaſed, and the patient confined to his bed. Here was an object of charity, upon which account I was ſent to him. I found the outſide of his Leg ſwelled and apoſtemated from the Gartering to the Small. I laid it open by Cauſtic an inch or two, according to the length of the Member. In dividing the Eſcar, there was diſcharged a large quantity of Matter, with clotted Blood in it. I dreſſed the Eſcar with Lenients, and embrocated the parts affected with Oil of Roſes and red Wine, and applied an Emplaſter of Armenian Bole over the Tumour, with Compreſs and Bandage. The next day I brought a Decoction of Wormwood, Chamomile flowers, red Roſes and Myrtle-berries, fomented the Leg, and dreſſed the Eſcar with Lenients, to haſten Suppuration; then by good Bandage thruſt out the Matter, and endeavoured to agglutinate the hollow parts; but could not do it without laying it more open by a ſnip made with a Probe-ſciffars. After which I deterged the Ulcer with the Vitriol-ſtone, and with Baſilicon mixed with Red-mercury-precipitate. Then I incarnaed and cicatrized it. If, inſtead of Spirits of Wine, &c. they had dreſſed this man's Leg with Armenian Bole, Vinegar, Whites of eggs, and Oil of Roſes, they might have haply prevented the pain and trouble that followed. *Wiſeman.*

There are ſome Inflammations, ſuch as for the general part are thoſe which proceed from the Criſis of a Fever, wherein Diſcuſſion ought by no means to be attempted, left a Mortification be the conſequence, and the common Furuncle or Boil; the Juices conſtituting this Tumour being ſo groſs and viſcid as to make it wholly incapable of Reſolution or Diſcuſſion. *Wiſeman.*

As all Inflammatory Tumours tending to ſuppurate are accompanied with Pain, Puſſation, Tenſion, and a ſymptomatic Fever, ſo if there is an increaſe of theſe, with enlargement of the Tumour, and eſpecially if a ſmall Rigor comes on, it is hardly to be doubted but Matter will be form'd. *Sharp.*

In this caſe, Suppuration muſt be promoted by ſuch applications as increaſe the native Heat in the affected part; for if Nature is not aſſiſted in the ripening theſe Tumours, a Mortification is frequently the conſequence.

Yet it is not unfrequent to ſee a Suppuration made accidentally by cold Topics, which by a ſlight gentle Aſtriſtion of the Pores perform the office of Emplaſtics; as white Ointment, Sorrel roaſted in embers. Nay in ſome Tumours I have ſeen Suppuration cauſed by the ſtronger Diſcutients. *Wiſeman.*

Absceſſes are more or leſs dangerous according to their nature or ſituation. Thus an *Absceſs* from the Criſis of a Fever, or Strumous *Absceſſes*, are always attended with more danger and difficulty than thoſe which proceed from a Fullneſs of Blood; the Tendons, Periosteum, and even the Bones themſelves, being often much injured by theſe Impoſthumations.

Absceſſes in the internal Muſcles of the Larynx, as they threaten the Suffocation of the patient, are certainly far more dangerous than *Absceſſes* in the Muſcles of the Limbs.

So alſo are thoſe on the Breaſt, Belly, or near the Joints, from the Sinuſſes and Fiſtulas, which they generally leave behind.

Absceſſes in the Liver, Lungs, Pleura, and Kidneys are all extremely dangerous, from the Office and Function of each part, and ſeldom admit of any cure, but generally bring on a Conſumption and Death.

Yet ſome caſes we have, where Nature, with a little aſſiſtance, has performed wonders; one of which I have here ſet down.

A daughter of a ſubſtantial citizen laboured under an *Absceſs* in the Region of her Left-kidney, and was long treated by a bold empiric, who promiſed cure; but after all his endeavours, the child languiſhing under the Ulcer, ſometimes by reaſon of the great diſcharge of Matter by Urine, and other times through the ſuppreſſion of it, great Pains were ſtirred up within the Body, and outwardly in the *Absceſs*. I being

conſulted, obſerved that the external *Absceſs* took its original from the Ulcer within the Kidney, and required another manner of dreſſing, its cure being the work of time. I propoſed the laying it open to the very part where the Matter paſſed forth from the Kidney. To which purpoſe I applied a Cauſtic upon the Sinuſ below, divided the Eſcar, and dreſſed it up with Lenients. Then after Separation and Diſteſtion of the Ulcer, ſearching the ſame with my Probe, I found the Sinuſ run up above the Oriſce; which being alſo laid open, I diſcovered the paſſage into the Kidney, and felt the ſide of the laſt Short-rib bared by the Matter in its paſſing out. I dreſſed the Ulcer with the mundificative Ointment of Smal-lage, and healed up the remaining Sinuſſes above and below to the very Aperture. While I was doing this work, Dr. Barwick was conſulted to help us in the cure by Internals, who preſcribed a Traumatic Decoction of Sarſa, &c. with the more temperate plants, and Baſfamic Pills to contemperate the Humours. During my diſpoſing of this Ulcer to retain a Cannula, the Matter diſcharged by Urine in great quantity; and the patient was as ſorely afflicted, and had the ſame ſymptoms that others have who are diſeaſed with Ulcers or Stones in the Kidney; but after vent was given by a ſhort Cannula of lead, ſhe recovered. Having continued the uſe of the Cannula ſome months, I removed it, and kept a Pea juſt in the opening, and by red Sparadropes and Compreſs retained it on; then left her to her mother to dreſs, and only called ſometimes, when they gave me notice of their wants. After a year or thereabout that ſhe had kept this Fontanel open, the internal pains and diſcharge of Impurities ceaſed, and ſhe grew more fleſhy and ſtrong. She went alſo daily to a neighbouring ſchool, where ſhe was exerciſed in dancing, &c. After the ſpace of two years, or thereabout, the Ulcer ſeeming not to matter more than might be expected from a ſmall Fontanel, the mother caſt out the Pea, and permitted it to heal up. But being ſoon alarmed by the old accidents which returned upon the child, ſhe ſent for me. I opened it again, and left them to keep it ſo. Dr. Barwick was alſo again conſulted, who repeated the former method with ſome little alteration. The Ulcer was afterward kept open near three years, during which ſhe repeated her courſe of phyſick Spring and Fall, and was frequently brought to me. At length I ſeeing her well grown, and of a fleſhy and healthy Complexion, and the Fontanel in a manner dried up, I adviſed them to throw out the Pea, it being of no uſe. They did ſo; from which time the patient hath continued ſtrong and well, and is ſince married. *Wiſeman.*

Applications to promote Suppuration are, the Fats of all domeſtic creatures, old Oil, Onions roaſted in embers, Lilly-roots, Mallows, and Marſh-mallows, Colt's foot, Bryony, and ſharp-pointed Dock-roots, Linſeed, and Foenugreek, Barley, Lentil, Vetch, Lupin, and Wheat-meal, Gum Galbanum, Ammoniacum, Bdellium, and the Mucilage Plaſter.—For inſtance, if Nature be ſtrong, and the Matter lies not very deep, the following Cataplaſm may be applied:

Take of the Roots of Marſh-mallows, and of white Lillies each two ounces, Leaves of Colts-foot, and of Mallows each one handful; boil them in broth, and let them be well maſhed, then add of powdered Linſeed one ounce, of Wheat-meal two ounces, of Hogs-lard and freſh Butter each an ounce and a half, of Saffron in powder two ſcruples, and the Yolk of one Egg; mix and make a Cataplaſm. *Wiſeman.*

In cold Tumours, or where the Matter is deep,

Take of Bryony, and ſharp-pointed Dock-roots, each two ounces, boil and pulp them through a ſieve; to which add of Capers and Garlick, roaſted under the embers, each three ounces, Yealt or Barm two ounces, Powders of Linſeed and Foenugreek each one ounce, Wheat-meal two ounces, Hogs-lard two ounces, of Honey and Goole-greaſe each one ounce, of Saffron in powder one dram. Mix.

Where the Matter is tough and viſcid, as in the Furuncle, Emplaſters of Gum Galbanum, Ammoniacum, Bdellium, and of the Mucilages are preferable. *Wiſeman.*

In ſcrophulous Swellings alſo, the Gum Plaſters are leſs troubleſome than any other applications, and may be renewed every four or five days, theſe Tumours being very ſlow of Suppuration.

But the uſe of ſuppurative Plaſters in haſty *Absceſſes*, or Inflammations, in a weak or dropſical Habit of Body, is by no means adviſable, as they are ſubject to ſit uneaſy on the Inflammation, are often painful to remove, when we enquire into the ſtate of the Tumour, and by their Compreſs in bad Conſtitutions, add ſomething to the diſpoſition of the part to mortify.

Amongst the suppurative Pultices perhaps there is none preferable to that made of Bread and Milk, softened with Oil; at least the advantage of any other over it is not to be distinguished in practice. *Sharp.*

The *Abscess* may be covered with the Pultice twice a day, till it arrives at a ripeness sufficient to require opening, which is sooner or later according to the Humour by which it is produced, or the place in which it is formed. *Wiseman.*

Basilicon, mixed up with a third part of the Ointment of Marsh-mallows, is an excellent Suppurative. *Turner.*

Abscesses from a Plethora, and in fleshy parts, with less difficulty come to maturity, than those which arise from crude Humours, and are near, or in the Joints, or parts endued with little Heat, especially those contained in a Cystis. *Wiseman.*

It often also happens, that notwithstanding the use of Cataplasms, Suppuration, through the Blood-vessels being clogged, advances very slowly. In this case, Bleeding will sometimes quicken it exceedingly; but however this practice is to be followed with caution, it being a maxim laid down in surgery, that evacuations are pernicious in every circumstance of a disease that is at last to end in Suppuration. *Sharp.*

In the formation of large *Abscesses* the Pain is sometimes almost intolerable; to remedy which an Anodyne draught will be of great service, and may be repeated at proper intervals till the *Abscess* is opened.

Dr. Sydenham's method of treating the Small-pox sufficiently justifies this way of proceeding.

Many ill consequences attend opening an *Abscess* too soon, especially in the Breasts and inguinal Glands from the Venereal Disease; for Pus generates Pus, and therefore if it is let out before all the obstructing Matter and destroyed Vessels are converted into Pus, the part that remains unsuppurated will harden, the Air will gain admittance, and the Ulcer will discharge Ichor, instead of well-concocted Pus. *Turner.*

Tumours made by translocation have been known, which have had Matter in them from their first appearance; but it being commonly lodged deep under the Muscles, the Matter is not felt till it hath raised the Tumour, which is not done without Pain, Pulsation, &c. as in a Phlegmon; but these seem deeper, and do not affect the Skin with Inflammation till the Matter reach near it.

In these Tumours we do not attend the symptoms of Suppuration, but open them as soon as any quantity of Matter offers itself.

Whilst the Matter is making, the native Heat of the part is to be preserved and increased by applications, which may alleviate the Pain, and promote Concoction. *Wiseman.*

The Paronychia Maligna is an instance of this; for were we to wait for a regular Suppuration, the loss of the Joint would be the consequence.

Suppuration is known to be completed by the thinness and eminence of the Skin in some part of the Tumour, by the fluctuation of Matter underneath, and a general remission of the Pain, Tension, and Fever: indeed it sometimes happens, if the Matter lies deep, that the symptoms, particularly the Pain, continue till the Pus is discharged.

If the Tumour becomes more compact, and thrusts out into a Cone, and looks pale, the opening of it is not to be deferred; for as Abscesses opened before the Suppuration is perfected lose their Heat and become crude, so the Matter if suffered to lie long after it is made, tends to Putrefaction, whereby the parts underneath corrupt, and the *Abscess* becomes sinous, particularly if in the Joints, or over the Sutures in the Head.

So also in *Abscesses* in Ano, where through the weakness of the part, a Putrefaction is apt to follow; or in the Fauces, where the neighbouring parts are compressed, and the patient is in hazard of Strangling.

In these cases we wait not for perfect Suppuration, but by deep Scarifications discharge the serous Blood, and prevent an *Abscess*. There is also care to be taken in *Abscesses* of the Breast and Belly, where the Matter is in danger of breaking inwards, for by opening these too soon, they sometimes apostematize again, or become crude and difficult to digest and cure. *Wiseman.*

Notwithstanding it is very much taught to open critical *Abscesses* before they come to an exact Suppuration, in order to give vent sooner to the noxious Matter of the disease; yet in opening before this period, they miss the very design they aim at, since but little Matter is deposited in the *Abscess* before it arrives towards its ripeness; and besides, the Ulcer afterwards grows foul, and is less disposed to heal. *Sharp.*

Abscesses are to be opened either by Knife or Caustic.

In small *Abscesses*, and in those of the Face, the Knife has the advantage, where a Caustic would destroy its beauty by the Cicatrix it occasions.

But in large *Abscesses* where the quantity of Matter is great, or we would keep the *Abscesses* long open, a Caustic is more proper, from the great opening it makes, than by Puncture or Incision. *Wiseman.*

Mr. Sharp prefers the Knife even in large *Abscesses*, and ad-

vises, if there be much discoloured Skin, to cut out a circular, or oval piece of it, which operation, if done dextrously, is much less painful than by Caustic, and at once lays open a great space of the *Abscess*, which may be dressed down to the bottom, and the Matter of it freely discharged; whereas, says he, after a Caustic, though we make Incisions through the Escar, yet the Matter will be under some confinement, and we cannot have the advantage of dressing properly till the separation of the Slough, which often requires a considerable time, so that the cure must be necessarily retarded.

Mr. Wiseman is a warm advocate for the Caustic, and says in the opening large *Abscesses* it is most safe and easy, as the Pus thereby is discharged more plentifully than by Incision; nor only for this reason does he commend the use of it, but on account of another advantage; for if a Caustic be applied on the declining part of a Tumour, the *Abscess* is sometimes near cured before the Escar separates, if the Matter be not contained in some particular Cystis.

Turner is of the same opinion, and says the Pain proceeding from the operation of a Caustic is sufficiently recompensed by the ease of the dressing, when there is no occasion to cram in Tents or Dossils, as there must be to keep the Lips of a recent wound distended, and thereby choak in the Matter, by the one increasing the Pain, by the other the Sinuosity.

If an *Abscess* is to be opened with the Knife, if the Matter does not lie deep, the Incision must be made the whole length of the Tumour, in such manner that the depending part may be open for the discharge of the Matter, which will prevent the trouble of dilating.

By this, with good Compress and Bandage, many Apostems are healed in a very little time, without any other application than a Pledgit, armed with a common Digestive.

The Incision is always to be made according to the direction of the Fibres: If it be in the Groin or Arm-pit, it ought to be oblique: In other parts it must be made according to the length of the Member.

For should you make a transverse Incision, the Matter would bag below the wound, where, for want of a discharge, in a little time it would find a way in the Interstices of the Muscles, and produce Sinusses very difficult of cure; besides the hazard of corroding the Veins, Arteries, Nerves and Tendons, or the Bone itself, if it lies near one. *Wiseman.*

In making the Incision, great care must be taken that no large Blood-vessel be wounded. On this account it is always necessary that the surgeon should be provided not only with some restraining applications, such as Galen's powder of Frankincense and Aloes, mixed with the white of an egg, but with Ligatures, as guard against such accidents.

Nerves also and Tendons are to be taken great care of, the Pain and Fluxion arising from wounds of these always producing very dangerous symptoms, and often a Mortification.

It is a general rule that in opening large *Abscesses*, whether by Knife or Caustic, the whole Matter is not to be discharged at once, lest the heat of the part be over-weakened, or the patient faint. *Wiseman.*

Incision-knives are of various kinds, and are in use as the particular situation of the *Abscess* shall require: The common one used in opening *Abscesses* is small, strait, and round-edged, but in dilating of Sinusses, or after a Puncture, the flat-edged Knife with the Director is preferable.

In *Abscesses* of the Fauces, the blade of the Knife is shorter, and the handle longer than of the common knives. *Wiseman.*

The Lancet also comes in, as sometimes necessary in small *Abscesses*; but too often calls for the Knife or Scissors to finish what it had so imperfectly begun.

An *Abscess* sometimes bursts before Suppuration is completed; in this case the use of the Cataplasma must be continued till the Tumour will admit of dilatation (which generally happens in two or three days) with the Knife or Scissors.

For this purpose the ancients used the Root of the Papyrus. *Dioscorides.*

The Incision being made, the accidents or symptoms that attend it are to be removed. If any Bleeding should happen, it must be restrained with Galen's powder before mentioned, mixed with the white of an egg. *Wiseman.*

But the usual method of dressing an *Abscess* the first time, is with dry Lint only, or if no Blood appears, then with Dossils, armed with some Digestive warm, as Turpentine mixed with the yolk of an egg; or, which is preferable, with a mixture of Basilicon and Arcæus's Liniment, observing to lay the Dossils loose in the cavity, unless the *Abscess* be deep, and the wound narrow, as is the case sometimes of *Abscesses* in Ano, when the Lint must be crammed in pretty tight, that we may have afterwards the advantage of dressing down to the bottom, without the use of Tents.

The Dossils in deep cavities must be secured by tying a bit of thread or silk about them, many bad accidents having been occasioned by one of these lying unobserved some time. Witness the following observation.

A man of about fifty years old, of a full Body and strong Constitution, was taken with a Pain under his Right-arm, with Hardness and Inflammation. I was sent for, and concluding it a Bubo, thrust forth by the strength of Nature, applied a plaister of Diachylum with the Gums, designing not to dress again till it was near suppurated; but the Tumour increasing with great Pain and inflamed Redness, I was put upon a necessity of applying Anodyne Cataplasms. Within few days after, it being suppurated, I opened it by Incision, and discharged a well-concocted Matter; then dressed it with Basilicon with the Yolk of an Egg upon a Tent, and applied a Plaister of Diachylum malaxed with an Ointment of Marsh-mallows, and afterwards dressed it with the Mundificative of Paracelsus. Having so disposed it to heal, I left dressings, and after three or four days visited the patient again; when, observing the Hardness digested off, and the Abscess fit to cicatrize, I left off the use of the Tent, and dressed it with a Pledget of the Ointment of Pompholix, and the Cerate over it, and left them wherewithal to finish the cure. But a few days after they sent for me again. I found it swelled, and the Matter issuing from it thin and foetid, and much more in quantity than I could expect. I enlarged the opening by Incision, and there came forth a Tent, which in his servants dressing had slipped into the Abscess. From that time the Matter lessened, and the Abscess cured without relapse by the method aforesaid. *Wiseman.*

Over the Dossils, Pledgits armed with the same Digestive must be applied to the Lips, with a large Pledgit of Basilicon above, and the whole secured with good Compress and Bandage.

The common Compress is made of linen rags folded several times; but the plaister Compress, which is made of three or four folds of the common defensive plaister stuck together, and shaped as near as may be to the compass and dimension of the cavity to be compressed, observing heedfully to bring the edge thereof even with the Lips of the disjointed part, has much the preference as it remains immoveable on the part it is applied to. *Turner.*

The Bandage must be suited to the situation of the wound. In the Limbs the single-headed Roller is generally used, but is oftentimes exceeded by the laced Sock, Stocking, Knee-piece, Trowse, Glove, Elbow, and Arm-piece, by their equal lacing when well fitted to the several members.

If the Roller be used, care must always be taken, that the circumvolution be made that way, whether to the right or left, as may bear first upon the extremity of the Sinus before it reach the edge of the wound or ulcer; by which the contained matter will be pressed out, and the wound unite at the same time. *Turner.*

The length of the Roller for the Arm or Leg should be about two yards, and for the Thigh a yard more must be added; its breadth, two, three, or four inches, as appears necessary; for the Fingers one of a foot long, and an inch broad, will suffice.

If the wound be on the Head, the Cap or double-headed Roller must be made use of. See BANDAGE.

After the Abscess is dressed, if it is on the Leg, it must always be placed upon a pillow; if on the Arm, in a sling, by which means a flux of humours will be prevented from falling upon the part, which would very much retard the cure, and which would inevitably happen, should the Limb be suffered to hang down.

Fainting, which sometimes happens through weakness or timorousness of the patient, may be relieved by laying him down on his Back, and sprinkling a little cold water on his Face: but if it proceeds from some preceding sickness, and is continued by the greatness of the evacuation, and noisom corrupt Matter; in this case Cordial Julaps are necessary, and may be taken at pleasure. *Wiseman.*

The Spirits may also be refreshed with Epithems, made up of some Distilled Waters and Cordial Species, with Vinegar of Roses, which for want of a physician may be prescribed. *Wiseman.*

The frequency of dressing will depend on the quantity of the discharge; once in twenty four hours is ordinarily sufficient, but sometimes to do it twice, or perhaps three times, may be necessary.

In cleaning the wound it is needless to be too scrupulously nice; but it is worth remarking, that a sore should never be wiped by drawing a piece of tow or rag over it, but only by dabbing it with fine lint, which is a much easier method for the patient; the parts about it may be wiped clean in a rougher manner without any prejudice.

I do not think the air has that ill effect on sores as is generally conceived; nor would the large Abscesses on beasts, which are often exposed to the air the whole time of cure, do well, if it was so very pernicious as it is represented; but as it tends to the making a scab, and in winter is a little painful to the new flesh, it will be right to finish the dressing as quick as may be without hurrying.

Another caution necessary in the treatment of Abscesses is, that surgeons should not upon all occasions search into their cavities, with the Finger or Probe, as it often tears them open, and indisposes them for a cure. *Sharp.*

At the next dressing if there is any considerable Hardness from the Tumour not being sufficiently suppurated, as in large Abscesses it frequently happens, or if the Lips of the wound are painful, and inflamed, in these cases a Fomentation prepared of the tops of Mallows, Marsh-mallows, Wormwood, and Chamomile Flowers should be ready, out of which a Stuph of flannel may be wrung, and applied over the Abscess, to give a breathing to the part.

But if the Abscess was the consequence of a congested Tumour, and Nature wants assistance to preserve the heat, and strengthen the relaxed parts, instead of the emollient Fomentation above, it must be bathed with a decoction of Wormwood, Elder-flowers, red Roses, Myrtle-berries, and Foenugreek seed, in Wine and Water, adding afterwards some Spirit of Wine. *Wiseman.*

The Abscess may be dressed with Liniment and Basilicon, and the Lips, if inflamed, with a mixture of Oil of Roses, and the Yolk of a new laid Egg, with Compress and Bandage as before.

The use of the Fomentation must be continued every dressing, till there is a good Digestion.

In winter the dressings may be warmed; but in summer it is superfluous.

If the Ulcer should want detarging, a little red Precipitate finely powdered, and mixed with Liniment, or Basilicon, will not only deterge it, but will incarn it, so as in a very little time to want nothing but the white Ointment, the Cerate of Lapis Calaminaris, or even dry Lint to cicatrize it.

Sometimes, notwithstanding all our care, the Matter will insinuate itself into the parts about, and form such cavities as will not admit of this way of healing. In these cases great caution is to be had with regard to the use of Tents, which are almost universally decried in these days, though they still continue to be employed too much by the very people who would seem to explode them most; in short, they are very seldom necessary.

However, in this case they are sometimes found useful to thin the Skin for the more easy dilating, which must be done immediately.

And in some large and deep Abscesses of the Breasts, where the Matter cannot discharge itself by the Orifice already made, and yet does not point sufficiently to any other part for an opening, though it make signs whither it would tend if it was a little confined. In such an instance a Tent would be useful, for by plugging up the Orifice, it would make the Matter recur to the part disposed to receive it, and mark the place for a counter opening. But Tents do most good in little deep Abscesses, whence any extraneous body is to be evacuated, such as small splinters of Bone, &c. *Sharp.*

The Use of Injections is also recommended by many, as serviceable in deep Abscesses, but with little reason; for they do so much mischief by distending the parts of the Abscess, and in a manner macerating the new Flesh generated within them, that they are hardly proper in any case; though one of the great mischiefs of Injections, and Tents, has been the misleading surgeons into a faith, that where-ever these medicines were applied, the part would heal; and upon that presumption, they have neglected to dilate Abscesses, which have not only remained incurable after this treatment, but would often have done so, for want of a discharge, if they had been dressed more superficially. *Sharp.*

For the cure of these Sinusses, See ULCER.

Mortifications sometimes succeed large Abscesses, though not very often. For the method of treating them, See GANGRENA.

On the other hand it frequently happens, that Nature in her office of incarning is so luxuriant, as to produce great quantities of loose spongy Flesh, which often gives a deal of trouble to the surgeon, by its rising considerably above the surface of the Skin, and thereby preventing the Ulcer cicatrizing.

To remedy this inconvenience, it may be touched moderately with the Vitriol, or Alum-stone, by which it will be daily waisted with little or no Pain. Dry Lint alone will often have the same effect, by absorbing the superfluous juice, and will cicatrize at the same time. When they prove troublesome, and will not give way to the common Escarotics, they may be broke in pieces by the Fingers, and pulled out, and the cavity filled with Pledgits, armed with this mixture. Take of clear Turpentine and Honey, each half a pound, the Yolks of three eggs; boil them to the consistence of an Ointment: to every ounce of which add of Red-mercury-precipitate one dram. This is called Paracelsus's Mundificative, and must be continued till the Ulcer is deterged; after which it may be treated as before-mentioned. The following Observation shews the necessity sometimes of this way of proceeding.

A young gentlewoman after child-bed being indisposed in her health, her left Breast became diseased, and swelled. They contented themselves with such help as those about them could afford. But after some days it growing more painful and swelled, the apothecary brought in his brother, who endeavoured Suppuration, and after some while gave vent to the Matter, and proceeded in the cure. But while he was dressing that opening, the Fluxion increased, and other *Abscesses* were raised, and from the several Apostemations sinuous Ulcers were afterwards made. Thus the work became difficult. I was consulted. In the pulling out one of the Tents, a thin white Matter issued out in great quantity. My brother-chirurgeon called it Milk, but I thought it Matter; and observed the *Abscess* to have begun deep in the body of the Glands, which, through length of time corrupting them, rendered the Swelling hard; and the Tent stopping in the Matter between dressings, had occasioned that large discharge we then met with. The method of cure consisted in the enlarging of that Orifice where the Matter seemed to be detained, and then to proceed with Detergives, &c. They entertained me in the cure, and I continued my brother-chirurgeon. We began with the application of a Caustic to the part round about the Orifice, stopping the hole with Lint; by which means in a short time we made an easy way for the Matter, and saw no reason afterwards to think it Milk.

As the Escar separated, a Fungus thrust forth, which we sprinkled with red Precipitate, dressing up the Escar with Basilicon, and the other openings with Ointment of Pompholyx, and Cerate of Althaea over all. After a more full separation of that Escar, we observing the Fungus to rise more large, applied a Stuph wrung out of a Decoction of the Tops of Wormwood, Rue, Mint, and Flowers of red Roses, and Balaustines, made in Wine and Water; and the while sent for some Chalcantum, which we applied upon the Fungus, and Pledgits of Ointment of Turty over the ulcerated parts. The second day after we took off the dressings, and found an Escar made by the Cathartic, which we thrust off, and dressed it again with the same, and continued the use of Escarotics. During those applications we applied over the Breast the Plaster of Bole to restrain the Influx; but yet the Fungus increased upon us, and raised a Swelling between that and the other Orifices. Upon which consideration we applied a large Caustic upon that Swelling, which laid some of the other Orifices into this; then divided the Escar, and dressed it up with Lenients, and covered the Fungus with Escarotics where-ever it began to thrust out, by which it was kept down. But after the Separation of this latter Escar, we seeing the Fungus great, and the way of extirpating it by Escarotics slow; and fearing the ill consequences of it, I prest with my Finger under it, and at once broke into it, and pulled it out in pieces; then filled up the place with red Precipitate, and Mundificative of Paracelsus upon Pledgits, with the aforesaid Plaster over the whole Breast, and bound it up. The second day after that we opened it again; and by this same method often repeated, we subdued the remainder of the Fungus, and raised a firm Basis, on which we incarnated, with an addition of powder of Orris-root, Myrrh, and Sarcocolla, to the fore-mentioned Mundificative; and then applied the Cerate of Agrippa over the Breast, and in few days cicatrized it with a smooth Cicatrix, the Lips falling in by the benefit of Nature, which was assisted the while by Traumatic Decoctions, &c. as in such cases is usual. *Wise-man.*

Sometimes the Lips of the Ulcer grow callous, and will not cicatrize. In this case, the actual Caustery is often found of good service, and the part must be treated after the same manner as a common Burn. For further directions see ULCER.

When an *Abscess* is judged proper to be opened by Caustic, two things are to be considered: the thickness of the Integuments, and the age of the patient; for it would be ridiculous to apply a burning Caustic to a child, when a mild one would do the business as well; and where the *Abscess* lies deep, it would be unpardonable in a surgeon, should he either apply too mild a one, or on the other hand take a proper one off too soon, that is, before it has sheathed its points in the Matter contained in the *Abscess*.

Caustics are of various sorts; the strongest is reckoned the Lapis infernalis, being the first running of Soap-makers Lees, boiled in a brass or copper ladle, to a consistence, and cut with a hot knife into pieces of several sizes, and kept close stopped from the air, till the time of use; a piece of this, of the compass of a silver three-pence, will make an Escar near as large as a six-pence, and usually performs its work in an hour's time.

A milder than this, is a Paste made of Soap-lees, and Quick-lime powdered; and a still milder, called from its softness, the Velvet Caustic, is a Paste made of Quick-lime powdered, and a little Soap. This is chiefly adapted to Infants, and tender Bodies, and may be suffered to lie on twenty four hours. *Turner.*

The best Caustic in use, is Lapis infernalis powdered and mixed into a Paste with Soap, which is to be prevented from spreading by cutting an Orifice in a piece of sticking Plaster, nearly as big as you mean to make the Escar, which being applied to the part, the Caustic must be laid on the Orifice, and preserved in its situation by a few slips of Plaster laid round the edges, and a large piece over all, with moderate Bandage to retain the whole. *Sharp.*

The size of the Caustic must always be proportioned to that of the Escar proposed; for upon the solution of its salts, in spite of all precaution they will spread, so as to form an Escar much larger than their own compass when first laid on.

This caution is not altogether unnecessary, having frequently seen an Ulcer, the effect of one of these Caustics, as big as a half-crown, and that too upon the Face, Neck, and Breasts of gentlewomen, where the Scar as much as possible ought to be avoided, which needed not to have exceeded the compass of a silver groat. *Turner.*

This Caustic generally does its business in an hour and a half, two hours, or three, according to the thickness of the Skin, and, what is very remarkable, notwithstanding its strength and sudden efficacy, it frequently gives no pain, where the Skin is not inflamed, as in making Issues, and opening some few *Abscesses*. *Sharp.*

When the Escar is made, which is known by a remission of the Pain, and the time the Caustic lay on, the Plaisters must be removed, and the Salts washed from the part with warm Milk. The Escar, now insensible to the Knife, must be cut through, and the Matter discharged, without over-much pressing the parts adjacent to get out all at once, for reasons mentioned before.

If the patient bears the discharge of the Matter without sickness or fainting, it may be necessary to cut away as much of the Escar as can be done conveniently; the remaining part is to be dressed up with Dossils armed with Basilicon, and dipt in Oil of Lillies warm, and over all a Diapalma Plaster, or an Anodyne Cataplasim, with gentle Compress and Bandage just to retain the dressings on the part. *Wise-man.*

This method must be continued till the patient grows easy, which is generally in two or three days; after which the Compress and Bandage will be absolutely requisite, by the artful management of which, and the continuance of the same Digestives, a Sinuosity may perhaps be prevented, and nothing more upon the fall of the Escar wanted than a little dry Lint to complete the cure. *Turner.*

As *Abscesses* opened by Caustic are liable to the same accidents with those which are opened by Incision, the method of treating them are in both cases the same; we shall therefore proceed to treat of particular *Abscesses*, with their different methods of cure, in every part of the Human Body.

ABSCESSES OF THE HEAD.

Abscesses in the Forehead and Hairy Scalp are, for the general part, the consequences of a Contusion; where the extravasated Juices, from the want of timely bleeding, and refringent applications, their regrefs through the broken Capillaries being destroyed, inflame and ripen into Matter.

If they happen upon any of the Sutures, they sometimes produce dangerous symptoms, by inflaming the Dura Mater, which passes through them, and is continued to the Pericranium. *Wise-man.* See PERICRANIUM.

In all *Abscesses* of the Hairy Scalp, the Caustic is preferable to Incision, (especially if the Matter has been so long confined as to make the Skull black or carious) as it makes way for the Rugine or Raspatory [see RUGINE] which is always to be used, except upon the Sutures, the thinness of the Skull there forbidding it; for should we wait for an Exfoliation by the common methods, some weeks, perhaps months, would be required; whereas, by the Raspatory, Incarnation is completed in a few days.

Abscesses in the Forehead must always be opened by Incision, which must be made according to the direction of the Fibres, for a transverse wound here may cause the Eyebrows to fall over the Eyes.

Arcaeus's Liniment is the common dressing in these *Abscesses*, it being by the author designed particularly for wounds of the Head, and the cure is to be finished with dry Lint, with good Compress and Bandage.

If a Sinus should be formed, let it be opened in the most depending part, the Matter let out, and a Compress of the whole length of it applied, with the double-headed Roller or Cap; by which, and dressing as above, it will heal without farther trouble.

ABSCESSES IN THE EYELIDS.

Internal *Abscesses* in the Eyelids must be treated by making an Incision in their most eminent part, and evacuating the Humour. After this wash the place with Brine, and bind on it a piece of Wool moistened with an Egg. Next day foment the sore, and anoint it with Honey; after this, let the cure be carried on by frequent Instillation of the Collyrium Repressum.

As for external *Abscesses* in these Parts, after Incision and Evacuation, as in the former, we apply some Lint spread with Honey, and bind thereon a piece of Wool.

If the *Abscess* affect the Cartilage of the Eyelid, if on the external part, it is not impossible, after they have been well cleansed with Egg and Honey, to incarnate them by some drying Medicine proper for the parts about the Head. If the *Abscess* lie in the inward part of the Cartilage, after the Eyelid has been turned up, and the Cartilage laid bare and scraped, lay thereon some of the finest Powder of Copper, and to the Eyelid apply an Egg beaten up with Wine and Oil of Roses; next day foment the place, and apply the Powder and Egg as before; on the third day anoint the Eyelid with Honey, and then betake yourself to the use of the Collyrium Repressum. *Actius Tetr. 2. Serm. iii. cap. 79. See COLLYRIUM.*

Abscesses in the Eyelids sometimes happen, and are easily cured by a small puncture with a Lancet, and a bit of Diachylon Plaster. But these Apostems are better prevented by letting out the Blood with the point of a Lancet, which often by a blow is thrown upon these parts in greater quantity than can be absorbed again into the circulation. No other dressing is required than dry Lint covered with a bit of defensive Plaster.

The Lachrymal Glands frequently apostemate, which is caused, as most authors imagine, by the Tears becoming acrid and corrosive, and so exciting an Inflammation and *Abscess*; tho' many of them imagine that the Tears themselves, not finding a way through the Nasal Duct, do, from stagnating in the Saccus, corrupt, and become the Matter discharged by the Puncta Lachrymalia: but the latter opinion is most certainly ill grounded; for besides that the Tears are not of a composition to become Pus, it may be observed almost at any time, upon pressing the *Abscess*, that the two Fluids appear unmixed; and with regard to the general doctrine of the sharpness of the Tears producing this disorder, I think it is much to be questioned, since the Cornea and Tunica Conjunctiva, being more sensible Membranes than the Saccus, would more readily be offended by them; but as we see they are not in the least injured, and every part of an animal Body is subject to Inflammation from internal causes, I believe this external one may be justly doubted. *Sharp.*

These *Abscesses* are sometimes so foul as not to cure by Incision; in this case a piece of the Bag itself must be cut away. *Sharp.*

The manner of performing the operation is this: Supposing the *Abscess* not broke, choose a time when it is most turgid with Matter; and to this end you may shut the patient's eye the day before, and lay little slips of Plaster upon one another across the lids, from about the Puncta lachrymalia to the internal Angle; which compressing their channels, and preventing the Flux of the Matter that way, will heap it up in the Bag, and indicate more certainly the place to be cut. If the *Abscess* is already open, the Orifice and Probe will inform you where to enlarge; then placing the patient in a seat of convenient height for the management of your Hand, with a small Incision-knife dilate from the upper part of the Bag down to the edge of the Orbit, without any regard to the Tendon of the Orbicularis Muscle, or fear of wounding the Blood-vessels; though if you see the Vessels, it is proper to shun them: the length of this Incision will be near four tenths of an inch. It has been advised, in opening the Bag, to introduce a small Probe through one of the Puncta into its cavity, to prevent wounding the posterior part of it; but I think this excess of care may be more troublesome than useful, since in so large a Vessel a very small share of dexterity is sufficient to avoid the mistake. In making this Incision care must be had not to cut too near the joining of the Eye-lids, because of the deformity of the succeeding Scar; though the blear Eye, or uneven contraction of the Skin in that part, after the operation, is generally owing to the use of the Cautery, and not to the wound of the Tendon of the Orbicularis Muscle; for this last is necessarily, from its situation, always cut through, but without any inconvenience, because of the firm Cicatrix afterwards that fixes it strongly to the Bone.

When the Bag is open, it is to be filled with dry Lint, which the next day may be removed, and exchanged for a Doffil dipt in a soft digestive Medicine: This must be repeated every day once or twice, according to the quantity of the discharge: Now and then, when the Matter is not good, using the precipitate Medicine, and from time to time a Sponge-teat, to prevent the too sudden reunion of the upper part of the *Abscess*. When the discharge begins to lessen, it will be proper to pass a small Probe, or silver Wire through the Nasal Duct into the Nose, every time it is dressed, in order to dilate it a little, and make way for the Tears and Matter, which by their drain will continue to keep it open. This method must be followed till the discharge is nearly over, which will be in a few weeks, and then dressing superficially with dry Lint, or any drying application, the wound will seldom fail of healing. After the cure, in order to prevent a relapse, it will be proper, for a few weeks, to wear the compressing Instrument. *Sharp.*

These *Abscesses* generally end in a Fistula Lachrymalis, for the treatment of which see FISTULA LACHRYMALIS.

In the Nose sometimes *Abscesses* are formed, and are to be treated as directed in the following observation:

A gentleman near seventy years old was sorely afflicted with a Furuncle within his Nostrils and about his Nose, with great Inflammation and Hardness. I fomented the diseased parts with a Decoction of the Tops of Marsh-mallows, Mallows, Violets, Chamomile flowers, Melilot, Linseed, and Fleawort seeds, and with a syringe injected some of the same into his Nostrils, and applied the fore-mentioned Cataplasm over his Nose. I purposed the letting him bleed in the Arm, but it would not be admitted by reason of his age; but by setting on Leeches behind his Ears, I took away some Blood; also by blistering the Neck and Shoulders, I endeavoured Revulsion, by Clysters kept his Body soluble, and continued the applications, by which his Pain was somewhat mitigated. After five or six days the Skin became thin, and a white tough Matter shewed itself in several places within and about his Nose, and gradually made its way through many small openings. I made it more way here and there with the point of a Lancet, and dressed them with Oil of Lillies mixed with the Yolk of an Egg, and continued the use of the Fomentation, and applied the Cerate. I was much troubled to think what would become of his Nose, the exterior or interior parts being all stuffed with that clammy Matter, so that it would not issue out; and, when it should, I doubted it would leave little covering upon the Cartilages. To hasten it out, I daily dropt in a mixture of Honey of Roses, with Juice of Smallage decocted; and, by conveying a big Tent dipped in the same into each Nostril, I pressed the Matter outward, and sometimes pulled it away with my Forceps. It came out as if it had been broken pieces of the Spinal Marrow, and burst some of the openings into one another, which I was sorry to see. But the Matter not being accompanied with Acrimony, the hollowness filled up, and the distended Lips falling near one another, agglutinated as the Matter digested out; and by the compression I made with my Tents within the Nostrils, I enlarged them, and furthered the well-cicatrizing of the Ulcer; which was effected in a few days after, with Cicatrixes not unseemly. *Wiseman.*

ABSCESSES about the JAWS.

The Conglobate Glands under the Jaws are very subject to *Abscesses*, which have been taken by some to be strumous, but they differ greatly; the Struma being contained in a Cyttis requires to be eradicated by Escarotics after the Matter is discharged; but these, after the discharge of the Matter, are cured either of themselves, or by the ordinary intentions of Digestion.

These *Abscesses*, as the part is not very capable of Bandage, are best opened by Caustic. *Wiseman.*

After the discharge of the Matter till the Escar is separated, it must be dressed with Lenients, and the cure must be completed as in the *Abscesses* opened by Incision.

A child of about nine years old having been diseased with a Fever, some reliques of that Matter discharged themselves in a Swelling under the right Jaw, as big as a pullet's Egg. It was suppurated, and required vent, which I gave it by Incision, but could not cure it till I had applied a Caustic on the depending part. The place not being very capable of Bandage, it could not be treated so advantageously when opened by Incision, and dressed with Tents; but after the laying it more open by Caustic, the Matter plentifully discharged, and the *Abscess* cured. *Wiseman.*

ABSCESSES of the EARS.

If an Inflammation or *Abscess* affect the Ears, the same Regimen of Diet is to be ordered as in a Fever, that is to say, a very thin one, and that affords little or no nourishment. And because this Sensorium is near the Brain, and of quick Sensation, a small error with respect to it may prove of bad consequence. Let the patient therefore live on Cremor of Pisan, and Water, and be kept quiet; and apply fresh Fats, void of all Acrimony, to the part. If the Inflammation proceed to an *Abscess*, and Pus appears, it must be evacuated, and the *Abscess* cleansed, by the Emollients, and moderate Drawers, and Deterfives. But since some, by their negligence, let their Ears run with Pus for a long time, which is not afterwards easily dried up, and which has a very offensive smell, drying Medicines are to be used, such as those which are prepared of the Recrements of Iron with Vinegar, which are of wonderful efficacy in drying up old and foul Ulcers, especially in the Ears. *Atuaris Meth. Med. lib. iv. cap. 10.*

Abscesses near the Ears, which the Greeks call *ωτοπαλιδες*, are accounted among Inflammations, for they are generated by an Inflammation of the Glandules about the Ears. But we seldom treat Inflammations in these parts according to the method regularly adapted to an Inflammation, when there is no concomitant

comitant Malignity, nor any extraordinary Influx of Humours; and the Body is not burdened with a Plethora; for in such a case, a Sponge dipped in Posca, and laid to the place, represses the Inflammation without any bad consequence. But in the Parotides we are obliged to take another course, and use drawing Medicines; and if these are of little effect, we apply a Cupping-glass, or frequently foment the place: for our intention is directed, by all manner of ways, to call the noxious Humours from the Internal Parts to the Superficies. However, when their Influx becomes violent, we are not to be too busy or solicitous, but let Nature have a great share in the management. Wherefore, in this case, we do not comply with the Propension of the Humours, but rather mitigate them by such Medicines as are remarkable for their lenitive qualities. Such are those prepared of the Meal of Wheat, Barley and Linseed boiled with honey'd Water, the Decoction of Foenugreek, Marsh-mallows, or Chamomile, and other Medicines of a moderately hot and moist quality, whence they have the virtue not only of mitigating Pain, but of digesting and bringing to a Suppuration the confluent humours. Such are Wheaten meal, with the Decoction of Figs, and Oil, and a preparation of fine Wheaten flower and Yeast. When the Parotides are suppured, the Pus must be evacuated, either by Incision, and the Ulcer healed, as all agree, or by breaking the *Abscess* with some acrid Medicine, such as the Emplastrum Smilium, or one prepared with Garlick; or, lastly, it must be discussed by such Medicines as are of fine parts, and are, at the same time, endued with a drawing faculty; and if, after the greater part of the Pus is discussed, any Hardness should remain, it must be treated with Emollients.

Archigenes recommends the following remedies for dissolving these *Abscesses* of the Ears. Apply every day a Cataplasm of Plantain bruised with Salt, or Goat's dung, with Vinegar, or the Sharp-pointed Dock boiled in Wine, or Figs bruised or boiled with Vitriol, or Figs boiled with Wormwood, and bruised in Wine; or apply the calcined Shells of Whelks, or of the Purple-fish, with Honey; and Discussion will soon be effected. The same virtue is in Oyster-shells calcined, and applied with Honey, and in Cerate of Roses, or Oleum Cyprinum mixed with Rue, or Sulphur vivum mollified, and in Fullers Earth and Vinegar. This last boiled in Sea-water or Brine, and beaten and applied, is a most powerful Discutient. Horehound and Salt laid on Wool that is impregnated with it, and then applied, has the same virtue, and is very proper in the beginning of the Parotides; or, to name no more, apply a Cataplasm of the Meal of bitter Lupines boiled in Honey, with the addition of a moderate quantity of Quick-lime. *Actuarius, lib. vi. cap. 3.*

The external Salivary Glands behind and about the Ears are frequently afflicted with very large *Abscesses*, which are to be considered as salutary or malign according to their different causes. For instance, those which happen from an external cause, as a Bruise, whereby Blood is extravasated and cast into these Glands, are salutary, and easily cured; but those which happen after great Evacuations, or a Fever, without remission of it, are pernicious and dangerous.

As Nature is sometimes very slow in ripening these *Abscesses*, she must be assisted by the application of strong suppurative Cataplasms, or even Cupping-glasses; Gum Plaisters too are proper, and, in a full Habit of Body, Bleeding may be of service. *Wiseman.*

When the Matter is well concocted, let a Caustic be applied, and proceed in the cure as in other *Abscesses*.

These *Abscesses* sometimes burst in the Ear. In such a case, a little of the Oil of St. John's Wort, mixed with Honey of Roses, and dropped into the Ear once a day, with a bit of Wool lightly pressed in after it, will forward the cure greatly: the outward parts must be kept warm with flannel, as long as the Matter continues to discharge.

Instead of digesting, by the common methods, the *Abscess* frequently turns fordid. See ULCER.

At other times, after it has been incarned and cicatrized, a Hardness will remain, which will require the application of another Caustic, the full compass of the induration, which having penetrated deep, the Escar must be divided to the Quick, and separated and digested as above.

A person of about fifty years of age, having long laboured under Scorbutical Affections, was seized with a slow Fever; his Head was affected with Vapours, and his Spirits oppressed; during which a Tumour arose behind his left Ear, and reached down under that Jaw, growing big and hard, of a dark red colour. We endeavoured by discutient and emollient Cataplasms and Embrocations of various sorts; but it would not yield to any of them. We repeated Venesection, and made him Fontanels between the Shoulders; Purgations were also repeated, but without success. I then applied the Plaister for the Evil, and continued it without removal the space of six or seven days, supposing thereby the Tumour would suppurate or resolve: yet it continued hard amongst the Muscles.

I repeated the use of the Emplaster; and the third or fourth day after, feeling the Matter fluctuate under it, I took off the Emplaster, applied a Caustic on the depending part about an inch in length, divided that Escar, and gave a discharge to a crude serous Matter, then dressed it with Lenients, and applied the Mucilage Plaister, with a third part of Diachylon with the Gums. After separation of the Escar, I deterged with the Vitriol-stone, and Basilicon, and red Precipitate, and at other dressings dipt them in Precipitate-powder. Having thus deterged, I incarned, and by Epulotics cicatrized it firm. During the time he was often purged, and Traumatic and Antiscorbutics were prescribed; but a Hardness remained notwithstanding. Whereupon, doubting a Relapse, I applied another Caustic, the length of that Induration; and having thereby penetrated deep into it, divided that Escar to the Quick: and by separation of the Escar, and digestion of the Lips of the Ulcer, that Hardness was breathed forth, and the patient cured, and enjoys good health to this day. *Wiseman.*

In the beginning of April, 1599, I saw at Cologne an unmarried woman of about forty afflicted with an *Abscess* behind her left Ear, which physicians call *Parotis*. She had no Fever, neither kept her bed, but all the time followed her domestic affairs. About the fourteenth day from its first appearance, the *Abscess* being grown as big as my fist, and the Matter quite ripe, but by the thickness of the Skin being retained too long, it was absorbed into the Circulation. Being then sent for, I found the *Abscess* had broke of itself some hours before I came, the patient also in a Fever attended with Fainting, Sickness at her Stomach, Loathing of Food, and want of rest, with a Pain also in her Back and Loins. The *Abscess* discharged little or nothing, nor was it possible to invite the Matter back again, so she died a few days after. Hence it is evident, that in this kind of *Abscess*, whether seated in or near the Emunctories, we ought not to wait till they break of themselves. *Hildanus.*

Abscesses under the Chin are very frequent in children, but are easily cured by the common methods.

Dangerous *Abscesses* sometimes affect the Jaws, and generally proceed from the Tooth-ach, or from some Hurt in the Drawing a Tooth.

The method of cure is fully laid down in the following observation:

An officer of the king's regiment of foot, of a sanguine and healthful constitution, marching at the head of his company in a hot Summer's day, heated his Blood, and was seized with a Pain in one of his Teeth of the lower Right-jaw. He sent to a tooth-drawer, who pulling out the Tooth, broke the Sockets off from the Jaw, according to the length of it. The Pain made great Fluxion, and required Evacuation and Revulsion by Bleeding and the like. But this being omitted, and the part affected not treated as it ought, the Pain increased, the neighbouring parts swelled and apostemated, and all his Teeth and part of the Sockets cast off. After some weeks continuance in the country, finding his disease increase upon him, he came to town, and sent for me. That side of his Head, Face and Neck were extremely swelled outwardly, so was the Cheek and Tonsil within, and the fractured Bones hidden within the Tumour. Upon a pressure with my hand on the outside of his Cheek, seeing the Matter flow into his Mouth out of a small opening near the farther part of the Jaw, I made a search with a Probe, and felt the Jaw bare. There was a necessity of laying that Orifice open, for the more easy discharging of the Matter: which being done, I employed my endeavours to take off the Fluxion and Fever he laboured under, let him blood from that Arm ten ounces, prescribed Fomentations and Cataplasms to be applied outwardly to discuss the Tumour, and inwardly an Injection, to deterge the Ulcer, of the Roots of Orrice, Tormentil, Bistort, Birth-wort, with Syrup of Roses, and a little Spirit of Wine; also a Gargle, to wash his Mouth, of the Flowers of red Roses, Plantain, Tops of Brambles, &c. with Diamoron and Spirits of Vitriol dulcified. Dr. Warner being consulted, he directed anodyne Draughts, Cordials, Julaps, Emulsions and purging Apozems. The ill Humours thus evacuated, and contempered, we hoped the outward and inward Swellings and discharge of Matter would have lessened; but they not yielding one jot to our endeavours, I laid open the Cheek from the Orifice I had enlarged forward along the Bone, with intention to take it out; but it was so shut in, that I could by no means get it out, till with watch-maker's files I cut through that Bone; then the ends thrust out into his Mouth. These I pulled out; they proved to be pieces of the Sockets. Then I felt the Jaw itself arise; and considering that if it were loose it must come out, I passed the end of my Probe under it, whereupon it rose up, having been some while loose, and was only held down by the foresaid Sockets; which being removed,

the Jaw came away without the least Pain, or one drop of Blood, he only crying out of his Ear, as if it had made a hole through there.

The Jaw being extracted, the side was ready to fall in: to prevent which I caused the patient to hold it stretched out with his Fingers in his Mouth, and a looking-glass held before him, that he might the better see to keep it more exactly even, whilst I, by agglutinative Powders, with the White of an Egg, made a crust upon the outside; which, with Pastebord wet in Vinegar applied over it, fate close to it, and after it was dried kept that side of the Cheek firm, and by Bandage it continued so, he helping it as hath been said above. It also was somewhat stiffened by the hard Swelling which was in the Cheek.

To hasten the Callus, I gave him daily Osteocolla, as I had read in Fabricius Hildanus's works. Whilst his Chaps were thus bound up, I continued to wash his Mouth with the Decoction abovesaid, injected often in a day with a syringe; by which means the Ulcer was cleansed and cured, and disposed to a Callus, which grew and hardened in less than twenty days, so equal with the other, as without looking in his Mouth it could not be discerned. *Wiseman.*

ABSCESSSES about the NECK.

The Neck is not often subject to Apostematation, being more generally affected with encysted and scrophulous Tumours; yet sometimes it happens, when great care must be taken the internal Jugular Vein is not wounded if the Tumour be opened by Incision; but this danger may be intirely prevented by giving a Caustic the preference; however, if it should so happen, it must be treated as is directed in the cure of wounds of the Veins and Arteries.

As the situation of the Neck frequently causes *Abscesses* there to turn sinuous, so with Compress and Bandage well adapted, those Sinusses will be healed in a little time; without the trouble of dilating. The dressings are the same with those already specified.

ABSCESSSES of the TONSILLS.

The Tonsills are often subject to violent Inflammation, to the great hazard of the patient's life, especially when they are inclined to suppurate, when the Tumour increases to so great a magnitude as to intercept the Breath almost to Suffocation.

These Tumours oftentimes have so great a tendency to suppurate; that all evacuations prove ineffectual; and it frequently happens, that when the patient is just suffocated, the Tumour bursts, and he recovers immediately: for as soon as the Matter is discharged, the Tonsills contract themselves; and by the help of a little Honey of Roses, or a Gargarism of the Decoction of Elm Bark, mixed with a little Honey, are well as it were in an instant.

To prevent these dangers, it is the common practice to make deep Incisions with a Knife, or large Lancet, into the bodies of these Tumours, which frequently is of service, by discharging the Blood and Juices before they are ripened into Matter. See *ANGINA*.

When the patient is in danger of being suffocated, the operation of Bronchotomy is often advised, but seldom made use of. The very thoughts of having their Throats cut, without considering the reasonableness and safety there is in it, throwing such a terror upon most people, that they will rather choose to die than submit to the operation. See *BRONCHOTOMY*.

ABSCESSSES of the ARMPITS.

Abscesses are sometimes formed in the Armpit by a consent of the parts in painful wounds, Tumours or Ulcers, in the Arm or Fingers; or proceed from a translocation of morbid Matter in the Crisis of a Fever, and are more or less difficult of cure, as the febrile Matter is pestilential or salutary: If they arise from malignant Fevers, Suppuration comes forward very slowly; in this case, nature must be assisted with strong Cataplasms, or Cupping-glasses.

When the *Abscess* is ripe, it must be opened by Caustic, so as to prevent a necessity for dilating.

The Matter being discharged, and the part dressed with the common Digestive, it may be necessary to apply a mild Cataplasma over the dressings, secured with a Compress and double-headed Roller, and to continue the use of it as long as may be found needful; but in these cases, there never is a good Digestion, till the malignity is corrected by proper Internals.

A young man, aged about twenty years, riding a long journey in the heat of Summer, put his Blood into a ferment, which affected his bridle-hand with great pain, and produced an Inflammation, with a Tumour in that Wrist. To remedy which, he was let blood in the other Arm, and the part diseased was embrocated with Oil of Roses and Vinegar, and a Plaister of Armenian Bole was applied; and the second day after he was purged with an Infusion of Senna, &c. The Swelling increasing, with Inflammation and Hardness, the moderate repelling and discutient Cataplasma of Mallows, Pellitory of the Wall, Plantain, &c. was applied: but this patient being

of a very ill Habit of Body, the Tumour increased, and, collecting more round, shewed its inclination to suppurate; wherefore I left out the Repellents, and added white Lilly-roots, &c. by the application whereof, it suppurated in few days after. I opened it by Caustic, and discharged a proportionable quantity of Matter well concocted, and hastened the fall of the Escar by Lenients. During the Fluxion (which was in the Wrist amongst the Tendons) he complained of a Soreness in that Armpit, but took little notice of it, till, after the opening this, the pain diminishing there, he felt that in his Armpit more sore. I also felt a small Gland there, and applied a Plaister of the Mucilages, supposing that would resolve it. After the separation of the Escar, whilst I was digesting that *Abscess*, he was again purged; but the Swelling increased in the Armpit, and suppurated, and was likewise opened by Caustic, and endeavours used to digest that. But whilst the former *Abscess* cured, this latter became more crude and sinuous, and the patient was seized with a Rigor, and a Fever followed; for the cure of which he was let blood again, and purged, by doctor Walter Needham's prescription, with an Infusion of Senna in a Decoction of Tamarinds, with the addition of Manna, purging Syrup of Apples, and Syrup of Buckthorn. By the repeating of this he was freed of his Fever, but the *Abscess* would not digest three days together by any application: upon which consideration we prescribed him a Decoction of the Woods, &c. By the drinking thereof a few days, the *Abscess* digested, and healed soon after to a wonder. *Wiseman.*

The cure of these *Abscesses* must not be hurried on too fast; for in times of Contagion, or where-ever a pestilential Venom is spread abroad, and become epidemic, if the same happens by the strength of Nature to be thrown upon these Glands, the Ulcer must not be too hastily healed up, lest the malign particles to be thrown forth by these Emissaries or Outlets, being shut in, should afterwards destroy the patient; for whose security, if some part of the Ulcer, where the same can commodiously be done, was continued as an Issue for a little time, or till the sick was absolutely out of danger, it might sufficiently compensate for the trouble. If this cannot be done, Fontanels near the part may supply the place. *Turner.*

Notwithstanding the Compress and Roller, fistulous Ulcers frequently succeed these malignant *Abscesses*; for the cure of which see *FISTULA*.

Abscesses in the Arms are very frequent, not only from Contusions, but from the Crisis of a Fever, and are very often strumous.

In the first case they are seldom dangerous or difficult; but in the other frequently produce Sinusses, with Caries of the Bones.

These *Abscesses*, in good Habits of Body, are easily cured by the methods laid down in the general doctrine of *Abscesses*.

But if, from the Crisis of a Fever, they prove sinuous or strumous, they must be treated as Ulcers of those kinds.

Abscesses in the Hands and Fingers are for the most part strumous; for the cure of which see *STRUMA*.

These parts, being much exposed to view, should never be opened by Caustic, on account of the Blemish they generally cause.

ABSCESSSES of the BREASTS.

If an Inflammation and Hardness in the Breasts persevering, produce an *Abscess*, which will not admit of Discussion, we are to use such medicines as will promote Maturation; tho', for our part, we have often discussed Inflammations of the Breast after their transmutation into Pus, by means of the Dionysian Plaister, which caused the Humours to perspire by invisible passages, and the Hardness to vanish. The yellow Plaister of Piscator, prepared without Vinegar, and the black one of Asclepiades, are also of good use in this case; but if all should fail, we must have recourse to surgery. All parts of the Breast will safely admit of an Incision, if the subject Matter be putrefied, except those near the Nipple, which must be treated with a Lunar Section, so as that the bottom of the *Abscess* may be laid open, and yet the Nipple preserved; in men, for the sake of beauty; in women, not only for beauty, but that the power of suckling may not be destroyed. After the operation the wound must be dressed with Lint; but you must avoid, by all means, the stuffing in too much of it, which is the ready way to induce a Fistula. The third day after this, you are to think of Suppuration; and when this is performed, Cleaners will come in use, and after them Dryers and Healers. For these two last purposes the yellow Plaister of Piscator before mentioned without Vinegar, and the yellow one of Galen for malignant Ulcers, are excellent medicines. On these must be laid a Sponge squeezed out of Wine. The black Plaister, prepared of Darnell, is also a good remedy, for it evacuates and glutinates; or bruise Earthworms with Polenta, and apply them. *Actius, Tetr. 4. ferm. iv. cap. 39.*

Abscesses in the Breasts, particularly of women, are very frequent, and generally proceed from too active and vigorous a Ferment in the separation of the Milk, tho' a Contusion sometimes is the cause.

In order to bring the Tumours to a more speedy Suppuration, Heister advises to apply a Plaister of Diachylon with the Gums, or of Henbane, or, what he apprehends more conducive to this end, the following Cataplasms:

Take of Wheat Flower half an ounce or an ounce, and with a sufficient quantity of Honey make a Cataplasm; to which having added a little Saffron and Milk, spread it upon double cloths, and apply it hot to the Breasts; and renew it often.

Or take of Wheat Flower four ounces,
Gum Galbanum dissolved in the Yolk of an Egg one ounce,
Vinegar three ounces;

These must be boiled to a Cataplasm, with a sufficient quantity of Water.

Or the Cataplasm of Barin, Honey, and Venice Soap, before-mentioned, from the same author.

These Apoftemations generally bursting at the top, produce sinuous Ulcers very difficult of cure.

But when the Tumour is so ripe as to want opening, a Caustic must be applied to the most prominent part, yet a little depending; which being done, and the Escar separated, if a good Digestion succeeds by the use of the common applications, with gentle Compress and the Scapular Bandage with the Napkin, and there is no Hardness or Pain, the cure is compleated in a few days. On the other hand, if the Fluxion continues, more *Abcesses* may be expected, which generally form Sinusses sometimes very difficult of cure.

If the Sinus is superficial, it must be laid open with the Knife or Scissars; but if deep in the Glands, it is adviseable to try which way nature points for a Discharge, by plugging up the Orifice with a large Tent, and continuing it there for two or three days, that the inclosed Matter may either produce a fresh Apoftemation in a more depending part, or instruct where to make another with advantage. After the separation of which the Ulcer may be incarnated with Liniment, and cicatrized with Ointment of Tutty, or dry Lint.

In these *Abcesses*, Fungusses sometimes greatly impede the cure, and prove very troublesome. See FUNGUS.

A Varix also may sometimes prevent a cure. See VARIX.

A maid of about twenty years old, of a gross body, receiving by accident a blow on her right Breast, it swelled, and grew hard and painful. After several applications, the Hardness and Pain rather increasing, she, suspecting a Cancer, came to me. I viewed it, but saw no symptoms of it. I embrocated it with Oil and Vinegar, and applied a Plaister of red Lead with Soap; and the day after let her blood, and then purged her with Whey, Manna, and Cremor Tartar, by which the Hardness was seemingly resolved for some time: but she being irregular in her appetite, it swelled again, as when I first saw it. Upon which consideration I applied Emollients; and seeing the Tumour increase, and she impatient at the sight of it, I applied a suppurative Cataplasm, of the roots and leaves of Marsh-mallows, white Lillies, &c. By the continued use of it in a few days it suppurated well, and I opened it by Caustic in the declining part, and discharged a large quantity of Matter. I dressed the *Abcess* with Lenients, and continued the use of the Cataplasm till the Escar separated. Then I deterged with Paracelsus's Mundificative, and applied the Mucilage Plaister, and shortened the Tent. The Orifice growing less, and somewhat of the Hardness yet remaining, I put in a short Cannula of Lead, and kept the Orifice open till the Hardness was totally resolved; and that it mattered very little, or not at all; then threw out the Tent; and applied a Pledgit of Ointment of Pompholix, and permitted it to heal, which it did in few days. This was a pure Phlegmon, and lay deep in the Breast, and owed its speedy cure to the perfect Suppuration made in it before the opening. For otherwise, such *Abcesses* in large Breasts do frequently terminate in sinuous Ulcers, and grow callous, by reason of their laxity and want of natural heat. *Wiseman*.

One having been troubled with a sore Breast about a year after child-bed, it growing more swelled and ulcerated, she sent for me. It was hard, without Inflammation or discolouring in the Skin, and discharged a well-concocted Matter out of the Nipple, and some small openings near it. I wondered what should be the reason it did not cure: at last, in handling the Breast, I felt a Varix lying under the Skin; it felt like net-work. I dressed the Ulcer with Basilicon sometimes, and at others with Ointment of Tutty; applied a Plaister of Armenian Bole over the Breast, with Bandage to support it; and advised the wearing of fine Tow, sprinkled with Cerufs, under that Armpit; by which method it was afterwards cured in a month or thereabouts. *Wiseman*.

Inflammations of the Lungs and Pleura, frequently produce *Abcesses* in the Breast and upon the Ribs, which often turn fistulous, and cariate the Bones underneath.

In these critical Translations the danger is more or less, according to the quantity of Matter discharged, it being sometimes so great, as to bring on an incurable Consumption.

If a Tumour appears on the Breast or Ribs, preceded by a Cough and Difficulty of breathing, the Suppuration must be forwarded, as fast as possible, by some of the suppurative Cataplasms; which must be continued till the Tumour is fit to be opened, when a Caustic must be applied, and the Matter discharged. For want of this assistance, it sometimes bursts inwardly, and falling upon the Diaphragm, produces such disorders as may make the operation of the Empyema necessary. See EMPYEMA.

When the Discharge is very large, a Cannula of Lead may be proper to keep the Orifice open; for Fungusses will frequently arise, if not prevented by this means, and do a great deal of mischief, by stopping up the Orifice, and thereby preventing a Discharge of the Pus.

The Cannula must be continued till the Matter is of a good consistence, and little in quantity; when it may be thrown out, and the Ulcer incarnated and cicatrized by the common methods: Or a Pea may be substituted in its stead, and the Ulcer kept as a Fontanel, as long as you think proper.

If any of the Ribs should be carious or bare, which sometimes happens by the constant pressure of the Cannula against it, an Exfoliation, by any applications, is unnecessary, Nature seldom wanting any assistance, if the Ulcer is kept well digested. *Wiseman*.

The Bandage is the Napkin and Scapular.

Some while since I was accidentally in the country, and was shewed, by a chirurgeon thereabout, an apoftemated Breast; the biggest I ever saw. The patient was a woman about forty years old. She had a Cough, and was oppressed with Difficulty of breathing. The surgeon opened her Breast in the declining part, and discharged a proportionable quantity of fetid Matter. She was somewhat relieved by it, but it penetrated into the Breast, and the large Discharge of Matter soon waited her. *Wiseman*.

ABSCESSES OF THE BELLY.

Abcesses of the Belly are generally the effects of a violent Contusion, and are subject to great Defluxion from the laxity of the parts, especially in scorbutic and ill Habits of Body, where the Matter is apt to insinuate itself amongst the circumjacent Muscles, and to form sinuous Ulcers difficult of cure, as we cannot make so good Bandage on them, by reason of their figure, situation, and perpetual motion, as elsewhere may be made. *Wiseman*.

When the Tumour is ripe, let it be opened by Incision on the most depending part; and, the Matter being discharged, the Ulcer may be dressed with Pledgits armed with Liniment, or Balsam of Turpentine; mixed with a little Oil of St. John's Wort, with a Plaister of the Mucilages spread upon a rag over it, and the whole secured with the Napkin and Scapular.

A Fomentation of Wormwood leaves, tops of Elder, Marsh-mallows, Centaury, and Chamomile flowers, will greatly assist Nature in producing a good Digestion; the Belly being bathed with it half an hour at each dressing.

The cold air is very prejudicial to these Ulcers; therefore they must be guarded against it, by having a chafing-dish of Coals near the patient when he is dressed.

If Sinusses should be formed, they must not be dilated the whole length, but the Matter discharged by Incision in the most depending part. The upper parts of the Sinus will be united by good Compress and Bandage, and the cure of the Ulcer compleated by the ordinary methods.

In the year 1597, a lusty Savoyard, about forty years old, being afflicted with a great Pain in his right Side, at the extremities of the false Ribs, came to Lausanne and sent for me, and Albertus Roscius, a very noted physician there, to consult about his case. Upon examination, we could not perceive the least Tumour, but felt a Hardness deeply seated amongst the Muscles. His Pain, accompanied with a small Fever, we found was caused by the compression and extension of the Peritonæum. After gently purging him, we applied Fomentations, Cataplasms, Ointments, discutient, resolvent and anodyne, for some days, but without effect. Hence we entertained some hopes that the Hardness might be discussed, as I had known formerly to have happened in a case of the like nature. A Decoction of Guajacum, Sarsaparilla, with some hepatic Herbs therefore was prescribed, and given for some days: But, instead of being discussed, in a few days Matter flowed about the Region of the Liver, between the Abdominal Muscles and the Peritonæum, and in such quantity, that by the pricking Pain and Pulsation it occasioned, we had sufficient knowledge where to make an Incision for the Discharge of it; which we agreed should be done without delay, tho' nothing appeared outwardly, lest the Matter should penetrate the Peritonæum, and fall into the Cavity of the Abdomen. The operation I happily performed in the

presence of the said Dr. Roscius, Claudius Mario, and others; and discharged a great quantity of Pus. The Fever, Pain, and Fainting went off gradually. The Ulcer we were obliged to keep open some months, on account of the great quantity of Matter which flowed out. In the mean time, by observing a good Regimen, and purging between whiles, together with the use of the Decoction of the Sudorifics and hepatic Herbs, the parts gained strength, and the patient, by the blessing of God, was perfectly cured. *Hildanus, observ. xxxviii. tent. 2. p. 115.*

ABSCESSSES in the GROIN.

Abscesses in the Groin, like those in the Arm-pit, frequently arise by a consent of parts, in painful Wounds and Ulcers. They are sometimes the Crisis of a pestilential Fever, and very often are venereal.

A Translocation of Matter from an *Abscess* in the lower parts of the Belly, in the Glands, and other parts near the Iliac Branch, may also cause an *Abscess* in the Groin very difficult of cure: but, if these *Abscesses* suppurate kindly, and are timely opened, they are not dangerous; if the contrary happen, they may degenerate into Fistulas, and then are not without danger. *Wiseman.*

Fallopian says, that Blood extravasated in the Cavity of the Abdomen, will fix on the Inguina, and there form an *Abscess*.

When Matter is formed, and begins to fluctuate, if the Tumour is kindly and not venereal, a Knife is preferable to the Caustic for the Discharge of it. The Incision must be oblique; and great care must be taken that the point of the Knife descends not so deep as to wound the Inguinal Artery, which would endanger the patient's life.

If a Flux of Blood should happen from a division of some small Vessels, after the Matter is discharged, let the Wound be dressed with some of the restringent Powders, with Dossils of Lint tied with a thread, pressed down pretty hard on the wounded Vessels, and upon the Lips, Pledgits armed with the common Digestive. A Plaster of the Mucilages over all, and the whole secured by Compress and Bandage.

The cure of these mild *Abscesses* is completed by the common methods in a few days.

If the *Abscess* is the Crisis of a Fever, it must be opened by Caustic, and the Wound must be kept open till Nature has freed herself of her disorder.

A discutient Fomentation ought to be always ready at the dressing of these critical *Abscesses*, for reasons before-mentioned.

The use of the common Detergents are seldom sufficient here, without the addition of red Precipitate; which must either be sprinkled in the Ulcer, or mixt with Basilicon or Arcæus's Liniment, as is thought most proper.

This seldom fails of producing a good Digestion; and is so good a Detergent, that by proper management in the mixing it, there will seldom need any thing else but dry Lint to complete the cure.

The method of curing *Abscesses* from a Translocation of Matter from the Belly, is much the same as the foregoing, and for the cure of venereal *Abscesses* in the Groin. See BUBO.

ABSCESSSES in the PUDENDA.

Abscesses are sometimes formed in the Lips of the Pudenda in women, which, if not venereal, generally yield to the common methods. They may be opened either by Caustic or Incision. See ALÆ.

ABSCESSSES in the SCROTUM.

The Scrotum in men is often subject to *Abscesses*, from Contusion or the Venereal Disease.

In the cure of those by Contusion, care must be taken not to open them by Caustic, lest the native heat of the part should be destroyed, and a Mortification be the consequence. Regard also must be had to the dressing these *Abscesses*: no greasy applications must be made use of, lest a sordid Ulcer should be produced; but Balsams of Peru, Capivi, or Arcæus's Liniment, are all necessary. A Fomentation also of the discutient Herbs must be used every time the Ulcer is dressed, till there is a good Digestion, and then the common methods may effect the cure.

For the method of treating venereal *Abscesses* in these parts, see HERNIA HUMORALIS.

ABSCESSSES in the BACK and LOINS.

The Back and Loins are subject to *Abscesses*, in which the Matter is generally seated so deep, that the Bones are often sufferers before it can be felt, with any certainty, to fluctuate; and, for want of timely assistance, sometimes bursts inwardly, to the great danger of the patient's life.

To remedy these inconveniences, if, by the prominence of the Tumour or other symptoms, Matter may be judged to be formed, however deep, a Caustic must be immediately applied, and continued till the remission of the Pain it causes certifies its effect; and then the Escar must be divided, which is sometimes near an inch in thickness, and the Matter discharged.

The first dressing must be dry Lint, and over this Pledgits armed with common Digestives, covered with a suppurative

Cataplasm; and the whole must be secured by the Napkin and Scapular. A discutient Fomentation must be made use of, if there is not a good Digestion.

If a fetid Ichor discharges, or the Bone is felt bare or ragged, the Ulcer must not be healed till an Exfoliation is procured by Tincture of Myrrh, Euphorbium, or Spirit of Vitriol; which last requires to be used with caution, and the sound parts must be well defended from their Acrimony, by applying Dossils of Lint over them, so as to keep the Lips of the Ulcer distended, and the Bone bare and dry. *Wiseman.*

Injections must never be used here, they oftentimes causing Sinusses very hard to be cured. Tents may be sometimes necessary to thin the Integuments, for the more easy dilating, if required.

The actual Caustery and Rugine, tho' often found to be of great service in exfoliating rotten Bones, yet the Vertebrae of the Back will admit of neither. *Wiseman.*

If, by the use of the Fomentation, desquamatory and other applications, with good Bandage, the Ulcer digests well, is free from callous Lips, and Nature seems forward to fill the cavity with new Flesh, care must be taken she does not do it in too luxuriant a manner, by the application of proper Detergents, such as Precipitate mixed with Digestives, as is said before; by the use of which, and afterwards dry Lint, or white Ointment, the cure in a little time will be completed.

But great care must be taken that Internals are not forgotten, as they are so highly necessary.

Strumous *Abscesses* appear frequently in these parts; for the cure of which see STRUMA and SCROPHULA.

Mr. T. P. of a corpulent habit, and about fifty years old, was seized with an Inflammation upon his Back, near the Spine, without any preceding Fever, attended with almost intolerable Pain. Mr. —, a noted surgeon, was sent for, who, upon examination, finding very little Tumour, attempted the cure by bleeding him plentifully, and embrocating the part with Oil and Vinegar. His Body was opened by a gentle Cathartic, given that evening. The next day the Pain and Inflammation being increased, and the Tumour a little elevated, attended with a violent Pulsation and symptomatic Fever, the dressings were altered. An emollient Fomentation of Marsh-mallows, tops of Elder, Melilot, and Chamomile flowers was used; and afterwards the Tumour covered with a Cataplasm of white Bread and Milk, with a little Linseed Oil: Upon which, stronger signs of a Suppuration appeared the next day, by an increase of his Fever, Pain and Pulsation.

The Fomentation was then laid aside, and the Pultice changed for one of white Lilly-roots, Linseed and Fœnugreek-seeds powdered, roasted Onions, and Hogs-lard; by the application of which, Matter seemed to be formed, but lay very deep under the Muscles.

Being fearful the Tumour would burst inwardly, it still being very hard on the outside, a Caustic, prepared of the Lapis Infernalis and black Soap, was laid upon the part; and in about two hours the Escar, above an inch in thickness, and as big as a half-crown, was divided, and about half a pint of fetid Matter discharged. Upon examining the Ulcer with the Probe, one of the Processes of the Spine felt ragged: Dossils of dry Lint, secured with threads, were pressed to the bottom; and Pledgits armed with Basilicon, and Oil of Turpentine, applied to the Lips, with the Cataplasm upon them; and the whole was secured by the Napkin and Scapular with proper Compress.

An anodyne Draught was given that night to quiet the Spirits, so much fatigued by the operation. The next day a discutient Fetus of Wormwood, Centaury, Rue, and Chamomile flowers was used, and the same dressings renewed, after having cut away great part of the Escar. Upon dressing the third day, Matter was perceived to bag a little in the depending part; to cure which, a larger Compress was applied, and rolled on very tight; notwithstanding which, the Sinus was increased about two inches below the Ulcer, when it was judged proper a Sponge-tent should be applied, for the more easy dilating.

Two days after the Sinus was divided with a pair of strong Scissars, and dressed with Liniment with the other Ulcer. In about three weeks a small scale of the Bone came away; during which time a Fungus often arose; but by now and then sprinkling a little Precipitate upon it, it was kept down, and the Ulcer, in about a fortnight after the Bone exfoliated, was incarnated, and cicatrized with the common applications. During the cure he was often purged with fifteen grains of Calomel in a Bolus, over night; and an ounce of Syrup of Buckthorn, mixed with ten grains of Jallap Powder and half an ounce of Milk Water, in the morning; and had afterwards a Diet-drink made, by the use of which he has since enjoyed a good state of health.

Abscesses in the Hips, Buttocks, and Rump, are very frequent, and are seldom dangerous, unless in ill Habits of Body, when they

they are very apt to turn sinuous; or near the Fundament; where a Fistula is the common consequence; or sometimes a Gangrene, if the Far be not speedily digested out. *Wiseman.*

The Caustic is preferable to the Knife in these *Abscesses*, especially when they are very large; and in good Constitutions, a cure is generally effected by the common methods; but where they prove difficult, must be treated as is laid down in the following observations:

A gentleman of about fifty-six years of age; standing long in the cold to see some extraordinary shew, was taken with a Pain above his left Hip, and the second day after he sent to me for an Emplaster. The messenger not telling me the name of the patient, nor where he lodged, I sent him an Emplaster of Bole; proper to resist and defend a part from Fluxion. The fourth day after he sent to me for another Emplaster, signifying to me that his Pain was much increased; and two days after sent for me. I went; and saw a large Tumour lying upon the Ilium backwards, with great Inflammation and Hardness, with all the symptoms of a Phlegmon near its state. I directed a Cataplasma; to be made of the tops of Mallows, Marsh-mallows, Wormwood; Elder and Melilot flowers, Linseed and Fœnugreek, Barley meal, with an addition of Honey, Oil of Chamomile, Yolks of Eggs and Saffron; and in the interim let him bleed, and advised a Clyster to be administered that afternoon. If this person had been of a temperate life, and been let blood when he sent for the first Emplaster, this Tumour might have been happily repelled; but it was now too late to discuss it: yet I repeated the application of that Cataplasma till I saw it more collected, and then I hastened Suppuration by one of the milder Suppuratives; by the use of which the Tumour was more collected, and raised into a Cone; and by its pale colour and thinness of the skin, gave an assurance of a perfect Suppuration. Then I applied some of the milder Caustic, with a simple Diachylon Plaster over it, and the Cataplasma over all. The next day I took off the dressings, with design to divide the Escar; but it was done to my hands; and a large quantity of well-digested Matter was discharged. I fomented the *Abscess* with a Stuph wrung out of Milk, and dressed the Escar with a Pledgit of Basilicon, dipt in Oil of Roses; and continued the application of the Cataplasma. Thus in few days the Swelling abated; and the Escar separated. I then endeavoured Deterfion with Paracelsus's Mundificative; but the *Abscess* being large, and the Suppuration in the middle, and the part not very capable of Bandage, there remained a large hollowness, which put me upon a necessity of laying it more open, for the speedy effecting the cure, which I did with a pair of Probe-scissars. This work is necessary in such large Phlegmons; and therefore it is, I suppose, that Senner-tius places his chapter of Sinusses next to that of a Phlegmon. After I had made this Incision, I dressed it with the Digestive of Turpentine with the Yolk of an Egg, &c. and having digested it, I incarned, by adding Powders of Orrice and round Birthwort roots, and Sarcocolla, &c. to the Digestive; and by the help of the Vitriol and Alum stones, Ointment of Tutty, and Plaster of Chalcities, I cicatrized it. *Wiseman.*

I was sent for to a gentleman about thirty-six years old, much emaciated, and of a very ill Habit of Body; he was diseased with a painful Tumour on the left side of the Anus, reaching from the Os Coccygis to the Perinæum, of a dark-red colour, hard in the circumference, but along the Verge of the Anus it felt soft; it seemed to arise from under the Anus, and to be an ill-conditioned Tumour. I applied a Caustic upon the soft part, according to the length of it; near the Anus; and some hours after divided the Escar, and gave vent to a fetid brown Matter. I dressed the Escar with Basilicon and Oil of Turpentine, and applied a Cataplasma over it, of Bean-meal, Powders of Linseed and Fœnugreek, Chamomile flowers, Elder and red Roses, decocted in Oxymel; as the Escar separated, the Ulcer shewed itself putrid. I fomented it with a Lye, wherein good store of Wormwood had been boiled, and dressed the Ulcer with Paracelsus's Mundificative, with red Precipitate, and Alum, and the Escar with Lenients, &c. as before.

This patient had laboured some weeks with a Diarrhœa, which after the Escar was separated, flowed into the Ulcer; and much disturbed our cure; therefore I caused an Injection to be made of a Decoction of Wormwood, St. John's Wort, Scordium, Centaury, &c. to which I added Spirits of Wine, Honey of Roses, and Egyptian Ointment: and, that the Excrements or Sordes might not be retained, and render the Ulcer more sinuous, I cut it open the whole length above and below, and filled it up with red Precipitate, with the Mundificative upon Dossils, and with Plaster and Bandage retained them on. Then prescribed him a Decoction of Sarsaparilla; &c. also an Electuary of Conserve of red Roses, Diacordium; and toasted Rhubarb, &c. which he took once in four hours, and thereby stopped his Looseness. The Ulcer not deterring

with the former applications, I dressed it with Ardens Powder; and defended the Lips with Basilicon, and a Plaster of Bole over all. Thus, in two or three dressings, I consumed the Foulness; then dressed it with Paracelsus's Mundificative and Precipitate; and applied Stuphs of Tow over it, prest out of red Wine, wherein had been infused red Rose flowers, Balauftins, &c. and afterwards prescribed him the taking of Calomel, a scruple, every other night. Thus the Ulcer deterged. I incarned it with Powders of Aloes, Blood-stone, Myrrh, Sarcocol, round Birthwort roots, Orris roots, and Lapis Calaminaris, made up into the form of an Ointment with Honey of Roses. While this was incarning, and in some parts cicatrized, a Sinus appeared, running under the Verge of the Anus about half an inch. I applied a Tent, armed with Paracelsus's Mundificative; and after it was deterged, left out the Tent, and it cured. But then a small Sinus discovered itself on the other side of the Anus: Upon sight thereof, lest more mischief should fall upon those weak parts, whilst I attended the cure of that sinuous Ulcer under the Anus, I dilated it, and snipt it open with a pair of Probe-scissars, into that great Sinus; and from that time the Ulcer cured, and I thought my work had been done; but, within a few days after, another Sinus appeared near the Verge of the Anus, on that side where the former was. It much discouraged the patient; but it lying so convenient for discharge of the peccant Matter, I continued it to further consideration; it proceeding from the meer weakness of the part. I advised the keeping it clean; and to wear a dry Pledgit of Tow over it. It was kept with much ease, and the patient enjoyed his health very well many years; and at length it cured of itself. *Wiseman.*

As Phlegmons are subject to Mortification through unseasonable application of Medicaments in time of their state; so also, in fat Bodies, they are apt to gangrene after opening, if that Fat be not speedily digested out. Thus it happened to a person labouring with a Phlegmon on the Os Sacrum. After the Discharge of Matter, the Ulcer became crude and gangrened. Another chirurgeon was consulted, who scarified the *Abscess*; and by his warm applications, supposed he had extinguished the Mortification; but it appearing otherwise, I was fetched; and saw the Lips and parts within gangrened and glecting. We scarified the Lips; but finding them to be gangrened more within than without, we pared them off round, then scarified the *Abscess* within, and cut out the putrefied Fat, and with an armed Probe, dipt in Oil of Cloves hot, cleansed the *Abscess*, and filled the Scarifications with red Precipitate. We then dressed up the *Abscess* with a Mixture of Basilicon and Oil of Turpentine, and applied Cataplasms and Fomentations, as is usual in such cases. The next day we came, provided with actual Cauterics, but found the *Abscess* warm, and disposing to Digestion in the Lips and fleshy parts; and from that time it digested well. But in the Basis of the Ulcer, where the Mortification had reached to the Periostium; the Slough separated more slowly; but by the warm application of Lenients, it came off, and the Ulcer happily incarned. *Wiseman.*

AN ABSCESS OF THE ANUS.

After an Inflammation, sometimes there happens an *Abscess* about the Anus; in which case the Putrefaction usually extends itself all around, because of the abounding Heat and Humidity of the parts. Whence the surgeon is under a necessity of using Refection, and the operation is subject to be succeeded by a Fistula. Wherefore, tho' in simple *Abscesses* the cure be easy enough; yet, when the Disease is great, and an Amputation made round the Anus, while we endeavour to cicatrize the Wound, there usually happens a Constriction of the circumjacent parts, and an Obturation of the Passage of the Anus. For this reason it will be proper, when we undertake the cure, to put some Lint, first moistened with Tetrastapharmacum, or some other fit Solution, into the Fundament; and while the cure proceeds, it will be no less proper to put up a convenient Tint Cannula into the Passage, which must be slender, round, and polished in the part that enters; but wide and spreading in the rest; and be bored quite through for the Flatus to pass that way. This Pipe may be smeared with some healing Medicine, or Samian Earth and Wine, or with Cerufs; and let a Bolster or some Wool be applied to the place, and a proper Bandage be made. The Pipe must not be taken out till the cure is perfected. *Actius, Tetr. iv. ferm. 2. cap. 9. From Leonidas.*

ABSCESSSES IN THE LOWER EXTREMITIES.

Abscesses in the Thighs and Legs happen often; and if they are only Terminations of inflammatory Tumours in good Habits of Body, yield to the common methods of cure.

But if from the Crisis of a Fever, they often degenerate into sinuous Ulcers with Caries of the Bones.

They are oftentimes Strumous, and must be treated accordingly. See STRUMA.

These *Abscesses* often run into Sinusses the whole length of the Limb; when it so happens it is by no means adviseable to lay the

the Sinus open as far, but to make Perforations or Orifices by Knife or Caustic at proper distances, when the Matter being let out the other parts will heal with good Compress and Rolling.

The laced Stocking is of great use in these *Abcesses*.

In the year 1652 passing from Cheshire into the County of Rutland, taking North Luffenham in my way to London, I was desired there to visit a Freeholder, who had laboured under a Fever, and had been long bed-ridden by reason of a grievous pain in his Thigh, which was supposed the Crisis of that Fever. I saw him much emaciated, and his pained Thigh was somewhat the bigger of the two, but it retained its shape without any visible Tumour, Inflammation or Hardness; nor was the Fluctuation so distinguishable as that I could positively say there was Matter, it lying so deep and equally in the outside of it; but, suspecting Matter, I opened it on the outside according to the length of the Member, and feeling my Knife in the cavity, I made the aperture large, and discharged a putrid Matter like the Lees of Beer. After I had discharged a porringer full, I dressed the Opening with Basilicon upon a Tent, with an Emplaster of red Lead over it, and with Compress and Bandage rolled it up. The next day finding the patient relieved, and the Matter plentifully discharged, I fomented the Tumour with a Decoction of Wormwood, Chamomile Flowers, red Roses, and such like; and making a search with my Probe, found the Bone bare a great length. I enlarged the Opening to make more way for the Matter; and the better to apply my Medicines to the Bone, then dressed it up as before, and against the next day made an Injection of the tops of St. John's Wort, Centaury, Roots of the greater Comfrey, Bistort, Tormentil, Gentian and Orris; to which strained liquor I added Syrup of Roses, and cast some of it daily in, warm, to deterge the Ulcer. His body was kept soluble by Clysters of Milk and Sugar, and his spirits relieved by a morisel of London Treacle with Conserve of Wood-Sorrel. I also ordered him a Julap made with a few Strawberry leaves and roots, a little Ivory and a Crust of Bread, infused a stick of Cinnamon in the strained Decoction, put in a few drops of Spirit of Sulphur, and sweetened it with Sugar. His Diet was Oatmeal Caudle, Broth, Grewels and Figs; and as his appetite increased we allowed him a more liberal Diet. Although the Opening was large, and the Thigh very bare of Flesh, yet by reason of the distance the Bone lay from the Opening, and the hollowness of the Ulcer, it was not possible to make any applications to the Bone by Medicaments to exfoliate it, that should not be offensive to the Ulcer, if they were so powerfully drying as the Bone required. Therefore I caused an actual Cautery to be made at the next smith's, and dried the Bone that way, and the while continued the above said method of dressing, keeping the Orifice moderately dilated with Dossils pressed out of the Injection; then by good Compress and Bandage, squeezed out the Matter, inasmuch as it lessened daily, the more remote cavities agglutinated, and the Ulcer was like to cure if the Caries in the Bone did not obstruct it. That it might not, I got the Cautery made in the form of a wedge, but thicker, to retain heat; and having fitted it with a Cannula, placed it upon the Bone according to the length of the Caries, passed the Cautery through it to the Bone, and repeated it again and again, cooling the Cannula each time in a dish of water near me; then I covered the Bone, and dressed the Opening with Dossils dipt in a Mucilage of Barley and Comfrey Roots, fastning a thread to those Dossils which I conveyed first in towards the Bone, the better to bring them out again, and applied Galen's cooling Ointment outward upon the Ulcer, with a Plaster of Galen's Cerate over all. This way of dressing I continued daily till the Excoriation was healed without; then I repeated the use of the former Injection, adding red Rose flowers, Balauftians, and Sumach, with a little Alum, and by Compress and Bandage hastned the Union of it within, leaving the Exfoliation of the Bone to Nature. While I staid in that country, the Cavity filled up, and by the well digested and little Matter the Ulcer seemed near cured; and I was afterwards informed that the patient followed his husbandry one or two months after. The Exfoliation was here insensible, as it most frequently happens, the scales mouldering away, and discharging with the Matter. *Wiseman.*

ABSCESSES OF THE FEET.

Abcesses are sometimes formed in the Feet, and are generally the effects of a bruise upon those parts.

Bleeding in the Foot may cause an *Abcess* by a Nerve or Tendon being pricked in the operation, or by the translation of a Tumour from another part.

But strumous *Abcesses* are the most dangerous, the Bones seldom or never escaping free.

Abcesses in the Feet are generally very difficult to cure, from their situation, as Sinusses are perpetually forming in the Interstices of the Muscles, and sometimes cariate the Bones.

In opening these *Abcesses* the Caustic is preferable to the Knife,

as there is no danger of wounding either Nerves or Tendons, which by the use of the Knife may sometimes happen, and create excessive pain.

The method of curing these *Abcesses* with all the bad symptoms attending, is contained in the following observation.

A weak sickly child, about ten years of age, was recommended to my care by Dr. Mapletost; she had a strumous Tumour suppurated on the right Foot, amongst the Tendons and Bones leading to the two lesser Toes. I suspected them corrupted; but there being a necessity of opening it, I applied a Caustic proportionably, and gave vent to an albuginous Matter, and felt those Bones bare from the Tarsus to the first joint of the Toes. I fomented the part affected with a discutient Decoction, and dressed the Escar with Lenients, to hasten separation of the Slough; and as it began to separate, I deterged with red Precipitate and the Vitriol-stone, making way through the luxuriant Flesh to the Caries. Then with Dossils, dipt in Honey of Roses and Spirits of Wine, and prest out, I dressed the Bones, and kept the Ulcer so dilated, as to see the Bones so far as they were carious. But in the applying my Dossils, they pressing upon the Tendons, rendered the Ulcer painful, and subject to great Defluxion of a thin serous Matter, and threatened worse mischief. To remedy which I cut off those Tendons, dressed up the Ulcer with Digestives, and applied Refrigerants externally to restrain the Fluxion. At the next dressing, finding the Tendons contracted, and the Bones more easy to come at, and seeing the Exfoliation of them by Medicaments like to be a tedious work, the Matter having made its way under them, threatening Apostemations in the sole of the Foot, I resolved to attempt them by actual Cautery. To which purpose I dressed them with Dossils of Lint, to dilate them more for my view; and the next day I burnt them the whole length: Then with my Forceps pinched them to pieces, and pulled those broken bits out; after which I cleaned the Ulcer, and applied my Dossils pressed out of a mucilaginous Decoction between and over the ends of the remaining Bones, dressing up the Ulcer with Digestives, and applying externally Compresses dipt in Vinegar, wherein had been infused Salt-petre, Myrrh, &c. over which a laced Sock was put on. Thus I restrained the Influx, and pressed forth the Matter from its several cavities: yet I was necessitated to make afterwards an Apertion through the sole of the Foot, and to lay open the Ulcer beneath the Ankle, for the readier discharge of Matter. I continued the application of Dossils, pressed out of Spirits of Wine, to the ends of the Bones, till a Callus thrust forth, filled up the void space, and supplied the want of the Bones. During this work, the patient was afflicted either with a Cough, Looseness, or Vomiting; in all which cases Dr. Mapletost assisted with various prescriptions, and contempered the acid quality of her Blood; after which, by good nourishment, the child recovered her Strength. She being thus, at length, disposed to a fair way of recovery, the Ulcer near cicatrized to the Bones, and there being nothing more to do but to keep it open with dry Dossils and a Pledgit of Diapompholygos, with the usual Bandage; I, by degrees, left it to her mother to dress, and saw the child afterwards upon her Feet; and at length she recovered. And thus, time may be said to contribute much to the cure of this disease; but without the surgeon's careful attendance, they miserably languish, and die: for Amputation, in this disease, signifies little; the Ulcers rising with Caries in one part, while you are extinguishing them in another. *Wiseman.*

ABSCESSES IN THE HEEL.

The Heel is subject to *Abcesses*, but generally they are strumous; yet a prick with a rusty nail is sometimes the cause.

There requires no more in the cure of these than after the opening to keep the Ulcer open with Dossils, or the Spungent, till we are satisfied whether the bone is bare or carious; if it is not, they easily incarn and cicatrize by the common applications.

But if it should be carious, there is nothing so good as the actual Cautery past through a Cannula, which will save the trouble of waiting some weeks for a Desquamation by the common methods. By this operation the Caries seldom comes off in a scale, but moulders and comes away with the Matter insensibly. *Wiseman.*

The Sock with the Roller is of good service in these *Abcesses* to keep the Dressings on.

As most *Abcesses* in the Joints are strumous, for their cure see STRUMA.

ABSCISSIO. ABSCISSION. *Ἀβκισσιον*. This is used by physicians in many senses, but the most common signification is to express the dividing any corrupted and useless part of the Body from the sound, by a sharp instrument. It is principally applied to soft parts of the Body, for in the Bones it is called Amputation, though Abcission is sometimes applied to small fragments of Bones, which being almost divided either by Exfoliation or Fracture, require to be taken away by Abcission, or to be cut off as useless or pernicious.

It is not confined to corrupted Parts, but is sometimes apply'd to the sound, when, by reason of its Luxuriancy, it is curtail'd. Thus there is said to be an *Abfiffion* of the Uvula, or Prepuce.

Sometimes *Abfiffio* signifies the sudden Termination of a Disease in Death, before it arrives at its declining State.

Abfiffio also sometimes expresses an utter Depravation, or Loss of the Voice. And in this Sense *abfiffa Vox* is used by *Celfus*.

ABSCONSIO. It signifies a Sinus; but it seems to mean a Sinus that is unnatural, and from a morbid Cause, whereas Sinus is applied to many natural small Cavities in the Body, but particularly those of the Pudenda, Uterus, and Brain.

ABSINTHITES VINUM. *Dioscorides*, describes several Ways of making the *Vinum Absinthites*. The best Way, in the Opinion of *Fuchius*, is to bruise an Ounce of the best Wormwood, and, tying it up in a thin linnen Rag, infuse the same in nine Gallons of Wine. Then put Must [Wine never fermented] to it, and let it work, leaving a Hole open, that it may not burst the Vessel.

Dioscorides, lib. v. cap. 49.

The Virtues of the Vinum Absinthites.

The *Vinum Absinthites* is good for the Stomach, excites Urine, accelerates Concoction, relieves such as labour under Distempers of the Liver, the Stone, or Yellow Jaundice, removes a Nausea, and helps Infirmities of the Stomach. It is effectual also for an inveterate Distension of the Hypochondria, and all Inflammations; kills round Worms, restores the suppressed Menfes, and is an Antidote against the Poison of the white Chamæleon, provided it be drank in a large Quantity, and returned by Vomit.

ABSINTHIUM, WORMWOOD. [*Ἀψινθιον*, *q. d. unpleasant*, of a privative, and *ψινθος*, which *Hesychius* interprets *ψινθος*, Delectation; others will have it *Ἀψινθιον*, *i. e. not portable*, from a privative, and *ψινθος*, to drink, on account of its Bitterness; others derive it of *ἄρτεδαι*, *i. e. to touch or handle*, by Antiphrasis, because no Animal touches it, by reason of its extreme Bitterness.] It is called in *English* from the *Anglo-Saxon* *wyrn-pyrt*, *i. e. Wormwood*.

There are several Sorts of Wormwood used in Medicine.

1. *Absinthium vulgare* Offic. Park 98. Raii Hist. 1. 366. Synop. 3. 188. *Absinthium vulgare majus* J. B. 3. 168. Hist. Oxon. 3.
7. *Absinthium latifolium* sive *Ponticum*, Ger. 937. Emac. 1096. *Absinthium Ponticum* seu *Romanum Officinarium*, seu *Dioscoridis*, C. B. 135. Tourn. Inst. 457. Boerh. Ind. A. 126. WORMWOOD: Dale.

The Root of Wormwood is thick and woody, divided into several Branches, enduring many Years, and holding its lower Leaves all the Winter, which are large and winged, divided into six, eight, or more Sections, with an odd one at the End, very much cut in, greenish above, and white or hoary underneath. In the Summer it shooteth out several woody, striated, hoary Stalks, two or three Feet high, full of a white Pith, having several lesser Leaves growing on them; those towards the Top are long, narrow, and very little cut in, having among them long Spikes of small yellowish naked Flowers, growing many together, hanging down their Heads, and including very small Seeds. The Leaves and Flowers have a very bitter Taste, and a strong Smell.

It grows in Lanes by High-ways and in waste Places, and flowers in July.

This is believed by Gerard, Bauhine, and others, to be the *Absinthium Ponticum* of the Antients, the best Wormwood being supposed to grow in Pontus, a Country of the Lesser Asia. Dale.

The Leaves and Tops are used, and are accounted good in all Disorders of the Stomach, as Weakness, Loss of Appetite, Vomiting, and Surfeits: They strengthen the Viscera, and are of Service in Dropsies, Jaundice, and in Tertian and Quartan Agues, and kill Worms. In all the above-named Cases, it is given infused in Water, Ale, or Wine; a Cataplasm of the green Leaves, beat up with Hog's-lard, was commended to Mr. Ray, by Dr. Hulse, as a good External Remedy against the Swelling of the Tonfils and the Quinsy. Miller.

It is good in long Fevers, is diuretic, and kills Moths. Dale.

Essential Oil of Wormwood, made into Pills with a Bit of Bread, and given two Hours before Meals, after Fasting a considerable Time, is a certain Cure for the Worms. Boerhaave.

People in the Country believe Wormwood wore at the Breast as a Nosegay, or smelled to, has great Efficacy in preserving from the Infection of the Small-pox, or Measles, or any other Contagion; which does not seem unlikely.

A Water prepared from fresh Wormwood, by several Cohobations, is excellent for supplying the Place of Bile, assisting the Chylopoietic Organs, killing Worms, and expelling them. Boerhaave.

The Virtues of this Herb, says Boerhaave, are immortal: for its Juice cures all Sorts of Dropsies, provided there be no Rupture of the Viscera. An Ounce thereof, extracted out of the green Leaves, is of great Service to such as labour under a Languor. A Conserve is also made of the tender Tops of the Leaves, which is called the *Father of the Stomach*; it is of excellent Use where the Stomach is clogged with Phlegm and unactive Bile,

but of none at all in a hot Distemperature. An Infusion of the Leaves in Wine is good against Worms. The Herb is effectual against a Quartan, and in the Scurvy; in such Cases I take the Tops of the Branches, and pulverise them, and prescribe the Powder in the Morning fasting. 'Tis an excellent Remedy for the Poor, but the Rich require a more specious Medicine. The Surgeons are also much obliged to this Herb. If a Part begins to putrefy, and a Gangrene approaches, let it be wrapped up in the Leaves confused with Wine or Vinegar, and a little Salt, and I dare warrant the Patient's Security.

Of the Leaves of this Plant, burnt in a close Fire, a Salt is made, in Tachenius's Way, of great Efficacy; but those made by burning in an open Fire are not so good. See SALES TACHENIANI. Of this Herb is also made the *Vinum Absinthites*, which is always proper where the Bile fails in cold Distempers. It restores lost Appetite, where there is a cold Cause; but it has one Fault, that, if taken in too great a Quantity, it weakens the Sight, because of its drying Quality. It is very proper in Obstructions of the Menfes, and Retention of Urine, and is a Sudorific in Intermittent Fevers, and the Scurvy. It is an Anticolic, and, by its strong Smell, is said to provoke Sleep; it quickens the Hearing.

2. *Absinthium Romanum*, Offic. *Absinthium Ponticum* sive *Romanum vulgare*, Park. 98. Raii Hist. 367. *Absinthium tenuifolium Ponticum Galeni*, Ger. 937. Emac. 1096. *Absinthium Ponticum tenuifolium incanum*, C. B. 138. Tourn. Inst. 457. Boerh. Ind. A. 126. *Absinthium Ponticum vulgare, folio inferius albo*, J. B. 3. 175. Hist. Oxon. 3. 8. ROMAN WORMWOOD. Dale.

This Wormwood is a much lesser Plant than the former, the Leaves a great deal smaller and finer, the Sections narrower and slenderer, hoary and white both above and underneath. The Leaves that grow on the upper Part of the Branches are long, narrow, and undivided; its Flowers are numerous, growing on the Tops of the Branches, as the former, of a darker Colour, and is in all Respects a more neat and elegant Plant. It has neither so strong a Smell, nor so bitter a Taste, as the common Wormwood. It grows with us only in Gardens, being natural only to warm Climates. It flowers in July.

This Wormwood is of the Nature of the common, but its Virtues weaker; it is useful, however, in Disorders of the Stomach and Liver. Mathiolus writes, that he knew several Persons in a deplorable Condition by the Dropsy, that were cured by the constant Use of the Conserve of the Leaves of this Plant; and indeed, this is the Roman Wormwood, that the Apothecaries ought to make their Conserve of; whereas they altogether make it of the Sea Wormwood, because more pleasant and palatable. Dale, Miller.

3. *Absinthium Alpinum*, Cod. Med. 2. *Absinthium Alpinum candidum humile*, C. B. Pin. 339. Prod. 71. Tourn. Inst. 458. MOUNTAIN WORMWOOD.

It grows in the Mountains of Savoy, and agrees in Virtues with the preceding.

4. *Absinthium Ponticum Antiquorum*; an *Absinthium Orientale fruticosum, incanum, amplo folio tenuissimo divinum*, Tourn. Cor. 33? Boerh. Ind. 126. PONTICK WORMWOOD.

Dale thinks this the Sort of Wormwood mentioned by Tournefort, as the *Absinthium Ponticum* of the Antients, which, according to him, was not known to the Moderns, tho' it has flourished for twenty Years in the Royal Garden at Paris.

5. *Absinthium Seriphium*, Offic. *Absinthium maritimum album*, Ger. 940. Emac. 1099. Raii Hist. 1. 370. Synop. 3. 188. Boerh. Ind. A. 126. *Absinthium Seriphium sive maritimum Anglicum*, Park. 102. *Absinthium Seriphium Belgicum*, C. B. 139. J. B. 3. 178. Hist. Oxon. 3. 9. Tourn. Inst. 458. See WORMWOOD.

This Wormwood is usually about two or three Feet high, with many winged Leaves, lesser and much finer than common Wormwood, very white, and hoary all over both Leaves and Branches. Its Scent is much like Southernwood; and it has but little Bitterness in Taste, but is somewhat saltish. The Flowers are small and naked as the former Kinds, and the Time of flowering is the same. It grows abundantly in all our salt Marshes.

The Leaves and Tops are used, and this is the Roman Wormwood that is in Use in the Shops, and has been so for this hundred Years, if not much longer. Parkinson complaining in his Time, that the Physicians and Apothecaries made Use of it instead of the former, though it came far short of it in Virtue, and Dioscorides and Galen affirmed that Seriphium was hurtful to the Stomach.

6. *Absinthium Seriphium Gallicum*, Offic. C. B. Pin. 139. Tourn. Inst. 458. Elem. Bot. 363. Hist. Oxon. 3. 9. Magnot. Bot. 1. Chomel. 431. *Absinthium Seriphium tenuifolium maritimum Narbonense*, J. B. 3. 177. Chab. 373. Raii Synop. 3. 189. *Absinthium Seriphium Narbonense*, Park. Theat. 102. Raii Hist. 1. 370. *Absinthium minus tenuifolium alte incisus foliis, cinereum, falsum, Hispanicum*, Barr. Obs. 1008. Icon. 460. FRENCH SEA WORMWOOD.

It grows on the Sea Coasts of England and Narbonne. The Virtues are the same as the other Sea Wormwoods. Dale.

7. *Absinthium Santonicum*, Offic. *Absinthium Santonicum Gallicum*, C. B. 139. Tourn. Inst. 458. Magnol. Bot. App. 289. Hort. Monsp. 2. FRENCH WORMSEED.

It is found in Narbonne, growing with the Seriphium Gallicum above-mentioned, and is of the same Virtues.

8. *Santonicum* & *Semen Santum*, Offic. *Sementina*, Ger. 941. Emac. 1100. *Abstinium Santonicum Alexandrinum*, frœ *Sementina* & *Semen Santum*, Park. 102. *Lumbricorum Semen vulgare* & *Mattiol.*, J. B. 3. 180. WORMSEED.

The Seed is in Use.

It is imported from Alexandria. The Seeds are small, oblong, yellow, of an acrid Bitter, and disagreeable Smell. They seem to be formed of small Scales inclosing each other.

These Seeds are in great Reputation for their Virtues in killing Worms. *Dale*. See SANTONICUM.

9. *Abstinium Santonicum Judaicum*, C. B. Pin. 139. Raii Hist. 1. 369. Chomel. 445. Hist. Oxon. 3. 8. *Lumbricorum Semen Rauwolfii*, J. B. 3. 180. *Lumbricorum Semen*, frœ *Abstinium Santonicum Rauwolfii*, Chab. 375. *Sebea Arabum*. ARABIAN WORMSEED.

It is brought from Judæa to Alexandria. *Dale*.

Botanists are not agreed about the Plant which produces the Wormseed. Some are of Opinion that it is the Seed of Zedoary, which is not likely, because these are round and of a dark Colour, and inclosed in a tricapular Vessel, whereas Wormseed has none of these Marks.

Others, amongst which is C. Bauhine, affirm, that this Seed is the Product of a Sort of Wormwood, to which *Dale* assents; but will not determine absolutely, whether it is a Species of Wormwood or Abrotanum.

Rauwolfius says, it grows in Palestine about Bethlehem.

Miller is of Opinion, that what we call Wormseed, is only the young Bud of the Flower of a Species of Abrotanum. See SANTONICUM.

10. *Santonicum viride*, Offic. *Gloccan*, *Pomet*. GREEN WORMSEED.

It is like the above-mentioned Wormseed, but is larger, and of a green Colour, inclining to a yellow.

The Virtues are the same as those of the other Wormseeds.

Pomet says, they were first brought to Paris from Turkey. *Dale*.

11. *Heliobrysum*, Offic. Chab. 369. *Heliobryson*, Park. Parad. 374. *Heliobrysum quorundam, foliis Abrotani*, J. B. 3. 150. *Eliobryson foliis Abrotani*, C. B. 264. *Cuma Aurea*, frœ *Heliobryson*, Ger. 520. Emac. 645. *Abstinium tenuifolium corymbisæqualibus seu compactis*, Hist. Oxon. 3. 8. *Abstinium corymbiferum annuum*, Elem. Bot. 363. Tourn. Inst. 458. GOLDEN CUDWEED.

It is cultivated in Gardens, and flowers in July.

The Herb is in Use.

It is recommended against the Bites of Serpents, and in Pains of the Hips and Stranguries. It is said to provoke the Menfes, dissolve concreted Blood, and stop Catarrhs. *Dale*.

Miller in all makes thirty two Sorts of Wormwood, but we have no Account of the medicinal Virtues of any but those already specified.

It is much to be lamented, that the Moderns, who have been very diligent in regulating Plants, and reducing them to Method, should have contented themselves with rendering Botany in some Measure a barren Science. In all the Volumes that have been wrote of late Years on this Subject, we meet with very few Accounts of the Virtues of Plants which were not taken Notice of by the Antients. The usual Way has been to transcribe what they found in the Writings of their Predecessors, being very little solicitous whether the Virtues attributed to Plants were real or imaginary. If, instead of this, they had employ'd their Industry in confirming the true Virtues of Plants as specified by the Antients, rejecting those Accounts which are fabulous, or introduced by Error or Caprice, and discovering other Virtues as yet concealed, the Art of Healing had by this Time been brought to a Degree of Perfection which at present we have no great Reason to boast of.

The following Extracts of Dioscorides, Pliny, and Galen, in Regard to the medicinal Virtues of Wormwood, compared with those mentioned above, will shew how little has been added to what these Authors were acquainted with.

From GALEN, quoted by *Fucius*.

Wormwood has at once an astringent, bitter, and acrimonious Quality, both warming and cleansing, strengthening and drying. For this Reason it purges the Belly of bilious Humours, both by Stool and Urine; but is most effectual in clearing the Veins of Bile, and carrying it off by Urine. Wherefore it is of no Efficacy against Phlegmatic Humours in the Belly, nor operates at all upon Phlegm in the Breast and Lungs; for its astringent Faculty is more powerful than the bitter.

From PLINY.

Wormwood corroborates the Stomach, for which Reason its bitter Flavour is communicated to Wines. A Decoction of it in Water is also drank, to make which, Take about half an Ounce of the Leaves with their Stalks, and boil them in three Pints of Rain-water, putting in some Salt, and let the Decoction stand a Day and a Night in the open Air. The Herb,

they say, is seldom bruised, nor is the Juice of it much in Use; but an Infusion of it is usually drank. The Juice of Wormwood is hurtful to the Stomach and Head, whereas the Decoction, they say, is very wholesome, for it strengthens the Stomach, and expells Bile, excites Urine, lubricates the Passages, eases Pain, and kills Worms in the Belly. Mixed with a little Hartwort and Gallic Nard, with some Vinegar, it removes a Nausea, and dissolves Inflammations of the Stomach; creates an Appetite, and helps Concoction. Mixed with Rue, Pepper, and Salt, it corrects Crudities. The Antients prescribed it as an Ingredient in a Purge, together with a Pint of Sea-water that had stood a long Time, half an Ounce of the Seeds, a Quarter of an Ounce of Salt, and a Glass of Honey. It works better with double the Quantity of Salt. Some give the aforesaid Quantity in an Electuary with an Addition of Pennyroyal. Some use it for the Palsy; others give their Children the Leaves in Figs, to conceal its Bitterness. Taken with Oris, it gently purges the Breast. For the Yellow Jaundice it is infused green with Parsley or Maidenhair. Against Inflammations the Decoction in Water is supped hot. In Distempers of the Liver it is used with Mountain Spikenard. In Disorders of the Spleen it is administered in Vinegar, Barley-water, or a Fig. For watery Eyes it is applied in a Cataplasm with new Wine; for Eyes that have received Blows, it is applied with Honey. Three or four Stalks, with a Root of Mountain Spikenard, infused in half a Pint of Water, provoke Urine and the Menfes; and the latter, if mixed with Honey and made into a Pessary with Wool, and applied to the Pudenda. It cures green Wounds, if laid on them before they are washed; as also scald Heads, and the Itch. It is not to be given in Fevers. It prevents Sea-sickness, if drank. Worn in an Apron, it dissolves Tumours of the Groins. The Smell of it inclines to Sleep; or, if it be privately laid under your Pillow, it works the same Effect. The Ashes of Wormwood mixed with Ointment and Oil of Roses turn the Hair black. The Sea Wormwood, by some called Seriphium, is hurtful to the Stomach, loosens the Belly, and kills Worms in the Bowels. They boil a Handful of the Herb in a Pint of Water till half be waisted, and so in Proportion.

The dried Branches of Wormwood, laid in Granaries, are said to drive away Insects, and prevent their destroying the Corn. *Geoponica*.

Wormwood is pernicious to Bees. *Geoponica*.

A Decoction of Wormwood is much recommended by Heister for stopping a Gangrene.

DIOSCORIDES, Liber 3. Cap. 26.

Wormwood, called also Bathypicron, is a well known Herb. The best is that which grows in Pontus, and in Cappadocia on a Mountain called Taurus. It is of a warming, astringent Nature, promotes Digestion, and purges the Stomach and Intestines of bilious Concretions adhering to them. It also provokes Urine, and is a Preservative against Surfeits. It is good likewise against Inflammations, and, if it be drank with Hartwort or Mountain Spikenard, eases Pains in the Stomach or Belly. A Quarter of a Pint of the Infusion or Decoction of it, taken every Day, removes a Nausea, and cures the Yellow Jaundice. If drank, or outwardly applied with Honey, it brings down the Menfes. Taken in Vinegar, it helps Oppressions from eating of Mushrooms; and in Wine is an Antidote against the Poyson of the white Chamæleon, and Hemlock, and the venomous Bite of the Shrew-mouse, and Sea-dragon. Made into an Ointment with Honey and Nitre, it helps the Quinsy, and steeped in Water cures the Pustules called Epinyetides. Applied with Honey, it heals a black Eye, sharpens a dim Sight, and helps the Running of the Ears. The hot Vapour of the Decoction eases Pains of the Teeth and Ears. Boiled in sweet Wine, it makes a Cataplasm for Eyes which are very painful. Contused with Cyprian Cerate, it is applied to the Hypochondria, and Region of the Liver, when labouring under inveterate Pains and Disorders; but for Infirmities of the Stomach it is used with Cerate of Roses. Mixed with Figs, Nitre, and Meal of Tares, it relieves hydropical Persons, and such as are subject to Disorders of the Spleen. They prepare a Wine of it, which they call Abstinithes, especially in Propontis and Thracia, and use it for all the Purposes aforesaid, if there be no Fever in the Case; they recommend it even in the Heat of Summer, believing it to be a great Preservative of Health. Wormwood, strewed among Clothes kept in Chests, will, they say, preserve them from Moths; and, mixed with Oil, will keep off Gnats from touching the Body. If steeped in Ink, it will preserve such Books as are written with it from being gnawed by Mice. The Juice of the Herb is supposed to work the same Effect, though not fit to be drank, because hurtful to the Stomach, and causing Head-ach. Some adulterate the Juice with Lees of Oil boiled up and mixed with it.

ABSORBENTIA. ABSORBENTS.

Thus all Medicines are called, which have the Power of drying up redundant Humours, whether applied externally to Ulcers, or taken into the Stomach.

The

The Testaceous Powders of all Sorts are *Absorbents*, and are much recommended by Dr. Harris, in Disorders of Children especially.

Physicians are much divided in their Opinions concerning the Efficacy of this Sort of Medicines. Some extol them as the most Sovereign Remedies in almost all Distempers, whether Acute or Chronical; whilst there are others, who affirm they are very pernicious, because, if taken in considerable Quantities, as they must be to have any Effect, they mix with the Mucus of the Stomach and Intestines, and, concreting therewith, line the Intestinal Tube, or some Part of it, with a crustaceous Coat, and thereby stop up the Orifices of the Lactals, and of the Excretory Vessels of the Intestines, by this Means both preventing a fresh Supply of Chyle from being carried into the Blood, and a Discharge of Redundancies by the usual and most proper Way, that of the Intestinal Glands.

Both Parties endeavour to support their Opinions, with that Obstinacy usual with those who are jealous of the Honour of their favourite Hypothesis; but, what is more unfortunate for those who desire to be informed of the Truth, both also appeal to Experience, the only Thing that can decide the Controversy.

The real Fact seems to be thus:

When the Body labours under any Distemper, either Acute or Chronical, the Stomach is either more or less impaired, and consequently incapable of reducing the Aliment to that exact Neutrality, which is necessary for the Formation of a soft mild Chyle. Hence the Aliment, taken into the Stomach, will putrefy much in the same Manner, that it would have done out of the Stomach in an equal Heat, and the Putrefaction will be either alkaline or acid, according to the Nature of the Food taken in. Thus, if the Food is Animal, the Putrefaction will be alkaline, like that of Carrion; but if of acescent vegetable Juices, or of Milk, it will be acid, or four. By Acescent Vegetables, I mean those that grow sour out of the Body, when they putrefy. Now when either of these Putrefactions happen in the Stomach, the putrified Juices grow acrimonious, and their Salts, stimulating the Nervous Fibres of the Stomach, produce new Symptoms, and at the same Time lay a Foundation for the Increase of the original Disorder. Nor is this all; for the Efficacy of Medicines is hereby either totally destroyed, or impaired, before they can reach the Part, where they are intended to have their Effect.

In either of these Cases, that is, either in an alkaline, or acid Putrefaction of the Contents of the Stomach and Intestines, Testaceous or Absorbent Medicines seem to be of great Use. In that which is acid, they are doubly serviceable: First, because they are endued with a Specific Virtue, if I may be allowed to call it so, of rendering Acids mild. Secondly, by mixing with the acid Juices, and rendering them less fluid, they impair their Action, for Salts do not act, unless in a State of Fluidity: For this last Reason, they are also serviceable in an alkaline State of the Contents of the Stomach and Intestines, and, in both Cases, render the acrimonious Juices inoffensive, till it is proper to carry them off by Purging.

It is farther to be observed, that in all Diseases, whether Acute or Chronical, some of the corrupted Juices are perpetually separated, by the Glands of the Stomach and Intestines, from the disordered Mass of Blood, and deposited in the respective Cavities; and these must, if left to themselves, putrefy and become alkaline, in Acute Distempers especially, when the Putrefaction is promoted by the Increase of Heat. Here again *Absorbents* must be of great Efficacy, for the Reasons given above, if taken constantly at proper Intervals, and in Quantities sufficient for the Purpose.

The Inconvenience, mentioned as an Objection to them, of concreting to the Sides of the Stomach and Intestines, is very easily remedied, by carrying them off with proper gentle Purgatives, when they have had their Effect; or, in Chronical Disorders, by giving them mixed with such small Quantities of purging Ingredients, as to admit of their being frequently repeated.

But I am much mistaken, if the Efficacy of *Absorbents*, as they are called, is confined to the Stomach and Intestines; for I am firmly of Opinion, that the Saponaceous neutral Juices, which meet in the Stomach, and concur with other Causes for the Solution of the Aliment, are capable of dissolving a Part of these Powders, or drawing a Tincture from them, which entering the Lactals, and getting into the Circulation, becomes a Deobstruent: But whether they have this Effect by stimulating the small Vessels, and thereby making them contract themselves, and dislodge the obstructing Matter, which adheres to their Sides; or whether they act as Files, and wear away the Obstructions by Degrees; or, lastly, whether they mix with the mucilaginous Obstructions, and, getting into the Pores thereof, lessen their Cohesion, and render them friable, I will not pretend to determine.

ABSORBENTIA is also applied to several Sorts of Vessels in the Body; as the Lactals, which absorb the Chyle; the Cutaneous Vessels, which admit a Part of the Water of Baths, or Fomentations, or any Thing else that is applied to the Skin; or Vessels which, opening into any Cavities of the Body, either natural or accidental, take up any Juices that are extravasated, and convey them again to the circulating Blood.

ABSTEMIUS. ABSTEMIOUS. *Cassellus* informs us this strictly signifies (*ἀστος*) one that abstains from Wine.

ABSTENTIO. This is used by *Cælius Aurelianus* to express a Suppression, or Retention. Thus *Acut. l. iii. cap. 17.* he mentions *Abstentio Stercorum*, a Retention of the Excrements, as a Symptom very frequent in a Satyrical. And, *Acut. l. 2. c. 5.* *Abstentia officiorum naturalium Egestionis*, signifies the same Thing. And again, *Chron. l. 1. c. 5.* *Abstentia denique naturalibus Officiis, impletum Caput magis gravatur.* The Head, already loaded, is more oppressed by the Suppression of the natural Evacuations, speaking of a *Mania*.

In a Sense somewhat different, the same Author uses the Word *Abstentia*, *Acut. l. 2. c. 16.* applied to the Pleura: *Hinc denique, quoties Tumore densatur, Offibus vicinioribus Abstentia ire latius prohibetur.* He seems to mean, that the Tumour of the inflamed Pleura is prevented, by the adjacent Bones, from extending itself.

ABSTERGENTIA. ABSTERGENTS.

Cassellus seems to think these the same as *Abluents*, from which they appear to me to differ very much, *Abluents* being Fluids which can only dissolve and wash away Salts, which are dissolvable in Water; whereas *Abstergents* are of a Saponaceous Nature, and capable of dissolving Concretions formed of Earth and Oil, of the Nature of a Resin, which cannot be dissolved by simple *Abluents*, or a watery Menstruum.

ABSTINENTIA. ABSTINENCE, either general, from all Sorts of Aliment, or particular, from some Kind of Food.

The *Diatriotes* of the Methodic Sect, whence they acquired the Name of *Diatriarii*, was not the *Abstinentia* of three Days, as is generally said, but the Space of three Days, during which these Physicians enjoined Abstinence. See *DIATRITOS*.

Erasistratus made a strict *Abstinentia* supply the Place of Bleeding, in Inflammations and Fevers. *Galen*.

Diodorus Siculus remarks, that *Abstinentia* was much recommended by the ancient Egyptians, as a Cure for Distempers.

Abstinentia seems to be the very best Preservative of Health for People that lead a sedentary Life, and, properly managed, will be of great Assistance to Medicines, in the Cure of Distempers both Acute and Chronical.

Besides the usual Senses of *Abstinentia*, *Cælius Aurelianus* uses it to signify a Suppression: Thus, *Chron. l. 2. c. 9.* *Abstinentia Hemorrhoidarum Veterum*, signifies a Suppression of habitual Hemorrhoids, and is mentioned amongst the Causes of spontaneous Hemorrhages. Thus also *Abstinentia Sudoris* signifies a Suppression of Sweat, *Acut. l. 2. c. 37.* Sometimes, in this Author, it signifies a Compression. Thus, *Acut. l. 3. c. 17.* *Spiritus ob Abstinentiam clausus*, means the Wind shut up in the Intestines by Compression, thereby causing the Iliac Passion.

The Verb *Abstinerere* also, in the above-mentioned Author, signifies frequently to refrain, or suppress.

ABSTRACTITIUS. ABSTRACTITIOUS. Thus the native Spirits of aromatic Vegetables are called, to distinguish them from Spirits produced by Fermentation. *Cassellus*, from *Libavius*.

ABSUS. The Egyptian Lotus, *Rai Hist.*

ABVACUATIO, or ABEVACUATIO. Thus *N. Leonicenus* translates the word *ἀββακωσις*. *Cassellus*. See *APOCENOSIS*.

ABUNDANTIA. This is used to signify any Excess of Humours of any Kind in the Body.

ABUSUS. An ill Use of any Thing: It is frequently applied to the Non-naturals and Medicines by Medicinal Writers.

ABUTIGE. A Town in Egypt, famous at this Time for producing the very best Sort of Opium: It is within the Territories of the ancient Thebes. *Schulzius*.

ABUTILON. (The Name is Arabic.) YELLOW MALLOW.

The Character of this Plant.

It hath the whole Appearance of the Mallow, both in Leaves and Flower: The Flower hath a single Cut; the Seeds, which are shaped like a Kidney, are each of them lodged in a separate Cell.

ABUTILON, *Offic. Elem. Bot. 83.* *Tourn. Inst. 99.* *Boerh. Ind. A. 274.* *Rupp. Flor. Jan. 31.* *Althæa lutea*, *Ger. 790.* *Emac. 935.* *Rai Hist. 1. 699.* *Althæa Theophrasti flore luteo*, *C. B. Pin. 316.* *Hist. Oxon. 2. 531.* *Althæa Theophrasti flore luteo, quibusdam Abutilon*, *J. B. 2. 938.* *Chab. 302.* *Althæa lutea, five Abutilon Avicennæ putativum*, *Park. Theat. 305.* *Alcea Indica, Abutilon dicta major, pericarpio membranaceo, orbiculari, compresso, vertice corniculis extus coronato, intus in decem, aut duodecim loculamenta diviso*, *Pluk. Almag. 17.* YELLOW MALLOW.

It is cultivated in Gardens, and flowers in July. The Leaves and Seed are in Use; the Leaves, externally applied, cleanse Ulcers; the Seed provokes Urine, and expels the Gravel. The Plant is an Aperient and Vulnerary.

Its Species are thus enumerated by *Miller*.

1. *Abutilon Dod.* The common Yellow Mallow.
2. *Abutilon Indicum.* *J. B.* The Indian Yellow Mallow.
3. *Abutilon Carolinianum reptans Alcea foliis glabro flore.* *Act. Phil.* The Carolina Abutilon, with Leaves like the Vervain Mallow.

4. *Abutilon Americanum*, ampliflora folio, caule villosa, Plum. The large-leav'd American Abutilon, with woolly Stalks.

5. *Abutilon Americanum*, fructu subrotundo, pendulo, e capsulis vesicariis crispis conflato, Rand. The American Abutilon, with roundish pendulous Fruit, whose Seed-vessel is like a swelled Bladder.

6. *Abutilon Althæoides*, flore carneo, fructu globofo, Hort. Elth. p. 1. Abutilon with the Appearance of Althæa, having a flesh-coloured Flower, and a globular Fruit.

7. *Abutilon Periploca acutioris folii*, fructu stellato, Hort. Elth. p. 4. Abutilon, with a sharp-pointed Periploca Leaf, and a starry Fruit.

8. *Abutilon Americanum*, folio hastato, flore amplo purpureo-caruleo, pediculis longis insidentibus, Houft. American Abutilon, with a spear-pointed Leaf, and large purple Flowers, with long Foot-stalks.

9. *Abutilon Americanum*, flore albido, fructu e capsulis vesicariis plenis conflato, pediculo geniculo, Martyn. Cent. 1. Pl. 33. American Abutilon, with a whitish Flower, a smooth swelling Seed-vessel, and a jointed Stalk.

10. *Abutilon Americanum*, ribes foliis, flore carneo, fructu pentagono aspero, Houft. American Abutilon, with Currant Leaves, a flesh-coloured Flower, and a rough five-corner'd Fruit.

11. *Abutilon Americanum frutescens*, folio amplo cordato, subtus lanuginoso, floribus amplis luteis, Houft. Shrubby American Abutilon, with a large heart-shaped Leaf, woolly on the under Side, and large yellow Flowers.

12. *Abutilon fruticosum aquaticum*, folio cordato scabro, flore pallido luteo, Houft. Aquatic Abutilon, with a rough heart-shaped Leaf, and a pale yellow Flower.

13. *Abutilon Americanum*, populi folio leviter serrato, Houft. American Abutilon, with a Poplar-leaf lightly sawed on the Edges.

14. *Abutilon Americanum fruticosum*, foliis cordatis, floribus parvis purpurascens, Houft. Shrubby American Abutilon, with heart-shaped Leaves, and small purplish Flowers.

15. *Abutilon Americanum viscosum*, Althæa folio mucronato, flore parvo luteo, Houft. American viscous Abutilon, with pointed Marsh-mallow Leaves, and a small yellow Flower.

16. *Abutilon fruticosum*, foliis subrotundis serratis, floribus albis pentapetalis, ad alas foliorum conglomeratis, Sloan Cat. Shrubby American Abutilon, with roundish serrated Leaves, and white Flowers growing in Clusters from the Wings of the Leaves.

ABYSSUS. Gulielmus Menens calls by this Name the *Materia prima*, or first Matter, of which all Things are formed. *Theatrum Chymicum*, p. 274.

It is also used by the Chymists to express a proper Receptacle for the Seminal Matter, from which all Things are formed. *Castellus*, from *Libavius*.

ACACALIS. A Shrub, bearing a papilionaceous Flower, and siliquous Fruit, called also Kirmesen. *Raii Hist.*

It is said to take its Name from the Nymph Acacalis, who was ravished by Apollo. *Goræus*.

Dioscorides says, it is the Fruit of an Egyptian Shrub, like a Tamarisk, the Infusion of which is mixed with Collyria, to sharpen the Eye-sight. *Dioscorid. l. 1. c. 118.*

The Plant is like the *Silqua Sylvæstris rotundifolia* of C. B. **JUDAS'S TREE.**

It is a popular Remedy at Constantinople for Disorders of the Eyes. *Raii Hist.*

The Pods are in Use, and are astringent. *Dale.*

Hefychius explains ἀκκαλῖς, the Flower of the Narcissus.

ACACIA. Egyptian Thorn, or Binding Bean-tree (*Ακασία*, of ἀκᾶω, to sharpen.)

1. *Acacia*, Offic. Alp. Egypt. 9. Velling. Obf. 6. *Acacia vera*, Schrod. 4. 6. *Raii Hist.* 1. 976. J. B. 1. 9. *Tourn. Inst.* 605. Boerh. Ind. A. 2. 56. *Acacia vera*, Chab. 92. *Acacia vera* sive *Spina Egyptiaca*, Park. Theat. 1547. *Acacia Dioscoridis*, Ger. Emac. 1590. *Acacia vera Egyptiaca*, siliquis sinuosis, sive *Lupini*, Breyn. Prod. 2. 2. *Acacia Egyptiaca*, Col. in Rech. 866. *Acacia Egyptiaca foliis Scorpionidis leguminosæ*, siliquis albis, compressis, isthmo interceptis, floribus luteis, Herm. Cat. Hort. Lugd. Bat. 5. *Acacia vera*, Ger. 1149. *Acacia foliis Scorpionidis leguminosæ*, C. B. Pin. 392. *Acacia Egyptia*, siliquis *Lupini*, floribus luteis, Herm. Parad. Bat. Prod. 303. *Acacia vera*, seu *Spina Egyptiaca*, foliis Scorpionidis leguminosæ floribus luteis, siliquis compressis *Lupini*, Dougl. Ind. 2. *Acacia vera* seu *Egyptiaca*, Ind. Med. 2. *Acacia vera*, sive *Spina Egyptiaca*, subrotundis foliis, flore luteo, siliqua brevi, paucioribus, isthmis glabris & cortice nigricantibus donata, Pluck. Almag. 3. *Mizquit* seu *Acacia*, Hern. 59. **THE EGYPTIAN THORN.** *Dale.*

This grows to be a pretty big Tree, though not very tall, spreading out into many Branches full of sharp Thorns, having many large winged Leaves divided into several pinnated *Surculi*, set opposite to one another, like Fern, about three Inches long, set thick on each side with slender narrow *Pinnule*. The Flowers come forth at the Setting on of the small Branches, on pretty long-footed Stalks, consisting of round Clusters, of whitish yellow Filaments, which are succeeded by flat Pods, near an Inch broad, and five or six Inches long, containing several flat Lupin-like Seeds, separated from each other by a round short Parti-

tion, which makes each Pod appear like a String of flattish Beads.

It grows in Egypt, Arabia, &c. The inspissated Juice, expressed from the unripe Fruit, is reddish or yellowish within, and blackish without; of a bitter Taste, and harsh, with an Astringency. Of the Pods, before they are ripe, is made the true *Acacia* of the Ancients, which enters the Composition of their Theriaca; and this is meant, when *Acacia* is mentioned alone. *Gummi Arabicum*, or Gum Arabic of the Shops, is thought, by some, to be the Gum of this Tree; it is of a white Colour, inclining to yellow, pale and pellucid, of an insipid Taste, and viscous; it exudes spontaneously from an Incision of the Tree, made on Purpose. That is the best, which is pellucid like Glass, unmixed, and in the Form of small Worms. The Juice refrigerates and dries, consists of gross Particles, incrustates, and astringes. The Gum heats and moistens, inspissates, stops the Pores of the Skin, and blunts the Acrimony of Medicines. From its soft, glutinous Quality, it is serviceable against Coughs, Hoarseness, and Disorders of the Aspera Arteria, is a proper Ingredient in Applications to the Eyes and Arteries, and is of great Efficacy in the Dysuria, or Heat of Urine, and the Diabetes. *Dale, Miller.*

Prosper Alpinus tells us, that the Pods are beaten in a Mortar, and the Juice, being pressed out, is afterwards evaporated by a gentle Heat to a due Consistence. There is what they call the Liquid Juice, and the Dry Juice; the latter is most hardened by Evaporation, and is much used in dying of Leather.

The same Author tells us, that a Clyster of the Decoction of the green immature Pods, or the Leaves, or Flowers, is very effectual in stopping Fluxes of Blood, or any other Humours; and that it is excellent in Uterine Hæmorrhages.

The true *Acacia*, Miller says, is rarely to be met with in the Shops, the *Acacia Germanica*, or the inspissated Juice of Sloes, supplying its Place.

2. *Acacia Indica Farnesiana*, Ald. 2. *Raii Hist.* 1. 977. *Tourn. Inst.* 605. *Elm. Bot.* 477. *Ind. Med.* 57. *Jonf. Dendr.* 366. *Rupp. Flor. Jen.* 18. *Acacia Indica siliqua tumida tuberosa*, Breyn. Prod. 2. 2. *Acacia America siliquis teretibus ventris, floribus luteis*, Herm. Par. Bat. Prod. 303. *Cat. Jam.* 152. *Hist.* 2. 56. *Acacia Americana Farnesiana*, Park. Theat. 1547. *Acacia Indica foliis Scorpionidis leguminosæ siliquis fuscis, teretibus, resinosis*, Herm. Hort. Lugd. Bat. 5. Boerh. Ind. B. 2. 56. Volck. *Flor. Nor.* 4. **INDIAN THORN.**

It is cultivated in the Gardens of the Curious.

The Gum Arabic, according to some, also flows from this Tree.

3. *Acacia siliquis compressis*, Ind. Med. 57. *Gummi Senica*, Offic. *Gummi Senica seu Orientalis*, Mont. Exot. 10.

The Gum, called Senegal, in the Index Medicamentorum, is like Gum Arabic, but in greater Lumps; of a rough external Superficies, but clear and transparent within, its Colour inclining sometimes to White, sometimes to Red, of an insipid watery Taste, and viscous, and of no Smell at all. It is imported from Guinea, and takes its Name, as some affirm, from the River Senega. But from what Tree it flows or is extracted, I am at Loss to guess, except it be a Species of *Acacia*, as from its Likeness to Gum Arabic, both in outward Form and Virtues, we may reasonably conclude. The London Apothecaries use the whitest and purest Lumps of this Gum, instead of Gum Arabic.

4. *Lycium Indicum*, Offic. *Lycium Indicum putatum Garciae*, Park. Theat. 1011. *Lycium Garciae sive Cate*, J. B. 1. 61. *Raii Hist.* 2. 1628. *Lycium Indicum & Cate*, Chab. 51. *Lycium Erica foliis*, Cate Garciae, Jonf. Dendr. 268. *Lycium foliis Erica*, C. B. Pin. 479. *Arbor Spinosâ, unde Cate sive Lycium exprimitur*, Bont. 92. **INDIAN THORN.**

It grows in the East-Indies. The inspissated Juice is called *Cate*, which strengthens and fastens the Teeth and Gums. Whether the *Cate* of Bontius, and the *Terra Japonica*, or *Catechu*, be the same, is not easy for the Learned to determine. From the Nearness of the Names *Cate* and *Catechu*, I am inclined to think they are the same Thing. But since Holbgius affirms, that the *Catechu* is taken from that Tree, whose Fruit the Natives eat with Lime and Betel, which, Bontius assures us, is the Fruit of the *Areca*, or *Fausel*, I cannot but give Credit to so great a Man, especially, considering he lived many Years in that Country. And since there is so great a Variety, both in the Colour and Weight, of *Terra Japonica*, I don't see why they may not be the Product of different Plants, tho' called by the same Name.

Dale mentions a fifth Species, from which the Raath or *Lycium Indicum* is made, from the German Ephemerides, Anno 13. P. 8, 9, 10. T. 1.

ACACIA GERMANICA. This the College directs to be made thus:

Take of wild Sloes, yet hardly ripe, any Quantity, press out their Juice, and in a Bath Heat inspissate it. J. B. *Quincy's London Dispensatory.*

Great Care must be taken, by continual Agitation, or well Regulating the Fire, to prevent its Burning, which it will be very subject to do, before it acquires that Consistence, which will make it prove somewhat brittle, as it ought to be in the Cold. *Shaw's Notes to the Edinburgh Dispensatory.*

Acacia is extremely rough and astringent, and consequently proper in Hæmorrhages, Diarrhoeas, and Dysenteries.

It is used as an Ingredient in Gargles, to brace the Salival Glands, and Uvula, when relaxed, and as a repellent Collyrium in Inflammations of the Eyes. It is used in Egypt to strengthen the Gums, and fasten the Teeth. *Geoffroy*.

As *Acacia* is an Astringent, it may properly enough be made Use of in Medicines designed to brace up the Animal Fibres; when in a State of Relaxation. The Dose of the true *Acacia* is from four Grains to a Dram; that of the German *Acacia*, from six Grains to a Dram and half. *Boerhaave*.

It may be properly given in Hæmorrhages, dissolved in Vinegar and Water. *Cælius Aurelianus*.

ACACIA FERREA. An Iron Spoon. *Rulandus. Johnson*.

ACACOS. From a Negative, and *κακός*, bad. It has been applied to Distempers which are not attended with Danger by *Pechlinus*. And to the Aphthæ of Children. *Castellus*.

ACADEMIA. There was something very grand in the Imagination of Paracelsus, of which this is an Instance. He says, he was educated neither at Paris, nor Rome, nor Tholouse, nor any other sophistical School, but all Nature was his University, where God manifests himself all powerful, wise, and glorious to those that seek him. Hence it was, says he, that I learned all I write, and which I know to be true.

ACÆRIA. Unseasonableness. From a Negative, and *καίρος*, Time.

ACAHU, or АСНАНІ. Alum Water. *Rulandus*.

ACAIID. Vinegar. *Rulandus. Johnson*.

ACAJA Pisonis. *Acaja quæ & Nametara Brasiliensis* *Marcgrav.* called also by Ray, *Prunus Brasiliensis Fructu racemoso, ligno intus pro Officulo*.

This Tree grows to the Size of a tall Lime. The Bark is rough and of a light Ash Colour, like Elder. The Leaves are smooth, exactly opposite to each other, two, three, or four Fingers long, of unequal Sizes, a Finger and half, or two Fingers broad, acuminate, shining, and have a broad Nerve running the whole Length of it; not unlike those of the Walnut.

It produces a great Number of Flowers in Clusters, of a yellowish White. These are succeeded by yellow Plums, not unlike ours in Figure and Magnitude, with a thin Skin, and of an acid Taste, containing a large Stone, which consists of woody Filaments, and which is soft enough to be easily cracked with the Teeth, it incloses a Kernel of a yellowish white Colour.

The Leaves are extremely acid and astringent, and are recommended for the Recovery of a lost Appetite, and to assuage Thirst in Fevers.

Of the young Leaves bruised, a very agreeable Sauce is made for roasted Meats.

The Wood is red and light as a Cork.

The Plums are of a very grateful acid Taste. When ripe they fall, and smell deliciously. They are refrigerating and astringent, and very good in a Nausea, and Fever, and much esteemed for a Dysentery.

A Wine is made of them, which, when old, will intoxicate.

The Buds and Tops are used as Pickles; and these, when bruised, emit a Froth, which, put into the Eyes, cures Inflammations, clears the Sight, and takes away Specks and Films. At first it gives them Pain, but that is very soon over.

The Leaves, Buds, Juice, and Bark, are recommended in Gargarisms for Inflammations of the Throat; and in Baths for hot Disorders of the Feet and other Parts of the Body.

It is upon the Extremities of the Branches of this Tree, that certain Birds, about the Size of a Magpy, adorned with beautiful black, and yellow Feathers, build their Nests pendulous, that they may be out of the Way of Serpents, and other noxious Insects. *Raii Hist.*

ACAJAIBA.

Pomifera seu potius prunifera Indica nucis reniformi summo pomoinnascente, CAJUM dicta. Anacardii alia species C. B. Cajum Ger. Park. J. B. Acajaiba Pisonis & Marcgravii. Kapa Marā H. M. P. 3. T. 54. p. 65. Anacardium occidentale Cajou dictum, Officulo reni leporis figura. Herman. The CAJOU or CASSU TREE. Raii Hist. p. 1649.

The Characters.

The Cup of the Flower (which is produced at the Extremity of a Foot-stalk) is oblong and quinquefid; the Flower consists of one Leaf, which is divided into five long narrow Segments; in the Bottom of the Calyx is the Ovary, which becomes a soft Pear-shaped Fruit, upon the Apex of which grows a Vessel, in which is contained one Kidney-shaped Seed.

There is but one Species of this Plant yet known, which is

ACAJOU. *Thev. Franc. Antart.* The CASHEW-NUT.

This Tree is very common in many Parts of America, particularly in Jamaica and Barbadoes, where it grows to be a very large Tree. *Miller*.

It grows every where in Malabar, but is reckoned a Native of Brasil. It bears ripe Fruit every Year in August and September, and continues fruitful about 30 Years. In Brasil, according to *Marcgravius*, it begins to blossom about the End of August, and is in full Bloom in September, and produces the greatest Quantity

of ripe Fruit in December and January. It is found also in Jamaica.

Of the Juice of the Fruit they make a Drink, which duly fermented inebriates like Wine. The Fruit roasted far exceeds Chestnuts, and tastes as well as Almonds. There is no Biting of the whole Fruit raw, without losing the Skin off your Jaws by the acrid Juice; therefore it is cut open with a Knife. Swallowed raw, it grates the Throat with its acrid and austere Juice; therefore it is cut up into little Balls, which are dipped in Water or Wine, and Salt thrown over them, by which Means their Acrimony is taken off, and they become of a most delicious Taste. They corroborate the Stomach, help Concoction, and stop Vomiting and Nausea. The Indians eat them slightly roasted as a Provocation to Venery. The Juice stops a Diarrhoea, and cures a Diabetes. The Nuts will blaze in the Flame.

From the sweetish Liquor contained in the two Shells the Natives extract an Oil, in Use with Painters, to give their Colour a lasting Black; the same preserves Wood from Putrefaction. They say there is nothing better than this acrid Oil for Tetters, Ringworms, Itch, and to kill Worms, outwardly applied.

The Tree, when wounded, distills a pellucid Gum, both in Colour and Consistence like the best Gum Arabic. *Marcgrav.*

Query whether the Catees, or Cassu, or Catechu, be not made of this Oil.

The Brasilians compute their Years by the Nuts of the *Cajou*, laying up one for every Year.

The Wood is serviceable for several Purposes, being of a hard Substance. It is not subject to Worms, and therefore fit for Shipping.

This Tree is peculiarly remarkable on Account of its Fruit. It might, perhaps, more properly be reckoned among the pruniferous Kind. *Raii Hist. Plant.*

ACAJOUANUM LIGNUM.

This is not the Wood of the Tree that bears the *Acajou* Nuts. It is of a red Colour, and never touched by Worms, which renders it very proper for Furniture; but it is seldom used in Physick. *Geoffroy*.

ACAIROS. *Ἀκαίρος*. From a Negative, and *καίρος*, Time. Unseasonable. It is applied to any Thing that happens at an improper or unusual Time, or is unlike what ought to happen under the same Circumstances of Time and Place; and in this last Sense *ἄκαίρος ἀπόστασις*, Hippocrat. Epidem. L. 1. ought to be taken, that is, a crude Hypostasis or Sediment in the Urine, not like what it ought to be in order to constitute a favourable Symptom. Thus *ἄκαίρος διαχωρήματα*, and *ἄκαίρετα διαχωρήματα*, and *ἄκαίροι ἰδρώτες*, are to be understood of Stools and Sweats, which are unseasonable, and which bring no Relief. *Ἀκαίρος* also is used by Hippocrates to signify unseasonably, as Epid. L. 1. *ὁν λήν δὲ ἀκαίρος τὰ τῶν ψυχῶν*. Cold Weather not very unseasonable for the Time of the Year. And in the same Book, *δυσάδεις δὲ λήν ἀκαίρος*, not more thirsty than might reasonably be expected, considering the Fever. And Epid. L. 6. Sect. 3. Aph. 28. speaking of the Piles, he says, they cause many Disorders there specified, (*ἰντενθίτες ἀκαίρος*) if unseasonably cured. *Πόνος ἀκαίρος*, de Ratione Viæ in Acutis, signifies unseasonable Exercise and Labour, or, as Galen explains it, such as the present Condition of the Body cannot support without Inconvenience.

ACAJOU. The *Cajou*, Cassu, or Cashew-Nut.

ACALAI. Salt.

ACALCUM. Tin. *Castellus from Mullerus*.

ACALEPHE. *Ἀκαλήφη*, or *Ἀκαλήφη*, a Nettle. *Gorræus. Foesius. Constantine*.

It signifies also a certain Fish, whose Flesh is very tender, and easy of Digestion. I take it to be a Shell Fish mentioned by Athenæus. It signifies also a Sea-fowl mentioned by Nicander. And a Sea-animal mentioned by Gellius. They derive it from a Negative, *καλή*, handsome or agreeable, and *ἅψη*, a Touch. Because the Touch, as it hurts, is not agreeable. *Constantine*.

ACAMATOS. *Ἀκαμάτος*, from a Negative, and *ἄμνη*, to labour. By this Galen means, if I understand him, that Position of a Limb, which is equally distant from Flexion, and Extension, which Situation the Part can longest bear without Weariness. Thus, when we sleep, the Knees are bent, that neither the Flexors nor Extensors of the Leg may be upon the Stretch. In like Manner the Arm is generally laid spontaneously in the most easy Position, or such a one as can be longest supported without Fatigue. This is when the Arm makes near a right Angle with the Humerus, the Palm is turned inwards, and the Back of the Hand outwards; for then the Flexors and Extensors, the Pronators and Supinators, are in a middle Situation betwixt Flexion and Extension, Pronation and Supination, that is, they act less than they would do in any other Position.

ACAMECH, or ACEMECH. This both *Rulandus* and *Johnson* explain by *Superfluitas Argenti*. But whether he means Superfluity of Silver, meaning Money, or the Scoria of the Metal, or a Superfluity of the Humidum radicale in Silver, I cannot determine.

ACANOR. A particular Sort of Chymical Furnace.

ACANTHA. *Ἀκάνθη*. This signifies in general any thing that

that is sharp-pointed and prickly, as a Thorn, or the Fins of some Sorts of Fish. Hence it has been applied to the Affemblage of the acute Processes of the Vertebrae, each of which is called a spinal Apophysis, or Process. *Ἀκανθα λευκή*, is the Spina Alba, or White Thorn. *Gorræus*.

ACANTHABOLUS. *Ἀκανθα*, a Thorn, and *βάλω*, to cast, or cast out.

A Chirurgical Instrument described by Paulus Aegineta, like Tweezers, useful in taking away a cariated Piece of Bone that is loose, or Thorns, or Tents, or any thing extraneous in a Wound; or else to pull away Hairs from the Eye-lids, that are troublesome, and irritate the Eyes, or from the Inside of the Nose, or Eye-brows.

There are several Indentations on each Side of the Chaps, which, answering to each other, make it take faster hold when shut.

Scultetus gives a Figure of it, Tab. 4. Fig. 1. In this the Handle is made flat, that upon Occasion it may serve instead of a Spatula to spread Plaisters.

ACANTHACEOUS. A Botanical Term applied to Plants of the Thistle Kind, which are prickly.

ACANTHALZUCA. The same as Echinopus. Glove Thistle.

ACANTHICE. *Ἀκανθικὴ μέση*, *Gorræus* explains this, The Tear which is contained in the Top of the Helxine, which is Pellitory of the Wall, of an agreeable Taste; but I believe by a double Mistake, for in the first Place it is, according to Theophrastus, the Product of the Carduus Chamæleon, or Carline Thistle; and in the next the Word *ἐυσώμω*, which he translates, of an agreeable Taste, signifies here, good for Disorders of the Mouth. *Salmassius*.

ACANTHIUM. The Cotton Thistle. See **CARDUUS**.

ACANTHION. The Hedge Hog. See **ECHINUS**. *Gorræus*.

ACANTHUS. [*Ἀκανθός*, so called of *ἄκανθα*, a Thorn, — the Youth Acanthus, whom the Poets fable to be metamorphosed into the Flower of this Herb.] This is called Branca Ursina, or Bears-breech.

It is the *Acanthus*, *Branca ursina*, *Offic. Acanthus sativus*, *Ger.* 986. *Emac.* 1047. *Park. Theat.* 992. *Raii Hist.* 2. 1325. *Acanthus sativus vel mollis Virgilii*, *C. B. Pin.* 383. *Tourn. Inst.* 176. *Elem. Bot.* 145. *Boerh. Ind. C.* 238. *Hist. Oxon.* 3. 604. *Acanthus mollis*, *Rivin. Irr. M. Tab.* 87. *Carduus Acanthus*, *five Branca ursina*, *J. B.* 3. 75. *Carduus*, *Acanthus*, *Branca ursina*, *Chab.* 350. **BRANK URSINE.** *Dale*.

The Leaves of the *Acanthus* are of a shining, dark, green Colour, about a Foot long, and three or four Inches broad, cut deeply into several Parts after a neat Manner; so that from those Leaves the Antients took the Pattern of the Foliage Work about the Capitals of their Pillars, and the other Parts of their Buildings. From among the Leaves, which lie on the Ground, arises a Stalk about two Feet high, and about a Finger thick, smooth, round, and bare of Leaves till near the Top, which is composed of a Head, or Thyrsus, of white gaping Flowers, standing amongst small, hard, prickly Leaves, which supply the Place of the Calces, and almost cover and hide the Acorn like a Seed-vessel, which is divided by a Partition into two Cells, each containing two Seeds. The Root is long and spreading. It is cultivated with us in Gardens, its native Place being Italy, Spain, and the Southern Part of France. It flowers in July and August.

It is a Plant but seldom used, and that only in Clysters and Baths for Obstructions, and for the Stone and Gravel. The Herb-women sell the Leaves of Helliboraster, or Bears-feet, or Sphondylium, or Cow-parfnep, for Bears-breech. *Miller*.

Dale says, it provokes Urine, and stops a Diarrhæa.

It is endued with an emollient and aperient Virtue. That called *Acanthus Mollis*, in the Shops, is of a very soft Nature, somewhat saponaceous, like the Mallow, and insipid. Its glutinous and demulcent Juice is an Ingredient in all emollient Clysters and Cataplasms. It is excellent for Combuitions and Laxations, applied in the Manner of a Cataplasma. The Root is good for such as spit Blood after a Bruise. *Boerhaave*.

2. *Acanthus Sylvestris*, *Offic. Park. Theat.* 992. *Ger.* 986. *Acanthus Sylvestris aculeatus*, *Ger. Emac.* 1047. *Acanthus aculeatus*, *C. B. Pin.* 383. *Raii Hist.* 2. 1325. *Hist. Oxon.* 3. 624. *Boerh. Ind. A.* 239. *Tourn. Inst.* 176. *Elem. Bot.* 145. *Acanthus Sylvestris*, *five Branca ursina spinosa*, *J. B.* 375. **WILD BRANK-URSINE.**

It is cultivated in Botanic Gardens, and flowers in July; the Herb is used in Physick, and hath the same Virtues as the former. *Dale*.

To the two Species of *Acanthus*, above-mentioned, *Miller* adds

Acanthus variarius & brevioribus Aculeis munitus, *Tourn.* The middle Bears-breech with short Spines.

Acanthus Lusitanicus, amplissimo folio lucido. The Portugal Bears-breech, with large shining Leaves.

Acanthus Orientalis humillimus, Foliis pinnatis aculeatis, *Tourn. Cor.* Dwarf Eastern Bears-breech with prickly winged Leaves.

As the **ACANTHUS** of the Antients has given the Learned some Perplexity, the Curious will not be displeased at the following Observations from *Salmassius*, especially as they are of some Importance for the distinguishing justly some Plants mentioned by the antient Writers on the *Materia Medica*.

Of the **ACANTHUS**, a Topiarian [ornamental to a Garden] Plant, and the **ACANTHUS** of Egypt.

The **ACANTHUS** is a Plant that serves for an Ornament to a Garden. The *Acanthus*, a Tree of Egypt, called by Theophrastus the *Egyptian Acanthus*, or Thorn of Egypt, is a thorny Tree, which, what I wonder at, was called *Acanthus* by the Latins, a Word signifying a Thorn; for *ἄκανθας* is the same as *ἀκάνθην*. But I more wonder that it has been, by most, confounded with the Topiarian *Acanthus*. *Isidorus*, from an antient Author, tells us, "that the Myrrh, a Tree of Arabia, five Cubits high, is like the Thorn which they call *Acanthus*." This is the Egyptian *Acanthus* or *Acanthe*, which *Diodorus Siculus* and *Dioscorides* affirm to be like the Myrrh-Tree. The same *Isidore* makes the *Acanthus* an Egyptian Plant, an Evergreen, very prickly, and with flexible Twigs; that is, he makes the Topiarian *Acanthus*, and the *Acanthus* that is the Egyptian Tree, to be one and the same. The same does *Servius*. But the Egyptian *Acanthus*, which is described by Theophrastus, and distinguished into two Kinds, is quite another Thing from the *Acanthus* of Virgil, which he reckons among the foreign Trees.

— *Baccas semper frondentis Acanthi.*

The Egyptian *Acanthus* of Theophrastus has Pods for its Fruit, that of Virgil Berries. The *Acanthus* of Virgil was the Cyrenean Lotos, which Herodotus relates to be like the *Acanthus*, or Egyptian Thorn. Hence the Cyrenean Lotos was called also by many *Acanthus* or *Acanthe*, because of its Prickles. This Kind was also common in Egypt, as well as in the Cyrenean Territories. Of these Thorns is *Demetrius* in *Athenæus* to be understood, where in his Account of Egypt he writes, "The Country beyond this produces a Sort of *Acantha*, [Thorn] a Tree, which bears a round Fruit on twisted Branches." Hence the Poet calls them Berries, for a Berry is properly a round Fruit. *Servius* takes Virgil right, when he remarks, that it is plentiful in the Island Cercinna, where it is called *Acanthus*, because of its Prickles. It is certain that the Latins called a Gum *Acanthium*, because it was gathered from the Egyptian Thorn; and Pliny calls the Leaves of the Euphorbium *Acanthina*, which, it is certain, were prickly. Virgil's *Acanthus* is the very same which the Arabians call Sadar, and its Fruit Nabac. Under this Name *Avicenna* described the Tree Lotos of *Dioscorides*, and Interpreters say it was the Tree *Alfadar*, which produces the Fruit Nabac. Others interpret it of the Fig-tree, or a great Tree. *Serapio* also calls it Sadar, and quotes the Lotos of *Dioscorides* under this Name. It is the same which *Bellonius* in his Observations calls Napeca, and, as he says, is named by the Greeks *Cenopolia*, and is an Evergreen. *Prosper Alpinus*, in his Book of the Egyptian Plants, takes Notice of it by the Name of Napeca, and says it is a thorny Tree, though there is another Kind which is not thorny. *Leo Afer*, *Lib. 3. Cap. de Zarfa*, calls it Rabich instead of Nabich or Nabac; Thorny Trees whose Fruit is called, in the Arabian Tongue, Rabich, being less than Cherries, and tasting almost like Jujubes. He certainly means the same Fruit; but perhaps there is an Error in the Copy, or the Arabians of Barbary call that Rabic which the Eastern Arabians named Nabac. That it is the Connarus of *Agathocles* in *Athenæus* is plain by the Description; for he furnishes the Tree with Thorns and every thing else that answers to the Fruit Nabac. He also says, that they make Meal of the dried Berries: "The Fruit is eaten green, and when it is dry they make Meal of it, but do not knead it into Lumps, nor work it up with Water, when they have reduced the Berries to Powder, but after an odd Manner use it raw as it comes." This one Thing, *Alpinus* confesses, was his principal Reason why he could not believe the Napeca to be the Connarus of *Agathocles*, viz. because he never observed in Egypt that they made Meal of it. But certainly he stumbled at a Straw; for he might have read that nothing is more frequently mentioned among the modern Greeks than Meal of Nabac, (*ἄλαρις*) that is, of the Nabacine or Lotine Berries, when they are dry, and that, in the latest Times, a Meal was made of them for medicinal Purposes. That he did not observe such a Thing in Egypt in his Time, is but a slender Proof that it was never done there. *Charito* in the Composition of a Pulvis *Coeliacus*, which is also good to stay Vomiting, "Take, says he, the Meal [*Alphita*] of Nabac, Guberes, Hypocystis, Xylonnæ, and Suc." These are all of an astringent Quality, as the Fruit of the Lotos is known to be. The Guberes are the Guberes of *Avicenna*, in Latin, Corna, the Fruit of the Cornel or wild Cherry-tree. The same *Charito* in another Place calls them Gomberes. An old Expositor of Arabian Words makes Suc to be the *Galia Mufcata*. The same *Charito*, in another Place, "[Take] the Meal of Nabac of Bdellium, and Guberes," in

a Trochife, prepared for coeliacal and dysenterical Patients. The Alphita Nabac is said to be the Savich Alnabach of Avifena. For Savich or Suich signifies Barley bruised and roasted, which the Greeks mean by *Ἀαπτόν*. This Savich Nabac is a Styptick as well as the Fruit. The Fruit and Stones of the Nabac don't seem to Alpinus to agree with the Fruit and Stones of the Connarus; because the Stone of the Nabac is round, but that of the Connarus oblong like an Olive-stone. For so relates Agathocles in Athenæus, "The Fruit tastes very sweet, is of the Size of a Phaulian Olive, and is like it in Pulp and Stone." He does not seem to have considered of what Olive Agathocles speaks, who does not compare the Stone of the Connarus to that of an Olive in general, but of a Phaulian Olive, which is a round Olive. Polybius, in his Description of the African Lotos, which is the same as the Connarus, makes its Fruit to be "of the Size of a round Olive." Alpinus says, the Nabac is thorny like the Acacia. Herodotus says the same Thing of the Cyrenian Lotos, when he makes it very like the Egyptian Thorn, which is the Acacia of the Moderns. This then is the *Acanthus* of Virgil, evergreen, bacciferous, and exotic to Italy. Of the same Kind is the African PALIURUS, which Theophrastus enumerates among the Species of Lotos, and says it is fuller of Shoots and Branches than the common Lotos. Athenæus joins the Connarus and Paliurus, and Hesychius says, the Connarus is a Tree in Fruit like the Paliurus. Agathocles himself says, the Connarus has Thorns; and the Paliurus too is thorny, for a Kind of Thorn in Greece is so called; and the Polybian Lotos in Athenæus is armed with Prickles, "The Lotos is not a great Tree, but rough and thorny." He speaks of the Lybian Lotos, which is certainly the same which Leo Afer calls Rabich, which is the same as Nabac; for N and R are often changed into one another. Among the Species of Lotos reckoned up by Theophrastus, there are none thorny but the Paliurus, which took its Name from its Likeness to the Greek Paliurus. Therefore it cannot be doubted, but the African Paliurus was thorny, and the Arabian Sadar, whose Fruit is Nabac. There are two Kinds of it, the Thorny, and the Smooth: The Thorny, it is plain, are the Paliurus, the Connarus, the *Acanthus* of Virgil, and the *Ἀκανθα Ἀργυρία* of Demetrius. As to the Lotos Latophagitis of Theophrastus, it appears by the Description to be the red Jujube. As to the common Lotos, which Pliny relates to have been transplanted out of Africa into Italy, but to have degenerated with Change of Soil, it can be no other than the Azadarat of the Herbalists, and the **** of Avifena. For there is no Species of Lotos at this Time in Italy, except this which is cultivated for its Shade, being one of the larger Sort of Trees. Avifena writes, that it is a great Tree, and bears a Fruit like the Nabac. I doubt not but the Antients took it for the Lotos, by which Name they called it, and mean the same, when they say, the "Lotos is a great Tree, and of a good Bigness." But the true Lotos is not over large, whereas this is tall, and spreads extremely; its Leaves shading all around, and extending themselves to the neighbouring Houses, according to Pliny. The common Lotos went at Rome by the Name of the Grecian and Syrian Bean, and indeed they were very plentiful in those Countries. The other Lotos Pliny calls a transmarine Plant, which was quite a Stranger to Italy. The Fruit of this Lotos being no smaller than a Cherry, it is strange that Dioscorides, in making its Bigness, should draw his Comparison from Pepper: "It bears a Fruit, says he, bigger than Pepper." This Passage can be understood in no other Sense, but that the Lotos bears a Fruit but little bigger than Pepper. It is a Wonder too, that, when there are so many Species of Lotos, he mentions but one. But it is a common Thing for him, inconsiderately, to involve many Species under one Appellation. But the Interpreters also of Avifena are grievously mistaken, when they render Hab almenen, which is said, Avif. Cap. 305. to be bigger than Pepper, and almost of the same Colour, by the Fruit of the Lotos Tree. Nay, they note too in the Margin, that the same is repeated, Cap. 520, in which Place the Nabac is described as the Berry of a Tree; that is, of the Lotos. These are quite different Things. The Arabians seldom use Hab for the Fruit of Trees, but pretty commonly for the Seeds of Herbs. I am not ignorant, that the Word may be read in Avifena as applied to the Pine, the Laurel, the Turpentine-tree, and the Ben-nut; but it is rather used for the inner Stone, or Kernel, than for the whole Fruit; as, in an Apple or Pear, they would not call the whole Fruit Hab, but the Seed which is within. They do not call a Pine-nut Hab alscunbar, but the Kernel. These are the Seeds from which sown Trees are propagated, and answer to the Seed of Herbs. The Berry of the Lotos is like the Cherry with all its Pulp about it. This Pulp is what the Greeks call *Περυκάρειον*, but the Stone within, Nucleus, is the proper *Καρπός* of the Greeks. I do not deny, but Hab almenon may be used to signify the Nucleus of the Berry of the Lotos; but for the whole Berry, which is called Nabac, it can by no Means be taken. The Grain, Almenen, Avifena will have to be hot and dry in the second Degree, but the Nabac tempered with moist and dry. When he says the Almenen is bigger than Pepper, and is easily broken and separated from the Medulla, which is extraordinary white, it is plain that he

speaks of the Stone, or Nucleus. Whatever other Fruits of Trees consist of an unctuous Medulla, may doubtless be rightly called by the Arabian Word Hab, as the Berries of Laurel, the Ben-nut, the Fruit of the Turpentine Tree, and such like: But as for those which consist of an eatable Pulp, and a Stone within it, in these the Stone, which is in the Place of Seed, is properly called Hab, and by the Greeks *Καρπός* and *Περύνη*, when Fruits that have no Stone are called *ἀκαρπία*. Salmasius de Hom. Hyl. l. 1. r. Cap.

OF ACANTHI.

The Greek Word *Ἀκανθῶς*, signifies a Thorn, or a Thistle, and is the same as *Ἀκανθα*, being general Names for all Kinds of Thorns or Thistles; thus *δύκινθος* and *ἐχινός* are the same. The *Ἀκανθα Ἀργυρία* in Theophrastus is a thorny Tree, which in many other Places he calls *Ἀκανθα Ἀργυρία*. This Name, among the Greeks, became appropriated to a Topiarian Plant, which the Latins also, keeping the Greek Word, call *Acanthus*;

— *Et flexi tenuissimum vimen Acanthi,*

and in many other Places. But this *Acanthus*, especially the Topiarian and Garden Kind, had no Thorns; for the wild thorny Kind is called *Ἀκανθὸς ἄγρια*. The Greeks also called *Ἀκανθα*, in an absolute Sense, what the Latins name Carduus, which has a Head like a Pine-apple, and is eatable, "Cinara; for so we find the *Acantha* was called by the Dorian Poet" Pollux. The Latins also called it Carduus, by Way of Eminence. Hence in the old Glossaries Cardui, *cardagi*. From this Homonymy Dioscorides, under the Word *Ἀκανθῶς*, which some Editions read *Ἀκανθα*, seems to have described both the Topiarian *Acanthus*, and the Carduus, confounding the Characters. Our Herbalists take it for granted, that the *Acanthus* of the Antients is what they now call Brank Urfine. Dioscorides gives the Topiarian *Acanthus* a Thyrsoidal Head: But it is evident that Brank Urfine has no such Head, as we see in the Carduus or Cinara [Artichoke]. Dioscorides did not describe the Cinara; for they are mistaken who think it was the Scolymus. Only the Root of the Scolymus is eatable, according to Theophrastus. Dioscorides says, that the young Shoots are fit to eat, but the Carduus, or Cinara, has something in the Figure of a Pine-apple, which is eaten, that is, this Thyrsoidal Head. When, therefore, he had read that the *Acantha* had a Thyrsoidal Head, which was to be understood of the Carduus Cinara, he took it for the *Acantha* Topiaria, which is also called *Acantha* absolutely. But Dioscorides is the rather to be pardoned, because, perhaps, he did not know the Carduus: For Theophrastus expressly says, that the *ἄκανθῶς*, so he calls the Carduus, did not grow in Greece. But there is a great Similitude between the *Acanthus* and the Carduus, especially the smooth *Acanthus*. Columella of the Cinara or Carduus thus sings,

*Nunc similis Cactō spinisque minantibus horret,
Pallida nonnunquam tortos imitatur Acanthos.*

Dioscorides being deceived with this Similitude, and the *ἄκανθα*, gives the *Acanthus* a Thyrsoidal Head, which is proper to the *Ἀκανθα*, or Carduus. It seems as if Dioscorides alone was mistaken in this Matter, because Pliny, in his Description of the *Acanthus*, says nothing of its Thyrsoidal Head; which proves also that he took his Account of the *Acanthus*, as he did that of the rest of the Plants, not from Dioscorides, but another Author, since he passes by so remarkable a Characteristic. "Its Seed is oblong, of a yellow Colour, and the Plant has a Thyrsoidal Head." Dioscorides de Acantho. In order to prove that the *Acanthus* has not a Head like the Thyrsus, but that such a Head belongs to the Species of Carduus, which we call Artichoke, we must explain what is meant by *κεφάλη θυρσοειδής*, Thyrsoidal Head. The Thyrsus was a Staff belonging to Bacchus, which had on the Top the Figure of a Pine-cone with a Ribbon tied in a Knot, and the Ends hanging down on each Side. This is the Figure of the Thyrsus in antique Sculptures. Some Authors assure us that it was a real Pine-cone, which was placed on the Top of the Thyrsus, and the Greeks especially call it *Κένος*, and the Thyrsus *Κανόβροτος*. The Epigram on the Dedication of the Bacchanalian Instruments has

Καὶ δὴ σὺν χλαυρὸν κανόβροτον ἔχοντα.

Κανόβροτος *δύσος*, which has a *κένος* at the Top, that is, a Pine-cone. In the Grammarians we find *κανόβροτος*, *δυσσοβροτος*, The botryceidal [like a Cluster of Grapes] Fruit of the Pine, which the Women carried in the Ceremonies of Bacchus, is called a Cone, because the Figure of a Cone is like that of a Man's Head. Now the Greeks say, that Bacchus presides over that Part of Man, and therefore they performed that Ceremony in their domestic Mysteries. Hence the Matter of Fact is certain, though the Reason given for it be but a Trifle. The religious Rites of Bacchus were akin to those of the Mother of the Gods. They had the same Rites and Symbols. Hence in the Bacchæ, a Tragedy of

of Euripides, Bacchus says, Πίνε μῆτρὸς ἑμαδ' ἐνέματα. Now the Pine was sacred to the Mother of the Gods, and every Year, on a stated Day, was carried into her Sanctuary. Arnobius, Lib. V. The Day was the eleventh of the Calends of April, as it is marked in the Roman Calendar of Constantine the Great, with *Arbor intrat*; which must be understood of the Intromission of the Pine into the Sanctuary of the Mother of the Gods. The following Days were dedicated to various Solemnities of the same Goddess; as *Sanguinis Dies*, in the same Calendar, marked at the Ninth of the Calends of April. *Hilaria*, at the eighth; *Requies*, at the Seventh; *Lavatio*, at the Sixth. The Poet calls Pine-cones the Apples of Cybele, *Poma sumus Cybeles*. The Pine was also accounted holy to Liber and Neptune, Πίνυς ἱερὰ Διὶ Νύμφῃ καὶ Ποσειδῶνι. Artemidorus. And the Strobilus, or Pine-cone, is enumerated among the Play-things with which the Titans amused the Infant Bacchus, by Orpheus in his Mysteries, thus

Κῶνοι καὶ ῥόμβοι, παίγνια καμπυρίγια,
Μήλατε χρύσεα, καλὰ, παρ' Ἐσπερίδων λιγυράων.

These Verses are cited by Clemens in his Protrepticon, where he also informs us that all these παίγνια were afterwards received as Symbols in the Mysteries of Bacchus. "It may be of Service, for your Conviction, to set before your Eyes the useless and insignificant Utensils of your religious Worship, as the Dye, the Sphere, the Pine-cone, [σρόβιλος] the Apple, the Top, the Looking-glass, and the Fleece." &c. In this Passage Clemens interprets the κῶνοι of Orpheus by σρόβιλοι, that is, Pine-cones. Arnobius therefore was in the wrong, when he rendered σρόβιλος and κῶνος by Turbines in his Book V. It is certain that the Greeks used σρόβιλος, and κῶνος, and also ῥόμβος for a Boy's Play-thing, called by the Latins, Turbo, [a Top]; but in this Place we are sure he means a Pine-cone, as the antient Scholiast, in the King's excellent Copy, rightly observed, κῶνοι οἱ σρόβιλοι καὶ οἱ θύρσοι. Ὁ Διογενισιανός. And these are the Pine-cones, the Symbols of the Rites of Bacchus, which the Bacchæ carried on the Top of their Thyrsi; these made the θυρσοειδὴ κεφαλὴν, as we see it in antient Monuments. For this Reason Grammarians interpret θύρσος by κῶνος, because they have Pine-cones on their Tops, Κῶνοι, οἱ θύρσοι καὶ σρόβιλοι, Hesychius. Of the same Shape are the Heads of the Cardui, [Artichoke] being made up of Leaves placed like Scales, and running up to a Point like a Top, forming a Cone. Thus Columella of the Cinara,

Nunc pinæ vertice surgit.

This is the Carduus with a κεφαλὴ θυρσοειδὴς, not the *Acanthus*, which, if it be Brank-Ursine, as no Body doubts, has a Head very different from the Figure of a Pine-cone, or rather no Head at all. There is no Doubt to be made then, but Dioscorides confounded the Marks of ἀκανθα, properly so called, with those of ἀκανθος. The first has a κεφαλὴ θυρσοειδὴς, which rises like a Pine-cone; the other has no such Thing. We have many other Plants left us described by the Antients, with the Head of a Thyrsus, which are known by the very Character not to be the same as our modern Herbalists would have them. Dioscorides describes the Alisma to have κυλὸς λεπτός, ἀπλὸς, ὑπὲρ πῆχυν, ἔχων κεφάλιν θυρσοειδές, that is, "a slender, plain Stalk, above a Cubit high, having at Top the Head of a Thyrsus, or like a Thyrsus." How this Place has been tortured and interpolated by very learned Interpreters, for want of knowing the κεφαλὴ θυρσοειδὴς. From the same Ignorance they take Plants for the Alisma, which have not that Characteristic. Pliny spoke right of the Alisma, and according to the Mind of Dioscorides, though he had it not from him: *Caule simplici ac tenui, cubitali, capite Thyrsi*. We are therefore to search for such a Plant with a Thyrsoidal Head, as is here described, that it may be the true Alisma. The *Thymum Græcum*, that has the Epithet of κεφαλωτόν, bears the Head of a Thyrsus, whence it is called by the Greeks θυρσίον. The little Heads of the *Cirsium* are θυρσοειδὴ, and are therefore by Apuleius called Thyrsiculi, i. e. κῶνια (for θύρσοι are κῶνοι). *Herba Cirsion Thyrsi est bicubitali, trigono, inferiori summitate rotunda, cum Thyrsiculis purpureis atque canescentibus*. This Character shews that the *Cirsium* or *Crision* is not the Bugloss of Leoniceus, which has no small Heads of that Shape. The *Herba impia* (or *Filago*) in Pliny, Lib. 24. Cap. 19. Thyrsi modo vestita atque capitata. Hence note, that the Thyrsi were not only headed but clothed; and indeed the Stem of the Thyrsus was, for the most Part, bound about with Ivy. Whence the θύρσοι βρέμονται κατακίοντες πολέμοις in Anacreon. Nothing is more common in Authors, especially the Poets, than Thyrsos hedera velatos & Frondibus amictos, which, it is plain, must be understood of the Staff of the Thyrsus arrayed with Ivy Leaves. Pliny, Lib. 16. Cap. 34. speaking of Ivy, says, "that Alexander, for the Novelty of the Thing, returned from India with his

"conquering Army, crowned with Ivy, after the Example of Liber Pater; and the Thracians used it in their sacred Solemnities to adorn the Thyrsi of the aforesaid Deity, and their Helmets and Shields." You see the Thyrsi were adorned with Ivy, which was so trite and obvious a Circumstance among the Poets, that the Author of a Greek Epigram on a female votary of Bacchus, who forsook the Service, and consecrated her Arms, puts κίσσος for Thyrsus,

παρρηΐασα δὲ πικρὸν,
χέει πεισιγύζῳ χρυσοδέτῳ στατάλῃ.

Anacreon in an Epigram, where he had first named θύρσος; as ἡ τὴν θύρσον ἔχουσα Ἐλικονίαν, soon after substitutes κίσσος, to express the same Thing,

Διόνυσον δὲ φέρει
κισσὸν καὶ σαφύλην.

that is, the Thyrsus adorned with Ivy. Euripides in his Bacchæ has κίσσινον βάλανον for a Thyrsus,

Ἄλλ' ὅτε μὲν κισσὸν βάλανον μέτα;

In another Place he has κισσίνους θύρσους, and in the same Tragedy represents the Thyrsi crowned and adorned with Ivy, and in many Places thereof the Thyrsus is called κίσσινον βάλανον and κισσινον κλάδον. So the Poet,

Et Foliis lentas intexere mollibus Hastas.

He means the Thyrsi woven about and enwrapped in the Leaves of Ivy. Hence the Sutiles Thyrsi in the Priapeia, which were woven about with the sewed Leaves of Ivy;

Liber futilibus committit praelia Thyrsis.

The Thyrsi were covered with Ivy-leaves sewed to one another. So the Sutiles Rosæ, of which were made the Coronæ Sutiles.

I have been the more prolix on this Subject, because I know some Men, who would seem to know more than the vulgar Learned, incapable of being convinced, that the Thyrsi were arrayed with Ivy, because in their precious Stones and antique Monuments they see nothing but a smooth Pole, with a bare Head like a Pine-cone, and a Ribbon hanging down on each Side. But I do not see the Wisdom of giving Credit to a few Stones against the Testimony of so many Authors. Certainly nothing can be more silly than a Sort of Antiquaries, who derive all their Knowledge from Stones, whether wrought with Letters or Figures. What they cannot find in Stones, they believe exists nowhere. Such is the Literature of curious but injudicious Persons. For the same Reason will they deny that there were any Thyrsi which had their Point covered with Ivy, because their Stones afford no such Figure. But we have abundant Mention of them in the Books of antient Authors, which are the true and certain Monuments of Antiquity. Macrobius, to begin with the slightest, in Lib. 1. "The Lacedæmonians worshipped also the Image of Liber Pater, holding a Spear, not a Thyrsus; for when he holds a Thyrsus, what does he more than carry a covered Weapon, whose Point is enwrapped and hid in lambent Ivy?" Macrobius here seems to think that the Thyrsus was nothing but a Weapon, whose Point was covered with Ivy. And indeed it is certain there were Thyrsi of this Form, but very different from those we have explained, which had a Pine-cone for their Head. Nay, even that Spear, held by the Image of Liber Pater, which was worshipped at Lacedæmon, was such a Sort of Thyrsus with its Point wrapped in Ivy. They were called λογχωτοὶ θύρσοι, and in one Word θυρσόλογχοι, which signifies, headed like a Spear, whose Iron was enveloped and hid by the Ivy. Justin Martyr mentions them, "The Bacchæ, says he, under an Appearance of Peace, carry λόγχοι prefixed to their Thyrsi. Properly λόγχος signifies the Iron or pointed Head of a Spear, whence λογχωμένα ἀκόντια, præpilatæ hastæ, aut pilo inspicatæ; Spears headed or pointed with Iron. Præpilatæ in another Sense is the same as ἐσφαμέναι, rounded, not from Pilum, a pointed Iron, but Pila, a Ball, which was fixed on the Point of their Spears, when they skirmished in Sport. I have seen learned Men at a Loss here. In the Greek Epigram on the Priestess of Bacchus renouncing her Profession, and consecrating her Arms,

ἢ τὸ δίδουσαν
τὴν τὸ λογχωτὸν καὶ τὸ περισφύραν.

this Pair of Spears or Thyrsi were headed with Iron. In the Asterisms in Proclus, the Centaur holds θυρσόλογχον. Ptolemy calls it barely θύρσον. Among the threatening Arms of the Gods carrying Fear and Death, Strabo reckons θυρσόλογχα ὅπλα. Lib. 1. There were two Sorts of Thyrsi then; one had a λόγχος with a Point, but covered with Ivy, that it should

not appear; and the other had a Pine-Cone placed on it. The Bearers of the first were *Συροφόροι*, of the other *καυροφόροι*. Both Thyrsi were adorned with Ivy. The old Epigram *Καὶ Σίγρη, &c.* before-mentioned, calls the Staff of the Thyrsus green, because of the Leaves of Ivy which covered it: This was a harmless Thyrsus, that had no Iron. Hence Euripides introduces his Bacchæ tearing and scattering abroad the Bodies of Bulls *καὶ τὰς αὐτὰς μέγα*, which he would not have said, had their Thyrsi been headed with Iron. Sometimes the bare Staff, bound with Ivy, served for the Thyrsus; as it appears in that extraordinary fine Agate, which represents the Orgia of Bacchus in Sculpture, explained by Scaliger and Casaubon. One of the Bacchæ is there seen holding a Staff, bound about with Ivy Leaves instead of a Thyrsus. He that denies it to be a Thyrsus, does but trifle; tho' it has neither the conoidal Head, nor the Point enveloped with Ivy. Sometimes the Thyrsi were covered with Garlands and Ribbons, instead of Ivy. Athenæus, *lib. v.* speaking of a Procession in the Bacchanalia, says, "They had in their left Hand a Thyrsus crowned with Garlands." No precious-Stones, or others, represent such a one; nor do I remember ever to have seen it painted on Walls.

Now, since the *Συροφόρος κεφαλὴ* is named by Authors, and the Heads of some Plants likened to it, it is reasonable we should understand it of the Thyrsi with a Pine-Cone Head, which was by far the most common Form of the Thyrsus. Such a one is very conspicuous in the Carduus, not in the Topiarian Acanthus, which Dioscorides confounded with the Acanthus properly so called, which is the Carduus.

Of the Ægyptian Papyrus, to which Pliny in like Manner assigns the Head of a Thyrsus, it is harder to determine. The Bush of Hair of the Papyrus, as drawn by those who have seen it, has nothing which can allude to such a Shape. It does not rise turbinated into a Cone, but rather from a narrow Base grows wider. He who has seen the thick Knot of Fringe which they call Houpe, a *TURR*, may think he has seen the Bush of Hair of the Papyrus. It is also much like the Whisks used to brush dusty Clothes. Strabo says no more of the Papyrus, than that it has a slender Stalk, *ἐν ἄκρῳ ἔχοντα χλαίην*, which has a Bush of Hair at the Top; but of what Figure he does not inform us. Pliny thus expresses himself, *Decem non amplius cubitorum longitudine, in gracilitatem fastigiatum Thyrsi modo cacumen includens*; Here you see the Head of the Papyrus running up slender like a Thyrsus. He means the *τὸ ἄκρον*, and the *τὴν χλαίαν*, which it bears, *ἐν ἄκρῳ*. But 'tis very false that it ends in a Point like a Line, after the Manner of a Thyrsus. Nor does it mend the Matter to say, that learned Men, who had been in Ægypt, had a Draught made of the Plant when it was in its Perfection; and the Hair opened and spread, which before its Expansion was contracted and drawn up into a conic Form. It is plain by the Figure, that it begins to expand at its first Appearance, as we see it happen in almost all umbelliferous Plants: For in this, from a slender Base it spreads itself at the Top: but the contrary happens in such as first are contracted into a Cone, and afterwards expanded and enlarged by Maturity, like the Artichoke when it flowers. And Lobel expressly informs us, that the Bush of Hair of the Papyrus, which is its Flower, does not spread like that of the Cyperus, but is rather compressed like that of Fennel Gyant. Pliny translated his Account of the Papyrus *verbatim* from the Greek of Theophrastus, which in the common Edition reads; *Κόμην ἔχοντα ἀρχαίαν ἀσπίδα, καρπὸν δὲ ὡς ὀδύνη*: Pliny renders it *in gracilitatem*, &c. as before. When I saw the Latin was translated from the Greek, and the Greek manifestly corrupted by the Latin, I endeavoured to amend it, by reading *κόμην ἔχοντα ἀπὸ τοῦ Σύριου*. Nor indeed otherwise could I have thought that Pliny had fairly translated his Author. Now I have not so good an Opinion of Pliny, as not to have a better of Truth, which agrees very ill with what Pliny says of the Hair of the Papyrus; that it runs up to a Point like the Thyrsus. If Theophrastus recorded the same, he has not regarded the Truth: But as his Words are corrupted, he might appeal from Pliny's Version, or his own corrupt Text to the true and genuine Reading as he wrote it. I suppose he wrote *κόμην ἔχοντα καυροφόρον* instead of *ἀρχαίαν ἀσπίδα*. Try your utmost; it is the truest and most genuine Reading you can come at: Pliny himself, who constantly takes *καυροφόρος* for Thyrsus, shews that Theophrastus wrote it thus. Of this we have a fair Example under Euphorbium, which by the Greeks is described to be *ἀσπίδα καυροφόρον*. Pliny translates it *Specie Thyrsi*. In the Place under Debate, by the true Greek Copy, the Papyrus hath *κόμην καυροφόρον*, which Pliny renders *Thyrsi modo fastigiatum in gracilitatem cacumen*. *Νέβηξ* was something carried by the Greeks in Honour of Bacchus, as well as *Σίγρη*; whence there are *καυροφόροι βίβηξ* and *Συροφόροι*. Authors often put one for the other; *νέβηξ βακχίου* and *Σίγρη βακχίου* are frequent with the Greeks. The *νέβηξ* was properly a Staff or Rod cut out of the Shrub Ferula [Fennel Gyant]. Masters struck Scholars on the Hand with it; whence *ferulae magistrales*. Because it was light and spongy, a Blow with it did no Harm; and for that Reason was used to chastise School-boys, who are said by the Sanirist *manum ferulae subducere*. It is also used for any Stick or

Rod, that is a fit Instrument of Castigation; on which Account it may be called also a Thyrsus; for *Σίγρη* sometimes is a plain Staff. Euripides calls it *βίβηξ*, and *κισσὸς κλάδος*, a Staff bound with Ivy. In Hesychius *Σίγρη, βίβηξ, βακχία βακχίου, ἢ κλάδος*. It is also a *νέβηξ*, but properly of the Ferula Shrub. Pliny, *lib. xiii. cap. 22.* says of the Ferula, "that no Wood was lighter; for which Reason, being easy to be carried, it was chosen by Old Age for a Staff." Old Satyrs are commonly introduced in the Company of Bacchus with a Ferula. These are the *καυροφόροι*. The Bacchæ usually went with Thyrsi, which also may be called *νέβηξ*, if they were made of the Ferula, as, on the contrary, the Ferulæ might go by the Name of Thyrsi, especially if carried in the Solemnities of Bacchus. The Stalks of Plants were also called Thyrsi by the Latins, which are also *νέβηξ*, provided they be hollow, as are Reeds, and all those of the ferulaceous Kind. Therefore the *νέβηξ* and the *Σίγρη*, being both carried by the Bacchantes, might the sooner be taken one for another. However they differ not a little. The Thyrsus was sometimes a Bacchian Spear with an Iron Point, enveloped and covered with Ivy: This was the *καυροφόρος Σίγρη*. At other Times the Thyrsus was a Staff, likewise enveloped with Ivy, or without Ivy; and having on its Top a Pine-Cone, which was one of the Symbols of Bacchus. This is the *καυροφόρος Σίγρη*, from whence comes the *κεφαλὴ Συροφόρου* in many Plants. But the *νέβηξ* is the Plant itself, called by the Latins Ferula; which being consecrated to Bacchus, was on that account borne by the Bacchantes. Pliny, *lib. xxiv. cap. 1.* says, "the Ferula is delicious Food to Asles, but mortal Poison to other Cattle;" wherefore that Animal is dedicated to *Liber Pater*, to whom the Ferula was consecrated. The Greeks write, that the Ferula was sacred to Bacchus, because Fire used to be kept in it; for Wine also was of an igneous Quality. *Ὅν τὸ πῦρ ἴσως ἔχει μέγεθος*. The Person, in the Greek Tragedian, says, "I search for a Fountain of Fire that lies hid in the Ferula." Hesychius, "laid up in the Ferula; for they made Use of the Ferula to kindle their Fires; whence it was appropriated to Bacchus, both on account of the Bonfires at their Feasts, and because Wine is of a hot and fiery Nature." It is a noted Fable of Prometheus, who brought the Fire he stole from Heaven to Mortals in a Ferula. Other Reasons are given why the Antients consecrated this Shrub to Bacchus. It is a light and hollow Plant, and is therefore very suitable to an idle and everlastingly drunken Deity. Bacchus himself carries one in the Bacchæ. Euripides, *ὁ βακχίος δ' ἔχει πυρὸς φλόγα πύκα, ἐν νέβηξ ἀσπίδι*. Interpreters render this, *gestans ignitam facem piceam, quæ ex ferula emicat*; which is ridiculous and absurd. The Fire is laid up and preserved in the Ferula, does not *emicare*, burst out of it: Hence *νέβηξ πυρκαϊκὴ* in the Epigram, in which the Fire is kept inclosed. The Poet's Meaning is, that Bacchus carrying both a Torch and Ferula would spring forth. Torches, *i. e. αἱ πύκα*, as well as Thyrsi and Ferulæ, were used in the Orgia of Bacchus. Hence some expound *Σίγρη* by *λαμπάδας*, as others *νέβηξ* by Thyrsos. Hesychius, *Σίγρη, κλάδος, λαμπάδα, λόγχη*. These are the three different Arms of the Bacchantes, the Thyrsi, the Torches, and the Ferulæ. The same Euripides plainly distinguishes *Σίγρη* from *νέβηξ* in these Words:

Θύρω δὲ τὴν λαβὴν ἔσ.

i. e. "One struck the Rock with a Thyrsus, and there gushed out Water; another smote the Ground with her Ferula, and the God sent forth Wine." Silvanus in the Poet is said to come shaking Ferulæ and Lillies,

*Venit et agresti capiti Silvianus honore,
Florentes Ferulas et grandia Lilia quassans.*

Which must be understood of the true Shrub of the Ferula: Bacchus also *ἐν νέβηξ ἀσπίδι*, in the Tragedian, shakes a true Ferula which was consecrated to him; whence there were *καυροφόροι* in his Mysteries as well as *θυροφόροι*. It is a very noted proverbial Verse:

Πάσαι μὲν καυροφόροι, παύροι δὲ τὴν Βάκχου.

Because they were also *θυροφόροι*; whence many Interpreters rendered *νέβηξ* as if it were *Σίγρη*. Among these was Pliny, who took *καυροφόρον κόμην* of the Papyrus to mean such as was like the Head of a Thyrsus. But the Philosopher spoke of the Top of the Ferula Shrub.

That the Ferulæ of the Schools were made of this Shrub, Martial clearly shews in this Distich,

*Invisa nimium Pueris, grataque Magistris,
Clara Prometheus munere ligna sumus.*

The same is plain from the Greek Epigram on a Schoolmaster dedicating his Stock, after leaving his Employment, *viz.*

*Σκίπτει προειδὼν, ἵματα τε καὶ πυρκαϊκὰ
Νέβηξ, προειδὼν κλάσματα νυκτάρχου.*

I read *πυρκαϊκὰ νέβηξ*, instead of *καυροφόρα* in the Copy: In Suidas it stands *καυροφόρα*. The Epithet *πυρκαϊκὰ* bestowed on the Ferula, is an Elegancy expressing its Use in holding and keeping

keeping of Fire. Of the same Ferula was the Physicians Malleus, *μάχνη*, which, tho' afterwards made of Ivory, retained its antient Name. *Martial*.

Artis ebur medicæ Narthecia cernis habere.

Gloss. Malleus, μάχνη ἰατρικὴ. Hence Martial joined these Narthecia with Whips and Ferulas; and hence *μάχνη* in Dioscorides, which relates to that *ἰατρικὴ*, Puffation, exercised on the Bodies of venal Slaves, in order to recall the Blood and Spirits into the extenuated Parts, by frequent Strokes of the Ferula. This is the *μάχνη ἰατρικὴ* of the Glossary, which renders it Malleus. But I do not think that Martial's Narthecia are to be taken in this Sense, tho' soon after the Subject of Whips and Ferulas follows. No; for *μάχνη*, or *μάχνη*, signifies a little Pot or Box to hold Ointments, and the Design of the Poet plainly shews that it must so be understood in this Place. "Thou seest, says he, that Narthecia of Ivory contain the Gifts of the medical Art, which Pæcius had rather were his own;" that is, Ointments.

Hence the antient Physicians often gave this Title to the Books which they composed on the Art of Medicine. *Galen. lib. v. De Comp. Medic. secundum Genera, cap. 3.* "Eras, says he, composed a Treatise of the Composition of Medicines, which he intitled *Νάρθηξ*." He mentions also the *Νάρθηξ* of Cratippus, which was a Book of Compositions. The *Νάρθηξ* of Soranus is cited by Aetius. The *Νάρθηξ*, as I said, was a Box to keep Ointment, Myrothecium. Hence one of the most correct Copies of Homer went by the Name of *Ἐξ τῆς νάρθηκος*. The Reason why it was called so was, as Strabo tells us, *lib. xiii.* because Alexander the Great had laid it up in a Box, *νάρθηκα*, most richly adorned, which he found in the Persian Treasury. This *νάρθηξ* is the same which Pliny calls *Scrinium unguentorum*, a Box of Ointment, adorned with Gold and precious Stones, which being found among the Spoils of Darius, was pitched upon as the fittest Repository for Homer's Works, that the most valuable Production of the human Genius should be laid up in the most exquisite Piece of human Workmanship. Scaliger was in the wrong when, in an Epistle, he interprets the *νάρθηκος*, appointed by Alexander for the keeping of a correct Copy of Homer's Works, called *ἐκ τῆς νάρθηκος*, a more sacred Repository, in which Jewels were kept, or perhaps Ointments. Why Boxes of Ointment are so called I know not, except it be from the Form of a Ferula, which might give Occasion to call a round Box by that Name; for the Ferula is a light and hollow Sort of Wood, as being Reed-like, *καλαμίδος φύλον*. More than that, it was a Custom to gather sweet-scented Herbs into Bundles, and lay them between the Calami and the Ferula, to preserve their Fragrancy. *Theophrastus. lib. ix. cap. 16.* Hence any Box or Repository for keeping Ointments, came to be called improperly *νάρθηκος* and *νάρθηξ*. This is the very Truth. There is another *νάρθηξ* among the Physicians, signifying a Stay to a Bandage [Splints]. *Νάρθηξ* is also a Porch or Court belonging to the Temples and Cathedrals of the antient Christians.

These Things were necessary to be explained, which, for want of knowing, have hitherto cast a Mist before the Eyes of Botanists as to the Meaning of *Συγρομίδος καφαλῆς*. The Grammarians expound *καφαλῆς* by *νάρθηξ*; not that *καφαλῆς* and *νάρθηξ*, Ferula and Cicuta, are the same, but because they are of a Ferulaceous Kind. The Greeks called it *καφαλῆς*, or *καφύον*, because, when its Flower begins to pass into Seeds, it turbinates towards the Vertex, and forms the Figure of a Cone. This last Remark I thought necessary to be added.

ACANUS. A Species of Thistle, called *Acanus Theophrasti*. See **CARDUUS**.

ACAPNON. *Ἀκαπνόν*. A Name of the Sampsuchum, or Marjoram. It also signifies dry Wood, from a Negative, and *καπνός*, Smoke. *Gorceaus*.

ACARDIOS. *Ἀκαρδιός*. Fearful, depressed, faint-hearted. *Castell*.

ACAPI, or **ACARUS.** A small Insect, said by Aristotle to breed in Wax.

It signifies also an Insect like a Louse, which harbours in the Skin. *Castellus* from *Aldrovandus*, and *Piso*.

ACARNA. The Fish Thistle. See **CARDUUS**.

ACARNAN. *Ἀκαρνάν*, *Ἀκαρνός*, *Ἀκαρνα*. A Sea Fish, mentioned by Athenæus, Rondeletius, and Aldrovandus. It is said to be easy of Digestion, and to afford good Nourishment. *Castell*.

ACARON. The wild Myrtle. *Blancard*.

ACARTUM. Red Lead; called also **AZEMAFOR**. *Rulandus*.

ACATALEPSIA. *Ἀκαταληψία*. Incomprehensibility, or Uncertainty in Science; the contrary of which is **CATALEPSIS**; *κατάληψις*, certain Knowledge.

This Word is taken Notice of by *Castellus*; but I do not know why it claims a Place in a Medicinal Dictionary, except because it occurs in *Galen*.

ACATALIS. A Juniper-berry. *Constantine*.

ACATASTATOS. *Ἀκατάστατος*, from a Negative, and *κατάστασις*, which, amongst other Significations, implies to fix, establish, or render certain. Inconstant.

This is applied to irregular Fevers, where the Periods of Exacerbation are uncertain, and the Appearances in the Urine perpetually changing.

It is also applied to shivering Fits in Fevers, which return at irregular Periods; sometimes every Day, sometimes every other Day, or every third Day.

Or it is applied to Urines, which are turbid, but do not deposit any regular Sediment.

ACATERA. The larger or black Juniper. *Blancard. Brunfelsius*.

ACATHARSIA. *Ἀκαθάρσια*, from a Negative, and *καθαίρω* to purge. It signifies an Impurity of the Humours. Thus Hippocrates, in his Treatise of Diseases, *L. iii.* informs us, that if the Head aches violently from a Plenitude of the Brain, 'tis a Sign the Blood is loaded with Impurities (*ἀκαθάρσια σπυαίνε*). And in the same Book he says, in Apoplectic Cases, the Brain is filled with much Impurity (*πληρὴ πολλῆς ἀκαθάρσιας*).

It is also applied to the Sordes, or Impurities of Wounds.

ACATO, or **ARAXOS.** Soot. *Rulandus*.

ACAULIS, of a Negative, and *Caulis* a Stalk or Stem.

A Plant is said to be *Acaulis*, or without Stalk, whose Flower rests on the Ground.

ACAULOS *magnæ Flore Casp. Baubin*, is the Carline Thistle.

ACAZDIR. Tin; called also **ALKAIN ALOMBA**. *Castellus. Rulandus. Johnson*.

ACCATEM. **ACCATUM.** The same as **AURICHALCUM**, which see.

ACCELERATORES URINÆ. So called from their Use in expediting the Ejection of Urine and Seed. Authors have been mistaken in the assigning the Originations of these Muscles, either to the Sphincter Ani or Tubercles of the Ossa Ischii. They arise fleshy from the superior Part of the Urethra, as it passes under the Ossa Pubis, and encompassing the external Part of the Bulb of its cavernous Body, both Muscles meet on the inferior Part, and march according to the Length of the Seam of the Skin in the Perinæum, parting from each other. They ascend to their Insertions on each Side the Corpora Cavernosa Penis.

Besides the Use commonly ascribed to these Muscles, in compressing the Urethra in driving out the Remains of Urine, and promoting the Ejaculation of the Semen in Coitu, (which Action is chiefly done by the last described Part of them embracing the Urethra as they pass to their Insertions on each Side the cavernous Bodies of the Penis) they also assist the Erectores Penis in its Erection, by driving the Blood contained in the Bulb of the cavernous Body of the Urethra towards the Glands in greater Quantities, whereby it becomes distended, the Veins which carry off the reflux Blood from the Corpus Cavernosum Urethra, at that Time being also compressed by the Tumefaction of these Muscles. *Cooper*.

ACCESSIO. **ACCESSION.** It signifies the Beginning of a Paroxysm, or Fit of an Intermitting Fever.

ACCESSORIUS. Willis has given this Name to a particular Nerve.

The *Nervi Accessorii* belong to the eighth Pair, and arise by several Filaments from both Sides of the Medulla Spinalis of the Neck, sometimes higher and sometimes lower. Each of them runs up between the two nervous Planes which come out from the Spinal Marrow, to form the Vertebral Nerves, and they gradually increase in their Course upwards, by means of several Filaments which they receive from the posterior nervous Planes.

Having reached above the first Vertebra, each Nerve is fixed to the Backside of the Ganglion of the Nervus sub-occipitalis, or that of the tenth Pair; and having, at the upper Part of this Adhesion, received two Filaments from the posterior Portion of the Medulla, they part from the Ganglion, and continue their Course upward. These two Filaments are sometimes without any Communication with the Ganglion, or with the anterior Plane; so that they seem rather to belong to the *Nervus Accessorius* than to the Sub-Occipitalis.

They enter the Cranium by the great Occipital Foramen; and having communicated with the Origin of the Sub-Occipitalis, or Nerves of the tenth Pair, and with the great Hypoglossi or ninth Pair, they return out of the Cranium with the Nerves of the eighth Pair, or Sympathetici Medii, with which they communicate in their common Passage through the Cranium.

As soon as they get without the Cranium, each of them gives off a considerable Branch, which divides into two. One is very short, and immediately joins the Trunk of the eighth Pair; the other, which is longer, joins the small Portion or first Branch, which goes to the Tongue. They likewise communicate with the great Hypoglossus and Sympatheticus on each Side.

Afterwards the *Nervus Accessorius* runs backward, and perforating the Musculus Sternomastoidæus, runs to the Trapezius, on which it is distributed, and terminates after having supplied the Rhomboides. In this Course it communicates with the first three Pairs of the Cervical Nerves, and gives Branches to the Glands of the Neck, to the Musculus Angularis of the Scapula, the Complexus, Occipitalis, and to the Integuments. *Winslow*.

ACCESSUS. It signifies the approaching, or having carnal Knowledge of a Woman.

ACCIB. Lead. *Rulandus. Johnson. Castellus.*

ACCIDENS. The same as SYMPTOM, which see.

ACCIPITER. *ἄεζ.* A Hawk, of which there are many Kinds. That mentioned by Dale is thus distinguished.

ACCIPITER, Offic. Schrod. v. 13. *Accipiter Fringillarius*, Mer. Pin. 170. Schw. A. 189. *Fringillarius Accipiter vulgo Nifus dictus*, Aldrov. Ornith. i. 344. *Accipiter Fringillarius*, Gefn. de Avib. 43. Jonf. de Avib. 10. Charlt. Exer. 72. *Accipiter Fringillarius seu Recentiorum Nifus*, Will. Ornith. 51. Raii Ornith. 86. Ejuld. Synop. A. 18. *Fringillarius*, Bellon. des Oyse. 122. The SPARROW-HAWK. Dale.

The whole Bird, its Food and Excrements are in Use.

Oil wherein a Hawk has been boiled, is said to cure Distempers of the Eyes, if they are anointed with it.

The same Virtue is in the Fat. The same Oil cures all Deformities of the Skin. The Excrements are of so heating a Quality, that Galen will not admit them as Part of the *Materia Medica*. But there are some who use them in Disorders of the Eyes; others however advise them in order to promote Delivery, taken inwardly, or by way of Suffumigation. Hippocrates and Pliny prescribe them against Barrenness. Dale.

ACCIPITRINA. The same as *HIERACIUM*. Hawk-weed.

ACCRETIO. ACCRETION, or Growth. See NUTRITION.

ACCUBITUS. This signifies lying together in the same Bed, without any Venereal Commerce.

ACCURTATORIA. A Synopsis, or Epitome. The Word is used by Raymond Lully.

ACCUSATIO. The same as *INDICATIO*, which see: *Castellus*.

ACEDIA. *ἄκεια*; from a Negative, and *ἄδος*, Care. Carelessness, Neglect.

This Word occurs in *Hippocrates de Locis in Homine*, and embroils the Sentence not a little. The Interpreters translate it Panniculus, a Rag, from the Context and parallel Places in the same Author; tho' *ἄκεια* signifies no such Thing. Foefius thinks the Passage corrupted; unless by *ἄκεια* Hippocrates means a Rag that has been much worn, not worth Care, and good for nothing else. This Conjecture seems right, tho' Foefius does not think so himself.

ACEDIA is also used by Hippocrates in his Treatise on the Glands, to signify Trouble or Fatigue.

ACEPHALOS. *ἄκεφαλος*, from a Negative, and *κεφαλή* a Head.

This is applied to Monsters born without Heads, of which there have been some Instances.

ACER. The Maple Tree; so called, according to Vossius, of *acris*, because of the very great Hardness of the Wood.

It hath jagged or angular Leaves; the Seeds grow together in hard-winged Vessels. Miller.

The CHARACTERS are;

1. **ACER majus**, Offic. Ger. 1299. Emac. 1484. Mor. Pin. i. Raii Synopsis iii. 470. *Acer majus, multis falso Platanus*, J. B. i. 168. Raii Hist. ii. 1701. *Acer majus quibusdam Platanus dictum*, Chab. 61. *Acer majus Latifolium, Sycomorus falso dictum*, Park. Theat. 1425. *Acer montanum candidum*, C. B. Pin. 430. Tourn. Inf. 615. Elem. Bat. 488. Boerhaave Ind. A. ii. 134. Dill. Cat. Giff. 72. Rupp. Flor. Jan. 129. Buxb. 3. *Acer montanum candidum, aliis Platanus*, Jonf. Dendr. 131. *Acer majus, frus Platanus Scotica Cardini*, Merc. Bat. i. 16. Phyt. Brit. 2. The GREAT MAPLE.

It grows in Walks and Church-yards, blossoms in May, and the Fruit is ripe in September. The Juice that distils from the wounded Tree is used in Physic, and supposed to be beneficial in scorbutic Disorders.

In the Beginning of Spring, when the new Buds swell with Juice, the Tree wounded in the Trunk, Branches or Roots, yields a sweet and potable Liquor in abundance, as the Birch does. Buxb. Some use it for their ordinary Drink. Rupp. The Inhabitants of Canada made a Sugar out of the Juice of this Tree. See *Art. Philos. Lond.* N^o 171. p. 988. Dale.

2. **ACER**, Offic. Chab. 60. *Acer, Opulus*, Ment. Ind. 35. *Acer minus*, Ger. Emac. 1484. Raii Hist. ii. 1700. Synop. iii. 470. Mer. Pin. 2. Merc. Bat. ii. 16. Phyt. Brit. 2. *Acer minus frus vulgare*, Park. Theat. 1415. *Acer campestre et minus*, C. B. Pin. 431. Tourn. Inf. 615. Elem. Bat. 488. Boerb. Ind. A. ii. 234. Dill. Cat. Giff. 55. Rupp. Flor. Jan. 129. Buxb. 3. *Acer campestre, aliis Opulus campestris veterum*, Jonf. Dendr. 132. *Acer vulgare minus folio*, J. B. 166. The MAPLE.

It is common in Hedges, and blossoms in May. The Root is used in Physic. Infused in Wine, it is with very good Success applied in Pains of the Liver. Pliny. Dale.

To these two Sorts Miller adds the following:

ACER majus Folis eleganter variegatis, Hort. Edin. The greater Maple, with striped Leaves, commonly called the striped Sycomore.

ACER Virginianum, folio majore, subtus argenteo, supra viridi splendente. Pluk. Phyt. The Virginian flowering Maple.

ACER Americanum, folio majore, subtus argenteo, supra viridi splendente, floribus multis coccineis. The American flowering Maple, with larger Bunches of scarlet Flowers.

ACER maximum, foliis trifidis, vel quinquesidis Virginianum, Pluk. Phyt. The Virginian ash-leaved Maple.

ACER Platansides, Munt. The Norway Maple, with Plane-Tree Leaves.

ACER Platanoides foliis eleganter variegatis. The striped Norway Maple.

ACER trifolia, C. B. P. The Maple with a trifoliated Leaf.

There is another Sort of Maple, which is very common in Virginia, and is known by the Name of the Sugar Maple; from which Tree the Inhabitants of that Country make a very good Sort of Sugar, and in large Quantities. But this Tree is at present very rare in Europe; tho' I am of Opinion, that the People make Sugar from more than one Sort of Maple. M. Ray and Dr. Lister prepared a tolerable good Sort of Sugar from our greater Maple, by tapping some of the Trees in their bleeding Season; and I have observed, upon cutting off a Branch of the ash-leaved Maple in February, a great Quantity of a very sweet Juice hath flowed out for several Days together. Miller.

ACERATOS. *Ἀκέραιος*, from a Negative, and *ἄρατος*, or *ἡράναι*; to mix. Unmixed, uncorrupted. It is applied sometimes to the Humours of the Body by Hippocrates. Paulus Aegineta mentions a Plaster under this Name, but probably means *Aceroni*. See ACERIDES.

ACERBUS. *Ἐρεος*. Sour, Harsh. It is used to express such a four Taste accompanied with Astringency, as we meet with in unripe Fruits.

Sometimes figuratively it signifies prickly, *ερεβιά ἀκανθὰ*. *Dioscorides*.

ACERIDES. *Ἀκέρειδος*, from a Negative, and *ἄρες*, Wax. Plaisters made without Wax are thus called. Galen.

ACEROSUS, of *Acus*, from *ἄκρος* Chaff. It is an Epithet of the most brown and coarse Sort of Bread, made of Flour not separated from the Bran.

ACESIAS. A Greek Physician. All that we know of him is, that he was so unfortunate in his Practice, that it gave Rise to a Proverb, *Ἀκείας ἰδοῦτο*, *Acesias has had it under Hand*; spoken of any Thing that grows worse for being taken Care of. This is quoted by many Collectors of Proverbs from *Aristophanes*.

An ACESIAS, in the Opinion of Fabricius, different from the above-mentioned, is taken Notice of by Athenæus, and numbered amongst the Writers on the Subject of Preserving or Pickling.

ACESIS. *Ἀκεία*. A Remedy, or Cure.

ACESIUS. The same as *TELESOPHUS*, or *Evamerion*, according to Pausanias. It is not known who or what is meant by this real or pretended Person. He is represented in the Figure of a Boy on some antient Medals struck at Pergamus, which are preserved in the Cabinets of the Curious. See *TELESOPHUS*.

ACESO. A Daughter of *Æsculapius*, fabled to have had great Knowledge in Physic. Le Clerc is of Opinion, that *Aceso* means allegorically the Purity of the Air, refined by the Rays of the Sun, and rendered Medicinal and Restorative to those that respire it thus in Perfection.

ACESTA. Distempers which are curable. *Goræus*.

ACESTIDES. Thus the Chimneys of Furnaces, where Brass was made, were called; contrived narrow at the Top, on purpose to receive the Fumes of the melting Metal, and collect them, that *Cadmia* might be produced in greater Quantities. *Dioscorides, Salmasii Hyl. Iatrica*. See *CADMIA*.

ACESTIS. *Ἀκεία*. A fictitious Sort of Chrysololla, made of Cyprian Verdigrise; the Urine of Children, and Nitre. Pliny.

ACESTORIS. *Ἀκεία*; from *ἄκος* a Cure.

It signifies strictly a Female Physician, and is used for a Midwife.

ACESTRA. *Ἀκεία*. A Needle.

ACESTRIDES. *Ἀκεία*; from *ἄκρος*; to cure. Midwives were so called amongst the Greeks. The Word is used by Hippocrates in this Sense, at the latter End of his Treatise *de Carnibus*.

ACETABULUM. *Κοῦλα, Κοτυλοῖδι, ὀξύβαρον*. The Herb UMBILICUS VENERIS, which see.

ACETABULUM signifies a large Cavity in a Bone, which receives another convex Bone, for the Convenience of a circular Motion of the Joint thus articulated. Thus the large Cavity found by the *Ossa innominata* is particularly called; which receives the Head of the Femur, or Thigh Bone.

It is formed by the Juncture of the *Os Ilium*, *Ischium*, and *Pubis*. In it the Edge called *Supercilium*, the cartilaginous Cavity, the Impression at the Bottom of the Cavity, and the Notch in the Edge, are observable.

The Edge, or *Supercilium*, is very prominent on the upper Part; on the Sides this Prominence decreases as they descend, and between the anterior and inferior Part it is quite lost. In the natural State it is increased by an additional elastic Circle.

The

The Cavity is proportionable to the Prominence of the Edge, and consequently deeper on the upper and back Part than on the lower and fore Part. It is covered with a very smooth Cartilage, except from the Middle to the Notch, which terminates precisely at the Edge of the Cavity.

This Portion of the Cavity which is without Cartilage, is what is called the unequal Impression, which is broader toward the Bottom of the Cavity than toward the Edge, and serves to contain a Ligament and a Bundle of Glands.

The Notch is precisely between the anterior and inferior Portion of the Edge of the Cavity, near the Foramen Ovale, which it, in a Manner, unites with the Cavity. The Situation of this Notch is oblique with respect to the Direction of the whole Body in an erect Posture.

The elastic Border of the cotyloide Cavity may be reckoned among the Ligaments. It is a Sort of additional Piece, strongly united to the Edge of that Cavity, but easily yields both Ways to any Pressure. It may be stretched out by pulling, and recovers and contracts again when that Force is removed. It is of a very singular Texture, being composed of elastic Fibres, interwoven together through its whole Circumference, and which, in several Places, are by Degrees inclined toward the bony Edge of the Cavity. It makes an intire Circle; and where it passes over the Notch, the transverse Ligament before-mentioned serves to support it, as the bony Edge of the Cavity does through all the rest of its Circumference. *Winslow's Anatomy.*

ACETABULUM also signifies a Sort of glandular Substance, many of which are found in the Placenta of some Animals. See COTYLEDON.

ACETABULUM was also a Measure used by the Antients, which answers to one eighth Part of our Pint.

It seems to have taken its Denomination from a Vessel in which Vinegar was brought to their Tables, which probably contained about this Quantity, and was called *Acetabulum* from *Acetum*, Vinegar. This Derivation is quoted by Chambers from *Agricola*; and it has the greater Appearance of being right, because *ὀξύβαλον*, *Oxybaphon*, which is exactly the same Measure, seems to be in like Manner derived from *ὄξος*, Vinegar.

Authors have taken some Pains to determine the Weight of the *Acetabulum* of different Liquids, in which they are not agreed. As the specific Gravity of Fluids are various, the Weight of the *Acetabulum*, as well as all other Measures, must be so too.

ACETARIA. Salads.

ACETARIUM SCORBUTICUM. A Kind of Medicine, or rather Pickle, recommended by Bates; in which he advises scorbutical Patients to dip their Victuals before they eat it. It is made thus:

Take of the picked Leaves of Sea Scurvy-grass three Ounces,
White Sugar six Ounces,

Salt of Scurvy-grass an Ounce;

Beat all together, and add six Ounces of the Juice of Oranges.

ACETOSA, [of *acetosus*, eager, sour, L.] Sorrel; so called of the Anglo-Saxon *yep*, sour.

The Leaves of Sorrel are smooth, succulent, and tender; somewhat long, and sharp-pointed; ending near the Footstalk in two sharp Ears like Spinage; of a very sour Taste. The Stalk is long and slender, set with two or three smaller Leaves; and at the Top, a long reddish Spike of small staminate Flowers, which are succeeded by a small shining three-square Seed. The Root is about a Finger thick, branched, and full of Fibres of a yellowish brown Colour, abiding several Years. It grows every where in the Fields and Meadows, flowering in May. The Leaves, Seed, and Root are used. *Miller.*

1. *ACETOSA vulgaris*, *Oxalis*, Offic. *Acetosa vulgaris*, Park. 742. Raii Hist. i. 178. *Acetosa pratensis*, C. B. 114. Hist. Oxon. ii. 582. Tourn. Inst. 502. Boerh. Ind. A. ii. 85. Dill. Cat. 67. Buxb. 4. *Acetosa major vulgatissima*, Schw. 5. *Acetosa vulgaris*, *five Rumex campestris*, Munt. Herb. Brit. 221. *Oxalis seu Acetosa*, Ger. 319. Emac. 396. Park. Parad. 486. Chab. 311. *Oxalis vulgaris folio longo*, J. B. ii. 989. *Lapathum acetosum vulgare*, Raii Synop. iii. 56. COMMON SORREL.

It grows in Meadows and Pastures, and flowers in May. The Parts of it used in Physic are, 1. the Leaves, which are juicy, smooth, pointed, of a dark green Colour, and of an acid Taste; 2. the Root, which is fibrous, yellow, and has an astringent Taste; 3. the Seeds, which are of a triangular Figure, and of a bright red Colour. As to its Virtues; it is one of the principal Cardiacs and Hepatics, resists Putrefaction, creates an Appetite, represses Bile, and allays Thirst; whence it is most frequently given in common and peffilential Fevers. *Dale.*

The Leaves are of great Use against the Scurvy, and to that End are recommended to be eaten in the Spring in Salads; and the Juice is frequently given among the other antiscorbutic Juices. The Root has no Sourness, but a bitter astringent Taste; and is accounted serviceable against the Scurvy, and bilious Fluxes. The Seed is also very astringent, and is therefore put into Diacordium, and other binding Medicines. *Miller.*

This Plant is excellent in hot, lax, putrid Constitutions, abounding with Bile. *Boerhaave.*

The Root of this Plant is not four, as *Matthiolus* affirms: it is, on the contrary, very bitter, very astringent, and gives but a faint red Colour to the blue Paper; whereas the Leaves give it as deep a Red as Alum. The Red from the Leaves continues after the Paper is dry; that from the Roots vanishes, nothing remaining but a brown Spot. The essential Salt of the Sorrel is a Mixture of Sal Ammoniac and Nitre; it crackles in the Fire, and smells of an urinous Spirit when dissolved in Oil of Tartar. The Sal Ammoniac seems to be most disengaged in the Roots, because they stain the blue Paper with a red Colour, which the Nitre could not do; but in the Leaves their Acids are disengaged from a great Quantity of acrid Salt, and become, in some Measure, like the acid Spirit of Sal Ammoniac, or that of Nitre. In the Roots these two Sorts of Salts are united with a little foetid Oil, and a pretty deal of Earth. In the Leaves they are dissolved in a great Quantity of Phlegm. There does not appear any Vitriol in the Sorrel; for the Juice of its Leaves does not blacken the Tincture of Galls, any more than other Acids which have nothing metallic in them. So that it is no wonder the different Parts of the Sorrel have different Virtues. The Roots where the Sal Ammoniac, the Sulphur, and the Earth predominate, are good to remove Obstructions in the Bowels: They are prescribed in Broths, Decoctions, and opening Pifans. The Leaves, on the contrary, which are so sharp that they set the Teeth on Edge, cool, by diminishing the Fermentation of the Blood, and temper the Bile; or keep it from inflaming. *Simon Paulli* relates, that in Greenland they give to those that are troubled with the Scurvy, Broths, or Decoctions of *Cochlearia*, with Sorrel Leaves; which correct its Acrimony. It has been observed also, that the Use of the Roots and Leaves of this Plant very much relieve scorbutic Persons, of a dry and bilious Constitution. The Leaves bruised, or roasted under the Coals, hasten the Suppuration of Tumours, as well as Leaven. The Roots stain Water with a red Colour; and may serve to cheat sick People who want to drink Wine, especially if you add a little Juice of Pomegranates. *Martin's Tournefort.* See, under the Article BOTANICA, an Account of the Method of examining the Contents of Vegetables, by the Alterations they produce in the Colour of blue Paper, &c.

2. *ACETOSA arvensis*, Offic. *Acetosa minor*, seu *Lujula*, Ind. Med. 111. *Acetosa arvensis lanceolata*, C. B. 114. Raii Hist. i. 180. Dill. Cat. 52. Hist. Oxon. ii. 584. Boerh. Ind. A. ii. 86. Tourn. Inst. 503. Buxb. 4. *Acetosa minor lanceolata*, Park. Theat. 744. Munt. Herb. Brit. 222. *Acetosa lanceolata major*, Schw. 8. *Oxalis parva auriculata repens*, J. B. ii. 992. Chab. 312. *Oxalis tenuifolia*, Ger. 320. Emac. 397. *Lapathum acetosum repens lanceolatum*, Raii Synop. 56. SHEEP'S SORREL.

This grows in Tillage Grounds; its Leaves are in Use; it is more grateful to the Palate than the common Sorrel, and is besides endued with all its Virtues. *Chab. Dale.*

This Sorrel is lower and smaller than the common, having many narrow sharp-pointed Leaves, each of which has two large Ears growing to the End next the Stalk, which makes the Leaf appear like the Head of a bearded Spear. They are four, like the common. The Flowers grow in Spikes, as those of the former; are small and staminate; and the Seeds triangular, and less than the Seeds of that. The Root is small, and creeping in the Ground. It grows in dry barren Soils, and flowers in May. It is but rarely used, being supposed to have less Virtue than the common Sorrel. *Miller.*

3. *ACETOSA Romana rotundifolia*, Offic. Munt. Herb. Brit. 224. *Acetosa rotundifolia hortensis*, C. B. 111. Raii Hist. i. 180. Hist. Oxon. ii. 583. Boerh. Ind. A. ii. 86. Tourn. Inst. 503. Buxb. 4. *Acetosa Sabaudica*, Schw. 214. *Oxalis Franca seu Romana*, Ger. 320. Emac. 397. *Oxalis saliva Franca seu Romana rotundifolia*, Park. 743. *Oxalis folio rotundiore repens*, J. B. ii. 991. Chab. 311. FRENCH SORREL.

It grows in Gardens; the Leaves are used, and have the same Virtues as those of the other Sorts. *Dale.*

The Leaves of this Sorrel are of a glaucous or blewish green Colour; they are broader, shorter, and rounder than the common; and the Ears that stand on each Side, at their joining to the Footstalk, are very large. The Stalks do not arise to that Height; they are weaker, and stand not so erect; the Flower and Seed much like the other.

This Sorrel is found in Gardens, and flowers in June. The Leaves are as four as the common, and may be used indifferently with it, both in Medicine and Salads. *Miller. Bot. Off.*

This Plant is of great Service in Physic. From the Juice decocted, well depurated, and inspissated, and afterwards laid up in a subterraneous Place, is made an acid Salt, which stimulates and purges, corroborates and astringes, and is proper for all Diseases attended with a burning, putrid, and continual Fever. A Decoction of the Leaves or Roots, in Whey of new Milk, is excellent against all lingering Diseases in general, where there is an Acrimony tending to Putrefaction. Its Conserve, Syrup, and Water are in Use. No Plant better purges the Body of foeculent Humours collected in the Winter. A Handful of the Leaves boiled in a Pint of Whey, is an excellent Medicine in April. In short, it is one of the most effectual Remedies against the

the Scurvy, if the Plant itself be eaten green, or its Juice drank; for it helps a stinking Breath, fastens loose Teeth, and cures the Putrefaction of the Gums; and is extremely beneficial in all Cases where the Blood is too fluid, and the Vessels lax. They who spit Blood, and are prone to a Consumption, find extraordinary Relief from taking the Juice hereof, which is of Use also externally applied; for it is proper to cleanse sordid Ulcers; and the Leaves, contused with Fresh-Butter, are of the greatest Service against such Carbuncles as tend to a Gangrene.

Boerb. Hist. Plant.

To these three principal Kinds Miller adds the following:

ACETOSA *Folius crispis*, C. B. P. Sorrel with curled Leaves.

ACETOSA *montana maxima*, C. B. P. Greatest Mountain Sorrel.

ACETOSA *Pyrenaica, angustissimo & longissimo folio*, Schol. Bot. Pyrenean Sorrel, with very long narrow Leaves.

ACETOSA *montana, lato Ari rotundo folio*, Boec. Mus. Mountain Sorrel, with a broad Arum Leaf.

ACETOSA *montana pumila, fagopyri folio*, Boec. Mus. Dwarf Mountain Sorrel, with a Buckwheat Leaf.

ACETOSA *tuberosa radice*, C. B. P. Sorrel with a tuberose Root.

ACETOSA *Calthæ folio, peregrina*, C. B. P. Foreign Sorrel, with a Marigold Leaf.

ACETOSA *lucida, folio Atriplicis*, H. R. Par. Shining Sorrel, with Orach Leaves.

ACETOSA *major Italica, semine rotundiore & glomerato*, H. R. Par. Greater Italian Sorrel, with a round glomerated Seed.

ACETOSA *lanceolata angustifolia elatior*, Mor. Hist. Taller, narrow-leaved, spear-pointed Sorrel.

ACETOSA *Ocymi folio, Neapolitana*, C. B. P. Neapolitan Sorrel, with a Basil Leaf.

ACETOSA *Americana, foliis longissimis pediculis donatis*. American Sorrel, with Leaves growing on long Pedicles.

ACETOSA *rotundifolia repens Eboracensis, folio in medio deliquium patiente*, Mor. Hist. Creeping round-leaved Sorrel of the North.

ACETOSA *arborescens, subrotundo folio, ex insulis Fortunatis*, Pluk. Almag. Shrubby Sorrel, with a round Leaf, from the Fortunate Islands.

ACETOSA *Muscovitica sterilis*, M. H. The Northern barren Sorrel.

As Boerhaave attributes great Virtues to the native Salts of *Acetosa*, it will be proper to insert his Method of making them.

1. Take a large Quantity of broad-leaved Garden Sorrel, in the Prime of its Growth, a little before it flowers; let it be gathered early in the Morning, and well washed from its Sand in fair Water; cut it, bruise it, commit it to a clean Linen Bag, and squeeze out all the Juice in a strong Press. This Juice will be very acid, green, and thick as Must. 2. Dilute it with six times its Quantity of pure Rain-water, that it may the better pass the Strainer; now filter it through a conical Linen Bag, returning it so often till at length it becomes pure, thin, and limpid; at which Time it will be gratefully acid. 3. Put the Liquor, so purified, into wide Glas Vessels, and inspissate it by a very gentle Boiling, in a Place free from Dust, and over a clear Fire, till the remaining Matter become almost as thick as recent Cream, and strongly acid. 4. Pour this thick Liquor into a clean Urinal Glas, which it may fill till it reaches within its Neck; then gently pour on the Top a little pure Oil-Olive, to the Height of about the tenth of an Inch; and thus let it stand at rest for eight Months, upon the Floor of a Cellar. By this Means the Oil preventing Fermentation, Putrefaction, and Ropiness, a Salt will be produced resembling Tartar, which nearly approaches to the natural Salt of Vegetables. 5. The Liquor, therefore, being now poured off, let the Salt be a little washed by the quick and sudden Affusion of cold Water, to cleanse it of its adhering slimy Feculencies; then gently dry it, and it will be the native Salt of the Plant. *Boerb. Chem.*

ACETOSA *ESURINA*. Esurine Spirit of Vinegar, which will be described under the Article ACETUM.

ACETOSELLA. A Plant thus distinguished by Authors:

ACETOSELLA *Lujula, Alleluja*, Offic. *Acetosella & Lujula sive Alleluja Officinaria*, Buxb. 5. *Acetosella vulgo*, Herm. Hort. Lugd. Bat. 2. *Acetosella vulgaris & Officinaria*, Rupp. Flof. Jen. 101. *Trifolium Acetosum vulgare*, C. B. Pin. 330. Hist. Oxon. ii. 183. Park. Theat. 746. Raii Hist. ii. 1098. *Trifolium Acetosum vulgare Lujula, Alleluja Officinaria*, Merc. Bot. i. 74. Phyt. Brit. 123. *Oxys alba*, Mer. Pin. 90. Ger. 1030. Emac. 1201. Raii Synop. iii. 281. *Oxys flore albo*, Tourn. Inst. 88. Elem. Bot. 76. Boerb. Ind. A. 319. *Oxys sive Trifolium acidum, flore albo*, J. B. ii. 387. *Oxys sive Trifolium acidum*, Chab. 168. WOOD-SORREL. *Dale*.

Wood-sorrel has a small, long, and scaly Root, inclining to a red Colour, with a great many fine slender Fibres. The Leaves are numerous, springing directly from the Root, each on a slender reddish Stalk, about two or three Inches high, divided into three equal Parts, each in Shape of a Heart, of a

pale green Colour, and a pleasant sour Taste. The Flowers spring up among the Leaves, upon their own Foot-stalks, consisting each of one single Leaf, divided into five Parts; in some Plants white, in others of a pale purple Colour. When the Flowers are fallen, the Seed Vessels grow large and five-corner'd, and when ripe will burst asunder at the least Touch, casting abroad their small round Seed. This Plant grows in Woods and shady Places, and flowers in April.

The Leaves of Wood-sorrel, which only are used, are believed to excel common Sorrel in all physical Virtues, and are reckoned more cordial and useful in inflammatory Fevers, quenching Thirst, and allaying the Heat of the Stomach, which they strengthen, and create an Appetite; they help Disorders of the Liver, and are good for the Dropsy and Jaundice. The Juice, when clarified, is of a fine red Colour, and makes a very agreeable Syrup.

Official Preparations from Wood-sorrel, are a Syrup of the Juice, and a Conserve of the Leaves. • *Miller*.

The Juice of this Plant is somewhat oily, acid, and nitrous, therefore it is good in all burning, putrid, pestilential Distempers. The Herb boiled in Milk and Water is an excellent Remedy for an Inflammation, Pleurisy, and all acute Diseases. Nothing better corrects the Humours, Bile, and Putrefaction, than this Herb; therefore it must be good for a Nausea and Want of Digestion arising from putrefied Bile, or any alcallescent Humour in the Stomach. Let the Patient eat this Herb like Lettuce, but without Vinegar, for it is sour enough of itself. It is a fine Remedy in a Diarrhoea, Dysentery, and Looseness; therefore it should be often used in Physic. Its distilled Water is of no Virtue. The Taste of this Plant is an unpleasant Sour, penetrating almost like the Juice of Citrons, and rather aperient than astringent. It is a very good Medicine in burning Fevers, Inflammations of the Jaws, Buboës, Carbuncles, and the Plague. Contused green, and applied, it is useful in the Distempers last mentioned. There is an excellent Conserve made of it with Sugar. A Volume has been written of the Virtues of this Herb in the German Tongue, and translated into Latin, wherein you will find that the Plague has been cured, and the Gums that were eaten with the Scurvy restored and healed by the Use of it. *Boerhaave*.

ACETUM, Vinegar.

This Fluid so commonly known has in all Ages been esteemed of great Importance both in Physic and Surgery.

Hippocrates recommends it in Hysterical Disorders; and in Inflammations of the Liver, and Diaphragm, mixed with Honey. See OXYMEL. But he says it is more serviceable in bilious, than atrabilarious Constitutions; for where Melancholy abounds it is prejudicial. And that it is more proper for Men than Women, because it is hurtful to the Uterus. *De Ratione Victus in Acutis*.

By Galen Vinegar is represented as most attenuating, discutient, repelling and antiphlogistic. He says in order to inform himself of the Effects of Vinegar, he applied the Thapsia to several Parts of the Legs, which in four or five Hours were much inflamed and painful. He then washed one Sore with Water, another he anointed with Oil, another with Rosaceum, and to another he applied Vinegar, and found nothing gave so effectual Relief as the last.

He says it penetrates all Bodies like Fire; and runs thro' the thickest and closest Cloths sooner than Water. That it dissolves scirrhus Tumours of the Spleen; and is an Antidote against the Poison of Mushrooms, and of the Thapsia, or Deadly Carrot.

It cures Hickups that are caused by the Putrefaction of Aliment that remains undigested upon the Stomach. I suppose he means an alkaline Putrefaction; for then it cannot fail of being very serviceable.

In burning Fevers that happen during the Heat of Summer, attended with great Thirst, or in Fevers that happen in any other Season attended with Heat and Thirst, he recommends Vinegar mixed with Water, as an effectual Remedy; and directs it to be applied to Achors that are mild, and require only topical Applications, and to a superficial Herpes, which he affirms it will cure.

Vinegar with Bitters he directs for inflammatory Tumours tending towards a Scirrhus, especially of the Spleen, because it attenuates without heating. And a Scirrhus in general, he says, may be cured by the Fumes of Vinegar received from a red-hot Pyrites.

This Author also advises to apply Vinegar to the Nostrils of lethargic Patients, wherein Thyme, Pennyroyal, and Origanum have been boiled. This reviving, or exciting Virtue of Vinegar will be taken notice of hereafter from Boerhaave; mean time I must from my own Experience recommend it as the most powerful Exciter known in Faintings, Hysterics, and all those sudden Disorders which are usually called Fits, where it is of much greater Efficacy than any fetid Fumes, or volatile Salts, which frequently are of little Service, and often do a great deal of Hurt.

The Virtues of VINEGAR according to DIOSCORIDES.

Vinegar refrigerates and astringes, is good for the Stomach,

and creates an Appetite. Stops all manner of Fluxes of Blood, either taken inwardly, or externally applied. And boiled with the Food stops a Looseness. It is proper for Wounds, and prevents Inflammation if applied in greasy Wool (*Ouvrages*) or a Sponge. It cures a Prolapsus of the Anus and Uterus, and the Putrefaction and Bleeding of the Gums; it is serviceable for eating Ulcers, Erysipelas, Herpes, Leprosy, Tetter, and Films in the Eye, if joined with other proper Ingredients. It restrains the Spreading of phagedenic and cancerous Ulcers, if they are constantly fomented with it. A warm Fomentation of Vinegar with Sulphur relieves the Gout; and Vinegar applied with Honey effaces the Lividness from Blows and Bruises. With Oil of Roses (*roses*) applied in greasy Wool, or a Sponge, it cures the hot Distempers of the Head. The hot Steam thereof is effectual against the Dropsy, Thickness of Hearing, and Noise in the Ears; and Vinegar dropped into them kills Worms bred therein. A Fomentation of warm Vinegar, or a Sponge dipped therein, cures Swellings of the Glands and Itchings. The hot Fomentation is effectual against the cold Poison of venomous Creatures, as on the contrary, the cold Fomentation is a Remedy for their hot Poison. A Vomit of hot Vinegar is effectual against all Sorts of Poison, especially the Papaver Spumeum, and Hemlock; and, taken with Salt, against Concretions of Blood, or Milk in the Stomach, Mushrooms, the white Chamæleon, and the Yew. A Draught thereof expels Leeches out of the Stomach, mitigates an old Cough, and irritates a new one. It is good supped hot for an Asthma. In Gargarisms, it stops Defluxions on the Throat, is useful in the Quinsy, and Relaxation of the Uvula, and held in the Mouth hot relieves the Toothach.

As the illustrious Boerhaave has been indefatigable in his Enquiries concerning the Production of Vinegar, curious in his Researches into the Nature of it, and accurate in his Account of its Virtues, I cannot do a more agreeable thing to my Readers than make them acquainted with his Sentiments on this Subject, upon which I shall take the Liberty to make some Remarks. Mean time I would advise them to read the Articles FERMENTATION and ACIDUM, in order to the better understanding what follows.

After understanding the Effect of the first Fermentation of vegetable Juices, that is, Alcohol, or an inflammable Spirit, it remains that we consider the other Production of it, Vinegar, which cannot any ways be procured without previous Fermentation, and that a double one; for the Generation of a vinous Liquor must precede that of Vinegar, and then any Wine or vinous Liquor is fit for this Purpose. For if you mix with any Sort of Wine a large Quantity of its own Lees, and the Flowers that rise to the Top, during its Fermentation, adding also powder'd Tartar, and the Twigs, Stalks, and Skins of the Grape, and the acid, austere Vine-leaves, which abound with a saline, tartarous Matter, and then stir these well together, and set them in a warm place, particularly in wooden Casks that are thoroughly penetrated with the Vapour of Vinegar, and in an Air that is also impregnated with the Fumes of Vinegar, they will by this means undergo a second Fermentation, with a considerable Production of Heat, and, in this particular, the second acetose Fermentation differs from the first. If this is protracted too long, the Wine, indeed, grows sourish, but then it grows flat, and never becomes good Vinegar.

The remote Matter, therefore, of an acetose Fermentation is every Vegetable, which is capable of a vinous Fermentation, provided it is first, by this, converted into Wine. The Matter from which Vinegar is immediately prepared, is every Sort of Wine, with this Circumstance however, that the stronger the Wines are, the sharper generally are the Vinegars which are made from them, whilst the smaller Wines produce indeed Vinegar, but of a weak and more unactive Nature.

The Ferments by which an acetose Fermentation is most successfully promoted, are particularly these.

1. The acid Fæces, or Lees of an acidish Wine, called the Mother of Wine.
2. Fæces of Vinegar collected in old Casks, especially such as are well saturated with very strong Vinegar.
3. Tartar of an acid Wine, reduced to Powder.
4. Vinegar itself, first well prepared, and brought to its greatest Degree of Acidity.
5. Old wooden Casks, which have been for a long time full of the strongest Vinegar, and hence are thoroughly penetrated with its sharp Acid.
6. The frequent stirring up of the Lees in its own Wine.
7. The Stalks, Twigs, and Skins of Cherries, Currants, and Grapes, the Tendrels of Vines, and the like Parts of other acid austere Vegetables.
8. The acid Rye-leaven of the Bakers.
9. A Composition of all the preceding mixed together, especially if there are some very warm Aromatics added to the Acids; for then the strongest Vinegars are produced.

Glauber long ago gave the whole History of the Generation of Vinegar, with great Accuracy, and an Account of this was afterwards published in the *Philosophical Transactions*, the Purport of which is as follows.

Two large oaken Vessels are prepared in the Shape of common

Casks; in each of these, at about the Distance of a Foot from the Bottom as they stand upright, a wicker Grate is fixed. Upon these Grates are laid a moderately thick Stratum, of fresh, green Tendrels of Vines, and over these, such a Quantity of the Pedicles of Grapes from which the Grapes have been stripped, as is sufficient to fill the Vessel to within a Foot of the Top. When these two Vessels are thus prepared, the Wine of which the Vinegar is to be made is poured into both of them, but in such a Manner, that one of them is filled quite full, the other only half full; and then every Day alternately, the Vessel which was half full, is filled out of the other, so that neither remains full above twenty four Hours. After proceeding in this Manner for two or three Days, a Fermentation arises in the Wine with a sensible Heat, in the half filled Vessel, and this increases gradually every Day. Mean time the Motion and Heat are almost suffocated in the Cask which is quite full, so as nearly to cease in the Space of the twenty four Hours, during which it remains full. Thus Fermentation and Heat are alternately excited and suffocated in the two oaken Vessels.

In this Manner the Operation is continued, till the Heat is extinguished, and there appears no more Motion in the half filled Vessel; and this is a Sign that the acetose Fermentation is completed, the Vinegar therefore must be then put up in Casks well stopp'd.

The hotter the Room is where these Vessels, in which the Vinegar is prepared, are placed, the sooner will it be made; in France it is completed in Summer in about fifteen Days: But in cold Weather, and a cold Place, the Operation is more slow. But when either the Season or the Workhouse is very hot, it is often necessary to fill the half filled Vessel out of that which is full, every twelve Hours; for otherwise there arises such a Heat and Fermentation in the Vessel half full that the volatile Spirits of the Wine, not being yet sufficiently fixed, are dissipated by the Heat, and fly off before they can be properly intangled and converted into the acid Spirit of Vinegar; And hence the Liquor, though it would be four would at the same time be vapid, and in no respect strong generous Vinegar. For this reason also, the Vessel which is half full, is always accurately closed with a Cover of Oak, that the foaming Ebullition of the fermenting Liquor may be restrained, and checked, and thus the repelled Spirits may act longer and more forceably upon the austere Substances underneath, and by the Reaction of them be better secured from Dissipation. But the full Vessel is not covered, but left quite open, that the Air may have a free Access to the Liquor designed to be changed.

This is the second Fermentation, which tends to the Production of Vinegar, and there terminates. Vinegar is erroneously by some esteemed a Liquor produced after the Evaporation of the inflammable Spirits generated by the first Fermentation; for this would be vapid, and nothing like Vinegar. On the contrary, the more generous, and the more replete with Spirits the Wine is which is used for this Purpose, the better will the Vinegar be, and the weaker the Wine is, the less acid is the Vinegar prepared from it. For this reason, the strongest Malt-Liquors, if they are treated in the same Manner, yield an exceeding good Vinegar, as do the richest Spanish Wines. In this Operation, it is particularly remarkable, that this Conversion of Wine into Vinegar is not brought about without the Generation of a considerable Heat during the Fermentation; whereas Must fermenting in the time of Vintage scarcely generates any Heat; and Malt-Liquor, notwithstanding the violent Motion which is excited whilst it works, does not grow warm. Is Heat therefore always required for the Generation of an Acid? It is certain that Corn and Milk and Food prepared from these do not grow acid without Heat either of the Season, of artificial Fire, or that of the Body. And we find, that a violent Fire converts Nitre, Sulphur, and Salt, which are not acid, into Spirits extremely acid. Hence perhaps, upon Reflection, we shall find reason to believe, that almost every Change which is brought about in Nature, requires a certain Degree of Heat.

In this Operation, another Circumstance occurs which deserves our Consideration, which is, that whilst Wine is thus converted into Vinegar, this clear thin Liquor deposits an incredible Quantity of thick, pinguious, oily, and as it were soapy Fæces, which hang about the Sides of the Vessels, the Vine Tendrels, and the Pedicles of the Grapes. Whence should this arise? In the Wine there is not the least Sign of any such thing, and in the austere Tendrels, and Pedicles, one would expect to find nothing like a pinguious oily Substance. And yet it is in this Manner formed from the Wine; for if it is washed off it will be generated again, inasmuch that it is necessary once a Year to clear away all this gross unctuous Matter, for otherwise, when the Wine was put into the Vessels, it would not be changed to a thin sharp Vinegar, but to a thick, corrupted, pinguious Liquor fit for no Use whatever.

But Care must be taken to clear the Pedicles, and Twigs, from this pinguious Matter which adheres to them, by a sudden Affusion of Water upon them, which must be suffered to run thro' them, lest if it should remain, it should deprive them of their acid Ferment, with which they are now impregnated.

After

After this the Grates, Sides, and Bottoms of the Vessels, in which the Vinegar is made, are cleared with the same Caution, and as soon as ever the pinguious Impurities are removed, the Grates, Twigs, and Stalks are disposed as before, and are then again fit for making Vinegar; till, by a long Use, the same oily Crust will be formed again; which evidently demonstrates, that the Wine actually throws out an Oil whilst it is changed from its own proper Nature to that of Vinegar. At the same time too, the acetific Ferment remains in the Vessels, Grates, and Stalks; and hence, when these Vessels have been used a considerable time, they acquire very strongly the Power of converting Wine into Vinegar, and with the Grates, and Stalks &c. become as it were spongy Reservoirs of Vinegar.

It is farther to be remembered that as Alcohol, prepared from very strong old Malt Liquor, can scarcely be distinguished from that drawn from the richest Wine, so here the same Malt Liquor, treated in the Manner explained, may be converted into Vinegar, as good, pure, and fit for any Use, as can be made from the best Wine; nor is it easy to find any Difference betwixt them, except what is owing to the Bitters put into Malt Liquor, to make it keep, which give it a Colour and Taste different from what it would have had, if prepared from Corn alone. In other respects they are intirely the same.

The Effect therefore of this second Fermentation, when completed, is the Production of good Vinegar. In order now to understand this the better, let us consider what Vinegar is. Vinegar is an acid, penetrating, subpinguious, volatile, vegetable Liquor, produced from Wine by a second Fermentation; the first Part of this which rises in Distillation is truly acid, and by no means inflammable, but extinguishes Fire and Flame, like Water; and by these remarkable Properties, Wine is distinguished from Vinegar.

Wine, then, by one Fermentation is prepared directly from vegetable Juices; Vinegar, by a second Fermentation, from Wine that is already made. The volatile Part that first rises from Wine in Distillation will take fire, and rise into a lucid Flame, but the most volatile Part of Vinegar, which rises first like Water, puts it out. This, therefore, is an Instance of a very extraordinary Production of one thing from another of a different Nature. Some of the most able Chymists have called Vinegar a volatile Tartar of Wine, because Tartar is the most acid part of Wine, but not volatile; Vinegar, Wine converted into a volatile Acid; and they were farther confirmed in this Opinion, because Wine generally deposits a Tartar, and Vinegar, if it rest never so long, produces not the least portion of it, though as it is deprived of a great deal of Oil in making, and hence is rendered more acid, it should seem reasonable to expect it would generate a greater Quantity. It must be confessed that what remains at the Bottom of the Retort, after the Distillation of Vinegar, seems to approach near to the Nature of Tartar, but yet, upon Examination, we find it a Substance very different from it. But it will be of singular Service to Chymistry, Medicine, and Natural Philosophy, to explain the specific Nature of Vinegar, which I shall endeavour to do as follows.

Vinegar is a Liquor, distinguished by its proper Characteristics above specified, to which I shall only now add, that it is a volatile, oily, acid Salt; for its Oil, which lies surprisngly concealed under a sharp, thin Acid, most evidently discovers itself by a great many Experiments.

This Compound is extremely useful, because it powerfully resists that dangerous Putrefaction to which animal Juices are very subject, and at the same time it is rendered less acrid by reason of the oily Particles joined with it. This Liquor also is so penetrating that it easily passes through very dense Substances, (as was observed by Galen) in its full Strength, and without any Separation of its Parts, and will insinuate itself into all Parts of the Body, very few Vessels excepted, and thus being distributed thro' the greatest Part of the vascular System, will there exert its proper Powers, especially as it is then assisted by the natural Heat, and vital Motion. It also very readily suffers itself to be mixed with every animal Fluid we are acquainted with, the Oil itself not excepted, and thus by its Penetrability and Miscibility is productive of very great Effects in the Body.

It effectually refrigerates in Fevers caused by the Stimulation of the Bile grown too acrid, of an alcalescent Salt, or of a Putrefaction prevailing in the Juices of the human Body, or by venemous Bites, and at the same time allays the Thirst which accompanies these Disorders. And hence in these Cases, we have nothing extolled more by Dioscorides and Hippocrates, than Oxycrate, or Vinegar and Water, especially when rendered milder by an Addition of Honey. The Surgeons are acquainted with nothing of greater Importance in many external Maladies, as an Erysipelas, Phlegmon, or putrid Ulcer. In virulent Bites, there is not any thing more efficacious than Oxycrate. It is so far from intoxicating, that whereas fermented Spirit of Wine is the only thing that inebriates, Spirit of Vinegar on the contrary proves a Remedy for Drunkenness when it is excited; even though a Man is quite sunk in Sleep from the Abuse of Spirituous Liquors, he may be roused by giving him Vinegar. Hence, in exciting the Nerves, and adding Motion to the Spirits, scarcely

any thing is of greater Service. In weak, languid, drowsy, and lethargic Patients, and those much subject to Faintings and Vomiting, after having tried the most celebrated chymical Productions in vain, I have frequently at last given Relief by applying Vinegar to the Nose and Mouth, or giving it internally. And farther, which perhaps only those who have tried it would readily believe, in convulsive, hypochondriacal, and hysterical Cases I have often known it do good (and for these purposes it is strongly recommended by Hippocrates in many Places). Justly, therefore, did Hippocrates and Galen recommend it to Hypochondriacs. In a true Putrefaction and deadly Corruption of the Humours, and for stopping the Progress of a Gangrene, nothing is equal to it; and this I affirm from Experience. But the following Observation renders all farther Arguments upon this Subject superfluous. During the most extreme autumnal Heats, when animal Substances are strongly inclined to run into a putrid Sanies, Flesh and Blood are preserved from Corruption by sprinkling them plentifully with Vinegar. But, with all due Deference to the Opinions of those who think otherwise, I attribute an attenuating Virtue to Vinegar. For if it is mixed warm with the Blood, or its Serum, it is so far from coagulating them, and from generating polipous Concretions by its Admixture, that it attenuates them, and agreeably resolves Coagulations already formed. In acute Fevers, therefore, in malignant burning Fevers, in the Plague, the small Pox, Measles, and the like Distempers, Vinegar is an excellent Medicine, whilst volatile alkaline Salts are used with much Prejudice and Danger to the Patient, because by their stimulating Acrimony they increase the Velocity, and of Consequence the Density of the Blood. Consistent with this was the Practice of the illustrious Franciscus de le Boe Sylvius, who, if not the Inventor, was at least a great Favourer of the Sal Volatile Oleosum; for by the Help of what Prophylactic did he visit his Patients in the Plague with Safety? It was by only drinking first an Ounce or two of Vinegar: And he informs us, that having once omitted it, he for this Neglect was punished with a severe Pain in his Head. In short we are not acquainted with a more certain and effectual Sudorific; for Vinegar, either diluted with Water, or alone, will procure a plentiful Sweat, in the Plague, and other malignant Diseases, where other things seldom answer.

Vinegar seems to be generated by the Combination of the inflammable Spirit, produced by the first Fermentation, with an Acid somewhat more fixed, which lay concealed in the Wine; for these inflammable Spirits are not lost. Perhaps therefore these Spirits, by the second Fermentation, may be united with the essential Salt of the Wine, that is, the Tartar. This I leave to mature Examination, only adding, that it seems as if the Spirit of the Wine was altered in its Nature, and had put on that of Vinegar. And if this is true, this is the only Way commonly known of truly changing the Matter of Alcohol into something of a quite different Nature.

Perhaps the finest essential Salt of Wine is the Tartar which is generated from it; and which is utterly consumed in the making of Vinegar, though in the Process there is nothing separated from it, but a thick Oil; for if the purest and most defecated Rhenish Wine is, whilst new, put into a clean Cask, it will produce a great Quantity of the best Tartar, when at the same time if the very same Wine is by the above described Process converted into Vinegar, and stands ever so long, it will never generate the least Portion of Tartar, and yet, as I before observed, there is nothing deposited or formed, during the second Fermentation, that in any respect resembles Tartar, but only a pinguious, tenacious Matter, that is widely different from it.

In the Distillation of Wine, the Spirit produced by the first Fermentation comes over before the Water; but in Vinegar prepared by the second Fermentation, the watery Part rises first, and when this is drawn off, an acid Spirit succeeds, which is always the stronger and more acid, the lower it is drawn. Whence we perceive, that the first Fermentation renders its Productions volatile; but the second makes what it generates more fixed. The Action therefore of Fermentation appears very surprising, which from Must, that is sweet, produces a Wine, which inclines to an Acidity; and from a Fluid void of Alcohol before, generates it; and again, from a sweet Liquor forms an Acid; and makes the Matter of Alcohol afford something in every respect widely different from it.

The Promoters of this second Fermentation are,

1. A sufficient Degree of Heat.
2. The free Access and even Admixture of the Air.
3. Motion, Conquassation, and frequent stirring of the Liquor in the open Air.
4. The Addition of some very warm Aromatic during the Fermentation. The Impediments to this Fermentation are every thing which retards the first Fermentation, except that stirring the Liquor about is here of service, whereas in the other it does harm. See FERMENTATION.

We see here that Boerhaave attributes an attenuating Virtue to Vinegar, contrary to the Assertions of many great Men, who have set it in a very different Light. I am sensible, that the Effects of Vinegar upon Blood out of the Limits of Circulation will not determine

determine those it has upon the same Fluid, whilst circulating in the Vessels. However the Question whether Vinegar mixed with the Blood fresh drawn from a Vein, preserves, or destroys the Fluidity of it, seems of Importance enough to deserve Examination, especially as Men of considerable Figure in the Profession of Physic have maintained Assertions in regard to this directly opposite to each other.

In order to satisfy my self of the Truth, July 29. 1741, I got a Surgeon to take some Blood from the Arm of a Boy about fifteen Years old, who was in a Fever. He took it in four different Tea-cups, each of which held an Ounce and a half. Into the first I put three Tea-spoonfuls of the best White-Wine Vinegar I could get, as soon as ever the Cup was near full, and stirred it round two or three times.

In the second I put none, but stirred it as near as I could in the same Manner I did the first, that I might be sure the moving it had an equal Effect on the Fluidity of the Blood contained in both the Cups.

In the third Cup I put four Tea-spoonfuls of the same Vinegar, and stirred it in the same Manner.

In the fourth Cup I put none, and stirred it in the same Manner.

In half an Hour, the Blood in the second and fourth Cup was coagulated; the Blood in the first Cup was coagulated but very little, and that in the third not at all.

About four Hours after, the Serum was perfectly separated from the Crassamentum in the second and fourth.

The first was not much coagulated. The third scarce at all.

The next Morning the Blood in the second and fourth was the same as the Night before.

That in the first coagulated, but not strongly, and without any Separation.

That in the third was somewhat thick, but still preserved its Fluidity. I believe those who have represented Vinegar as a Coagulator of Blood, have been led into this Error by the Effect which the stronger Mineral Acids have upon Blood; for those make it coagulate very soon, and strongly, as 'tis probable Vinegar would do, had it the same Quantity of Acid in it; but strong Vinegar contains only about fourteen Grains of true Acid in an Ounce, whereas there is three Drams and six Grains, that is, 185 Grains of Acid, in five Drams of Oil of Vitriol. Now the same thing in different Degrees has frequently very different Effects on the same Body.

However, so far as may be judged by Effects, Vinegar may be said to be a great Attenuator of the Blood, whilst in the Course of Circulation; and at the same time, which is very extraordinary, preserves the Texture of the Blood, and keeps it from that Dissolution, which it is inclinable to in the Plague, and pestilential Fevers. This will appear less wonderful, if we consider that Vinegar as an Acid prevents Putrefaction, as was observed above; and that when the extremely elastic Particles of the Acid are mixed with the circulating Fluid in a just Proportion, the Heat of the Body rarefies and expands them with a Force sufficient to break thro' and destroy the Coagulations or Concretions of the Blood, which are the very Essence of Inflammations.

I say in a just Proportion, because the Blood may be overcharged with the acid Particles. 'Tis for this Reason probably that Hippocrates advises Vinegar in Fevers, diluted with Water and mixed with Honey; for, as Galen expresses it, Vinegar adds Wings to Water, and enables it to penetrate into the most extreme Parts of the Body.

Caelius Aurelianus advises to blow Vinegar into the Nose in an Epileptic Fit.

Upon reflecting on the Appearances in both the Fermentations necessary to the Generation of Vinegar, I think there is Reason to believe that the Acid of Vinegar is a new Production, but that it rather lay concealed and enveloped in the Oil of the vegetable Juice, till disengaged from it by two Fermentations, which are nothing more than continued Efforts of the extremely elastic Acid, assisted by a proper Degree of Heat, to disunite itself from the vegetable Oil, which disguises it, and detains it, thereby preventing it from flying off, and mixing with the Air, of which perhaps it was originally a Denizon, and from whence it may be entertaining to trace it, till it disentangles itself from the vegetable Juices, and exhaling, leaves the remaining Fluid tasteless, and vapid, being only Water with a small Portion of mucilaginous and unactive Oil.

It is said under the Article ACIDUM, that there is an Acid perpetually floating in the Air. This Acid is so strongly attracted by alkaline Salts of all kinds, that in time they become so saturated therewith, as to be entirely neutral. Now alkaline Salts are the great Promotors of Fertility, inasmuch that, unless the Earth is sufficiently saturated with them, no Vegetable of any kind will grow in it, because these Salts are absolutely necessary to the Formation of a saponaceous, neutral Menstruum, capable of dissolving Earth; for otherwise Earth, which is incapable of Solution by Water alone, could not enter the Pores of the Roots, and contribute to the Formation of the solid Parts of Plants.

If we examine all the Substances in Nature, that are used to promote Fertility, we shall find they contain an alkaline Salt. Thus all the Parts or Excrements of Animals contain an alkaline Salt; and the same kind of Salt is found in all Vegetables that have undergone Putrefaction. Thus Lime also contains an extremely volatile and penetrating alkaline Salt, of singular Efficacy in fertilizing barren Lands. Amongst Limes may be reckoned a Kind of Sal Terræ, to be discovered by its Effects in all Countries: For Earth, by the continual Action of the Sun upon it during Summer, is in some Measure calcined, and furnished with a Salt of the Nature of Lime. Hence the Advantages of a Summer Fallow, as the Farmers call it, which is only exposing the naked Earth to the Influence of the Sun. Hence also the great Fertility of Meadows from Inundations; for the Waters having in their Passage taken up and dissolved large Quantities of this Sal Terræ, deposites them upon the Lands they overflow.

But this is no where so remarkable as in Ægypt, whose prodigious Fertility seems to depend intirely upon this kind of alkaline Salt; for the Water of the Nile being gathered in the parched Mountains of Æthiopia, collects in its Passage this Salt, which it afterwards deposites on the Soil of Ægypt.

This Kind of Salt is perhaps that which the Inhabitants in all Ages have collected in great Quantities, under the Name of Natron, which is not unlike the Cineres Clavellati, and may be used for the same Purposes.

When these alkaline Salts are committed to the Earth, and consequently exposed to the Air, they attract the Acid floating therein, till they are saturated therewith, and become neutral. At the same Time they attract the Moisture, and with it the volatile Oils of Animals and Vegetables floating in the Air. These then, mixed with the Oil of the Earth, being digested by the Heat of the Sun, form a penetrating, neutral Soap; which, when diluted by the Rains, becomes a Menstruum capable of dissolving Earth, or reducing it to Particles fine enough to enter the Pores of the Roots of Plants.

I call this Soap, because it has all the Ingredients of Soap in its Composition, and answers the same End, that is, it dissolves Concretions of Earth, or, in other Words, Dirt. And I believe every Body has observed the Earth to foam and lather upon a hasty Shower of Rain. The Ingredients of Soap are an alkaline Salt, and Oil. Now, all Oils contain an Acid, and this Acid neutralizes the alkaline Salt, as it mixes with it, in the Formation of Soap. It is, perhaps, on account of this Acid, that Oils flame; for Acids, tho' not readily inflammable, yet flame with the utmost Violence, and greatest Degree of Explosion, when once set on fire. And I do not recollect any Body in Nature that will flame, that has not an Acid in it. Turpentine, which are vegetable Oils, and contain a great Quantity of Acid, are remarkable for the Violence of the Flame they emit.

From this Sapo Terræ, or Soap of the Earth, is made that neutral Salt which we call Nitre, perhaps the greatest Dissolvent in Nature, and for that Reason a Medicine of the greatest Importance in the Practice of Physic. It must be observed here, for the better understanding and Confirmation of what I am going to say, that the Acid of the Air which enters the Composition of common Nitre, is not lost or destroyed, but only disguised and concealed under the Mask of the alkaline Salt and Oil with which it is united, and from which it may again be separated, as it actually is in making Spirit of Nitre.

This saponaceous Menstruum then, together with the dissolved Earth, is conveyed into the Pores of the Roots of Plants, where a Part of the Earth and Salt is employed in the Formation of the Solids, and a Part of the Oil serves as a Cement for joining the Particles of Earth together, which otherwise would not cohere, but fall from each other like the Adhes of Vegetables, which are nothing but Earth and Salts deprived of their cementing Oil by Fire. Mean time the Juices, deprived of Part of their Earth, Salt and Oil, are somewhat acid; that is, the Acid in some Degree disengaged from the enveloping Oil, neutralizing Salts, and austere Earth, has Liberty to act and affect the Organs of Taste. But as the Plant approaches to Maturity, less of the Oil and Earth received by the Root is employed in Accretion: They mix therefore with the Juices, and contribute by Degrees to their Neutralization, which is farther promoted by the Heat of the Sun, which digests them together, and mixes with them itself; for Heat is a Body, as has been proved by many Experiments; and according to its different Degrees, has the Power of neutralizing Acids, or expelling them from the Substances to which they adhered; but I do not know that it has been proved, by any Experiment, that it can utterly destroy them.

It must also be remembered that Vegetables imbibe the Air, and no doubt the Acid thereof. And indeed this kind of Respiration is not less necessary to Vegetables than Animals; for without an open Intercourse with the Air no Plant can live, but very soon withers away and dies. If we farther consider, that this Sort of Respiration is performed by Means of the Leaves, and that in most Plants the Leaves by Degrees decay and

²nd wither as the Fruit approaches to Maturity; we may, perhaps, find Reason to believe, that the Juices of Vegetables receive an additional Acid by Respiration, which ceases by Degrees, when the Acid is no longer of Use, and when the Neutralization of the Juices are necessary to the Maturation of the Fruits.

And this will be farther confirmed by most of those Vegetables that produce a Fruit very acid when full ripe, as the Lemon, Orange, Citron, and others of the same kind; which do not lose their Leaves as the Fruit ripens.

Upon the different Combinations of the Acid, alkaline Salts, Oils, Water and Fire, depend the different Tastes of Vegetables. Hence also some Plants are salutary and medicinal, whilst others are deleterious and fatal, to Animals that eat them. How far the Acid may be concerned in rendering them poisonous, I cannot determine; but it is well known that Acids, when naked, are the greatest Poisons known in Nature, tho', when properly combined with Things of a different Nature, they are not only salutary, but endued with excellent medicinal Virtues.

The Example of the Vine may serve for an Illustration of what I have advanced, whose Juices in the Spring are much inclinable to Acidity, whilst the solid Parts, that is, the Tendrils and Branches, increase surprisingly fast. The Juices of the Fruit, that is, the Grape, are also very acid till arrived at their full Growth, and neutralized by the Accession of oily and alkaline Particles, and the Admixture of Heat or Fire; a great deal of which last is necessary to bring them to Maturity.

When these Juices are neutralized, that is, full ripe, they are sweet, or, in other Words, the Acid is enveloped in Oil and a Portion of Earth and Salts, and mixed with Particles of Fire; for an Acid thus modified seems necessary to the Formation of a sweet Taste, as is evident in Sugar and Honey.

Thus Must and Wort are sweet; which put in a proper Vessel, and set in a sufficient Degree of Heat, begin to ferment; that is, the Acid, which is extremely elastic, begins to expand, and to disengage itself from the enveloping Oil. Mean time, a Part of the Acid flies off with so prodigious a Force, that no Vessel is strong enough to confine it. This is what Helmont called the Gas Sylvestris, or Savage Spirit, which is the most sudden and deleterious Poison known in Nature; and to a Portion of this remaining in the fermented Liquors the intoxicating Faculty of such Liquors is indisputably owing.

This Gas Sylvestris I call acid, because it has an acid Smell, and because its expansive Force is greater than that of any known Body in Nature, except the Acid of Nitre, to which it seems nearly related.

Mean time, the more gross Particles of the Oil are separated, and rise to the Top of the fermenting Liquor in a Froth, where they condense by Degrees, and become at last heavier than the Liquor, when they sink to the Bottom, and remain there under the Name of the Lees, or Mother of Wine; but in Malt-Liquors it is called Yeast, or Barm.

When this first Fermentation is completed, the Liquor changes its sweet Taste for one somewhat inclinable to Acidity; and the finer and lighter Parts of the Liquor, separated from the heavier by Distillation, will take fire, and flame, which therefore must be an Oil attenuated by Fermentation, containing an Acid.

During the second Fermentation, more gross Particles, which entered the Composition of the Oil, and enveloped the Acid, are separated from the Fluid, and deposited on the Sides and Bottom of the containing Vessel; and then the naked Acid is at Liberty to act, and affect the Organs of Taste with that Sensation which we call sour. But if the second Fermentation is carried on a little too far, the Acid making its Escape, mixes with the Air from whence it came, and leaves the remaining Liquor a tasteless vapid Mass.

What Galen observes in regard to Vinegar, makes very much for what I have advanced. This Author tells us, that Vinegar in its penetrating Quality resembles the Northern Air. Now Hoffman informs us, that those who are concerned in the making Nitre observe, that the Northern and Easterly Winds favour the Production of Nitre, that is, bring the Acid, which fixes on the Earth, impregnated with alkaline Salts, and renders it nitrous.

'Tis probably a Portion of this Acid, which uniting with the grosser Particles of the Oil, fixes to the Sides and Bottom of Casks, and forms Tartar. Hence that incoercible Spirit or Gas which rises from Tartar in Distillation, and which either perpires through the Lute, or bursts the Vessels. See TARTARUS.

If it should be mentioned, as an Objection to what I have said, that the Spirit of Wine is lighter than Water, and rises first in Distillation; but that the Acid of Vinegar is more fixed, and rises after the Water; it would not much embarrass the Affair. For when the Particles of the Acid are divided minutely, and kept from joining by the Tenacity of the Oil, they must necessarily be affected by a less Degree of Heat, than when their Gravity is increased by their Union, which happens as soon as they are in some Measure released from their Confinement. And then their Cohesion must be considerable; for Acids

are, of all Fluids, the most ponderous, and consequently very solid.

What I have said above in regard to Vinegar, will be greatly confirmed by the following Experiments and Observations made by Leeuwenhoek.

I have had repeated Sollicitations from some eminent Men of my own Neighbourhood, to undertake an Examen of some Salts, but hitherto have not been able to comply with their Request, not only because the Business required an infinite deal of Labour, but because what I had already bestowed thereon proved unsuccessful; and besides, in this Sort of Observations which I designed to make concerning saline Affairs, the Heat and Cold of the Air might cause various Changes in the Figures of Salts: I invented therefore a new Way of searching into these Matters, which however did not succeed with me alike in all kinds of Salts.

Some Wine Vinegar (of which I buy a Barrel yearly for the Use of my Family, and keep it a whole Year) after I had kept it about three Months in my Cellar, had contracted such an Acidity, that it far surpassed all the Vinegar that ever I had before. A Quantity of this, whenever exposed a few Hours to the Air, entertained my Sight with a vast Number of Corpuscles, which I used to call the Salt of Vinegar, represented P. 1. Fig. A, acute at both Extremities. Many of them had in the Middle an oblong Figure, of a brownish Colour; others, of which there were also Multitudes, shone like Crystal, as in Fig. B. Some of those oblong and brownish Figures had a clear Light appearing in their brownish Colour, as is shewn Fig. C. In another Part appeared a few oval Figures, some of which carried in them a Light, of an oval Form, as in Fig. D. Among those of the aforesaid Figures A, B, D, I often fancied I saw many with a Cavity, as if we beheld the Form of some Ship; and sometimes there appeared such a one as, I said, belonged to the first Figure, with one half brownish, and the other pellucid. Sometimes the Corpuscles rested on one another, as in Fig. E. I observed now and then some Corpuscles that made but one half of those in A, B, C; as you see in Fig. F. Many of the Corpuscles in all the before-mentioned Figures were extremely minute, so as to become invisible. Those I mentioned, which I call the Salt of Vinegar or of Wine, were found in Vinegar in so great Plenty, that I discovered some Thousands in a small Drop, besides an incomprehensible Number of small Globules, six of which, I judged, would go to make up one of Blood. Besides these I observed yet a far greater Number of smaller Globules, the least Sort of which was so minute, that thirty-six of them would make but one of Blood. In short, it seemed incredible and inconceivable how such a Multitude of Particles could be contained in so small a Quantity of Fluid, especially limpid, such as Vinegar is. All those Corpuscles then, which I call the Salt of Vinegar, I suppose to be those acute and pungent Parts which imprint on the Tongue that Sensation or Taste which we call acid. And though I found these Parts to be of this Bigness by the common Microscope, I did not question but there were far smaller than the smallest here expressed; and that all these Figures, both great and small, are only composed of a great Number of smaller Particles, of the same Figure, as I have often had Opportunity of observing; when I have viewed Sea Water, or common Water, in which Salt has been dissolved, in a Microscope. What fine, small, and quadrangular Figures come out of it; so minute, that a thousand Myriads of them would not equal the Bulk of a good Sand! And these minute Particles of Salt, though increasing in Bulk on all Sides from the Moment I first see them, yet retain their elegant quadrangular Superficies nearly. Hence I conclude, and take for granted, that I find no acute Particle in Vinegar, which is not composed of a great Number of other Particles of the same kind.

I placed a cylindrical Glass, of two Fingers Breadth in Diameter, with Vinegar in it, in my Parlour, and let it stand there open almost eight Weeks; at the End of which, I found an infinite Number of Particles of Salt swimming on the Superficies; which having well inspected, I could clearly perceive, what before I had not been able to find out, that these saline Figures were furnished with a Cavity; for these Cavities, in many Particles of Salt, appeared to my Eyes very sensibly. Some of them, whose Cavities were more remarkably visible, I took care should be drawn, as you see them, Fig. G; and for others, which afforded only a Side-prospect, you see a Part of their Cavities represented accordingly, Fig. H. You have also a little Eel, alive and full-grown, Fig. LM; and another dead, at its full Growth, which I killed that the Painter might the better distinguish it, as you see in Fig. NO, with this Intention, partly that the Smallness of the saline Particles contained in the Vinegar might be the better perceived by comparing them with the Greatness of the Eel, (first taking Notice, that the Figures above explained, and the Eels, were taken by a common Microscope; but that

vastly more numerous saline Particles were by me discerned in the Vinegar, which could by no Means be discovered by that Glass; partly that I might confute an Error which many have imbibed, who account for the Acidity of Vinegar merely from our Sense of the Punction of these Eels, who prick our Tongues with their sharp Tails. This, I say, is a Mistake; for if we should suppose it to be true, it would follow, that vast Quantities of Vinegar would be insipid, because destitute of these Eels; and in Winter, when they die, all Vinegar would be insipid.

I went on with my Enquiries into Vinegar, and examined such as had imbibed a Solution of Crabs-Eyes, because these are said to absorb all the Acidity of Vinegar. If this were true, those acute Particles above described must, of Necessity, assume other Figures, either blunter, or more soft and flexible ones, with which they could not prick our Tongues, nor impress that Sensation on them which we call an acid Taste. For this Purpose I took several new Glasses, and in them put some Crabs-Eyes, first broken into small Fragments only, that I might not be incommoded by the Sand if pulverised; and I found that the oblong little Figures above-mentioned, that were sharp at both Ends like a Weaver's Shuttle, were all changed into others, which had an oblong quadrangular Base, from which they ascended pyramidically, appearing like angulous and polished Diamonds, represented *Fig. P.* Some few had a square Base, as in the *Fig. Q.*; and a few others a Parallelogram, as in *Fig. R.* These two last Figures I judged to have been formed by Accident, from a Defect of sufficient Matter to compleat all the Sides. Note, "The Size of these Particles must not be compared with the Size of the before-mentioned saline Particles, contained in simple Vinegar; because these saline Particles were drawn by the Help of a Microscope, which magnified vastly more than that which I had used in drawing the former, because it was impossible, by any other Means, to discover their Frame." The Number of these saline Particles was vastly great, as amounting, according to my rude Calculation, to more than six thousand in the Compass of a small Drop, no bigger than two Grains of Barley; and what I chiefly wondered at, almost all these Particles were of the same Size, which I had never observed in other kinds of Salts. I also poured out the Vinegar which contained the Crabs-Eyes, while the Effervescence continued, and it sent forth Plenty of Bubbles; and in that Vinegar I found an infinite Number of saline Particles, with quadrangular Bases, as before; but I could not perceive any Particles of that kind, of which I said vast Numbers were contained in the Vinegar before the Crabs-Eyes were put into it. The Effervescence being over, and the Bubbling almost ceased, I took into my Mouth about a third Part of a Thimble-full of this Vinegar, that I might know how it tasted; and I could perceive no Acidity, but a Sort of bitterish and very nauseous Taste. I also put some Pieces of white Chalk into Vinegar, and found that they raised as great an Effervescence and Bubbling as the Crabs-Eyes would have done, and that the acute Parts of the Vinegar produced a like Number of saline Particles, and that the acid Taste in like Manner vanished as before.

Leewenhoek observes, that Vinegar kills the Animalcula, which are discovered by Microscopes in the white Matter which adheres to the Teeth and Gums, as will be farther taken Notice of under the Article ANIMALCULA.

I next took Wine under my Consideration, and entered upon a fresh Examèn of my own, which was very good and pleasant, and in France, for its fine Taste, is called by a new Name, *Vin de Damoiselle*; it comes from Orleans, and is brought down the River Loire to Nantes. I discovered a vast Number of very fine and exquisitely shaped Figures in it, and Multitudes of the utmost Minuteness, which, on the present Occasion, I will call the Salt of Wine. Many of these Figures agreed with the saline Particles I before proved to be in Vinegar. In some of them you might not only see a Cavity, but they were so increased in Bulk, because I had left the Wine to stand four and twenty Hours open in my Parlour, as to become equal to the bulky Particles of Vinegar, before described; as you see in *Fig. S.* I observed also some blunt Figures, whose Extremities were round, without sharp Tops, as in *Fig. T.*; and there were several, which were blunt at one End, and sharp at the other, *Fig. V.* Some differed from these last only in that they had one End flat, and not round; *Fig. W.* A few of them were oblong, and looked like an oblong Rectangle; *Fig. X.* Many had their two longest Sides somewhat rounded, and the two shortest strait, almost in the Form of a Beer-Barrel; *Fig. Y.* Some few represented a perfect Square, others were twice as long as broad, but about the shorter Sides terminated acutewise, with a remarkable Swelling in the Middle, answering the Form of a flat-bottomed Boat with a flat Head and Stern, as in *Fig. Z.* As all these Figures, in infinite Numbers, were promiscuously swimming about in one small Drop of

Wine, it was extremely pleasing to view so great a Variety of such elegant Figures perpetually traversing one among another, and wandering about the Wine. I did not doubt but the saline Figures, above taken notice of, might imprint an acid Savour on our Tongues, were they not enveloped and depressed by vast Quantities of sweet Particles, which are contained in this and all other Sorts of Wine, and cannot be separated from them without raising in them a very strong Fermentation. For as soon as Wines begin the least to ferment, their Sweetness vanishes in part, and as the Fermentation proceeds, goes off gradually, till at last all their sweet and grateful Savour concentrates, and degenerates into the most acid of all Tastes, and for Wine gives us Vinegar. This Phenomenon confirms me in the Opinion that the grateful Savour of Wine proceeds from such Parts as are neither too sweet nor too acid; where not one prevails above another, by which means the Wine obtaining a just Temperature, and a certain Harmony of Parts, affects our Tongue and Palate with such a Savour as we call grateful. And this we are taught by daily Experience, when we mix different things, which used alone would be too sweet, or fat, or acid. One Instance shall serve for many. The sharpest Vinegar boiled over the Fire with Butter till they are well mixed makes a most grateful Sauce. As to the Sweetness of Sugar, which is itself a Salt, it consists in this: That though the Particles of Sugar are acute and angulous, yet they are easily resolved when immersed in Water, especially in a warm Place, such as the Mouth, where they are not only resolved in a Moment, and united with the Saliva, but acquire such a Flexibility as to give way to all other Particles on the Tongue; by which their Compliance they impart to us the Sense of Sweetness. These things being supposed, and inferred from Experiments, it will be very easy to account for the different Savours of Wines, even though they are produced by the same Vine. For not only the Grapes growing in the mountainous Part of the Upper Palatinate, which declines towards the South, might taste sweeter, because more exposed to the Sun's Heat, but even the acute, or sharp-pointed Parts of Wine, might acquire a still greater Rigidity, and so become more inflexible. We see also the Reason why Wine left for some time to stand open in the Air loses its grateful Savour, namely, because many of its saline Particles run together into one Mass, or become one saline Part; and this Diminution of the saline Particles, which is made by the Concretion of many small into a few great ones, cannot affect our Tongue and Palate with so grateful a Sensation, as would arise from the Titillation of more but minuter Particles.

THE DISTILLATION OF VINEGAR INTO AN ACID WATER, AN ACID SPIRIT, AN EXTRACT, A SAPA, AND OIL, AND FIX'D SALT.

Fill a tall narrow Glass Cucurbit three fourths full with old Vinegar prepared from the best Wine, and with a moderate Fire draw off one fourth. This then will be light, and limpid, will be dispersed all over the Alembic in the form of dewy Drops, and will run down like Water, not in Striae like Spirits; the Taste of it will be somewhat acid, and if it is thrown upon Flame it will extinguish it like Water. If this Water is distilled again to one half in a clean Cucurbit, the Part that comes off first consists chiefly of Water, and is of excellent Service where a very mild Acid is required. In this the Writings of all the Chymists have agreed. Vigani, however, has taken the liberty to assert, that the Liquor which first rises in the Distillation of Vinegar is inflammable, and will burn if it is thrown upon Fire. To determine therefore this Controversy, I shall relate what, upon Examination, I have found to be the Fact. I took twenty Pints of Vinegar, which was made in France, and thence brought here directly, and which had not yet acquired the utmost Degree of Acidity, and putting it as it was into a very large Glass Retort, with a great deal of Patience, I distilled it with a very gentle Heat; upon this to my great Surprise a Vapour rose into the Receiver, which when it came to be cool, formed oily Streaks, just such as appear in the Distillation of Wine. I proceeded in the same gentle Manner, till these Striae were succeeded by some dewy Vapours dispersed about in the same Manner as happens in the Distillation of Water and Vinegar. I then immediately removed what came off first, which had a Taste like common Spirit of Wine diluted with a weak Vinegar, and when it was thrown upon a bright Flame, it burnt like Spirit of Wine. When the same Vinegar, however, was better than a Year old, and had been kept all the time in a Vessel nicely stopped, upon performing the same Operation the Success was different; for then what came off first was not an inflammable Spirit, but a mere watery Vapour of Vinegar. Hence I learned, that the inflammable Spirits are by Time intimately fixed into the Acid of the Vinegar; that hence the Taste of new Vinegar

Vinegar still continues vinous, but gradually grows sharper and sourer; that then all the first inflammable Spirits are changed, and none but those which are acid remain; that somewhat therefore truly inflammable is by this Means converted into Vinegar, which is not inflammable afterwards; and that for these Reasons what the Chymists have asserted is true, though Vigani's Opinion must be allowed so likewise, if understood of new Vinegar.

I then increased my Fire a little, in order to distil the Remainder of the old Vinegar, which was three fourths of the whole; and kept it up in this Degree, till I had drawn off two thirds of the Residuum, so that now there was only one Pint left in the Retort of four I made use of at first. This Liquor then appeared in Drops like Dew, was of a much more acid Taste than the former, not of a disagreeable Smell, but somewhat empyreumatical. It was heavier too than the former; for being mixed with it, it subsided to the bottom. This may properly be called distilled Vinegar.

Let the remaining fourth Part be distilled with a still stronger Fire out of a Glass Retort into a Receiver not too cold, a very limpid Liquor will come over exceedingly acid, and so penetrating that it will insinuate itself through the Lute; but it will scarcely rise, unless it is urged with a great Degree of Fire, and then will heat the Receiver so much, as to endanger its breaking. Even here, however, there is no Appearance of Streaks; and if this Liquor is thrown upon Fire, it extinguishes it. Proceed then till there remains only a twentieth, or less, of the Vinegar first made use of. This last Liquor will have an empyreumatical Smell.

This being done, there will be left at the bottom of the Retort, a black, thick, acid, oily Liquor, smelling very strong of an Empyreuma, which being urged with the last Degree of Fire, will yield an exceeding acid, heavy, empyreumatical, foetid Liquor, and an Oil of a surprisngly foetid Smell, whilst there remains a black, acid Caput Mortuum in the Retort. This being burnt in the open Fire, yields a bright Flame, and produces some brown Faeces, in which there is a large Quantity of an acrid alkaliescent Salt.

Hence then it appears, that there does not remain the least Appearance of Alcohol in so large a Quantity of Vinegar, that there is nothing here of the Nature of Tartar, but that the whole, a very small Part only excepted, is become volatile; and that Vinegar is absolutely of a different Nature from any other Acid which we are at present acquainted with.

These Things I have gone through in this Manner, in order to give an Insight into the Nature of Vinegar from its Composition and Resolution. This Operation, however, would be both too tedious and chargeable for preparing distilled Vinegar for common chymical Uses. For this Purpose therefore, we take a Copper Still, well tinned within, and fill it three Parts full of Vinegar; and then fixing on a Glass Head, proper for this Use, we distil with a Worm, by a Fire sufficient to make the Vinegar boil. The first fourth Part that comes off, we collect by itself, and afterwards draw off two Quarters more, which we keep under the Title of distilled Vinegar for chymical Operations. The other fourth that remains in the Still may be saved too, till by repeated Distillations a sufficient Quantity of it is got together, and then it will serve for preparing the strongest distilled Vinegar for some particular Uses. I have always, however, found it tainted by corroding the Copper, for which Reason it is dangerous to prescribe it internally.

REMARKS.

This distilled Vinegar is a saline, oily Acid, possessing the same Virtues which are above ascribed to Vinegar; but more penetrating, active and volatile, because freed from all terrestrial Impurities. The Sapa that remains in the Retort after seven Eights is drawn off by Distillation, is a most noble antiseptic Medicine, used either internally or externally, but on account of its horrible Taste, it must be taken mixed with a great deal of Sugar or Honey, as Angelus Sala has observed. This Sapa is a true detergent acid Soap, which becomes continually more efficacious in Proportion as it grows thicker; for by this Means it gradually grows of a more oily Nature. By this Experiment, we learn farther how wonderfully the distinct Elements of Bodies may lie concealed among each other; for who could believe that after Wine was grown fine, it could contain so much of an oily Matter, as we see it deposits in the making of Vinegar? Who, from Vinegar so thin and sharp, could expect a black, oily, thick, inflammable Sapa? Or who could possibly imagine, that in the most limpid distilled Vinegar, which in Thinness vies with Water, there should be an invisible pinguious Oil, and that too in great Quantity. In the mean time, some of the most eminent Artists have observed, that if the Acid of distilled Vinegar is combined with Powder of Lead in such a Manner, as to produce the Sugar of Lead, it then coalesces with that into a pin-

gulous, tenacious kind of sweet Sugar; and that if this is then gently dried, and distilled in a Retort, it yields an oily Liquor, which burns like Spirit of Wine. So that hence it seems as if the latent sulphureous Part, which was concealed in the thin Vinegar, discovers it self by this Operation; and is, as it were, regenerated. Unless you would rather imagine, that a combustible Oil is separated from the soft metalline Body of the Lead by the Acid of the Vinegar, and consequently that the inflammable Liquor drawn off owes its Origin intirely to the Metal. This, however, I confess, does not seem probable, because the Lead when it is corroded by the acid Spirit of Nitre, though it produces a rough sweetish Vitriol in Distillation, does not, that I know of, yield such an inflammable Liquid, as it does when it is corroded by Vinegar. And then, besides, upon the Mixture of the purest Spirit of Wine with the most thoroughly calcined Salt of Tartar, there is regenerated an inflammable Liquor, as evidently appears in the Preparation of regenerated Tartar. Nothing, however, here, is more surprisng, than that the exceeding acid Faeces of Vinegar should afford an alkaline Salt. *Boerhaave Chem. Process 51.*

THE RECTIFICATION OF DISTILLED VINEGAR.

Take any Quantity of the distilled Vinegar of the preceding Process, and with a gentle Fire, in a tall Cucurbit, draw off half the Quantity. The half that comes off keep by itself, as do likewise that which remains in the Cucurbit. That which rises will be light, limpid, watery, and less acid, whilst that which remains after Distillation will be an exceeding strong, sharp, distilled Vinegar, and heavier than the former.

REMARKS.

The Rectification therefore of Wine and Vinegar are effected in a quite different Manner. In the former, the first volatile Part is the best; in the latter, that which is more fixed, and is left behind. Hence Vinegar, by boiling, is rendered stronger and more sharp; Wine, by being boiled, becomes weak, thick, turbid, disagreeable, and vapid. And for this Reason, if Flesh, Cartilages, Bones, and Skins, are boiled a great while in Vinegar, they are, by the Action of the Acid of the Vinegar, which is agitated, and grows stronger during the boiling, reduced at last to a thick liquid Matter. This strong distilled Vinegar is useful, in particular, in all Solutions of Metals; for these require a pretty strong Acid. *Boerh. Process 52.*

The DISTILLATION of VINEGAR, as directed by the College, is thus performed:

Take enough of the best Vinegar to fill two thirds of a Retort, which place in warm Ashes; and distil first with a moderate Heat, to bring over the Phlegm; then increase the Fire by Degrees, so as to finish the Operation with a strong Heat.

THE RECTIFICATION OF DISTILLED VINEGAR by the Help of VERDIGREASE.

If Plates of the best red Copper are corroded by the Spirit that exhales from pressed Grapes, after the Must is separated, and they are laid together till they grow warm, and emit a spirituous Vapour, there will be an Efflorescence generated upon their Surfaces, of a bluish-green Colour. This is scraped off and saved, and then the Plates are again heated in the same Manner, by which Means they afford more of the same Efflorescence.

This then being collected together is called Verdigrease; which therefore is Copper corroded by this Spirit, and combined with it. And this cannot be successfully prepared in any Places, where there are not these Faeces of Must possessing such a sharp and penetrating Power. This Spirit therefore is not properly an acetose Spirit, but one rather of a middle Nature, betwixt a true Acid and a fermented vinous one. Take some of this Verdigrease, that has an agreeable Colour quite through its whole Mass, pound it, put it into a clean Glass Cucurbit, and pour upon it such a Quantity of rectified distilled Vinegar as is sufficient to cover it to the Height of ten Inches. Set the Cucurbit in a pretty great Heat, viz. one about a hundred and fifty Degrees; and with a Stick keep the Mixture frequently stirring, and in a short Time the Spirit of Vinegar will be tinged of a beautiful deep green Colour. Let it stand to settle, and then decant the clean Liquor very gently, without pouring off any of the Bottom; and upon the Residuum pour some more distilled Vinegar, and digest it; stir it, and let it stand quiet, and decant as before. Repeat this Operation as long as the Vinegar continues to be tinged; and then all these coloured Liquors, mixed together, are called a Tincture of Copper. When the Verdigrease will give out a Tincture no longer, there will be a great Quantity of it still left undissolved.

Let the tinctured Liquors be filtered through Paper, and then be distilled in a clean Cucurbit, with a Heat of two hundred Degrees, till a Pellicle begins to be formed on the very

very green Liquor that remains. The Fluid then that comes off will be limpid like Water, aqueous, and but little acid. Let the inspissated Liquor be set by in a Cellar, and it will, in a short Time, shoot into most beautiful, green, pellucid Crystals, which will fasten particularly to the Sides of the Glass, and incrustate it over. Pour off the remaining Liquor, as nicely as you can, from the crystalline Crust, which must be dried as gently as possible in a hot Air, and carefully separated from the Glass; and so kept, that it may not be affected with too great a Degree of Heat, for fear of its becoming opaque. Let the decanted Liquor be again inspissated to a Pellicle, and then formed into the same Crystals, which must be treated with the same Caution as the former. And thus you must proceed, till by this Means all the Copper that was contained in the Verdigrease is reduced to these pure Crystals of Verdigrease, which in the Shops go commonly by the Name of distilled Verdigrease. If this is reduced to Powder, it gives a most beautiful Pigment. If it is sprinkled upon a foul Ulcer, it excites Pain, forms an Escar, and thus dries up the Mouth of the Ulcer; whilst at the same time an Inflammation is excited underneath, which separates the Crust, by which Means the worst kind of Ulcers are sometimes happily cured; for it is of the same Nature as the Caustics made with Mercury and Silver.

When you have got a sufficient Quantity of such Crystals, put them in a Glass Retort, and distil them with a Fire gradually increased, and you will have first a small Quantity of a watery Liquor, which must be kept by itself, or thrown away. When this is drawn off, there will succeed an acid, pinguious Liquor, which will run down in Streaks, is considerably heavy, and is the most saturated with an Acid of all the Liquors that can, by any Art whatever, be prepared from Vinegar. Basil Valentine therefore recommends this for the Solution of Pearls, in his *Mamudutio Medicinæ*, and Zwelfer being acquainted with this, boasted of his *Acetum Esurinum*, pretending to be Master of the Alcahest, for which he was sharply handled by Tachenius. When the Operation is over, there remains the Powder of the corroded Copper, which may be again dissolved in distilled Vinegar, and be formed into green Crystals as before.

REMARKS.

This fermented Acid is the strongest that can be procured from Vegetables, and consequently possesses the most excellent Virtues, both chymical and medicinal; that can be expected from such an Acid. As it is efficacious therefore in restoring an Appetite, where it is destroyed by a Putrefaction of the Bile, or other Humours, hence it has obtained the Name of *Acetum Esurinum*, Hungry Vinegar. But in those Cases where the Appetite is palled by a predominant Acid, which the Physicians are sensible is often the Case, there this only increases the Cause, and so proves prejudicial. This Acid, however, by being mixed with absorbent or alcalious Substances, will lose its acid Virtues in the same Manner as all others do; and therefore Zwelfer, who asserts the contrary, in this Case must not be regarded. In order now to understand the proper Effect of this Operation, we must observe, that distilled Vinegar consists of Water, and an Acid. This Acid is attracted out of the Vinegar by the Copper, whilst the Water is unaffected by it, and left by itself: The Acid then adheres to the Copper, and subsists with it in the Form of a solid Body; and scarcely at all altered, till by the Force of the Fire it is separated from it in its former Nature, and then it leaves the Copper reduced to Powder, but without any Alteration. This now, as far as I have been able to inform myself, cannot be effected by any other but Copper; for Gold, Silver, Mercury, and Tin, are not dissolved by it; and though Iron and Lead are, yet they change it in such a Manner, that a pure acetose Acid cannot be procured from them again, but something of a very different Nature. Hence then we see what a prodigious Difference there is in Solutions; the Acid of Vinegar is attracted into Copper, and is thence procured again by Distillation, very little altered, being only freed from its watery Part; Lead attracts the same Acid into it, and rejects the Water; and yet, if you endeavour to separate it by Distillation, you have an oily pinguious Liquor, of a quite different Nature from that of Vinegar; and if Iron is dissolved by the same Acid, it yields nothing again but Water, and surprisingly altered. And as for other Absorbents, or fixed or volatile Alkali's, if it is combined with any of them, it never returns back again a pure Acid; so that, perhaps, Copper alone, or Verdigrease made from it, is the only Body we are acquainted with that is disposed to sharpen and exalt the pure Acid of Vinegar.

This is called by some of the Chymists, *Acetosa Esurina*; and by some Dispensatory Writers, *Spiritus Aceti*.

The Antients, as well as Moderns, had various Preparations of Vinegar, calculated for different Purposes; of these I shall mention some, for to describe them all would take a Volume.

The first is the *Oxalme*; of which Dioscorides gives the following Account, l. v. c. 23.

OXALME.

Vinegar impregnated with Salt, or acid Brine, which they call *Oxalme*, used as a Fomentation, cures spreading and putrid Ulcers, and the Bite of Dogs and venomous Creatures. It stops the Bleeding that follows upon Lithotomy, if immediately after the Operation it is poured hot into the Wound; and is good for a Prolapsus Ani, Dysenteries, attended with Corrosions of the Intestines. It is given in Clysters, but it must immediately be followed with one of Milk. It also cleanses scald and scabby Heads, that are washed therewith.

THYMOKALME.

The Antients prescribed the *Thymokalme* for Weakness of the Stomach, for the Gout, and for Inflammations. The Dose is about a Quarter of a Pint, diluted with warm Water. It purges black and gross Humours. It is made after the following Manner:

Take an Acetabulum (two Ounces) of bruised Thyme, as much Salt; of coarse Meal, Rue, Pennyroyal, each a little; put them all into a Pot, and pour upon them three Sextarii (Pints) of Water, and as many Cyathi (four Ounces and a half) of Vinegar; cover the Pot with a Linen Cloth, and let it stand in the Air. *Dioscorides, l. v. c. 24.*

ACETUM AMINUM is White-wine Vinegar. *Rulandus. Johnson.*

The three following are from BATES.

ACETUM LETHARGIRITES. Vinegar of Litharge.

Take Litharge of Gold powdered four Ounces; Of the best Vinegar half a Pint; Digest for three Days, often shaking the Vessel; then filtrate it.

It is designed only as a Wash for a red Face, and to cure Pimples.

ACETUM MELLIS. Vinegar of Honey.

Take Honey a Pound, of the best Vinegar three Pints; distil in a Sand-Heat, and rectify.

It is said to dissolve Stones, without previous Calcination.

ACETUM PESTILENTIALE. Pestilential Vinegar.

Take of the Roots of Angelica and Zedoary, of each an Ounce, Juniper-berries two Ounces, Rue three Handfuls, the best Vinegar three Pints; let them macerate together, and strain them.

Bates recommends it as a Suffitus, or Gargarism, in Time of pestilential Infection.

ACETUM ROSACEUM. Vinegar of Roses.

Take of red Roses clipped from their white Heels one Pound, the best Vinegar one Gallon; let them stand to infuse in the Sun, put up in a well closed Vessel, forty Days; then strain off the Liquor.

This is sooner made by boiling the Ingredients together in a Bath-Heat for a few Hours. *Pharmacopœia Edinburgensis.*

The Vinegar of Roses is seldom used but in Embrocations for the Head or Temples, in some kinds of the Head-ach, where it frequently does great Service. *Quincy.*

It might likewise be usefully added to Julaps, Draughts, or the like, in malignant Fevers, where cordial Acids are required. *Shaw's Notes.*

ACETUM RUTACEUM. Vinegar of Rue.

Infuse the Leaves of Rue and Scordium, that is, Water Germander, picked from the thick Stalks, each three Handfuls; Juniper-berries and Angelica Roots, each two Ounces; Zedoary and Seville Orange-peels, each one Ounce, in the best Vinegar eight Pints. Let them digest for a Month, and then press the Vinegar from the Ingredients; which keep for Use.

This is not prescribed, or kept in the Shops; but is so easily made by any private Family, and is so good a Medicine to procure Sweat, upon any Threatnings of a Fever, or upon a Surfeit, that it is very well worth any one's making, and keeping in case of Necessity. It may be given from half a Spoonful to two or three Spoonfuls, in any convenient warm Liquor. And if the Patient is kept warm with Cloths, it cannot fail of raising a Sweat; and it is the best Succedaneum to Treacle-water in the World, where that cannot be had for a sudden Occasion. *Quincy.*

In the same Manner a Vinegar is made with Elder, mentioned in the Edinburgh Pharmacopœia, under the Title of *Acetum Sambucinum*, which partakes of the Virtue of the Elder.

ACETUM SCILLITICUM, Vinegar of Squills, is thus prepared according to *Dioscorides.*

Take white Squills; and having cleansed them, cut them into Slices, and string them on a Line, so as not to touch one

one another, and let them hang in the Shade to dry forty Days. Take of these a Pound (the Pound was about ten Ounces) and infuse them in six Quarts of good Vinegar, and let them stand macerating in the Sun seven Days in a Vessel well stopped. Then take out the Squills, squeeze them and throw them away, but strain off the Vinegar into a Pot, and set it aside for Use. Some put a Pound of the Squills into five Pints of Vinegar. Others infuse the same Quantity, as soon as they have cleaned the Squills, without drying them, and let them macerate for six Months; and this Sort is of a more inciding Nature.

Vinegar of Squills is good to consolidate the too lax and humid Gums, and fasten loose Teeth. It is excellent to heal putrid Ulcers in the Mouth, and for an offensive Breath. Drinking of it hardens the Throat and Jaws, and make them callous; it helps the Voice, and renders it clear and sonorous. It is administered to such as labour under Infirmities of the Stomach, have weak Digestions, to epileptical, vertiginous, melancholy, and mad People. It is given also in hysterical Fits, in Disorders of the Spleen, and the Sciatica. It wonderfully clears and revives infirm Persons, renders the Body sound, and gives a good Colour. It quickens the Sight, and, dropped or poured into the Ears, helps Thickness of Hearing. In short, it is good for every Thing except internal Exulcerations, Pains of the Head, and Distempers of the Nerves.

It is to be drank every Day fasting, beginning with a small Quantity, which by Degrees may be increased to a Cyathus (an Ounce and a half). Some prescribe twice as much or more.

The *Acetum Scilliticum*, or Vinegar of Squills, as directed by our College, is something different from this of Dioscorides.

ACETUM SCILLITICUM, *Vinegar of Squills.*

Take that Part of the Squills between the outer Leaves and the Core, cut it into small Pieces, which cleanse and expose to Heat for thirty Days; and put one Pound of it into a Bottle with six Pints of the best Vinegar; and in the Summer Time let the Vessel, close stopped, be placed in the Sun for thirty Days; then open it, and strain it out for Use.

This is sometimes used of itself, but chiefly made into Oxy-mel Scilliticum.

Vinegar of Squills is said to be the Invention of Pythagoras, or that he learned the Use of it from Epimenides. He began at the fiftieth Year of his Age to take some of this Vinegar every Day, and to this it was attributed that he lived in perfect Health to the Age of a hundred and seventeen. It is esteemed to preserve the Hearing, and open the auditory Passage, used by Way of Gargarium. The auditory Passage is the same as what has been called, by the Moderns, the Tuba Eustachiana, but it was first discovered by Alcmaeon, a Disciple of Pythagoras. *Galen. Pliny. Schulzius.*

ACETUM THERIACALE, *Treacle Vinegar.*

Take of the Treacle of Andromachus, or that of the College of Edinburgh one Pound, best Vinegar two Quarts, digest them together, with a gentle Heat, for three Days, and afterwards strain off the Liquor. *Pharmacopœia Edinburgensis.*

This promises very fair, for being an admirable medicated Vinegar; and in many Cases preferable to Treacle-water; as particularly where a sudden Sweat is required, a venomous Bite, or any Infection received, &c. on which Account something like it richly deserves a Place in all publick Dispensatories, and consequently in the Shops. *Shaw's Notes.*

To these I shall add the Oxy-mels, that the Preparations of Vinegar may not be separated.

Oxy-mel of DIOSCORIDES.

Oxy-mel is made after the following Manner:

Take two Pints and a half of Vinegar, one Pint of Sea-water, ten Pints of Honey, and five Pints of common Water; mix them together and set the Liquor over the Fire, and let it boil up ten Times; then take it off, and, when it is cool, pour it into a Vessel.

Oxy-mel is good to expel gross Humours, and help such as are troubled with the Sciatica, Gout, or Epilepsy. It is a Remedy for the Bite of that Viper called Seps, and for the Poison of the Peplus [*μυρσίνη*] and white Chamæleon [*χελιδόνα*] and, used as a Gargarism, is good for a Quinsy.

Very different from this is our Oxy-mel as directed by the College under the Name of

OXYMEL SIMPLEX, *simple Oxy-mel.*

Take two Pounds of the best Honey, of White-wine Vinegar one Pint, and boil them over a gentle Heat into the Consistence of a thin Syrup.

OXYMEL COMPOSITUM, *compound Oxy-mel.*

Take of the Roots of Fennel, Smallage, Parsley, Butchers Broom, and Asparagus, each two Ounces; of the Seeds of

Smallage, Parsley, Fennel, and Anniseeds, each one Ounce. After the Roots are washed and sliced, and the Seeds bruised; infuse them together in ten Pints of Water and one Pint and a half of Vinegar. The Day following boil them by a moderate Fire, to the Consumption of a third Part of the Liquor; strain and clarify the Remainder, and mix with it three Pounds of Honey, and over a gentle Heat, with continual Scumming, boil it to the Consistence of a thin Syrup. *S. A. London Dispensatory.*

OXYMEL PECTORALE, *Pectoral Oxy-mel.*

Take of the Roots of Elicampane and Florentine Orrice, each half an Ounce; slice, bruise, and boil them in a Quart of Spring-water, till it comes to a Pint and a half; to the strained Liquor add of unprepared Gum Ammoniac an Ounce dissolved in four Ounces of Vinegar; add also four Ounces of Honey; then boil them together, scum the Matter and strain it. *Edinburgh Dispensatory.*

This promises to be a very effectual Medicine, and seems one of the best that was ever prescribed in this Form; it is somewhat nauseous indeed, but it will doubtless cause a large Expectoration, and cannot but be serviceable in asthmatic and phthical Cases.

OXYMEL PECTORALE, *Pectoral Oxy-mel.*

Take of the Roots of Elicampane, Afarabacca, and Ginger, each six Ounces; or Florentine Orrice, Galangal Roots sliced, and white Pepper a little bruised, each three Ounces, Spring-water, ten Pints, White-wine Vinegar, six Pints; steep them together twenty-four Hours, then boil to ten Pints; strain and add Honey six Pounds; then boil and clarify; to which add of the Extract of Liquorice half a Pound, and make into a Syrup.

This is an efficacious Detergent, and greatly promotes Expectoration; for which Purpose it is much given in all asthmatic Cases, and where the Breast is clogged with viscid Humours, two or three Spoonfuls are ordered to be taken at any Time. *Pharmacopœia Pauperum.*

OXYMEL SCILLITICUM, *Oxy-mel of Squills.*

Take of Honey three Pounds, and of Vinegar of Squills a Quart; boil them together to a Syrup; observing to scum it in the Operation. *London and Edinburgh Dispensatory.*

It is said, Acetum Scilliticum suffers no Obstructions to be generated in the Body, dissolves all beginning Coagulations, keeps the Body open, and provokes Urine.

Oxy-mel of Squills is a gentle Vomit, if taken in a large Quantity, and inclines to a Nausea in a small one. Add to this, that it is somewhat nauseous to most Palates, and for these Reasons it would be somewhat difficult to introduce it into Practice as a Preservative against Distempers. But as a Remedy it is deservedly in great Esteem, and much used. There is a pretty and commodious Way of giving it loaded with some agreeable compound Water, and Syrup, which takes off the disagreeable Taste in some Degree, and prevents it from causing Efforts to vomit. In Dropsies and Asthmas, the following Mixture is frequently given at Bed-time, and is of great Efficacy, as it relieves the Shortness of Breath, and is very diuretic.

Take of strong Cinnamon-water, Syrup of Balsam, each half an Ounce; Oxy-mel of Squills two of three Drams, mix them.

Many other Forms of this Kind are contrived to suit particular Cases either to be taken at once, or by Spoonfuls often repeated. See OXYMEL. See SQUILLA. See APOMELI.

Chambers makes a little Mistake, when he says, the College retains the Acetum Theriacale Norimbergense, for upon the last Regulation, which happened many Years before Mr. Chambers wrote his Book, it was left out.

The Chymists talk much of their philosophical Vinegar; but have not been so obliging as to inform us what they mean. It is probably either Mercury itself, or some mercurial Water. The Account Lagneus gives of it is thus: *Acetum Philosophorum est Denigratio nostra; quæ est Lignum Dissolutionis veræ.* This Definition I give as a Specimen; but it will neither admit of being translated or understood. A Solution of Butter of Antimony in Water is sometimes called Acetum Philosophorum.

ACETUM RADICATUM. Boerhaave thinks the Tartarus Regeneratus is the *Acetum Radicatum* of the old Chymists. See TARTARUS REGENERATUS.

ACHAHL. Alum Water. *Jabson.*

ACHAMELECH. The same as Acamitch.

ACHAOVAN, or ACHAOVA.

Some take an Herb, very like Chamomile, which they call *Achæve*, or *Uchore*, and sometimes *Alacuan*, for *Achasva*. This Herb grows very plentifully in Egypt, and especially at Cayro, in a Place called Sbechie. It is not quite so high as Chamomile,

but very much resembles it in Flowers, and Feverfew in Leaves. Prosp. Alpinus has often gathered it green, and found it of an obscure, but not very agreeable Taste and Smell. Others perhaps, on the Authority of Avicenna, who said, that *Achaova* was of an acid Taste and Smell, have mistaken it for another white aromatic Plant, almost as acrid as *Origanum*. Hence it appears, that Avicenna was not quite wrong, when he told us, that the Flowers of *Achaova* came nearest those of *Marum* in Smell and Taste, meaning the above-mentioned Plant of an acrid Taste and Smell. But whether it be the true *Marum* or not, I cannot determine. *Prosper Alpinus de Medicina Egyptiorum*.

ACHARISTON. *Ἀχαρίστον*. From *α* Negative, and *χαίρειν*, Thanks, because esteemed too precious to be given away. It is an Epithet of many Antidotes and Collyria described by the antient medicinal Writers. There are two Collyria under this Title mentioned by *Ætius*, both of the astringent Kind, and called *ἐπιχρίσματα*, from *ἐξίχνη*, or Heath, which is one of its Ingredients. Galen gives the Forms of two as follows, which are likewise astringent. The first is the dry *Achariston* of *Philoxenus*, which was thus prepared.

Take of Cadmia ten Drams, of Chalcitis eight Drams, of Aloes two Oboli, of Verdigrase two Oboli, ten Grains of Pepper, and one Dram of the Flower of Roses. Beat them all together.

The other *Achariston*, which the Egyptian Physicians used in the most obstinate Rheums, with good Success, especially on robust Constitutions, was the following.

Take of Cadmia sixteen Drams, of Acacia eight Drams, of Copper calcined and washed eight Drams, of Opium, Berries of Erica, Myrrh, each four Drams, of Gum sixteen Grains; put them in Water, and use them with Woman's Milk.

Celsus describes another which he intitles, *Theodoti Collyrium sive Acharistum, viz.*

Take of Castor, Indian Spikenard, each p. i. of Lycium, Juice of Poppies, each an equal Quantity, of Myrrh p. ii. of Saffron, Cerufs washed, Aloes, each p. iii. of Cadmia botryitis washed, calcined Brass, each p. viii. of Gum p. xviii. of the Juice of Acacia p. xx. of Antimony the same Quantity. Put them in Rain-water.

Another *Achariston* is ascribed to Antiochus, and described by *Marcellus*, Lib. 8.

Acharistos is also the Name of an Antidote described by *Ætius*, Lib. 13. Cap. 109; and also by *Marcellus*, whose Advice is, to ask the Fee of the Patient immediately after the Remedy is administered; for many, says he, whose Cure has been quick, have behaved ungratefully, whence the Antidote took its Name *Acharistus*, that is to say, Thankless. But see the Receipt,

Take of Cassia, Myrrh, white and black Pepper, Castor, Galbanum, Styraz, Saffron, Costus, Opium, Spikenard, each an equal Weight, Honey a sufficient Quantity. The Dose is the Bigness of a Bean; it is a Remedy for old Puerulencies in the Breast. Taken in Hydromel it cures the Cholic and Distempers of the Liver; but in Oxymel is its proper Vehicle for Disorders of the Spleen. *Gorraeus, Med. Def.*

ACHATES, an Agate, a precious Stone, which takes its Name from a River of Sicily, so called, where it was first found. It is various, not only in Colours, but in the very Images of Things, which it represents, not done by the Hand of the Painter, but formed by Nature itself. For the Veins and Spots run in and out, and intermingle in such a Manner, that sometimes you see the Figure of a Dove, and then it is called *Phassachates*; sometimes that of a Horn, whence it is named *Kerachates*; sometimes a Tree appears, or perhaps two, or more, like a little Wood, which gives it the Title of *Dendrachates*. In others of these Stones you see the Resemblances of Chariots, Rivers, several Sorts of Birds, and Cattle, and Men among the rest. *Pyrrhus*, King of Epirus, had an Agate Stone, in which were represented the nine Muses, and *Apollo* holding his Harp, not the Work of Art, but drawn by Nature, the Spots, as *Pliny* says, so happily laid and interspersed, that each of the Nine had her proper Symbol. India abounds with this Sort of *Agates*. They are of a black, dark, or Ash Colour, or like that of Coral, the Skin of an Hyena, Lion, or Panther: This latter they call *Pardalion*, the other *Leontion*, and *Leontideiran*. These Colours, especially the first named, are sometimes striped with Veins of White, and then the Stone is called *Leucachates*, sometimes with Blood-coloured ones, and then it is *Haimachates*, or with Red, like the *Sarda* or *Cornelian* Stone, which make it a *Sardachates*.

But though it is said to take its Name from a River of Sicily, it is found in many other Countries, as *Pliny* remarks. It still retains its old Name, changing only one Letter.

Of this Stone, especially that Sort called *Leontion*, is made the Plaister named *Diachaton*, which heals the Bites of venomous

Creatures, dissolves hard Tumours, and Strumæ; and maturates, suppurates, and breaks an Abscess. See it described by *Ætius*, lib. 15. *Gorraeus, Def. Med.* Held in the Mouth, it quenches Thirst in Fevers. *Dale*.

ACHATES.

Achates, Offic. Worm 96. Mer. Pin. 209. Boet. 245. Charlt. Foss. 34. De Laet. 79. Schw. 357. Aldrov. Mus. Metall. 904. Calc. Mus. 247. Geoff. Prælect. 78. *Lapis Jaspis Achates Antiquorum*, *Agatha vulgo dictus*, Cup. Hort. Cath. Supp. 2. 44. The AGATE. *Dale*.

Agate is a precious Stone, reckoned commonly between the Opake and Transparent, of different Colours, and marked with Spots or Specks; which are imagined to represent Trees, Fishes, and other Things. The finest come from the East-Indies, the common Sort from Germany, Bohemia, &c. Great Virtues have been attributed to this Stone, both Cardiac and Alexipharmac; but they seem all to be imaginary. *Geoffroy*.

ACHEIR. *Ἀχειρ*, from *α* Negative, and *χειρ*, a Hand. It signifies without Hands. *Galen*.

ACHEMENIS. An Herb mentioned by *Pliny*, which was fabled by the Antients to spread Terror throughout an Army, and make them fly, if thrown into the Midst of it.

ACHICOLUM. This is used by *Cœlius Aurelianus*, Acut. l. 3. c. 17. to express the Fornix, Tholus, or Sudatorium of the antient Baths, which was a hot Room where they used to sweat. It is also called *Archibolus*.

ACHILLEA. A Species of the Millefolium, called *Achilles's Iron Wort*, which will be taken Notice of under the Article *MILLEFOLIUM*.

ACHILLEA MONTANA. Five-leaved Mountain Ragwort. It is a Species of the *Jacobæa*, which see.

These are sometimes spelt *Achyllea* with a *y*, but that is not right, as they take their Name from *Achilles*.

ACHILLEION. A Sort of Sponge proper for making Tents, so called from the Use *Achilles* is said to have made of it. *Gorraeus*.

ACHILLEIOS. A Sort of Maza made of *Achilleian* Barley. *Gorraeus*.

ACHILLEIS. *Ἀχίλλειος*. A large Sort of Barley mentioned by *Theophrastus*. It was thus called, according to *Galen*, from a Husbandman, whose Name was *Achilles*. But it seems more probable, that it derived its Name from its being the largest and best Sort of Barley, as *Achilles* was the best Warrior in the Grecian Army.

It is mentioned by *Aristophanes* and *Sophocles*.

Hippocrates in his third Book, de Morbis, gives the Preparation of Barley-water made with this Sort, which he recommends as proper to be drank in burning Fevers, and this is the first Instance of the Use of Barley-water, a Remedy of great Efficacy in the Case he directs it for. Take, says he, of *Achilleian* Barley, dried, a Hemina (*μετράλην* about half a Pint) take off the Beards (*ἀβύρα*) and wash it, then pour upon it a Gallon (*χέτη*, about six Pints) of Water, and boil it to the Consumption of one half; cool the Remainder, and give it for Drink. And soon after he advises the *Achilleian* Barley as an Ingredient in an Infusion, which he directs for a Jaundice.

ACHILLES. This Hero is said to have been taught Medicine by *Chiron* the Centaur his Tutor. His Spear was endued with a medicinal Virtue, and cured the Wounds it made. It was of Brass, and *Pausanias* relates, that it was in his Days preserved in the Temple of *Minerva* at *Phaselis*, a City of *Pamphilia*. This Spear was the Gift of *Chiron* to *Peleus* the Father of *Achilles*, as we learn from *Homer*, *Iliad* 16. V. 143. 144. *Telephus*, it is said, was cured by *Achilles* with this Spear; but *Pliny* says, his Wound was healed by the *Achillea*, a Plant introduced into Medicine by *Achilles*, and from whom it takes the Name. Others attribute the Discovery of the Virtues of *Verdigrase* to this Hero, an Ingredient very useful to Surgeons, and of great Importance in the Cure of Ulcers.

ACHILLIS TENDO. See *TENDO ACHILLIS*.

ACHIMBASSI. The Name of an Office, or rather Officer, at *Grand Cayro*. It signifies the chief Physician, or Prefect of the Physicians. His Business is to examine into the Qualifications of those who practise Physic in that City, and license them. Little Regard is paid to the Merit and Learning of the Person who is made *Achimbassi*, for the *Bassa* of *Cayro* always confers it on the Person that pays him most for it. And this Officer considers as little the Qualifications of the Candidates who present themselves for Licences, but, like our Spiritual Courts, permits every Body indiscriminately to practise, provided they pay their Fees. *Prosper Alpinus*.

ACHIOTL. This is the *Orleana*, Offic. Mont. Exot. 10. Commel. Plant. Usu 81. *Orleana seu Orellana folliculis lappaceis*, Herm. Cat. Hort. Lugd. Bat. 464. Pluck. Almag. 272. Phytog. 209. f. 4. *Orleana seu Orellana, sive Urucu*, Parad. Bat. Prod. 357. *Urucu* Pison. (Ed. 1648) 65. (Ed. 1658) 133. Cat. Jam. 150. Hist. 2. 52. *Urucu Brasiliensis*, Marcgr. 61. *Kaiebaka*, *Daburi*, Ger. Emac. 1554. *Achiotl seu Medicina tingendo apta*, Herm. 74. *Arbor Mexicana fructu Castanea, cocci-fera*, C. B. Pin. 419. Raii Hist. 2. 1771. *Jonf. Dendr.* 119. *Bixa Ouedi*, J. B. 1. 440. *Metella Americana maxima tinctoria*,

ria, Tourn. Inst. 242. Boerh. Ind. A. 208. *Arbor finium regundarum*, Scalig. ARNOTTO. Dale.

Its CHARACTERS are,

A broad, roundish Leaf; a large, Carnation-coloured, pentapetalous Flower; and short, pyramidal Pods, prickly, and full of Grain.

It is cultivated in New Spain and Brasil.

The Tincture made of the Fruit, and used in the famous Composition, called Chocolate, is thus prepared: They take the Grains, when thoroughly ripe, and infuse them in hot Water. What subsides is made into Lozenges, which are used in dying Wool, or as a Fucus or Paint for the Face, commonly known by the Name of Spanish Wool.

The Tincture, mixed with some suitable Water, either drank, or outwardly applied, mitigates the Heat of Fevers, stops the bloody Flux, and dissolves Tumours. *Pison.*

The Roucou, which the Indians call *Achiol* or *Urucu*; the Dutch *Orleane*; and we *Raucou*, is a Meal of Flower, which the Inhabitants of the Leeward Islands, and St. Domingo, make from a little red Grain or Seed, which is found in a Husk or Shell.

The Shrub, which bears the Roucou, produces, according to Father du Tertre, from the Root several Shoots that grow into Shrubs, and divide themselves into several little Branches: The Leaves are very like those of Lilac, and bear twice a Year several Clusters of Flowers, that are white, mixed with red; and in Shape like those of black Hellebore. The Flowers are full of a vast many little Stamina, or yellow Threads tipped with red: At the Fall of the Flowers come dark coloured Buttons all haired, or bristled, with fine little brown Points, which do not prick at all. When they are ripe, there are in the Middle two double Seeds, or Kernels, intirely surrounded with a Kind of Vermillion, or liquid red Dye, which the Natives call *Roucou*: It is with this they paint themselves when they travel abroad; but, before they use it, it is mixed with certain Oils which they draw from some Seeds.

The Europeans do it with Linseed Oil; they beat it in a Mortar with this Oil, and, after they have reduced it to a Mass, they send it into France, &c. where they use it to colour Wax yellow, when it is too pale, and likewise to give a Colour to Chocolate. There are likewise those who beat it in a Mortar without Oil, and make it into a Mass, or into Cakes; which, being dissolved in Urine, makes a red Tincture, which stains as well as the best Dye in Europe, and is a very good Commodity.

This Account of *Roucou* is quite different from that of the Sieur Francis Rousseau, who wrote me Word it was a Tree of eight or nine Feet high, whose Leaves were like those of the Peach Tree; after which came Husks, or Shells, much like the Chestnut Shell, furnished with little Prickles throughout; within it is a little red Seed, which they bruise in a Mortar, or on a Stone, and that they put into a Vessel of Water. In short, the *Roucou* is made in those Islands after the same Manner as we make Starch, not according as Mr. Meuve has described, but just as our Starch-makers work; and after it is made into Cakes, and dried, it is brought hither.

This last Relation of the Sieur Rousseau is much juster than the first; for as much as the Cods or Husks I have, exactly agree with his Description. Besides it is easy to see by the *Roucou* which we sell, especially when it is good, that it was never steeped in Oil, in that the good Smell of the true *Roucou* makes it distinguishable from any Mixture. Again, we ought to undeceive those who believe, that the *Achiol* is made as the Sieur Blegny describes it, when he says, that it is the thickened Juice which is drawn from the Fruit of the *Achiol*, which is a Tree of America. That this Fruit is a red Seed or Grain, which is found in great Plenty in large round Husks, or Shells; that, when they take this Seed from the Husks, they stamp or beat it in a Mortar, and then press out the Juice, which they set afterwards in a hot Place, to evaporate the Moisture, and, when it grows thick almost like Paste, they work it into several Forms or Shapes; which, being thoroughly dry, are properly called *Achiol*: For on the contrary, it is certain, that the *Roucou* is made like Starch, and that it is impossible to draw a Juice from it, since the Matter, out of which it is made, is a reddish downy Substance, which is found sticking to the Seed that is in the Husks, which they cannot separate without Water, in the same Manner as our Starch-makers separate the Meal from the Bran to make Starch of; and not any Juice expressed, or drawn from the Grain, as that Author would have.

Chuse such *Roucou* as is of an Orrice or Violet Smell, the driest and highest coloured you can get. *Roucou* of this Kind is that, which ought to be called *Achiol*; for the chief Part of that we sell is moist, foul, mouldy, &c. so that, in a Word, it is unfit to be given inwardly, mixed in Chocolate, or otherwise. It is much used by the Dyers. There was brought formerly from these Islands, and also from Holland, a *Roucou*, in little Cakes, of the Shape of a Crown-piece, which was endowed with a great many Excellencies, and very good for internal Uses; which is quite contrary to what we have brought at this Time, which is in great square Cakes, like Marseilles Soap, or in round

Balls, and which is sometimes so base and stinking, that it is almost impossible to bear it.

The savage Americans cultivate the Shrubs that bear the *Roucou* with great Industry, because of the many Uses they make of them: Such as, first, to adorn and furnish their Gardens, and from thence to cover or thatch their Houses. Secondly, being a hard dry Wood, it serves for Fuel. Thirdly, the Bark serves them for Cordage, and to make Linmen. Fourthly, they put the Leaves and Root into their Sauces, to give them a Relish, and to tinge them of a Saffron Colour. Fifthly, from the Seed they make the *Roucou*, as well to paint their Bodies when worked in Oil, especially on great Days of Rejoicing, as to exchange for other Commodities with Advantage. *Pomet.*

Roucou, called by the Indians *Achiol*, or *Urucu*, is a dry Paste, made from a little red Seed, which is found in a longish Husk or Cod, that has the Shape of the Mirobalans, but prickly, almost like those of Chestnuts. Authors are not agreed about the Kind of Tree, or Shrub, that bears this Fruit; some saying that the Leaves are like those of Lilac, and others Peach Leaves.

To prepare *Roucou*, they bruise or pound the red Seed, then they dilute it with Water, and pass it through Strainers, to separate the Bran, or grosser Parts; afterwards they dry this into a Sort of Flower or Starch. Chuse the driest, of a violet Colour. The Dyers use it chiefly, though it is sometimes made Use of in Chocolate. If it be pure, it strengthens the Stomach, stops Looseness, helps Digestion, promotes Respiration, and provokes Urine. *Lemery.*

ACHIOTE. The red Grains of the *Achiol*, made into Lozenges, or Pastils, for mixing with Chocolate or Dying. *Raii Hist. Plant.*

ACHLADES. A Sort of wild Pear that grows in the Mountains of Crete. *Raii Spinos. Stirp. Europ.*

ACHLYS. Ἀχλὺς, Darkness, Cloudiness, and is generally applied to a close, foggy Air, or a Mist. Hence ἀχλὺς δέσσει ὀφθαλμὸν, a dark, or misty Eye, or that sees with Difficulty, mentioned by Hippocrates as a bad Symptom in acute Disorders. *Prædict. L. 1. 46.* and again in the *Coacæ Prænotiones 218*: Hence also the South-Winds are called ἀχλὺς δέσσει by the same Author, *Aph. 5. 1. 3.* because they incline to Dimness of Sight, and, as Celsus observes, make all the Senses dull, *L. 2. C. 1.* Those also who, during a Fever, are affected with a Dimness of Sight are called Ἀχλὺς δέσσει. *Coac. Prænot. 35.* Tho' others think it means those who labour under violent Agitations of the Humours; or where the Colour and Complexion are altered and obscured by Distempers. But Galen interprets it of those who, during Sickness, lose that usual Lustre and Liveliness observed about the Pupil of the Eye; during Health.

Achlys (Ἀχλὺς) also signifies condensed Air in the Uterus: *Hippocrat. de Morb. Mul. L. 2.*

It farther signifies a small Mark or Scar over the Pupil of the Eye, left upon the Cornea by a superficial Exulceration, as Galen interprets it. Or, according to Aëtius, the Exulceration itself almost covering the Pupil, of a very light blue Colour. And thus Ἀχλὺς is to be understood. *Hippocrat. Prædict. L. 2.*

ACHMADIUM, or ACHIMADIUM. A Corruption of the Arabic *Achman*, or *Achiman*, Antimony.

ACHNE. Ἀχνη. This signifies Chaff, and the Froth of the Sea, or of Water in general; or any Thing that is light or soft.

But it is used in a different Sense by Physicians; and thus Hippocrates *Epidem. Sect. 1. N. 16.* seems to explain it, when enumerating many Circumstances of bad Prefage relating to the Eyes, in Fevers, amongst the rest mentions, καὶ τὸ ἐπιξηγνόμενον διὰ τὴν ἀχνην, something dried upon them like Froth. By this, Physicians, who have attended the Sick, will know he does not mean those hard Concretions like Gum, that sometimes glue the Eye-lids together, but a Sort of soft, white Mucilage that swims in the Eye, which is very frequent in Fevers. And in this Sense Ἀχνη δέσσει, *Coac. Prænot. 225.* is to be taken, though Foësius has thought proper to substitute Ἀχλὺς δέσσει instead of it in this Place.

Nor is this peculiar to the Eye, for Hippocrates *de internis Affect.* speaking of an Exulceration of the Lungs, says, that sometimes in this Case the Fauces are full of (ἀχνη) a frothy Matter: The Interpreters translate it Lanugo, which I don't think expresses the Meaning of the Author.

Achne also signifies Lint. Thus in a Fracture of the Nose, when the Cartilage is depressed, Hippocrates, *Mochl. 2.* and *de Art. 18.* advises to support it with Lint wrapped up in something that will not irritate, and introduced into the Nostrils.

The same Author directs Lint to be dipped in the Gall of an Ox boiled in Oil, and to be used as a Pessary, to procure Conception, (*de Morb. Mulierum, L. 1.*) and again *de Morb. Mulierum, L. 2.* he uses Lint for a Pessary with other Ingredients.

ACHOR.

The *Achor* is a small Ulcer in the Skin of the Head, which seems to be the Effect of a salt and nitrous Phlegm. It discharges

charges an Ichor, not quite so thin as Water, nor yet so thick as Honey, which last is like what issues from the *χάσις* (or Favi). For these swell and break into many Holes, which shed a Honey-like Humour; they also form themselves into small Tumours not so large as those of the *Achor*. *Gal. de Tumoribus*.

Among the Diseases which affect the Skin of the Head may be reckoned the *Achor*, which is a Sort of preternatural Tumour that takes its Name from some signal Property belonging to it. For it is perforated with very small Holes, which contain a thin Humour, moderately viscous. Much resembling another Disease of the Skin, called *χάσις* (*Favus*, Honey-comb) in which the Perforations are larger, and discharge a Humour much like Honey (that distills from the *Favi*, or Combs). *Gal. de Comp. Phar.*

What they call an *Achor* possesses the Skin of the Head, and is full of small Perforations which discharge a thin and moderately viscous Ichor. Another Distemper, much like this, is what they name the *χάσις* (*Favus*.) This has large Perforations, which contain a Humour resembling Honey. *Oribasius ad Euseb. L. 4. c. 11.*

An *Achor* is an external Sore of the Head, full of little Perforations, which discharge a Humour much like Ichor, whence the Disease, or Sore itself, is called an *Achor*. *Trallianus, L. 1. c. 8.*

Now you must know that the *Cerion* is a Disease like an *Achor*, only greater. For the Mouths of the Perforations, by which the Humour issues forth, resemble those of the Honey-comb. Wherefore the Disease was named by the Antients *Cerion*; but in *Achors* these Mouths, or Outlets of the Humours, are invisible. *Trallian. Lib. 1. Cap. 2.*

Among Diseases of the Head which break out in the Skin, there is one which is called an *Achor*, where the Skin is full of very small Perforations, which discharge a viscid Ichor. Alike to this in Kind is what they call a *Cerion*, in which the Perforations are large, and contain a Honey-like Humour, resembling that in the Honey-combs of Bees. *Æginet. Lib. 3. Cap. 4.*

What they call an *Achor* has its Seat in the Skin of the Head, which it perforates with many small Holes, through which it discharges a moderately viscid Ichor. The *Cerion* is a Disease, much of the same Nature, but having larger Perforations, which contain a Humour resembling Honey, and called *Meliceris*. *Ætius, Lib. 6. Cap. 68.*

Achor is an Ulcer upon the hairy Scalp perforated with a great many little Holes, which contain a Humour somewhat viscid.

It differs from the *Favus* and *Tinea*, only in Degree of Virulency, the Cause of all three being a corrosive Salt Humour fretting the cutaneous Glands.

It is called *Favus*, when the Holes are large, and like those of a Honey-comb; and *Tinea*, from the Similitude of the Holes to those made in Cloaths by Moths. But generally the *Tinea* is taken for a dry Scab on the hairy Scalp, with filthy thick Scales, and a stinking Smell, to which Children are very subject, whose Faces it often also affects, in which Case it is called *Crusta Lactea*, and is often mild and inconsiderable, but sometimes malignant and dangerous. There is also a worse Species of the *Tinea*, or Scabbed-Head, covering the whole Scalp with a thick cineritious Scurf, very troublesome from its violent Itching, and foetid Smell, and is not unfrequently very difficult to cure. The Patients for the most Part are pale, and discoloured. This Disease appears more frequently in Infants, than Adults, and is caused generally by a bad Diet, either of the Nurse, or the Child, from which a corrupt Blood is generated; which produces these Ulcers. But sometimes they invade grown Persons, and resemble a Sort of Leprosy, when they are very difficultly cured. Oftentimes also in Persons afflicted with the Venereal Disease, not only the hairy Part of the Head, but that without Hair, and especially the Forehead, is affected with dry Scales, and scabby Ulcers of this Kind, which they call the *Pocky Scab*. Even the Venereal Gummata, and Tophi of the Head, as they often ulcerate, may in some Measure be numbered amongst these: But altho' the Ulcers before-mentioned are perhaps different from one another, yet as the Method of Cure is the same, I shall not here separate them, but will treat of them together, and shew how they are to be cured. Therefore, when they are very mild, it is convenient to evacuate the noxious Humours, by repeated Purges with Mercurials, especially *Mercurius dulcis*, and correcting the Blood in the Intervals, if the Patient's Age will admit of it, with a Decoction of the Woods, and with alterative Powders, Pills, and Essences. If the Disorder is in sucking Children, they may take the Powders, and their Nurses also the Diaphoretic Powders, Pills, Decoctions, and Essences. The Scab, or Scurf, may be anointed with Cream mixed with a little prepared Cerus, oftentimes in a Day; or with Oil of Eggs only, or with a little Oil of Wax added to it; or with Ointment of Elicampagne, *Diapompholygos*, Cerus, or any such Preparation of Lead; observing at the same Time a proper Diet, and keeping the Body warm. By this Method, not only the mild Sort of these Ulcers heal, but even those which are somewhat more stubborn, especially if Calomel be given cautiously, and in a small Quantity, as an

Alterative, or even if crude Mercury be mixed with the Ointments of Lead.

In the more obstinate Sort of these Ulcers, especially if the Patient will not take Mercurial Medicines, a Cure will not be effected, unless the Hairs are first pulled up; to which these Ulcers are strongly annexed, which is done either by Degrees, or all at once, with a Plaister made of common Pitch, melted over a slow Fire, and spread upon thick Cloth, or Leather; and, the Hair being first cut off close down to the Scab, the Whole must be covered with it, whilst warm, that it may stick. The Head must afterwards be kept very warm. The Plaister must remain on the Part, twelve or twenty-four Hours, and then must be stript off at once by Force, together with the Scabs and Roots of the Hair; but this is not done without giving considerable Pain, and making the Head bleed. After the Blood is wiped off with Rags, the Head must be bathed with Oil of Bricks warm, with a little Oil of Wax added to it; and a Plaister of Frogspawn, impregnated with a little Camphire, or one made of Rosin, is to be applied over it, and must be renewed daily, till the affected Part appears clean. Then it must be anointed with Oil of Eggs, or Essence of Amber, till it is intirely healed. The internal Medicines, with proper Diet mentioned before, must be continued; among which, Antimony, either by itself, or mixed with a small Quantity of Flower of Brimstone, is of excellent Service, and forcibly expels the offensive Matter. But, in the Beginning, Ointments prepared of Mercury, or Sulphur, must be strictly forbore; for it has been often observed, that they repel the corrupt Matter, and thereby hazard the Patient's Life, which they would not do, were proper Internals given sufficiently before.

In scabby Ulcers in the Face of Children, which are commonly called *Crusta Lactea*, or *Achorus*, the internal Remedies, before commended, must be given to their Nurses, as well Purgatives as Correctors. But, in these Infants, the noxious Humours must be evacuated by often Purging; and in the Intervals with Powders of Diaphoretic Antimony, Crabs-Claws, Crude Antimony, and Flower of Brimstone. When these have been used some Time, let a Liniment be made of Cream with Chalk or Cerus, with which let the Scabs be anointed often in a Day; or in its Stead, with Oil of Tartar per Deliquium; or Oil of Eggs, with a little Oil of Bricks: But Ointments made of Mercury, or Sulphur, as is just now said, do much Hurt in weak Bodies. But if Remedies of this Kind have been unskillfully made Use of too soon, as is very often the Case, and the Children are thereby made ill, then both the Nurse and Child must take internal Sudorifics, Powders, Essences, and Potions, with warm Drink, and a warm Regimen, and the Use of them must be continued, till the morbid Matter is thrown out, and the Child is well again. *Heister. Chirurg. L. 5. C. 10.*

The Danger, attending repellent Applications in these Ulcers, is seen in the following Observation from *Turner*.

OBSERVATION.

I was sent for, says he, in much Haste, to a Gentleman's Child, labouring under a convulsive Fit, and perceiving a strong Smell from the Head, whilst I tried to bleed him, and was about to cup him for want of getting away any Blood thereby, I asked the Servant whether the Child had any Breakings-out, or sore Head: The Nurse told me it had a violent running Head two Days before, but it was much slackened by an Application they had lately put on, and in a fair Way to do well: I after enquired for the Medicine, and found it to be no other than Nutritum; from the Coldness thereof, and repulsive Nature, the Matter was drove inwards upon the Brain, exciting this cruel and deadly Convulsion, in Opposition to all Endeavours by Bleeding, Blistering, Cupping, with Anti-spasmodic and Anti-epileptic Remedies.

The following Plaister is reckoned almost infallible in this Disorder.

Take of Pitch one Pound,
Verdigrease in fine Powder two Drams,
Flowers of Brimstone an Ounce,
Hogs-Lard half an Ounce,

Boil all gently over the Fire for a Quarter of an Hour, constantly stirring them.

This, after the Hair is cut off very close, must be applied in the same Manner as the Pitch Plaister, before-mentioned, and torn off, and often renewed again, till the Hair is pulled up by the Roots.

ACHORISTOS. *Ἀχόριστος*, from a Negative, and *χώρας*, Separate, Inseparable, and is understood of Accidents, Symptoms, or Signs, which are inseparable from particular Things. Thus a pungent Pain in the Side, is an inseparable Symptom of a Pleurisy. *Castellus.*

ACHRAS. A wild Pear-Tree. The Fruit is more sour, astringent, and drying than the other Pears. Theophrastus calls it *ἄγρια*. *Gortæus.*

ACHREION. Ἀχρεῖον, from a Negative, and χρεῖα, Usefulness. Useless. It is applied by Hippocrates to the Limbs, which, through Weakness, are become useless. *Foetus.*

ACHROL. Ἀχρῶς, from a Negative, and χρῶς, Colour. Pale. In this Sense it is used by Hippocrates (*de Victus Ratione in Acutis*). Galen explains it pale through a Deficiency of Blood. And Hippocrates (*Epidem. L. 6. Sect. 6. Aph. 19.*) mentions it in this Signification, as a bad Circumstance, when consequent to a considerable Hæmorrhage of the Nose.

ACHROMOS. Calvus, the first Translator of Hippocrates into Latin, has made a very great Mistake, by making *Achromos* a Woman, who was possessed of an infallible Secret for a Dysentery; and this probably led Tiraquellus, the great Civilian, into the same Error. The Passage of Hippocrates in Question is thus in the seventh Book of *Epidemics*, ἀπορίη ἀχρῶς & σφραγισμένη ἀνθρώπου. The Sense of this is very obvious, *shameless (excessive) Whoring, is a Remedy for a Dysentery.* A very extraordinary Prescription, and one, I believe, very seldom made Use of in this Intention. However, Hippocrates is not the only one that mentions it. *Ætius* says, that *Venerial Commerce dries up Chronical Dysenteries*; and *Paulus* repeats this almost in the same Words. From these some amongst the Moderns seem to have transcribed it.

A Want of Attention to what has been said by later Authors, with respect to this Method of Cure, and the seeming Extravagance of the Remedy, probably made Calvus look out for another Sense.

ACHROUS. Ἀχρῶς, from a Negative, and χρῶς, Colour. In the Opinion of *Salmasius*, it signifies *White*, and is applied to Flowers of that Colour by *Theophrastus*.

ACHY. Ἀχῦ. A Species of Cassia growing in Arabia, called also (*Savirius*) *Daphnites*. *Goræus*.

ACHYRON. Ἀχρόν. This properly signifies *Bran*, or *Chaff*, or *Straw*. Thus in pituitous Disorders of the Uterus, Hippocrates (*de Natura Muliebri*) advises a Fumigation of moist Bran (ἀχρόν ὑγρόν) of Barley; the Interpreters translate it *Straw*. The same Author directs it frequently either as an Ingredient in Fumigations, or Cataplasms, in uterine Disorders, both in his Treatise quoted above, and that *de Morbis Mulierum, L. 2.* By comparing the Passages together, it seems more probable he means Bran, than Straw or Chaff.

Achyron also signifies a Straw, Hair, or any small Thing that sticks upon a Wall. Thus Hippocrates (*Prænot.*) mentioning the fatal Symptoms which occur in acute Fevers, Inflammations of the Lungs, a Phrenitis, or Cephalalgia, amongst others, specifies the picking ἀχρόν from the Wall, which *Celsus* interprets, any small Thing that sticks in it (*figula minuta eminent*). This is a Symptom which occurs frequently, and I believe, Physicians generally find this Prediction of Hippocrates too true.

ACIA. This is mentioned by *Celsus, L. 5. C. 26.* and has much puzzled the Learned, who are divided in their Opinions about it, some taking it for a Needle, others for the Thread. *Johannes Rhodius* has wrote a whole Volume about it. But the Account *Fabrizius Aquapendente* gives of it seems most reasonable.

Celsus having just before mentioned the Suture, and Fibula, says, *utraque optima est ex Acia molli, non nimis torta, quo mitius Corpori insideat.*

Hence *Aquapendente* interprets *Acia* a Kind of Thread. *Filum*, he says, comprehends the *Linum*, and *Acia*. *Linum* is a single thin Thread as it is spun. *Acia* is a *Filum* or Thread composed of a double *Linum*, and twisted. The *Italians* call it *Azza*, or *Refè*.

ACICYS. Ἀκικύς, from a Negative, and κίς, Strength, Vigour. It signifies weak, infirm, or faint, and in this Sense it is used by Hippocrates (*de Morbis, L. 4.*)

ACIDA. ACIDS. All Things, that affect the Organs of Taste with a pungent Sourness, are called *Acids*. But the Chymists call all Substances *Acids*, that make an Effervescence with an *Alkali*. However, this does not seem to be a true Characteristic of *Acids*, because some *Acids* will make an Effervescence, upon being mixed with *Acids* of a different Kind; and alkaline Substances will do the same with *Alcalies*; and *Acids* with Bodies that are neither alkaline nor acid, but neutral.

Another Mark of *Acids* is, that they change the Colour of the Juices of the *Heliotropium*, *Roses*, and *Violets*, red, whereas animal *Alcalies* turn them green. I mention animal *Alcalies*, because others will not always do it.

A few Years ago, it was the Fashion in Physick, to explain the Nature and Causes of Diseases, by the Doctrine of *Alcalies* and *Acids*, and from this to deduce Methods of Cure; but this, like all other Systems, dropped to the Ground, when Experience had made it appear false and insignificant, without doing much more Service to Physic, than demolishing the Galenical Doctrine of the four Elements, four Qualities, four Degrees, and four Humours, which had been the more fatal, as it had obtained Credit for a great many Centuries, and had prevented farther Researches into the Nature of Diseases and Remedies, and consequently had retarded the Improvement of Physic.

With respect to *Acids*, if I mistake not, they have another very obvious Characteristic, which will better discover them in Bodies, than either Effervescence with *Alcalies*, or producing a red Colour when mixed with the Juice of the *Heliotropium*, *Roses*, or *Violets*. What I mean is, that all Bodies whatever, that will flame, contain either a manifest or a latent *Acid*, and that *Acids* are the only Bodies in Nature, that are convertible into that Species of Fire, which we call Flame. *Boerhaave* has, by a great Number of Experiments, endeavoured to prove Oil the *Pabulum* or Food of Fire, and I know of no Oil that has not an *Acid* in it, inasmuch that I believe an *Acid* essential to the Composition of Oil. Vegetable Oils contain an *Acid*, in some manifest to the Taste, and from most others it may be separated by Distillation. 'Tis this *Acid* that makes Oils so readily mix with alkaline Salts, which are by this Junction neutralized, and converted into Soap. Hence also Oils are enabled, in a certain Degree of Heat, to dissolve some Metals. And 'tis upon Account of this *Acid*, that Oils preserve animal and vegetable Substances immersed in them from Putrefaction. Alcohol, or pure Spirit of Wine, is a vegetable Oil subtilized by Fermentation, and probably for the Reasons given under the Article *ACETUM*, it contains an *Acid*, and for that Reason readily flames.

Vegetables flame so long as a black Oil remains in them, but no longer; and 'tis manifest that this black Oil contains an *Acid*, both by the Smell and Effects. Thus the Fumes of Charcoal have an acid or sulphureous Smell, and are fatal to Animals that are confined with it in a close Room. Bees-Wax is an Oil of the vegetable Kind, containing an *Acid*, and therefore it flames.

Mineral Oils in general contain a manifest *Acid*, as the Oil of Coal, Petroleum, Naphtha, and all Sorts of Bitumens.

In animal Oils, the *Acid* is not so manifest, but seems disguised by a large Portion of volatile alkaline Salts. But we may conclude an *Acid* enters its Composition; first, because after it is cleared from the membranous Cells which contain it, and the Blood-vessels which enter it, tho' kept never so long, it does not putrefy like the other Parts of Animals, nor does it afford a Nidus for the Eggs of Insects, and breed Maggots. But, if it has once been deprived of a Part of its alkaline Salts by boiling, it will keep for Ages unaltered and untainted in the hottest Seasons, of which Tallow Candles may serve as an obvious Instance. Now *Acids* are the grand Preservatives against Putrefaction, and known Destroyers of those Kinds of Insects that breed in animal Bodies.

Secondly, because animal Oils do not only preserve themselves, but also all other animal and vegetable Substances immersed in them from Putrefaction; and on this depends the Art of Potting various Kinds of Meat.

Thirdly, like vegetable Oils, they readily mix with alkaline Salts, which they neutralize, as is evident in making some Kinds of Soap.

Pure *Acids* are not easily inflammable by common Means, because perhaps of their Solidity, and strong Cohesion. But when *Acids* are divided into exceeding fine Particles dispersed in the Interstices of other Bodies, and by Means of some other Substance set on Fire, they burst into a lucid Flame, and explode with the utmost Violence.

I remember some Years ago, *Mr. Lemon*, a wholesale Apothecary, was cutting a Retort, which had some Days before been used in making sweet Spirit of Nitre, with a hot Ring of Iron, as is the common Way. None of the Spirit remained in the Retort, except a small Portion that adhered to the Sides, not considerable enough to be visible; but this Quantity, small as it was, took Fire, and burst the Vessel, with a Noise not less than that of a Cannon, and a Force that drove the Fragments of the Retort out of the Cupola of the Laboratory, to a considerable Distance.

Other Instances of the prodigious Explosions of *Acids* set on Fire, we meet with in *Hoffman's* Experiments with fuming Spirit of Nitre, and aromatic Oils. This great Philosopher and Chymist mixed, in a common Wine-glass, a Dram of genuine Oil of Cloves, with the same Quantity of the fuming Spirit of Nitre; the Mixture instantly burst out into a very lucid Flame, with an excessive Ebullition.

The same fuming Spirit, mix'd with Oil of Saffras, Oil of Turpentine, or Oil of Caraway, in like Manner takes Flame; but it is not so vehement, as when mixed with Oil of Cloves.

No Flame, we are acquainted with, is so fierce and penetrating as that of Lightning. And this, it should seem, can be produced by nothing but the aerial *Acid* set on Fire by some Means not so easy to be determined. But it may give us some Light in this Affair to consider, that, during very hot Weather, the Air abounds with vegetable, animal, and perhaps mineral Oils; and this is so remarkable with respect to vegetable aromatic Oils, in hot Climates, that they are perceivable by the Smell at a prodigious Distance from the Place where the Vegetables they exhale from grow.

It seems therefore possible, that these Oils, when confined in the Clouds together with the *Acid* of the Air, may, by an Effervescence,

Wescence, like that of the fuming Spirit of Nitre with Oil of Cloves, be kindled into Flame; or the extremely volatile Oils may at least serve as a Medium to set the aerial *Acid* on Fire, which, when pure and unmix'd, is not, that we know of, inflammable.

Thunder and Lightning are nearly imitated by Gun-powder, and this receives all its Force and explosive Power from the *Acid* of Nitre, the principal Ingredient in its Composition; for the Powder of Charcoal performs the Office of Tinder, and catches the Fire, which is instantly communicated to Sulphur the third Ingredient, and the Sulphur lights the acid Spirit of Nitre into a Flame.

It is observable that the *Acid* of Nitre is the very same with that of the Air which causes Lightning, for the alkaline Earth, which is the Basis of Nitre, is neutralized by the *Acid* of the Air, as has been mentioned under the Article *ACETUM*, and will be farther explained under the Article *NITRUM*.

It is a manifest Error to explain the Explosion of Gun-powder by the Rarefaction of the Air contained in it, for I have yet met with no Experiment which convinces me, that Air is capable of being rarefied by any Degree of artificial Fire, so as to take up above three Times the Space it does naturally in a warm Summer's Day. In this Case the Instance of the Fire Engine will not make against me, for the Weight there is raised by the Vapour of Water, which, though it will not flame, has an expansive Force greater than even Gun-powder itself, upon the Application of Fire in a certain Degree.

Upon the Whole, I consider Wood, and all other Bodies that flame, as a Sort of natural Gun-powder, perpetually exploding, but with a less Degree of Violence, because the *Acid*, disseminated in every Particle of the inflammable Matter, is in a very small Proportion to the other Ingredients.

It may not be amiss, in this Place, to take some Notice of an Error, which I apprehend the Patrons of the Mechanic Philosophy have fell into, with Respect to the Solution of hard mineral Bodies by acid Spirits. They tell us, that the Solution is performed by the Attraction of the acid Salts of the Menstruum to the dissolving Body, and the Repercussion of the elastic Particles of the Salts, and that by these Means the Surfaces are worn off, till the Body is intirely dissolved. This Attraction betwixt the Particles of acid Salts and metalline Bodies may possibly prevail, but, if it was the Cause of Solution, it would be retarded by Heat, which universally impairs the Attraction of the Particles of the Bodies to each other, whereas Heat always promotes the Solution. It seems therefore more reasonable to believe the Solution of metalline Bodies performed in this Manner: When a metalline Body is immersed in an acid Menstruum, the Fluid enters the Pores thereof, and carries with it a Part of the acid Salts, which are very hard and pointed. Now as the Heat of the Atmosphere is never exactly the same for many Moments together, but perpetually altering, the Size of the acid Particles must alter in Proportion to the Heat, for all Bodies in Nature expand by Heat, and contract by Cold. And by this Expansion I apprehend the Cohesion betwixt the metalline Particles is dissolved by Degrees, and the Metal, thus divided, becomes invisible as it swims in the Menstruum. But if an artificial Fire is applied, and the Heat increased, the Solution goes on with more Effect, and is sooner performed, as the expansive Force of the acid Particles is augmented.

Silver is dissolved by Aqua Fortis, the proper Solvent of Gold is the acid Spirit of common Salt. It seems as if Gold remains untouched in Aqua Fortis, because the acid Particles in this Spirit are not small enough to enter the Pores of Gold. And Silver is not affected by Aqua Regia, because the acid Particles of common Salt are so extremely small, as not to be capable of an Expansion by any Degree of Heat we are acquainted with, sufficient to dissolve the Union, and destroy the Cohesion of the Particles of Silver, which has Pores much larger than those of Gold.

I make no Doubt, but *Acids* are of some great Use in the OEconomy of the World, because they are so universal. In the Bowels of the Earth we meet with them in almost every Mine, and Mineral; but particularly in those prodigious Rocks of Salt, which are found in almost every Country, and which the Industry of a great many Ages has not been able to exhaust. Such are those in the famous Salt Mines in Poland, and our own in Cheshire, where vast Quantities are got every Year, and exported. Not to mention the Quantities of *Acids* that are hourly discharged from the Bowels of the Earth, in the Salt that may be found by a nice Examination in the Waters of every Spring, the freshest not excepted.

In the Air the *Acid* is universal, and that in every Part of it, insomuch that it seems the very Principle in it, which is so necessary to animal and vegetable Life, that neither can subsist without it. And I am inclined to believe, that, if any Part of Air is deprived of its *Acid*, it loses at the same Time its Elasticity. It is remarkable that the *Acid* abounds most in the Air, when the Winds blow from the East and North, and when the Weather is serene. This Hoffman informs us from the Observations of those who are concerned in Nitre Works,

who remark, that, principally during these Winds, their alkaline Earth is impregnated with an *Acid*. Now as these Winds are remarkably cold, and as acid Spirits, that of Nitre particularly, increase the Coldness of Ice to a prodigious Degree, I think there is Reason to believe, that the aerial *Acid* is more concerned in the Production of Cold in the Air, than is generally imagined. The Analogy betwixt *Acids* and Cold, and betwixt *Alkalies* and Heat, is very remarkable. Heat promotes the Putrefaction of animal Bodies, or, in other Words, destroys the Cohesion of the Particles of which they are composed, and then the Oils, Salt, and Water fly off, as they are of themselves volatile, as soon as they can break their Union with the inert Earth that detained them. Alkaline Salts in the same Manner promote Putrefaction in animal Substances, and the Dissolution of all Bodies whatever, and are therefore usefully employed in extracting Tinctures from hard Bodies that will not yield it without their Assistance. Alkaline Salts also, as the Lapis Infernalis, Salt of Hartshorn, and all others in a greater or a less Degree, as they are stronger or weaker, induce the very same Kind of Escar on the Part of living Animals, as actual Fire will do if applied to them.

On the contrary, *Acids* preserve animal Substances from Putrefaction, that is, preserve the Cohesion of their component Parts, and prevent their Dissolution. Cold does the very same.

The stronger *Acids*, applied to the Flesh of living Animals, cause a Gangrene of the Parts they touch, but of a Nature very different from that produced by Fire and alkaline Salts. Excessive Cold brings on a Gangrene much of the same Nature. We are told by People that have travelled into very cold Climates, that the Coldness of a Glass has sometimes taken the Skin off their Lips, as they have been drinking Brandy out of it. And this is exactly the Effect of a strong *Acid*.

Physicians have observed, that the South-Winds favour pestilential Constitutions of the Air, especially if the Season happens at the same Time to be moist and rainy; and that the Malignity of pestilential Distempers is abated by the Winds which blow from the North, or North-East, and cool serene Weather. So that there is Reason to believe, in one Case, that the Dissolution of the Juices, usual in pestilential Distempers, is promoted by Heat, and the Contagion propagated by an alkaline Putrefaction: And in the other, that this Dissolution is restrained by Cold, and the alkaline Contagion destroyed by the aerial *Acid*.

Upon reflecting on the great Similitude betwixt the Effects of *Alkalies* and Heat, and betwixt the Operation of *Acids* and that of Cold, I have been often inclinable to think, that Cold is itself, as well as Fire or Heat, a Body, and capable of being fixed and detained in other Bodies; and that, as Heat is the Principle which, uniting with Earth and Oil, constitutes alkaline Salts, so Cold, concentrated, and joined to vegetable or mineral Bodies, is the very Essence of those Salts which we call *Acid*. And farther, that the Effervescence, which ensues upon the Mixture of *Alkalies* and *Acids*, happens for the very same Reasons that an Effervescence much like it is raised, upon immersing a red-hot Coal, or Iron, in cold Water.

That Cold is a Body there are some other Reasons to believe. Thus, Cold contracts every Part of Matter we are acquainted with in the Universe; that is, it makes the ultimate Particles of which Bodies are formed approach nearer each other, and lessens the Dimensions of the Compound. Now I cannot comprehend, how Cold, if it was not Matter itself, could act in this Manner upon Matter. These Things I recommend to the Consideration of Gentlemen who are entertained with Philosophical Researches, and shall only make this farther Observation, that in case *Alkali* and Fire mean the same Thing, and *Acid* is the same as Cold, the chymical Philosophers, in accounting for all the grand Operations in Nature, by the Action of *Alkalies* and *Acids*, were not much mistaken, though they do not seem to comprehend the Reason why they were in the Right.

I have hinted before, that *Acids* are the great Preservatives against Putrefaction in the Air, and we shall find them not less useful in this Respect in the Sea. For that vast Body of Water, which we call the Sea, would putrefy in hot Climates particularly, and hot Weather, and consequently no Animals could either live in it, or near it. This great Inconvenience is prevented by the *Acid* of the Salt which is dissolved in Sea-water. Now, as Putrefaction is promoted by Heat, it should seem that a greater Quantity of Salt is necessary to prevent Putrefaction in hot Climates than in Cold. And accordingly, it has been discovered by an Experiment made by a Friend of Mr. Boyle's at his Request, that the Sea-Water increases in Saltiness the nearer it approaches the Line. And other Experiments make it appear, that a Pint of Sea-water in the Mediterranean contains an Ounce of Salt, but the same Quantity of Water in the Baltic only half an Ounce.

The medicinal Virtues of *Acids* are very great, when alkaline Food, taken in too large Quantities for the Action of the Stomach to digest, putrefy in the Stomach and Intestines. Or when any extravasated Juices in the Body verge towards an alkaline Putrefaction. Or in those Sorts of Fevers where the

the Blood tends to Diffolution. These Virtues will be more particularly specified under the respective Articles, where they are indicated. See that Part of the Article *ALCALI*, where the Disorders caused by an Alcalescence of the Juices are treated of.

But I must not omit to mention, that the acid Water which rises first in the Distillation of Turpentine, well separated from the Oil, is the most admirable vegetable *Acid* known; in the Opinion of Boerhaave, and I think it is universally allowed to be endued with great medicinal Virtues. Floyer, in his Treatise on an Asthma, recommends it as an extraordinary Diuretic.

Some Notice was taken of the Effects of *Acids* upon Blood, under the Article *ACETUM*. I shall only insert here what Boerhaave observes upon this Subject.

The *Acids* of Moselle and Rhenish Wine, Vinegar, and distilled Vinegar, dilute the Blood, scarce alter its Colour, and in some Measure prevent its Coagulating. The *Acid* of Nitre instantly coagulates it, and turns its Colour bluish; the *Acid* of Sea-salt likewise soon coagulates it, and changes it of a grey Colour, inclinable to Black. The acid Spirits of Vitriol and Sulphur also bring it to a firm Mass, which is generally whitish.

Hence appears the fatal Error of those Physicians, who unjustly condemn *Acids*, under the false Notion of their coagulating the Blood, by an Argument wholly derived from Milk; whilst Hippocrates from a closer Observation of Nature judged, that Vinegar was proper in inflammatory Distempers, though the Blood is thence rendered more dense. And we cannot safely pronounce concerning the Effects of *Acids* upon the Blood, unless it be first distinctly explained what Kind of *Acid* is understood: The Use of mineral *Acids* is dangerous, but of vegetable *Acids* more wholesome; and it frequently happens, that the Things, which really coagulate the Blood, are supposed to dissolve it. *Boerhaave's Chymistry*.

The following Observations upon *Acids* made by the last-quoted Author, are both entertaining and instructive. But he seems to err when he says, Vegetables receive all their *Acids* from the Earth, whereas it is highly probable they imbibe some from the Air.

Count Marfilli's Observation on Sea-plants only proves, that in these the Earth is not sufficiently united with the alkaline Principle, to render the Salt fixed, and that they contain a less Quantity of *Acid* than some Plants which fix their Root in the Earth.

The *Acids* of Vegetables are either native, or produced by the Help of Fermentation. Native vegetable *Acids* seem to owe their Origin intirely to the Juices which the Plants draw out of the Earth which nourishes them; and hence, perhaps, all these may be looked upon as belonging originally to the fossile Kingdom, especially as Plants which grow in the Sea, and have not their Roots inserted into the Earth at its Bottom, consist purely of alcalescent Parts, and in Distillation yield an oily, volatile *Alcali*, as the illustrious Count Marfilli, in his Writings upon this Subject, informs us, he long ago observed. In some Vegetables the native *Acids* discover themselves evidently; as in Sorrel, the Trifolium *Acetosum*, and the Juice of all Fruits, whether the pulposus or Summer-fruits, especially whilst unripe, for, when concocted by the Heat of the Sun, they grow more mild. The Sap also of all Vegetables which rises in the Spring is almost as acid as Vinegar. Many Woods also and Aromatics contain a true *Acid*, which however is not so manifest. In Guaiacum, Sassafras, Cinnamon, and a vast many more of the like Kind, who would ever have suspected an *Acid*, if it had not been manifested by Distillation? Who would believe that the most noble Balsams contained such an *Acid*, as Turpentine yields easily and in great Quantities by Distillation? But as *Acids* can scarcely be obtained pure and without Mixture, it is exceedingly difficult to give a distinct Account of their proper Actions: The Virtue of some of them, however, upon certain Bodies, is evident; thus we see the fresh Juices of Oranges, Citrons, and Lemons dissolve Lead, Tin, Copper, and Iron, and is capable of strongly calcining them, like fossile *Acids*. The acid Salts, however, are formed into solid Globules, in a different Manner from the other; for their most acid liquid Juices being pressed out, filtered, inspissated, and then set to rest in a cool Place, shoot into saline Globules, not unlike Tartar, and containing a true vegetable *Acid*.

But Fermentation seems more and more to exalt the latent *Acid* of Vegetables. For the Juices of Vegetables, that are exceeding ripe and sweet, appear to have scarcely any Thing of Acidity in them, as we see evidently in the expressed Juice of Grapes. Who can perceive any Thing like an *Acid* in Cassia, Manna, Honey, and Sugar; and yet, when these are rightly fermented, and set a-working, the *Acid* presently appears, but especially when the Wine begins to grow finer and more subtle. In ripe, mealy Corn, is there the least Indication of an *Acid*? And yet, when this has fermented but a very little while, it discovers an Acidity. As these *Acids*, now, thus produced, are of a something different and more subtle Nature than the native ones; hence, to distinguish them, we may be allowed, for the future, to call them vinous *Acids*. These vinous *Acids* then

are of two Sorts; for either they are dispersed through the Wine, in Form of liquid *Acids*; or else in Time collect themselves together in the Wine, and fix themselves to the Surface of the Vessel, in the solid Form of Tartar. And these fermented vinous *Acids* have pretty nearly the same Virtues as the preceding native ones.

But the *Acids* of Vegetables, produced by a second Fermentation, I will call by the Name of *Acetose*. For if any known Wines are, by an Admixture of austere, acid, crude Juices, made to undergo again a proper acetose Fermentation, they will be converted into Vinegars, will consume their own Tartar, become much more acid, and will acquire a stronger and more durable *Acid*, which will remain even in Distillation: Hence in Vinegars there is obtained a pure, active *Acid*, and then they are called pure, distilled, acetose *Acids*. These last are of such incredible Service and Efficacy in Chymistry, that hence all other Menstruums likewise have been called *Aceta* by the Chymists.

But among *Acids* we must take Notice likewise of fermenting *Acids*; by which we mean, vegetable Juices, that are in the very Act of Fermentation; and thus in a Kind of middle State between that which is natural to them, and that which they obtain when the Fermentation is completed; for, during this Time, the most elastic Part of the fermenting Liquid acquires such a Power, as is not to be equalled by any Thing I know of in all Nature. For if this (*Sylvestris*) savage, incoercible, explosive, acid Spirit, rising from a vast Quantity of fermenting Vegetables, should pass through a very small Vent-hole into the Nostrils of the strongest Man, it would strike him dead in an Instant. If it does not act with all its Force, it causes a sudden Apoplexy; if less powerfully still, a Loss of the Senses, with a Paraplegia; if very lightly, only a Vertigo. The Truth of all this has been too certainly evinced by melancholy Instances. Hence we come to have a more perfect Idea of the more immediate Cause of Drunkenness, and the Tremors upon the Nerves that are consequent to it. And hence we see the Occasion of that surprizing Phenomenon mentioned by the illustrious Cornaro, in his noble Treatise; wrote in the Praise of Sobriety, where he tells us, as he grew in Years, he was annually, just before the Time of Vintage, troubled with a Languor, and Lowness of Spirits, which would not give Way to any Medicine, or Regimen, but increased so as to become extreme, till, upon drinking new Must, he recruited his exhausted Spirits, and re-assumed his former Vigour. This then he continued to enjoy till the Wine of that Year began to grow old, and then relapsed into his usual Debility, and was forced to wait for a fresh Recruit of new Wine, to set him to rights again. From all this then we evidently learn, what an incredible Effect this fermenting *Acid* has upon the Bodies of Animals, either for their Detriment, or their Advantage. Whence does it happen that the Cholera Morbus in so short a Time becomes so fatal? Certainly from Must, and ripe Summer-fruits, actually fermenting in the Stomach, and smaller Guts, and, by the Explosion of their Spirits, contracting the Muscles of these Parts into Spasms, that often prove mortal. Of this there is a remarkable Instance in the Philosophical Transactions, where the Anatomist, St. Andre, gives a very accurate Account of the Body of a Man that fell into a Cholera, upon drinking a large Quantity of bottled Ale, of which he died, in the Manner there described. As by these Accounts the singular Efficacy of such an *Acid* evidently appears, so likewise it seems exceeding probable, that those Spirits, considered as a Menstruum, produce often upon other Bodies very surprizing Effects. And I have sometimes doubted, whether this wonderful Spirit is not fixed in Tartar, and afterwards, when by the Action of the Fire, in the Distillation of this Salt, it is set at Liberty, does not produce that elastic Vapour which the Chymists have always observed to be so prodigiously elastic as to burst to Pieces all their Glasses, let them be ever so large.

It is however certain, that Bodies which we intend to dissolve, if mixed with Liquors in the very Act of Fermentation, will be dissolved by them in a very different Manner from what they would have been, if put into the very same Liquors, when not in Fermentation. A manifest Instance of this we see in green Herbs, when thrown into fermenting Must, or Wort; for hence we have a Liquor, in which all their Virtues seem to be most equally united into one and the same Liquid, and afterwards to act with a joint Efficacy. And thus also the different Ingredients in the Theriaca, or Venice Treacle, when they are mixed together with Honey, are reduced into one homogeneous Mass, and conspire together in the same Operation. And hence appears the Folly of those, who in this, and the like Compositions, substitute Diacodium instead of Honey, thereby spoiling the Medicine.

But pure, thin, acetose *Acids*, are procured, pretty much in their natural Form, from Vegetables exposed to the Fire: For if you take a Stick of Wood, a green one in particular, and lay it upon a clear Fire, in such a Manner, that both the Ends shall lie out, then the Fire, acting upon the middle Part of the Wood, will fuse the Humours contained therein, and expel them at the Extremities, in the Form of Water, with a Hissing and Froth. This Liquor, upon Examination, appears to be a pure

pure *Acid*, has all the Properties of *Acids*, and the dissolving Qualities common to them. Hence, we learn, that the Smoke of Wood, that which is green particularly, gives the Eyes Pain, by the acid *Acid* which it disperses all about. This, likewise, when it penetrates into Flesh or Fish, that are hung in Smoke, tinges them with a red Colour, and, by its Acidity, prevents their growing putrid, or rancid. And this *Acid* is exceedingly like those that exist naturally in most Trees.

But again, there are discovered other very singular *Acids*, that are in some Measure of a balsamic and oily Nature, which are drawn from Vegetables by Fire in a close Vessel, both *per ascensum* and *descensum*. Thus the Wood of Guaiacum, Juniper, Oak, and a great many others, if reduced to dry Shavings, and carefully distilled in a Retort, yield a limpid, reddish Liquor, which is very acid, somewhat oily, and has a good deal of the Smell of a Herring dried in the Smoke. And the Liquid thus prepared is strongly acid, and may be rendered stronger by Depuration and Rectification, and then the solvent Virtue of this Menstruum is perfectly singular. In the Human Body, it produces wonderful Effects, by attenuating, preserving, stimulating, and resisting Putrefaction, and carrying off the noxious Matter by Sweat and Urine. If in these Menstruums, therefore, the Virtues of medicinal Plants are dissolved, the Solutions become exceedingly efficacious, as they act by their very subtle, penetrating, singular *Acid*, and exalt the Qualities of the Bodies dissolved in them. Of all these vegetable *Acids*, therefore, it is true, that they are capable of intimately dissolving many animal, vegetable, fossile, and metalline Substances: By Digestion and Coction, they dissolve the Horns, Hoofs, Bones, and Flesh of Animals: The Shells of Fish, and other Animals, they perfectly corrode into a pellucid Liquor: And Metals they dissolve, except Mercury, Silver, and Gold.

Art, therefore, has sought out and discovered other *Acids*, which are able to dissolve Mercury, Gold, Silver, and other Fossils, which were unaffected by vegetable *Acids*, and these are not easily digestible by the Power of animal Bodies. For vegetable *Acids* may, by the Action of a strong healthy Body, especially if assisted by a considerable Motion, be so changed, as to lose their acid Nature, and be converted into another Kind of Salt: But those *Acids* that we are at present acquainted with, which are capable of dissolving Mercury, Gold, and Silver, are not so easily subdued by the concoctive animal Powers; but being superior to them, for the most Part, destroy them. And hence these become generally Poison to Animals, except in a very few Cases, where a putrid Alcalescence prevails, as when alkaline Poisons are taken in by them, or in a putrid State of the Humours, as where a pestilential Virulence, or an universal Putrefaction in the Small-pox, threaten immediate Destruction.

Fossile, native *Acids*, are rarely to be met with, for it is now discovered, that the medicinal Waters, once looked upon as acid, approach, in every Character, nearer to an Alkali. There is often, indeed, a Vapour observed in Mines, which resembles a suffocating, sulphureous *Acid*, and by other Marks demonstrates its Acidity: But it is very seldom found alone, and very pure, in a fluid Form.

But whenever it happens, which is very often the Case, that it meets with a solid Body, which is capable of attracting that *Acid*, it then unites with it, and becomes fixed, and palpable: And, when it is afterwards drawn out of that fixed Body, it then falls under the Notice of our Senses; and then, as far as it is possible to judge, appears to be always one and the same.

For, if it lays hold of a pinguious Fossil, it produces various Kinds of Sulphurs, which, if they are burnt, emit Fumes, which being collected, refrigerated, and mixed with the humid Air, yield the Spirit, or Oil of Sulphur *per Campanam*. If you take this, and put it into a clean Glass Vessel, and expose it for a considerable Time to a Heat equal to that of boiling Water, you will distil from it a considerable Quantity of pure Water, which, whilst the Sulphur was burning, had insinuated itself out of the Air into the acid Fume of the Sulphur; and there will then remain at the Bottom a ponderous, thick, caustic *Acid*, which in every Character resembles the purest Oil of Vitriol, except in this alone, that it contains nothing of a volatile Metal, which is always found more or less in Oil of Vitriol.

But if this *Acid* happens to corrode Lime-stones, it then produces Alums, which are different, according to the Diversity of the Matter which is mixed with them. All these, if they are first lightly calcined, and then with an intense Fire urged into Vapours, will, by the Condensation of these, yield a Liquor, which, when it is purified according to Art, is nearly the same with the former procured from burning Sulphur.

Again, if native green Vitriol is by the Help of a moderate Heat reduced to a dry, white Powder, and then exposed to a Fire gradually increased to the extremest Degree, it will emit white, cloudy Vapours, which, collected into a Liquid, and accurately depurated, is the very same again as was obtained from Sulphur, and Alum.

The blue Vitriol also, treated in the same Manner, yields a Liquid which is the same with the former, nor can it be dis-

tinguished from them, when rectified according to Art, as the Artists express themselves. All these acid Liquors, if urged with a Heat of five hundred and sixty Degrees, begin to boil, emit white, cloudy Fumes, which disperse themselves all around to considerable Distances, and destroy all known Animals, and even Insects.

But, if these Fumes are drawn into the Lungs by Inspiration, they immediately excite a most troublesome Cough, which admits of no Cure, which is succeeded by a suffocating Dyspnoea, and almost immediate Death; or perhaps a most troublesome and incurable Asthma. Oil of Sulphur, Alum, both Sorts of Vitriol, as soon as, by the Action of the Fire, they are raised into Vapours, by Combustion, Distillation, or Ebullition, have exactly the same Effects. Any of these *Acids*, united with a pinguious Oil, produces Sulphur; with a calcareous Earth, Alum; with Iron, Vitriol of Iron; and with Copper, Vitriol of Copper: From all these Considerations, then, we collect, that it is one and the same *Acid*, which is found native amongst all Sorts of Fossils, and is so very ponderous, and requires so great a Degree of Fire to make it boil.

The Properties of this *Acid*, are, First, That it is naturally the heaviest of all *Acids*. To Spirit of Nitre its specific Gravity is as 11 to 9: To Spirit of Salt, as 11 to 8: To Aqua Fortis, as 11 to 9: And to distilled Vinegar, nearly as 11 to 7, *Mem. de l'Acad. Roy. des Sc.* 1699.

Secondly, It is of all *Acids* the most fixed; for, in the Heat of boiling Water, it never emits any Fumes, for, tho' the Water which adheres to it may rise in Vapour, the *Acid* itself never does in such a Degree of Heat, for it requires something more than five hundred and sixty Degrees of Heat to make it boil, and then it emits noxious Vapours.

Thirdly, These *Acids* being perfectly freed from all their Water, by a strong Fire, and by this Means rendered very pure, heavy, and acid, very greedily attract into them Water out of the Air, and by this Means dilute themselves, and increase in Weight.

Fourthly, When rendered very pure, they immediately, upon the Affusion of cold Water upon them, grow surprizingly hot.

Fifthly, This *Acid* induces such an Alteration on Sea-salt, Fountain-salt, and Sal Gem, by the Assistance of Fire, that in Distillation they yield a Spirit of Salt; mixed with Nitre, it causes a Spirit of Nitre to rise from it; and if it is mixed with many other Bodies, dissolved by acid Spirits, it sets them free from their solvent *Acids*, by dislodging them, and rendering them volatile, whilst it often insinuates itself into and fixes in their Places. Upon this Principle it is that Alum and Vitriol, if they are first calcined, and then mixed with Nitre, yield Aqua Fortis; if with Sea-salt, Spirit of Sea-salt: For in the Colcothar there still remains a latent *Acid* of Vitriol, exceedingly strong, and so fixed, that the Fire was not able to expel it, which, being mixed with Nitre, makes the acid Spirit of the Nitre rise into Aqua Fortis, which is the pure Spirit of Nitre without any Mixture of Oil of Vitriol; but at the same Time that Part of the vitriolic *Acid*, which remained in the Calx of the Colcothar, is left at the Bottom with Part of the Nitre, and produces there an exceeding fixed Salt, like vitriolated Nitre; and the same happens with Respect to Sea-salt.

Sixthly, It readily dissolves Iron, but Copper somewhat slower, Silver with a good deal of Difficulty, and Mercury not in less than five hundred and sixty Degrees of Heat: But it will not dissolve either Lead or Tin. In other Respects, this *Acid* agrees with all the rest. It has this too in common with some, that it will perfectly dissolve Camphire into liquid Oil, which, by the Affusion of a large Quantity of Water, revives into true Camphire.

Another fossile *Acid*, which we are acquainted with, is produced from Nitre only, inasmuch that there never was seen in the World a single Drop of it, except what was distilled from Nitre. For if Nitre is intimately mixed with three Times the Quantity of Bole, Clay, Brick-dust, or any Thing of the like Nature, and then urged with a very strong Fire, a great Part of it will be converted into red Fumes, which being condensed into a Liquid, it is then called Spirit of Nitre. Or if dry Nitre is mixed with an equal Quantity of Oil of Vitriol, and distilled in the strongest Sand-heat, gradually increased, the same Spirit of Nitre will be procured from the same Sort of red Fumes.

Or Lastly, Nitre rubbed and mixed with an equal Quantity of the Calx of red Vitriol, or Alum, and then urged with a very great Degree of Heat, will then emit the same Fumes, and from them yield a Spirit of Nitre, which is as good, and as pure, as the former; but is then called by the Chymists Aqua Fortis, Aqua Stygia, and Aqua Docimaistica. This Spirit, howsoever prepared, is the same in every Respect, and every Property; for, if there is any Difference, it scarcely discovers itself by any Experiment. And it has this peculiar in it, that, when it grows very hot in the Fire, it always sends forth very red Fumes, and dissolves Silver into very bitter caustic Chrystals, which Solution is proper to this Spirit, and can scarcely be effected by any other *Acid*; even pure Oil of Vitriol will

will not do it without Difficulty. It dissolves also Mercury, Lead, and Copper. Gold however it will not touch; and scarcely dissolves Tin. This *Acid*, when it is intimately united with the Metal it dissolves, adheres to them with a considerable Force, so as to remain united with them, in a very strong Fire. An Instance of this is, Silver dissolved in this Manner, which suffers itself to be melted into the Lunar Caustic, without letting go its corroding *Acid*. Mercurius præcipitatus ruber, red Mercury præcipitate also, when it is rightly fixed, will for a long Time resist an intense Fire, before it parts with the *Acid* that adheres to it.

Sea-salt, like Nitre, when it is pure, discovers no Sign of an *Acid*, but if it is treated in the Manner just mentioned, in Regard to Nitre, it is changed into a volatile acid Liquor. For if, to prevent its Melting, it is mixed with three Times its Weight of Earth, and then urged by a Fire increased, gradually, to the greatest Degree, it will be dissipated into dense, white Fumes, that float about, are very volatile, and, being collected, form a Liquid of a golden or green Colour. If distilled with Oil of Vitriol, it yields the same Liquor, but more volatile. And if mixed with the Fæces of distilled Alum, or Vitriol, and afterwards exposed to a very strong Fire, it will then, in like Manner, give the same Spirit of Sea-salt. And these Spirits, prepared in these three different Ways, are intirely one and the same, and they will be the same, if made with Sal Gemmæ, Fountain, or Sea-salt. This Spirit has this Peculiarity, that if it is drawn from the purest Salt, and you repeat the Distillation upon fresh, pure Salt, when it begins through the Violence of the Fire to grow exceeding hot, it emits white Fumes, and dissolves Gold, which no other *Acid* in Nature is able to penetrate. It likewise dissolves Tin, Mercury with a flatulent Noise, Iron, and Copper. Silver it does in no Manner affect; nor does it perfectly dissolve Lead: So that this again is an *Acid* perfectly singular in its Kind.

Hence, therefore, it appears, that Spirit of Nitre, and Spirit of Salt, are two perfectly distinct Things, though at the same Time they are surprisngly alike, and are converted into each other with a great deal of Ease. Thus, if Spirit of Nitre is cohobated in a glass Retort upon Nitre that is exceeding dry, and purified with the utmost Skill, so that there is not the least Grain of Sea-salt in it, you will then have the very choicest Spirit of Nitre, growing better and better upon every Cohobation, and fitter for the Operations proper to this Spirit. But if this Cohobation is performed upon common Nitre, which is not purified by Crystallization, then the cohobated Spirit of Nitre will lose the Nature of Spirit of Nitre, and will acquire the Properties of Spirit of Sea-salt, or Aqua Regia, and will dissolve Gold. If we carefully examine this extraordinary Fact, we shall easily perceive, that to this natural Nitre there must adhere somewhat of Sea-salt, which intermixes itself with the nitrous Spirit in Distillation, and thus from Spirit of Nitre produces Aqua Regia. And this again appears evident from the following Experiment: Take one Part of pure decrepitated dry Salt, reduced to Powder; put it into a clean Retort, and pour upon it four Parts of good Spirit of Nitre, or Aqua Fortis; distil it then, according to Art, to the utmost Dryness, keeping your Sand-heat very strong to the last; and the acid Spirit, which is thus procured, will be no longer Aqua Fortis, but Aqua Regia, which will dissolve Gold, but will not touch Silver. If you examine then the Salt that remains at the Bottom of the Retort after this Operation, by Solution, Filtration, and Crystallization, you will have a true, pure, inflammable Nitre. *Du Hamel, Hist. de l'Ac. Roy. des Sc. p. 158. Boyle's Orig. Forms, p. 215.*

Again, Take one-Part of the purest Nitre, and two of the best Spirit of Sea-salt, and distil them in a proper Manner in a Retort, there will come over a Spirit which will dissolve Gold much easier and sooner than Spirit of Sea-salt. And if the Salt, which remains after the strongest Distillation, is dissolved in Water, filtered and crystallized, it becomes good inflammable Nitre. *Boyle, Ib. from p. 215. to 224. Bohn. Chem. 35, 36. 163. Hoffm. Differt. Chem. Phys. L. 3. Obs. 20.*

Hence therefore it appears, that Aqua Fortis becomes Aqua Regia, as soon as ever Spirit of Nitre and Spirit of Salt come to be mixed together, in whatever Manner, and almost in what Proportion soever: And farther, if any Portion of Sal Ammoniac, Sal Gemmæ, Sea-salt, Fountain-salt, the Sal Febrifugus of Sylvius, or true Spirit of Salt, is mixed with Aqua Fortis, an Aqua Regia is always produced.

In this History of *Acids* it is particularly remarkable, first, That *Acids* are so easily generated from Substances not acid; as appeared above under the Article of vegetable *Acids*. Wine also, which was not in the least acid, was by being close stopp'd up in a clean Bottle, and tied to the Sails of a Wind-mill, converted in three Days into good Vinegar, according to the Observation of Monsieur *Hamberg*, *Mem. de l'Acad. Roy. des Sc. T. 2. p. 11.*

Secondly, It is farther remarkable, that *Acids*, when they are once generated, are scarcely altered by Fire, though exposed to it ever so long: For Aqua Fortis, Aqua Regia, Spirit of Nitre, Spirit of Salt, and Oil of Vitriol, included in Glasses

hermetically sealed, and exposed for four Years to the equable Heat of an Athanor, retained the same dissolving Power: Vinegar only was grown insipid, and acquired an aromatic Smell; and the Spirit of Salt had begun to corrode the Glass.

Thirdly, These very same *Acids* lose their acid Nature, whilst they act as Menstruums upon solvent Bodies. This Monsieur *Hamberg* very ingeniously inferred from a tedious Experiment performed with Mercury and Spirit of Nitre. *Du Hamel, Hist. de l'Acad. Roy. des Sc. p. 442, 443.*

Hence it is evident that the strongest acid Menstruum is, by dissolving its Object, converted into an insipid, unactive Fluid; not unlike Water, and deprived of the proper solvent Power which it before was endowed with. And hence, perhaps, it is not improbable, that these *Acids* are generated and perish. For what Person living has ever discovered any Spirit of Nitre in the World, which was not first procured from pre-existing Nitre? And yet Nitre is produced from Earth, filled with animal Excrements, Lime, and an Alkali, and Air; or from pure Spirit of Nitre attracted into a pure Alkali, particularly one that is fixed. Rich and fat Earths also, if defended from the Rain, and prevented from consuming their Strength by nourishing of Vegetables, are all found by Length of Time to be impregnated with a fertile Nitre, if Care is taken that no Sea-salt comes at them. *Boyl. Scept. Chem.*

Hence then it is evident, that the acid Spirit of Nitre is, by the sole Action of Fire, produced from pure Nitre; whereas native Nitre is produced without any such Spirit first existing in any sensible Form.

Fourthly, These *Acids*, whilst they dissolve Bodies, become concreted with them, are changed and converted into new ones, and thus from one give Rise to a great Variety: For Spirit of Nitre dissolves Silver, Lead, surprisngly alters Tin, Copper, Mercury, Nitre, Antimony, Zincq; and Emery, and with these forms new Bodies, that are different in Taste, Smell, Colour, Density, and in every Effect. *Boyl. Mech. Qual. 118, 119.*

Fifthly, All these *Acids* agree in some Particulars, but differ in others.

They agree with Regard to their Composition with Alkalies, the Effervescences thence arising, and the Generation of new Salts from this Union. As also in their Composition with Chalk, Corals, Crabs-eyes, Pearls, Mother of Pearl; the Shells of Cockles, Limpins, and Oysters, Bones, Hoofs, quick and flaked Lime, Iron, and Copper. For all these are generally dissolved by all Sorts of *Acids* sooner or later, whether it is affected quietly or with a great Effervescence. These Bodies, when they are thus dissolved, always attract into them the *Acid* of the Solvent out of the Water, with which that *Acid* was before diluted: And then the Matter thus dissolved, by this Means united with its solvent acid Salt, is converted into a Kind of Salt, and admits of a Dissolution in Water, so long as the *Acid* adheres to it; though these Bodies, before this Mixture, were no Ways dissoluble in Water. But when this *Acid* is again by any Method removed from the dissolved Matter, then this constantly appears again in the Form of an Earth, which most powerfully resists Solution by Water. Hence it appears, how very much we may be imposed upon by Water; whilst, judging of it by its Appearance, we make Use of it in our Operations for pure elementary Water; whereas, in Reality, it may contain in it various Kinds of dissolved Bodies, together with their Solvents. And hence, Effects are frequently supposed to be produced by simple Water, which, in Fact, are owing to these latent Solvents and Menstruums. And this happens the more easily, because *Acids* in general, when they are accurately united with the Bodies above-mentioned (Metals only excepted) to a perfect Saturation, lose all their Acrimony; and commonly all their Taste; and thus lie perfectly concealed. Thus, for Instance, let Spirit of Nitre be perfectly saturated with Crabs-eyes; this Solution will be a limpid, and almost insipid Liquor; and when diluted with fair Water, filtered, and kept for some Time in a gentle Heat, it will have the Appearance of pure Water; but, upon pouring into this a strong fixed Alkali, the whole Mass of Crabs-eyes, before dissolved, will immediately fall to the Bottom, and might impose a Belief upon the Unwary, that this was generated from pure Water.

These *Acids* farther agree in this, that, by dissolving Bodies, they not only become united and concreted with their Solvents, but are farther at the same Time changed in their own Nature: For it is demonstrated by undeniable Experiments, that the most acid *Acids*, whilst they corrode their Objects, are truly changed by them, and put off the Disposition, not only of an *Acid*, but of a Solvent also. Thus Spirit of Nitre, for Instance, when it has corroded Mercury, and is separated from it again, presently loses the Power of dissolving it any more. Another Property of *Acids* in Common, is their turning vegetable Juices of a red Colour, as appears in the Turnsole, Roses, and Violets. And again, they all agree in this, that they do not so much alter the Bodies they dissolve, as they are altered by these themselves. This is found to hold true in almost every Case. Vinegar, in dissolved Lead, does not continue Vinegar there, nor is separated Vinegar again from it; but

the Lead is recovered perfect Lead. Spirit of Nitre dissolves Mercury, and the Mercury is procured from it again exactly the same; but the Spirit of Nitre, when it is separated, is nothing like what it was before. Hence it appears, that it is common to all *Acids*, that a great deal of them are continually perishing.

These *Acids*, however, differ very widely, first of all, with Respect to the Proportion between their true *Acid*, and the Water it is mixed with. Thus, in an Ounce of the best Vinegar, there are eighteen Grains of pure *Acid*, and all the rest Water: In an Ounce of Spirit of Salt, seventy-three Grains of true *Acid*, the Residue pure Water: An Ounce of Spirit of Nitre gives two Drams, and twenty-three Grains of *Acid*, the rest Water: The same Quantity of Aqua Fortis, two Drams and twenty-six Grains: And lastly, an Ounce of Oil of Vitriol yields four Drams and sixty-five Grains of *Acid*, according to the Observations of Monsieur *Hamborg*, Hist. de l'Ac. Roy. des Sc.

Secondly, This very *Acid*, when pure, in every particular Sort of it, differs surprisingly in its dissolving Power: For the *Acid* of Nitre, boiled with Gold, has scarce any Effect upon it, except that it changes it black; whereas it dissolves Silver immediately: And the Contrary is true of Aqua Regia. Hence it is evident, that the *Acid* does not act there so much as an *Acid*, as a Body endued with a peculiar Virtue.

Thirdly, *Acids* differ in this Respect, that, whilst they dissolve their Objects, some of them are changed a great deal more than others; thus, Spirit of Vinegar, in dissolved Lead, becomes an oily pinguious Spirit: But Spirit of Nitre, whilst it corrodes Lead, is not altered in this Manner.

Fourthly, The same *Acid* is very much changed by acting upon some particular Bodies, but very little, or not at all, when it acts upon others. Thus, distilled Vinegar, in the Solution of Lead, is altered in the Manner I just now observed; if it corrodes Iron, it loses all its former Nature, nor can it be ever recovered from it again; but if Copper is corroded by it into a Rust, and then dissolved into a green Liquor, and from this Crystals are procured, these Crystals will contain an exceeding strong Vinegar, and if distilled in a Retort, with a great Degree of Fire, yield a very strong acid Spirit of Vinegar, scarcely in the least altered, though it adhered so tenaciously to the Copper. Hence then it appears, what different Changes *Acids* undergo by being united with different Metals; which is true also, with Respect to other Bodies. All *Acids* in general may be diluted with Water. They may be mixed with Spirits, as Spirit of Nitre with Alcohol, with a prodigious Heat, very red Fumes, and an Effervescence which almost bursts out in Flames. They may be combined also with Oils; Spirit of Nitre, sometimes, with such an Agitation as excites Fire; for the most Part with an intense Heat. Oil of Vitriol also, mixed with Alcohol and Oils, generates a prodigious Heat. But, whenever *Acids* are intimately united with Oils, somewhat bituminous, pitchy, or sulphurous, is almost always produced; whence often arise very extraordinary Changes.

Of Diseases caused by a predominant Acid in animal Bodies.

It is to be observed, that all animal Juices are formed either of Vegetables, or other Animals taken into the Stomach, and thence transmitted to the Intestines, where, by the Power of the digestive Organs, they are converted into a balsamic neutral Chyle, neither alkaline nor acid; and this, so prepared, is by the animal Actions mixed with the Blood, in such a Manner, that the Whole together forms one uniform Mass, fit for Nutrition, and adapted to supply all the Exigencies of the animal Economy. But if the digesting and assimilating Organs are weak, or the Aliments taken in Quantities disproportioned to their Strength, they are not converted, in the Manner mentioned above, into a balsamic neutral Chyle, but, putrefying in the Stomach and Intestines, acquire that Sort of Acrimony, which they would produce upon Putrefaction in any Place out of the Stomach, in an equal Degree of Heat and Moisture. And in this Case cannot properly be said to digest in the Stomach, but rather to putrefy. Hence, as the Food is either of an alkaline or acerbent Nature, an alkaline or acid Acrimony prevails in the Juices formed from it. Those Aliments are called Alcalescent, whose Juices become alkaline upon Putrefaction; those are called Acerbent, whose Juices upon the same Occasion contract an Acidity.

The Aliments, from which acid Juices are formed, are all those which are usually called farinaceous. Such amongst many others are Wheat, Rye, Barley, Oats, Beans, Pease, Millet, and Rice. If these are mixed with a sufficient Quantity of Moisture, they ferment, and grow acid, in a Degree of Heat not exceeding that of the Atmosphere in warm Weather; but when mixed with a little Moisture only, they do not so easily ferment, but form a Kind of tenacious viscid Substance like Glue. Milk is to be numbered amongst acerbent Aliments; and all the Parts of Vegetables, which are naturally acid, or capable of being rendered so by Fermentation, supply the animal Juices with Acidities. Such are all the Fruits which are usually termed *Fructus horæ*, as Apples, Pears, Apricocks,

Peaches, Nectarines, Plums, Oranges, Lemons, Citrons, Cherries, Mulberries, Currants, Raspberries, Strawberries, Elderberries, Figs, Pomegranates, Cucumbers, Melons, Jujubs, and many others of this Sort.

These, though generally excellent Food, especially for those who are accustomed to a plentiful Diet of Flesh, yet become noxious, by Reason of their Acidity, when taken into the Body in Quantities too large for Digestion and Assimilation. These Quantities cannot be exactly determined, for the digestive Organs of the most robust may be overloaded, but these are capable of digesting and assimilating a much larger Quantity, than when the Fibres of which these Organs are composed are relaxed and weak, and cannot act sufficiently upon these Aliments, but suffer them to retain their natural or acquired Acidity in the Stomach and Intestines. Thus we find Girls in a Chlorosis, studious sedentary People, and Children, whose Fibres are either through Infirmary, naturally, or for Want of Motion and Exercise relaxed, contract an Acidity of the Juices, by eating acid or acerbent Aliment. As Exercise braces the animal Fibres, and promotes Digestion, so Rest, or a Defect of Motion, relaxes the Fibres, and retards or hinders Digestion, and may therefore be reckoned amongst the Causes of an acid Acrimony in the Juices formed from acerbent Food.

A Deficiency of good Blood in the Body may also be numbered amongst the Causes productive of an acid Acrimony from acerbent Aliment. For the Chyle, formed from this Sort of Food, will, like Milk, turn acid, unless mixed with a Quantity of good Blood sufficient for its perfect Assimilation. Hence the Rule of Horace,

vacuis committere Venis

Nil nisi lene decet,

may be taken very justly in a medicinal as well as culinary Sense.

The original Seat of this Acidity is in the Organs of the first Digestion. These are the Stomach and Small Intestines; but from these, by Degrees, it is propagated to the Receptacle of the Chyle, from hence to the Blood, and lastly to all the Humours separated from it.

This acid Acrimony is productive of many Effects, both troublesome and dangerous to the animal Economy, as, Acid Eructations, which have in some Cases been so sharp, as to induce a Stupor of the Teeth.

A Sensation of Hunger by contracting the Fibres of the Stomach. But it must be observed that this does not confirm the Doctrine of those who assert that all Hunger is caused by an *Acid*, for there is not the least Portion of an *Acid* to be discovered in the Stomachs of the most rapacious, and consequently most hungry Quadrupeds, Birds, or Fish.

Cardialgia, or, as it is usually called, the Heart-burn, from a Stimulation of the Cardia, or left Orifice of the Stomach, which is endued with a most exquisite Sense, by the acid Juices contained in the Stomach. This Species of Heart-burn is cured by Chalk, or any other alkaline Absorbent. But there is another Sort caused by an alkaline Acrimony, which must be treated with diluted *Acids*.

Coagulations of the Aliment taken into the Stomach, especially if it happens to be Milk; Pains, Flatulencies, and spasmodic Contractions of the Intestines, but particularly of the Ileum. These are caused either by the Acrimony of the acid Juices, stimulating the sensible Membranes of the Intestines, or, which I believe is much more frequently the Case, by the Rarefaction of that extremely subtle and elastic Vapour, which arises from vegetable Juices during the Action of Fermentation, which has been called by some of the Chymists, Gas Sylvestris. These Symptoms often arise to such a Degree of Violence, as to constitute that Distemper which is called the Cholera Morbus, and which without a great deal of Care will sometimes be so acute, as to prove fatal in a few Hours. See CHOLERA MORBUS.

As these Acidities mix with the Bile in the Duodenum, they must necessarily alter its Nature, and render it inactive. And as the Bile has a considerable Share in assimilating the Aliment, and converting it into good Chyle, this Assimilation must be prevented, in Proportion as the Bile, by Reason of any foreign Admixture, deviates from its own Nature. The same holds good in Regard to the Pancreatic Juice, and the Saliva, both which, in a natural State, contribute to the Digestion of the Aliment, and the Conversion of it into a balsamic Chyle, capable of entering the Lacteal Vessels, and mixing with the Blood, without communicating to it any Acrimony, either alkaline or acid. But when the Action of the above-mentioned Juices is impaired by an *Acid* in the Primæ Viæ, an acid Chyle is formed, and the very Excrements, discharged from the Intestines, betray an *Acid* in the Smell.

By a careful Observation of these Signs, we may discover an acid Acrimony to prevail in the Stomach and Intestines. And then it is the Business of the Physician, and Interest of the Patient, to correct it in the Primæ Viæ, before it infects the Blood, because then the Disorders, arising from it, are not so easily remedied. But, when the Glands and glandular

dular Secretions are affected, the Case becomes much more difficult and dangerous.

When the acid Acrimony reaches the Blood and Juices, it is discovered by its Effects. Thus, when the acid Chyle is communicated to the Blood, as it cannot by the Force of the Circulation be intimately mixed with it, so as to form one uniform Mass, the Blood loses by Degrees its florid red Colour, and the Patient, in Consequence of this, becomes pale. Of this we frequently meet with Instances in weak Children, and Girls, of a lax Habit, labouring under a Chlorosis, whose Blood, as it appears when let out of the Veins, is white instead of red, mixed with some Streaks of red Blood. Hence also the Serum of the Blood is chylous, as it appears after standing a sufficient Time to separate.

The Secretions from the Blood, thus infected with Acidity, are also frequently acid. Thus, in Women of a lax Habit, we sometimes meet with acid Milk. The Saliva is also in some Cases infected with an Acidity, and even the Sweat has an acid Smell. But the Acidity of the Sweat is not in all Cases a bad Symptom; for in Fevers, where the Juices have had a Tendency to an alkaline Putrefaction, these Sweats are a good Sign, as they discover that the Danger from an alkaline Putrefaction is at an End. This Symptom is taken Notice of by Hippocrates, and ranked amongst those of good Prefage.

From this State of the Blood Obstructions in the capillary Vessels are generated, and hence troublesome Itchings of the Skin; Pustules, very frequent after eating great Quantities of Fruit; Ulcers which are pale, slow in their Progress, and difficult to heal.

Hence also Coagulations of the Blood, which render it unfit for Circulation, and consequently for Nutrition, and the Uses of the animal Economy.

But the acid Acrimony has yet a worse Effect when it reaches the Nerves, nervous Membranes, and the Brain; for then, by stimulating these sensible Parts, it is productive of Convulsions, Epileptic Fits, an irregular Circulation of the Blood, and at last Death, of which Children afford too frequent Examples.

From what has been said with Respect to an Acid abounding in animal Bodies, many Disorders, to which sedentary People, and Women of a lax Habit, are subject, may be discovered and understood. But it will be particularly useful in explaining the Distempers to which Children are subject, in whom all the Causes of an acid Acrimony seem to contribute to their Destruction, as ascendent Aliment, Laxity, and Want of Motion.

Poor People, whose Food is principally of the farinaceous Kinds of Vegetables, and who eat but little Flesh-meat, are subject to these Disorders, but would be much more so without the strong Exercise they generally use; for Exercise, as was before observed, by strengthening the animal Fibres, and promoting the Digestion of the Aliment, and Assimilation of the Chyle, prevents an acid Acrimony from being formed in the Juices.

Artificers also who are concerned in the Preparation of acid Spirits, or who use them in their Trades, are very subject to contract Acidities in their Juices. Of this Sort are those who prepare Cerufs, and Scarlet-Dyers.

Disorders from a prevailing Acid in animal Bodies are to be cured in general by such Things as are directly opposite to the Causes of Acidity. Thus, Aliments are to be used which are of an alcalescent Nature, or which turn alkaline upon Putrefaction. Such are Broths made of the Flesh of Birds, Quadrupeds, or Fish; Jellies made of the same; and the Flesh of these, which best answer this End, either roasted or boiled.

Those Vegetables also which contain an aromatic alkaline Oil, as they are opposite to Acidity, are in this Case proper in Medicine or Food. Of these the illustrious Boerhaave gives the following Catalogue:

<i>Asanthium</i>	Wormwood.
<i>Alliaria</i>	Sauce alone, or Jack by the Hedge.
<i>Allium</i>	Garlick.
<i>Anethum</i>	Dill.
<i>Anibora</i>	Wholesome Wolfshane.
<i>Angelica</i>	Angelica.
<i>Anisum</i>	Anise.
<i>Apium, Celeri</i>	Smallage.
<i>Aristolochia longa</i>	Long Birthworth.
<i>Aristolochia rotunda</i>	Round Birthworth.
<i>Armoracia</i>	Wild Radish.
<i>Arium</i>	Cuckow-pint.
<i>Asclepias</i>	Swallow Wort.
<i>Asparagus</i>	Sparrow-grass.
<i>Asphodelus Albus</i>	White Asphodel.
<i>Basilicum</i>	Basil.
<i>Brassica</i>	Cabbage.
<i>Calamus Aromaticus</i>	Aromatic Reed.
<i>Calamentha</i>	Calamint.
<i>Carduus Benedictus</i>	Holy Thistle.
<i>Carduus Mariæ</i>	Ladies Thistle.

<i>Carum</i>	Carraway.
<i>Caryophyllata</i>	Avens.
<i>Caryophylli Aromatici</i>	Cloves.
<i>Cochlearia</i>	Scurvy-grass.
<i>Cepa</i>	Onion.
<i>Centaureum minus</i>	Lesser Centaury.
<i>Daucus</i>	Wild Carrot.
<i>Eruca</i>	Rocket.
<i>Eryngium</i>	Eryngo.
<i>Erysinum</i>	Hedge Mustard.
<i>Eupatorium</i>	Agrimony.
<i>Galanga major</i>	Greater Galangals.
<i>Galanga minor</i>	Lesser Galangals.
<i>Helium</i>	Elecampane.
<i>Lepidium</i>	Dittander.
<i>Majorana</i>	Marjoram.
<i>Marrubium</i>	Horehound.
<i>Matricaria</i>	Feverfew.
<i>Mezerion</i>	Spurge Olive.
<i>Napus</i>	Navew gentle.
<i>Nasturtium</i>	Cresses.
<i>Nepeta</i>	Cat-mint, or Nep.
<i>Origanum</i>	Origany.
<i>Piper</i>	Pepper.
<i>Porrum</i>	Leeks.
<i>Pyrethrum</i>	Pellitory of Spain.
<i>Raphanus</i>	Radish.
<i>Ruta</i>	Rue.
<i>Saponaria</i>	Soap-wort.
<i>Satyrium</i>	Satyrium.
<i>Serpillum</i>	Mother of Thyme.
<i>Sabina</i>	Savin.
<i>Satureia</i>	Savory.
<i>Sedum acie vermiculare</i>	Acrid vermiculated House-leek.
<i>Sinapi</i>	Mustard.
<i>Squilla</i>	Squill.
<i>Thymus</i>	Thyme.
<i>Thlaspi</i>	Treacle Mustard.
<i>Victorialis</i>	Spotted Ramsons.
<i>Urtica</i>	Nettle.
<i>Zedaria</i>	Zedoary.
<i>Zinziber</i>	Ginger.

Amongst Foods that are proper to destroy an acid Acrimony in the Juices, are,

First, those aquatic Fowls that prey on Fish or Frogs.

Secondly, Those Birds which devour Insects; for in these the volatile Salts are rendered highly alkaline, having undergone a double Sublimation, or rather Rectification, first in the Body of the Fish, Frog, or Insect, and next in the Fowl or Bird that eats it.

A third Species of Animals, proper in these Disorders, are those which, though their Food is very simple, yet by excessive Motion have their alkaline Salts highly exalted, and rendered extremely alkaline and penetrating.

A fourth Sort are Fish of Prey, and Shell-fish.

Amongst the first Sort is the Duck, of which Lemery says, that which is tame yields much Oil, volatile Salt, and Phlegm; but the Wild Duck yields more volatile Salt, and less Phlegm. It is for this Reason the last have a higher Taste than the tame Sort. To this Class belong all Fowls of the Duck Kind, as the Teal, Widgeon, Macreuse. The Bittern yields more volatile Salt than the Duck.

The Goose. All Fowls of the Goose Kind yield a great deal of volatile Salt, but they that are wild more than the tame Sort. And it may be laid down as an universal Rule, that wild Animals yield more volatile Salts, and those of a mere alkaline Nature, by Reason of the greater Motion and Exercise which they use, than those which are tame. It is on Account of the volatile Salt in Geese, that their Fat is very penetrating. It should seem that the Solan Goose, whose Oil, upon Fusion, emits a very penetrating and foetid Smell, and whose Flesh is of a very exalted Taste, should contain the greatest Quantity of alkaline Salts of any of the Goose Species.

Boerhaave reckons the Larus, or Sea-mew, amongst these Fowls of Prey.

Amongst the second Sort are the Sparrow, Chaffinch, Mavis, Fellfare, and Lark, which yields a great deal of volatile Salt, as does the Partridge, Pheasant, Quail, Land Rail, and Plover. Lemery.

Of the third Species are the Woodcock, Snipe, Hare, Deer, and Wild Boar, all which contain large Quantities of highly exalted volatile Salt.

The Eggs of the Birds or Fowls mentioned above, as well as their Flesh, are excellent Food, when an acid Acrimony prevails.

Almost all Sorts of Fish may be numbered amongst the fourth Species, because they either prey upon other Fish, or Insects, and yield a very volatile alkaline Salt.

That

That the Meaning of the Words *Volatile Salts*, so often used, may be understood, I must take Notice, that the Salts of most Vegetables are fixed; that is, they do not rise in Distillation, being detained by a large Portion of Earth, to which they are strongly united. But this Earth is separated from them by Putrefaction, inasmuch that most Vegetables, which are putrefied, yield in Distillation a volatile Salt, much like that of Animals. And as the Dissolution of vegetable Food in the Stomachs of Animals has the same Effect upon it, as Putrefaction, that is, disengages the Salt from the fixing Earth, for this Reason all the Salts of animal Bodies are volatile, highly alkaline, and of a penetrating Nature.

The Salts also of many Plants, that have an aromatic Acrimony, yield a volatile alkaline Salt by Distillation, as Mustard, Horse-radish, Scurvy-grass, and many other of those specified in the Catalogue given above. It is these Salts in animal and vegetable Substances that neutralize and destroy the acid Acrimony prevailing in the *Primæ Viæ*, and the Animal Fluids.

With the Aliments specified above, Boerhaave advises every three Hours a Glass of the following Wine, containing three Ounces :

Take French White Wine a Pint and half.

Salt of Wormwood two Drams, mix together

There are many Sorts of Medicines which either destroy the *Acid*, or render it ineffectual, so that the Acrimony thereof can do no Hurt. For this Reason these are to be used in an acid State of the Juices.

Absorbents seem to claim the first Place amongst these, because, when immersed in *Acids*, they have the Faculty of destroying their Acrimony, and rendering them mild and inoffensive.

This Class consists of the dried Bones of Fishes, as the Jaw-bone of the Pike.

Of the Eyes, Claws, and Shells of Crabs, Crevices, and Lobsters.

Of the Shells of Oysters, and other Sea-fish of the testaceous Kind.

Of Coral, Pearl, and Mother of Pearl.

Of Chalk, Bole, Osteocolla, and fat marly Earths.

Amongst these are also the Lapis Hæmatitis, Filings of Tin and Iron.

Some of these Absorbents are attended with the Inconveniences mentioned under the Article *ABSORBENTIA*: That is, they mix with the Viscidities which they meet with in the Stomach and Intestines, and with them form a tenacious Kind of Mortar, if I may so call it, which sticks to the Stomach and Intestines, and does a great deal of Mischief. This however may be prevented by giving them either mixed with gently cathartic Ingredients in small Quantities, or else by giving gentle Purges, repeated at proper Intervals during their Use.

Hoffman is of Opinion, that the Medicines of this Class do a great deal of Mischief by increasing Viscidity in the Stomach and Intestines, unless they meet with an *Acid*; and in this Case they are of great Service, not only by destroying and taking off the Effects of the acid Acrimony, but by forming a neutral Salt, which is of itself an admirable Resolvent, and well adapted to cure the Disorders proceeding from a redundant *Acid*.

Hence the Mischief that young Girls do themselves, who are inclined to what is usually called the Green Sickness, by taking great Quantities of Chalk, Lime, and other Absorbents, is accounted for and understood. They are directed by Nature to eat these, in order to relieve themselves under the uneasy Sensations they perceive in their Stomachs from the Stimulation of the acid Acrimony. But as they take them in great Quantities, and without proper Purges to carry them out of the Stomach and intestinal Tube, when they have had their good Effects, they form viscid Concretions, which hinder Digestion, stop the Orifices of the Lacteals, and consequently prevent a Supply of Chyle from being conveyed to the Blood, and hence Weakness, Inability to Motion, Paleness, and the rest of those Symptoms which Physicians observe in Girls who have used themselves to eat these Absorbents.

This natural Inclination to Things capable of relieving the present Disorders which affect Animals, is common in the Brute Creation, and is called Instinct; and Physicians, by a careful Attention, may daily discover something of the same Kind in Man, which directs to what will relieve. And it is probably for this Reason that Hippocrates lays it down for a Rule, that *those Meats and Drinks, though not altogether so proper, which are agreeable to the Patient, are to be preferred to those which are better, but unpleasant.* Aph. L. 2. 38.

Diluters also are sometimes proper in these Cases, because the more an *Acid* is diluted, the weaker it is, and consequently acts in a less Degree. Thus, the stronger *Acids*, in the Quantity of a single Drop, will corrode and destroy the Skin or Flesh of any Animal that it touches. But, when the same Quantity of *Acid* is diluted with a large Portion of Water, it becomes innocent and inoffensive.

It was doubtless this Consideration that directed Dr. Sydenham to give large Quantities of warm Water to one that had taken corrosive Sublimate, both by the Mouth as a Vomit, and by Way of Clyster.

But these Diluters must be used with Care and Caution, for they relax and weaken the Organs of Digestion, and thereby increase one Cause of Acidity.

These Diluters are either Water itself, or Decoctions of animal or vegetable Substances made with Water.

Another Class of Medicines, which give Relief in an acid Acrimony, consists of such Substances as sheath the Spicula, or sharp Points of the *Acid*, and prevent their Action on the sensible Membranes, and at the same Time defend the nervous Fibres from its Acrimony. But these are subject to the Inconveniences mentioned above in Regard to Diluters, that is, they tend to relax still more the Fibres of the Organs of Digestion already too weak. Amongst these are the following :

Almonds, both sweet and bitter.

Pistachio Nuts.

Common Nuts, Filberts, Walnuts, Cocoa Nuts, of which Chocolate is made.

Seeds of the white Poppy.

The expressed Oils of all these, and of Olives.

Jelly Broths of Flesh or Fish.

To this Class also belong the oily aromatic Vegetables, of which I have given a Catalogue above.

There is another Class of Medicines of great Importance, where an acid Acrimony prevails, because, upon being mixed with *Acids*, they immediately raise a strong Effervescence, destroy the *Acid*, and are themselves at the same Time destroyed, both together by their Union forming a new Species of Salt, neither alkaline nor acid, but neutral, which is endued with considerable medicinal Virtues, being gently stimulating, diuretic, diaphoretic, and resolvent.

The Substances, which induce this great and sudden Alteration in *Acids*, are

Fixed alkaline Salts, prepared from burnt Vegetables of any Sort.

Volatile alkaline Salts distilled from animal Substances, putrefied Vegetables, or alkaline aromatic Plants.

Soaps, either fixed, as Venice Soap; or volatile, as the volatile, oily, saline Spirits, distilled from Blood, Urine, Hartshorn, or Silk; the *Offa Helmontiana*, made by the Union of a highly rectified Spirit of Wine with a strong Spirit of Sal Ammoniac. See *OFFA HELMONTIANA*.

To this Class also belong volatile alkaline Salts united by repeated Sublimations with an aromatic vegetable Oil, of which Boerhaave gives the following Example :

Take the purest Salt of Hartshorn an Ounce,

Chymical Oil of Lemons a Dram; unite them by repeated Sublimations in a tall glass Vessel.

These, however, must be used with great Care and Caution, for whenever the Blood is moved with too much Violence, and any Degree of a Fever is raised, these will infallibly increase it, and the concomitant Symptoms, introduce others, and endanger the Life they are intended to preserve.

All the Classes of Aliment and Medicines, specified above, are very good Assistants in the Cure of Disorders proceeding from an acid Acrimony, but are not sufficient alone to complete it; for, so long as the Organs of Digestion remain in a State of Laxity, acrescent Aliments will again produce the same Acrimony, and renew the Disorders depending thereon. For this Reason the Cure must be completed by a corroborating Regimen, and strengthening Medicines, that is, such as restore the Fibres, Vessels, and Membranes, which compose the Viscera concerned in the Digestion and Assimilation of the Aliment, to that Tension and Elasticity, which are necessary to the Performance of their respective Functions.

Aliments adapted to render the weak Fibres of the digestive Organs, and the animal Fibres in general, strong, are such as require but a small Action of these Organs, in order to convert them into good Chyle; and even these ought to be taken in very small Quantities at a Time, and to be repeated frequently, that is, the Quantity, and Frequency of Repetition, must be proportioned to the Power of digesting. For nothing can be more irrational than to imagine that strong Aliments, and those in large Quantities, can contribute to the Strength of an Animal, whose Organs cannot digest them sufficiently for the Formation of good Chyle.

It is for this Reason, that Hippocrates lays it down for a Rule, that *the more you nourish, that is, the more Aliment you give to impure Bodies, the more Mischief you do them.* Aph. Sect. 2. 10.

Aliments of the most easy Digestion are,

1. Milk, which is a Sort of Chyle already prepared, and gives the Stomach but very little Trouble to digest it. But it cannot be a proper Food whilst there are any Remains of Acidity in the Stomach and Intestines, because it will be subject to curdle, when mixed with these; but when the acid Acrimony

mony in the Primæ Viæ is destroyed, it affords an excellent Nourishment, if given in Quantities at a Time, not superior to the Powers of Digestion, for then it will not be subject to turn acid. But Milk loses all its medicinal, and a great deal of its alimentary Virtues, if once boiled. It must therefore be taken warm from the Animal that gives it.

The Milk of a Woman in the Flower of her Age, that uses a good Diet, and moderate Exercise, is of all others the best. Next to that Asses; then Goats, and lastly Cows Milk. *Boerhaave.*

2. The raw White of an Egg just laid, before it has had Time to cool. This approaches very near the Nature of the Serum of the Blood, being designed for the Nutrition of the Chicken during Incubation. But this, like Milk, loses its Virtue when boiled. It may be taken in new Milk, mixed with an equal Quantity of Water, provided no Acidity, in the Primæ Viæ, forbid the Use of Milk.

3. Broths, prepared from the Flesh of young healthy Animals, accustomed to moderate Exercise, carefully cleared of the Fat. Amongst these Chickens claim the first Rank, next Veal, then Mutton, and Beef the last. The Fat is easily separated from them, when suffered to grow cold. They are best when boiled in a Vessel, stopped so close, as to prevent the most subtle Parts from exhaling. *Boerhaave.*

4. Aliment in various Forms may be contrived to be made from Wheat Bread, or Biscuit, moderately fermented, to destroy the Viscidity, to which all farinaceous Vegetables are subject. *Boerhaave's* Directions are, to boil eight Ounces of Bread, or Biscuit, with three Pints of Water for an Hour, in a close earthen Vessel, and then to strain it through a Sieve. This may be mixed with Milk, Broth, Wine, Beer, or Water, as the present Circumstances of the Patient shall render either the one or the other most suitable.

A very small Quantity of these Aliments should be taken every Hour, or every two Hours, according as the Organs of Digestion shall be found to be more or less in a State of Imbecillity, but never to Satiety, or, to use the common Expression, till the Belly is full. *Boerhaave.*

I am sensible there are some, who think Directions, in Relation to Aliments of this Kind, deserve more the Notice of Nurses, or those who are employed in culinary Offices, than Physicians. But nothing can be unworthy the Regards of a Physician, that can in any Degree contribute to the Cure of Diseases. Those who have been Witnesses of the prodigious Effects of a well regulated Course of Food, obstinately persisted in, for a sufficient Length of Time, in Cases where the best chosen Medicines have proved ineffectual, will not be displeased that I have been thus particular.

Wine is a Part of Aliment not to be neglected. Those that are proper, in the Case before us, are such as by their Abundance of Spirit, and Stypticity, manifested by their austere rough Taste, contribute to the necessary Elasticity and Tension of the animal Fibres. Such are Florence Wines, the stronger French Clarets, the black Greek Wines, and some of the Spanish. And to these the Spirits of Wine, properly managed, may be added, generous Malt Liquors, and strong Mead. *Boerhaave.*

Amongst Simples, all those that abound with earthy austere Particles, and all aromatic Bitters, are adapted to brace the animal Fibres, promote Digestion, and destroy the original Cause of Acidity. In Regard to these, see a more particular Account under the Article LAXITAS.

But nothing is more effectual, by Way of Medicine, in these Cases, than Bitters, wherein Steel is an Ingredient. For Steel has great Virtues, both as it is highly destructive of an Acid, and effectual in corroborating the animal Fibres.

This Regimen, and these Medicines, are of very little Importance without Exercise, which must be adapted to the Strength and Condition of the Patient. For Motion promotes the Alcalescence of the Juices, and universally increases Strength, of which the robust Legs of Chairmen, and Arms of Watermen, afford obvious Examples.

The different Sorts of Exercise, proper to restore the lost Elasticity to the Fibres, are Riding, Walking, Sailing, and Frictions, for a more particular Account of which see the Articles LAXITAS and GYMNASTICA.

ACIDULÆ. Thus cold mineral Waters have been called, which contain a brisk Spirit, to distinguish them from THERMÆ, which are those that are hot.

The Name owes its Original to a Supposition, that these Waters were acid, which latter Observations and Experiments have proved to be without any Foundation.

These mineral Waters, both hot and cold, were called by the Greeks ὕδατα φυσικὰ, or ἀνθερὰ, Medicinal Waters, or Waters produced spontaneously.

Galen relates, that in his Days many People purged themselves in Spring and Autumn by the sulphurous, bituminous, and nitrous Waters; and that those, who were subject to the Stone, drank them by Way of Precaution. And Cælius Aurelianus *Chronicor. L. 3. C. 2.* recommends drinking the Waters of COTILIA (he means CUTILIA,) and NEPI, in that Disor-

der which he calls *Stomachica Passio*. Le Clerc is therefore mistaken, when he says, it does not appear that Cælius Aurelianus made Use of mineral Waters internally.

The Waters of Cutilia are mentioned by Pliny in the following Extract, who is more particular with Respect to the Uses and Advantages of mineral Waters, than any of the Antients, and has amongst some fabulous Accounts given others which daily Experience proves to be true. I shall therefore insert what he says upon this Subject, after having remarked, that tho' ACIDULÆ properly signifies, the brisk cold mineral Waters, it will be impossible, in treating of them, to separate them so far from the warm, as not to take some Notice of the Latter.

PLINY, Book 31. Chap. 2.

Of the different Qualities of Waters, and their medicinal Virtues.

Medicinal Springs, and those very plentiful ones, are found every where in many Countries, some cold, some hot, and, in some Places, both cold and hot, with a very small Distance between them; as among the Tarbelli, a People of Aquitain, and in the Pyrenean Mountains. Some cure Diseases by their kindly Warmth, or piercing Cold, and rise out of the Earth for the sole Benefit of Mankind above all other Creatures. To these Waters are the Gods themselves obliged for the Increase of their Number and Names, and Cities for their Original, as Puteoli in Campania, Statyellæ in Liguria, and Sextiæ in the Province of Narbonne. But no Place, both for Plenty and Variety, is better stocked with them, than the Bay of Baizæ, or has them endued with more Kinds of Virtues, as they are differently impregnated with Sulphur, Alum, Salt, Nitre, Bitumen, or a Mixture of Acid and Saline; the very Vapour of some of them is beneficial. Those, called the Posidian, are of such Force as to heat the Bagnio's, and make the cold Water in the Bathing-tubs to boil, and thoroughly dress Meat. Those which belonged to Licinius Crassus send their Vapour out to the Sea itself, insomuch that something salutary to Man is found amidst the Waves.

Generally speaking, they are good for the Nerves, and help the Gout and Sciatica. Some are proper in Luxations and Fractures. They empty the Abdomen, cure Ulcers. They are particularly beneficial to the Head and Ears, and those, called the Ciceronian, are good for the Eyes. The Sinuesan Waters, in the same Country (Campania) are reported to cure Barrenness in Women, and Madness in Men, and those in the Island Ænaria, to cure the Gravel; as does also that called Acidula, four Miles from Teanum Sidicinum. This last is cold. The same Virtue is in that of Stabianum, which is called Dimidia; and another in Venafranum that comes from a mineral Spring. The same Benefit is experienced by those who drink of the Veline Lake, and of a Fountain in Syria, near Mount Taurus, as Marcus Varro reports; and Callimachus says the same Thing of Gallus, a River of Phrygia. But this last should be drank with Moderation, lest it should cause Madness, as it happens to those who drink of the red Fountain in Æthiopia, according to Ctesias. The Waters of Albula, near Rome, cure Wounds: These are extremely cold: But the Cutilian Waters in the Country of the Sabines, which are also remarkable for their Coldness, seize the Body with a Kind of Suction, so that a Person almost fancies himself bitten, being of excellent Benefit to the Stomach, Nerves, and the whole Body. A Fountain in Thespiæ, and the River Elatum in Arcadia, promote Conception: The Fountain Linus, in the same Arcadia, preserves the Child in the Womb, and prevents Miscarrying. On the other Hand, a River in Pyrrheia, called Aphrodisium, causes Barrenness. The Lake Alpbion cures the Leprosy. Varro tells us, that one Titius, a Man of Pretorian Dignity, was so disfigured with that Disease, that he had the Face of a marble Statue. The Cydnus in Cilicia cures the Gout; on the contrary, the Water in Trœzene makes the Feet distempered. Tungri, a City of Gallia, has a famous bubbling Spring, of a ferrugineous Taste, which remains last on the Tongue, and is not perceived before. It cures Tertians and the Gravel; set over the Fire, it first grows turbid and thick, and at last turns red. The Leucogæan Springs, between Puteoli and Naples, heal Wounds and sore Eyes. Cicero, among his Wonderful Curiosities, took Notice, that the Hoofs of Cattle were hardened in the Reatine Marshes. Eudæus relates, that there were two Springs in Hestiazotis; one called Cerone, which made the Sheep black that drank of it; and the other Melan, which made them white; but those, which drank of both, were pye-balled. Theophrastus writes, that the Crathis, in the Country of the Thuri, made Sheep and Oxen white, but the Sybaris black: Nay, the Alteration was visible in the Inhabitants themselves, for they who drank of the Sybaris were blacker, harder, and had curled Hair, but the Drinkers of the Crathis were white, soft, and straight-haired. In Macedonia, they who desired a white Breed, drove their Stock to the Aliacmon; such as fancied black, or brown, kept theirs by the Axios. The same Author tells us, that in some Places all

Things, even the Fruit, are produced of a dark Colour, as among the Messapii; that the River Aleos in Erythræ breeds Hairs in Bodies. In Boeotia, by the Statue of the God Trophonius, near the River Orchomenon, are two Springs, one raising Memory, the other Forgetfulness; from whence they take their Name. In Cilicia, by the Town of Celsus runs a Brook, called Nûs, which quickens the Senses of such as drink of it, as Varro reports. But in the Island Cea is a Spring, which causes Dulness; another at Zama in Africa, which clears and heightens the Voice; that a Loathing of Wine comes on such as have drank of the Clitorian Lake. Polycletus speaks of a Fountain near Soli in Cilicia, that ran with Oil; Theophrastus of another such in Ethiopia. Lycus tells us of a Fountain in India, that lighted Torches; such another is said to be at Ecbatana. Theopompus says, there is a Lake in Scotussa, which heals Wounds; Juba, that there is a Lake among the Troglodytæ, called the Mad Lake for its ill Qualities; that thrice in the Day-time it becomes bitter and salt, and then grows sweet again; the like Changes it undergoes in the Night; and that it produces white Serpents, twenty Cubits in Length. The same Author relates, that, in a Fountain of Arabia, the Water mounts with such a Force, as to cast off whatever Weight is pressed upon it. Theophrastus relates, that the Fountain of Marfyas in Phrygia, at Celænæ, threw out Stones. Not far from thence are the two Fountains of Clæon [Weeping] and Gelon [Laughing] which took their Greek Names from their Effects. At Cyzicum is Cupid's Well, of which, whosoever drinks, as Mutianus believes, is freed from Love. At Cranon is a hot Spring, but not to an extreme Degree, whose Water, mixed with Wine, preserves the Heat of the Mixture three Days in the Vessel: And at Mattiacum, in Germany, beyond the Rhine, are hot Springs, whose Waters keep their Heat three Days after they are drawn. At the Brinks of the Springs are Pumice-stones, generated by the Waters.

If any one thinks these Things incredible, let him know, that greater Miracles of Nature are no where to be found than in the Waters. Ctesias tells us of a Pool in India, called Siden, in which nothing would swim, but all sunk; and Coelius says of our Lake Avernus, that the very Leaves sunk in it; Varro, that the Birds which flew over it fell dead. On the Contrary, in the Lake Apuscidamus, in Africa, all Things float, and nothing sinks. The same Thing is observed of the Pythian Well in Sicily, as Apion relates, and of a Lake in Media, and of Saturn's Well. In Judæa is a Brook that dries up every Sabbath Day. Some of these Wonders are of such a Nature as to strike us with Horror. Ctesias writes of a Fountain in Armenia, that produced black Fish, which gave present Death to the Eater of them. I have heard of the like Sort near the Rise of the Danube, which holds till you come to a Spring in the Bank of its Channel, where that Kind of Fish ends; for which Reason the Head of that River is supposed to be at this Place. The like is reported of the Nymphs Pool in Lydia. In Arcadia, by the Pheneus, there runs out of the Rocks a Water, called Styx, which kills on the Spot. But Theophrastus informs us, that there are small Fish in it, which are also rank Poison; and in this Respect it differs from other deadly Fountains. Theophrastus also speaks of deadly Waters at Cychri in Thræcia; and Lycus of some among the Leontines, which killed the third Day after drinking them. Varro tells us of a Fountain by Soracte, four Feet in Breadth, which at Sun-rise works up, like a boiling Pot, and overflows, and that the Birds, which sip of it, lie dead on the Spot. For some of these fatal Streams, it must be observed, have an ensnaring Quality in them, and an alluring Aspect, like the Nonacris of Arcadia. They take this to be hurtful by its excessive Coldness, since it petrifies as it runs. Quite other Circumstances attend that of Tempe in Thessaly, whose very Sight strikes a Terror; it is said that Iron and Copper are corroded by its Water. Its Head is but narrow, and, what is remarkable, embraced all around, as it is said, by the Roots of a Siliqua Sylvestris, ever blooming with Purple, and the Brims are covered with a green Herb peculiar to it. In Macedonia, not far from the Sepulchre of Euripides, the Poet, two Streams mix, one of most wholesome Water, the other deadly. In Perperenæ is a Fountain, which makes the Ground stony wherever its Water comes. The same Property belongs to the hot Spring at Delium in Eubœa; the Stream washes against the Sides of the Rocks, and these grow in Height. In Eurymenæ, Garlands, cast into the Fountain, turn to Stone. At Colossi is a River, into which you cast Bricks, and pull them out converted into Stones. In the Corycian Grotto's the Drippings of the Water harden into Stone; at Micza in Macedonia, they petrify as they hang from the Vault; at Cerycum, after they are fallen off; in some Places both Ways, and form Pillars of a discoloured Hue, as in the large Grotto of the Rhodians at Phausia in the Cherfoneus.

Thus far we find, by the Evidence of Pliny, what the Ancients knew of mineral Waters, and they have been used ever since, more or less, as different Fashions in the Theory of Physic have happened to prevail. And yet, what is greatly to be la-

mented, the Practice of Physic, so far as mineral Waters are concerned in it, is at this Day in a great Measure empirical, No-body having discovered a Method of determining the Effects of mineral Waters a priori, or before a Number of random Experiments have shewn their Efficacy. Hence, though every Country abounds with mineral Waters, but very few have been introduced into Practice, and even those originally by Accident. And, indeed, very little was known of the Nature of mineral Waters, till Hoffman, by some well adapted Experiments, discovered the Errors of former Writers upon these Subjects, and laid a Foundation for farther Advances; and our own Countryman, Dr. Shaw, improving upon Hoffman, has carried his Enquiries farther, insomuch that we are now in a fair Way of bringing this valuable Part of the Materia Medica into more general Use, and to better Purposes, as we may be more able to ascertain the Effects of different mineral Waters, in different Cases, when a sufficient Number of Experiments have been made upon their Plans.

It is to the last-mentioned Authors, and Dr. Stare, I shall be principally obliged for what I shall say on this Head; and I shall be very particular, as the Importance of the Subject seems to demand it, for I am inclined to believe, that if all the Virtues of mineral Waters were understood, Physic, in the general Acceptation of the Word, would be no longer of much Use in chronical Disorders, which might then be cured by a Method safe, expeditious, and agreeable, and, perhaps, much more effectual than any other which Physicians have yet contrived. I am not singular in this Opinion, as will appear by the following Observations of the illustrious Hoffman.

1. It appears, that mineral Waters, both of the hot and cold Kind, are of such Virtue and Efficacy, for the Preservation of Health, and the Cure of Diseases, as in the highest Degree to exceed the Shop Remedies, prepared by the nicest Art: And we are well assured that this Fact cannot be disputed, but by such as derive their Arguments from their Ignorance and Indolence, and are no Way competent or experienced Judges in the Case.

2. These Waters approach, the nearest of any Thing in Nature, to what has been so much searched after, an universal Medicine, suited to the Cure of all Diseases. But there is no Occasion for any such laborious Enquiry, whilst we find Waters, adapted to all Kinds of Disorders, spontaneously offer themselves. And I would fain know whether any Physician, of practical Knowledge and Experience in his Art, can say of any other Medicine, what we certainly know to be true of Waters, viz. that they effectually cure, both with Expedition and Safety, yet occasion no Loss of Strength; but gently operate by all the Outlets of the Body; and thus discharge, at every Pore, the Matter which generates and breeds Diseases. For these Waters not only readily dilute, propel, and carry off Collections of impure Humours, lodged in the Stomach and Intestines, but likewise admirably promote the Discharge of all peccant, saline, and unctuous Matter, by the Conduits of Urine; and at the same Time breathe out the more subtil and rarefied pernicious Particles, by that general Strainer of the Body, the Skin.

3. These Waters, besides their Power of evacuating, are also possessed of a singular alterative Virtue; insomuch that there is no other Remedy, hitherto known, so fit for dissolving viscid and clammy Humours, diluting and tempering such as are sharp and corrosive, correcting and changing such as are acid and austere; and for opening and breaking away Obstructions and Coagulations in the finer Vessels. Add to this, that they have a most desirable, strengthening Virtue, whereby they nobly brace up, and recover such solid Parts of the Body as have lost their natural Tone or Springiness, or become slack and remiss. And, what is more extraordinary, they produce all these good Effects, without occasioning any subsequent Mischief; and therefore may, with the utmost Safety, be given, not only to Persons in a State of Health, but even to those in the weakest Condition, Women in Child-bed, old People, and Children. In short, they have also this Particularity, that they may be innocently and advantageously used in different Constitutions, and Ages, at all Seasons of the Year; not excepting the Winter itself.

4. What is still more wonderful, but no less certain, every capital mineral Spring seems endowed with quite different Virtues, so as to produce contrary Effects. Thus, if the Excretions of the Body are too large, these Waters check them with Safety; or if they are too small, the very same Waters will effectually increase them. Again, if the first Passages, particularly the Stomach and the Duodenum, be over-loaded with a bilious Matter, they without Violence discharge it by Vomiting; and, on the contrary, soon cure that stubborn and violent Vomiting wherewith hypochondriacal Persons are sometimes afflicted. So likewise, if the menstrual or hæmorrhoidal Flux be too large, stopped, or observes not its natural Periods, there is no better Remedy, hitherto discovered, than mineral Waters, for bringing these Disorders to rights.

5. Another singular Instance of the Design, Wisdom, and Goodness of Providence, in providing mineral Springs is, that

that they have this Advantage above most other Things, that they are not very subject to lose their Virtues, or fall to Ruin or Decay. For tho' this has sometimes happened, yet the more capital and serviceable Springs, of medicinal Use, have certainly retained their Virtue through the Course of many Ages, and afforded a sufficient Quantity of Water, even in the hottest Seasons, whilst other common Springs have been dried up. They have also continued to abound with the same Quantity of Principles, or Ingredients of the same Quality, in an equal Proportion of the Water. And lastly, though the Bowels of the Earth, through which these Waters run, are pregnant with Metals and Minerals, some of them prejudicial and poisonous to the Body; yet the Waters of these Springs dissolve and drink up none of this Kind: But, as if directed by an Appetite of Choice, impregnate themselves with only such Principles in their Passage, as render them highly agreeable to the Solids and Fluids of the human Body.

Since, therefore, there are so many Advantages derivable to Mankind from medicinal Springs, whence they were held sacred by the Antients, who can help wondering at the supine Indolence and Neglect both of Philosophers and Physicians, in not examining into their Principles, Operations, and Effects? The greatest Part of the Authors, upon this Subject, seem to have wrote hood-winked, so as not to have seen the real Principles and Ingredients of these Waters: But on the contrary, to have imagined in them Matters whereof they could trace not the least Marks or Signs. Whence it has happened, that not only the Physicians upon the Spot, but those likewise of other Countries, who had not the Opportunity of examining our Waters, have held them very suspect, precarious, and dangerous, and therefore advised their Use only to the robust, the strong, and the healthy; being very apprehensive of doing Mischief at least, if not occasioning sudden Death, by prescribing a Course of Waters which they thought abounded with the Principles of so many Minerals, opposite and destructive to the human Body, unless all the Parts thereof were perfectly sound and intire. In this Point, however, such Physicians have not acted consistently with themselves, for their Custom has been to make these Springs, as it were, their last Resource for the Cure of chronic Disorders, which had reduced the Patient to the utmost Extremity, after all other Remedies failed, as if Persons, who had so long laboured under inveterate Diseases, could be supposed to have their Viscera sound and untainted. Such Physicians, therefore, notwithstanding all the Darkeness and Distrust which may hang upon their Minds in this Matter, must acknowledge that mineral Waters cannot, at least, but be innocent; if they here do no Mischief; or highly serviceable, if they effect a Cure; in Bodies so worn out and weakened by a Distemper, though they should not understand the Reasons whereon the Thing depends.

And if I shall have made any useful Discoveries in this Subject, what led me to them was a firm Resolution, to take nothing upon Trust, nor measure the Skill of Physicians by popular Opinion; but myself to try, as far as my Abilities went, and examine every Thing by the Rules of Reason. And finding, by Observation and Experience, the superior Excellence and Usefulness of mineral Waters in the Art of Medicine, I thought myself obliged to prosecute my Enquiries with a Caution and Exactness, proportionable to the Importance of the Affair. Thus, by the with-holding my Assent to the received Notions upon this Head, and coming personally to examine into the true Nature, Principles, and Virtues of these Waters, by the Means of chymical and philosophical Experiments, I found the greatest Part of what had been said of them by Authors, to be false and fictitious. And being once thoroughly convinced of this, I held it incumbent upon me to oppose the Errors every where strongly prevailing to the Disadvantage of the Art I profess, and support my own Discoveries with all the Light and Strength of Reason I could give them. And, in the Course of these my Enquiries and Endeavours, I have happily discovered certain Springs of uncommon Virtues, and advantageously introduced them into Physic. And if others will proceed in the same or a better Manner, I question not but their Labours will be crowned with the same or better Success; which is what I earnestly wish for the Benefit of Mankind. *Hoffman.*

Dr. Stare seems to have been one of the first who was sensible that the popular Notions, with Respect to mineral Waters, were erroneous. His Observations are worth inserting. But I must observe, once for all, that I have seen remarkable Instances of the Effects of our own chalybeate Waters in some of the Cases mentioned by Pliny, as in the Gravel; but for Hysterics, promoting Fecundity, and preventing Miscarriages, they are not to be equalled by any Medicines, or Method I am acquainted with, and will very seldom fail of answering this good End, if the Case is retrievable by any Means whatever. This makes me very easily believe the Virtues attributed to the Spaw, and Pyrmont Waters, in the following Pages, to be real. But, I must confess, I never yet saw the least good Effect produced by either of these Waters, in any Case whatever, tho' I tried them in many Cases, till their Success, at least in my

Hands, contradicted the Character they have acquired, and made me, for that Reason, use them no more. I don't say this with a View of derogating from the Reputation of these Waters, but to shew, that they either lose their Virtues at this Distance from the Fountain, or, which is more probable, that the wholesale Dealers in Medicines have found Methods of counterfeiting these Waters, in such a Manner, that the spurious have the Appearance of the genuine, without the least Participation of their Virtues.

Dr. Jordis, a Fellow of the Royal Society, with whom I kept a Correspondence for above thirty Years past, practised Physic at Franckfurt, and often at Swalbach in Summer-time: I desired him to examine the Spaw-Waters, and give me an Account of the Contents of that *Sour-Brunn* or *Acidula* (so much celebrated for its Virtues, and Concourse of Persons of the greatest Quality). He gave me an Account of some Ores or ferrugineous Parts, which he calcined and tortured in the Fire, to make them confess their sulphur Original; but, in all his Experiments, did not satisfy me that the Water held one Drop of an Acid by Distillation, &c. That which gave me the first Suspicion, that the chalybeate Waters did not contain any rough, or vitriolic, or acid Salts in them, proceeded from an accidental Use of a strong iron Water, in which I dissolved Soap, and found it lather and wash my Hands well; and then I used a Wash-ball and shaved with it, and tried several other Waters of this Sort, which did the same, and much better than some Pump-Waters.

I consulted my Palate, and tried whether I could discover any Sharpness or Acidity in our English Steel-Waters at Tunbridge, at Black-Boy in the Parish of Franfield in Suffex, Hampstead, Sunning-hill in Berkshire, &c. but I was so far from discovering any such Thing, that these Waters seemed rather to leave a sweetish Flavour or Fare-well behind: Thus many alcaly Salts, if nicely examined (of the fixed Kind) have affected my Taste.

I made Experiments with several Sorts of such Spirits as are apt to ferment with Acids; such as Spirit of Hartshorn, of Sal Ammoniac, &c. but these made no Ferment, nor any Motion or Change in these Waters.

I considered the Diseases in human Bodies, which these Waters were prescribed, by Physicians, to cure, that they were often such as proceeded from sharp, acid, or acrimonious Causes, as Cardialgie or Heart-burnings, sour Vomitings, corrosive Diarrhoea's, Colics from Scurvies, and Stranguries; and that, for these Distempers, sweetening and alcalisate Remedies are made Use of.

I consider these Waters, as containing in them the Properties of Iron; and I find by Experience, that it is most opposite to Acids, being one of their great Correctors, and therefore rather to be esteemed an Alkali.

1. Take some Filings of Iron, suppose a Dram, and pour on them about an Ounce of the milder Acids, such as Vinegar, Verjuice, or the Juice of Lemons, and it will destroy the Sharpness of these Juices: Or, if you pour on these Filings mineral Acids, as the very corrosive Spirit of Nitre, or of Salt, or what is called Oil of Vitriol, they will immediately lose their Acidity, be disarmed of their sharp Points, and by Evaporation give a Salt that will taste sweetish, and is by Chemists called *Saccharum Martis*, if duly prepared, which is safely given inwardly, and is esteemed a good Altering Medicine.

2. Steel beaten to a fine Powder is, without any farther Preparation, given inwardly with great Success for stomachic Diseases, as in the Green-sickness, hypochondriac, and various other acid and acrimonious Disaffections.

I considered Milk to be a very proper and obvious Subject to bring this Controversy to a plain and unquestionable Decision. I made this Experiment with all possible Exactness: I first proved the chalybeate Waters, more particularly the Spaw-Waters, by trying whether they tinged with Galls. These being very good, I put Part of the Waters to cold Milk; some I only made luke-warm, and some I boiled together, in equal Proportions: But they were so far from affording any Curd or Coagulation, that they continued several Days without being sour.

Since mineral Waters, especially those that are chalybeate, are of such important Use in Physic, and have gained amongst us so just a Reputation for their excellent Virtues, and are the greatest Refuge in very potent and obstinate Diseases, this has made me judge it a Work not unacceptable to Virtuoso's, especially those of the Faculty of Physic, to have this Medicine fairly examined, its genuine Properties asserted, and what was called an Acid, to be demonstrated an Alkali. Is it not a Sort of Justice due to the World, that the Germans who sent us over these Waters, with this false Character of four Waters, should banish this misleading Term from their Spaws? It is from this Mistake, that their Physicians do prohibit the Use of all Manner of Lacticinia, as if they were as noxious as deadly Poisons, whilst they are in a Course of their medicinal Waters.

Since this Prejudice has prevailed very much amongst most of our Water-drinkers in England, I do attest, that I have frequently

quently advised, in some Cases, Milk to be given daily in the Evening, through a whole Course of Steel-Waters, with good Effect: Nay, I do affirm, that some others could not bear the Waters without having a third Part of Milk, or more, mixed with them, and have continued them so for many Weeks, with good Advantage: Nor do I find the least Reason to prohibit the Use of Milk in a Course of Bath Waters, having been here above a Year and half, making the best Scrutiny I can into the Properties, Virtues, and Vices (if they have any) of these Waters.

Since our Experiments discover, that those Things, which are of a sweetening alcalisate Nature, do so very well agree with these mineral Waters, it will appear by the following Experiments, that Acids do very much disagree. I put but one Drop of Oil of Vitriol to a large Glass full of strong Spaw Waters, which, before the Addition of this Acid, did give a deep Purple to the Solution of Galls, but now would not give the least Tincture, though I put in four times as much of the Galls. From hence, I conclude, that the Virtues of the chalybeate Ingredients, which I take to be the Life and Soul of these Waters, were so far bound up or destroyed, as to have lost their cordial or corroborating Faculty; and that the Bile or Gall in the human Bowels could not be able to separate the chalybeate (which are the only medical) Particles, and mix them with the Chyle, in order to any End in Physic. Let this be a Caution to those that design to make these Waters pass better by Urine, that they do not make use of any Acids, it being a common Practice to use Spirit of Vitriol, Spiritus Nitri dulcis, &c. as a Diuretic; unless it should so happen, that they have a Design to take off, and divest them of their warm, cordial, or altering Power, and so to bring them near to common Water; which I must confess we are forced to do, especially in the Use of Bath Waters, in some hot inflammatory Cases.

I shall conclude with one short Experiment in Favour of our Alcalies; that if you put any alkali Salt, volatile or fixed, such as volatile Salt of Hartshorn, or of Sal ammoniac, or fixed Salt of Tartar, of Wormwood, or any other true Alkali, you will then destroy the above-named acid Spirit, recover the Virtue of the Waters, and dispose them to give their Tincture as they used to do in their natural State.

Having procured about a dozen Quarts of Pyrmont Waters this last Summer, I made some Trials with them. I found by the Taste that they contained a rich chalybeate Virtue, and also made a very brisk and lively Impression on the Palate, more grateful and spirituous, than the best Spaw Waters I ever tasted. The Spaw Waters are looked upon as most excellent, if they sparkle a little in the Glass: But these, in Summer Time, when poured into the Glass, nay, sometimes even the Bottle, as soon as the Cork was opened, and the Air was admitted, would make a notable Ebullition, somewhat like bottled Cyder, though this was soon over; but they did yet continue their smart and brisk Taste, and high chalybeate Relish to the last Drop, though we were some Hours in drinking them off. In the Winter-time, these Waters do not sparkle, nor ferment, at least mine did not; but they were not carefully preserved, being exposed in cold Cellars where our Beer or Wine stood in the Winter, and yet notwithstanding, they lost not the chalybeate Taste, and also retained a very pleasant brisk Gust. These Waters have been reckoned in the Number of the German *Acidulae*, and some of my Friends, to whom I gave a Glass of the Water, have ascribed to it a sharp Taste, and have been ready to run away with a possessed Opinion of its being sour: But when I required them to call back that hasty Assertion, and to consider it better, whether that Taste was really sour or acid, they have been forced to recant, and confess, that the smart and brisk Taste misled them to call it Acid, or truly Sour. Thus Cyder, and soft Ale, when bottled, will give such an acute Affection to the Palate, when it is far from being sour: And even volatile Alcalies of Sal ammoniac, or of Hartshorn, may be made to give the like Pungency to the Tongue.

In order to a more nice Enquiry, whether any Acidity were discoverable in these Pyrmont Waters, we dropped in considerable Quantities, both of Spirit of Hartshorn, and of Spirit of Sal ammoniac, both justly prepared; but could not discover the least Luctation or Motion to appear upon this Conjunction, as it usually does with an Acid. I made a yet more nice and certain Examen of these Waters, by mixing Milk with them, sometimes in equal, sometimes in double Proportion; and in various Degrees of Warmth, both in lukewarm Degrees, and also with a boiling Heat; but I could not perceive any Curdling; but rather, on the contrary, the Water preserved the Milk from Coagulation, for four or five Days, even in September, it being hot Weather.

Take a very little Gall in Powder, about half a Grain, to a Glass of a Quarter of a Pint; this does in a Moment render it turbid, and make a dark Purple, especially if you stir it: but, if you drop the Powder on the Surface of the same Water, it then causes a fine blue Tincture. If you will make a very fine Tincture pleasant to the Spectator, take five Leaves of strong green Tea, put them into the Bottom of a Glass, holding

a Quarter of a Pint, and you will see those Leaves unfold themselves, and, in a Quarter of an Hour, tinge the Water with such a cerulous azure Blue, that few Vegetables do afford the like. We observe, that the longer these Leaves, or any other Styptics (which are the Precipitators) do stay together, the more they degenerate into a deep Purple, or even in to an atramentous Colour.

In Reference to the internal Use of these Waters, I drank about a Quart at a Time, after this Manner: I first began with the Spaw Waters, which I procured very good, and drank them for a Week, and they agreed very well. I then drank the Pyrmont Waters for three or four Days, and continued the Use of these Waters alternately, until I had drank about twenty Days. By the Result of my Experiment, it seemed to me very plain, that the Pyrmont Water was more agreeable, gave more Strength and Spirit, and was as much or more preferable for its internal Virtue, as for its excelling the other in a brisker and more sprightly Taste.

There is another Excellency in these Waters, which will make them more useful to us, than any foreign chalybeate Waters we yet know; because these will keep better, being not so soon spoiled by any accidental Insinuations of Air, as the Spaw are subject to be. The chalybeate Mineral is here thoroughly dissolved and well united, and mixed in the Water, so that it does not easily precipitate; for which Reason it may also the better pass the Vasa Lactea, and even enter into the Mass of Blood itself, and work the more considerable Effects. That this is not a bare Hypothesis, may be proved by this Experiment.

Having suffered the Spaw Water to be exposed in a Bottle which was half full, and unstopped twelve Hours, I examined it, and found it taste just like common Water; but the Pyrmont Waters, that were opened to the Air after the same Manner, tasted strong of the Mineral, and gave their Tincture as at first; nay, they continued thus for full two Days, and perhaps might have done so longer, but I thought that Time sufficed. I may fairly conclude, that, since the Spaw has been very beneficial to our Patients in chronical Diseases, these Waters of a much superior Virtue will surpass them in conquering many of our obstinate Distempers.

Having had lately some Discourse about a purging Quality contained in these Waters, I am now enquiring into the Truth of this Question, whether they in reality do contain any purging Ingredients or Properties.

I evaporated about a Quart of this Water *ad siccitatem*; I then poured on the Reliquiae some Rain Water, enough to dissolve and take up the Salts, and exhaled that Water, and had a Grain or two of the Salts, that tasted muriatic, such as most River and Pump-Waters give. It is well known, that the purging Waters have a very bitter Taste, and by the learned Dr. Grew, that Salt was called *Sal catharticum amarum*, which distinguished it from all other Species of natural Salts: That of the Pyrmont Water, above-mentioned, has no Relation to this, but to the Sea-Salt, not being in the least bitter.

It is also well known, that, unless our Waters be impregnated with a considerable Quantity of this bitter Salt, they will not purge at all: Two or three Grains signify nothing, nor have the least cathartic Power. For Example, put two Drams of the purging Salts to a Quart of common Water; and this Quantity will give but a Stool or two, to one who is naturally very easy to work upon. I have examined several other chalybeate Waters, and found much the like Ingredients, and never any that I could suspect to carry any purging Properties.

I think we can much better demonstrate, that the chalybeate Waters do contain styptic and restraining Virtues, because they owe their Birth to the Iron Mineral, and more particularly to the Pyrites, which Dr. Lister suggests (not without some Reason) to be the Parent even of all Iron Ores, as it is doubtless the Cause of all chalybeate Waters: Thus I have often examined the Solution of the Pyrites by the Rain-water at Deptford, and at other Places where Copperas is made, and found it a very strong chalybeate Water. It is from this Mineral we have our strong styptic and constringent Medicines, for external and internal Use; we have our Powders and Salts of Steel, or Vitriol of Mars, from hence; nay, even those obstinate and inveterate Diarrhoeas, which have baffled the Force of all Medicines, have, by a judicious Use of Tunbridge, and other Iron Waters, received a Cure.

But, notwithstanding all we can say, it will be retorted, that there is Matter of Fact and Experience against us, that the Waters really do purge at Pyrmont, where they are drank. This we do allow to be true, that Tunbridge Waters do not only purge, but sometimes vomit, when drank hastily, and in great Quantity; but our Physicians have corrected this Irregularity, and we hear of no such Complaints, where they observe in their own Nature binding, and do oft require some opening Medicine. The Quantities of Water drank at Pyrmont are very large, often two or three English Quarts. It is no Wonder that their Weight forces them through the Bowels; for any common Water drank hastily, and in such Quantity, will

will do the same. Whereas, if you take this Method, and will drink Pyrmont, or any other chalybeate Waters leisurely, viz. a Pint Glas in an Hour, or rather two Half-pint Glasses, you may drink three Pints in so many Hours, without Danger of losing them by Dejection. But if any one will be careful, and take this Caution with him, he will scarce fail of Success, that is, let him be very quiet and still, both in Body and Mind; the less he stirs or walks, the better he will pass off his Waters by Urine. And though this will appear a Paradox, especially to those Physicians, who practise abroad, and commend to their Patients much Action in Walking, yet I know I have both Reason and Experience on my Side. To avoid Prolixity, I shall not declare them at this Time, and shall only ask Leave to mention one Observation I have made, that none of our English Steel-waters do strike such a Purple as the foreign celebrated chalybeate Waters do; for ours do give a more turbid and dark Colour, and the worse the Waters are, the blacker Sediment they make. Those of Islington abound with a coarse Oker, the Mineral is not well dissolved, but gives an atramentous Colour; but the Pyrmont Waters excel all I have happened to examine in its bright ceruleous Lustre. *Slare's Dissert. Philos. Transf.*

An Examen of Mineral Waters.

The admirable Virtues, and extraordinary Efficacy of mineral Waters, both the cold, which are called *Acidulae*, and the hot, named *Thermae*, in perfectly curing the most obstinate and inveterate Diseases, are so well known and attested, by long Use Time out of Mind, and an infinite Number of Experiments, as to put the Matter beyond all Question. But whence these Waters derive their sanative Power and Virtue is a Thing not so commonly known; and, really, there are very few who know how to search out the Elements and Ingredients, in which their wonderful Efficacy lies, by a chymical Examen.

Now there is no better Way to discover the Elements of medicated Waters, than by evaporating the Liquid by a gentle Heat, either in a Tin Vessel set over hot Embers in the open Air, or, which is better, in a glass Cucurbit, carefully saving the Liquor that goes through the Alembic, that the Proportion of the Solid to the Liquid may be obtained. If then the Evaporation be made to a Dryness, and the dry Mass, left in the Cucurbit, be accurately weighed, we have the true Weight of the Ingredients, which are of a more fixed Nature, and, though of a different Texture, must be examined.

First, then, a Solution of the Residuum must be made with pure Water that is distilled, which is always requisite for the more accurate Examen of Things chymically prepared, for many Spring-waters contain much of the Elements of Earth and Salt. In this Solution the Salt is separated, and the Earth remains, which is less soluble in Water. It is easy to know, whether this Salt be alkaline, by mixing it with an Acid, for then it forms a Sal Tertius, or neutral Salt; or with Sal Ammoniac, in which Case the volatile urinous Smell betrays it. Or it may be known, when a Solution of sublimate Mercury in Water is added to it, for then a yellow Powder precipitates; or if it gives a green Colour to Syrup of Violets mixed with it.

The Case carries a little more Difficulty, when the Salts, left after Evaporation, are not of one and the same, but of different Kinds: As when, for Example, alkaline Salts are mixed with those that are neutral, such are common Salt, or calcareous Salt, as Aphronitrum, or sulphurous Salt, which approaches to the Nature of Arcanum duplicatum, or vitriolated Tartar. Hence it may well be asked, How shall these be separated from one another? It must be done after the following Manner: Pour common Water on the dry Mass, and, after a gentle Agitation, let it run off. By this Means there will remain a saline Powder, not easily dissoluble, such as are all your middle Salts, for alkaline Salts readily dissolve in Water. There is another Way of separating neutral Salts from alkaline, and that is, by Crystallization; in which, if rightly performed, every middle Kind of Salt, best fitted to receive a solid Figure, first descends in the Form of Crystals, there remaining nothing but a lividous Liquor, which swims a-top, and receives with more Difficulty a solid Form.

Here another Question will arise, viz. How may the genuine Nature and Properties of the middle Kind of Salts be found out? You are to know then, that no other Salts are conveyed out of the Bowels of the Earth in the Vehicle of Water, than either common Salt, or a Kind of neutral Salt, of a vitriolic and sulphurous Nature, being made up of the Acid of Sulphur or Vitriol, and a Sort of Salt, or Earth, of the alkaline Kind: The former, that is, common Salt, may very well be distinguished, partly by the Savour, and cubical Figure, which Crystallization gives it, and partly, by emitting, when mixed with Oil of Vitriol, a copious white

Fume, of a most penetrating Smell; the other Salt, which derives its Original from an universal, subterraneous, sulphurous Acid, is thus tried, viz. Mix two Parts of the same with one Part of Salt of Tartar, and one of Powder of Charcoal, and let them incorporate and fuse together in a Crucible over a melting Heat; there will then be produced a red Mass, of a sulphurous alkaline Taste, much resembling the Liver of Sulphur, and from which, with highly rectified Spirits of Wine, is extracted the true yellow Tincture of Sulphur, which stains Silver with a footy Colour.

From a Solution of this Mass with Water, by an acid Liquor, is precipitated the true Lac Sulphuris; a manifest Evidence, that the mineral Sulphur, which is compounded of the universal Acid, and inflammatory Principle, is revived in this Process. I not only found this true, in all Salts procured by Art, which are compounded with the Acid of Vitriol or Sulphur, but also by Means of this Process produced a sulphurous alkaline Mass out of all the middle Salts, common Salt excepted, which are found in the mineral Waters, both cold and hot; but with this Difference, that, if the middle Salt be compounded of an alkaline Salt and the Spirit of Sulphur, the easier is the Fusion by Fire, which becomes far more difficult, if this Acid be united with a terrene, or gypseo-calcareous Element, such as is the Salt in what they call the Aphronitre which adheres to Stones.

Besides alkaline and middle Salts, there is, in very many of the cold mineral Waters, a vitriolic Salt, which is seldom of a fixed Nature, but, for the most Part, subtle and volatile. This same Salt is known to be in all Waters and Liquids, not so much by the Taste, as by the dark-purple and blackish Colour they receive from the fine Powder of Galls, or the Rinds of Pomegranates, or an Infusion of the Flowers of Pomegranates. The Volatility of the Spirit of this Vitriol, or rather of the Acid of this Mineral, which, in Conjunction with martial or oleaceous Particles, constitutes the subtle Salt of Vitriol, appears especially in this, that mineral Waters, which take a black Tincture from Powder of Galls, and drank make the Excrements black, if exposed a-while to the open Air in a warm Place, immediately lose their vitriolic Taste and Faculty of changing their Colour, which happens yet much sooner upon a gentle Boiling and Ebullition.

There remains yet something to be examined in mineral Waters, and that is their very subtle spiritous Element, which seems to be of an aereo-ethereal Nature, and to have an elastic Property. The Presence and Abundance of this are manifested, not only by the Vapour, which strikes the Nostrils, but also by their Effect on the Head in drinking. To this Principle also it must be ascribed, that mineral Waters, especially the cold Springs, poured out of one Glas into another, raise Plenty of Bubbles, which stick to the Sides of the Vessel.

But these Bubbles rise in still greater Plenty, and with more Force and Celerity from the Interstices of these Waters to the Superficies, when they are mixed in equal Proportion with Moselle or Rhenish Wine, or any other that contains a subtle Acid, and a little Sugar. For so they look well to the Eye, and become of a delicious Taste, the Vapours proceeding from them in such Plenty, that they seem to smother. This Effervescence, by which these Bubbles are principally raised, depends on the Conflict of the alkaline Salt, which prevails in mineral Waters, with the subtle Acid of the Wines.

This spiritous Principle, residing in the Waters, is also the Cause why Vessels, or Bottles, close stopped, when heated, burst with great Vehemence; a sure Evidence of the vast expansive Power of this very subtle Matter.

Moreover, the Existence of this spiritous Element, which ennobles mineral Springs, may very conveniently be tried, in a Vacuum, by Help of the Air-pump, in which so great a Quantity of Bubbles rises to the Superficies of the Vessel, that they seem like a Liquor heated to a Degree of Ebullition.

Such Springs therefore, as have undergone an Examen, and do not produce the like Effects and Phenomena, are to be esteemed of much inferior Virtue. For it is that most subtle mineral Spirit, which endues the Waters and their Ingredients with such extraordinary Virtues, so as not only with Speed to enter and penetrate into the very inmost Recesses and Emunctories of the Body, but to communicate greater Strength, and Power of Moving, to the solid Parts, and the Fibre Motrices, for the more ready Passage of the Waters through the tubulous Frame of our Bodies, by which not only the Vessels are cleaned and freed from all Obstructions, but the Secretions and Excretions of useless Parts are in an extraordinary Manner promoted.

But as there is no Spring-water, which does not afford something earthy, and hardly soluble, after Evaporation, so we find the same Thing in mineral Waters, whether hot or cold, even in those that have the greatest Reputation for medicinal Virtues. Now the Nature and Properties of this

gross Substance ought also to be inquired into. For there are various Kinds of Earth; through which the Waters take their Course, some Parts of which are easily taken up by Waters, because of their intestine Motion.

The Things, which get into the Pores of the Water, are chiefly these: Limy, okerous, clayey, and even stony Earths. The Matter of the limy Kind is known by its Effervescence with an Acid, and also by Burning, in which it acquires the highest Acrimony. If there be vast Quantities of this limy Earth in the Waters, especially hot Waters, it separates in cold Weather, and sticks to the Vessels and Pipes, that contain the Water, and, in a little Time, covers them over with a stony Crust, as we see in the Caroline Baths, which contain such Plenty of alkaline and limy Earth, that Stones of vast Bigness are formed in the Vessels and Pipes that hold them. If the Sediment, or Precipitate, which, after Evaporation and Crystallization of the Salts, remains in the Filtre, is of a yellow Colour, which, in Calcining, changes to red, it is a Sign of a martial or strong Matter, which never fails to exert its wholesome Operations on the Human Body, by its gently astringent and corroborating Virtue.

But this okerous Substance, though it takes its Colour from Iron, will not suffer a Solution by an Acid, because it is of the Nature of Clays. Many Waters are full of this Sort of solar and martial Earth, without any other saline and spiritous Ingredient, whence they are of no small Service in the Cure of Chronic Distempers, both drank and used as Baths. In this Class we may reckon the Spring at Freyenwald in the Marquisate, at Bibra in Thuringia, and Leuchstad in Meissen, whose corroborative, drying, and diaphoretic Virtues, especially when used by Way of Bath, cannot be too much commended.

If there be any Thing stony in mineral Springs, it may readily be known by Elutriation with a sufficient Quantity of Water, by which all the subtle terreous Parts are dissolved; for its Weight carries it to the Bottom, and will not easily suffer it to be moved out of its Place.

Besides the hot and cold mineral Waters, in which it was our first Assertion that Alkalies predominate, there are also medicinal Springs, impregnated neither with Acid nor Alkali, nor capable of tinging Syrup of Violets, but containing only a Salt of a middle Nature, which may best be procured by Evaporation. Of this Kind, chiefly, are some Springs first discovered by me some Years ago in Bohemia, at the Town of Zetlitz, two Miles from the City of Töplitz, whose Waters, are very bitter, laxative, and contain a considerable Quantity of a middle Salt, which is much of the same Nature and Virtues with Aphronitre, or artificial Epsom Salt. *Hoffman, Obs. Phys. Chy.*

The following Particulars, relating to some of the principal mineral Waters in Germany, will, it is to be hoped, both encourage, and enable the Curious, who live near any mineral Springs, of which there is great Plenty in England, not yet taken sufficient Notice of, to examine into their Contents and respective Natures, that their Efficacy, in the Cure of Diseases, may be rendered more certain, and more generally known to the World.

1. As it is certain, that medicinal Springs, whether of the hot or cold Kind, found in different Countries, differ considerably with Regard to the Principles or Ingredients they contain; and again, in Point of Purity of the Waters, whence some become serviceable in one Sort of Distempers, and others in another; some of them useful in this Constitution, and some in that; it becomes a Matter of Importance, to determine the precise Virtues and Efficacies of different Springs, by the Means of sure Experiments. And to lead others into a regular and just Method of doing this, or of discovering such Springs, as are of greatest Efficacy for the Cure of Diseases in every Country, is the Design of the present Section. To render the whole Matter familiar and intelligible, we shall proceed in the instructive Way of Examples, rather than Precepts; and lay down Sets of Experiments, that we have ourselves made upon the Waters of certain Springs of the greatest Character and Reputation in Germany: Whence at the same Time we shall have an Opportunity of confirming their medicinal Virtues by Experience, and Instances of Persons who have drank them with Success; and thus of demonstrating their Virtues to be agreeable to the Contents, which our Trials manifest in them.

2. We begin with the Pyrmont Waters, which, on Account of their penetrating Nature, and quick Passing off, hold the principal Place among cold Springs. It is remarkable of these Waters, above all others, that the glass or earthen Vessels, filled with them at the Spring-head, and well stopped down, easily burst to Pieces, with considerable Violence, upon shaking, or being gently treated. So that, if Flasks of it are to be carried to distant Places, it is necessary not to fill them

to the Top; or else, to let them remain open for some Hours, that their volatile elastic Spirit may in some Degree fly off.

3. If these Waters be drank cold, upon an empty Stomach, in the Morning, they not only briskly strike the Nose with a subtle penetrating Vapour, that rises from them; but also render the Head giddy, as if the Person had drank too much Wine.

4. They sometimes operate by Stool; and this the more powerfully, when they are not drank at the Spring-head, but carried to some Distance before they are used. And the Matter they thus discharge out of the Body, is of a blacker Colour than happens upon drinking the Waters of other cold Springs. But they lose all their purgative Virtue, by being long exposed to the open Air; and in that Case do not tinge the Excrements black.

Dr. Stare finding, upon Evaporation, no bitter cathartic Salt in these Pyrmont Waters, will not allow them properly purgative; but attributes this Effect to their being drank hastily, or in large Quantities; in which Case common Water would have the same Effect. But, from the Account here given, they appear to be somewhat purgative, by Means of their volatile vitriolic Spirit; which is also vomitive, when it largely abounds in Steel-waters; as appears by an eminent Instance in the newly discovered strong chalybeate Waters of Passy in France. See *Hist. de l'Ac. Roy. An. 1720.*

5. If Tea-leaves, Balauftian Flowers, or powdered Galls be thrown in a Glass of this Water, it first acquires a blue Colour, which soon after turns to a Purple, and at length a Black: Which shews, that black Colour proceeds from a Concentration of the Purple; and that the blue Colour is nothing more than a faint and dilute Purple. But, if a little Spirit of Vitriol be dropped into the Water that is thus tinged, all the Colour presently vanishes.

6. If any acid Spirit, whether of the stronger Kind, such as Spirit of Vitriol and Aqua Fortis; or of the weaker, such as Vinegar, Lemon Juice, or Rhenish Wine, be mixed with this Water, it causes a manifest Ebullition, and throws up a large Quantity of Bubbles to the Top with Violence, and a vaporous Exhalation.

7. On the other Hand, if any alkaline Liquor, whether of the fixed Sort, as Oil of Tartar, or of the volatile, as a dilute Spirit of Sal Ammoniac be mixed with this Water, no observable Conflict or Ebullition ensues: But the Water only becomes a little thick and white. And if now Spirit of Vitriol be dropped into it, so as to saturate the alkaline Principle, the Water again becomes pellucid and transparent.

8. Upon mixing an equal Quantity of Cow's Milk along with this Water, the Milk does not curdle, but rather becomes more fluid; and is by this Means preserved from turning sour; which affords an indisputable Proof that this Water abounds not with an Acid.

This Particular is farther confirmed of these Waters by Dr. Stare; who found they did not curdle Milk, even when boiled, in an equal Quantity with it, but caused the Milk to continue several Days without turning sour.

9. If Syrup of Violets be mixed with this Water, it turns of a deep green Colour; which presently disappears again upon the Addition of a few Drops of Spirit of Vitriol.

10. Upon evaporating forty-eight Ounces of this Water over a gentle Fire, we obtained two Scruples of a dry Matter; one half whereof being put into a proper Glass, we let fall thereon thirty Drops of Oil of Vitriol; upon which there arose a strong Ebullition, and a fine rarefied Vapour that sharply struck the Nose, in the same Manner as when Oil of Vitriol is poured upon common Salt. Upon the other half of this dry Matter we poured some pure Spirit of Vitriol, which made a Conflict therewith, and turned it into a bitterish saline Substance; leaving behind a considerable Proportion of a chalky Earth, which, when washed in fair Water, no longer made any Effervescence with an acid Spirit.

11. Upon exposing several Pints of Pyrmont Water in a large Silver Vessel, for twenty-four Hours, to the open Air, we found it so much altered from its original State and Disposition, as scarce to be distinguishable for what it was; so sluggish and unactive it appeared. For to the Taste it had quite lost its mineral, brisk, and penetrating Nature, and became perfectly insipid. It was also changed in its Transparency, and became thick and turbid, with a fine yellowish Earth fallen to the Bottom. And when the Liquor, that floated above that Powder, was poured off, it no longer made any Ebullition with an Acid, nor turned black with powdered Galls, nor greenish with Syrup of Violets.

12. From these several Particulars it plainly appears, that the Pyrmont Waters very copiously abound in a pure, penetrating, elastic, mineral Spirit, whereon their principal and distinguishing Virtue and Efficacy depend. For this highly rarefied Principle, so long as it cleaves to the earthy and chalky Particles of the Water, assumes the Nature of an Alkali: But, being also joined with a subtle Irony Earth, it resembles the Nature

Nature of Vitriol, has a vitriolic Taste, renders the Excrements black, and makes an inky Tincture with Galls. Therefore, whilst this Principle remains in the Waters, it thus renders them extremely active and powerful in opening Obstructions, and promoting the Secretions of the Body. But, when once this Spirit is gone from them, all their medicinal and distinguishing Virtue and Excellence is lost, or goes off along with it. And as these Pyrmont Waters copiously abound with this spiritous Principle, and consequently have a strong Operation and Effect, it is evident that the Use of them is rather fitted to such as are of robust and corpulent Habits, than for Persons of a soft, delicate, and tender Constitution. Yet they may, with great Safety and Advantage, be drank by the Weak and Infirm, in a small Quantity, or diluted with other pure and wholesome common Spring-water. They are also very advantageously mixed with an equal Quantity of Milk, and thus become eminently serviceable to Persons troubled with the Gout and Scurvy, of which we have seen numerous Instances, in our long Experience of these Waters.

13. Next to the Pyrmont come the Waters of Egra; as nearly approaching them in Virtue. For altho' they do not abound so largely in Spirit, but are of a milder Nature; yet for this Reason they are drank with more Success, and at present are more frequented than the Pyrmont Wells: An immense Quantity thereof is also yearly sent to foreign Countries.

14. Upon pouring Spirit of Vitriol into this Water, there arises a manifest Ebullition, though not so large as in the Pyrmont Waters.

15. Upon mixing Oil of Tartar with this Water, it still remains transparent or limpid, without any Thickness or Foulness; whereas other mineral Waters generally turn muddy or milky, upon dropping an alkaline Liquor into them, on Account of the common Salt or chalky Earth they contain.

16. If this Water be fresh taken from the Spring-head, it turns purple with Galls; but alters not its Colour therewith, when carried to any great Distance; unless the containing Vessel were very exactly closed, which is a sure Indication that it contains extremely little, if any Thing, of an Irony Earth.

17. With Syrup of Violets it turns of a dilute Green, which shews, that the alkaline Principle rather predominates in it.

18. A Solution of the Vitriol of Iron, being added to it, throws down yellowish Clouds, or a dreggy Matter, to the Bottom; though this is rather owing to the Vitriol itself, that was added, than to the Water, which thus dissolves and spreads it, whilst the Acid of the Vitriol meets with the alkaline Salt of the Water, and lets go its fine Particles of Iron.

19. Upon distilling twelve Ounces of this Water, in Balneo Mariæ, we first obtained a perfectly insipid Phlegm, and twenty-four Grains of a dry saline Matter at the Bottom; upon this Matter we poured Oil of Vitriol, but there ensued no Struggle or Effervescence, nor any volatile Fume, which shews this Water contains no Proportion of common Salt.

20. Hence it is manifest, that the Waters of Egra owe their purging Quality to their large Quantity of bitter cathartic Salt; which is of a neutral Nature, in Respect to Acid and Alkali; and this purging Salt is yearly prepared from these Waters, by boiling, and sent away, in very large Quantities, to foreign Countries. The Salt has no Virtue different from that commonly called Epsom Salt, and if an Ounce of it be dissolved in a Pint of Water, it purges advantageously, or gives three or four Motions without Disturbance. These Waters are also highly commendable, on Account of the Subtlety, Lightness, and Purity of their aqueous Part; and may in this Respect be preferred to the Pyrmont Waters, which abound with a copious Oker, and a chalky Earth. It is therefore agreeable to Reason and Experience, that the Egra Waters are well fitted for carrying off Viscidities, especially in the first Passages, and washing away the obstructing Matters in hypochondriacal Persons, or those of an ill Habit of Body, and discharging such Matters by Stool; and, again, for opening Obstructions in the Blood-vessels of the Viscera, and dissolving any tough, clammy Humours lodged therein.

21. We next proceed to the Seltz Waters, which for their Excellence are celebrated far and near; and, on Account of the mild Manner they act in, are drank with singular Advantage, even in extremely weak and emaciated Constitutions; especially by consumptive Persons, or those of weak and unsound Lungs.

22. These Waters make an immediate Effervescence with any Acid, whether it be strong or weak, and if mixed with Rhenish Wine, and a little powdered Sugar, they bubble up in a violent Manner, with a crackling Noise and Fume, whilst the whole Mixture appears like frothy Milk.

23. When mixed with an equal Quantity of old Hock, they turn dusky, or appear of a brown, reddish Colour, in the same Manner as when Oil of Tartar, or strong Spirit of Sal-Ammoniac, is poured into a generous White Wine.

24. The Taste of these Waters is not sprightly, penetrating, and tartish, like the Waters of other brisk mineral Springs; but somewhat lixivious upon the Tongue.

25. They turn not blue, or purple, much less black, with Galls, nor tinge the Excrements inky in the Course of drinking them.

26. With Oil of Tartar they turn milky, but let fall no Sediment to the Bottom.

27. Twenty-four Ounces of this Water, being gently exhaled away, left behind it a Dram and twelve Grains of a saline Matter, which being again dissolved in Water, and passed through Filtring-paper, afforded a Lixivium, from whence we obtained two Scruples of a pure alkaline Salt. To a Solution of this Salt we put a Solution of Mercury sublimata; whence a fine yellow Precipitate, or Turbith Mineral, gradually fell to the Bottom. We had also the Pleasure of seeing an Infusion of Rhubarb turned into a beautiful red Colour by this Solution.

28. This same alkaline Salt also, being mixed with Sal Ammoniac, bound up the Acid thereof, and set free the volatile urinous Part, so that it rose in Spirit, and briskly struck the Nose, which are all evident Signs of a fixed Alkali.

29. Having saturated twenty-four Ounces of this Water with Spirit of Vitriol, then gently exhaled away the Mixture to Dryness, we procured a Dram and an half of a neutral Salt, like to the Tartarum Vitriolatum.

30. We know of no medicinal Waters which so easily run into Putrefaction and Stench as these, inasmuch that the Bottle must be perfectly filled, exactly stopped down with Cork, and carefully pitched over, to preserve them sound.

31. If this Water be exposed to the open Air, in a wide Vessel, for twenty-four Hours, it intirely loses its original Taste, and becomes lixivious, as if Oil of Tartar had been dropped into it, and yet there falls no yellow Substance to the Bottom.

32. An attentive Consideration of these Phenomena will clearly shew, that this Spring plentifully abounds with the Matter of a pure alkaline Salt, of which it contains a larger Quantity than any other in Germany. Yet it holds no bitter calcareous Salt, nor any Principle of Iron; whence it has no great purgative or astringent Quality, but principally operates by Urine. Again, this Spring is but sparingly supplied with the fine volatile mineral Spirit; and, for this Reason, proves of a very mild and gentle Nature. All which being considered, it follows, that these Waters are not only innocent, but may frequently be used with great Success and Advantage, even by such as are of the weakest Habit of Body; and particularly in scorbutic, phthisical, and nervous Disorders. They may either be used alone, or, what is still better, mixed with As's, or Goat's-milk; which Method of drinking them I first, with good Success, introduced above five and twenty Years since, and numerous Physicians, with the same Success, have followed my Example. I think, I can assuredly affirm, that for diluting and washing off acid and ill-concocted Humours, correcting the ill Habit of the Blood and Juices in arthritical or gouty Persons, and for relaxing and restoring the contracted nervous Parts, there is not a safer, a surer, more immediate, and effectual Remedy, than the Seltz Waters drank with Milk.

33. We come next to the most noted Spring in all Germany, the Waters whereof are extremely pleasant to the Taste, and commonly called by the Name of the Tonnstein Waters.

34. These Waters have this in common with all other brisk and cold Springs, that they cause an Ebullition with Acids; and on this Account, when mixed with Sugar and tart Wines, froth up, like Milk, with a great Smoke and hissing Noise, thus discharging numberless Bubbles, as it were, in a thick Mist or Steam.

35. They afford no Tincture with Galls, but preserve their natural Clearness when mixed therewith, which shews they contain no Irony or vitriolic Particles.

36. They turn Syrup of Violets of a faint Green, like all other sprightly cold Springs, which shews they abound with an alkaline Principle.

37. If Oil of Tartar be dropped into them, they presently turn milky, and let fall a light Sediment, which shews they contain common Salt, or somewhat of a chalky Nature.

38. By standing any considerable Time in an open Vessel, exposed to the Air, they also lose their pungent Taste and Transparency.

39. When evaporated in a pewter Basin, set over the Fire, there appears a Skin upon their Surface, exhibiting various Colours, which is a Phenomenon that does not appear in other Waters of this Class.

40. Twenty-four Ounces of these Waters being evaporated to Dryness, there remained two Scruples of a solid Matter, which being again dissolved in fair Water, and properly dried, yielded one Scruple of Salt, and another of chalky Earth. The Salt was put into a Glass, and a few Drops of Oil of Vitriol poured thereon, which presently caused a great Ebullition.

tion, that sent out a thick pungent Vapour, exactly of the same Kind as arises from a Mixture of common Salt and Oil of Vitriol.

41. Hence it plainly appears, that the Tonnstein Waters contain little alkaline Salt, but a large Proportion of common Salt, chalky Earth, and mineral Spirit; whence they prove of a mild and gentle Nature, so as to act powerfully neither by Stool nor Urine. They may therefore, with Safety and Advantage, be used both in chronical and acute Distempers, either alone or mixed with Wine, so as to serve instead of Malt-liquors, which are very seldom proper in Distempers. They seem also capable of being still farther applied, with Success, in the Cure of hypochondriacal Diseases.

42. The Wildung Waters have a great Affinity with those of Tonnstein, and are commonly used rather in the Way of Diet, than Medicine.

43. They afford manifest Signs of an alkaline Principle, as making a Conflict and small Effervescence with Acids. They also appear plainly impregnated with a fine mineral Spirit, because, if long exposed to the Air, they lose their peculiar mineral Taste.

44. They afford no Tincture with Galls or Balaustian Flowers, and turn but lightly green with Syrup of Violets.

45. Twenty-four Ounces of this Water, upon Exhalation, afford us four Grains of alkaline Salt, and eight of an extremely white Earth, soluble in Spirit of Vitriol.

46. From these Experiments it may appear, that the Wildung Waters are of a milder Nature than any hitherto examined, and therefore highly proper to be used, either alone or with Wine, instead of the ordinary Drinks. And altho' they are not well fitted for overcoming obstinate chronical Disorders, or cleansing the first Passages, yet they may be employed to good Advantage, for tempering and diluting the sharp Juices in gouty and scorbutic Cases.

47. The Swalbach Waters being kept in Bottles but lightly stopp'd, they grow foetid; and deposit a yellow Sediment.

48. If fresh taken up, and mixed with Galls, they turn purple, and, drank at the Spring-head, tinge the Excrements somewhat blackish, which shews them inclining to an irony Nature.

49. They make an Effervescence with Acids, turn thick and milky with Oil of Tartar, and, if exposed to the open Air, entirely lose their grateful Taste and laxative Virtue.

50. Twenty-four Ounces of this Water left, upon Exhalation, almost two Scruples of a saline Matter, a third Part whereof was a Kind of Oker.

51. Hence it appears, that the Swalbach Waters are of a middle Nature betwixt those of Egra and Pyrmont, and may, by Reason of their fine mineral Spirit, and subtile irony Principle, not only promote the Excretions, by Stool or Urine, but at the same Time strengthen those Offices of the Parts, and consequently are of great Use in hypochondriacal Cases.

52. Though we ourselves have had no Opportunity of examining the Waters of the Spaw, yet we cannot omit giving some Account thereof, from the more eminent Writers upon them, but especially from Henricus ab Heer, who has wrote an elegant Treatise thereon, intitled *Spadacrene*, and partly also from the physical Essays of Vallerius.

53. If the Spaw Water be carried to any great Distance from the Spring, in well stopp'd Bottles, it lets fall, after some considerable Time, a small Quantity of Matter like yellow Oker.

54. A single Grain of powdered Galls will presently tinge an Ounce of this Water of a deep Purple, but, if the Water be first heated, it changes not its Colour with Galls.

55. These Waters do not curdle Milk, and, when mixed with Wine, throw up a hot Steam, almost like boiling Water, that smells very gratefully, and exhibits an agreeable Sight of sparkling Bubbles to the Eye.

56. This Water seems to intoxicate, but that Effect is commonly over in a Quarter of an Hour.

57. The Spaw Water is specifically lighter than common distilled Water, by one Grain in about an Ounce and a half.

58. Twelve Ounces of this Water yield, by Evaporation, a Grain and a half of a white Powder.

59. Supposing these Experiments just, it will appear from them, that the Spaw Waters are perhaps as light and subtile, as any of the cold Springs, their specific Gravity falling short of common distilled Water. And as they contain but a small Proportion of Earth, or saline Matter, and a large one of the universal mineral Spirit, it is easy to conclude, they must have great medicinal Virtues, which are very fully expressed by Henricus ab Heer, who principally recommended the drinking of them in Diseases of the Bladder and Kidnies, the Gonorrhoea, and venereal Ulcers of the Mouth and Tongue. But besides these Virtues, which seem peculiar to the Spaw Waters, they have others in common with the cold medicinal Springs.

60. The Buch Waters make a strong Effervescence with Oil of Vitriol, and turn Syrup of Violets of a deep Green, but give no Tincture with Galls.

61. Upon dropping a Solution of the Vitriol of Iron in-

to them, some light curdly Matter gradually falls to the Bottom.

62. Twenty-four Ounces of this Water afford, by Evaporation, twenty-two Grains of saline alkaline Matter, which, being again dissolved, gives sixteen Grains of pure alkaline Salt, and six of Earth.

63. Upon dropping Oil of Vitriol upon this Salt, there arose a violent Ebullition, but no Vapour at all, like what common Salt would have afforded.

64. These Waters, tho' drank in a large Quantity, do not purge, yet operate powerfully by Urine; but, if a proper Quantity of Spirit of Vitriol be added to them, it produces a Salt, that immediately gives them a different Taste, and purgative Virtue.

65. They are impregnated with a copious mineral Spirit, which, flying off, leaves them in a Manner insipid.

66. Hence it plainly appears that the Buch Waters excel, on account of their remarkable Purity, Lightness, and Subtlety; and by being impregnated with a saline Alkali, and a copious elementary Spirit. But because of their Adjacency to the Egra Waters, and the hot Caroline Springs, they are almost neglected by the Inhabitants; and the Physicians, who practise there, seldom prescribe them, except while the Course of Bathing is in Hand at the Caroline Springs. But 'tis somewhat strange that the Buch Waters, which, in medicinal Virtue, do not fall short of those of Seltz and Tonnstein, should not be exported to other Countries; especially as they keep excellently, when the Bottles are well stopp'd down. Hoffman.

We have hitherto examined such medicinal Springs as come under the general Name of *Acidulae*, which, in reality, owe their operative Matter in Part to an alkaline Principle. We next proceed to examine such as fall not under this Denomination, but are of their own peculiar Nature, and abound with very different Principles. And among these we shall give the first Place to such as receive their Virtue from an irony Substance, whence they have been antiently called *STEEL WATERS*.

Among Steel Waters, we reckon the Waters of Radeberg, Lauchstad, Bebran, Freyenwald, and Weissenburg; all which, if carefully examined, are found to contain no other visible effective Matter, besides a very fine Crocus of Iron, commodiously received and harboured in an exceeding light and elementary Water. For they do not manifest, nor so readily lose their copious, fine, spiritous Part, as the others above-mentioned; nor participate of an alkaline Principle; as neither making an Effervescence with Acids, nor turning Syrup of Violets green. They also differ from most other medicinal Waters in this, that they turn of a black Purple with Galls; and when long exposed to the open Air, or boiled, they let fall a yellow Sediment: Nay, the Matter they throw up manifestly exhibits to the Eye their peculiar Nature, and the irony Principle they abound with: For not only the Confines of the Spring are sometimes coated over with a yellow Oker, but the Insides of the Pipes are lined with the same Kind of Crust; and a like Substance they deposit after standing some Weeks. This okery Matter proves, upon Examination, to be no other than Iron reduced to a subtile Flower, or a natural Crocus Martis, like the artificial; as appears from hence, that it may not only by Calcination be converted into a true Crocus; but also, if mixed with an equal Quantity of Sal Ammoniac, and put into an ignited Crucible, there arise from it bright and fragrant Flowers, which, being collected and thrown into Spirit of Wine, afford an excellent Tincture of Iron.

To examine the medicinal Virtue of these Steel Waters, we shall find them endued both with an operative and strengthening Property, so as to be advantageously used, as well internally as externally. Thus, when drank, they loosen the Belly, but strengthen the Body and Stomach, provoke the Appetite, and may therefore be very safely and serviceably used in such Distempers, as give Way to any Preparations of Iron. Their external Use, in the Way of Bath, is very considerable, for strengthening and cherishing benumbed and motionless Limbs, curing Pains, Contractions, or Relaxations, and for drying and healing up old Ulcers. And tho' used for this Purpose in the Way of Bath, made but gently warm, yet they heat the Body, open the Pores of the Skin, and provoke Sweat; especially if the Patient goes directly from the Bath to Bed.

These Steel Waters are very common in England; there is scarce a County that is not furnished with several. Where there are Coal-mines, almost every Spring is impregnated with Steel, and the Waters discharged by the Soughs made for draining these Mines, deposit this Sort of Oker mentioned by Hoffman.

Our Ancestors attributed the medicinal Virtues of these Waters, to the miraculous Influence of some Saints, in Imitation of the Heathens, who dedicated particular Springs to the Gods. This is what Pliny means, in the Passage quoted above, when he says, the Gods are obliged to Waters for the Increase of their Number. In like Manner we may say, that the Saints are obliged to our Waters, for a Part of their Reputation.

This,

This however proves both the Antiquity of the Mineral Waters, and the Reality of their Virtues.

There are other medicinal Springs, which can neither be reckoned among the Acidulae, Thermae, nor Steel Waters; but are of their own peculiar Nature, and contain a pure, neutral, bitter, purging Salt. These kind of Springs are very rare in Germany, (and none of them known to this Day, besides those which I some Years since discovered at Sedlitz in Bohemia; and after having carefully examined their Principles, taught their Use, and introduced them with good Success) but very common in England; for those of Epsom, Dulwich, Northal, &c. and many others, appear of this kind. These will be taken notice of as their Names occur.

Before I came to examine this noble Water; it had never been of any domestic Use; only there ran a rumour among the Inhabitants that half a Pint of it would purge. There was this remarkable observed of it, that though in the Winter, and in rainy Weather the Spring flowed much freer than in the Heat of Summer, yet it always retained the same Taste, and, as I afterwards found, the same Virtues and Quantity of Salt. For an Instruction to others, who may happen to be less versed in the Examination of unexperienced Springs, I shall here deliver my whole Procedure on this Occasion.

1. I first poured a Quantity of the Water into a clean, crystal Glass, where it appeared perfectly limpid and transparent; but to the Taste proved remarkably bitter and saline.

2. I then let fall into it a few Drops of the stronger Acids, such as the Spirit of Vitriol, Spirit of Nitre, &c. but perceived no Signs of any Ebullition; and as it turned not green with Syrup of Violets, I was hence well assured it abounded with no alkaline Principle.

3. It did not turn purple upon mixing with Galls, which shewed it contained no iron Substance.

4. Upon mixing with Oil of Tartar it grew somewhat thick, as generally happens when any chalky Earth is harboured in Water.

5. Upon a slow Evaporation of twelve Ounces thereof, I obtained two Drams of a bitter neutral Salt, like that in England called Epsom Salt.

Upon the Strength of these Experiments I recommended the Waters to the Physicians near the Place, to be used instead of the rough and coarse Purgatives of the Shops, and intreated them to go upon a fuller Discovery of its Virtues; but scarce any one of them thought me worth their Attention, till a very favourable Opportunity happened to establish the Reputation of these Wells. For in the Spring of the Year 1721; when the Empress came to the Caroline Waters; she made use of those of Sedlitz, in the Presence and by the Advice of her chief Physician, whom I had acquainted with my Discovery, and before whom I afterwards repeated my Experiments. Upon which, we with Caution gave of the Waters to Persons labouring under Intermitting Fevers to great Advantage. This excellent Physician afterwards returning to Prague along with the Empress, recommended these Waters to the Nobility of Bohemia; upon which an immense Quantity of them was sent both to Prague and Vienna, where they were fully approved for purging advantageously, and strengthening the Stomach. And in the Autumn following, the Nobility and Gentry of Bohemia, who yearly flock to the Hot Wells at Toplitz, drank these purging Waters with great Success. And now the Fame of them reached to Dresden, Berlin, and others of the most considerable Cities, where at present they use the Sedlitz Waters as common as those of Egra.

But as the principal Virtue of these Waters resides in their Salt, and as the Carriage of them to distant Places is troublesome and expensive, I persuaded a Chymist of Toplitz gently to evaporate the Water, so as to obtain its pure Salt for public Sale; and the Event proved answerable to our Expectation; for he now yearly disposes of very large Quantities thereof; and sends it to distant Countries.

The Character of these Waters being thus established, I went upon examining more narrowly into the Nature of the Soil adjacent to the Spring; and the Search was attended with this Advantage, that we discovered another Spring near Seydschutz, not far distant from the Sedlitz, though it lies somewhat higher, flows in plenty, and has a bitter and more saline Taste. And it seems, upon the whole, unquestionable, that this Spring runs down to, and supplies the Water at Sedlitz. The Principles however of this Spring, and the Nature of its Salt, differ not from those of the other; for upon Examination they both exhibit the same Phenomena, though the latest discovered affords the largest Quantity of Salt, twelve Ounces thereof yielding two Drams and ten Grains, and six of a chalky Earth. The Reason seems owing to this, that the Spring which lies higher is less exposed to the Reception of the Rain-water than that of Sedlitz, which lying lower, may be easily weakened by the Rain, or the Admixture of other Waters.

As this Salt has a great Relation to that called Epsom Salt, we will here deliver the Experiments we made on both, the better to manifest the peculiar Nature of each. The learned Dr. Grew was the first who from the Waters of Epsom prepared such a

kind of bitter, purging Salt, and wrote an elegant Treatise on the Subject: But as twelve Ounces of the Epsom Water will not afford above half a Dram of Salt, 'tis certain that the Salt which commonly goes by the Name of Epsom Salt, and is sent into foreign Parts in large Casks; and sold for less than Sixpence the Pound, cannot be prepared from those Waters, but is rather an artificial Thing. And in Fact, 'tis not only prepared in England from the Bittern, or bitter Liquor that remains after the making of common Salt, but also at Leipzick, and other Parts of Germany, in very large Quantities. And it appears plainly, that a certain aluminous Acid, mixed along with the alkaline Earth of common Salt, is contained in the Bittern which affords it. But it is remarkable, that all Salt-springs do not yield this neutral purgative Salt; perhaps only because the Salt-waters do not run upon Beds of Alum-stone.

1. The Sedlitz Salt is of an opaque, snow-white, or milky Colour; but the Epsom Salt more transparent and watery; whence its greater specific Gravity, and Disposition to relent in the Air.

2. The Sedlitz Salt, whether in a solid Form; or dissolved in Water, tastes much bitterer and more nauseous than the Epsom.

3. Both of them, when thrown into an ignited Crucible, melt and lose one half of their Weight in a watery Vapour; but the Sedlitz Salt flows clear and thin like Water; whilst that of Epsom is more viscous and tenacious.

4. Neither of them in the least dissolves with the highest rectified Spirit of Wine.

5. Both of them melt along with Pot-ash and powdered Charcoal, into a Mass like the Hepar Sulphuris; but the Mass made by the Epsom Salt turns with Water of a much deeper green Colour than the other; and when the Solution is precipitated with an Acid, affords a much larger Quantity of Lac Sulphuris.

6. Both of them, when mixed with Vitriol, calcined to Redness, and put into an ignited Crucible, send out a Vapour like that of Spirit of Salt, and this Vapour is soon followed by that of the volatile Spirit of Vitriol.

7. With Syrup of Violets the Sedlitz Salt turns green; but the Epsom blue.

8. A Solution of either coagulates with Oil of Tartar; so that scarce any thing falls out when the Glass is inverted; but the Sedlitz Salt coagulates strongest.

9. In like manner a clear Solution of either becomes very turbid upon the Addition of Spirit of Sal Ammoniac, and affords a large Quantity of curdly Matter.

10. An Ounce of Water will dissolve an Ounce and two Scruples of Sedlitz Salt; but only an Ounce of the Epsom.

11. A rich Solution of the Sedlitz Salt appears of a yellow Colour; whilst that of the Epsom Salt remains limpid, without discolouring the Water.

12. The Crystals they both afford by Solution and Evaporation scarce differ at all, except that those of the Epsom Salt are larger and more beautiful, in some sort resembling Nitre.

13. The Epsom Salt, being kept for some Days upon a Sand-heat, loses its Transparency, and becomes in Appearance like that of Sedlitz; from all which it is manifest, that these two Salts have a great Affinity, as well in their Principles as their Nature and Virtue.

The Experience of such as have drank these Sedlitz Waters confirms them serviceable for washing off all crude, viscid, acid, bilious, and corrupted Humours, lodged in the Stomach and Intestines; and this in so safe, easy, and agreeable a Manner by Stool, that nothing seems better disposed, or more effectual for the Purpose. Other medicinal Waters, though they may move the Belly, yet require to be drank in large Quantities before they will operate, and therefore easily pall the Stomach; whereas these operate quick, and in a small Dose; so that three or four Tea-cups full generally prove sufficient, and the strongest Constitutions scarce require more than a Pint. There is also this Property attending these Waters, that they require not to be used for any long Time, but only for eight or ten Days at most, and that too intermediately. And as they exceed other purging Waters in the Quickness and Efficacy of their Operation, so their Wholesomeness and purgative Virtue recommend them before all other purging Medicines in Use; scarce one whereof but operates more or less than was intended, weakens the Patient, gives him a Sickness at the Stomach, and lessens his Appetite; whereas the Sedlitz Waters, though they purge briskly, have none of these ill Effects; nor occasion Dryness of the Mouth; but rather, by their Bitterness, relieve the Stomach, and provoke the Appetite. We can therefore assuredly affirm, that there is not in any Dispensatory, nor in all the Catalogue of Drugs, a Purgative that operates with such Safety, Efficacy, Agreeableness, Quickness and Certainty, as these Waters. And in case of hypochondriacal Disorders, I never found any thing so serviceable as this Water. And I have known several, who remaining highly costive for many Years together, recovered, by the Use of this Water, the natural Habit of other Men in that particular. These Waters are also found eminently

serviceable in ill Habits of the Body, Obstructions of the menstrual Discharges, at the time when they first begin to stop, or towards the Decline of Life, in scorbutick Cases, in Dispositions to the Piles, against Worms in the Body; and in short, for curing and preventing many other Distempers, if drank with the necessary Rules and Cautions.

As these extraordinary Virtues of the Waters seem principally owing to their Salt, it is proper to enquire whether the Salt could not be obtained from them, so as to produce the same good Effects. It is certain that a Salt may be thus procured, which being dissolved in Water shall make that Water have some Resemblance with those of the Mineral Spring; but whether any Art can make the Imitation perfect, and in all respects equally serviceable with the natural Water, may be questioned. For it is evident upon Experience, that there is a great Difference betwixt such Mineral Waters as are taken up at the Spring-head, and such as are artificially prepared by dissolving the Contents of the small Waters, gained by Evaporation, in the purest Spring Water; for the artificial do not pass so readily through the Body, nor so effectually raise a languid Appetite, increase the Strength, nor purge so well as the natural. And this evidently appears in the present Waters; which being drank at the Spring-head, or elsewhere, out of Vessels well stoppt, have not only a bitterer Taste than if the same Quantity of Salt they afford were dissolved in a less Proportion of fresh Water; but also six Drams of the Salt will scarce purge so often as a Pint and a half of the Waters themselves; which contain but three Drams of Salt. Whence these natural Mineral Waters, besides the fixed saline Particles, intimately mixed therewith, are likewise impregnated with a subtile, though insipid, aerial Principle, that by its Fineness and Elasticity, forces its way through the slender Cavities of the Canal, and as it were, opens the Passages for the Water to follow it; in such a manner, as greatly to increase its Operation: And this is not only to be understood of purging Waters, but of all other Mineral Springs. For a free Access of the Air, and the Heat of the Fire, strangely alter, impair, and destroy the Connexion, Arrangement, and Mixture of the Parts, which give medicinal Waters their Virtue and specific Efficacy.

If therefore the Attempts of this kind should fail, we might have an Eye to the Production of some other Salt, wherewith to impregnate common Water, in imitation of the purging Waters. Thus Glauber's artificial Salt has some Resemblance with the Epsom Salt; and proves, if the Point of Saturation be exactly hit, a Salt of a neutral Nature, of a bitter Taste, and a purgative Virtue. But its Taste is much more pungent than either the Epsom or Sedlitz Salt, though it contains a larger Quantity of Water, inasmuch that if laid upon a warm Sand-furnace, it melts and runs like a Water, and loses one third of its Weight. Again, if dissolved in an equal Quantity of Water, and exposed to the Air, it coagulates into a solid Mass. On the other hand, if Oil of Tartar be added to the Solution, it does not coagulate as the Sedlitz and Epsom Salts do. However, there are several other neutral Salts procurable, by means of Oil of Vitriol, not only of a bitter Taste, but also, when given largely, purgative; of which kind is the *Arcanum Duplicatum*, or *Tartarum Vitriolatum*. But then, again, the Bitterness, and purgative Virtue are much greater in the natural Salts, and their Parts more subtile, as plainly appears from hence; that these natural Salts readily dissolve in about an equal Quantity of Water; whilst the artificial require four times their own Quantity to dissolve them.

The *Tartarum Vitriolatum* here meant is not in any respect like that commonly sold in the Shops, though made of the same Ingredients. This is somewhat bitter, exactly neutral, and perhaps as good a Medicine in all Sorts of inflammatory Concretions as can be procured by Art. That of the Shops is very acid, and capable of doing a great deal of Mischief, and not of the least Efficacy that I could ever discover. See TARTARUS VITRIOLATUS.

Besides the above mentioned purgative Waters, that abound with a bitter neutral Salt composed of a chalky and an acid Principle, there are many others, as that of Ratzeburg, &c. which afford not only a calcarious Salt but a considerable Quantity of common Salt. And these kind of Waters are of considerable Use for cleansing the Stomach and Intestines of tough, viscid Humours, restoring the Appetite, promoting Digestion, and remedying such Crudities and Flatulencies, as produce spasmodic Disorders in the remote Parts of the Body. But it is not proper to drink them in any large Quantity, or for any Length of Time; whence they are less suited to those Diseases which seat themselves deep in the Viscera, and proceed from Obstructions therein; because a long Use of Waters is required to remove those Obstructions from the fine Canals whereof the Viscera consist. They may however be fitted to this Purpose by mixing and diluting them with other Waters.

There are other Springs, which upon the strictest Examination scarce manifest the least Signs of a neutral or alkaline Salt, or of a mineral or iron Earth; and yet are highly valuable on account of their extreme Lightness and Subtlety: And of this kind there are several hot as well as cold Springs. A hot Spring of principal Note of this kind is that of Toplitz; where the

Waters are extremely hot, and nearly resemble the Piperine Springs in Rhetia, which continue to run from the Month of May, when the Sun begins to dissolve the Snow upon the Tops of the Mountains, to the end of September. And although these hot Waters of Toplitz hold not the least saline or earthy Matter, so that when mixed either with acid or alkaline Liquors, they preserve their natural Clearness, and after a total Evaporation leave no solid substance at the Bottom; yet they have considerable Virtues upon account of their Purity and Lightness: in both which respects they exceed even fine Rain-water: And hence they become highly serviceable in the way of Bathing, for the Cure of external Disorders; as in Contractions, Dryness, Rigidity, Stiffness, and Want of Motion in the Limbs; by relaxing and strengthening the Fibres, and giving a due Circulation to the Blood and Spirits. They also prove beneficial in this way, where the internal, tendinous, and nervous Parts are affected; as in hypochondriac Disorders, the Colic, the Asthma, Contractions and Distentions of the Limbs; especially if the Bath be not too hot, but lukewarm. Whence it is my constant Advice to have these Waters fetched home, and a Bathing-tub filled with them; because Persons cannot well bear the excessive Heat of the Bath; and therefore the Spring without the Town, commonly called the Sulphur Bath, is of much more frequent Use, and found wholesomer, though, excepting its temperate Heat, it is exactly of the same Nature as that within the Town. And as all Physicians agree that the lightest and purest Waters are the wholesomest, and as the Piperine Springs afford an eminent Instance hereof, no doubt but the Toplitz Waters, though drank cool, may prove serviceable in many Distempers; notwithstanding the Custom of drinking them is not introduced, any farther than the mixing of them with Wine.

This Subtlety, Purity and Levity, is also the true Reason of the Virtue and Efficacy of some other Springs in the Cure of Distempers; and particularly the Schlangenbad Springs of Hesse, which contain no saline, earthy, iron, or other mineral Principle, that can by any Art be extracted from them; and are no other than an extremely simple, pure and light Water, which nevertheless, both by drinking and bathing, has very remarkable Virtues and Effects. The same Reasons recommend the Schleusing Spring, called in the German Language, Withems-brunn; for these Waters have all the Marks of Purity and Excellence, and if put into the exhausted Receiver throw up abundance of Bubbles, do not grow thick, or precipitate any thing upon the Addition of Oil of Tartar, a Solution of Silver, or Sugar of Lead; but leaving all their Impurities in their Passage through the Sand and stony Beds, receive no change from the common Experiments of Galls, Acids, Alkalies, &c. and when evaporated, leave no earthy Substance behind them. Hence the purer and lighter such Waters are, the more they should be esteemed; as their Wholesomeness, and Power of curing many chronical Disorders depends thereon: For thus they are fitted for readily entering the finest Vessels of the Body, and for dissolving and carrying off viscous Humours.

From the several preceding Examinations we conceive it plainly appears, that Mankind are liberally supplied with medicinal Springs, of different Natures, admirably suited to the Cure of different Distempers. Thus, for Example, if the first Passages of the Body require to be cleansed of their grosser Excrements, there are numerous Springs that answer this Intention, beyond all Comparison better than the Medicines of the Shops: In particular, among the hot Springs are the Caroline, and those of Aix la Chapelle; and among the cold ones, those of Egra, Sedlitz and Ratzeburg. If serous Humours are to be carried off by Urine, the Seltz and Embse Water answer this Intention. If weak Viscera want to be repaired and strengthened, the Pyrmont Waters do it effectually. If gross and viscid Humours are to be discharged, and the obstructed Viscera to be relieved; if weak Fibres require to be strengthened, and the Kidneys and Bladder to be freed from their stony Matter, the Antonian, Wildung and Spaw Waters are sovereign for these Purposes. If saline, sharp, and tartareous Juices, which cause the Gout and Rheumatism, require to be diluted and corrected, and the nervous Parts of the Body to be innocently relaxed and set to rights, the pure Waters of Schlangenbad, Seltz, &c. assist in the most effectual manner, especially if mixed with Milk. Lastly, if corrosive, bilious Humours are to be rendered mild and temperate, and the weakened Tone of the Stomach and Intestines to be restored, the Steel Waters, in these Cases, are of eminent Service.

The external Use of Mineral Springs is no less suitable to the various Disorders of the Body and its Parts: Thus, for Instance, when the Fibres of the external Parts are too dry, hard and crispy, bathing in the Toplitz, Embse, Piperine or Schlangenbad Springs, relaxes, softens, and renders them pliable, better than any other Means hitherto known. Again, if the external Parts are too weak, slack and moist, the Steel Waters powerfully brace them up, dry, strengthen and confirm them. To conclude, when Swellings are to be dissolved, viscous and sluggish Humours to be dispersed or dried up, Blemishes and Foulness of the Skin, whether in the Form of Scab, Tetter or Ulcer,

Ulcer, to be removed; the Caroline and Aix la Chapelle Baths are excellent.

Through the whole Course of our Enquiries into the Principles, Natures, and Uses of medicinal Springs, we have purposely avoided a large Apparatus of chymical and philosophical Experiments, and contented ourselves only with a few that are easy, simple and conclusive; thus avoiding an Ostentation, which many have run into, and multiplied Experiments to no Purpose; for it is Labour lost to examine these Waters by mixing them with common Salt, Nitre, Vitriol, Alum, Copper, Brimstone, Orpiment, and numerous other mineral Bodies; since no such Experiments can manifest to the Senses any other Principles than what we have in our simple Method discovered, as will be evident to such as are well versed in natural and experimental Enquires.

For the same Reason we have purposely omitted the hydrostatical Trials of such as, by the Means of Water-weighs, or Hygrometers, examine the specific Gravities of Liquors; for though it might at first seem probable, that the Weight of Mineral Waters is thus discoverable, as it is in Wine, Malt Liquors, Urine, common Water, and Lixiviums; yet whoever attentively considers it, will find this kind of Experiment very fallacious in Mineral Waters: For it appears by repeated Observation, that the Hygrometer plunged into these Mineral Waters, when taken first from the Spring-head, floats high, and shews their Gravity much greater than it is; and that when the Day following it comes to be plunged into the same Parcel of Water, it sinks lower, and makes the Water seem lighter. And as no one that we know of had before taken notice of this Phenomenon, we examined into the Cause thereof, and found it owing to the Presence or Absence of the subtle, expansive, aerial Principle, that plentifully abounds in these Waters, when fresh taken from the Spring, and buoys up the Instruments, as if it were so much Air striving to get out, and rising in Bubbles; but after this Spirit is exhaled, the Instrument no longer meets with the same Resistance which kept it from its due Station, and therefore sinks down deeper. Whence it appears, that the elastic Power of Bodies may pass for Gravity, or that the Power of Elasticity and Gravity are equal.

Neither does the hydrostatical Balance determine the precise Gravity of Mineral Waters, or the exact Quantity of their Contents, if we wait till this subtle elastic Principle is exhaled; for then the Waters commonly become turbid, and the okery Parts fall to the Bottom, whence their true Gravity cannot be assigned; much less can the Hygrometer examine the Gravity of Hot-well Waters, because all Waters rarefy, and become lighter with Heat; inasmuch that if the Instrument be plunged into the Waters while hot, they seem to be extremely heavy, by making the Instrument float higher; but much lighter when cold, by suffering it to sink lower. *Hoffman.*

THE OBJECTIONS TO MINERAL WATERS considered, and RULES laid down for rendering such WATERS safe and effectual in the CURE of DISEASES. From *Hoffman.*

I. Though the Virtues of medicinal Waters are great, and their Use extensive, yet they have this in common with all other Medicines, that their good Effects depend upon a proper Administration. To administer them properly, requires a Knowledge of the Circumstances both of the Patient and Distemper, so as judiciously to suit them in every Case. And after understanding the Distemper, its Causes, and the State of the Patient, there is nothing more necessary than a thorough Acquaintance with the Faculties and Virtues of medicinal Waters, and the Manner wherein they operate. The Sum of this Knowledge not only directs to the Choice of such Waters as are best appropriated to the Distemper; but likewise so disposes and regulates their Use, that the desired Effect must necessarily follow. On the contrary, if these Particulars are disregarded, no Wonder if they who rashly advise the Use of Waters should thereby injure their Patients; unless by Accident. And yet it is certain that these Waters are but as an Idol to many Physicians, or a Thing whereof they, without sufficient Ground, believe and relate numerous idle Fables. Many, in this Particular, are guided by a childish Superstition, and apprehend great Danger from the Use of such Waters; so that they prescribe them only in desperate Cases, or as a last Remedy in reputed incurable Diseases. But my Experience of them, in a Course of many Years Practice, besides the particular Experiments I have used to examine them, have convinced me that these Apprehensions are groundless; that such Waters are at the same time the most efficacious and most innocent of all the Medicines hitherto discovered; and that they never fail of Success, where the Physician knows how to apply them seasonably and in the true Manner. I will therefore here deliver what I have observed upon the imprudent and unskilful Use of these Waters; the happy Effects I have observed upon the true way of employing them; and the necessary Rules and Cautions for the Direction of others; that none, if possible, may hereafter complain they have used this excellent Gift of Nature to their Prejudice, or in vain.

II. In order to strike at the Root of the Errors, which still prevail to the Discredit of Mineral Waters, we must here retouch the Ingredients whereof they consist, and by Means whereof they act. There are some who suspect most of the Ways of trying and examining the Nature of these Waters as uncertain or fallacious; and it must be acknowledged, that there is no absolutely perfect Method of determining their precise Contents, by reason of the numberless Bodies they wash in the Bowels of the Earth; but on the other Hand, no one, that understands the true philosophical and chymical Way of enquiring into Waters, will deny, that though we cannot precisely determine every Ingredient they may possibly contain, yet we may certainly discover and demonstrate the principal ones, and those whereon their Operations and Effects depend. But let it be here observed, that whoever thinks to gain any real Knowledge in this Subject by consulting the Writings of the Ancients, will find himself greatly disappointed, and receive nothing for his Labour but an absurd Collection of imaginary Principles; and yet it is surprising, that even in the present Age, when such a great Light of Natural Philosophy is set up, there should be some, who, through a Veneration of Antiquity, a Love of Contradiction, or I know not what other Reason, obstinately cleave to the Opinions of the Ancients.

III. It is a prevailing Notion at present, among most of the Writers upon Mineral Waters, that they contain a Vitriol like to the common Vitriol of Iron, which is the Opinion of the better, or more experimental kind of Writers; and in order to countenance this Opinion, they laboriously endeavour to prove, that Mineral Waters exhibit the same Phenomena as a Solution of that Vitriol in common Water. The Experiments they produce on this Occasion are these.

1. That Mineral Waters, and common Water impregnated with Vitriol, have nearly the same Taste.
2. That both of them turn purple, upon a small Addition of Galls.
3. That both of them turn to a kind of Ink, with a larger Addition of Galls.
4. That neither of them will curdle Milk.
5. That both of them grow thick with Oil of Tartar, and let fall a Sediment.
6. That the Earth they both afford upon Evaporation; as also the okery Sediment they spontaneously let fall, make a considerable Ebullition with Spirit of Nitre, and send out a Smoke in the same Manner as the Vitriol of Iron would do in the like Case.
7. And lastly, that the Salt, properly extracted from the insipid Earth, has a pale Colour, an irregular Figure, and produces the same Effects as Vitriol of Iron. And by these Arguments there are some who think they sufficiently prove the Existence of an actual Vitriol in Mineral Waters.

IV. But this Opinion rests upon weak Pretensions, which need not all of them be separately considered, because they make nothing to the Proof of the Assertion; we shall therefore only consider the capital thing among them, which being overturned, the rest will fall of Course. No one who uses his Senses can possibly doubt but there is somewhat of a vitriolic Nature found in Mineral Waters; for not only the Taste, but the Sight confirms it, by their turning inky with Galls, &c. But the single Question is, whether this vitriolic Matter be the same with the gross corporeal Vitriol in common Use? Which has hitherto been proved by no Arguments nor Experiments. For the vitriolic Matter in medicinal Waters is volatile, but the common Vitriol fix; so that their Nature and Operations are intirely different. Thus it is evident by numerous Trials, that the Addition of Galls to the Waters of hot mineral Springs causes but a very small Change of Colour, unless the Water be fresh taken from the Spring-head; and when it has stood any time exposed to the open Air, it no longer changes Colour at all. It is true, that in the brisk Waters of cold Springs this Tincture appears blacker; but here also the natural irony Taste immediately vanishes upon their being exposed to a gentle Heat, or the open Air, and then they strike a dusky Colour with Galls no longer. So that the strongest Steel Waters, even those of Pyrmont, when heated, or suffered to stand in the Air for twenty-four Hours, afford no Signs of a vitriolic Nature. Nor has any one of those who argue so earnestly for a solid Vitriol in Steel Waters been able, by their utmost Endeavours, from a hundred Pints of these Waters, to extract and exhibit to the Eye a single Grain of Vitriol. For though Helmont, in his fourth Paradox, declares, that by the Means of Distillation he obtained a Vitriol from the Spaw Waters; yet this plainly appears to be one of his Pretences, as no other Person, by the same Operation, though ever so exactly performed, could obtain an actual Vitriol from them. The Conclusion upon the whole is, that these kind of Waters really contain somewhat of an irony Nature, which, being joined with a sulphurous Spirit, resembles common Vitriol only in the Taste and the Colour it gives, without any farther approaching to the Nature thereof; and consequently that they err who, upon hearing the

the Name of Vitriol mentioned about these Waters, judge of them and cry them down, as abounding with the gross or common Vitriol of the Shops.

V. There is another Error deeply fixed in the Minds of Physicians, as if Mineral Waters, especially those of the cold brisk kind, contained an acid Salt; as their common Name Acidulæ seems to imply; and according to this Notion, their Virtues have been theoretically judged of, without Practice. This was the constant Opinion of the Writers upon this Subject, except Giurius; who, in the Year 1667, published a Treatise at Paris with this Title: *The Secret of the Acidulæ newly discovered, in which the common Opinion of the Acidity of Mineral Waters is overthrown.* But the Book itself no way answers to its Title; but is full of Vanity, and promises more than it performs. There have indeed been some who allowed of an alkaline Salt in Hot Well Waters; but no one before myself experimentally proved it true of the Acidulæ, or brisk and cold Springs. For though Henricus ab Heer, in his Account of the Spaw Water, expressly declares, that not only those, but most of the Acidulæ in Germany made an Ebullition, and yielded a warm Fume upon mixing with Wine, at the same time diffusing a grateful Odour, and throwing up numerous Bubbles to a considerable Height; yet this Author never suspected they abounded with an alkaline Principle, but declared himself for their containing an Acid. We have, in the preceding Pages, so fully proved the contrary of this Opinion, or the actual Existence of an alkaline Principle in these brisk mineral Springs, that it is needless to dwell longer upon it here. And the same we have also done with regard to their fine mineral elastic Spirit, whereon their Virtues have a great Dependence.

VI. We next proceed to consider the various Virtues of Mineral Waters, when used internally. And here we lay it down as certain, that their Virtues are greater and more numerous than those of any other Remedy, however specious or highly commended. A Knowledge of which Truth has given occasion to a considerable Error; for hence many have presently ascribed the particular Virtues of these Waters to the Ingredients they contained, without allowing any thing considerable to the pure Water, or Vehicle, wherein the more medicinal Parts reside. But when, upon full Examination, I found that neither the pure alkaline or neutral Salts, nor the fine elastic Spirit with which these Waters are impregnated, were able to produce such Effects, or work such Cures, separate from the Waters that contained them, I discovered that the Efficacy of Mineral Waters, both in preventing and curing Diseases, was in a great Measure owing to the Water itself; and that the other Principles served only to quicken or stimulate its Operation. And this will appear more manifest from an exact Knowledge of the Laws of Circulation, Secretion, and Excretion in the human Body; for as all the Juices of the Body require to be in a continued Motion, and as they necessarily consist of a large Proportion of an aqueous Fluid, it is agreeable to Reason and Experience that there is nothing in Nature which approaches nearer, or is more agreeable to them than Water; and accordingly there are several Instances of such, as by a daily Use of Water for their common Drink have prolonged their Lives to a great Age, and relieved themselves from stubborn Distempers. And no Wonder, since Water is a Fluid capable of preserving all the Juices, and all the Offices of the Body, in their proper or natural State, preventing the more subtle, earthy, saline and sulphurous Particles lodged in the Juices from introducing Putrefaction or Corruption, and capable of thinning and dissolving all the viscid, clammy, or tenacious Humours, that are apt to clog and obstruct the finer Vessels. In short, Water is that Fluid which assists and promotes all the Excretions by Stool, by Urine, by Sweat, and other Out-lets, so as to discharge and wash away all the Matters prejudicial to the Body.

VII. What adds a Confirmation to our Proposition is, that there are numerous Springs which afford no sensible Mark of containing a truly saline, or mineral Principle, and yet have medicinal and curative Virtues, which cannot therefore be justly attributed to any thing so much as the Purity, Thinness, and Lightness of the Water itself; but then as pure Water can have no considerable Effect, unless drank in a large Quantity, since when taken in a small one it often proves more pernicious than serviceable; and since to drink it in great Plenty might easily over-burden Nature, or prove too much for the Power of the Body to dispense with, and thus produce Stagnations, Extravations, &c. To prevent these Inconveniencies, nothing can appear more proper than to quicken such Water with some saline and active Matter; for such a Matter will not only stimulate the moving Fibres of the Body, and accelerate their Motion, but also help to dissolve any gross or viscid Humours adhering to the Sides of the Vessels, and obstructing the Circulation of the Juices. Hence it is manifest, that the additional Efficacy of Mineral Springs is considerably owing to such saline, active and spiritous Principles as naturally enter their Composition; though we should not attribute more to them than they deserve, or may by Experiment be demonstrated to perform.

VIII. From the same false Notion of the Effects of Mineral

Waters has proceeded another considerable Error. For there are many, even among Physicians, who conceive that the Wholesomeness and Virtues of these Waters can be no way so well judged of, as by the large Quantity of Ingredients they afford upon Evaporation, without considering that Fire is no trusty Operator in this Case; for by Means hereof only the more fixed Principles of the Waters are made manifest, and not their subtle ones, whereon it is certain that a Part of their Virtue depends. Thus the terrestrial, chalky Matter wherewith many Waters are loaded, rather hinders than promotes their desired Effect; especially when their Heat and spiritous Principle has left them. Whence the Waters of such hot Springs coming to cool, and stand for some time in the Air, if they are afterwards drank, they occasion many Disorders, and pass not so readily as when drank fresh from the Spring-head. And of this we have a remarkable Instance in the two Caroline Springs formerly mentioned.

IX. Since therefore Physicians themselves have run into great Errors, with regard to the Principles and Powers of Mineral Waters, it is the less to be wondered that, from such false and theoretical Notions, several absurd and pernicious Opinions should have spread concerning the Use of these Waters. These Opinions we come now to examine, after having thus prepared the Way. There are many who pass their Censure upon Mineral Waters from Hear-say, without having ever visited the Wells themselves, or been Eye-witnesses of their Effects; hence, after the common Manner of Men, they fancied numberless noxious Ingredients in them, and boldly ventured to declare them a kind of violent dangerous Remedy, which they currently stigmatize with the Name of a Horse Medicine, as a thing unfit to be used in any but robust Constitutions. But as great Authority as this Notion stalks about with, we shall make it plainly appear to be directly opposite both to Reason and Experience. And I would willingly know who can pretend that pure Water is a violent Medicine? For certainly there is nothing in Nature more safe or innocent. I would next ask, what Medicine the whole Art of Physic affords more safe than Salts, especially those of the neutral or alkaline kind? What is more mild or gentle, and indeed more serviceable in weak Habits than a subtle, astringent, or irony Earth, mixed with a kindly Salt, and kept dissolved in the lightest and purest Water? In the last Place, I demand what can possibly add greater Strength to the Body than a subtle, insipid, spiritous Fluid? And yet these are the active Principles, which, being kindly mixed in medicinal Waters, give them all their Virtue. And hence they are so far from violent, that all their Operations are performed agreeably, and without Disturbance, so as when they purge or vomit, to occasion no Loss of Strength, no Loss of Appetite, no Sickness, even when they work in their power-fullest Manner; but rather raise the Appetite, strengthen the Stomach, and recruit the Spirits. When they pass by Urine, they occasion no Strangury or Sharpness, but go off with a Degree of Pleasure. When they operate by Sweat, they do it without occasioning any Faintness, or other Disorder. Nay, we have seen Persons of both Sexes, of the tenderest Constitutions, and labouring under Fevers, Bleedings, &c. Women newly delivered, and brought to the weakest State, undauntedly drink the hot Caroline Waters without the least Disadvantage; but on the contrary, these Waters excellently promoted all the Secretions, strengthened the Faculties, and finished a Cure. And so innocent are these Waters, that Children and Women with Child may use them with Safety and Advantage; and Persons of delicate and tender Constitutions find them to operate with more Ease than the robust, and need use them but in a moderate Dose. It must however be allowed, that the drinking of these hot Caroline Waters, which are not of an agreeable Taste, in so large a Quantity as that of ten or twelve Quarts a Day, or in the Compass of a few Hours, is nauseous and disagreeable, especially to those unaccustomed to it; but from hence to call this a Horse Medicine, is arguing very unfairly and inconclusively; for it is no true Logic that would prove the Violence of these Waters from the Largeness of their Dose.

The drinking of Mineral Waters in such immoderate Quantities seems the peculiar Custom of Germany, and not advisable but upon extraordinary Occasions. We find in England, that two Quarts of the Bath Water is esteemed a large Proportion; and the general Stint is a Quart, or three Pints. A Flask of the Spaw or Pyrmont Waters, drank at several Draughts, is with us a considerable Dose; and four or five half-pint Glasses of the New Timbridge-wells at Islington, a Quantity generally sufficient. Shaw's Notes upon Hoffman.

X. But though Mineral Waters, with regard to their Nature and Virtue, are an extremely safe and gentle Remedy; yet it frequently happens, by the ignorant Advice of Physicians, that they become a Horse Medicine with a Witness; for it is the preposterous Custom of some, either upon the Day the Patient begins his Course, or the Day before, to prepare his Body for the Waters, as they call it, by giving him some violent Purge. Surely whoever considers this absurd Procedure, will find it prejudicial almost beyond Repair. For such is the Nature of the

stronger

stronger Purgatives of the Shops, as Coloquintida, Resin of Jalap, Scammony, Elaterium, Gamboge, &c. that by the virulent and caustic Principle; whereon their Action depends, they may intirely pervert or destroy the Tone and Strength of the Stomach and Intestines, and invert their natural peristaltic Motion, by the immediate Contact they have with those Parts: And how unseasonable this may prove, is manifest from hence, that nothing is more requisite towards securing the desired Effect of the Waters, than an unimpaired and intire Motion and Tone of these Parts; but the Use of such virulent and rough Purges is much more dangerous and fatal to those who are entering upon a Course of Cold Waters, by which all the Mischiefs brought upon them from such Purges are rather increased than removed, through the Coldness of the Water; whereas the hot Waters, by their Heat, in some Degree help to moderate these Disorders, resolve the Contractions, and restore the inverted Motion. But the greatest Mischief which arises from this violent Purging, and renders its ill Effects observable to the Eye, is, that in a Day or two after the first drinking of the Waters they do not pass so readily as they otherwise would through all the Strainers and Outlets of the Body, by Reason of the Constriction which such Purges leave behind them in the intestinal Tube and Parts adjacent, after the same Manner, as daily Experience shews, that the Body is bound up, or rendered more costive, for several Days after the Use of violent Purges.

XI. But as the Abuse of a thing should by no Means destroy its Use, we do not here condemn all Sorts of Purging, by way of preparing the Body for a Course of Waters; but only those of the violent kind, which have a pernicious Quality. Particularly it is necessary, in some Cases, before the Course, to take a gentle lenitive Purge, when the Intestines are clogged with a gross, viscid Matter, which might otherwise hinder the free Passage of the Waters, prevent their Effect, and bring on several Inconveniencies. The same Caution is likewise to be used when Bathing alone is the thing intended, to prevent fresh Disorders, which, through such an Omission, frequently happen, when Persons unwarily bathe in the hot Caroline Springs. But for this Purpose Choice should be made of such mild Purgatives as, without Disturbance, may cleanse the first Passages, viz. A Solution of Manna with Cremor Tartar, or half an Ounce of Epsom Salt, dissolved in half a Pint of Water, or a proper Quantity of any of the purging Waters, which may thus be taken to Advantage a Day or two before the Course is entered upon; but if the Body has long been costive, and the Excrements hardened in the Intestines, it is better to use an emollient Clyster or two, prepared of Mallow-leaves, Marsh-mallow-roots, or the like, boiled in Water-gruel or Milk, with the Addition of Oil and a little Salt; but for such whose Bodies are open, or have not the first Passages blocked by any large Collection of Humours, it is sufficient to dissolve in the first Glas of the Waters about three Drams of the Epsom Salt, which wonderfully facilitates their Passage. Lastly, they who are sufficiently laxative already require no Preparative at all.

XII. That Error deserves no less to be censured which leads Physicians, when the Course is over, to use violent Cathartics to purge off the Remains of the Waters, without a due Regard to People's Constitutions, or the Regimen necessary in this Case. It is indeed certain, and confirmed by Observation, that when Waters have been freely drank for a great Length of Time, they are apt to collect and stagnate in various Parts of the Body, but particularly in the Folds of the Intestines, and that such stagnant Waters should not be suffered to remain there, but rather be discharged. This however is not to be done imprudently, or with Loss of Strength to the Body, but by mild and gentle Means; whence it is the Business of a Physician to make Choice of such Medicines for the Purpose, as best agree with the particular Constitution, Temper and Strength of the Drinker; and upon this Foundation not absolutely to reject the Use of the stronger Purges, but to prefer such as act by no virulent Principle, yet have Strength and Briskness sufficient to perform the Work. And of this Kind are principally Manna, in a large Dose, quickened with any of the purging Salts, Extract of Rhubarb, or Extract of Aloes; all which being very easily dissolved by the Fluids of the Intestines, act briskly, without sticking to the Coats thereof, without vellicating them, or occasioning violent Gripings, Inflammations, &c. as Resin of Jalap, Scammony, and Gamboge, too often do, especially when given alone, or without their proper Correctives. But if any one is strongly attached to the Use of these violent Purgatives, as thinking them more efficacious, let them by all Means be given in a small Dose, and along with a Dram or two of the Epsom or other neutral Salt, to quicken their Operation, and carry them off; for it is now a thing well known, how much these kinds of Salts increase the Efficacy of the resinous Cathartics, insomuch that a single Grain of Scammony, or Resin of Jalap, when mixed along with ten or fifteen Grains of a neutral purging Salt, shall operate better than six Grains of such a resinous Substance taken alone; and this with greater Ease and Safety. But where a Person has naturally a robust and strong Stomach, and intestinal Tube, wherein there remains a large Quantity of

the stagnant Waters; then, without Dispute, a stronger Purgative is proper, and may be safely given, if the due Regimen be observed; that is, if the Body be well defended from all Cold, the Patient keeps in a warm Room, and, both a little before and after the Operation, drinks emollient Broths, Water-gruel, or the like, in order to defend the Stomach and Bowels from the corrosive Acrimony that might otherwise prove pernicious.

Riding on Horseback, or other proper Motion and Exercise, seems a good Expedient to prevent this ill Effect, and might therefore perhaps be properly used, at least after, if not during a Course of the Waters. But Dr. Stare is of Opinion that the Waters pass best if the Persons who drink them sit still, lie in Bed, or on the Couch. This appears just, with regard to their passing by Urine; but that not being the only Way wherein such Waters act; and it being necessary in some Cases that they should also find their Way through the Strainers of the Skin, and all the excretory Ducts, gentle Motion and Exercise may be serviceable to that general Intention of the Waters, the making of them pass indifferently through all the Canals of the Body. Shaw's Notes.

XIII. There is still another Error committed by Physicians, with regard to Purgatives, in the Case of Mineral Waters; for most of them prescribe but one Kind in all Cases and Constitutions, as if Nature had framed all Bodies to be relieved by one and the same Medicine. Whereas it is certain, that to render Purgatives successful, they must be suited to the particular Constitution, Age, Sex and Disorder. Thus for such as have the Tone or natural Tensity of the Stomach and Intestines destroyed, such as are subject to Diarrhoeas, Women with Child, Women who have lately lain in. &c. the proper Purgative is Rhubarb. Where the Humours are sharp and acrimonious, where the Body is subject to the Gout, Rheumatism, or hypochondriacal Disorder, Manna and the neutral purgative Salts are best. Where the Bile overflows; in order to lessen its Quantity, and take off its Heat, there is nothing better than Tamarinds; but to invert this Order, and give the contrary Medicines in the same Cases, must needs produce different Effects.

XIV. There is a Question often started, to the Perplexity both of the Physician and the Patient, viz. Whether it be always necessary, after a Course of the Waters, to take a Purgative before entering upon Bathing? To which we answer, That it is not always necessary; for if the Waters have passed off kindly, without leaving any Signs of Stagnation behind them, either in the Feet, or Habit of the Body, and especially if the Cure be used only as preservative, there is no Necessity for fatiguing the Stomach and whole Body with repeated Purging. And to speak a plain Truth on this Occasion, the Physicians have rather an Eye to their Fees, than the Health of their Patients, in advising it. *I hope the German Physicians only deserve this Reproach; those of our own Country that I have conversed with being generally Men of more Honour than to enter into such mean Considerations so unbecoming Gentlemen and Christians. However it is no Part of my Business to defend every Individual of the Profession from an Imputation of unwarrantable Avarice.*

But the Case is quite otherwise when the Waters are not discharged in Proportion as they are drank, but actually remain behind in the Body; or when the Stomachs of hypochondriacal Persons are loaded with a Collection of viscid and acid Matter, from a Want of Digestion: In these Circumstances Purging must be recommended, unless we mean to expose the Patient to greater Danger by the Use of the Bath. But here also the Purges should be of the mild and gentle kind, such as Epsom Salt, Manna, Pilulae Ruffi, Extractum Rudii, or the like.

XV. Having thus settled the Matter of Purging, we proceed to the Consideration of Bleeding, with regard to its Service or Disservice in the Case of Mineral Waters. There are still remaining amongst us many Physicians, who following Erasistratus, Helmont, and others of that kind, pronounce from Authority, without Proof, that Bleeding is a Remedy of all others the most disposed to let out the Treasure of Life, and draw away the Receptacle of the Soul, and therefore at once banish it the Kingdom of Physic. We shall not here enter into an Examination of this Opinion; but shew that Bleeding is often proper in order to receive Benefit from drinking the Waters, and sometimes so highly necessary, as not to be omitted without the greatest Danger. We do not however indiscriminately advise it to all Persons, but only to such as are too full of Blood and Juices; and particularly in the Case of Women, whose menstrual Discharges are stopped, either through Pregnancy, or some Distemper; and to those Men who are subject to an Haemorrhoidal Flux, and find it stopped. Again, to such whose Vessels, through the whole Habit of the Body, are full and turgid. And lastly, to those accustomed to high Living, and a plentiful Use of Wine, or have a florid Complexion, and a full corpulent Habit.

XVI. That the natural Fluids may readily pass through all the Canals of the Body, it is necessary that the Vessels should not be overfilled with Blood. Thus we plainly find by Experience, that in a full and florid Habit of Body the Pulse beats

low, and the Excretions move languidly; but as soon as a Quantity of Blood is taken away, the Pulse beats freer and stronger, and all the Secretions go on to better Advantage. If, therefore, whilst the Body remains full of its own Blood and Juices, the Waters should be drank in a large Quantity, they would not only move slower through the Vessels, but also stagnate and corrupt; and by Reason of this large additional Quantity, they may drive the Blood forcibly upon the more noble Parts, and thus produce Inflammations, Hæmorrhages, Obstructions in the Viscera, and many other Mischiefs, insomuch that Persons of this Habit of Body coming directly to drink the Waters, without taking away some Blood, run great Risques of their Lives. On the other Hand, Persons who bleed a Day or two before they enter upon this Course, have none of these Dangers to fear, but may drink the Waters with the desired Success; as is well known to those who have prudently observed the Effects of Mineral Waters. For it is a common Observation at the Wells, that Persons who found themselves ill upon first drinking the Waters, on Account of their not passing off regularly, but oppressing and incommoding the Body, so far as to determine them to quit their Design, yet having, by the Advice of another Physician, lost a little Blood, they have not only been soon relieved from their Disorders, but entered upon their Course again to great Advantage.

XVII. There are several Physicians who scruple prescribing the Use of cold Waters to such as have weak Nerves, for fear of weakening them still farther. It must indeed be acknowledged, and Experience manifests, that the most dangerous Symptoms are frequently produced in the Body from external Cold; and that this happens in a much greater Degree when the Cold reaches to the internal Parts, which are unaccustomed to bear it. Thus we have Instances where the whole Body being suddenly cooled, has occasioned Loss of Sight, and a Trembling of all the Limbs; where the Administration of a cold Clyster has caused immediate Death; with other Instances to the like Purposes. But for these Reasons totally to reject the Use of cold Mineral Waters, betrays great Weakness and Ignorance. All that they justly indicate is, if the drinking of such Waters cold occasions any bad Symptom, the drinking of them cold is to be forbid, and a Method of drinking them advised, which shall render the Water suitable to the weak State of the Body. And this I have for a long time very advantageously done, by directing the Bottles of the Water to be plunged in Balneo Mariæ, till they receive a Degree of Heat more agreeable to the Body and the Palate; a fine Hole being first made with a Needle in the Cork, to prevent the elastic Spirit, thus expanded by the Heat, from evaporating, and to keep the Bottles from bursting. Nor let it be apprehended that this Treatment of the Waters causes an intire Loss of the mineral Spirit, whereon their Efficacy depends; for as the Heat is not great, and as a proper Caution is here used, a sufficient Quantity of the Spirit is still kept in. And though there be no Need of farther Arguments, since Matter of Fact confirms the Truth hereof, yet we find that even the Waters of the hottest Springs, whose Heat is much greater than that here recommended, are not intirely destitute of this volatile, mineral Principle.

DISEASES wherein MINERAL WATERS are SERVICEABLE, contrary to the common Opinion.

XVIII. Having thus given the necessary Cautions and Directions, as well to Physicians as the Patients, with regard to entering upon a Course of the Waters; we now proceed to consider in what Distempers they are of more eminent Service than any other Remedy. But as the Catalogue of these Distempers is extremely large, we shall only speak to those wherein most Physicians rather think the Waters detrimental than advantageous; and shew the Erroneousness of this Opinion, both from Reason and Experience.

XIX. And first, the Use of Mineral Waters is held dangerous in violent Fluxes of the Menfes and Hæmorrhoids. The Reason upon which Physicians proceed in forbidding Waters in these Cases depends upon a false Notion of the Causes of such Discharges, and of the Ingredients of the Waters, which they take to be metallic, vitriolic, and styptic; and having found by Experience that Astringents are very prejudicial in such Cases, they have forbid both the Use of hot and cold Waters therein. But as a Knowledge of the Blood's Circulation discovers the true Cause of these Discharges, and as the Apprehension of styptic Ingredients in Mineral Waters is groundless, this Opinion of theirs must be rejected as idle and frivolous. A careful Enquiry into the Cause of violent Hæmorrhages shews it to be no other than an Obstruction to the free Circulation of the Blood in certain Parts of the Body. And thus the Blood having not its due Motion through the Canals, impacted Matters are of Consequence generated in the Viscera, and the Obstructions necessarily rendered greater; whence the Blood coming to these obstructed Parts in a still greater Quantity, and finding no Passage, of Course diverts, and breaks its Way through other Parts, where it has either been accustomed to find Vent, or meets with the least Resistance when it comes to be discharged with

Violence in the Parts above mentioned. The first Intention therefore in the Care of these Disorders, is to open the Obstructions of the Viscera, and to restore a free Circulation of the Blood therein; and this can no other way be so effectually done, as by the drinking of Waters impregnated with a gentle stimulating Salt; for it is the Property of these Waters, by the large Quantity of their aqueous Part, to dilute and thin the stagnating Humours, and render them fit for Motion, whilst by their saline Particles they dissolve the Viscidities, twitch and shake the Canals, and cause them to press, protrude and squeeze forwards their Contents. This appears to be the Rationale of the Cure; and thus in fact Henricus ab Heer expressly declares that the Spaw Waters are extremely well fitted for provoking the Menfes, as appears by a thousand Instances, and yet are more successful than any other Medicine in stopping too large a Flux thereof.

XX. But that the Waters may with the greater Certainty and Advantage have this Effect, proper Care must be taken that the Body in such Circumstances be not charged with an immoderate Quantity thereof, but be drank in a small Dose, and not too hot. How necessary a due Regard to this Circumstance is, appears by an eminent Instance in the two Caroline Springs, where the Use of the most temperate of them, called the Mill-spring, has an admirable Effect in these Cases, whilst the common violently hot one rather increases the Disorder. It is also of great Importance, when the above mentioned Fluxes are large, that both before, in, and after a Course of the Waters, all Aloetics, and the stronger Purgatives be carefully avoided, which put the Blood into a violent Motion; and, if any Purges become necessary, to use in their stead those that are gentle, and of a strengthening Virtue, such as Epsom Salt, Rhubarb, Sena, &c.

XXI. And as these Waters have an extraordinary Efficacy in the stopping of Hæmorrhages, their Virtue is no less considerable in a Suppression thereof. And this Truth can be questioned by none but such as have never attended at the Wells; for as a Stoppage of these natural and critical Discharges of the Blood proceeds intirely from an Obstruction, or spasmodic Contraction of the Blood-vessels, through which it uses to run, Mineral Waters are wonderfully adapted to restore and promote these Discharges; it being the Property of such Waters to flow to the Extremities of the Blood-vessels, and there soften or attenuate the grosser Substances that block up the Passages, and force it away by the elastic Property of their aerial Spirit; and at the same time, by the large Quantity of their pure aqueous Part, they relax the hardened and contracted Fibres, and thus again open the accustomed Passage to the Blood. To confirm this Reasoning, we shall here insert the History of an extraordinary Case, whereof ourselves were Witnesses, and choose it as a singular Instance, out of a very large Number to the same Purpose.

A Person of Distinction, about fifty Years of Age, of a Constitution betwixt sanguine and bilious, long used to a Court-life, Wine, and a high irregular Diet, was seized with the Gout, and hæmorrhoidal Flux, returning at stated Periods; but without being much incommoded thereby, so long as he continued to open a Vein at proper Seasons. But being, a few Years ago, advised by some Physician or other to leave off Bleeding, under Pretence of growing in Years; and following this Direction, he was in the Summer Season afflicted with a violent Colic, extreme Costiveness, and Pain. His usual Physicians little suspecting the true Cause of the Distemper, ascribed it to the Gout struck inwards, and therefore rejected Bleeding as a perfectly useless or dangerous thing. Another Physician being called, and enquiring narrowly into the Cause of the Disorder, immediately ordered the Patient to have a Vein opened in his Foot, and to use emollient Clysters. Upon this the Violence of his Pain was immediately lessened, and growing better by Degrees, he was carried at the proper Season to the Caroline Waters; by the internal and external Use whereof, he happily recovered the periodical Return of his Hæmorrhoids and Gout, and was perfectly cured of his Colic.

XXII. From too large Discharges of the Blood-vessels, we pass on to the immoderate ones of the Lymphatics; the more common whereof are the Gonorrhœa and Gleet in Men, and the Fluor albus in Women. With regard to Distempers of this kind, many Physicians imagine that Mineral Waters are improper; but Henricus ab Heer, in his time, clearly remarked the Falsity of this Opinion, and declared that, how doubtful soever others might be in the Point, the Spaw Waters were certainly serviceable in the virulent Gonorrhœa, and produces Instances of his own Knowledge to confirm it. It is however certain that these kinds of Fluxes are generally increased by the Use of Mineral Waters, whence their Disrepute in such Cases seems to have proceeded. For whilst Physicians remained ignorant of the Causes of these Disorders, they attributed this Increase of the Flux to an Increase of the Distemper; but as the present Discoveries in Anatomy have given much better Light into the

Seat and Nature of such Distempers; it is proper the Cures of them should be regulated accordingly. An obstinate Gonorrhoea or Gleet in Men generally has its Rise from the unskilful Cure of a common venereal Running, which corrodes the Prostate Glands, and others belonging to the Parts of Generation, and renders them scirrhus and fistulous. An inveterate Fluor albus proceeds from an acrimonious Humour, generated by a too violent or frequent Use of Venery; or from a Humour introduced in the way of a communicated Taint, which afterwards infects the Glands of the Vagina, so as not only to make them discharge their Juice in plenty upon the adjacent Parts, but the same Juice being also infected, eats and corrodes the fine Fibres of the Parts it passes over, and thus occasions sharp darting Pains, Excoriations and Ulcers, whence proceeds the Matter of a virulent Flux. From this Account, which is taken from Dissections, it clearly appears, that in order to wash away, dilute and weaken these infected Juices, soften the hardened Glands, strengthen the Fibres that are fretted and corroded, and join them again with the other untainted Parts; a Course of Mineral Waters is highly proper. And though it be true that whilst the Course is in hand the Flux will increase, yet, when the Course is over, there ensues a more certain and confirmed Cure. But in order to this End, balsamic Remedies, and a moderate Decoction of the drying Woods, are to be used in the drinking of them, by which Means the Cure may be surprisingly facilitated.

XXIII. And no less serviceable is a Course of Mineral Waters towards the Cure of Distempers seated in the Glands of the Body, whether proceeding from Obstructions or Relaxations of the glandular Parts; for such Waters have a very opening, diluting, resolving, absterfive and strengthening Quality. To gain the better Credit to this Assertion, we shall here subjoin the History of a curious Case that happened lately:

A Portuguese Lady of a noble Family requiring of her Physician a Purgative by way of Prevention, he officiously prescribed her an Electuary, upon the Use whereof she soon fell into a violent Salivation, that continued for almost eight Months, till it had brought her to the extremest Weakness, and rendered her almost like a dead Carcase. The Caroline Waters were advised her, by the Use whereof, both internally and externally, with the Assistance of gentle Purgatives at proper Intervals, she not only got rid of her Spitting, but quickly recovered her former Strength and Beauty. It was remarkable in this Lady's Case, that after her Cure was compleat, she by sitting longer in the hot Bath than was directed, had nearly relapsed into her Spitting; and doubtless would have done so, if her Physician had not immediately prevented the Mischief by proper Purgatives.

I have inserted these two Cases, as being remarkable, though not properly belonging to the Article ACIDULÆ.

XXIV. It is a current Opinion, that the drinking of Mineral Waters proves prejudicial to the Lungs; and increases all the Disorders thereof. The Origin of this Error is apparently owing to a false Notion of the Ingredients of these Waters, and an improper Advice of them to such Persons whose Lungs are already ulcerated and eat away; whence the Ignorance of Physicians has pronounced them prejudicial in pulmonic Disorders. It is manifest by Inspection, and the Anatomy of tabid Bodies, that most Distempers of the Lungs arise from an Obstruction and Hardness of the Glands, wherewith this Part so plentifully abounds. Hence proceed inveterate Coughs, Phthisics, Difficulty of Respiration; Asthma's, &c. in all which Diseases the primary and sole Intention should be to open and dissolve away the Obstructions and Scirrhusities in the Lungs, that cause the Distemper; and this can no other way be so readily effected as by a Course of Mineral Waters. But to prevent their saline Acrimony, which is certainly unsuitable to the delicate spongy Substance of the Lungs, from doing any Mischief thereto, it is advisable to mix the Waters with Asses Milk, which Experience shews is the best for this Purpose; or else with Goats Milk. And mixing the Waters in this Manner not only blunts and mollifies their saline Particles, but also conduces to temper and sheathe the Acrimony of the whole Mass of Blood, so as to render them eminently serviceable in Diseases of the Lungs. We have seen numerous Instances of their good Effects, so drank in these Cases.

XXV. What we have above said about the Diseases of the Lungs, may also be extended to the other Viscera, and Diseases of the Lower Belly. The Writings and common Discourses of Physicians are full of the Mischiefs which they suppose Mineral Waters bring upon the Viscera. And indeed the Use of these Waters cannot be recommended where the Viscera are consumed, or highly tainted; where the Humours are extravasated on account of Vessels broke either in the Thorax or Abdomen, or where Imposthumations are formed. To prescribe the drinking of Waters in these Cases, is to increase the Disorder, and hasten Death: But this Restriction does not reach to all the Diseases of the Viscera. The greatest Number of chronical Distempers, which come on slowly, and prove of long Con-

tinuance, proceed from an Obstruction in these Parts, and a Hindrance to the Circulation of the Blood; for the Prevention or Removal whereof there is nothing more serviceable than Mineral Waters, which preserve the Viscera in their natural State, and open Obstructions. Thus they are admirably preventive of the Scurvy, of the Asthma, of Abortion and Sterility, of the Dropsy and the Stone; curative of an ill Habit of Body, and lessen a present Fit, as well as repel an approaching one, of the Gout; and all this is attested by Experience and Observation. Whence it clearly appears how idle and childish that Fear is, which many Physicians indulge; of the pernicious Effects of these Waters; though it is true, they have always at hand certain ingenious Comparisons, and Instances of like Cases, as they call them, which they use on all Occasions; with a plausible Shew to the People.

XXVI. In the last Place, we shall say a Word or two of the proper Diet and Regimen to be observed in drinking the Waters. For as no Remedy, without a proper Regimen, can have its Effect, so a Course of Mineral Waters requires an exact Care in this Particular. There are two Errors generally run into by the Drinkers, viz. indulging themselves either too much, or too little. Some Physicians are so scrupulous as to forbid their Patients the Use of all acid, saline and spicy Meats, though perhaps these alone are pleasing and agreeable to them. But the Point of Exactness is, here, for every one not greatly to recede from his usual Custom, otherwise the Appetite may be hurt, Digestion not well performed, and Crudities and new Disorders generated. Others, who have a principal Regard to the Stomach, only advise the Use of spiritous and aromatic things; which is a great Hindrance to the Business of Excretion; for common Experience testifies that such things bind up the Belly. Above all, Voracity, and turbulent Disorders of the Affections should be prevented, as great Enemies to Digestion; whence the Body is loaded with an useless Weight; and the Waters rendered ineffectual for subduing and discharging the Crudities of the Body. The Stomach also will be weakened and relaxed by this Procedure, and the Waters now plentifully drank remain longer therein, and thus give rise to many Inconveniences.

How destructive the turbulent Passions of the Mind are, appears from daily Experience in a State of Health; and unless well regulated; will prove more pernicious in a sick State, and a Course of the Waters, whereby the Humours and Foulness of the Body are put into Motion; so that Apoplexies, Palsies, and the like nervous Distempers, have proceeded from a Misconduct in this Particular. To conclude with a wholesome Admonition: Infirm Persons should not rashly venture upon a Course of Drinking or Bathing, especially without the Observance of a proper Regimen. *Hoffman.*

I shall conclude Hoffman's Account of Mineral Waters with his Method of imitating them; but I cannot much recommend it, being unacquainted with the Efficacies of Waters thus counterfeited. I should suspect their Virtues to be in no Degree equal to those of the genuine Springs. Experience may determine their Effects, and Experiments in this Case are more excusable, as Waters thus imitated can do no great Mischief, if applied judiciously.

I. As it is evident by the preceding Sections, that Mineral Waters, for the Prevention and Cure of Diseases, have no known Remedy comparable to them, as all Persons cannot have the Opportunity of frequenting the Wells, and as the Springs themselves are sometimes, though rarely, subject to Decay, it becomes a Question of Importance, whether, from a Knowledge of the Principles and Ingredients of these Waters, they may not be imitated by Art, or the more common Waters of every Place be impregnated so as to produce the same Effects? Many Chymists of the last Age held the affirmative; and in particular imagined, that cold Mineral Springs were easy to be imitated. But they certainly went upon a false Notion, which with many prevails to this Day, that these Waters owed their principal Virtue to a vitriolic Substance, and hence imagined that they needed but dissolve such a Substance in pure Spring-water, and the thing was done. But upon Trial they found their Error; for there is no solid Vitriol contained in these Waters. Nor is there a single Instance of a Spring, that we know of, holding a Salt so far like that of common Vitriol, as when dissolved in Water to turn inky with Galls, make a neutral Salt, or Tartarus Vitriolatus, with Oil of Tartar, and, upon evaporating, leave behind a Concretion, that, when ground with Nitre, yields the Fumes of Aqua-fortis.

II. To lay a Foundation for a more successful Imitation of Mineral Springs we must observe that there are some, both of the hot and cold Kind, which contain no saline or mineral Principle at all, and are nothing but a very pure, subtle and light Water; which, however, has very considerable medicinal Virtues. If such Spring-water as this be not procurable, we may perhaps to as good Advantage use in its stead the purest Rain-water.

III. There are certain Springs of a very light and subtle Water, containing no earthy or saline Principle, and only a small Quantity of an iron Substance; and these may properly be called Iron Waters; for they exhibit no Change to the Eye upon the Admixture of Acids or Alkalies; but, by standing or being heated, deposit a yellow okery Sediment. It is, therefore, no Difficulty to imitate this kind of Water by Art, where a sufficient Quantity of a pure, light and simple Water is at hand. The Method is only to boil it in a Glass Vessel, with a little of the more curious and subtle Oker sold in the Shops; by which means the Water will acquire a like Virtue, when used both internally and externally, as those of the natural Iron Springs.

IV. There are other Springs remarkable for the Lightness and Subtlety of their Water, which, besides a small Proportion of Iron Oker, hold a considerable Quantity of common Salt, whence they derive their principal Virtue. These Waters are somewhat purgative, and advantageously used in the way of Bath. They suffer no apparent Change upon mixing with Acids or Alkalies, and do not abound with a mineral elastic Spirit. Such Waters therefore may commodiously be imitated, by dissolving a little Sal Gem in the above mentioned natural or artificial Iron Water.

V. The Imitation of the cold and brisk mineral Springs is attended with greater Difficulty, if we would prepare them in such a manner as to have the natural, quick and pungent Taste, Smell, and copious elastic Spirit. I have, however, attempted to imitate them, by adding to the finest simple Water I could procure, contained in an earthen Vessel with a narrow Neck, first a little highly calcined and dissolved Salt of Tartar, next a little Spirit of Vitriol, so as to make an Ebullition, yet suffer the alkaline Principle to predominate; then shaking the Vessel whilst it remained close stopped. By this means I obtained a Water resembling the natural in Taste, and that threw up numerous Bubbles in pouring out. It likewise answered the natural Water in its Virtue and Effects; so that I have given it with great Advantage in such Distempers as required the drinking of the moderate, brisk, and cold Mineral Waters, where the natural ones could not be procured. But if the Design be to imitate the Pyrmont Steel Waters, which abound with an Iron Oker, either the natural or artificial Iron Waters should be chose for the Purpose, and a somewhat larger Proportion of Salt of Tartar, and Spirit of Vitriol be used; but so that the Alkali may still prevail.

There are Reasons to apprehend, that either this Expedient, or a worse, is practised at London and elsewhere, so as to imitate the Spaw, the Pyrmont, and other foreign and domestic Waters, in such a manner as to pass undiscovered upon ordinary Judges. If these Dealers had Art enough to make their Imitations perfect, the Deceit were the more tolerable; but as they commonly manage it, every Drinker, who cannot procure the genuine, had better make the artificial himself fresh as he wants it, which he may do by the Help of these Directions. And to those who are curious in this Particular, we recommend the purest Rain-water, and, instead of Spirit of Vitriol, the true Spirit of Sulphur. But for a Method of imitating these Waters, which comes still nearer to that of Nature, we think proper to intimate, that many Experiments and Observations shew the mineral Spirit, the specific Virtues, and iron Principle of Steel Waters to proceed from the Pyrites dissolved by such Waters under Ground. Whence perhaps Beds of these Stones might be laid on the Course of a pure Spring, so as to grow hot, steam, and richly impregnate the Water that runs near them, without turning to Vitriol. The Experiment is recommended to the Skilful in Chymistry and Natural History.

VI. There are, besides these, certain purgative Mineral Waters, which, though they make an Ebullition with Acids, yet leave a bitter neutral Salt upon Evaporation. These Waters are to be imitated, in the same manner, by the means of Oil of Tartar, Spirit of Vitriol, and Epsom Salt, or that prepared from white Manganese and Spirit of Vitriol. And much after the same way may be artificially prepared a Water abounding with an exquisite neutral Salt, and capable of purging very effectually. The way is to dissolve, in the purest and lightest simple Water, a suitable Proportion of Glauber's Salt; or a still better Method is by mixing Oil of Vitriol with the white Manganese, so as to obtain from that calcareous Earth, and the vitriolic Acid, a Salt after the same manner as it is prepared by Nature, and then dissolve this Salt in the pure Water, so as to equal the Proportions of that proposed to be imitated; for Example, in the Quantity of about two Drams to twelve Ounces.

VII. Lastly, If any one desires to imitate the Caroline Waters, which are extremely alkaline, and somewhat purgative, he should endeavour to procure not a light and subtle Water, but such as is loaded with a calcareous Earth; and drop into this, first the Spirit of Vitriol, and afterwards the Solution of Salt of Tartar, till the Alkali manifestly predominates. The Spirit of Vitriol should be first poured in, that it may lay hold of the calcareous Earth, and therewith turn into a neutral and somewhat purgative Salt.

VIII. These are the ways, I have myself tried, to imitate the natural Mineral Waters for internal Use. And upon examining the Principles and Contents of these artificial Waters, they appear to hold not only the grosser, earthy and saline Substances, but also something extremely like the curious, elastic, mineral Principle of the natural Waters, proceeding from the Action and Re-action attending a State of Effervescence.

They likewise, upon Trial, appear to have great medicinal Virtues, so as to be, with desirable Advantage, exhibited for cleansing the Blood, and curing numerous Diseases, according to their several Intentions; though I cannot positively say, nor will pretend, that they come up to the Excellence of the natural Waters.

IX. It remains that we shew a Method of preparing Simple Waters for external Use, so as to supply the Want of Mineral Springs. We formerly intimated how, by the Addition of Salt of Tartar, Pot-ash and Herbs, wholesome Baths may be commodiously prepared; and shall therefore, in this Place, touch upon such as may be made by the means of Metalline Scorize. The most common and useful of this kind are those prepared with the Scoria of Iron, which abounds with the earthy, saline and sulphurous Substance of the Metal. And these are of excellent Service for strengthening and bracing up the Parts, and recovering weak and decayed Limbs, stopping various kinds of Bleeding, and restoring the menstrual and hæmorrhoidal Flux, where obstructed; insomuch that they may well be substituted for the natural Iron Baths.

X. Adjacent to the Smelting-Huts, where Metals are run from their Ore, are to be found large Quantities of the Slag of Copper, Antimony and Cobalt, which abounding with Sulphur, vitriolic Salt, and an earthy Principle, make serviceable Baths for strengthening the lost Tone of the Fibres, and relaxing them when they are too crisp. These Baths have likewise a detergent and cleansing Virtue; so that, with Prudence, and a due Regard to Circumstances, they may be used on many Occasions. The way of making these artificial Baths, is either to take the Slags as they come hot from the Furnace, or else to heat them afresh, and throw them into hot Water, contained in a close covered Vessel, that they may communicate their Virtue to the Water, which is afterwards to be used either in the way of Bath or Fomentation occasionally.

To conclude, there are other artificial Baths prepared of Alum and Quick Lime, by boiling them together in fine Rain-water; and such Baths are highly serviceable in paralytic Disorders, and Weakness of the Limbs. *Hoffman by Shaw.*

Dr. Shaw has been more particular and intelligible in his Method of examining Mineral Waters than any former Author on this Subject. As I would enable every Body concerned in the Practice of any Branch of Physic, and all curious Gentlemen, to make successful Researches into the Nature of particular Mineral Waters, I shall insert the Method of doing it from the above mentioned ingenious and indefatigable Gentleman, without the idle Affectation of unnecessary Variations. And I presume the Importance of the Subject, to the Health and Welfare of Mankind, will render any Apology for the Prolixity of these Accounts of Mineral Waters superfluous.

I. Before we enter upon the Enquiry itself, it will be necessary to collect together the principal Instruments and Apparatus proposed to be used therein, that the Work may afterwards proceed with less Interruption.

II. And, first; the Mariner's Compass may be useful, in determining the Situation of the Well, and the Course of the Water to the Receptacle; because the Needle of this Compass pointing North and South (excepting for the Variation) the Enquirer may thence be enabled to lay down with Exactness the Course or Windings of the Streams, and the respective Situation of the adjacent Towns or Country.

III. For examining the Water itself, its Contents, and the mineral Substances found near the Confines of the Well, or Course of the Water, there will be required,

1. Exact Scales and Weights.
2. An hydrostatical Balance.
3. Variety of Glasses, common and chymical.
4. Cements.
5. A Thermometer.
6. A Hand-Pump.
7. An Air-Pump.
8. Microscopes.
9. An armed Loadstone, or touched Plate of Iron.
10. Distilled Water.
11. Crucibles.
12. A Melting-Furnace.
13. Fluxes, or Flux-powders.
14. Various Vegetables.
15. Animal Matters.
16. Minerals.
17. Artificial Substances.

IV. (1) The Scales should be of three Sizes, all of them well made, for weighing Grains, Drams and Ounces, or even a few Pounds; and the Weights employed should be Troy, which

which is the medicinal, or Apothecaries Weight; the Pound whereof is twelve Ounces, the Ounce divided into eight Drams, the Dram into three Scruples, and the Scruple into twenty Grains.

V. (2) The hydrostatical Balance is an Instrument, or a certain Species of Scales, contrived to weigh Bodies in Water, so as to determine their specific Gravity, as it also will do that of any Mineral Water, by weighing a certain Glass Bubble therein, the Weight of the Bubble in the Air and in common Water being known beforehand.

VI. (3) The Glasses to be procured are, 1. Such as may commodiously exhibit the Water to the Eye and the Senses, and should therefore be crystalline, and some of them cylindrical. 2. Such as may bear Heat, and serve for Evaporation; these should therefore be shallow, and widen upwards. 3. Such as may confine the Water, as common Phials, Bottles, Glass-Eggs, and Bolt-heads. And 4. Such as may serve for Distillation, as Glass-bodies, with Alembick-heads, or Retorts and Receivers.

VII. (4) By Cements are here meant those Matters, or artificial Compositions, which being applied to the Mouths of Glasses, tend to preserve the contained Water in a sound State, by keeping it from all Communication with the external Air, such as melted Rosin, Sealing-wax, or rather proper Mixtures of Wax, Turpentine, &c.

VIII. (5) A Thermometer is of Use to determine the Degree of Warmth or Coldness of the Water; being an Instrument consisting of a hollow Glass-ball, with a long and slender Neck or Stem, filled to a certain Height with tinged Spirit of Wine, and divided into Degrees along the Stem, so as by the rising or falling of the Spirit of Wine therein, to shew the Degree of Warmth or Coolness of any Fluid wherein the Ball is placed.

IX. (6) A small Hand-Pump, made either of Wood or Tin, with its proper Embolus, or Sucker, is necessary to raise the Water immediately from near the Bottom of the Well, to shew whether this differs from that taken up near the upper Surface; though other Contrivances may also be used for this Purpose.

X. (7) The Air-Pump, with its Glass Receivers, is a proper Instrument in helping to discover the Proportion of Air, or volatile, fugitive Spirit contained in the Water; for spirituous Waters are found to throw up, and discharge a large Quantity of Bubbles, when placed under the exhausted Receiver of the Air-Pump; and according to the greater or less Number and Size of the Bubbles thus discharged, the Water is judged to be more or less aerial or spirituous.

XI. (8) Microscopes, or Magnifying-Glasses, may be used in examining whether any visible component Particles can be found in a single Drop of the Water; but more successfully perhaps in determining the Figures of the Crystals, or Salts of the Water, after Evaporation, or during the time of Crystallization. It might also be proper to examine all the other solid or visible Contents of the Water by the Microscope, both in a State of Mixture, and after they are separated from each other.

XII. (9) The armed Loadstone, or touched Plate of Iron, is of use to discover whether any of the mineral Matters found near the Confines of the Well, or among the dry Contents of the Water, are of an iron Nature; for whatever the armed Loadstone, or a touched Iron Plate attracts, is generally allowed to be Iron. Though other Proofs of this should also be procured. And perhaps the Loadstone will not attract Iron in all States and Circumstances; as unless it be pure and perfect, or have all the Parts essential to malleable Iron; so that a mineral Substance may possibly be iron, though the Loadstone should not attract it.

XIII. (10) Distilled Water, or Water freed as much as possible from all mineral, saline, terrestrial, or other foreign Matters, is of use to discover the saline or soluble Contents of any mineral Substance, or dry Matter of a mineral Water, by dissolving them from the less soluble Parts, and giving them again in a solid Form, by Evaporation, or Crystallization. The Water should be pure for this Purpose; otherwise it might mix its own mineral or saline Matters along with those of the Matter proposed to be examined, and so render the Experiment fallacious or uncertain. Now there is scarce a better way known of procuring Water in purity, than by gentle Distillation in clean Glass Vessels.

XIV. (11) Crucibles, or Melting-pots, made of an earthy, or stony Matter, are useful in trying whether the dry Contents of a Water, or other Mineral Substances, are metallic, or hold any considerable Proportion of Metal; for if they do, the Metal may usually be got out of them, by powdering the Substance, and, if necessary, mixing it with a proper Flux, then melting them together in a strong Fire.

XV. (12) A strong Fire is required to melt most metallic Substances, so as to separate the Metal from them; though, in some Cases, a Wind Furnace, that is, a Melting Furnace, or Fire animated barely with a Current of Air, which it spontaneously draws to itself, is sufficient for this Purpose. But where the Matter proves stubborn, or hard to melt, a Fire

briskly agitated, or blown with a Pair of double Bellows, like those of the Silver-smith, or Blacksmith, are usually required.

XVI. (13) Fluxes, or Flux-powders, are any kind of Substance, which being added to a Mineral, or Ore, and melted therewith, causes it to run easier, and yield its Metal sooner, or in greater Plenty, than it would do when melted without Addition. Thus Tartar, or Argol, Nitre, or Salt-petre, Borax, Glass of Lead, Iron-filings, &c. are Fluxes, and should be ready at hand, in order to the Examination of the Mineral Substances that may occur in the present Enquiry.

XVII. (14) Certain vegetable Matters are found to strike different Colours with different Liquors; and according to the Colour produced, an Indication is obtained of one or more particular Substances contained in a Liquor. Thus if fresh Violets be suffered to stand for some time in a pellucid Mineral Water, and the Water should now appear of a red Colour, hence an Indication would be gained that an Acid is predominant in the Water; but if a green Colour should thus be produced, this denotes that an Alkali prevails in the Water; but if the Water retains the native blue Colour of the Violets, this shews that the Water is neutral, or that neither an Acid nor Alkali prevails therein. The Principal therefore of those vegetable Substances, which have the Faculty of indicating, by a Change of Colour, the Contents of a Mineral Water, or other Liquor, should be procured, and kept in Readiness for our Purpose.

XVIII. These Vegetable Subjects seem reducible to four Classes, viz.

1. Such as are astringent.
2. Of a fine Texture.
3. Purgative.
4. Alterative.

XIX. (1) Among Astringents may be reckoned Green-tea; Oak-leaves, Oak-bark, Pomegranate-bark, Balauftian-flowers; Sumach, but more particularly Galls; all which are adapted to discover whether the Water be of an iron Nature, or contain any Particles of Iron, or the Vitriol of Iron. And this they do by turning such Water purple, black, or dusky; and, with time, precipitating a light, dusky Cloud, or inky Substance to the Bottom. The Galls for this Purpose should be of the blue, or strongest kind, sound, and newly reduced to Powder, which may be kept in a Glass close stopped. This Powder is used with greater Dispatch, Convenience and Exactness than a Tincture of Galls made in Water, which weakens their Virtue. The Tincture besides loses of its tinging Faculty by keeping, and at the same time acquires a deep Colour, which may disturb the Experiments.

XX. (2) Under Vegetables of a fine Tincture come the coloured or colouring ones, which have their Colours easily altered by simple Mixture; such as the Flowers of red Roses; Mallows, Violets, Bluebottles, Clove-Julyflowers, Lignum Nephriticum, &c. which serve to indicate, by the Change of Colour they produce in the Water, what kind of saline, or earthy Matters predominate therein. Thus, as was before observed, Violets turn a Water red where an Acid presides, and green where an Alkali; but communicate their own blue Colour where the Water is neither acid nor alkaline. And thus pure common Water being neither acid nor alkaline, an Infusion of these Flowers therein exhibits a beautiful blue Colour. And as pure crystalline Sugar also is neither acid nor alkaline, the Addition thereof to the Infusion of these Flowers introduces no Change of Colour; whence the Syrup of Violets may be commodiously substituted for the Flowers, in the making of our Experiments.

XXI. (3) The purgative Vegetables of Use in our Enquiry, are chiefly Sena, Rhubarb, Hermodactyls, Mechoacan, Jalap, &c. and this by the way of simple Infusion, Tincture, or Decoction, to discover some certain Contents, or solutive Powers of the Waters, but more particularly the Salts thereof; for alkaline Salts are found, in all Trials, to heighten the Tinctures, or Virtues of these purgative Ingredients, or make the Water take up more of their Parts, especially if they be unctuous, or resinous. Neutral Salts are also found to have the like Effect, in a less Degree, whilst acid ones are little disposed to open the Bodies of these Drugs, or make them yield strong Tinctures.

XXII. (4) Those commonly called the alterative, or drying Woods, as Guaiacum, Sassafras, Saunders, &c. may be likewise serviceable in this Enquiry, and help to discover the Contents of the Water, as they will yield their Virtues to some Waters better than to others; particularly to such as abound with a Salt capable of dissolving their resinous or unctuous Parts, wherein their medicinal Virtue principally appears to consist. And by this means also some new Uses of the Water may probably be discovered, viz. by applying it to the making of Infusions, Decoctions, or Extracts of various Drugs or Simples.

XXIII. (15) It is of Importance in the Enquiry to know how the Water affects the animal Fluids, or other animal Substances, as this may not only give Light into the Contents of the Water, but also afford Directions for its prudent Use, and shew what Effects may be rationally expected from drinking. And

here we should principally regard the Changes it produces in the fresh extravasated Blood of a healthy Person; in coagulated or dry healthy human Blood; in the Serum of sound Blood; in morbid Blood of various kinds, as that of rheumatic, scorbutic, pleuritic, consumptive, hypochondriacal, and maniacal Persons; upon the Calculus humanus, or Stone of the Bladder; upon Gall-stones; upon the Chalk-stones of gouty Persons; upon Matter, or Pus; upon Urine, recent, stale, and gravelly, &c. upon viscid Phlegm, gellied Lympha, and other sound and morbid animal Substances; especially as assisted with a Degree of Heat equal to that of the human Body.

XXIV. (16) It may be proper to mix different kinds of Minerals with the Water, to try if any remarkable Changes can be thereby produced, or the Virtues of the Water increased, or its Contents the better discovered. And in this View several Ores, especially the softer, or more soluble sorts might be used; especially Iron-ore, Mundic, Marcasites, or the Pyrites, as also Lime-stone, Alum-stone, Vitriol, Sulphur, and the Mineral Salts. Any of these Matters, if made to dissolve in the Water, might produce considerable Changes therein, or increase its Virtues, if they depended upon Contents of the same kind. Thus, for Example, if any Part of the Virtue of the Water should depend upon Iron, the artificial Introduction of more Iron might heighten the Virtue of the Water. And so again, if Vitriol, Alum, or Sulphur, be naturally contained in the Water, these Minerals might be added to it in a proper manner. So again it may be proper to try whether pure Silver will change its Colour, or turn black in the Water; or whether Lead, Quicksilver, &c. will any way dissolve therein, whereby a Knowledge may be gained of certain Contents, or Properties of the Water.

XXV. (17) The Head of the artificial Substances might admit of great Variety; but we will here single out the more necessary Particulars, under the Classes of,

1. Alkalies.
2. Acids.
3. Metallic Preparations, and Solutions.

XXVI. (1) By Alkalies are here meant what the Chymists called fixed and volatile alkaline Salts and Spirits. Fixed alkaline Salts are made, by boiling the white Ashes of proper vegetable Subjects, such as common Billet Wood, Bean-stalks, Vine-cuttings, Tartar, &c. in Water, to dissolve the Salt out of the Ashes, then evaporating the clear Solution till a dry Salt be left behind. Salt of Tartar is a principal Salt of this kind, and has considerable Uses in the Examination of Mineral Waters; for as it dissolves more readily and fully in Water than any earthy Substance, in proportion as it dissolves, the earthy Substance contained in the Water will fall to the Bottom; so that, by this Expedient, a large Quantity of the Earth of a Mineral Water may be separated, and made to assume a dry Form. And as this Salt is alkaline, if the Water be acid, some Conflict or Ebullition may be expected upon mixing them together; for this is commonly the Case when an Acid and Alkali are mixed. Or, by a prudent Addition of this Salt, so as just to take off the Acidity of the Water, a neutral Salt may be made, and, by a proper Treatment, rendered sensible, so as to afford a satisfactory Proof that the Water was acid. Salt of Tartar also readily runs, by the Moisture of the Air, into a ponderous Liquid, called Oil of Tartar per Deliquium, which may often be used with greater Convenience than the Salt itself, as it is purer, more easily unites with Water, and may be more commodiously dropped into it. But if either the Earth, or Acid of a Water, should be light, fine, or almost imperceptible, so as not to manifest themselves upon the Addition of a strong Alkali, a milder sort may be required, such as those called volatile alkaline Salts, or urinous Spirits, viz. the Salts or Spirits of Hartshorn, Blood, Urine, &c.

XXVII. (2) We must likewise be provided of those called Mineral Acids, or artificial acid Spirits; such as the Spirit and Oil of Vitriol, Spirit of Sulphur made by the Bell, Spirit of Salt, Spirit of Nitre, &c. for these Acids serve to discover whether the Water be alkaline. Thus for Example, as Oil of Vitriol is a very strong Acid, a Drop or two whereof will communicate a perceptible Acidity to four or five Ounces of common Water, if a Drop or two of this Acid give no perceptible Acidity to four or five Ounces of a Mineral Water, it will hence appear, that the Mineral Water is alkaline, or impregnated with something that has a Power to blunt Acids, or destroy their acid Nature, and turn them neutral. But where only a light, or subtile Alkali is contained in a Mineral Water, lighter Acids may be used for the Purpose, such as Lemon-juice, distilled Vinegar, Rhenish Wine, &c.

XXVIII. (3) The Metallic Solutions, or Preparations, usually made by Chymists, will be of considerable Service, not only as they may confirm the Conclusions drawn from other Experiments; but also discover still more of the Contents and Properties of the Water. Some of the most necessary ones are the following, viz.

1. A Solution of corrosive Sublimate in distilled Water.
2. A Solution of pure Silver in Aqua fortis.

3. A Solution of Quicksilver in Aqua fortis.
4. A Solution of Saccharum Saturni, or Sugar of Lead, in Water.
5. A Solution of Gold in Aqua regia.

6. A Solution of Copper, in Aqua fortis; and another of the same Metal, in Spirit of Sal-Ammoniac.

7. A Solution of Iron, in Aqua fortis; and another of the same Metal, in distilled Vinegar, or any tart Wine; the Uses of all which will appear in the Course of the Enquiry.

I. My present Design is to shew the Possibility of making an exact and satisfactory Enquiry into the Contents of a Mineral Water; for till this also is shewn, we shall not be prepared to enter upon the Enquiry itself; as the Business of examining Mineral Waters has not hitherto, that we know of, been reduced to the Form of an Art, or brought under the Laws of physical Demonstration. Some Attempts, indeed, have been made in this Way; but they are so imperfect as to leave many strong Objections upon the Minds of the major Part of Naturalists, Physicians, and Chymists. The Reason appears to have been this, that the Experiments hitherto offered, for determining the Contents of Mineral Waters, are generally slight and superficial, or by no means verified, and carried on in the Form of Induction.

II. By Induction we mean the Art of Enquiry, originally invented by the Lord Chancellor Bacon; and, in good measure, delivered by him (though never perfected) in the second Book of his *Novum Organum*. This Art is no more than a rational, or scientific Method of investigating or tracing out the Natures of Things, so as to manifest by what Laws, Means, or Actions they physically exist, and produce their Effects. It appears in all Respects to be the best, or most certain, if not the only true Art hitherto known, of promoting physical Knowledge, provided it be practised with that Caution, and according to those Rules which itself delivers. The principal Uses of it are to shew what Method should be observed, and what Experiments or Observations are to be made in every Subject; how they are to be applied, what Particulars they bring to Light, or what Discoveries they afford; nor does this Art obtain its End, till certain Axioms, or general Conclusions are formed by its means, comprehending the Nature of the Subject, and directing to an extensive Practice upon it. This Art, therefore, consists in a prudent and suitable Use of the Invention, the Memory, Reasoning, and Experiment, all improved and assisted to the utmost; where Invention directs the Articles of Enquiring, Reasoning directs the Experiments, and the Experiments, when made, inform and farther direct the Invention and the Reason, so as to point out other Experiments, till the Nature of the Subject is fully discovered. Thus, in the present Undertaking, this Art has directed the Invention, the Reason and the Memory, to cast about, and suggest, the first Heads of Enquiry, and the Experiments to be made; but can proceed no farther till the Experiments themselves are made, or the Answers gained from Nature to the Questions proposed; after which, the Reason, from the new Light acquired, may direct farther Experiments, till thus the Enquiry is brought to a Conclusion.

III. The present Business is, therefore, to explain the Nature of the necessary Experiments, with the way of conducting them, according to the Art above mentioned, that they may give a clear and just Information, and not lead us into Error and Confusion; but to do this in the amplest and most satisfactory manner, would require an Exactness, or Scrupulousness of Procedure, which might disgust any but mathematical Readers, and draw us into a Length unsuitable to the present Design. Though, as the thing is of the utmost Importance, not only to the present Enquiry, but likewise to all others of the like kind, it may be proper to dwell a little upon it, with a View to shew, by way of Example, what Rigour is required; and what Evidence, or Proofs may be had in physical Enquiries, and the Examination of Mineral Waters.

IV. The End of our present Enquiry is, to discover the Contents, Virtues and Uses of a certain Mineral Water; but as the Virtues and Uses of this Water must necessarily depend upon its Contents, Ingredients, or the Parts whereof it consists, the principal Drift and Scope of the Enquiry must be to discover, or, as far as possible, to manifest these Contents, and bring them under the Cognizance of the Senses or Reason.

V. And here it comes first to be considered, from the apparent Nature of the Thing, and from some Knowledge of the Properties of common Water, and the Substances capable of dissolving therein, with what kinds of Matters the present Mineral Water is likely to be impregnated. Now it is self-evident, that the Contents of every Water must be such as are capable of lodging therein, without hindering its Transparency, and without giving it Properties different from those found in it by the Senses, or particular Experiments, otherwise it would not be the Water it is.

VI. Mineral Waters are generally understood to be those running Waters, which receive any remarkable Quality or Property in the Earth, whereby they differ from common Water,

ter, and thence become either more beneficial than that, in the Cure or Relief of certain Diseases, or else more noxious or prejudicial to the Body. By which Definition, the Contents of Mineral Waters seem, as the Name imports, limited to Subjects of the Mineral Kingdom. But as just Definitions can never be given, till the Natures of Things are discovered, we shall make no farther Use of the present one, than to direct our Enquiry more particularly to the Discovery of Mineral Matters in the Water; though without neglecting such as may be of a vegetable or animal Nature: For as vegetable and animal Matters plentifully abound in the Earth, and may lie in the Course or Confines of a Spring, it is not impossible that certain Parts thereof should, at some Times, or in some Places, mix with the Water.

VII. But, to shorten our present Labour, it may be proper to contract our View, and here limit ourselves to such things only, as Water is commonly known to dissolve, and such as have been found, by competent Trials, to exist in Mineral Waters; for we do not here undertake to write a System of Natural and Chymical Philosophy, but to shew the way of pursuing a particular Enquiry into Mineral Waters, by means of suitable Experiments.

VIII. The Bodies capable of permanently dissolving in Water, without hindering its Transparency, and such as have been found to exist in Mineral Waters, seem reducible to four Classes, *viz.*

1. Salts.
2. Earths.
3. Sulphurs.
4. Fumes, or Spirits.

Now the Question here is, whether Natural Philosophy and Chymistry, even in their present States, may not supply ways of discovering, with physical Certainty, if any of these are or are not contained in a Mineral Water. From several Observations and Experiments, which we have ourselves made, and some also that we have read, we incline to think this possible, and now proceed to lay down the ways wherein we judge it may be effected.

(I) SALTS.

IX. All true Salts dissolve in Water, this being one of their essential Properties, or Characteristics; and as there are few Mineral Waters but what, upon a common Analysis, are found to contain a saline Substance; and as the principal Virtue of these Waters is sometimes found to reside therein, a primary Regard should be had to discover, whether a proposed Mineral Water contains any Salt, to determine the Species thereof, if known, assign its Proportion to the Water, or to the other Ingredients, describe its particular Properties, Virtues, and Uses, and produce or exhibit such Salt, or Salts, in their natural or true Form and Appearance.

X. The natural Mineral Salts, or Salts supposed to be Mineral are,

1. Sea Salt, or common Salt.
2. Nitre.
3. Alum.
4. Borax.
5. Sal Ammoniac.
6. Epfom Salt, or the Sal Catharticum amarum.
7. Dr. Lister's Nitrum Murale, or Calcareous Nitre.
8. The universal Acid.
9. The mineral alkaline Salt.

(I) SEA SALT.

XI. In order to discover whether Sea Salt, or any other known Salt be naturally contained in a Mineral Water, it is previously necessary to be acquainted with the Natures and Properties of these Salts, otherwise we might be at a Loss to know them, when they come in our way.

XII. Some of the chief Properties of Sea Salt, as distinguished from all other known Salts, seem to be these, *viz.*

1. Its particular Appearance, its saline Taste, and its Form being either that of Grains, or cubical Crystals, when true.
2. Its preserving Quality, especially with regard to animal Flesh.
3. Its manner of decrepitating, or crackling, in, or over the Fire; and increasing the Strength thereof, when sprinkled over live Coals.
4. The particular Odour it yields in this Decrepitation, being that of the Spirit of Salt.
5. Its affording the true Spirit of Salt, in a dense, white, pungent Vapour by Distillation; which Spirit, as well as the Salt in Substance, turns Aqua fortis into Aqua regia, and thus makes a Solvent for Gold.
6. Its melting with Difficulty in a strong Fire, and at length passing through the Pores of the Crucible.
7. Its being recoverable from its own Spirit by the Addition of any pure and fixed alkaline Salt.
8. Its Spirit constituting Sal Ammoniac with any volatile Al-

cali; or the Salt itself affording Sal Ammoniac by Sublimation, after being digested with Urine.

9. Its remaining dissolved by common Water, in the Proportion of about six Ounces to a Pint.

10. Its Faculty of precipitating Silver dissolved in Aqua fortis, so as to increase the Weight of the Silver, and render it volatile in a strong Fire. A previous Knowledge of these Properties of Sea Salt may sufficiently enable us to discover it in a Mineral Water, or under whatever Form or Disguise it may happen to be met with.

XIII. The known ways of discovering whether Sea Salt be contained in a Water, seem reducible to these three, *viz.*

1. Addition to the Water.
2. Evaporation, and Addition to the dry Matter.
3. Crytallization.

(I) By ADDITION to the WATERS.

XIV. Case 1. To two Ounces of pure distilled common Water, contained in a white, crytalline, cylindrical Glas, add, Drop by Drop, four Grains of a pellucid Solution of Silver, made in Aqua fortis, with one Ounce of refined Silver to four Ounces of proof Aqua fortis, and no Milkiness, Cloudiness, Change of Colour, or Transparency will appear in the Water.

XV. Case 2. To two Ounces of the same distilled Water add a single Grain of Sea Salt, let it perfectly dissolve therein, by stirring the whole together with a clean Glas Rod; and now dropping in four Grains of the same Solution of Silver, a manifest Milkiness, or white Cloudiness will appear in the Water, or a white Precipitate fall to the Bottom of the Glas.

XVI. Now, as nothing was added in the second Case, more than in the first, besides a single Grain of Sea Salt, it is manifest that the Solution of Silver, by causing a Milkiness, or white Precipitate, gives an Indication of the Sea Salt added to the Water in the second Case. Therefore, when such a Solution of Silver causes no Change in a suitable Proportion of a Water, it may hence be suspected that the Water contains extremely little, or no Sea Salt; but if a Milkiness, or white Precipitate ensues, that some Proportion of Sea Salt is lodged therein.

XVII. The chymical Reason of the Experiment is this; that Silver remains permanently dissolved in its proper Menstrum Aqua fortis; and by no means so in the Solvent of Gold, or Aqua regia, which will not touch Silver, but constantly precipitates it from its own Solvent Aqua fortis, on account of Sea Salt, or Spirit of Sea Salt, contained in Aqua regia, which constitutes the sole Difference betwixt the two Menstruums. And therefore, when a Solution of Silver, made in Aqua fortis, is added to pure distilled Water, which contains no Sea Salt, it mixes intimately therewith, the Silver here also remaining transparently dissolved, and equally suspended, and dispersed through the whole; but upon the Addition of Sea Salt, which turns the Liquor into an Aqua regia, the Silver is immediately let loose, the Mixture grows white, or milky, and lets the Silver fall, according to its Nature, in a white Powder or Precipitate, to the Bottom.

XVIII. Case 3. To the like Quantities of the same Water, contained in several Glasses, separately add a Grain of pure Nitre, pure Alum, and pure Borax, in all which there is no Mixture of Sea Salt, and into each Glas let fall the Solution of Silver as before, upon which no Change of Colour, or Transparency will ensue, nor any Precipitation be made. And this appears to hold of all the Salts wherein no Sea Salt is contained.

XIX. Case 4. Mix together, in a clean Glas Mortar, equal or unequal Parts of pure Nitre, pure Borax, and pure Alum, wherein there is no Sea Salt lodged; put four Grains of this Mixture into two Ounces of the distilled Water, let the whole intirely dissolve therein; then add the Solution of Silver, as before, and still no Milkiness or Precipitation, like that in the second Case, will appear. And this also seems to hold of any Mixture of Salts, provided there be no Sea Salt among them.

XX. These four Cases, when duly considered and compared, will shew that a Solution of Silver in Aqua fortis is a ready, an exact, and commodious thing for intimating whether there be or be not any considerable, or even minute Proportion of Sea-Salt contained in a Water. The same may likewise be done by a Solution of Quicksilver in Aqua fortis, or an aqueous Solution of Sugar of Lead, though not in so exquisite and perfect a manner. This kind of Proof may sometimes, indeed, happen to be fallacious, incompetent, or insufficient, because other Salts, or Substances, whose Natures and Properties are not hitherto known, may possibly be able to precipitate Silver in Solution, as well as Sea Salt does; whence such kind of Trials should not be proposed as demonstrative, but only as probable. All the Inference, therefore, to be justly made from them, before they are otherwise verified, or confirmed, is, that since it must with regard to the Truth of the Experiment, be the same thing whether

whether Sea Salt is added to a Water by Nature, by Accident, or the Hand of Man, provided it be in the Water, we may hence be furnished with a probable Indication whether any Sea Salt, even in a small Proportion, be contained in a Water or not. We now proceed to more direct and infallible Proofs.

(2) By EVAPORATION and ADDITION to the DRY MATTER.

XXI. Case 1. To half a Pint of distilled common Water add a Dram or two of Sea Salt, which being totally dissolved therein, evaporate the Solution, over a clear Fire, till a dry Matter remains at the Bottom. This dry Matter will, upon all Trials, be found to be Salt. Thus, for Example, lay a Part of it upon a Piece of clean Glass, and add to it a few Drops of well rectified Oil of Vitriol, and a considerable Heat and Ebullition will ensue, and a particular white, pungent Vapour, or Steam, arise, having the exact Smell of Glauber's strong Spirit of Sea Salt. Now, as no other Salt, unless it contains Sea Salt, or the Spirit of Sea Salt, is found, upon the like Experiment, to afford this particular Vapour and Odour, we have hence a clear Indication that Sea Salt was contained in the dry Matter, and by adding a sufficient Proportion of distilled Water to this Matter, then evaporating the Solution, the Salt may be easily recovered in its own pristine Form.

XXII. Case 2. As Nitre and Sea Salt may happen to be mixed in a Water, and as both of them afford their respective Vapours, or Spirits, upon Contact of Oil of Vitriol, dissolve equal Parts of these two Salts in distilled Water, and exhaling the superfluous Moisture, put the dry Matter into a Retort, and adding Oil of Vitriol to it, distil in a Sand Heat, whereby a true Aqua regia will be obtained; that is, a Mixture of Spirit of Nitre, and the Spirit of Sea Salt, both which Spirits are thus made to rise in Vapour, and come over mixed into the Receiver; whence we have a clear Indication that both Sea Salt and Nitre were contained in the Mixture; since no other Matters besides these two in Conjunction are found to afford the true Aqua regia.

XXIII. Case 3. Mix together equal or unequal Quantities of Sea Salt, Salt of Tartar, Epsom Salt, Borax and Alum; add a proper Proportion of Oil of Vitriol thereto, and the peculiar, white, pungent Vapour of Sea Salt will immediately arise, and give a plain Indication that Sea Salt was contained in the Mixture. And this appears to hold of any other Mixture of different Salts with Sea Salt, excepting Nitre, whose Mixture with Sea Salt was considered under the second Case; for Nitre, upon Contact with Oil of Vitriol, yields its own peculiar Vapour, or the Fume of Spirit of Nitre, easily distinguishable from all others.

XXIV. Case 4. Mix together equal or unequal Parts of Sea Salt, Bole Armoniac, Chalk and Brickduft; then pouring Oil of Vitriol thereto, the peculiar Vapour and Odour of the Spirit of Sea Salt may still be remarkably observed and distinguished; and this Experiment also appears to hold of the Mixture of Sea Salt with any other stony, earthy, or mineral Substances.

XXV. If this kind of Proof, depending upon the Knowledge of the Smell, and Appearance of a certain Fume or Vapour, should be thought precarious or inconclusive, as it may be by those who are unacquainted with the peculiar Sensation constantly impressed by the Fume or Spirit of Sea Salt striking the Nostrils of any Person who has his Smell, the Experiment may be farther prosecuted, and rendered more satisfactory and conclusive; for if the Mixtures affording this Odour be distilled in a Glass Retort and Receiver, with a sufficient Quantity of Oil of Vitriol, they will afford the true Spirit of Sea Salt, according to all Trials, and particularly by this, that it is convertible into Sea Salt again, by the proper Addition of any fixed alkaline Salt.

XXVI. The chymical Foundation whereon the Success of these Experiments with Oil of Vitriol depends, is this, that Oil of Vitriol being a strong Acid, and powerfully disposed to act upon Sea Salt and Nitre, so as to enter forcibly into their more fixed or gross Parts; at the same time that this is done, their lighter or more volatile Parts are loosed from their Connection with the grosser, and left free to rise according to their lighter Nature; and thus, in proper distilling Vessels, come totally over the Helm, with the Assistance of Heat, leaving the more ponderous and terrestrial Matter behind, closely united with the Oil of Vitriol, as we see in the Distillations of Glauber's strong Spirit of Sea Salt, and Spirit of Nitre.

(3) By CRYSTALLIZATION.

XXVII. Case 1. Dissolve any Proportion of Sea Salt in distilled Water, evaporate the Solution till a Film or Skin appears on the Surface; then put the Liquor into a clean earthen Vessel, set it to shoot in a cool Place, and, in a few Days time, great Part of the Salt will be found grained; or if the Solution was not too high boiled, and a sufficient time was afforded, shot into Crystals of a cubical Figure.

XXVIII. Case 2. Mix equal or unequal Parts of Sea Salt, Nitre, and Epsom Salt, by grinding them together in a clean Mortar; dissolve the whole in distilled Water; evaporate the Solution over a clear Fire, till a Film appears on the Surface; then set the Liquor in a cool Place for some Days; and the Nitre will be found to shoot first in its natural Crystals; which being taken out, and the remaining Liquor again boiled to a proper Height, and exposed to shoot as before, the Sea Salt will be next obtained in its own peculiar Grains or Crystals. And if the Experiment be carried farther, by boiling the Liquor again, and setting it to shoot, the Epsom Salt will likewise be obtained. In the same Manner may any Mixture of different Salts be separated each in its own particular Form or Crystals. The Rule in Crystallization is this, that the Salt which dissolves most copiously in Water, shoots last out of the Mixture; and that which dissolves the most sparingly, first; whence Nitre shoots before Sea Salt, and Sea Salt before Epsom Salt.

XXIX. This last Method of Trial, by Crystallization, may of itself be esteemed certain or satisfactory; but joined with the two former, by Addition to the Water, and by Evaporation and Addition to the dry Matter, it amounts to a physical Demonstration: So that where they all agree, there can be no doubt that Sea Salt is contained in a Mineral Water, treated after the same Manner: For the first affords an Intimation, that this Salt is naturally contained in the Water; the second shews, that it remains after Evaporation; and the third, that it is actually separable in its own proper Form from the Water, and may in this State be fairly examined, to try whether it has or has not the known Properties of Sea Salt. If any Scruple or Suspicion should remain, as to its being Sea Salt, let it be strictly compared with a Parcel allowed to be Sea Salt, in all Respects, according to the Characteristics above given of this Salt; and if no Difference appears betwixt the two, they must at least be acknowledged of the same kind.

XXX. It might indeed be here objected, that though Sea Salt should be contained in a Water, yet Nature may have so intimately, or, as it were, undistinguishably and inseparably blended or mixed it in with the Water, or other Contents, as not to manifest itself upon the severest Trials; as fixed alkaline Salt is concealed in Glass, Acid in Flint, or Sulphur and Mercury in Metals; or as other Principles are in those emphatically called Mixts, to distinguish them from Aggregates or Compounds, where the Texture is loose, and the Parts much more easily separated. And this Objection must be allowed of Force, in some Cases, till we can shew that even these Mixts can be separated by Art, or have their Ingredients rendered cognizable by the Senses or the Reason. This indeed belongs to a higher Chymistry than we are at present concerned with; otherwise, it might be made appear, that Mixts, with regard to their Analysis, differ not from Compounds, provided we were furnished with suitable analysing Powers, Instruments, and Menstruums. Thus Glass may be, without much Difficulty, separated into the Sand, and fixed Salt that compose it; and Flints have their Acid separated from them in the making of Glass, as we see in that Substance called, at the Glass-houses, Sandiver; and even the purer Metals may be analysed by the Burning-glass, and otherwise. But there is no Occasion to go thus far for an Answer to the present Objection, in the Case of Mineral Waters, till it can be shewn that Nature has made any such firm Mixtures as those above mentioned in Mineral Waters. On the contrary, numerous Experiments shew that the Principles here lie loose, and may be separated, by ordinary Means, to such a Degree of Simplicity, as clearly to manifest their physical and medicinal Effects, Virtues, and Uses, wherein our present Enquiry centers. We therefore presume, that the preceding Experiments, duly applied and considered, furnish us with a sure Method to discover whether any Mineral Water contains Sea Salt; and if it does, to separate it from all other Things, render it sensible, and determine its Proportion.

XXXI. We have been the fuller upon this first Article of Sea Salt, to shew an Example of the inductive Method, which we would recommend in Experiments, and particularly in prosecuting Enquiries of this kind, where the Foundations of physical Certainty have scarce hitherto been laid. And hoping there may be enough done in this strict Way, to shew the Nature of the Procedure intended, we shall, for fear of being thought too minute and tedious, by frequently and circumstantially repeating the same kind of Experiments, endeavour to dispatch the remaining Part in a more concise and summary Manner.

(2) NITRE.

XXXII. The Characteristics of pure Nitre, or Salt-petre, seem to be chiefly these, viz.

1. Its peculiar Form, or hexagonal, prismatic Crystals, pyramidal at one End, when the Shoots are true and perfect.
2. Its particular sharp, or penetrating, cool, and lightly bitterish Taste.
3. Its preserving Flesh, and at the same time giving it a particular florid or rosy Colour; whereto may be added its improving

proving the red Colour of the Blood, especially when inclined to be white, black, or fizy.

4. Its cooling the Body, and lowering the Pulse; more remarkably in Fevers and Pleurifies.

5. Its yielding a red suffocating Fume, or Vapour, in Distillation, and thus affording a true Aqua fortis, or Spirit of Nitre, which is a Solvent for Silver, but not of itself for Gold.

6. Its manner of flowing, or melting, in a Crucible in the Fire, which is quick and igneous; though this Salt does not of itself take flame in the strongest Heat.

7. Its fulminating, and turning to a fixed alkaline Salt in Fusion, upon the Addition of Charcoal, Tartar, &c. with a considerable Loss of Weight.

8. Its composing Gunpowder with common Brimstone and Charcoal.

9. Its being recoverable from its own acid Spirit, by the proper Addition of any fixed alkaline Salt.

XXXIII. These Properties of Nitre being laid down, it is easy to try if any Salt, supposed to be nitrous, whether found in a Mineral Water or otherwise; be real Nitre or not. And hence it is manifest, that by Nitre, or Salt Petre, we do not mean the Nitrum Murale, or calcareous Nitre of Dr. Lister, whose Properties will hereafter be delivered; nor the Nitre of the Ancients, which appears to have been a very different thing, of an alkaline Nature; but our common refined Salt-petre, used in Medicine, Chymistry, and the making of Gunpowder; being a neutral Salt, with regard to Alkali and Acid, though resolvable by Fire and proper Additions into a strong Alkali and a strong Acid.

XXXIV. The Ways of discovering whether this Nitre be contained in a Water seem reducible to four, viz.

1. By Immersion, or steeping certain Bodies in the Water.
2. By Evaporation, and Addition to the dry Matter.
3. By Distillation with Additions.
4. By Crystallization.

(1) By IMMERSION, or STEEPING.

XXXV. If a little Nitre be dissolved in distilled Water, and Paper be steeped a while in the Solution, then dried before the Fire; and, if there be Occasion, dipped and dried again; the Paper being now applied to a lighted Candle, or a glowing Coal, will immediately take fire, though not flame, and burn like Quick-match in a certain sparkling manner, so as to give a manifest Sign that it received this Property from Salt-petre; for Paper steeped in the like Solutions of Alum, Epsom Salt, fixed alkaline Salts, Vitriol, Borax, Nitrum Murale, Sea Salt, or any other of the known Salts, will not produce the same Phenomenon. Whence, if Paper several times steeped in a Mineral Water should produce this Effect, or burn after the same particular manner, this would be an Indication that the Water contained Nitre.

XXXVI. The Reason of the Experiment scarce needs to be mentioned, as it is obvious that the Paper, by being soaked in the Solution, becomes impregnated with the Water, and of course with Particles of the Salt; and being afterwards dried, the aqueous Parts thus exhale, and leave the Particles of the Salt sticking in the Pores of the Paper, which being now applied to the Candle, it takes fire, and burns, or makes little fiery Explosions, according to the well known Property of Nitre, when mixed and fulminated with any inflammable Substance. But as this Effect may possibly be prevented, or not so remarkably follow, if other Salts should happen to be mixed in too large a Proportion along with the Nitre, the following Case may help us to discover Nitre where it is blended with other Salts.

XXXVII. If equal or unequal Quantities of Nitre, Sea Salt, Epsom Salt and Borax be dissolved in distilled Water, and a Piece of raw Flesh be steeped in the Solution for some Hours, when it is taken out and examined, or compared with a Piece of the same raw Flesh which has not undergone the same Operation, the former will be found redder than the latter, or than another Piece of the same Flesh set to steep for the same time in a Solution of the several Salts above mentioned, except the Nitre; whence it follows, that Nitre, according to its known Property, was the Cause of this additional Redness. If, therefore, Mineral Water should have the same Effect upon raw Flesh steeped therein, we may presume that the Water contains Nitre.

XXXVIII. It should seem that Nitre gives this particular red or rosy Colour to raw Flesh, on account of some of the Blood still remaining therein; for Nitre acts powerfully upon Blood, so as to heighten its Colour, and long preserve it fresh and sound, even when stagnant or extravasated. But, to determine this matter, it might be proper to try, whether a Muscle so well washed and cleansed from its Blood (by soaking in fair Water, by Injections into the Blood-vessels, or otherwise) as to appear white, could have any Degree of Redness restored to it by Nitre; or whether it will turn a Tendon or other white animal Substance red.

(2) By EVAPORATION and ADDITION to the DRY MATTER.

XXXIX. If Nitre be dissolved in Water, and the Solution evaporated to Dryness, the Nitre will remain behind, and may be proved to be Nitre by mixing it with powdered Charcoal, and trying if it will fulminate and turn to an alkaline Salt in the Fire; if it will make Gunpowder with Brimstone and Willow-coal; or if it will afford the peculiar red Fume of a particular, nauseous, suffocating Odour, like that of Aqua fortis, by pouring Oil of Vitriol to it. And in the same manner, though Nitre should be mixed with several other Salts in a Water, after Evaporation, to a dry Substance, Indications may be gained of its being among them; but particularly by adding Oil of Vitriol to the compound Mass, and observing and examining the Fume and Odour thence arising.

(3) By DISTILLATION.

XL. So again, if Nitre, after the full Evaporation of any Water, remains mixed among the dry Matter, it may be discovered by adding either Oil of Vitriol, calcined Vitriol, or Brickdust thereto, and distilling in a naked Fire; for thus the Nitre parting easily with its Spirit, this Spirit will soon rise, and come over in red Fumes into the Receiver; only if Sea Salt happens to be in the Mixture, there may thus be obtained an Aqua regia, instead of a pure Spirit of Nitre; though this also gives a sufficient Indication of the Nitre, as Aqua regia cannot be made without the Spirit of Nitre. To carry the Proof farther, let Trial be made whether, by adding a sufficient Proportion of any fixed alkaline Salt to the Spirit thus procured, true Nitre may not be recovered; and whether this Nitre in particular will not serve in the making of Gunpowder, because it has been suspected that regenerated Nitre will not.

(4) By CRYSTALLIZATION.

XLI. It need not be mentioned, after what has been said before of Crystallization, that a simple Solution of Nitre in Water being brought to a due Height, and set in a cool Place; will in a few Days shoot into hexagonal, prismatic Crystals of pure Nitre; so that if any Mineral Water should contain no Salt but Nitre, this may easily be obtained from it, by a proper Evaporation, and subsequent Crystallization. Again, though several other Salts besides Nitre should be contained in a Water, they may, by repeated Evaporations and Crystallizations, be made to shoot separate, and thus be obtained pure, each in the Shoots or Crystals peculiar to itself, according to what was above delivered, under the Article CRYSTALLIZATION, with regard to Sea Salt. And in this manner, therefore, Nitre may be obtained pure, and free from the Admixture of any other Salts which happen to be contained in a Mineral Water.

XLII. It will here be proper to remember, that nitrous or other saline Matters may possibly be contained in Mineral Waters, and yet not be brought to appear in a solid or true crystalline Form, without some particular Encheiresis, or Expedient suited to the Purpose. Thus it is a constant Practice, at the Salt-petre Works, to use a fixed alkaline Salt, in order to consolidate or embody the Nitre, and make it short, firm, strong and regular. The Cause appears to be this; that the Matters capable of affording such firm and solid Salts are usually of themselves too acid; for many acid Matters are little disposed to shoot and form themselves into solid and hard Crystals; but, to fit them for this Purpose, require to have their prevailing Acidity destroyed, and the whole Substance brought to a neutral State, by means of fixed alkaline Salts, or terrestrial Alkalies, as we see in the making not only of Salt, but also of Loaf-Sugar, Alum, the artificial neutral Salts, &c. And these several Experiments and Observations properly applied, extended and varied, may afford us a Method of discovering with physical Certainty whether Nitre be contained in a Mineral Water or not.

(3) ALUM.

XLIII. The more essential Properties of Alum, so far as they are hitherto known, seem to be principally these, viz.

1. Its peculiar Figure, or the Form of its Crystals, which consist of eleven plain Sides, five of them sexangular, and six quadrangular.
2. Its peculiar, sharp, rough, styptic, or astringent Taste.
3. Its melting aqueous over a soft Fire, and rising in a Blister; but at length to a white, light, spongy Substance, called Burnt-Alum.
4. Its affording, when burnt, an acid Spirit, somewhat like Oil of Vitriol, by being distilled in a strong Fire, even without Addition.
5. This Spirit constituting Alum again, by being properly united with any fixed alkaline Salt.
6. Its particular Uses in striking and fixing certain Colours along with other Ingredients, as we see in the Art of Dying; Leather-dressing, the making of red Inks, &c.
7. Its being the only Salt, that, with suitable animal, or vegetable Substances, will make the black Phosphorus, or Pyrophorus.

The black Phosphorus is a black Powder, now usually made with Wheat Flower and Alum mixed together in a certain Proportion, and calcined to a certain Degree, till it acquires the Property of taking fire spontaneously in the open Air, and appearing like a glowing Coal.

8. Its near Affinity with Vitriol freed from the metallic Part it contains.

9. Its serving like Vitriol in obtaining the common Kinds of Aqua fortis from Nitre.

XLIV. The more satisfactory Ways of discovering whether Alum be contained in a Mineral Water seem reducible to three, *viz.*

1. By the Taste.
2. By Evaporation, and treating the dry Matter.
3. By Crystallization.

(1) By the TASTE.

XLV. It is easy to distinguish, by the Taste, any considerable Proportion of Alum dissolved in Water; but if the Proportion should be very minute, Part of the Water may be exhaled, and the Remainder tasted; for Alum will not evaporate by being boiled in Water; so that thus the Proportion may be greatly increased, till at length, if there be any of this Salt in the Water, it will come to be perceived by the Taste. And this Case may often hold, though other Salts besides Alum should happen to be lodged in the Water, such as Epsom Salt, Nitre, fixed alkaline Salt, &c. But the Salts, or other Substances which mixed with Alum in a Mineral Water seem the most likely to confound the Taste, or prevent its perceiving the Alum, are Sea Salt, Acid, Vitriol, styptic irony Earths, Chalk or Limestone corroded and dissolved by an Acid or otherwise; so that, though a Water actually contains Alum, yet the Taste shall not with Certainty discover it; whence Recourse must be had to particular Experiments, more subtle and exquisite than the Taste. We cannot at present suggest or recollect any satisfactory Experiment for determining, by Addition to the Water, whether Alum, either alone, or mixed with other Salts, be contained in a Mineral Water; though the Plant called Ragged Robert is said peculiarly to turn any Water red wherein Alum is dissolved.

(2) By EVAPORATION, and TREATING the DRY MATTER.

XLVI. When Alum is the only Salt contained in a Water, it may easily be discovered and rendered sensible by Evaporation, and trying whether the dry Matter, upon Examination by the Senses and particular Experiments, does not manifest all the known Signs of Alum. But when this Salt happens to be mixed with others, let the dry mixed Mass be laid upon a hot Iron Plate, where the Alum rising in a Blister, and separating from the rest in the Form of Burnt Alum, may be afterwards dissolved in distilled Water, and brought by Crystallization to the true Form and Appearance of Alum. This Method, indeed, may prove imperfect, especially when other Salts that swell and rise in Blisters upon a hot Iron as well as Alum happen to be mixed therewith, as Borax, and the calcarious Nitre do, though in a somewhat different manner; so that, in this Case, a farther Illustration and Confirmation must be had from the surer Method of Crystallization.

(3) By CRYSTALLIZATION.

XLVII. Although a Water should be truly aluminous, yet it may not be practicable, as was also observed under Nitre, to make the aluminous Matter crystallize without the Assistance of a proper Expedient for the Purpose. Hence, even at the Alum Works, the Alum does not appear in its true rocky Form at the first Operation, without the Addition of Kelp and putrefied Urine, whereby we are directed to use the same Expedient occasionally. And thus if a Water should contain any Number of Salts, besides an aluminous one, this may, by Crystallization properly repeated, be separated from the rest, and rendered sensible in its own natural Form.

(4) BORAX.

XLVIII. Borax is a Salt not hitherto allowed to be found native in England, for which Reason we shall, in this Place, treat more lightly of it; though its natural History is of Consequence in Chymistry and Physics, as being a Salt of a very extraordinary Nature. Its discriminating Properties are chiefly these, *viz.*

1. Its Form and Appearance, as brought to us from the East Indies, which is that of dirty Lumps, or a coarse, saline and particularly foetid Substance, mixed with much unctuous, earthy and stony Matter; and in this State it is commonly called Tincal, or Tincar.
2. Its pure and intire Crystals, when refined, being octagonal Prisms very finely cut, though seldom obtained perfect in the ordinary way of refining it.
3. Its particular Taste, not easy to be described, as being sweetish, sharpish, and somewhat urinous or lixivious.
4. Its Property of soldering Metals, or making them easily

nitre, or take hold of each other; more particularly the Parts of Gold.

5. Its making an excellent Flux for Metals and certain Ores, and, by being melted with a proper Proportion of Sand or Flint, turning, in a very short time, to a hard Glass, capable of cutting common Glass almost like a Diamond.

6. Its extremely vitrescible Nature, so as by itself, with a moderate Heat, and in a few Minutes time, to become true and permanent Glass.

XLIX. The Ways of discovering whether Borax be contained in a Mineral Water are principally two, *viz.*

1. By Evaporation.
2. By Crystallization.

(1) Since this Salt does not exhale by boiling in Water, (as appears in the refining of it, which requires long boiling) if any of it be dissolved in Water, it will be left behind among the dry Substance gained by a total Evaporation, which dry Substance being laid upon a hot Iron held over a common clear Fire, if any Part thus melts aqueous, and rises high into a white-spongy Mass, this may be collected separate, and examined by the Senses and particular Experiments, according to the Properties above laid down, whether it be Borax, Alum, or the calcarious Nitre; for all these rise at first somewhat in the same manner; but if the Fire be continued, or raised to a proper Height, the Borax soon melts a second time, and turns to Glass, which Alum and the calcarious Nitre will not do; whereby it may be readily distinguished from them. And this Glass has the same Properties as Borax itself, with regard to Soldering, fluxing Metals, &c.

L. (2) But to gain Borax in its natural Form and Appearance, separate from all other Salts or foreign Mixtures, we must have recourse to Crystallization. And to obtain it in perfect or intire Crystals, certain Additions, Cautions, and Encheireses are required, wherein consists the Secret of refining this Salt. Thus, in Particular, it is necessary,

1. To use a strong alkaline Salt, and Lime-water.
2. To make the Solution perfectly pure.
3. To cover this Solution whilst it remains hot, and suffer it to cool slowly.
4. To use proper metalline Strings for the Salt to adhere to.
5. Not to open the Vessel till the Liquor has been for some time cold. And thus it may be discovered whether Borax, perfect or imperfect, be contained in a Mineral Water.

(5) SAL AMMONIAC.

LI. Sal Ammoniac has the following Properties, which may sufficiently distinguish it from any other known Salt, *viz.*

1. Its Taste is much more penetrating and quick than that of Sea Salt, and somewhat urinous.
2. It renders Water intensely cold, whilst continuing to dissolve therein.
3. By Crystallization it shoots into a kind of light, feathery, or snowy Substance.
4. When mixed with any fixed alkaline Salt, it yields a pungent volatile Vapour, that strikes the Nostrils like Salt of Hartshorn; and if the Mixture be sublimed, a dry, volatile, alkaline Salt is thus obtained.
5. It has the Property of soldering or joining Tin and Copper together.
6. It will, by itself, with a proper Degree of Heat, totally sublime, unaltered in its Nature.
7. It causes certain Mineral Waters, and even Metals, to sublime along with it.
8. It turns Aqua fortis into Aqua regia, on account of the Spirit of Sea Salt which it contains.

LII. A Knowledge of these Properties, and of the Doctrine already delivered, will enable us to discover whether this Salt be contained in a Mineral Water, *viz.*

1. By the Taste, especially after a large Proportion of the aqueous Moisture is evaporated.
2. By trying whether the Water, after a large Evaporation, will promote the Union of Tin with Brass or Copper in the way of Soldering.
3. By exhaling the Water to a dry Remainder, and putting this Remainder to common Water, to try if it will increase the Coldness thereof.
4. By dissolving with Water the Salts contained in the dry Remainder, and crystallizing the Solution, to try if any true Sal Ammoniac may be thus obtained.

(6) EPSOM SALT, or SAL CATHARTICUM AMARUM.

LIII. Some of the principal Properties of the Sal Catharticum amarum, when perfectly pure, are the following, *viz.*

1. The Form of its Crystals, which appear like small icy Plates, all of them transparent, when singly viewed against the Light, but white when lying in a Heap, and viewed by Reflection; though Glauber's Sal Mirabile also will sometimes shoot in the like small, icy Plates, somewhat resembling fine Sperma Ceti in the Parcel.

2. The considerable Bitterness and penetrating Nature of its Taste, whereby it seems to sink deep into the Tongue, whilst it dissolves quick in the Mouth.

3. Its dissolving totally and readily in its own Weight of common Water, leaving the Solution coagulable into a white and almost solid Substance, by the Addition of rectified Spirit of Wine.

4. When perfectly pure, and totally separated from Sea Salt, it neither grows hot, nor makes any Ebullition upon the Addition of Oil of Vitriol.

5. Its Solution in Water does not turn white, or milky, with the Solution of Silver in Aqua fortis, provided the Salt be perfectly pure, whence we may have a Test of its Purity, and intire Separation from Sea Salt.

6. It has a quick and strong purgative Virtue; but so likewise has that artificial Salt, called Glauber's Sal Mirabile.

7. When mixed with powdered Charcoal, and set in a strong Heat, it totally exhales, and yields a copious sulphurous Fume.

LIV. By these Properties we may be enabled to discover with Certainty whether the Sal Catharticum amarum be contained in a Mineral Water, viz.

1. By a remarkable and particularly nauseous penetrating Bitterness found upon tasting the Water, especially after some considerable Evaporation of its aqueous Part; for this Salt will not fly off in the Evaporation; as we know from the manner of preparing it, after long boiling at the Salt-works, where it is made from Sea Salt, after all the Sea Salt is shot, when the remaining Liquor, called Bittern, by a farther Evaporation and Crystallization, affords the Sal Catharticum amarum.

2. As this Salt appears to be the most soluble in Water of any Salt, except Sugar, we are not, by the Law of Crystallization, to expect it should appear till the other Salts are first separated from the Mineral Waters that hold it; after which, by a fresh Evaporation and Crystallization, it may be gained in its true Figure; and be proved to be pure and perfect, by its having the several Properties above enumerated.

(7) NITRUM MURALE, or the CALCARIOUS NITRE.

LV. This Salt is not only said to be found in Mineral Waters, but also to be procurable by powdering and boiling the Mortar of old Walls; and crystallizing the clear Solution or Lixivium. The Properties of it, so far as hitherto known, are chiefly these, viz.

1. Its Crystals, when perfect, are long and slender, consisting of four, and sometimes of five unequal parallelogram Sides; but one of the Points of two plain Triangles, and the other of two flat Squares.

2. It is lightly bitter to the Taste, and does not readily dissolve in the Mouth, nor with the Sensation of Coolness, as true Nitre does.

3. It is a neutral Salt, or neither acid nor alkaline, though very different from Salt-petre, with which it has been confounded, as not being disposed to make Gunpowder, nor Aqua fortis, nor to fulminate with Charcoal in the Fire, nor to turn to a fixed alkaline Salt.

4. When kept upon a hot Iron Plate over the Fire, it rises in Blisters, and turns to a light, spongy, white Substance, which, when farther urged by Heat, does not vitrify, but remains loose like Lime. The sure Way, therefore, of discovering whether this Salt be contained in a Mineral Water, is by Evaporation and Crystallization carried to their due Length, and examining the Salts separately obtained, to see if any one of them answers to the Characters here laid down.

(8) MINERAL ACIDS.

LVI. Acids are of various Kinds, or vegetable, animal, and mineral, with their respective Subdivisions as Lemon-juice, Rennet, Spirit of Sulphur, or Oil of Vitriol, &c. But what we are here more particularly concerned with is, the Mineral Species, or such as being naturally contained in the Earth may come to mix with a Mineral Water. And that something of this kind happens in certain Waters, appears to have been generally believed, as all the brisk or spiritous Mineral Waters are to this Day called by the Name of Acidulae. This Opinion seems to have arisen first from the Taste of these Waters, which is sharp, quick, brisk and pungent, whilst the Waters are fresh; and, secondly, from a Supposition that there is one general or universal Acid contained in the Earth; which Acid, by corroding or dissolving a suitable Earth, makes Alum; or by saturating itself with Copper, or Iron, makes the respective Vitriols of those Metals, &c.

LVII. Now, in order to determine whether this, or any other Acid, be contained loose or unimortified in a Mineral Water, we should, as in the former Cases, be previously acquainted with the Properties of Acids as Acids. And these Properties seem reducible to the three following, viz.

1. The Taste, when rightly informed and prepared, and the Subject properly applied, or in a sufficient Degree of Strength to be cognizable. Thus, though the Juice of Lemons, and Spirit

of Sulphur are acid, yet they may be so largely diluted with Water, as not to be distinguishable by the exactest Taste. And that the Taste may be ill instructed, or, to speak more properly, that the Judgment may form a wrong Conclusion from the Sensation called Taste, is certain, because the Taste, which some call brisk, quick, or alkaline, has by others been called tart, sour, or acid, which has been the Case in several Mineral Waters. A proper Habit of Judging, or a kind of learned and exercised Taste, seems therefore requisite in this Affair.

2. The Change of Colour which Acids (or Liquors wherein any Acid presides) produce with certain vegetable Subjects, or artificial Preparations, is a more exquisite way of Trial than the Taste, and discovers a much more minute Proportion of an Acid than is cognizable by the direct Senses, unassisted by this Expedient. These Experiments are various; thus though a Water be but lightly acid, a few dried red Roses, or fresh Violets, will give it a fine red Colour, as may easily be tried by adding a few Drops of Spirit of Sulphur, Oil of Vitriol, &c. to distilled Water, and then putting in the Roses, Violets, or their respective Syrups. So again, if a Water be acid, the Addition of a little Oil of Tartar per deliquium will remarkably alter the Taste of the Water, and give it, for some small time, a Degree of Briskness, Quickness, or Pungency upon the Tongue, which it had not before, and take off the Acidity either totally, or in part, according to the Proportion of the Oil of Tartar added.

3. The third, and most essential or distinguishing Property of Acids, is that of becoming neutral with Alkalies, and thus forming a new thing, intirely different in its Properties and Effects from both. This may easily be tried in Juice of Lemons, and Salt of Tartar, a due Proportion of which makes the famous antientic, neutral Mixture of Riverius; in distilled Vinegar, and Salt of Tartar, which make that extraordinary neutral Menstruum and Medicine, called Regenerated Tartar; in Oil of Vitriol, and Salt of Tartar, which make the true Tartarum Vitriolatum, &c. And hence we are furnished with three principal, and, if taken together, three sure Ways of determining whether a Mineral Water contains any Acid in the Form of an Acid.

LVIII. The Particulars that may tend to invalidate or elude these Trials, are the Volatility, the Paucity, and the Mixture of the Acid with other things. If the Acid of a Mineral Water should be volatile, and, at the same time, little in Quantity, we may endeavour, by a careful Distillation, to separate, concentrate, or reduce it to a small Bulk, wherein it may bear a large Proportion to the aqueous Vehicle that contains it; and, in this State, make our Experiments upon it, if they should not be capable of discovering it in the natural Water itself. Again, if the Acid be small in Quantity, but of a more fixed Nature, so as to sustain a boiling Heat, without flying off, Evaporation will easily concentrate, or bring it into a less Compass, and fit it the better for our Trials. But if it should be mixed, or intimately united with an alkaline salt Earth, or metallic Substance, it is not to be expected that in this State it should directly manifest itself upon these Trials; as not being the thing we here intend, or are concerned with, as now making an Ingredient in a mixed Body, where its own particular Nature is destroyed or abolished; though more powerful Agents, as for Instance, a violent Fire, or a proper Distillation, with suitable Additions, might here break the Connexion, and recover the Acid, as we see in the Distillation of Nitre, Sea Salt, Alum, Vitriol, &c. where the Acid is separated from the earthy or metallic Matters, wherewith it was before intimately and strongly united.

(9) MINERAL ALKALIES.

LIX. Alkalies are of two general Kinds, earthy and saline; we are concerned with both of them in the present Enquiry. By earthy Alkalies are meant all those earthy Matters, which of themselves scarce dissolve in pure Water, but being added in a sufficient Proportion to Acids destroy or abolish the Acidity thereof, and form a new thing, of a neutral Nature, that in this new or compound State manifests no Signs of a prevailing Acid or Alkali. And of this kind are Chalk, Lime-stone, Crabs-eyes, Oyster-shells, Egg-shells, &c. Thus if common Water be acidulated with Oil of Vitriol, and a little Chalk be scraped into it, an Ebullition or Conflict will presently arise, during which the Water has a brisk or quick lively Taste; and at length, when the Point of Saturation is hit, all the Acidity will be abolished, not only to the Taste, but so far, that the exactest Experiments commonly used to determine Alkalies and Acids will here manifest no Signs of either. And this is a certain Characteristic, or the proper Meaning of an Alkali.

LX. Saline Alkalies are of two Sorts, fixed and volatile. How fixed Alkalies are obtainable by Art has been shewn above: And some of their principal Properties are the following, viz.

1. They have a fiery or extremely acrimonious Taste, but no Odour.

2. They

2. They are caustic, and, if strong, eat or consume the Flesh, when applied thereto.
3. Being long boiled with Oil and Water, they make Soap.
4. Of themselves they are fixed in the Fire, so as not to lose considerably of their Weight therein.
5. They readily grow moist, and run into a Liquor, by attracting Water out of the Air.
6. Melted with Sand, or any vitrescible earthy Matter, they make Glafs.
7. Added to Spirit of Nitre, or Spirit of Sea Salt, they bring these Spirits back to their own Salts respectively.
8. They turn a Solution of Sublimate in Water yellow or red; Syrup of Violets or red Roses green, &c.

LXI. Volatile alkaline Salts appear to differ but little from the fixed, except in those Properties which depend upon their Volatility; for these also are caustic and fiery to the Taste; but, on account of their Volatility, briskly strike and shake the Nerves of the Nose, being spontaneously volatile, and flying away in the open Air, and, in Distillation, rising sooner than Spirit of Wine. These also regenerate Nitre and Sea Salt from their Spirits; though the Salts thus regenerated are semi-volatile, or much more volatile than the natural, being in this respect like Sal Ammoniac. And, lastly, they produce the same Changes of Colour, upon Mixture with other things, as the fixed.

LXII. Under this Head of Alcalies; therefore, our Experiments must be directed to discover whether an earthy, a fixed, saline, or volatile Alkali be contained in a Mineral Water. And, first, if a volatile Alkali should be contained therein, we see it may be reasonably expected that this should manifest itself by its Odour; by Additions, or by Distillation. The Odour of a volatile alkaline Salt, if any such be contained in a Water, may be perceived by immediately applying the Nostrils thereto, especially as fresh taken up from the Well; for if a very few Grains of the volatile Salt of Hartshorn, or a few Drops of the Spirit of Hartshorn, or Spirit of Sal Ammoniac be mixed with a Glafs of fair Water, the Odour of them is very distinguishable. Again, if any volatile alkaline Salt reside or be a loose Ingredient in the Water, it will give Signs of itself, by changing Syrup of Violets green; or the like Experiments by Addition; though these Experiments will not of themselves determine whether it be a fixed or a volatile alkaline Salt, because they both act alike, with regard to such Experiments; so that here the Assistance of Evaporation or Distillation may be used to shew whether the Salt will rise by Heat, or remain among the dry Matter, after a total Exhalation of the aqueous Parts. And if any considerable Proportion of a volatile alkaline Salt should be lodged in Water, a gentle Distillation would easily separate it from the Bulk of the Water, and bring it over first in the Form of a volatile or urinous Spirit or Salt, as we constantly find in the Rectification of volatile urinous Spirit, or Salt, with Water.

LXIII. If a fixed alkaline Salt be contained in a Mineral Water, it is easily discoverable by the Addition of such things as are known to produce a Change of Colour therewith, though these will not distinguish it from a volatile alkaline Salt; but then Evaporation is a ready Expedient, whereby a dry Matter being procured from the Water, the fixed Salt may be dissolved or taken up by distilled Water from the rest, and thus be rendered sensible in its own Form; at least this may be done after the other Salts, if there are any, shall have been separated from it by repeated Crystallization; for fixed alkaline Salt will not easily crystallize, or perhaps not at all, unless it some way or other unites with an Acid.

LXIV. If earthy Alcalies, or alkaline Earths, be contained in a Mineral Water, these also are easily separable from it, and rendered sensible by Evaporation, and afterwards taking up the saline Part of the dry Matter by distilled Water; for thus all the grosser earthy Substance will be left behind. But how different earthy Substances may be separated from each other, we shall presently shew; for we are not here concerned with grosser metallic Earths, but those of the finer alkaline kind, which in some Degree approach to the Nature of fixed alkaline Salts, and may therefore in part remain permanently mixed or dissolved in a Mineral Water, without hindering its Transparency, or even pass the Filtration along with the saline Matter; for such a kind of Earth is found to adhere or unite to fixed alkaline Salts, and may be separated from them by repeated Solutions and Filtrations, some of this Earth each time remaining in the Filtration. And so much for the general Head of Salts.

(2) EARTHS.

LXV. By Earths we here mean all those more fixed Parts of a Mineral Water, which remain behind after a perfect Elixation or Separation of the saline Matters by means of a boiling Water, whether these fixed earthy Parts be calcareous, metallic, sandy, stony, marly, okery, &c. And though possibly all the Species of Earths, when reduced to a sufficient Degree of Tenuity, or Fineness of Parts, may lodge in the Pores of Water, without hindering its Transparency; yet those that have,

by a proper Analysis, been found in Mineral Waters, seem chiefly reducible to three, viz. The calcareous, stony, and okery; but if any others should be contained in a Water, they likewise may be discovered, separated, and rendered sensible. For as Earths do not evaporate by Heat, especially not by the Heat of boiling Water, whatever of this kind is naturally contained in a Water, will, after a total Exhalation of the aqueous Parts, remain among the dry Matter left at the Bottom; which dry Matter being once or twice boiled in distilled Water, and the Liquor each time filtered, all the more gross terrestrial Matter will thus remain behind in the Filtration. So that if only one Species of Earth be contained in a Mineral Water, it is thus easily obtained, and made to appear in its natural Form.

LXVI. But if two or more Earths are suspected in a Water, let Care be taken, from the Beginning of the Evaporation, to observe whether any terrestrial Particles concrete or unite into small Grains almost like Dust or fine Sand upon the Surface of the Water; for these being carefully taken off and dried, may prove a different Sort of Earth from that which falls to the Bottom in the Boiling, as there thus seems to be a Difference in their specific Gravity, or Fineness of Parts. So likewise two different Earths may be obtained separate, by permitting the Water to stand for some considerable time in a wide-mouthed Glafs, loosely covered to keep out the Dust; for thus an earthy Skin will often gather on the Surface, and an okery Substance, or metallic Earth, fall to the Bottom, or line the Inside of the Glafs.

LXVII. Precipitation is another Method of separating the earthy Contents of a Water, as particularly by adding a fixed alkaline Salt thereto, which causes the earthy Matter to fall to the Bottom, so as that it may be easily separated by the Filtration, and by being well washed and dried appear in its proper Form; and thus be submitted to a farther Examination, by means of Lotions in pure Water, and a proper Degree of Fire, whereby its simple and compound Nature may be discovered.

LXVIII. The distinguishing Properties of a calcareous Earth are chiefly these, viz.

1. Partly to dissolve without much Difficulty in the Mouth, as if it approached the Nature of fixed alkaline Salts.
2. To make an Effervescence with Acids, and take off their Acidity.
3. To become highly sharp, corrosive, or caustic, like Lime, by being burned, or long detained in the Fire.
4. Not to melt, or vitrify, with a strong Heat.

LXIX. Stony Earths, as found in Mineral Waters, are known,

1. By their quick falling to the Bottom of the Water in boiling, and being usually the last that remain after a perfect washing and Separation of the Salts and other Earths by repeated Affusions of fair Water.

2. By appearing like true Sand, and melting into Glafs in a strong Fire with fixed Alkali.

LXX. Okery Earths are distinguishable,

1. By their natural yellow, reddish, or red Colour.
2. By growing redder after Calcination.
3. By their rough, styptic, or astringent Taste.
4. By their yielding some Proportion of Iron upon Fusion.

LXXI. In like manner all the Earths, whether metallic, sulphurous, or saline, as Ores, Semimetals, Marcasites, Vitriols, &c. have their peculiar Properties, and may be discovered or brought under the direct Cognizance of the Senses, if lodged in a Mineral Water; especially by means of Lotions, Elixation and Fusion, either alone, or with the Addition of proper Fluxes, according to the Rules of Metallurgy.

(3) SULPHURS.

LXXII. Several Mineral Bodies go under the general Denomination of Sulphurs; as Brimstone, Orpiment, Petroleum, Bitumen, &c. But we are only concerned with those at present that may lie concealed, undistinguishable to the Eye, in Mineral Waters; and such are chiefly supposed to be Brimstone and Orpiment: But as Orpiment is not allowed to be found native in England, we need not here be solicitous about it, any farther than to rectify some Mistakes which have crept abroad to its Disadvantage, as if it were, what it is not, a poisonous Mineral. The true native Orpiment, or Auripigmentum, is a yellow, sulphurous, shining, or spangly Mineral, consisting of little Flakes or Scales, like Talc, and comes to us from Greece, where it is dug out of certain Mountains. It is a very different thing from all the Species of Arsenic, which are artificial Preparations of Cobalt, a poisonous Mineral found in Misnia, where the several kinds of Arsenic are prepared. Orpiment being reduced to Powder, and set in the Fire, will flame, and emit a white or yellowish Fume, yielding the Odour of common Brimstone; and thus changing the Surface of a polished Iron Plate held in it of a white, yellow and reddish Colour, leaving a Proportion of sandy Earth behind. It is used by Painters as a Gold Colour, and for making sympathetic Ink, &c. It is sold common at the Colour-shops, without the Suspicion of its being poisonous any more than Antimony, or Brimstone; and

and some have used it medicinally, by the Way of Fumigation, and for venereal Ulcers; and others internally, for the Asthma, without finding it prejudicial. Upon the Whole, Orpiment appears related to Antimony; which is also a sulphureous Mineral, that remains innocent so long as it is joined with its Sulphur, but proves emetic, or deleterious, when separated from it; and, in like Manner, not to mention other Correspondencies, does Orpiment. We have been the more particular in this Account, because some eminent Persons, not distinguishing betwixt Orpiment and Arsenic, have erroneously imagined, that possibly mineral Waters might be poisonous, on Account of their containing Orpiment; and again, to give the Characteristics of it, whereby it may be known and distinguished; though, as was before observed, it is not native in England. But, if it were, and though any mineral Water should be impregnated with it (of which no Instance has hitherto appeared) yet, the same Experiments, that serve to discover Brimstone in a mineral Water, may also serve to discover Orpiment.

LXXIII. Some of the principal Characteristics of Sulphur or Brimstone are these, viz.

1. It melts readily over a soft Fire, and soon grows hard again in the Cold.

2. It is very inflammable, and burns with a livid or blue Flame; at the same Time diffusing, from a very small Quantity, a copious and peculiarly offensive suffocating Vapour or Fume.

3. Being thus burned under a glass Bell, this Fume condenses into a highly acid Liquor, called *Oleum Sulphuris per Campanam*.

4. It is absolutely necessary in the making of Gun-powder, as fulminating and having its Nature intirely destroyed by Nitre in the Deflagration.

5. It readily unites in the Fire with fixed Alkali, and thus makes a dusky red or liver-coloured Mass, which, being dissolved in Water and precipitated, affords an extremely foetid Odor, like that of a rotten Egg.

6. Being distilled with Quick-lime and Sal Ammoniac, it affords a yellow, smoking, and highly foetid Spirit; so likewise do these two sulphureous Minerals, Orpiment and Antimony.

7. Its Solution, in a Lixivium of fixed Alkali, changes Silver black.

8. Being melted and mixed with Quick-silver, the whole turns presently to a black Mass.

9. It dissolves into a Balsam by being boiled with Oil.

10. It demetallizes Iron, applied thereto when red hot; and has other surprising Effects upon Metals.

LXXIV. These Properties of Sulphur may sufficiently enable us to discover, whether it be contained in a mineral Water; the Ways of doing which seem reducible to two, viz.

1. By Additions to the Water.

2. By treating the dry Matter left after Evaporation. But we are to observe, that Sulphur, in an unmixed State, does not easily, or perhaps not at all, dissolve in pure Water, nor in acid Liquors; though it does in such as are alkaline; whence it is chiefly to be expected in mineral Waters of an alkaline Nature. And here it may be easily discovered, by laying Pieces of pure Silver in the Water, to try, if they will be discoloured or turned black therein; or by adding a Solution of Silver to the Water, to try if any Blackness ensues. The Odor also being like that of rotten Eggs, or a foul Gun-barrel, will usually discover such a Mixture of Sulphur. But (2) a more general and satisfactory Way is, to evaporate the Water, and examine the dry Remainder, by laying Part of it upon a hot Iron, to see if thus any Thing melts easily, takes Fire, or burns blue, with the peculiar Odor of fired Brimstone; or if by burning, under a glass Bell, it will yield the *Oleum Sulphuris*. And, lastly, let Spirit of Vitriol and Water be added in a sufficient Quantity, to a Part of the dry Remainder, whereby a Precipitation of the Sulphur, if there is any, will be made; which now falling, in the Form of a Powder, to the Bottom, may be collected separate, sublimed into Flowers, or melted, and thus reduced to a solid Lump of Brimstone, like the common.

(4) FUMES or SPIRITS.

LXXV. By Fumes or Spirits we here mean, in a general Sense, those fugitive or volatile Parts of a mineral Water, which spontaneously fly off from it in the open Air, or quit the Body of the Water with a less Degree of Heat than serves to raise the mere aqueous Parts thereof in Vapour, or by common Distillation.

LXXVI. The Fumes or Spirits of this Kind, having never hitherto been collected separate and examined, it cannot be expected, that we should here describe their Properties or Effects; but as there is sufficient Evidence to shew, that such Spirits or subtile fugitive Matters do lodge in certain mineral Waters, more especially in those of the brisk, alkaline, and cold Sort; and that they very readily desert the Body of the Water, upon standing open, or feeling a small Degree of Heat; (thus leaving the Water more spiritless and vapid) our best Endeavours should be used to manifest, or render sensible, to separate, collect, and examine these Spirits, in order to determine their Natures;

Properties, and Uses. And the Ways of doing this seem reducible to the following ten, viz.

1. The Smell.

2. The Taste.

3. The Sight.

4. The specific Gravity.

5. Expansion.

6. The exhausted Receiver of the Air-pump.

7. Distillation.

8. Effects upon Drinking.

9. Additions.

10. Direct Collection and Weight.

LXXVII. (1) If a mineral Water, when a Glass of it is fresh taken up at the Well-head, and applied near the Nostrils, shall prove to have a brisk, quick, or pungent Odor; but loses this Odor after standing for some Time in the open Air, or feeling a small Degree of Heat, it may be presumed, that such a Water naturally contains what may be called a Spirit; at least it will hence be certain, that the Water by standing open, or feeling a small Degree of Heat, loses the Property which it had, when fresh, of striking the olfactory Nerves, in a particular Manner, so as to cause a certain Sensation denominated by that particular Odor.

LXXVIII. (2) So likewise, if a mineral Water should have a brisk, pungent Taste, when fresh taken up, but lose it soon after, by standing in the open Air, or by being exposed to a moderate Warmth, this also would afford a Presumption that the Water naturally contained a Spirit.

LXXIX. (3) Again, if a Glass of the Water, when fresh taken up, should manifestly sparkle and throw numerous Bubbles to its Surface; or, when shook in a Glass close stopped at the Mouth, and then immediately opened, should appear to displode or throw off a large Mist or Vapour, and appear to bubble, or sustain a strong internal Conflict, or Commotion in its minute Parts, but not do the same, or in a much less Degree, after standing in the open Air, it would hence at least be probable, that the Water naturally contained a Spirit, or subtile, active Part, which readily quits the less active, and flies off into the open Air.

LXXX. (4) If the specific Gravity of the Water be taken in the Well, or immediately after it is brought up in a proper Glass for the Purpose, and if, upon repeating the Experiment some Time after the Water has stood exposed to the open Air, in the same Glass, it should now prove to have a considerable greater Degree of specific Gravity than before, that is, if its Parts should thus appear to have come closer together, or the Body of the Water to be grown denser, this also would plainly intimate, that the Water naturally contains a light or volatile Substance, which keeps its Particles at a greater Distance, whilst that volatile Substance remains therein; but suffers them to come closer together, after it has deserted the Water.

LXXXI. (5) If thin glass Vials, or common Bladders, filled or half filled with a mineral Water, and well secured at the Orifices, be brought before the Fire, or set in a dry hot Copper; and if other the like Glasses or Bladders be also filled or half filled with the same Water (after having stood in the open Air) and secured in the same Manner; and the Bladders, containing the first Water, should distend or burst sooner than those contained in the second; or, if the Vials containing the former should break sooner (with the same Degree of Heat) than those containing the latter; this would shew that the first Water held something more elastic, spiritous, or expansive than the other. The Experiment with the glass Vials might be made by setting them in a Copper of Water, with their Necks coming out at Holes made in the Cover, so as to prevent any Danger from their Bursting; for thus the Heat would be applied equally, and might be exactly measured by a Thermometer, made with Oil or Quicksilver; though there may be some Difficulty in procuring Vials, or Bladders, of the same Degree of Strength; but then it may be tried, whether the mineral Water, fresh taken up, will not break a Glass which could not be broke by a Parcel of the same Water which had stood open for some Time.

LXXXII. (6) If a Glass of the Water, fresh taken up, be set under the Receiver of an Air-pump, along with another similar and equal Glass of the same Water, after it had stood exposed to the open Air, or a moderate Heat; and if, when Air is drawn out of the Receiver, the former should sparkle more, or throw up a much greater Number of Bubbles than the latter; it would hence appear, that the former contained more Air, or more of an explosive Substance, or Spirit, than the latter.

LXXXIII. (7) If a mineral Water be, at the Well-head, directly put into a clean Retort, and a Receiver be immediately luted on, with a Piece of wet Bladder, tied tight with a waxed Thread; and now the Retort be directly placed in a Balneum Mariæ, or proper distilling Furnace; if any Thing, like Air, or Wind, shall appear to puff through the Luting, or covered Joint, at the very Beginning of the Operation, or, as soon as the Retort grows moderately warm; or if either the Retort, or Receiver, should burst, without any manifest external Violence; or imprudent Management of the Fire; this would shew

that an explosive Vapour, or Spirit, thus came from the Water. And if the same Effect did not follow upon the like Distillation of a Parcel of the same Water, that had been heated before, or exposed to the open Air, the former Conclusion would be considerably verified.

LXXXIV. (8) If a mineral Water, when drank fresh, at the Well-head, should have a Kind of intoxicating Effect, or give a considerable Degree of Alacrity, or occasion the Head-ach, a Drowsiness, &c. but have no such Effects, when drank in the same Quantity, by the same Persons, after having been warmed, or after having stood for some Time open; this also may shew, that the Water, when fresh, naturally contains a Spirit.

LXXXV. (9) If a Glass of any mineral Water, fresh taken up at the Well-head, being mixed with a light Acid, or particularly with Rhenish Wine, and Sugar, should make a strong Ebullition, with a large white Froth, or Foam, and discharge a visible Mist, or Vapour, to a considerable Height; and, during this Conflict, taste extremely keen, brisk, or pungent, but do thus in a much less Degree, upon the same Experiment, after having stood, for some Time, open to the Air, it will hence also appear that the Water naturally contains a light, subtle, active Matter, or Spirit, which it loses by standing in the Air. So again, if a mineral Water should, when fresh, or perfect, change its Colour remarkably upon the Addition of the first Powder of Galls, and turn with it either purple, dusky, or inky; but not do this at all, after the Water has been taken up, and suffered to stand in the Air for a few Hours; it would hence also follow, that the Water naturally contains a Spirit, in our Sense of the Word; and that this Spirit is, at least in Part, an actual volatile Iron, or volatile Vitriol of Iron, as no other Thing is found to have this Property.

LXXXVI. We come, in the last Place, to an Experiment, which may, if it succeed, be of itself esteemed conclusive, but joined with all, or some of the foregoing, will amount to a physical Demonstration. The Experiment is this: Take a Vial, a Bolt-head with a proper Neck, or a common Quart Bottle, and nearly fill it with a mineral Water, at the Well-head; have in Readiness a fine limber Bladder, well rubbed, and made thoroughly supple, or pliable, by oiling it on the Outside, and rubbing it betwixt the Hands, with Care to squeeze all the Air out, in which State it should be carefully weighed, in an exact Pair of Scales; immediately tie the Neck-part of this Bladder over the Mouth of the Glass, with a waxed Thread, as tight as possible; then remove the Glass to a proper Furnace, or gentle Heat of Sand, or Water, where, if upon standing a while to grow warm, the Bladder appears distended, as if it were blown up, squeeze the Neck-part of it, to gain a Vacuity, and there again carefully pass a waxed Thread (which also should be weighed before-hand, or along with the Bladder) and now, taking off the former Ligature, the Bladder may be removed, and weighed again, to see what additional Weight it has gained by the Matter, or Spirit, wherewith it is distended, allowing (if weighed in the Air, and not in Vacuo) for the Difference of specific Gravity betwixt the Bladder flaccid and distended, or so full blown and empty: And, if any absolute Weight be gained, this is the Weight of the Spirit contained in the Quantity of Water made Use of, provided the Experiment was perfect. And thus the Spirit of a mineral Water may, perhaps, not only be made sensible, as Air in a blown Bladder, to the Eye, the Touch, &c. but also be submitted to a Variety of other Experiments, in order to discover its Nature, Properties, and Uses. And here it should be particularly examined, whether the Spirit be a Simple or a Compound; if a Compound, how it may be resolved, how imitated, how introduced, artificially, into Water, how it is naturally made, or whence it proceeds, &c.

LXXXVII. We have now, in our Manner, gone through the four general Classes, under which the principal Contents, or Ingredients, of mineral Waters, seem to be reducible; viz. Salts, Earths, Sulphurs, and Spirits; for the mere aqueous Part, which is the Vehicle, or Menstruum, of the Whole, we have here no particular Regard to, as being not, strictly, an Ingredient in mineral Waters, but a Kind of general Instrument, or Agent, whose Properties, Office, and Use belong to another Enquiry.

LXXXVIII. But it will recur, to the Imagination, that there may still, possibly, be Salts, Earths, Sulphurs, Fumes, Spirits, or many other Things of an unknown Nature, that, either in a smaller or larger Proportion, entering the natural Composition, or Mixture, of mineral Waters, are such, as no Experiments, hitherto devised, can any Way discover, or render sensible. This Objection, indeed, is readily suggested by the Imagination, but how far the Reason approves of it, remains to be considered.

LXXXIX. No one, tolerably acquainted with the present State of Chymistry and natural Philosophy, will pretend, that either of them is arrived near to Perfection; or, that the Ways of making a true and proper Analysis of all natural and artificial Bodies are hitherto known. On the other Hand it must be allowed, that many useful Separations, Compositions, and Recompositions of Bodies have already been made; and that many

more might still be made, if natural Philosophy, and Chymistry, were farther improved. But with Regard to mineral Waters, when the Affair is fully examined, it should seem that the Means of discovering their Contents, Virtues, and Uses, are already in the Hands of Man, and that nothing more is wanting to compleat the Work, than a prudent, scientific, and guarded Manner of using these Means; or, to speak plainly, the principal Thing required is the Art of Induction. For, even the present, common, and very imperfect Chymistry supplies us with numerous Experiments, and sure Ways of discovering the Contents of Liquors, and bringing them under the direct Cognizance of the Senses; and a higher or more philosophical Chymistry, as now practised by many skilful Philosophers, will here penetrate farther; so that, if Chymistry should continue to improve, scarce any Analysis, of this Kind, would, at length, prove too hard for it.

XC. But, to come closer to the present Objection, What are those Things, suggested by the Imagination, to be contained in mineral Waters, which no Experiments, hitherto known, can discover? Let us consider, whether these Things are not Creatures of the Imagination; for so they must be allowed, by Men, to be, if they are not discoverable by Sense, Experiment, or Reason. But if at present discoverable by Sense, or Experiment, the Objection vanishes, as depending upon a Supposition that they are not thus discoverable at present. The Strength of the Objection, therefore, seems to be this, that the Imagination, by casting about, suggests to the Reason, that there are many compound, or mixed Bodies, which cannot, by any Experiments hitherto known, be resolved into their constituent Parts; so as fairly to exhibit these Parts, in their simple State, separated from each other, and unaltered in their Properties; but that either some will be so changed, or fly off, in the Operation, as not, by a Re-union, to exhibit the same Subject again; or, with Regard to mineral Waters, that these may naturally contain various Parts, so subtle, so intimately united, or of a Nature so utterly unknown, as not to be reached by any Artillery of chymical Experiments; and yet, that these Waters may manifest particular Virtues, or perhaps have pernicious Effects, in the Body, on Account of some latent Properties in them, which no dead, languid, or incompetent Trials, made out of the Body, are subtle or exquisite enough to discover.

XCI. We have endeavoured to obviate this Objection, in the Course of our Procedure; but to clear it up more expressly, and answer it fully, with particular Instances, and Examples; it would lead us too far from our Purpose, and engage us deeper in Chymistry than is at present necessary. Those, therefore, who require more Satisfaction, in this Point, than they can derive from the present Enquiry (though we hope that will be sufficient) may please to consult the chymical Lectures, already more than once referred to, particularly those which treat of Water, and of synthetical and analytical Chymistry. We shall, however, here add, as a Supplement to the Way, already laid down, for discovering the Contents of mineral Waters, the general Method of making an Analysis thereof, whereby whatever known or unknown Substances, especially those of a fixed Nature, contained in a Water, may be rendered sensible, or brought to their true Form and Appearance, so as to be farther examined, or have their respective Natures and particular Properties disclosed.

A general Method of analysing mineral Waters.

I. Let the first Intention be to make a natural Analysis of the Water, or to see what Changes it will spontaneously undergo, or what Parts, or Matters, it will separate into, by standing in open and close Glasses. Thus, low, cylindrical, open Glasses, being filled with the Water at the Well, let them be directly examined by Eye, the Smell, and the Taste; and again, after standing for an Hour, two Hours, four Hours, a Day, or several Days, to discover the sensible Alterations occasioned by this Standing, as compared with more of the Water, fresh taken up; and particularly to find, whether any visible Separation of Parts ensues, and if a Scum appears on the Top, or a Sediment at the Bottom, let them be carefully collected and preserved, for farther Examination; observing to keep a Diary, or Register, of all the Phenomena, and the whole Procedure. And let the like Experiment, or Observation, be made in Glasses exactly closed, to discover the Changes which the Water will then undergo, in its sensible Properties, and the Matters it thus separates, or throws off to the Top, Sides, or Bottom of the Glasses.

II. Let the Experiment, in some of the open cylindrical Glasses be prosecuted, by keeping them in a warm Place, till the aqueous Part is totally exhaled, and only a dry Substance left behind; which, being reserved, may be compared with the dry Substance gained from the same Water, by Evaporation over the Fire, in order to shew, whether there be any remarkable Difference betwixt the two dry Substances, thus procured.

III. Let the next Intention be to make an exact chymical Analysis of the Water, and to compare it with the former.

In order to this, let a certain Quantity of the Water, suppose five or six Pounds Troy, be, at the Well-head, put into a glass Retort with a wide Neck, and a clean glass Receiver be immediately luted on, in an exact Manner; let the Retort now be directly placed in a proper Furnace, and worked with a moderate Heat, so as barely to make the Water simmer; and proceed, with this Degree of Heat, till all the aqueous Part is come over, and only a dry Substance left at the Bottom of the Retort; then, letting the Vessels cool, take away the Receiver, carefully weigh the aqueous Liquor, and keep it a-part in a clean well-stopped Glass; and, lastly, separate the dry Matter from the Bottom of the Retort; weigh it, whilst thoroughly dry, and put this also into a clean dry Glass, to be kept well stopped.

IV. At the Beginning of this Operation, as soon as the Retort grows warm, let Care be taken to observe, whether any volatile or explosive Vapour comes out at the Joint, where the Luting was applied; for, if there does, this shews that there is a Spirit, or light subtle Matter, separable from the Water, tho' not capable of being thus collected; whence we are admonished to use another Method, in order to render it still more sensible, and subject it to particular Experiments, according to the Directions of the preceding Section.

V. The aqueous Part, obtained by the Distillation, may be examined with various Additions, or by applying it various Ways, in order to discover, if in any Respect it differs from pure distilled common Water, or whether it be impregnated with any saline or mineral Particles, like those found by the same Trials, in the natural mineral Water. Thus, as was formerly observed, if it contains any Sea-salt, it will be apt to turn white with a Solution of Silver; if any Vitriol of Iron, it will turn black with powdered Galls; or, if any Sulphur, united to an alkaline Salt, it will turn black, in Time, with almost any metallic Solution. And thus its Difference from common Water, or the mineral Water, that afforded it, may be assigned by a proper Variety of Experiments.

VI. Let Part of the dry Matter, left behind upon the Distillation, be put to, or gently boiled with five or six Times its own Weight of the purest distilled common Water, thus freed and before-hand proved, by particular Experiments, to be freed from any sensible known mineral Particles; for by this Means all the saline Part of the Matter will be taken up by the pure Water, in the Form of a Solution; which being filtered, evaporated to a proper Height, and set to crystallize, will thus give out its Salt, in the Figure or Form peculiar to itself. And tho' several Salts should be lodged in the same Solution, they may all, by repeated Evaporations, and Crystallizations, be obtained separate (according to what has, more than once, been observed before) and examined to try whether they are of a known or unknown Kind: And though the Kind of any Matter, thus procured, should happen to be utterly unknown; yet certain chymical and philosophical Experiments might be contrived to discover its Properties and Uses, according to the common Rules of Chymistry, and experimental Philosophy. Thus, for Example, it is easy to determine whether any Salt, thus obtained, be of an acid or alkaline Nature, by knowing the Properties of each Kind, as they are above laid down; for acid Salts turn red with Syrup of Violets, and become neutral with Alkalies, &c. And alkaline Salts turn green with the same Syrup, become neutral with Acids; cause Sal Ammoniac to emit a volatile urinous Vapour; turn a Solution of sublimate yellow, &c.

VII. But the Difficulty may seem greater to determine the neutral Species of Salts. And here we learn, from natural History, and Chymistry, that the neutral Salts dissolved, or washed out of the Bowels of the Earth, by Water, are chiefly Sea-salt, and such as consist of a sulphurous, or vitriolic Acid (that is, an Acid like the Acid of Brimstone or Vitriol) and a Salt, or Earth, of an alkaline Nature. But Sea-salt is easily discovered by its Taste, cubical Figure in Crystallization, and the particular white Vapour which it largely affords upon mixing it with Oil of Vitriol. The other Kind of neutral Salts may be distinguished from all others by the Property they have of producing or regenerating Sulphur, upon being mixed, and melted with Salt of Tartar, and powdered Charcoal. Thus, for Instance, if two Ounces of such Salt be mixed with an Ounce of Salt of Tartar, and an Ounce of powdered Charcoal; and the Mixture be melted in a Crucible, there will thus be produced a reddish-coloured Mass, of a sulphurous alkaline Taste, that gives a high yellow or golden Tincture to rectified Spirit of Wine; which Tincture will discolour Silver, or turn it black; and, being precipitated by an Acid, affords a true Lac Sulphuris, that may be sublimed, and melted into Brimstone, like the common.

VIII. What remains behind, after a perfect Elixation, or total Dissolution of the saline Matter, by Means of boiling Water, comes under the general Name of Earth; which by repeated Washings in pure distilled Water, and each Time pouring off the Water, may happen to be separable into terrestrial Matters of different Kinds, according to their different Natures, or specific Gravities; as, for Example, into solar Earth, or Oker, calcareous Earth, and Sand, or other Species of Earths; which,

if thus separable, may be examined by particular Additions, or by the Fire, in order to determine their Kinds and Natures; as, whether they are vitrescible, or convertible into Glass, by a strong Fire of Fusion; or, whether they will calcine, and turn into a Kind of Lime; or, whether they will yield any known or unknown metallic Substance or Regulus. But, if the terrestrial Matter be not thus separable by Washing, let the Whole be examined in the Fire, to try, if it will here separate into Parts of different Kinds, as it may, if a Compound, into a calcareous, a metallic, and a glassy Part; being either assayed alone, or with the Assistance of Borax, Glass of Lead, or other suitable Fluxes. And if the metallic Portion should be small, so as not to be collected separate, let it be fused with the Powder of pure crystalline Glass; to see if it will thus tinge the Glass of any particular Colour, whereby a Conjecture may be formed of the Species of the Metal it contained; as, whether Iron, Copper, Silver, &c. which, reduced to a Calx, are found to give specific or respectively different Colours to crystalline Glass in Fusion.

IX. And after this Manner we apprehend that a tolerable exact and instructive Analysis may be made, and an useful, if not satisfactory Account given of the Contents and Virtues of any mineral Water.

X. It is but just, at the Conclusion of this first Part of our Undertaking, that we ask Pardon of the Reader (who may be much better acquainted than ourselves with the Ways of examining mineral Waters) for having dwelt so long upon the Method of doing it, and inculcated some Particulars several Times over: But, to say the Truth, as the Treatises, which we have read upon this Subject, appear to us far from laying the just Foundations of the Thing, or from observing a proper Form of Induction; and as many have objected to the Thing itself, on a Supposition of its being precarious and uncertain, we found ourselves in some Measure obliged, for the Sake of the Many, to trespass upon the Patience of a Few, and endeavour, even by some Degree of Repetition, to set this Matter in a fair Light, that every one might be able to exercise a free Judgment upon it. And in this Respect, it is to be feared, we have rather fallen short than exceeded.

Thus much I thought proper to specify with Respect to mineral Waters in general, and of some few in particular, by Way of Example. The Virtues and Uses of the British mineral Waters will be farther taken Notice of, as their Names occur.

ACIES. Because *Acies* signifies the sharp Edge or Point of Instruments, which are generally made of Steel, some Authors, of the middle and lower Ages, have called Steel itself *Acies*, and thus Rulandus interprets it. But the Name is arbitrary; and has the Authority of no Author of Credit, that I know of, to support it.

Oculorum Acies also signifies the Sight, but I think *Acies* alone, without mentioning the Eyes, is never used in this Sense.

ACINESIA. From a Negative, and *νίω*, to move. Im-mobility in general. But it is used by Galen to express the State of Rest of the Pulse, or the small Space of Time which passes betwixt the Contraction and Dilatation of the Artery. *Galen, de Differentia Pulsuum, L. 1. C. 7.*

ACINIFORMIS, or ACINOSA. *Tunica*. A Coat of the Eye, called also *Tunica Uvea*. See *UVEA*.

ACINOS, Stone or Wild Basil.

The CHARACTERS are,

It hath Leaves like those of the lesser Basil. The Cup of the Flower is oblong and furrowed. The Flowers are produced in Bunches, on the Top of little Foot-stalks, which arise from between the Foot-stalk of the Leaf and the Stalk of the Plant, in which it differs from *Serpyllum*. *Miller*.

It is the *αἴνυς* Diosc. the *Acinos*, Offic. Dill. Cat. Giff. 125. Rivin. Irr. Mon. *Acinos Rivini*, Rupp. Flor. Jen. 188. *Acinos Anglica*, Merc. Bot. 1. 16. Phyt. Brit. 2. *Acinos multis*, J. B. 3. 259. Raii Hist. 1. 553. Synop. 3. 238. Chab. 411. Buxb. 5. Boerh. Ind. A. 176. *Acinos frut. Ocymum Sylvestre*, Hist. Oxon. 3. 404. *Acinos Ocymum Sylvestre*, Ger. 548. Emac. 675. *Acinos Clinopodium arvense Orzmi facie*, C. B. Pin. 225. Tournef. Inst. 195. Elem. Bot. 163. *Acinos minus seu vulgare*, Park. Theat. 21. WILD BASIL.

It grows on chalky Hills, and flowers in June. The Herb is used, and checks the Overflowing of the Menstrues, and a Diarrhoea. It cures Boiles, and St. Anthony's Fire, being washed with the Decoction. *Dioscorides*.

Its Virtues are much the same with those of Calamint, but a little weaker. *Barbaeus*.

The London Herb-women sell it instead of Mountain Poley. *Dale*.

Miller mentions another Species of this Plant, called, *Acini pulchra Species*, J. B. Broad-leaved Austrian Wild Basil. This is preserved only in botanic Gardens.

ACINUS. It signifies, strictly, a Grape, but is applied to many other Fruits, or Berries, that grow in Clusters, as those of Elder and Ivy; these are distinguished from *Baccae*, a Sort of Berries

Berries that grow single, as those of the Olive, or Laurel. But *Acinus*, in the common Signification, as now used, is the Stone of a Grape; hence *Uva exacinate*, Grapes that have the Stones taken out. *Raii Hist. Plant. Dale from Galen, de Alimentorum Facultatibus.*

Hence some Anatomists have called Glands, that grow together in Clusters, *Acini Glandulosi*, as those in the Liver. *Blancard.*

ACIS. *ἄκισ.* It signifies in Hippocrates the Iron Head of a Spear, or Dart, or any wounding Instrument.

ACMASTICOS. *Ἀκμάστικος.* The Name of a particular Sort of continual Fever, of which Actuarius gives this Account: Of Fevers arising from Putrefaction, some are called continual, or continent (*συνέχεις τε καὶ σύντοχοι*) others, intermittent (*διαλείποντες*). Of the former, those are called *Ictoni*, or *Actastici* (*ἰκτονί τε καὶ ἀκμάστικος*) which, during the whole Course, maintain themselves at the same Pitch, or Vigour, without either increasing or diminishing in Point of Violence. Others are called *Epactastici* (*ἐπακμάστικος*) and these make a Progress and Increase, in Force and Violence, to the Time of their Solution. The third Sort are called *Paractastici* (*παρᾶκμάστικος*) which diminish by Degrees, till they at last entirely cease.

ACME. *Ἀκμή.* This in general signifies that State of any Thing, wherein it is in the utmost Perfection, and thus Hippocrates seems to explain it in his Treatise *de Prisca Medicina*.

The Word usually signifies the State of an animal Body, arrived to its full Vigour, and before it begins to decline. Hence the medicinal Writers have applied it to that State of a Distemper wherein it is increased to its utmost Degree of Violence. In this Sense Hippocrates uses it *Aph. 9. and 10. L. 1. and in many other Places.*

Acme also is a Term in Gymnastics, used to express the highest Pitch of Exercise, and in this Signification it is used by *Galen.*

Foefius is of Opinion, that *ἄκμας* should be read instead of *ἄκνυς*, in *Aetius, Tetrabib. L. 4. C. 13.* and that here it signifies a small Pustule, or Pimple, so called, because it generally arises about the Time (*τῆς ἀκμῆς*) that the Body is in full Vigour; and, in Confirmation of this, he quotes a Passage from *Cassius*, who thus interprets *Ἀκμας*.

Quincy makes a Mistake, when he derives *ἄκμη* from *ἀκμάζω*, to grow strong, or to be in full Vigour, for *ἄκμάζω* is derived from *ἄκμη*. Others derive it from a Negative, and *ἄκμη*, to be weary; but this seems far fetched, and not much to the Purpose. And indeed *ἄκμη* seems to be itself a Radix, from whence some other Words are derived.

Acme also signifies a sharp Point or Edge.

ACMELLA. This is called *Acemella*, Offic. *Akmella*, *Abamella*, *Herm. Mus. Zeyl. 17. Chrysanthemum. bidens Zeylanicum Amella dictum*, *Breyn. Dissert. Bot. 12. Chrysanthemum Bidens, seu Bidens Zeylanicum, flore luteo, Lamii folio, Acemella dictum*, *Ejusd. 20. Cannabina aut Bidens Urticae folia Indica libonitripica*, *D. Hotton. Act. Philos. Lond. N. 257. p. 365. Senecio Indica Orientalis Ocyimi majoris folio profunde crenato*, *Pluk. Almag. 343. Phytog. 315. Ceratocephalus Ballotes foliis Acemella dictus*, *Act. Reg. Pat. A. 1720. p. 326. ACMELLA, ACHMELLA, and ADMELLA. Dale.*

It grows plentifully in the Island of Ceylon, and is brought from thence into Europe.

Ray gives the following Account of the *Acemella* from *P. Hotton*, Professor of Botany at Leyden.

The Flower of this Plant grows on the Top of the Stalks, and consists of a great many tubulous yellow Floscules, which by their Union form a Head sustained by a Perianthium of six Leaves. When these Floscules fall off, the Seeds appear, which are of a dark Grey, long, and smooth, except that at the Top, immediately under the Floscules, they are furnished with a double Beard, which makes them forked or horned. The Stalk is square, and clothed with Leaves that grow by Pairs, like those of the *Lamium*, or *Nettle*, but longer, and more pointed.

It has obtained great Reputation for its Virtues in dissolving the Stone. An Officer, in the Year 1690, affirmed to the Dutch East-India Company, that he had cured above a hundred of the Stone, and nephritic Complaints, by this Plant. And the Governor and supreme Council, in the Island of Ceylon, gave the same Year two Instances of Patients, who had been cured of the Stone by this Plant, in whom a great Number of small Stones, and a great Quantity of Sand, had been expelled, with very little Pain.

In the Year 1699, the first Surgeon of the Hospital in the City Colombo, in Ceylon, confirmed the Efficacy of the *Acemella* in the Stone, and nephritic Disorders, by Letters to *P. Hotton*. This Surgeon says, he observed three Sorts of the *Acemella*. The first with a pale green Leaf, and yellow Seed; the second with a Leaf of a deep Green, and yellow Seed; the third with a black Seed, and much larger Leaves than the other two; which last, he says, are of the greatest Virtues. He adds, that each Plant produces above ten thousand Seeds.

He farther says, the Leaves and Seeds are the most effectual, but that the Root, Stalk, and Branches are used.

The Leaves are gathered before the Flowers appear, and are dried in the Sun. These are either taken in Powder, mixed with some convenient Vehicle, or in Infusion like Tea.

A Spirit is also prepared by Distillation from the Root, Stalk, and Branches, infused in Spirit of Wine.

Another Surgeon of the above-mentioned Hospital says, he used the Flowers, the Extract of the Root, and the Salt, with Success, in Pleurisy, Colics, and Fevers.

To the Description of this Plant given above from *Hotton*, may be added, from *Johannes Philippus Breynius*, that the Root is white and fibrous; the Stalk almost four-square, about a Foot high, and divided into Branches; the Leaves oblong, mucronated, somewhat rough, and separated on the Edges. The Flowers grow on the Extremity of each Branch.

Breynius says, this Plant is diuretic, that it cures nephritic Pains, expels the Stone from the Kidnies, relieves in Ischuria, Stranguries, and Dysuries, and that it restores the Menses, when suppressed. The Leaves are endued with the greatest Virtues, which consist in the Fineness, Volatility, and Penetrability of their Particles, whence they provoke Urine and Sweat, open Obstructions, stimulate to Excretion, expel the Stones from the urinary Passages, and, if not very hard, dissolve them. For these Purposes it must be given by Way of Infusion, like Tea, in pretty large Quantities, and repeated two or three Times a Day, always warm. But at the same Time a great deal of diluting Liquor must be taken; and also Liquorice, Syrup of Marsh Mallows, or something of a soft relaxing Quality, should be given with it.

Or Arack, impregnated with this Spirit, may be taken twice or three Times a Day, in a Glass of Rhenish or French Wine; or some Anti-nephritic Decoction, always adding to it Syrup of Marsh Mallows, for then Gravel, or Stones, are expelled with very little Pain.

ACNE. *Ἀκνῆ.* *Gorræus* interprets this a small hard Tubercle arising on the Face. *Foefius* thinks it should be read in *Aetius*, from whence *Gorræus* quotes it, *Ἀκμας*, instead of *Ἀκνῆς*. See **ACME**.

ACNESTIS. *Ἀκνῆστις.* That Part of the Spine of the Back, which reaches from the *μεστέραςπον*, which is the Part betwixt the Shoulder-blades, to the Loins. This Part seems to have been originally called so in Quadrupeds only, because they cannot reach it to scratch, from a Negative, and *κνῆν* to scratch.

It is also the Name of an Herb, mentioned by *Nicander*, which some take for a Nettle, others for a Squill. *Gorræus.*

ACO. A Fish, called also *Sarachus*, and *Sarachinus*, and *Aquo*. It is mentioned by *Aldrovandus*, and is said to be very good Food. It is common in *Epirus*, and *Lombardy*, and in the Lake *Como* in the Dutchy of *Milan*.

ACOE. *Ἀκοή.* The Sense of Hearing.

ACOELIOS. *Ἀκοίλιος*, from a Negative, and *κοίλος*, the Belly. Without Belly. It is applied to those who are so wasted and extenuated, as to appear as if they had no Belly. *Castellus* from *Galen*.

ACQUITUS. *Ἀκοίτις.* An Epithet for Honey, mentioned by *Pliny*, because it has no Sediment, which is called *κοίτη*. *Constantine.*

ACOLASTOS. *Ἀκόλαστος*, from a Negative, and *κολάζειν*, to restrain. It signifies lewd, or obscene. *Hippocrates, Epid. L. 4. S. 7.* speaking of a young Man in a Fever, says, he began to talk idly, as he thinks, on the eighth Day (*τρίτον τῶν ἀκόλαστος*) in a very obscene Manner.

ACON. A missive Instrument, made Use of by the Antients in their Exercises. *Schulzius* thinks it was not much different from the Discus. See **DISCUS**.

ACONE. *Ἀκόν.* A Mortar. Thus *Foefius* and *Gorræus* explain the Word which is used by *Hippocrates*, in the latter Part of his Treatise *de Ratione Viæ in Acutis*; *ἐν ἀκόνι τείβειν*, beating the Ingredients, mentioned before, in a Mortar. *Hippocrates* also mentions it in his little Piece, *de videndi Acie*, where he directs a Piece of the Flos *Aëris* (*ἀλβος χαλκῆ*) to be levigated (*πρὸς ἀκόνην*) against a hard Stone, or Whetstone, as *Foefius* seems to understand it. But I do not see the least Reason to believe, the Author means two different Things in these two Passages. In both Places, the Ingredients to be powdered are very hard, and scarce reducible to a Powder in a Mortar. In the First, *Ebony* and burnt Copper; in the Second, the Flos *Aëris*, which seems to be a Sort of Scoria of Copper. It is therefore more probable, that the Author in both Places means by *Ἀκόν*, a Stone to levigate upon, such as the Apothecaries now make Use of for the same Purpose. And this is the more likely, because the Word, in its most general Sense, signifies a hard Stone, or Whetstone; and because *Dioscorides, L. 1. C. 129*, mentioning *Ebony*, says, it acquires a reddish Colour, *τεφεθεσάειν ἀκόνις*, which I should translate, levigated on a Stone.

ACONION. *Ἀκόνιον.* This was a particular Form of a Medicine amongst the ancient Physicians, made of Powders levigated

levigated on a Stone, and probably, like Collyria, used for Disorders of the Eyes, as may be inferred from Dioscorides, L. 1. C. 129, who, speaking of the Effects of Ebony on the Eyes, says, it operates better *ἢ τῆς τσίνας ἐξ αὐτῆς ἀχρίον*, if it is reduced to the Form of an *Aconion*: And L. 5. P. 344, speaking of the Lapis Hematites, he says, of it are made Collyria, and (*Ἀχρία*) *Aconia*.

ACONITIFOLIA. A Name of the Anapodophyllon Canadense Morini, mentioned in Boerhaave's Index.

ACONITON. *Ἀχρίον*, or *Ἀκρίον*, from a Negative, and *Κόρια*, Lime or Plaster. It signifies Not plastered, and is applied to Vessels not lined within Side. Thus Dioscorides, L. 4. C. 65, directs Cantharides to be put into a Vessel (*Ἀχρίον*) *non pictum*. The Interpreters translate it, *not pitched*. Hence we may infer, that it signifies, in general, not lined with any Thing.

ACONITUM. Wolfs-bane. [*Ἀχρίον*, which some derive of *Ἀχρία*, a Whetstone, or Rock, because it grows on bare, rocky, or stony Places; according to Pliny, which Etymology Ovid follows, where he says:

*Quæ, quia nascuntur dura vivacia caute,
Agrestes Aconita vocant*

Others of a Negative, and *Κόρια*, Dust, because it grows without Earth; others of *Ἀχρίον*, *Ἀχρία*, Dart, because the Barbarians used to poison their Darts therewith; others of *Ἀχρίον*, to accelerate, because it hastens Death.] The English call it Wolfs-bane, of the Anglo-Saxon, *Wulfes-Bane*.

The CHARACTERS are,

It hath circumscribed, roundish, divided Leaves. The Flowers consist of four Leaves, which are shaped like a Monk's Hood. Each of these Flowers is succeeded by three or more Pods, which contain several rough Seeds. Miller.

There are many Sorts of the *Aconitum*.

1. *Napellus*, Offic. *Napellus vetus caeruleus*, Ger. 823. Emac. 972. *Napellus vetus*, Park. Theat. 318. *Napellus vetus flore caeruleo*, Park. Parad. 215. Buxb. 233. *Napellus flore caeruleo*, Rivin. Rupp. Flor. Jen. 234. *Aconitum caeruleum seu Napellus primus*, C. B. Pin. 183. Tourn. Inst. 425. Elem. Bot. 337. Boerh. Ind. A. 300. Hist. Oxon. 3. 463. *Aconitum magnum Napellus*, Chab. 531. *Aconitum magnum purpureo flore*, vulgo *Napellus*, J. B. 3. 655. Raii Hist. 1. 702. MONKS HOOD.

2. *Aconitum Ponticum*, Offic. *Aconitum luteum Ponticum*, Ger. 821. Emac. 970. *Aconitum Lycostomum*, Chab. 531. *Aconitum Lycostomum luteum*, C. B. Pin. 183. Hist. Oxon. 3. 462. Tourn. Inst. 425. Elem. Bot. 337. Boerh. Ind. A. 300. *Aconitum luteum Ponticum serotinum flore albido*, Park. Theat. 310. *Aconitum flore Platani, flore luteo pallescente*, J. B. 3. 652. Raii Hist. 1. 704. Dill. Cat. Giff. 97. *Napellus flore luteo*, Rivin. Irr. P. Buxb. 233. Rupp. Flor. Jen. 234. WOLFS-BANE. Dale.

Both these Sorts are cultivated in Gardens, flower in July, and are alike endued with a pernicious Quality to Man and Beast. The latter is called by Dioscorides *Lycostomum*, and *Cynostomum*, that is, Wolfs-bane, and Dogs-bane, and is described to have a Leaf like a Plane, only longer, blacker, and thicker indented, to have a Stalk like the Pedicle of Fern, bare and about a Foot high, to contain its Seed in oblong Pods, and to have a blackish Root like the Sea-onion.

3. *Anthora*, Anthora, Offic. *Anthora*, Park. Parad. 215. *Anthora, seu Anthora*, Chab. 530. *Anthora, seu Aconitum salutarium*, Ger. 820. Emac. 969. *Anthora flore luteo Aconiti*, J. B. 3. 660. Raii Hist. 1. 705. *Aconitum salutarium, seu Anthora*, C. B. Pin. 184. Tourn. Inst. 425. Elem. Bot. 338. Boerh. Ind. A. 300. *Aconitum salutarium luteum tenuifolium, seu Anthora*, Hist. Oxon. 3. 463. HEALTHFUL WOLFS-BANE.

This is cultivated in botanic Gardens, and flowers in June. Its Root is used, which is small, thick, and branched, of a dark brown Colour without, but of a pale white within, of an acrid Taste, and unpleasant Smell. Dale.

The *Anthora*, according to Monsieur Tournefort, is a Plant something scarcer than Gentian, and is a Species of the *Aconite*, though this is a Counterpoison to such as eat the Root of the *Aconite*, or deadly Wolfs-bane. It is for this Reason Bauhine calls it *Aconitum salutarium*, the healing *Aconite*, or *Anthora*. This is composed of two short wedge-like Roots, very bitter, white, and fleshy within, but brown on the Outside, and decked with Abundance of Fibres. The Stalk arises about two Feet high, surrounded with many long Leaves; the Flowers grow about the Stalk like an Ear of Corn, are yellowish, and like a Head covered with a Helmet; the Seeds are black, wrinkled, and grow in Sheaths, or membranous Cells, five or six of them joined together. The Root of this is a good Antidote. The Peasants who gather this on the Alps, and Pyrenees, use it with Success against the Biting of mad Dogs, and to cure the Colic; they take it for a sovereign Remedy for those who have eat the *Thora*, or deadly *Aconite*. Pomet.

The *Aconitum salutarium*, or *Anthora*, quasi *Anthora*, because this is reckoned a Counterpoison to that called the

Thora, which is a Sort of Ranunculus, or Crow-foot, and of the Species of the *Aconite*, or Deadly Wolfs-bane. The Root is useful in Physic, as being alexipharmic, cardiac, stomachic, and good against the Wind Colic. It contains a great deal of volatile Salt, and essential Oil. Lemery.

To these three Species Miller adds the following:

Aconitum luteum majus, ampliore caule, amplioribusque foliis. Dod. The largest yellow Wolfs-bane.

Aconitum Pyramidale multiflorum. H. R. Par. Pyramidal Wolfs-bane with many Flowers.

Aconitum Lycostomum humili caule ac minoribus foliis. Dwarf Wolfs-bane with lesser Leaves.

Aconitum Pyrenaicum, ampliore folio tenuius laciniato. Tourn. Wolfs-bane of the Pyrenees, with larger Leaves, cut into narrow Segments.

Aconitum caeruleum napelli flore, C. B. P. Autumnal Wolfs-bane, with a blue Flower.

Aconitum coma inflexa, foliis angustioribus, C. B. P. 283. Narrow-leaved Wolfs-bane, with inflexed Heads.

Aconitum coma inflexa, foliis latioribus, Tourn. Broad-leaved Wolfs-bane, with inflexed Heads.

Aconitum inflexa coma maximum, C. B. P. Wolfs-bane, with the largest inflexed Heads.

Aconitum, seu Napellus 1. flore roseo, C. B. P. Wolfs-bane, with a Rose-coloured Flower.

Aconitum, seu Napellus 1. flore albo, C. B. P. Wolfs-bane, with a white Flower.

Aconitum, seu Napellus 1. flore ex caeruleo & albo variegato, C. B. P. Wolfs-bane, with a Flower variegated from blue to white.

Aconitum violaceum, seu Napellus 2. C. B. P. Wolfs-bane, with a Violet-coloured Flower.

Aconitum purpureum, seu Napellus 3. C. B. P. Wolfs-bane, with a Purple-coloured Flower.

Aconitum caeruleum minus, seu Napellus minor, C. B. P. Lesser blue Aconite, or Wolfs-bane.

Aconitum caeruleo-purpureum, flore maximo, seu Napellus 4. C. B. P. Wolfs-bane, with a very large Purple-blue Flower.

Aconitum lycostomum orientale, flore magno albo, T. Cor. Eastern Wolfs-bane, with a white Flower. Miller.

Some of these are called *Lycostomum* [in English Wolfs-bane] because the Wolf-hunters used to mix them amongst Flesh, and lay it for the Wolves, who, eating the same, were poisoned.

All these Plants are poisonous on Account of their caustic and suffocating Quality, by which such Animals, as eat of them, have their Deglutition stopped, while their internal Parts are corroded.

The third Sort is said to be an Antidote, but Matthioli was the first who discovered this, and all the rest have no more than transcribed him. Therefore Bauhinus does well in advising us not to trust to him, because he himself transcribed them from others. Boerhaave.

Galen advises, as an Antidote against the Poison of *Aconitum*, a Handful of Rue bruised, to be drank in Wine unmixed with Water, and says, in this Case also, the fat Broth of a Hen may be of Service.

ACONITUM HYEMALE. Winter Wolfs-bane.

This has Leaves like those of the Wolfs-bane; the Flowers (which are produced in the Center of the Leaves) are like those of the Ranunculus, with many Stamina, or Threads in the Center, and in all other Respects agree with the Hellebore, to which Boerhaave has made it a Congener.

It is one of the earliest Flowers in the Spring, often appearing in the Middle of January, and therefore deserves a Place in every curious Garden.

ACONTIAS. *Ἀκοντίας*. The Name of a very poisonous Serpent, mentioned by Ætius, Paulus, Lucian, Aldrovandus, and others. It is also called Cenchreas, and Jaculus. See CENCHREAS. *Castellus. Constantine*.

ACOPIS. *Ἀκωπίς*. The Name of a precious Stone, like Glas, marked with Spots of a gold Colour, thus named, because Oil, wherein it has been boiled, is said to be a Remedy against Weariness. *Pliny. Constantine*.

It is derived from a Negative, and *Κόπος*, Weariness.

ACOPON. *Ἀκωπον*, from a Negative and *Κόπος*, Weariness. It signifies originally whatever is a Remedy against Weariness, and is used in this Sense by Hippocrates, *Aph. 8. L. 2.* But, in Time, the Word was applied to a Sort of Ointment of a particular Consistence, of which Celsus gives some Examples, *L. 5. C. 24.* And the Forms of many more are to be found in the Works of Galen and other medicinal Writers.

ACOPA. (*Ἀκωπα*) also signifies, not eaten by Moths. Thus Theophrastus, speaking of the Citron, says, it preserves Garments *Ἀκωπα* (which Pliny explains by *Arctique Animalium noxia*) from being eaten by Moths.

In Regard to the Medicines, called *Acopa*, the following Passages from Galen and Paulus will suffice to give an Idea of them.

The End and Intent of the *Acopa Pharmaca* are known by the very Name; for Indispositions of Body which are caused by long or vehement Motion, whether they affect the whole System, or the Parts principally exercised, are called *Κόποι*, *Lassitudes*. Now such Indispositions are mostly troublesome and incommo-

ous to Persons, while they are in Action or Motion, but, if arrived at a more than ordinary Pitch, are subject to disturb their Repose after their Toil. But in Time Physicians applied the Name of *Acopa* to other Remedies besides those which were intended against Laffitude; thus Applications for inveterate Pains, which lay deep in the Body, for Difficulty of Motion, for Hardness, Tension, or scirrhus Tumor of any Part, were called *Acopa*, provided their Consistence was the same, which is much like that of the liquid Cerates, made Use of for Fractures and Luxations. For the most liquid of that Kind of Composition is what the modern Physicians call a Cerelium, the next are the Acopous Ointments, and then comes the liquid Cerates, of a thicker Consistence than the two former. After these follows the Cerate of tender and soft Ingredients, as it is called, and last of all, the Amolynta [Things that will not foul] much like what are properly called Epithems. Next after this Class follows the Composition of Plaisters, which also admits of no small Difference in Degrees of Consistence. Wherefore some Physicians have called a certain Composition Ceratomalagmata, giving it that Name merely for its Consistence, which is not so liquid as that of Epithems, nor yet so hard as what belongs to Plaisters.

As all these Differences do not express the Virtues of the Remedies, but only give an Idea of their Consistence, so the Appellation of *Acopa* formerly signified the Qualities of the Medicines, but afterwards denoted only their Degree of Consistence. For this Reason they were obliged to name them with Distinctions; as, for Example, this was a laxative *Acopum*, that an emollient or warming one; this an Anodyne, another a Drawer; or, as they were suited to particular Disorders, as, for Instance, the Palsy, the Sciatica, or Pleurisy, or all Pains in general. *Gal. de Comp. Med. L. 7. C. 21.*

Those Remedies, which at first were called *Acopa* [relieving Laffitude] extended their Name, by Degrees, to other Medicines of a like Consistence, even though intended to raise a great Heat in the Body. *Idem de Comp. Pharm. secundum Loc.*

Acopa took that Name, because they were Remedies at first provided against the Evils and Infirmities proceeding from Laffitude, such as Tensions, Pains in the Bones, &c. They are also proper on many other Occasions, for some of them are warming, others mollifying. *Aegin. L. 7. C. 19.*

ACOPUS. A Plant, mentioned by Pliny, said to be the same as the Anagris (*Ἀνάγρις*) of Dioscorides, which, Gerard says, is the Bean Trefoil.

ACOR. Sourness. In a medicinal Sense it generally signifies what, under the Article ACIDUM, I have called Acidity, or an acid Acrimony in the Stomach. Helmont says, the vital Ferment of the Stomach, which digests the Aliment, is endued with a specific *Acor*, but that this *Acor* is not the Ferment itself, but only its Organ. Later Discoveries have proved all this Doctrine Chimerical.

ACORDINA. Indian Tutty. *Rulandus.*

ACORIA. *Ἀκρία*, from a Negative, and *Κρίω*, to satiate. It signifies, according to the Derivation, Infatiability. But in Hippocrates, *Epid. L. 6. Sect. 4. Aphor. 20.* it means nothing more than a good Appetite and Digestion.

ACORITES VINUM. A Wine, mentioned by Dioscorides, made by infusing eight Ounces of Acorus and as much Liquorice, for three Months, in six Gallons of Wine. It is good in Disorders of the Pleura and Breast, and provokes Urine. *Dioscorides, L. 5. C. 73.*

ACORNA. *Ἀκρύνη*. A Plant, mentioned by Theophrastus, of the Thistle Kind. It is described as having a Stalk and Leaf covered with a prickly Down and acute prickly Leaves, like the *Atractylis*, or Distaff-thistle.

Pliny seems to take it for a Tree of the Ilex Kind, like the Holly, or Juniper.

ACORTINUS. A Lupin. *Rulandus.*

ACORUS. *Ἀκός*.

This is the *Acorus verus*, *Calamus aromaticus*, Offic. *Acorus verus*, *five Calamus Officinarum*, Park. Theat. 140. Raii Hist. 2. 1313. Synop. 3. 437. Mer. Pin. 2. *Acorus verus*, *five Calamus aromaticus Officinarum*, C. B. Pin. 34. Theat. 626. Boerh. Ind. A. 2. 167. Dill. Cat. Giff. 110. Buxb. 5. *Acorus verus*, *five Calamus aromaticus*, C. Commel. Plant. Usu 18. *Acorus verus*, *Officinis falso Calamus*, Ger. Emac. 62. *Acorum legitimum*, Rupp. Flor. Jen. 261. *Acorus vel Acorum*, *Calamus aromaticus*, Chab. 244. *Typha aromatica clavata rugosa*, Hist. Oxon. 3. 246. SWEET FLAG or CALAMUS. *Dale.*

This Plant is distinguished from all others, in that among its Leaves, which are much longer and narrower than the Iris, or Flower-de-Luce, there arises one or two like the rest, only somewhat narrower, thicker, and rounder towards the Top, near to which come forth single Juli, rarely two, in Shape like the Catkin of the Hasel, or like long Pepper, but ending more taper, and standing up obliquely from the Leaf.

The Root is thick, full of Joints, and spreads itself on the upper Part of the Earth, transversely, and not sinking deep in it, being full of large white Fibres, increasing much, and soon taking a great deal of Ground. It has a strong Smell, not so pleasant while green, but growing more grateful and aromatic as

it dries. It grows in several Rivulets and watery Places in England, as about Norwich, and in Cheshire, and Surrey, according to Mr. Ray; but what is used in the Shops, is mostly imported from abroad. It produces its Catkins in July and August.

The Roots, which only are used, are hot and dry, opening and attenuating, and good for the Obstructions of the Liver and Spleen, provoke Urine, and the Meneses, help the Colic, resist Putrefaction, are useful against pestilential Contagions, and corrupt noxious Air, are an Ingredient in the Theriaca and Mithridate, and are outwardly used in sweet Bags and Perfumes. *Miller.*

It is a Stomachic, warms and dries, consists of fine Particles, attenuates and opens. Its principal Use is in Obstructions of the Meneses, Spleen, and Liver, in the Colic, &c. *Schroder. Dale.*

It is a Cardiac and Stomachic. The Root is good in acid Crudities of the Stomach, and Gripings of the Belly thence proceeding; in Obstructions of the Meneses owing to the Stomach; in the Dropsy and Scurvy as a Cardiac; in the Asthma it provokes Spitting. The *Acorus* is seldom exhibited in Substance, but mostly prepared; the Root is an Ingredient in many Compositions. *Boerhaave.*

Chuse your *Acorus* new, well grown, cleaned from the Fibres, hard to break, of an acid Taste, accompanied with an agreeable Bitterness, of a sweet Smell, and very aromatic; it is for this Reason it is more known by the Name of *Calamus aromaticus*, though altogether improper, than that of the *Acorus*. This Root, which is commonly of the Thickness of a little Finger, and about half a Foot long, is brought to us from several Parts of Poland and of Tartary, and likewise from the Isle of Java, where it is called Diringo. *Pomet.*

This is different from the true *Calamus aromaticus*. *Lenery.*

The Description of this Plant, given by Miller, answers pretty exactly that of Dioscorides, who says, the Root of the *Acorus* has a warming Faculty, that the Decoction of it is diuretic, and good in Pains of the Pleura, Thorax, and Liver, Colics, Ruptures of the Vessels, and Convulsions. It consumes the Spleen, cures the Strangury, and is effectual in the Bites of venomous Animals. It is an excellent Ingredient in warm Baths for uterine Disorders. The Juice of the Root clears a dim Sight. It is a good Ingredient in Antidotes. *Dioscorides, L. 1. C. 2.*

Acorus adulterinus, *Pseudo-acorus*, *Gladiolus luteus*, Offic. *Acorus adulterinus*, C. B. Pin. 34. *Acorus palustris*, *five Pseudoiris*, & *Iris lutea palustris*, Park. Theat. 1219. *Acorus nostras palustris*, Merc. Bot. 1. 16. Phyt. Brit. 2. *Iris lutea palustris*, Ger. 46. Emac. 50. Raii Hist. 2. 1186. Synop. 3. 374. Rupp. Flor. Jen. 26. Tourn. Inst. 360. Elem. Bot. 192. *Iris palustris lutea*, *five Acorus adulterinus*, J. B. 2. 732. Chab. 244. Dill. Cat. Giff. 79. Buxb. 168. BASTARD ACORUS. *Dale.*

This *Iris*, that grows so common in Ditches and watery Places, bears Leaves like the common Flower-de-Luce, only somewhat longer and narrower; the Stalk arises higher, on the Top of which grow three or four Flowers, one above another, flowering gradually, in Shape like an ordinary Flower-de-Luce, only that it wants the upright Leaves, instead of which it has only two small Pieces of Leaves in their Places. The Flowers are succeeded by large triangular Seed-Vessels, containing three Rows of flat Seed. The Root is long and slender, not running deep in the Earth, but a-flant. It flowers in Summer.

The Roots of the *Pseudo-acorus* are restraining, drying, and binding, and useful in Fluxes of all Sorts; some commend it as a Strengtheners of the Brain and Nerves. It is but seldom used. *Miller. Dale.*

Acorus Asiaticus, Offic. *Acorus verus*, *five Calamus aromaticus Asiaticus*, *radice tenuiore*, Herm. Cat. Hort. Lugd. Bat. 9. C. Commel. Flor. Mal. 3. Boerh. Ind. A. 2. 169. *Acorus Asiaticus radice tenuiore Hermannii*, Raii Hist. 2. 1910. Hist. Oxon. 3. 246. *Acorus Brasiliensis aromaticus minor*, *Capitulatinga*, *alii Jacareatinga Pisonis*, *ejusdem*. *Acorus verus Asiaticus*, *radice tenuiore*, *vel Calamus aromaticus Garzia*, Pluk. Almag. *Calamus aromaticus*, Garz. ab Hort. 200. *Calamus aromaticus Orientalis*, *folio & radice tenuiore*, Aët. Philosoph. Lond. N^o. 274. P. 943. *Capitulatinga*, *alii Jacareatinga Acori species*, Pif. 241. Va embu, Hort. Mal. II. 99. Tab. Vazabu, Vazum 60. Herm. Mus. Zelan. 56. ASIATIC SWEET FLAG.

It grows in both Indies, the Root is in Use, and its Virtues are the same with those of the *Acorus verus*, or common Sweet Flag. *Dale.*

Salmasius makes the following Observations on the *Acorum*.

It is now certain, that the Root of the *Acorum*, which is sold at the Shops, and prescribed by most Physicians, is vastly different from the *Acorum* of the Antients, and even endued with contrary Qualities. Some think the *Acorum* of the Moderns to have been the old Butomus; but I cannot agree with them. The Antients give the Butomus a Leaf like that of a Lilly. Democritus, in *Excerptis Geoponicis*, Lib. II. Cap. *απὸ ὑδρόκαρπας*, thus writes of it: "The Butomus grows in Marshes; it has Leaves like those of Lillies, which Cattle greedily eat, and sends forth many Shoots from one Root." The common *Acorum* has the Leaves of Iris rather than Lilly.

They

They who would have the greater Galangal to be the true *Acorum*, are still wider from the Truth. The greater Galangal grows only in India, and was quite unknown to the Antients, who had their *Acorum* from Pontus, Galatia, Colchis, and Crete. But the Description of the greater Galangal does in no Point agree with the Figure of the *Acorum*. I do not know how far we ought to believe the modern Greeks, who interpret *Ἀκός* by *Κάλαμος ἀρωματιστός*. Hence, however, many have suspected what is commonly used for the *Calamus aromaticus* to be the true *Acorum*. By the same Argument might any one pretend that *Schoenus odoratus* was the same as *Sium*, because *τὸ σίον* is in like Manner called *σχοίνος ἀρωματιστός*. The Arabians call the *Acorum*, Ugi, or Vegi; but they do not seem to know the Plant. Serapio describes it in the Words of Dioscorides, nor does he cite any Arabian Authors who had described it. Avicenna says that the *Acorum* was the Root of a Plant like the Papyrus, that is, Alburdi; so the Arabians call the Niloticus Juncus, which was the Papyrus of the Antients. But the *Acorum* of the Antients has no Resemblance to the Papyrus. They have indeed both pointed Leaves, but of a different Figure; and they disagree in many other Respects. And yet in the Granada Lexicon *Burdo Acorus* is explained *Gladiolus*. They seem to have called it so, because the *Acorum* is an aquatic Plant; for the Greeks did not only call the Egyptian Plant, but also *ῥαῖον*, the common Rush, by the Name of *πᾶπιρος*. And the Author of an antient Arabic Lexicon interprets the Word, which signifies a Rush, Biblon.

Avicenna writes that this *Acorum* of his grows in Waters and Streams. In Neophytus, and the spurious Works of Dioscorides, I find it called *Πεπεράμιον*; which, perhaps, was written for *Παπεράμιον*, as the Latins called this *Acorum*, from its Likeness to the Papyrus, Papyraceum. From such an Author, and such a Name, does Avicenna seem to derive his Information, when he wrote that the *Acorum* was a Plant like Papyrus. In a very antient Copy of Apuleius, *de Herbis*, it is read *Piperapium*, in one Word, which, it is pretended, should be written separately, *Piper Apium*; because soon after he relates, that the *Herba Venerca* (so he calls the *Acorum*) was hung in the Bee-hives, to prevent the Bees from swarming and flying away. But I do not take this to be a good Reason for the Name; and am thoroughly of Opinion that *Piperapium* was written instead of *Piperacium*, as it is in Neophytus. It is very common, in antient Books, to change P for C. So the barbarous People at this Day pronounce *Diptamnus* for *Dictamnus*; and in Tyro's Notes, and a very antient Copy of Seneca, we find *Cercopithepus* for *Cercopithecus*. Nor do I question but *Acorum* was called *Piperacium*, instead of *Papyraceum*, from its Likeness to the Papyrus, as Avicenna would have it, who also affirms the *Acorum* to have a rank and noisome Smell. On the Contrary, all the Antients write that its Smell was no Way disagreeable. Thus Dioscorides says of the Root of *Acorum*: "That it had a biting Taste, and no ungrateful Smell." The same say Pliny, Galen, and all the rest. That Author then seems to have taken another Plant for the *Acorum*, perhaps, the common *Spathula foetida*, for that, as well as the *Acorum*, has the Leaves of the Iris, only lesser and narrower. The Interpreter also of Serapio renders *Acorum* by *Spathella*, which is the same as *Spathula*, and has the Signification of *Gladiolus*, by which Name *Acorum* is translated in the Granada Lexicon. And the *Gladiolus Aquæ* is commonly called the *Acorum*, but the *Spathula foetida* does not grow in Waters, but under Hedges and Bushes. The Pseudo-Apuleius says, that the *Acorum* grows in Gardens, and cultivated Places, and Meadows; it differs therefore from the true *Acorum*, which delights in watery and marshy Places. Indeed, the Antients themselves did not call barely one Thing by the Name of *Acorum*. Pliny relates, that the Root of *Oxy-myrsine* was, by some, called *Acorum*, *Lib. 25. Cap. 13. Nec non inveniantur qui Oxymyrsines Radicem Acorum vocant, idcirco quidem hanc Acorum vocare malunt*: So the Place must be read, For the Sake of Distinction, and to avoid confounding them, some called one of them *Acorum*, and the other *Acoron*. In the Index it is written, *Acorum sive Acoron*, read *Acoron sive Acorion*. It is certain then, that the *Acorum* of Apuleius is not the true one, which grows in watery Places, as Pliny also attests, though he differs from Dioscorides as to the Colour of the Root. Dioscorides makes it whitish, Pliny black: "The *Acorum*, says he, has the Leaves of the Iris, but narrower, and with a longer Pedicle, a black Root, and not so full of Veins." The true *Acorum* is shewn and described by Clusius, *Hist. Lib. 2.* which he makes to have white Roots. The Bottom of its Stalk is, as it were, triangular, like the Papyrus; instead of a Flower, it bears a Panicle, or Catkin, at its first Appearance, like the young Catkin of the Hulse. It delights in watery Places. Consult this Author by all Means. Apuleius says that his *Acorum* is hard to be found, nor can be known, before it is in Flower. Dioscorides tells us that the best was found in Colchis and Galatia, which was called *Splenium*, from the Effect it had of diminishing the Spleen. Neophytus has the same. It was called *Splenium*, from curing Disorders of the Spleen, as *Thapsia* was called *ὑπέρσπλον*, from curing Lividness in the Face arising from Blows. Pliny agrees with Dioscorides, as to the Countries where the best may be had.

ACOS. *Ἀκόσ*. Medela. A Remedy.
ACOSMIA, *Ἀκοσμία*. From a Negative, and *Κόσμος*, Order. Irregularity, principally in Fevers, with Respect to the Crisis and critical Days.

Castellus, from Pollux, says, they, who were bald, used to be called *Acosmoi* (*Ἀκοσμοί*), because they had lost the great Ornament, the Hair; for *Κόσμος* signifies Ornament, as well as Order.

ACOUSIA. *Ἀκούσια*, from a Negative, and *ἐκείν*, voluntary. Galen explains *ἀκούσια* by *πεπληρομένη*, full, and is followed by some of the Commentators on Hippocrates, as Cordæus and Foësius; but there does not seem to be the least Foundation for this Interpretation. The only Passage, where there is any Possibility that it should signify full, is in the first Book of *Morbis Mulierum*, where Hippocrates, in delivering the Causes of Miscarriages, says, Women miscarry of Children which are very small, because such Children are usually very weak; and they also miscarry of Children that are very large: Hence it is no Wonder that Women miscarry, *ἀκούσια*, involuntarily, or without manifest Cause. That this is the true Meaning of this Passage, appears by others in the same Author, where he says, that one frequent Reason why a Woman miscarries, without evident Cause, is, because the Womb is too rigid to be extended in Proportion to the Bulk of the Child. And it is for the same Reason, that Women who go through their Time very well, when big with only one Child, yet miscarry frequently, when they are with Child of two. See the Article ABORTUS.

ACOUSIA. Involuntary. This is often applied by Hippocrates to Tears, which, in Distempers, flow involuntarily, from whence Presages are to be drawn. See LACHRYMÆ.

ACOUSTICA, from *Ἀκούειν*, to hear. Remedies against Deafness are thus called.

ACRAI. An Arabic Word. It seems to mean that Disorder which in Men is called a *Satyriasis*, and in Women a *Furor uterinus*. Castellus from Avicenna.

ACRAIPALA, *Ἀκραίπαλα*. From a Negative, and *ἔσθλα*, Crapula. A Surfeit, Drunkenness. Medicines are thus called, which either prevent or cure Surfeits or Drunkenness.

ACRALEA, *Ἀκραλία*. This is explained by Galen *Ἀκρία*. The Extremities, I suppose, he means.

ACRAS. *Ἀκράς*. Thus the *Pyrum Sylvestre* is called by Ray, by Mistake, for *Ἀχράς*, Achras, the wild Pear. It is refrigent and drying. When cut into Slices and dried, Pliny recommends a Decoction of it for a Looseness. The Decoction of the Leaves and Fruit is also of Use in the same Case. *Raii Hist. Plant.*

ACRASIA. *Ἀκρασία* or *Ἀκρόσια*, from a Negative, and *ἔσθονμι*, to mix. Intemperance. The Temperance of the Antients was very great, with Respect to Drinking. They used to mix four or five Parts of Water with one of Wine. This we may gather from a Passage in Cælius Aurelianus, who informs us, that, in a Catarrh, Asclepiades directed his Patients to augment the Quantity of their Wine to double or treble what they used to drink in Health, insomuch that he made them drink half Wine and half Water. Hence the Drinking Wine unmixed was called *Ἀκρασία*, by a Derivation which is retained in Latin and English, for *Tempero* is the same as *ἔσθονμι*, to mix. Hence the Word was applied to Excess of any Sort, as in Eating, Drinking, Sleeping, and Venery. And it is used in this Sense frequently by Hippocrates, and the Greek medicinal Writers from him.

But (*Ἀκρασία*) ACRASIA is also used in a very different Sense by Hippocrates, and in many Places signifies the same as *Acratia* (*Ἀκράτεια*), Weakness, Impotence, or Inability for Motion. *Ἀκρασία*, in this Sense, should have the same Derivation as *Ἀκράτεια*.

ACRATIA, *Ἀκράτεια*, from a Negative, and *κράτος*, Strength. Imbecillity, or Inability for Motion. This, and the Adjective *Ἀκράτης*, is very common in Hippocrates, Galen, and the other medicinal Writers. It is either applied to the whole Body, deprived of Motion, or any particular Part, as the Tongue, when by Distemper rendered incapable of articulating the Voice. They are also applied to the Stomach and Intestines, which, through Weakness, cannot retain the Aliment received, but too soon discharge it, either by Vomit, or by Way of Diarrhoea.

Ἀκράτης is used in a Sense somewhat different by Hippocrates, *Epidem. L. 6. Sect. 8. Apborism. 45.* in the Opinion of his Interpreters. The Passage is thus, *ἐν ὅσῳ ἀκράτης ἐσθίει*. This, they say, means that a Physician should distinguish when it is proper to terrify a Patient that is unruly, and cannot contain himself. If this Interpretation is right, *Ἀκράτης* in this Place signifies unruly, or incapable of restraining themselves to a proper Conduct.

ACRATISMA. *Ἀκράτισμα*. A Breakfast amongst the old Greeks, consisting of a Morfel of Bread soaked in pure unmixed Wine. *Constantine, Castellus.*

The Derivation of this Word is the same as that of *Acrasia*, because the Wine, used on this Occasion, was not mixed with Water.

ACRATOMELI. Ἀκρατόμελι. The same as *Mulsūm*. Wine mixed with Honey. See *MULSUM*.

ACRATOS. Ἀκράτος or Ἀκρητός, from a Negative, and κρητύνειν, to mix. Pure, simple, unmixed. This is very often used by Hippocrates, and applied to the Excretions of different Sorts, and is always of very bad Prefage. Thus, in his *Prænotiones*, he observes, that, in all painful Disorders of the Pleura and Lungs, the Spit should appear mixed with yellow, and that 'tis a dangerous Symptom if it is all yellow, without any Mixture (ἐκόντος ἀκρητον). And immediately after, he tells us, that, if the Spit is so unmixed as to appear black, it is a very bad Circumstance.

This is again repeated, *Coac. Prænot.* 390. in almost the same Words.

With Respect to what is discharged by Vomit, he observes, (*Prænot.*) that a Mixture of Phlegm and Bile is best, but that what is more unmixed (ἀκρητέστερον) is much worse. And (*Coac. Prænot.* 560.) he says, what is discharged by Vomit in small Quantities, and by a little at a Time, if bilious, and unmixed, (Ἀκρητας) is of bad Prefage, in too copious Purging, and Pains of the Loins. And again, (*Prædiç. L. 1. 62.*) he says, unmixed (Ἀκρητα) Vomits, attended with Anxiety, and Restlessness, (Ἀσωδία), are very bad. And (*Epidem. L. 2. Sect. 2.*) he observes, that in Vomits that are taken on Account of a Fever, if what is discharged, at the End of the Operation, begins to appear unmixed (ἀκρητέστερον) 'tis a Sign of Putrefaction.

The same Author also condemns sincere and unmixed Stools. As in *Aphor. 6. L. 7.* where he says that, in chronical Disorders, Loss of Appetite, sincere or unmixed Stools are bad. The Reading here, in *Foësius*, differs from that of *Heurnius*. In the first, the Stools are called Ἀκρηται; in the last χυλοδαίς; but the Sense seems pretty much the same either Way, what is meant being probably bilious Stools without any Mixture. Perhaps, it would be right to insert both Words. In the same Section, *Aph. 23.* these Sorts of Stools are again taken Notice of, as of bad Prefage.

Galen says, Hippocrates means, by these Stools, such as are not mixed with any watery Moisture, but are all of one Colour, either yellow, black, æruginous, or porraceous.

Hippocrates also applies Ἀκρητος to Blood discharged from the Nose, and this is always mentioned as a bad Symptom. Galen explains it of Blood that is black and thick. In the Case of *Philiscus*, which is the first of the first Book of *Epidemics*, it is said that, on the fifth Day about Noon, this Sort of Blood (Ἀκρητον) distilled from the Nose. The next Day about Noon he died. Physicians, who have observed some few Drops of thick black Blood discharged from the Nose of Patients under much the same Circumstances as *Philiscus*, will know what Hippocrates means by Ἀκρητον, better than it can be explained by Words, and will be sensible that Galen's Interpretation is right. Hemorrhages of the Nose in Fevers are critical and salutary, when the Blood is in such a State of Fluidity, as to admit of its being discharged in sufficient Quantities. But when the Blood is thick and black, as in the Case of *Philiscus*, for that Reason a Crisis by the Blood-vessels is prevented, and the Patient, after such an Effort, generally perishes.

Ἀκρητον also signifies Wine unmixed, as *Merum* is in like Manner used in Latin.

But Ἀκρητον is also used by Hippocrates, to signify vehement, excessive, intemperate, and is applied by him to the Symptoms of Diseases, to the Catamenia, to Paleness, to excessive strong Aliment. And by other Authors to a Diarrhoea, to Anger, to Heat, or any Thing in Excess.

ACRE. Ἀκρη. It signifies the End or Extremity of the Nose.

ACREA. Ἀκρηα. The Extremities, among which are reckoned the Arms, Legs, Nose, and Ears. From these some Prefages are drawn in Distempers. Thus Hippocrates, *Prædiç. L. 1. 43.* observes, that sudden Changes of the Extremities, with Respect to Heat and Cold, are bad Symptoms. This is repeated, *Coac. Prænot.* 50. and in the very same Words. Coldness of the Extremities is also mentioned in many Places of the *Epidemics*, as attending Fevers of an ill Sort, which is represented as a very bad Symptom, if they don't grow warm again without Difficulty.

Ἀκρηα is also applied to the Extremities of Animals used by Way of Food. Thus, *Epidem. L. 7.* a Part of Alcman's Diet is said to be κύντας ὕδρ ἀκρῶν ἐσθῶν, which Celsus calls *Trunculi suum*, *L. 2. C. 20.* and places amongst Aliments of good Nourishment. They seem to be what we call Petty-Toes.

ACRESPERON. Ἀκρεσπερον, from Ἀκρῆς, extreme, and Ἐσπερος, the Evening. The Beginning of the Evening, or Night, in the Sense of Hippocrates. *Foësius. Gorraeus. Constantine. Galen.*

ACRETOPOSIA. Ἀκρετοποσία, from Ἀκρητον, Wine unmixed with Water, and πόσις, Drink. It signifies the Drinking of Wine without any Mixture of Water. *Castellus.*

ACRIBES. Ἀκριβής. The Meaning of this Word is explained by Galen in his Treatise *de Simpl. Med. L. 4. C. 22.*

When, says he, I say, a Thing is exactly (Ἀκριβῶς) thus, or thus, I mean, that it is purely so, and, as much as is possible, void of all other Qualities.

A Tertian, which ceases within twelve Hours, is called, an exact (Ἀκριβής) Tertian. But, if the Fit exceeds that Time, it is not an exact Tertian (ἐκ ἀκριβῆς). *Oribasius.*

ACRIMONIA. Acrimony. The different Species of Acrimony are taken Notice of under the respective Articles. Any Thing is said to be acrimonious, that is pungent, stimulating, and corroding, as Bodies which are alkaline, acid, and muriatic.

ACRIFOLIUM. Amongst the old Botanists, it is applied to any Plant with a prickly Leaf.

ACRIS. Ἀκρῆς. This properly signifies the Top of a Mountain, and hence is applied to the sharp Extremities of fractured Bones, as in Hippocrates, *de Articulis*. But *Foësius* thinks Ὀκρῆς should be read in this Place instead of Ἀκρῆς. Ὀκρῆς signifies much the same.

ACRIS. Ἀκρῆς, also signifies a Locust, an Insect, which the Parthians and Indians eat, and which was St. John's Food in the Wilderness, as is supposed.

ACRISIA. Ἀκρησία, from a Negative, and Κρίσις, to judge, or separate. It signifies that State of Crudity and Incohesion of the Juices, which prevents a Separation of the morbid Matter, and the consequent Expulsion of it out of the Body, and is directly the Reverse to a Crisis.

Galen explains it, by either no Crisis at all, or one that is made with much Difficulty, or which is ineffectual for the Relief of the Patient, who, after it, does not grow better, but rather worse than he was before. See *CRISIS*.

ACRITON. Ἀκριτον. This is explained by Galen by Ἀδιάκελον, not separable, not distinct, confused, or of which we can form no Idea.

Gorraeus says, it signifies immense or infinite.

ACRIVIOLA. [of *Acer*, sharp, and *Viola*, Violet, i. e. Sharp Violet] commonly called *Nasturtium Indicum*, or Indian Cress.

The CHARACTERS are,

The Leaves are round, umbilicated, and placed alternately; the Stalks are trailing; the Cup of the Flower is quinquefid; the Flowers consist of five Leaves, which are in Form of a Violet; the Seeds are roundish and rough, three of them succeeding each Flower.

There are five Varieties of this Plant in the English Gardens, viz.

1. *Acriviola*, *Frid. Caf. T. 935.* The lesser Indian Cress.
2. *Acriviola, flore sulphureo*, Boerh. The lesser yellow Indian Cress.
3. *Acriviola, maxima odorata*, Boerh. The great Indian Cress.
4. *Acriviola, maxima odorata, flore sulphureo*, Boerh. The great yellow Indian Cress.
5. *Acriviola, maxima odorata, flore pleno*. The great double *Nasturtium*, or Indian Cress. *Miller.*

This is esteemed a good Antiscorbutic. The young Shoots and Fruit are used in Pickles. It abounds with a volatile, oily, acrid Salt.

ACROASIS. Ἀκρόασις, or Ἀκρόσις. It signifies an Audience, Harangue, Lecture, or what in foreign Universities they call a College.

Hippocrates, in his *Oath*, distinguishes Παιδαγωγία from Ἀκρόασις; by the first probably meaning a Precept, or Aphorism; by the second, Lectures upon it, in order to explain it, or Doctrine delivered in Words. This Meaning is confirmed by the Use the same Author makes of Ἀκρόασις in his Treatise, intitled Παιδαγωγία, where he says, *If you have a Mind to make an Harangue (Ἀκρόασις) for the Sake of the Populace, or before a Populace, do it without Ostentation.*

ACROBYSTIA. Ἀκροβυστία, the Extremity of the Prepuce, from Ἀκρῆς, extreme, and βύα, to cover. See *ACROPOSTHIA*.

ACROCHEIRIA. Ἀκροχειρία. **ACROCHEIRESIS.** Ἀκροχειρήσις. **ACROCHEIRISMOS.** Ἀκροχειρισμός. From Ἀκρῆς, extreme, and χεῖρ, a Hand. An Exercise amongst the Antients. It seems to be a Species of Wrestling, where they only hold by the Hands, as the Derivation imports. *Dacier* says, the Combatants only squeezed each other by the Hands, till one yielded to the other. It is mentioned in the second and third Book of Hippocrates, *de Victus Ratione*.

ACROCHEIRIS. Ἀκροχειρίς. This has the same Derivation as the preceding.

Gorraeus says, it signifies the Arm from the Elbow to the Ends of the Fingers, χεῖρ signifying the Arm from the Scapula to the Fingers Ends.

ACROCHLIARON. Ἀκροχλιαρόν. From Ἀκρῆς, extreme, and χλιαρόν, warm. It signifies very warm, lukewarm, or as warm as a Liquid can conveniently be drank.

ACROCHOLIA. Ἀκροχολία. From Ἀκρῆς, extreme, and χολή, Anger. Violent Anger.

ACROCHORDON. Ἀκροχอร์ดόν. From Ἀκρῆς, extreme, and χορδή, a String.

Galen

Galen says, the Antients impose Names upon Things from very odd Analogies, particularly in the Instances of Epinyctis, Acrochordon, and Nyctalops. The First they called so, because it breaks out in the Night; the Second, because of its Situation on the Surface of the Skin; the Third, because they who are affected with it cannot see in the Night. *De Methodo Medendi.*

An *Acrochordon* is a round Excrecence on the Skin, with a slender Base. *Galen, Def. Medic.*

The Greeks call that Excrecence an *Acrochordon*, where something hard concretes under the Skin, which is something rough, of the same Colour as the Skin, slender at the Base, and broader above. It is small in Size, seldom exceeding that of a Bean. One seldom appears alone, but generally a great many at a Time, principally in Children. Sometimes they disappear suddenly, sometimes they excite a slight Inflammation, and sometimes suppurate.

If an *Acrochordon* is cut out, it leaves no Root behind, and therefore is not subject to grow again. *Celsus, L. 5. C. 28.*

By this Account we find the *Acrochordon* is that Species of Wart, which Wiseman calls Penfile. It is generally extirpated, when it becomes troublesome, either by Ligature or Excision. See VERRUCA.

ACROCHORISMUS, *Ἀκροχορισμός*. From *ἄκρος*, extreme, and *χορῆναι*, to dance. An Exercise which consisted in Dancing, attended with violent Agitations of the Arms and Legs.

Schulzius says, in the *Acrochorsimus*, they joined Hands to Hands, or Forehead to Forehead, and endeavoured to push each other out of the Place they stood in.

ACROCOLIA, *Ἀκροκόλια*. From *ἄκρος*, extreme, and *κόλον*, a Limb. These are the Extremities of Animals, which are used in Food, as the Feet of Calves, Swine, Sheep, Oxen, or Lambs, and of the Broths of which, Jellies are frequently made. *Castellus* from *Budæus* adds, that the internal Parts of Animals are also called by this Name, in English Giblets.

They are recommended by *Hippocrates (de Mulierum Morbis, L. 2.)* as a proper Food, when there is a Tendency towards a Dropsy. And they are, in other Places, recommended as Food of easy Digestion, and proper for weak Stomachs.

ACRODRYA, *Ἀκρόδρυα*. From *ἄκρος*, extreme, and *δρῦς*, properly an Oak, but taken for any Sort of Wood. All Sorts of autumnal Fruits, produced by Trees, whether of the Nut, Apple, or Plum Kind. Strictly it is said to signify only those Sorts of Fruits, that are covered with a Shell, or Husk. But the Use made of it by *Hippocrates*, and the other medicinal Writers, gives no Grounds for this Distinction.

ACROLENION, *Ἀκρολένιον*. *Castellus* says, this is the same as *Olecranon*, the great Process of the Ulna. I have met with the Word in no other Author.

ACROMION, *Ἀκρόμιον*. From *ἄκρος*, extreme, and *ὤμιον*, the Shoulder. That Part of the Spine of the Scapula that receives the Extremity of the Clavicula. See SCAPULA.

ACROMPHALION, *Ἀκρομφάλιον*. From *ἄκρος*, extreme, and *ὀμφαλός*, the Navel. The Tip of the Navel. *Gorræus.*

ACRON, *ἄκρον*. It signifies, in a medicinal Sense, that which is most excellent in its Kind. Thus *ἄκρον ἶππον*, mentioned by *Hippocrates de Morb. Mulierum*, signifies the most excellent Sort of Unguentum Irinum. *Foësius.*

ACRON, amongst the antient Botanists, was used to signify the Capitulum, Top, or Flower of Plants of the Thistle Kind. *Salmasius Hyl. Latric.*

ACRON. A Physician of Agrigentum, a Contemporary of Empedocles, who lived some little Time before Hippocrates. *Pliny* represents him as living in Friendship with Empedocles; but, the Learned believe, from some Passages in *Diogenes Laërtius*, and *Suidas*, that *Pliny* was deceived into this Opinion, by an Epigram, made by Empedocles, as an Epithaph for *Acron*, which *Pliny* understood as a Compliment, but which in Reality was intended as a Ridicule. And, indeed, it is not very probable, that they should agree, their Sentiments, with Respect to Medicine, being directly opposite. Empedocles probably accounted for the Appearances in Diseases, and the Effects of Medicines, from the Principles of the Philosophy he professed; whereas *Acron*, though remarkably successful in his Practice, thought all Manner of Reasoning, in Matters relating to Medicine, superfluous, and therefore he is claimed by the Physicians of the Empiric Sect as their Patron.

What we learn farther of *Acron* is, that he was not without a sufficient Share of Vanity, affecting to be thought and called the Chief of the Physicians, by a ridiculous Allusion to his Name, which bears the Signification of Supreme.

Plutarch tells us, that *Acron* was at Athens in the Time of the great Plague, which happened in the Beginning of the Peloponnesian War, and that he advised the Athenians to light great Fires in the Streets, near the Sick, probably with a View of purifying the Air. This is by others related of Hippocrates. It was very common for the Antients to attribute the remarkable Cures, and the extraordinary Methods of Practice of one Physician, to many others of Eminence; and the Moderns have carried this Weakness to such a Degree of Extravagance and Folly, that even Reparties, made by Physicians

who have been dead some Centuries, are related of Physicians that arrive at any Degree of Eminence in every Age and Country.

Suidas says, *Acron* exercised the Profession of Sophist at Athens, but *Le Clerc* thinks it a Mistake.

Le Clerc remarks, that the Vanity of *Acron* is a full Confutation of *Celsus*, who represents the Art of Physic as the Invention of the Philosophers. Because, if it had been so, *Acron*, who lived after Pythagoras, and at the same Time with Empedocles, and depended on Experience only, could not have had the Insolence to arrogate to himself the supreme Place amongst the Physicians, in Prejudice of the Inventors of the Art.

ACROPATHOS, *Ἀκρόπαθος*. From *ἄκρος*, extreme, and *πάθος*, a Disease. It signifies literally a Disease at the Top or superior Part. Hippocrates, in his Treatise, *de Supertaxatione*, applies it to the internal Orifice of the Uterus; and (*Prædict. L. 2.*) to Cancers, which appear on the Surface of the Body. These he calls *Ἀκρόπαθαι*, by Way of Distinction from those, which are *κρυπταί*, hid or concealed in the internal Parts; unless by *Ἀκρόπαθαι* he means those that are ulcerated, and by *κρυπταί*, those which are not yet broke.

ACROPIS, *Ἀκρόπις*. From *ἄκρος*, extreme, and *ὄψις*, the Voice. It is used by Hippocrates several Times in the seventh Book of *Epidemics*, as an Epithet for the Tongue, which, either by Reason of Dryness, or some Imperfection in the Muscles, cannot articulate the Voice. And is also applied to the Patient labouring under such a Disorder.

ACROPLOA, *Ἀκρόπλοα*. From *ἄκρος*, extreme, and *πλόα*, to sail. Superficial. Hippocrates (*Lib. 1. de Morbis*) having given an Account of the Disorders to which the Veins in the Lungs are subject, adds, that the superficial (*Ἀκρόπλοα*) Veins on the Inside of the Pleura, or Side, are affected in the same Manner.

ACROPOSTHIA, *Ἀκροποσθία*, or *Ἀκροποσθία*. From *ἄκρος*, extreme, and *πόσθη*, the Prepuce, or the Skin which covers the Glans of the Penis. The Extremity of the Prepuce. That Part which is cut off in Circumcision.

Hippocrates *Aphor. 19. L. 6.* and *Coac. Prænot. 504.* represents the *Acroposthia* as a Part incapable of Re-union, if cut or divided. And the same Author (*de Morbis, L. 4.*) tells us, that this Part will discover a Stone in the Bladder, though other Signs of it, which he mentions before, do not appear. But he does not inform us in what Manner. However, *Celsus* and *Aretæus* explain this, by telling us, that a Patient, who has a Stone in the Bladder, endeavours frequently to relieve his Pain, by stretching or extending the Penis, *Aretæus* says, as if they would pull out the Bladder together with the Stone; for this Purpose they lay hold of the *Acroposthia*, in which and the Glans there is an uneasy Sensation. They who have been racked by a Stone in the Bladder are very well acquainted with this Symptom.

ACROPSILON, *Ἀκρόψιλον*. From *ἄκρος*, extreme, and *ψίλος*, bare. It signifies bare at the Top. Hippocrates (*Epidem. L. 4.*) applies it to the Pudendum of a Boy, who was affected with a Tumour of both Hypochondria, and Exulceration of the Navel.

ACROS. *ἄκρος*. Extreme, uppermost. It is also used to signify the very best of the Kind. See ACRON.

ACROSAPES, *Ἀκροσαπές*. From *ἄκρος*, extreme, and *σάπια*, to putrefy. *Galen* explains this, soon changed in the Superficies (*Ἐπιπόρως*) but *Foësius* says, some Copies substitute *βραχὺ* for *Ἐπιπόρως*, which is most likely to be right, for then it will signify, soon changed, or in a short Time. The Word is used by Hippocrates in his Treatise, *de Alimento*. The Passage is, *Σίτιον ἥλιον ἀκροσαπές*. *Foësius*, if I understand his Meaning, interprets this Passage thus: *Aliment gently boiled (leviter coctum) agrees with young People*. But the Explanation of *Ἀκροσαπές*, given by *Castellus*, from *Valesius*, seems more to the Purpose. According to this, *Ἀκροσαπές* signifies, *easy of Digestion*; and then the Passage will run thus: *Aliments are easily digested by young Men*. Or, *Aliments are easy of Digestion in the Stomachs of young Men*. And this we find true in Fact.

ACROSPELOS. *Ἀκρόσπελος*. A Name of the Bromus Dioscoridis, or Wild-Oat-Grass. *Gorræus.*

ACROTHERIA. *Ἀκροθήρια*. The Extremities, or extreme Parts of the Body, as the Hands and Feet. *Castellus* adds the Head, and *Galen* the Head, Nose, and Ears.

Hippocrates, *Aphor. 1. Sect. 7.* marks a Refrigeration of the Extremities in acute Diseases, as a bad Symptom. And, in *Aph. 26.* of the same Section, he pronounces a Refrigeration of the Extremities, in painful Disorders of the Belly, of bad Pre-*sage*. In the Geneva Edition of *Foësius* of 1657, *Ἀκροθήρια* is printed, by Mistake, for *Ἀκροσαπές*. It is taken Notice of in the Treatise, *de Ratione Viæ in Acutis*, amongst other bad Symptoms attending acute Disorders. It is a little after mentioned as an Effect of Oxymer, given improperly in acute Cases. And again, as a Symptom attending a Causus, or Burning Fever. In the same Treatise it is also mentioned as a Symptom of a Sort of Fit, there described, when a Patient in Health is suddenly seized with an Interception, or Loss of Voice, without any evident Cause.

It is universally the Doctrine of Hippocrates, and, from him, of all other medicinal Writers, that, in acute Disorders, it is a good Sign to have all Parts of the Body equally hot. And that it is a very bad Symptom, to have the Arms and Legs cold, whilst the Belly and Sides are hot; and this is confirmed by common Observation.

Galen says, a Refrigeration of the Extremities is often caused by Affections of the Cardia, or left Orifice of the Stomach; and that it is a most pernicious Symptom, when it happens in Inflammations of the Viscera. Physicians meet with frequent Confirmations of all this Doctrine, in Practice.

ACROTHERIASMUS. *Ἀκροτηριασμός.* An Amputation of any of the Extremities. See AMPUTATIO.

ACROTHOREX, *Ἀκροθόρηξ.* From *ἄκρος*, extreme, and *θόρηξ*, to get drunk. By the Etymology, it should seem to signify one that is excessively drunk; and thus, Constantine says, some interpret it. But it is more generally taken to signify one that has drank till he has just attained the first Stage of Drunkenness, or, as we express it in English, is fuddled.

ACROTHYMION, *Ἀκροθύμιον.* From *ἄκρος*, extreme, and *θύμος*, Thyme.

A Species of Wart described by Celsus. It is broad at the Basis, but narrow at the Top, hard, and rough. The Top of it resembles the Flower of Thyme in Colour, whence it derives the Name. The Top easily splits, and bleeds. It is usually about the Size of an Egyptian Bean, seldom bigger, sometimes very small. Sometimes a single one grows on the Palms of the Hands, or inferior Parts of the Feet, but sometimes there are more. Those are most troublesome, which grow on the obscene Parts, and most subject to bleed. *Celsus, L. 5. C. 28. S. 14.*

ACMO. Red Coral. *Rulandus. Johnson.*

ACTÆA. An Herb, mentioned by Pliny, *L. 27. C. 7.* Ray thinks it the *Aconitum Racemosum*, called also *Christophoriana*, *Herb Christopher*, or *Bane-berry*. This is, in the Opinion of all Botanists, a very poisonous Plant. But Pliny says, the *Actæa* may be given in the Quantity of an Acetabulum, that is, half a Quarter of a Pint, in internal Disorders of Women. Either therefore Ray, or Pliny, or the Botanists, who represent the *Aconitum Racemosum* as poisonous, must be mistaken.

ACTE. *Ἄκτις.* The Elder. See **SAMBUCUS.**

ACTIN. *Ἄκτις*, or *Ἀκτίς.* A Ray of the Sun, or of Lightning.

ACTINE. *Ἄκτις.* A Name of the Herb Bunias or *Napus*. *Gorrius.* See **NAPUS.**

ACTINOBOLISMUS. *Ἀκτινοβολισμός.* Irradiation. It is applied to that instantaneous Action of the animal Spirits, by which they convey the Inclinations of the Mind to the Organs of voluntary Motion. It is also called **DI-RADIATIO.**

ACTIO. ACTION. The Actions or Functions of the Body are divided, by the Writers of Institutes, into the Vital, Animal, and Natural. The Vital are such as are so necessary, that the Individual cannot subsist a few Minutes without their Exercise. Such is the Motion of the Heart and Lungs; the Secretion of Spirits in the Cerebellum, upon which the Motion of the Heart and Lungs depends; the Circulation of the Blood and Spirits in their proper Vessels.

The Natural Actions are such as are necessary for the Continuance of the Animal, but not so immediately, but that it may subsist a considerable Time without them, as the Digestion of the Aliment, and its Conversion into Blood.

Under Animal Actions are comprehended those which constitute the Senses of Touch, Taste, Smell, Vision, Hearing, Perception, Imagination, Memory, Judgment, Ratiocination, Affections of the Mind, and voluntary Motion, without any or all of which an Animal may live, but not very comfortably. *Boerhaave.*

The Writers of Institutes also mention other Actions, which they call Peculiar to the Sex, Private, or Public. Those Peculiar to the Sex, are of the Organs of Generation in each Sex; Private Actions are such as regard particular Parts; Public Actions are those which are performed for the Sake of the whole Body, as, the Action of the Stomach in digesting the Aliment.

These are also called Functions.

But all Parts of the Body have an Action peculiar to themselves. Thus, the Offices, performed by the Muscles, Vessels, Glands, and Viscera, are called their respective Actions, which will be explained under the Names of each particular Part.

ACTIVUS. ACTIVE. It is applied to Medicines whose Operations are quick and brisk, and such whose Effects are sudden and great.

ACTON. A Town about five Miles from London, famous for a purging mineral Water, of which Dr. Allen gives the following Account:

Much nitrous Efflorescence appears in the Clay about the Well.

The Spring opens northerly; it is reputed one of the strongest Purgers about London: It is noted to occasion a great Soreness of the Intestines and Fundament, which is reasonably referred to the Quantity of Salt they wash from the Body, but the Pene-

tration of the Salt of the Water may make it more pungent and keen. The Water was whitish, not so clear as Epsom, not saltish, but rather to me seemed sweet, with a little of the Bitterness of Epsom: It curdles with Soap, as do all.

The Salt of this Water is soft, and not crystallized, wherein it agrees with Epsom Salt, though I thought scarce so soft. The distinct Nature of this Water, or Salt of this Water, consists in that this Salt is more calcareous, or of the Nature of Salt of Lime; for the Water, boiled high, disturbed a Solution of Sublimate in fair Water, whence it precipitated a yellowish Sediment, a little more yellow than the Water, which it left white. And this Salt is likewise more nitrous, or hath more of the Nature of the Salt of the upper Soil, as appears in that it takes a pale Yellow from Gall, but dusky and disturbed, as common Salt doth effect; not so dirty, nor so apt to precipitate as *Sal Calcarium*. With Syrup of Violets it took a Green, with Tincture of Logwood, made with Brandy, a deep Red and Purplish, as nitrous Salts do with cold Tincture of Logwood, which hot would give a full Purple. The Salt did not precipitate fine Silver, out of Spirit of Nitre, which common Salt would. A Pint and a half of the Water yielded forty-eight Grains of Salt, in which were six Grains and a half of reddish Earth, on which acid Spirits wrought. The Earth precipitated in Boiling. *Allen's History of purging Waters.*

ACTUALIS. ACTUAL. This is applied to Things which are endued with any Virtue, Faculty, or Property, which acts by an immediate Power inherent in it. It is the Reverse of Potential, which signifies endued with the Power of producing particular Effects.

Thus a red-hot Iron, or Fire, is called the *actual* Caustery, to distinguish it from Causteries, or Caustics, that have the Power of producing the same Effect upon the animal Solids and Fluids, as *actual* Fire; these last are called *potential* Causteries. Thus also heated Liquors are said to be *actually* hot, *Actu calida*; but Liquors, which are capable of producing Heat in the Body, though themselves cold, are said to be *potentially* hot.

Hence the Words, *Actus* and *Actu*, may be understood.

The Logicians and Metaphysicians make Use of this Word in Senses somewhat different from this, but it is sufficient for the present Purpose to explain the medicinal Sense.

David Lagneus, in his *Harmonia Chymica*, printed in the *Theatrum Chymicum*, Vol. 4. quotes from *Ægidius* a Definition of the *Actus Activorum*, in these Words: *Actus Activorum sunt in Patientia dispositi: id est, Forma agit secundum Materiam Dispositionem.* Castellus, instead of *dispositi*, quotes it by Mistake, *Dispositio.* The Reader, that does not understand Latin, will not suffer much, because I do not translate it, for it is equally Nonsense in English and Latin.

ACTUARIUS was not the Name, but the Title of John, the Son of Zacharias, a Greek Writer of the latter Ages; a Title, which, though commonly bestowed on the Physicians of the Constantinopolitan Court, has by some Accident, of which it is not now possible to discover the Original, been appropriated to this Writer, who is now scarcely known by any other Appellation.

That he obtained the Honour of this Title, is almost the only Incident of his Life, of which any Knowledge has descended to our Times; but his Works, which remain, afford sufficient Testimony, that he was not exalted beyond his Merit, and his Dignity was not the Veil of Ignorance, but the Distinction of Knowledge.

His six Books of *Therapeutics*, which he composed for the Use of the Lord Chamberlain, who went on an Embassy into the North, tho' written, as he informs us, with very little Study, and designed only for the private Use of the Ambassador, contain, as Dr. Friend observes, not only a judicious Compilation of the Writings of his Predecessors, but some Observations not to be found in the earlier Authors, as in his Section on the *Palpitation of the Heart*, of which he mentions two Kinds, one proceeding from Plenitude or Heat of Blood, which is the most frequent Kind; and the other from Vapours; and directs, how they may be distinguished, by remarking that an Inequality of the Pulse always attends that which is the Consequence of Plenitude, but not that which is produced by Vapours. For this Distemper he directs to purge and bleed, in which he has been followed by many of the greatest Physicians of later Times.

His two Books, concerning the *Spirits*, are observed by Dr. Friend, to be abstracted from Galen, and to be of little Use in the Practice of Physic.

The Doctrine, relating to *Urine*, is very amply laid down by him in seven Treatises, in which at least, if we believe his own Testimony, he has made large Additions to the Observations of former Writers.

He is placed by Fabricius in the Time of Andronicus Palæologus, about the Year 1300, or, according to others, 1100. But, as he is not mentioned by any Writer of those Times, the Age, in which he lived, cannot be ascertained; nor have we any other Knowledge of his Education, Studies, or Morals, than that with which we are supplied by his own Writings, from which

which we may, with great Certainty, learn his Sentiments at least, though we cannot tell how far they influenced his Conduct.

In the Conclusion of his Discourse upon *Urines*, he speaks with a just Severity of those that engross Truth and Science, and are displeased with any Improvements made public for the Benefit of Mankind. The Slanders of these Men, says he, are Infections, against which it would be more for the Interest of the World to find an Antidote, than against any Contagion or Disease; and perhaps a Remedy, of resistless and never failing Efficacy, may always be found in a generous Confidence in God, a steady Conduct, with Respect to those with whom we converse, and a vigilant Attention to our Words and Actions.

His Discourse, upon the *animal Spirits*, is perhaps neither more nor less intelligible than modern Treatises on the same Subject; he considers it as the Minister of the Soul, and the Design of his Book is, to prescribe the Methods by which it may be enabled most vigorously to execute the Commands of the superior and presiding Power.

He had a great Propension to Theory and Ratiocination, but was not contented to form Systems in his Closet, but extended his Speculations to Distempers and Symptoms with which he was only acquainted by the Means of Books, which have always been found fallacious and uncertain Guides. For he informs us in his last Chapter on *Urines*, that, having spent some Time in the Study of Nature, he found himself strongly inclined to that of Medicine, and applied himself to the Theoretic Part, as most closely connected with natural Philosophy; but that he should have been totally discouraged from the Practice, by the Disgust and Labour with which it is attended, had he not discovered, that a just and solid Theory of the Pathology was absolutely necessary to the Science of Physic. It was my Opinion, says he, that Methods of Cure, not founded upon Reasoning, never could be relied on; and that a just Theory would make Physic not only a more easy Study, but a more successful Profession.

As the Authority of *Actuarius* is not sufficiently established, to mislead any of our Readers, it is not necessary to separate with great Accuracy his Errors from his just Notions. I shall only observe, that Theory may make Physic easy, but its Success must arise from Experience.

The Works of ACTUARIUS are,

Seven Books upon URINES, never published in Greek, but translated into Latin, by Ambrosius Leo Nolanus, whose Version was revised by Goupilus, and is printed both in Octavo and in Hen. Stephen's *Artis Medicæ Principes*.

Six Books of THERAPEUTICS, not yet printed in Greek, of which the Fifth and Sixth were translated into Latin by Ruellius, whose Version was published at Paris. Henricus Mathisius translated the whole Work; His Version is extant, in the *Artis Medicæ Principes*.

One Book of the Actions or Affections, and a second of the Nutrition of the ANIMAL SPIRITS, published in Greek at Paris, by Goupilus, with the Title: *Περὶ Ἐνέργειαν καὶ Πόσιν τοῦ ψυχρῶς ἰσχυροῦς, καὶ τῆς κατ' ἀνάγκην Διαίτης*.

A Latin Translation of this Treatise, written by Julius Alexandrinus Tridentinus, is printed both singly and in the *Artis Medicæ Principes*.

His Treatise, *De Venæ Sectione, De Dieta*, his *Regales* and *Commentarii in Hippocratis Aphorismos*, are said to be remaining in Manuscript.

ACTUATIO. That Change wrought on a Medicine, or any Thing else, taken into the Body, by the vital Heat, which is necessary, in order to make it act and have its Effect, is called its *Actuation*. *Castellus*.

ACUITAS. The same as Acrimony. *Castellus*.

ACUITIO. This signifies the Sharpening an acid Medicine by an Addition of something more acid; or, in general, the Increasing the Force of any Medicine, by an Addition of something that has the same Sort of Operation in a greater Degree.

ACULEI. The Prickles, or Thorns, of Vegetables. *Blancard*.

ACULEOSA. A Name of the *Cardus Polyacanthos*. Thistle upon Thistle. *Roy, Hist. Plant.*

ACULOS. *ἄκλος*. The Fruit or Acorn of the Ilex, or Scarlet Oak. It is sometimes wrote (*ἄκλος*) *ACULON*, in the neuter Gender. *Goræus, Foesius, Theophrastus, Hesychius*.

Hippocrates (*de Viâtu Ratione*, Lib. 2.) says, these incline to Costiveness, but operate most this Way, when roasted.

ACUMEN. This is a Term lately introduced into Anatomy by Henricus a Deventer, in his *Ars Obstetricandi*. In Page 17, of the Edition of 1725, he calls the Protuberances of the *Ossa Innominata*, on which we sit, the *Ossa Sedentaria*, which, he says, are the Acumina of the *Ossa Pubis*. And, in Page 16, he calls the *Os Coccygis* the *Acumen Ossis Sacri*, the pointed Part of the *Os Sacrum*.

ACUMENUS. An Athenian Physician, mentioned by Plato. He was Father to Euriximachus, and a Friend to Socrates. All that we know of his Sentiments, in Regard to

Physic, is, that he preferred Walking in the Air, as an Exercise, to Walking under Portico's, in which he was undoubtedly right.

ACUPUNCTURA. *Acupuncture*. It signifies a particular Way of Bleeding, by making a great many small Punctures with a sharp Instrument, made of Gold or Silver. It is much practised in Siam, Japan, and other Oriental Nations, in all Parts of the Body, even on the Bellies of Women with Child. *Heister*.

ACUREB. Lead. *Rulandus, Johnson*.

ACURON. A Name of the *Alisma*. See *ALISMA*. *Discorides*.

ACUS. A Needle.

There are many surgical Cases, where the Use of Needles is highly necessary; in some of which a Cure cannot be completed without them, as, in penetrating Wounds of the Belly, and in divided Tendons, particularly that great one on the Heel, called the *Tendo Achillis*, where an incurable Lameness must be the Consequence, if the extreme Parts are not joined together again by the Needle; and in others, where, although the wounded Parts have been healed without them, yet the Length of Time, taken in the Cure, and the unseemly Cicatrices left behind, especially upon the Face, and other exposed Parts, sufficiently demonstrate the Usefulness of these Instruments, and the Folly and Unskilfulness of those Surgeons, who attempt to work without them.

In Amputations they are found to be much preferable to the actual Cautery, or any restraining Applications for securing the Blood-vessels, and preventing an Hæmorrhage.

In the Operations of the Aneurism, Bubonocoele, Lithotomy, and in all others, where either large Blood-vessels are divided, or the Lips of the Wound require to be brought nearer together, they are very useful and much forward the Cure: And in some Cases, as, in the Operation for suppressing a Cataract, and in the Hare-lip, the Cure is wholly performed by them.

These Needles are of different Figures and Sizes, straight, crooked, and flat, all very sharp, and made of well tempered Metal. *Vauguion*.

But those, used in the Hare-lip, ought to be three Fourths of their Length of Silver, and the other Part towards the Point of Steel, the silver Pin being not so offensive to a Wound as a brass or steel one. *Sharp*.

Those used in the Cataract, the Hare-lip, for making Setons, and generally for the Suture of the Tendons, and for sewing up dead Bodies, must be straight.

In Amputations, and in most if not all other Wounds, the crooked Sort are used, which, Dionis says, are preferable to the others, because there are no Parts of the Body to which they cannot be used more conveniently, than those which are straight.

The different Figures, of most Sorts, used in the several Operations, see in *Tab. II*.

Fig. 1. A crooked Needle, with its convex and concave Sides sharp. This is used only in the Suture of the Tendon, and is made thin, that but few of the Fibres of so slender a Body as a Tendon, may be injured in the passing of it. This Needle is large enough for the stitching the *Tendo Achillis*.

Fig. 2. The largest crooked Needle necessary for the tying of any Vessels, and should be used with a Ligature of the Size of that it is threaded with, it taking up the spermatic Vessels in Castration, or the crural and humeral Arteries in Amputation. This Needle may also be used in sewing up deep Wounds.

Fig. 3. A crooked Needle and Ligature of the most useful Size, being not much too little for the largest Vessels, nor a great deal too big for the smallest; and therefore, in the taking up of the greatest Number of Vessels in an Amputation, is the proper Needle to be employed. This Needle is of a convenient Size for sewing up most Wounds.

Fig. 4. A small crooked Needle and Ligature, for taking up the lesser Arteries, such as those of the Scalp, and those of the Skin, that are wounded in opening Abscesses.

Fig. 5. A straight Needle, such as Glovers use, with a three-edged Point, used in the uninterrupted Suture, in the Suture of Tendons, where the crooked one, *Fig. 1.* is not preferred, and in sewing up dead Bodies. *Sharp*.

Great Care should be taken by the Makers of these Needles, to give them a due Temper, for, if they are too soft, the Force, sometimes exerted to carry them through the Flesh, will bend them; if they are too brittle, they snap; both which Accidents may happen to be terrible Inconveniencies, if the Surgeon is not provided with a sufficient Number of them.

It is of great Importance also to give them the Form of a Circle, which makes them pass much more readily round any Vessel, than if they were made partly of a Circle, and partly of a straight Line; and, in taking up Vessels at the Bottom of a deep Wound, is absolutely necessary, it being impracticable to turn the Needle with a straight Handle, and bring it round the Vessel, when in that Situation. The convex Surface of the Needle

Needle is flat, and its Edges are sharp; its concave Side is composed of two Surfaces, rising from the Edges of the Needle, and meeting in a Ridge or Eminence, so that the Needle has three Sides. This Eminence of the Substance of the Needle on its Inside strengthens it very much, but is not continued the whole Length of the Needle, which is flat towards the Eye: some are made round in this Part, but they cannot be held steady between the Finger and Thumb, and are therefore unfit for Use. There have been Needles made with the Eminence on the convex Side, and a flat Surface on the concave Side, but I do not see any particular Advantage in that Structure. *Sharp.*

Fig. 6. A Needle frequently of Use in tying up bleeding Arteries. From *Heister*.

A. The Point of the Needle which is blunt.

B. The Eye.

C. The Head.

Fig. 7. A Needle somewhat crooked, invented by Fabricius ab Aquapendente, for perforating Fistula's of the Thorax. This is drawn somewhat too short.

Fig. 8. A Silver Cannula, which, when introduced to the Bottom of a Fistula, serves as a Director for the Needle *Fig. 7.*

Fig. 9. A Needle for making a Seton. It is to be heated red-hot when used. From *Scultetus*.

Fig. 10. A Needle for cutting a Seton.

Heister says, this may also be conveniently used for cutting the Cornea in a Hypopyon. But when thus used, a Slip of Plaster must be wound round it, at the Mark A, which serves instead of an Eminence, to prevent it from going too far.

Fig. 11. A Needle for perforating the Lobe of the Ear. At the blunt Extremity it is hollow, and slit like a Larding-pin, for the Convenience of inclosing a thin Piece of Lead, which is to be left in the Perforation.

Fig. 12. A Needle, which, *Scultetus* informs us, is used by the Italian Surgeons in Castration. But he recommends it for perforating Fistula's at the depending Part. The concave Edge is sharp, the convex blunt. When it is passed into a Fistula, the sharp Edge is to be guarded by a Piece of Wax.

Fig. 13. A Needle with a triangular Point for the Hare-lip.

Fig. 14. A Needle with a flat Point for the same.

Fig. 15. Another Sort of Needle for the same Use.

Fig. 16, represents the Manner of passing the Needles, and winding the Thread round them, in the Operation for the Hare-lip.

Fig. 17. A large crooked Needle, used in making a Seton in the Neck lengthways. *Heister*.

Fig. 18. A large Needle, very sharp at the Point, to be passed through the Basis of the Breast before Amputation. *Scultetus*.

Fig. 19. Represents the Form of the Needle used by the Antients for depressing a Cataract. This Instrument was of Silver. The Point was thin and round like a common Needle.

Fig. 20. Represents another of the same Sort, with a triangular Point.

Fig. 21. Another Sort of Needle for the same Use. The Letter A represents a long slender Steel Needle. The Letter B one that is larger. C is the Handle, made either of Silver, Brass, Ivory, or Wood.

Fig. 22. Another Needle used in Couching, with a Point somewhat broader.

Fig. 23. Another, recommended by *Brisseau*, little different from the former, except that it has a Sulcus near the Point.

Fig. 24 and 25, Represent two Needles, made Use of in the same Operation of Couching. *Fig. 24,* has a Sulcus at the Point like the preceding, and is destined for cutting the Coats of the Eye; when that is done, the Needle *Fig. 25,* which is more blunt, and more proper to depress the Cataract, must be introduced through the Sulcus, and then that, *Fig. 24,* is to be withdrawn.

Fig. 26 and 27. Two Needles to be used like those represented *Fig. 24 and 25.* From *Albini*.

Fig. 28. Another Needle, proposed by *Albini*. The Point A is to be introduced into the Eye; and, if the Cataract is membranous, it is to be laid hold of above the Part C, by depressing the Handle B. *Heister* thinks this not reducible to Practice with any Advantage.

Fig. 29 and 30. The preceding Instrument taken in Pieces.

Fig. 29, A is the Point with a Sulcus in it. B is a Foramen, which receives the Eminence D, *Fig. 30,* which is fastened by a very small Pin at C, *Fig. 28.* E, *Fig. 30,* is a thin Plate of Steel, which, by its Elasticity, keeps the Point C, *Fig. 30,* close in the Sulcus at A, *Fig. 29.* But when the Part, marked B, *Fig. 28* and 30, is depressed, the Point C, *Fig. 30,* separates from

the Sulcus A, *Fig. 29,* and so lays hold of the membranous Cataract.

Fig. 31. A Needle, contrived for couching the right Eye, with the right Hand of the Operator, by Means of a Bend at C, wherein the Nose is received, during the Operation.

Fig. 32. A Case to be screwed upon the Needle, *Fig. 31,* in order to preserve the Point when not in Use.

Fig. 33. A Needle used in making a transverse Seton, with a Foramen at A.

Fig. 34. A Needle used in joining the Tendo Achillis by Suture, when divided. *Heister*.

Fig. 35. A Needle, proper for the Gastroraphy.

Fig. 36. The Acutenaculum, or, as the French call it, *Portaiguille*.

Fig. 37. *Garengeot's* Acutenaculum.

ACUS PASTORIS, is a Name given to the Scandix, Shepherd's Needle, or Venus's Comb. See SCANDIX.

ACUS MOSCHATA, is the Geranium Moschatum. See GERANIUM.

ACUS is also a Fish thus distinguished:

ACUS. ARISTOT. *Acus secunda species*, Rondel, de Pisc. 1. 229. *Acus secunda species Rondeletii*, Gessn. de Aquat. 9. *Acus Aristotelis*, Aldrov. de Pisc. 103. Jonf. de Pisc. 36. *Acus* 7. Salv. 68. *Acus Aristotelis, seu Acus secunda species Rondeletii*, Raii Ichth. 158. Ejusd. Synop. Pisc. 46. *Acus altera species, seu Acus Aristotelis, Blennius aliquibus dicta*, Schonf. Ichth. 11. *Typhle marina*, Bellon. de Aquat. 446. *Petimbubaba*, Charlt. Pisc. 16. THE TOBACCO-PIPE FISH. It is found in the Adriatic Sea, or Gulf of Venice. Galen recommends the Ashes of this Fish, drank in some convenient Vehicle, for the Strangury. *Dale*.

There is another Fish also called *Acus*. Both Sorts are esteemed very indifferent Food, being juiceless, and affording very little Nourishment. *Castellus*.

Acus also signifies Chaff.

ACUSTICUS. *Ἀκουστικός*. Belonging to Hearing. It is applied to the auditory Nerves, and to Medicines, or Instruments, used to preserve, or restore the Sense of Hearing. *Castell.*

ACUSTO Nitre. *Rulandus*.

ACUTENACULUM. This Name is given, by *Heister*, to a surgical Instrument, which the French Surgeons call *Portaiguille*. It is a Manubrium or Handle for a Needle, contrived for the more commodious Management of it in Operations, where some Force is required to make it penetrate. See *Plate II. Fig. 36 and 37.*

ACUTUS. ACUTE. Galen explains the Meaning of this Word thus:

Many Physicians think, a Disease should be called *acute*, which soon comes to a Crisis; and the Contrary to this, reputed chronic. But this is an Error; for there is a Disease of a short Date [*ῥαχὴν χρόνον*] not altogether *acute*, and yet contrary to a Chronic, Poly-chronic, or whatever other Name you will please to call it. This Disease, which has no Name, is of a Nature opposite to *acute*, and not without Reason. It is the Property of an *acute* Disease, which Archigemes described to be such a one as is dangerous for its Velocity, and Hippocrates by its being attended with a continual Fever, to hasten to a Crisis, for it takes the Name of *acute* from a particular Species of Motion: But it must soon cease, of Necessity, because it hurries to its proper End; for to move swiftly, is the same Thing as to hasten to the End of that Motion. The Disease, indeed, will be short on all Accounts, but called *short* and *acute* in different Respects. For the Celerity of its Motion, it will be called *acute*; and, because it is impossible to endure long under such Motion, it will also be styled *short*. But it participates of the Nature of another Distemper; for many diary Fevers, that owe their Rise to external Heats or Colds, Fatigue, Waking, Sorrow, Drunkenness, Anger, and the like, are both short and inconsiderable, and quite void of Danger. None, whether Physician or otherwise, use to call these Distempers *acute*; and therefore *short* and *acute* are manifestly distinguished in these very Instances.

Slow is also confounded with *long*; though they convey different Ideas; for *acute* is the proper Opposite to *slow*, as *short* is to *long*. To conclude, whatever Disease is *acute*, is of short Duration, and whatever Disease is chronic must, of Necessity, be *slow*. But it does not follow, that whatever is short must be *acute*, or whatever is *slow* must, for that Reason, be chronic.

Galen is, in this Place, somewhat obscure. His Meaning seems to be, that a Disease must move with Velocity to a Crisis, and must be attended with Danger, in order to render it, properly speaking, an *acute* Distemper. This Idea of an *acute* Distemper is conformable to the Account given of it by other Authors, and Galen himself in other Places.

Febrile Distempers, or Diseases attended with a considerable Degree of Motion in the Blood, and consequent Heat, and which terminate soon, are usually called amongst us *acute Diseases*, to distinguish them from chronic Distempers, which are longer in coming to a Period, and proceed with less Velocity.

ACUTUS.

ACUTUS in general signifies sharp, or inciding, or pointed, whether it is applied to Medicines, Adiments, Instruments, Parts of the Body, or any Thing else.

ADAL. In the Sense of Paracelsus it signifies that Part of Plants, in which their medicinal Virtue consists: Or the pure and active Part of Plants, separated from the impure and inert.

ADAMAS. A *Diamond*, from a Negative, and *ἀσπείν*, to conquer, because it cannot be broken.

Adamas. Offic. Worm. 102. Calc. Mus. 202. Kentm. 47. Schw. 358. Aldrov. Mus. Metal. 945. Charlt. Foss. 36. Boet. 115. De Lact. 1. Geoff. Praelect. 83. The **DIAMOND.** A precious Stone, exceeding hard, and of the greatest Value, colourless, and diaphanous like Water. The best come from the East-Indies.

As to its Virtues, and those of other precious Stones, we chuse to entertain the Reader once for all, with the Opinion of Paulus Ammannus. We differ greatly about the Names of precious Stones, while we are ignorant of some, which were known to the Antients, or call them by other Names. We are still more divided about their Value, which is merely arbitrary. But the greatest Difference of all is about their Operations, of which we have Accounts stuffed with infinite Falsities, Superstitions, and Fables. It is not our present Business to consider their Names and Value, we shall therefore be the more careful about their Virtues; and, because these Stones are taken inwardly, they ought not to be counterfeit, and they are also to produce some certain, determinate, and natural Effect. But who knows all the Cheats, and Ways of Counterfeiting, put in Practice among the Jews, Portuguese, and other Impostors? In two Respects especially they impose upon us; first, as they put off Occidental for Oriental ones; for I presuppose, according to the common Opinion, that the best Stones come from the East-Indies, which is plain also from their vivid and sparkling Light; for, who does not know the Difference between an Indian Diamond, and the others? Secondly, passing upon us Fluors for precious Stones: In a Word, Glafs for Diamonds. Worm. p. 101. The Effect of precious Stones ought to be natural, from something really in them, some inherent Virtue, which, according to Faber, *Panchym. L. 4. S. 4. p. 521.* they are endued with, though, perhaps, not a little clogged by corporeal Obstacles. By this very Proposition, I cut off all superstitious and fabulous Operations and Powers, which Authors have assigned to precious Stones, instead of a determinate and natural Effect, of which you have Examples in Wierus, *de Cur. Malef. p. 411, &c.* This Load of Lyes and Vanities being then discharged, I doubt, we shall find but little Reason, in our Way of Practice, to boast of our Performances by the Force of Gems. To instance in the *Diamond*, the most precious of them all, how much is our Profession obliged to its prevailing Virtue and Efficacy? Why, little or nothing: For it is false and fabulous:

1. That it resists the Anvil and Hammer without Damage.
2. That it is a Jewel of Reconciliation, extinguishing matrimonial Jarrs.
3. That, laid under the Pillow, it discovers Adultery.
4. That, to look upon a *Diamond*, hereditary in the Family, at set Times, produces the Birth of a new Member in that Family.

Away with that dark Veil of Fables, and let us see what Merit it has in Medicine. You say, it cures the Dysentery: How can that be true, when it is commonly said to exulcerate the Intestines? But, suppose it were so, who shall fix a Price on this Remedy; for less than a Dram will hardly operate? And a *Diamond* above that Weight is, to us, inestimable. The like is to be said for the Amethyst, which is thought to resist Drunkenness, if taken inwardly; for, barely worn, it can never have that Effect. This is in the Number of precious Stones, and is too dear for any Body but Princes to purchase, especially when it is the Humour of most Persons, rather to get drunk, than study how to avoid it! The Fragments of the five precious Stones, that is, the Sapphire, Granate, Emerald, Jacinth, and Cornelian, I confess, are kept in the Shops; but, if you examine into their Use and Virtues, you will find, that *Fancy* had the greatest Share in bringing these Stones into the Practice of Physic, that Princes and great Men might be taught to believe, that something wonderfully cordial lies hid within them, which, to speak the Truth, you may sooner find in the most common Flint, or any other Simple. I speak my own Thoughts: He, who maintains the contrary, is to prove his Assertion; and, a Man of Practice will learn to speak without Reason or Experience. Now, why these precious Stones should contain such a comfortable and cordial Virtue, we are to seek for a Reason, and Experience gives us no Information; therefore, I conclude, that, with Respect to their medicinal Virtues, the Characters, they have acquired, are more owing to Imagination than Reality. Dale.

Diamond, the hardest, most transparent, and most brilliant of all Gems. It is of the Colour of the clearest Water; but this Colour is sometimes mixed with white, yellow, or black,

which are reckoned Blemishes. *Diamonds* consist of crystal Laminae, or Strata, laid upon each other, and the Joinings of these Tables may be discovered by skilful Lapidaries, and then they are easily separated with the Edge of a Knife. *Diamonds* are not calcinable by Fire, nor changeable by the Sun's Rays, if the plain Surfaces of the Plates be exposed to them; but the Edges, or Extremities, easily admit the solar Fire, and then they are separated as before, and afterwards melted into a Mass of Glafs, which retains nothing of the Splendor of the *Diamond*. They are found only in the East-Indies, and in Brazil, but are not used in Physic. Geoffroy.

The *Diamond*, by some, is reckoned poisonous: Others will not admit it into the List of Poisons. The Accounts, in Favour of *Diamonds*, are more numerous, as well as more credible, than those which would make us believe they are of a poisonous Nature. Bembus tells a Story of one Trifan Cibelet, a Cypriot, Ambassador of Ferdinand, King of Naples, who killed himself by swallowing a *Diamond* that he wore in a Ring; but, when he adds that he also drank Aqua Fortis, it remains a Doubt, whether the *Diamond* or the Aqua Fortis was the Cause of his Death. Again we are told from Aventine, that the Poison with which a Monk of the Order of Prædicants killed Henry VII. of Luxemburgh, Emperor of the Romans, in the Eucharist, was made of a *Diamond*. But, it is hardly credible, that so small a Quantity of Dust of *Diamonds*, as was capable of being mixed with one Host, as they call it, should work so great an Effect; but it was, doubtless, a Poison of far greater Force and Efficacy.

However, that we may not be charged with omitting what Authors have written, concerning the Symptoms and Cure of those who have taken a *Diamond*, we shall relate what we find in them, as follows:

The Symptoms, consequent on swallowing a *Diamond* reduced into Powder, are, a most tormenting Pain of the Stomach and Intestines, which it excites by dissolving the Continuity of the Parts; this is followed by a Syncope, and ends in Death.

The Cure consists, first, in trying all Manner of Ways to expel the Matter of the Stone out of the Body: Here 'tis proper to begin with a Vomit, which we are to provoke with Butter, sweet Oil, fat Hen or Capon Broth, and the like.

If the Poison be got down to the Intestines, we are directed to the Use of lubricating Clysters, prepared of Mallows, Marsh-Mallows, Linseed, fat Flesh-Broths, Oil, Butter, and such like, in order to scour it off. After this, they prescribe the Blood of a Goat, either fresh or dried, with fat Flesh-Broth, which, except it be done with an Intent to provoke Urine, is certainly ordered in Compliance with the vulgar Opinion, That the Blood of a Goat breaks a *Diamond*. Some prescribe the true Balsam, to the Quantity of a Scruple, or two; and the Patient is to drink clear diuretic Wine. If all these have no Effect, Recourse is to be had to general Antidotes, and Remedies which are effectual in Corrosions and Ulcers of the Intestines, which may happen from the Nature of the Poison acting on those Parts. Semertus.

ADAMAS is also a Name given by Astrologers to the Moon. Johnson.

ADAMANTIS. The Name of a Plant, which, according to Pliny, grows in Cappadocia and Armenia. The Fable he relates of it is, that it will make Lions fall down, and disarm them of their Fierceness. L. 24. C. 17.

ADAMITUM, or **ADAMITA.** The hardest white Stones, which, Paracelsus says, are a Species of Tartar. *Adamitum* he calls these Stones; and *Adamita* the Stone in the Bladder. De Tartaro, L. 1.

ADAMUS. **ADAM.** The first Man. Professions have, by an unaccountable Vanity, endeavoured to extend their Antiquity beyond all Bounds of Credibility. Physic, or at least, some of its Professors, have been guilty of this Weakness; but, to do them Justice, the Hint is in the following Instance taken from the Divines.

They say, Adam was inspired with a Sagacity, which made him capable of discovering the specific Nature of all natural Productions at the first Sight, and that this made him acquainted with the medicinal Virtues of all Simples. This Sagacity, they say, was necessary, in order to enable him to give Names significant of the Natures of Things. This makes Adam not only the first Physician, but a much better than any of his Posterity could possibly be, without an equal Degree of Inspiration.

It is added, that as Adam lived to a very great Age; and must have seen many medicinal and chirurgical Cases, his own good Sense must have furnished him with a great Number of physiological Remarks, and medicinal Observations.

ADAMUS. **ADAM.** This is used, in an alchemical Sense, to signify the Philosophers Stone, which they call an Animal, and say it has carried its invisible Eve in its Body, ever since the Moment they were united by the Creator. Theatr. Chym. P. 509.

They also tell us, that this sacred Adamical Stone is formed of the Adamical Mercury of the wise Men, which by its

Marriage and Union with the Female Eve, forms a third Substance, which is, I suppose, their celebrated Stone. *Theatr. Chym. P. 520.*

ADARCES. What they call *Adarces*, is produced in Galatia, and is a Sort of Concretion of a saltish Humour, which is bred in moist and marshy Places by Drought, and concretes about the Reeds and Grass. Its Colour is like that of the fine Powder of the Asian Stone, or Sarcophagus, and its Substance all lax and porous, much like the Bastard Sponge; so that it might be called the *Bastard Sponge of the Marshes*.

It is a Topic adapted to rub and scour the Skin in a Leprosy, Sun-burning, Tetters, Freckles, and such like Blemishes, being in the Whole of an acrimonious Quality. It is also a Drawer, and therefore good for the Sciatica. *Dioscorides, Lib. 5. Cap. 137.*

Adarces, Offic. Boet. 402. Matth. 1377. Aldrov. Mus. Metall. 213. *Adarce*, J. B. 3. 804. Chab. 575.

Whether the *Adarces* of Dioscorides be the same with Dr. Plot's, in his Natural History of Oxfordshire, I cannot determine; nor whether their Virtues be the same, has any one, that I know of, been at the Pains to try. The *Adarces* of Plotius is nothing but a Concretion of stony Particles, of a white Colour, which one Water at its Meeting with another Water, suppose a Chalybeate, precipitates, and so incrustates Grass, Twigs, and other Bodies floating by it.

Many learned Authors have observed such an Incrustation; Pancirollus, for Example, four Miles from Rome, without the Gate of Ostia, commonly called St. Paul's; and Doctor Martin Lister, in the Conduit d'Arcueil at Paris, whence he conceived a bad Opinion of it, the learned and worthy Gentleman concluding, that whatever lined the Cavities of the Pipes of an Aqueduct with a strong Crust, would probably work the same Effect in the Reins and Bladder, especially if those Parts were infirm and tender. See his *Journey to Paris*, and *Essay on the Stone*. If you would know more of the *Adarces*, read Boetius, p. 405. *Dale*.

It is called also *Calomochmus*, or *Calomochanus*. *Salmasius*.

ADARNECH. The same as *Auripigmentum*. Orpiment. *Rulandus*.

ADARIGO. Castellus quotes this Word from Rulandus and Johnson, and explains it *Orpiment*. But neither of these Authors mention the Word. Johnson has *ADARIGES*, which he says is *Armoniacum*, which he transcribes from Rulandus, by Mistake, for *Adirige*. I am inclinable to believe he means the Salt, not the Gum, for both have been wrote thus, instead of *Armoniacum*.

ADARRIS. Rulandus explains this by *Flos Maris*, which should mean the Spuma or Foam of the Sea. But according to the German Word, by which he translates it, it seems to be some Flower. However, I am rather inclined to believe it means the former.

ADARTICURATIO. A Species of Articulation of the Bones, the same as *ARTHRODIA*. See *ARTHRODIA*.

ADAXOMÆ. Castellus has latinized this Word, and made it an Article in his Lexicon. The Word is from a Greek Verb *ἀδαξομαι*, to be affected with a painful Itching. *Galen*.

ADDEPHAGIA, or ADEPHAGIA. *Ἀδδφῆα*, or *Ἀδδφῆα*. From *ἄδδ*, abundantly, and *φῆα*, to eat. Insatiability. A voracious Appetite. *Constantine. Castellus*.

ADDITAMENTUM. The same as *EPIPHYSIS*. The large Epiphysis of the Ulna, at the Elbow, is called *ADDITAMENTUM NECATUM*. *Castellus*.

ADDITIO. ADDITION. When any Thing that is deficient is supplied by Surgery, it is called *Addition*, *ὑπόθεσις*, to distinguish it from another Part of Surgery, which consists in removing what is redundant, and superfluous, which is called *Ἀφαιρέσις*, *Subtraction*. And of these two the whole Art of Surgery consists.

ADDUCTOR. Many Muscles are called by this Name, as

ADDUCTOR MINIMI DIGITI PEDIS, or TRANSVERSALIS PEDIS PLACENTINI, arises tendinous from the external *Os Sesamoidæum* of the great Toe, firmly adhering to the tendinous Part of the *Adductor Pollicis*, soon growing fleshy, it passes over the Extremity of two of the *Metacarpal* Bones, between them and the *Flexores Digitorum*, and then, growing broader, is inserted into a Tendon that proceeds from the *Extensor Tendinosus* in the Sole of the Foot, and partly into that cartilaginous Ligament that covers the Articulation of the first Joint of the third lesser Toe, with its *Os Metatarfi*, some of its fleshy Fibres being contained upon the same Part of the little Toe.

Its Use is to bring the third and fourth lesser Toes nearer the other two and the great one. *Douglas*.

ADDUCTOR OCULI, arises tendinous and fleshy, from the Edge of the Hole in the *sphenoidal Bone*, that transmits the *Optic Nerve* between the *Obliquus Major* and the *Humilis*.

Is inserted by a thin Tendon into the *Tunica Sclerotica*, where it respects the great *Canthus*.

Its Use is to bring the Eye toward the Nose. *Douglas*.

ADDUCTOR POLLICIS MANUS AD INDICEM, ANTITHENAR RIOL. Arises from the Outside of the upper Part of the *Os Metacarpi Indicii*.

Is inserted into the first Joint of the Thumb, sending off a thin Tendon, which runs along with the *Extensor Pollicis Longus*.

Its Use is to draw the Thumb nearer the Fore-Finger. *Douglas*.

ADDUCTOR AD MINIMUM DIGITUM. Arises a little tendinous, but chiefly fleshy, from the whole Length of the *Metacarpal Bone*, that sustains the Middle-Finger, from whence its Fibres, contracting equally on both Sides, run up to the Thumb.

Is inserted into its second Joint, a little below one of its Seed-like Bones.

Its Use is to bring the Thumb towards the Ring and Little-Finger. *Douglas*.

ADDUCTOR POLLICIS PEDIS. Arises by a long, thin, disgregated Tendon, from the *Os Calcis*, under the tendinous Part of the *Massa Carnea*, from the *Os Cuboides*, from the *Os Cuneiforme Medium*, near the Insertion of the *Peroneus Primus*, and from the upper Part of the *Os Metatarfi* of the second Toe: It is soon dilated in a pretty large Belly.

Is inserted into the external *Os Sesamoidæum* of the Great-Toe.

Its Use is to bring this Toe nearer the rest. *Douglas*.

ADEC. Sour Milk. Or Butter-Milk. *Rulandus. Johnson*.

ADECH. Paracelsus says, *Spiritus interior agentem Distinctionis Causa Adech vocare soleo*. The Author of the Explications of the Words used by Paracelsus defines *ADECH*, the invisible internal Man (or Part of Man) which impresses the Ideas or Forms of those Things on the Mind, which are visible or tangible by the external Man. Rulandus says it is the internal and invisible Man, which conceals, or lays the Plan of whatever the external and visible Man afterwards executes or imitates with the Hands.

This any one in his Senses would probably call the Soul, but Enthusiasts, Alchymists, and Madmen, think it a Derogation from their Honour to make Use of the intelligible Dialect of the Vulgar.

ADECTOS, *Ἀδδτος*. From a Negative, and *δδω*, to bite. It is an Epithet of those Medicines which relieve from Pain, by removing the uneasy Sensation caused by the Stimulation of acrimonious Juices, or Medicines. *Castellus* from *Tiraquellus*.

ADEDENTES. *Phagedænic*, or eating. See *PHAGEDÆNA*. It is applied to Ulcers. *Castellus*.

ADEHEMEST, AIOHONEC, or ALHOHONEC. Rulandus explains it by *Lamina*, a thin Piece of Metal, a Blade.

ADELOS, *Ἀδδλος*. From a Negative, and *δδλος*, manifest. Not manifest, insensible. *Ἀδδλα πρδσκαρῆα*, are Things which are the Subjects of the Senses when they appear, but which at the present Time do not appear; their being insensible therefore is only temporary, which the Word *πρδσκαρῆα* implies. This is a Term of the Physicians of the Empiric Sect. *Goræus* from *Galen*.

ADELPHIA. From *Ἀδδφῆα*, a Relation. Thus Distempers are called by Hippocrates, which are like, bear Relation, or Analogy to each other.

ADELPHIXIS. *Ἀδδφῆξις*, of the same Derivation as *Adelphia*. The Analogy, Relation, or Similitude, which some Parts of the Body, and some Distempers have with others. Or the Communication, Consent, or Sympathy of some Parts with others. *Hippocrates. Foesius*.

ADEMONIA. *Ἀδδμονία*. From a Negative, and *δδμων*, a Genius, Divinity, or Fortune. This is a Word used sometimes by Hippocrates, to express that great Uneasiness, Restlessness, and Anxiety, which Patients frequently complain of, in acute Diseases more especially, and is remarkable in some Kinds of hysterical Fits, of which it is mentioned as a Symptom by Hippocrates in his short Treatise, *De his quæ ad Virginem spectant*.

ADEN. *Ἀδδν*. A Gland. See *GLANDULA*.

ADENIOS, *Ἀδδνιός*. From a Negative, and *δδνος*, Council. It signifies inadvertently, carelessly, done without Care, or Forecast. *Foesius* from *Galen* and *Hesychius*.

ADENOIDES, *Ἀδδνιδής*. From *ἄδδν*, a Gland, and *ιδής*, a Form. It signifies Glandiform, or like a Gland, and is used as an Epithet for the *Prostata*. See *PROSTATA*. *Castellus*.

ADENOSUS ABSCESSUS, is a hard, crude Tubercle, resembling a Gland, very difficult to be resolved. *Castellus* from *Marcus Aurelius Severinus*.

ADEPHAGIA. See *ADDEPHAGIA*.

ADEPS. *Ἀδδψ*. This is an Animal Oil, contained in the *Membrana Adiposa*, or, as Boerhaave calls it, the *Membrana Cellulosa*, which is not a single Membrane, but a Congeries of a great Number of membranous Laminæ, joined irregularly to

to each other at different Distances, so as to form numerous Interstices of different Capacities, which communicate with each other. These Interstices have been named *Cellule*, and the Substance made up of them, the *cellulous Substance*.

The Thickness of the *Membrana Adiposa* is not the same all over the Body, and depends on the Number of Laminæ, of which it is made up. It adheres very closely to the Skin, runs in between the Muscles in general, and between their several Fibres in particular, and communicates with the Membrane which lines the Inside of the Thorax and Abdomen.

This Structure is demonstrated every Day by Butchers, in blowing up their Meat, when newly killed; in doing which, they not only swell the *Membrana Adiposa*, but the Air insinuates itself likewise in the Interstices of the Muscles, and penetrates even to the Viscera, producing a Kind of artificial Emphysema.

These cellular Interstices are so many little Bags or Satchels, filled with an unctuous or oily Juice, more or less liquid, which is called *Fat*, the different Consistence of which depends not only on that of the oily Substance, but on the Size, Extent, and Subdivision of the Cells.

It is generally known, that the illustrious Malpighi took a great deal of Pains about this Substance; that in Birds and Frogs, the Viscera and Vessels of which are transparent, he thought he saw a Kind of Ductus Adiposi; and that, by pressing these Ducts, he observed oily Drops to run distinctly into the small Ramifications of the Vena Portæ.

The Manufacture of Soap, the Composition of Unguentum Nutritum, and the different Mixtures of Oils with saline and acid Liquors, give us some Idea, at least, of the Formation of Fat in the human Body; but the Organ which separates it from the Mass of Blood, which ought to be the Subject of our present Inquiry, is not as yet sufficiently known.

Fat is more fluid in living than in dead Bodies. It melts with the Heat of the Fingers in handling it, and its Fluidity is in Part obstructed by the Sacculi, which contain it. To take it intirely out of these Bags, the Method is to set the Whole over the Fire in a proper Vessel; for then the Bags burst, and swim in Clusters in the true oily Fluid.

This Substance increases in Quantity in the Body, by Rest and good Living, and, on the contrary, diminishes by hard Labour and a spare Diet. Why Nourishment should have this Effect, is easily conceived, and it is likewise easy to see, that an idle sedentary Life must render the Fat less fluid, and consequently more capable of blocking up the Passages of insensible Transpiration, through which it would otherwise run off.

Hard Labour dissolves it, and consequently fits it for passing out of the Body, with the other Matter of insensible Transpiration. Some are of Opinion, that it returns into the Mass of Blood, by the capillary Veins, and that it can, for some certain Time, supply the Want of Nourishment.

By this, they think, the long Abstinence of some Animals may be explained; but, I am apt to believe, the mere Decrease of cutaneous Transpiration, occasioned by the continual Rest and Inaction of these Animals, has a great Share in this Effect.

The proportional Differences, in the Thickness of this *Membrana Adiposa*, are determined, and may be observed to be regular in some Parts of the Body, where either Beauty or Use required it.

Thus we find it in great Quantities, where the Interstices of the Muscles would otherwise have left disagreeable hollow or void Places; but, being filled, and as it were padded with Fat, the Skin is raised, and an agreeable Form given to the Part.

The Appearance of a Person moderately fat, of a Person extremely lean, and of a dead Carcass, from which all the Fat has been removed, proves sufficiently what I have said.

In some Parts of the Body the Fat serves for a Cushion, Pillow, or Mattress, as on the Buttocks, where the Laminæ and Cells are very numerous. In other Parts this Membrane has few or no Laminæ, and consequently little or no Fat, as on the Forehead, Elbows, &c.

In some Places it seems to be braced down by a Kind of natural Contraction in Form of a Fold; as in that Fold which separates the Basis of the Chin from the Neck; and in that which distinguishes the Buttocks from the rest of the Thigh. We observe it likewise to be intirely sunk, or, as it were, perforated by a Kind of Dimple or Fossula, as in the Navel of fat Persons.

These Depressions and Folds are never obliterated, let the Person be ever so fat, because they are natural, and depend on the particular Conformation of the *Membrana Adiposa*, the Laminæ of which are wanting at these Places.

The Fat is likewise of great Use to the Muscles in preserving the Flexibility necessary for their Actions, and in preventing or lessening their mutual Frictions. This Use is of the same Kind with that of the unctuous Matter found in the Joints.

Lastly, the Fat is a fine oily Substance in its natural State, and may be some Defence against the Cold, which we find

makes more Impression on lean than on fat Persons. It is for this Reason, that to guard themselves against the excessive Colds of hard Winters, and to prevent Chilblains, Travellers rub the Extremities of their Bodies, and especially their Feet, with spiritous Oils, such as that of Turpentine, &c.

This Mass of Fat, which makes an universal Integument of the Body, is different from that which is found in the Abdomen, Thorax, Canal of the Spina Dorsi, Articulations of the Bones, and in the Bones themselves.

But the Differences of all these particular Masses of Fat consists chiefly, as I have said, in the Thickness or Firmness of the Pellicles, in the Largeness or Smallness of the Cells, and in the Consistence, Fluidity, and Subtlety of the oily Matter. *Winslow's Anatomy.*

To this Account of the Fat I shall add that of the celebrated Leeuwenhoek.

After the Discoveries that I had made concerning the Circulation of the Blood, particularly that the Blood-vessels had no Endings, I began to consider how the fat Particles could be formed, since I did not think that they were separated from the Blood, and came out of the Blood-vessels. But having now plainly discovered, that the so called Membranes were nothing but very small Vessels, and believing that they were created for no other End but to transport Nutriment, as also that there was no Circulation in these Vessels, I imagined, that the Matter, which we call Fat, was brought into them, which, when there was too great a Supply of Nutriment, so that it could not be forced farther on, must be driven out of these Vessels; for all the Particles of Fat, that I have as yet observed, are inclosed in small Films.

This Original of the Fat is to me much more credible, than that it should be forced out of the Blood-vessels; and yet how these fatty Particles, which consist of large Globules, and those of still smaller Globules (as it appears to me) are made and formed, I cannot as yet determine: As also where these Vessels, which constitute what we call Membranes, have their Beginning, and how this Fat is brought into them.

I had in my Drawer a Piece of Ox's Flesh, that I believe had lain there about four Years, wrapped up in a Paper, which Piece I found in some Places to be covered with a Membrane; from this I cut off several small Slices along with the Membrane; and I found that, near the Membrane, there lay about sixteen or eighteen nervous Fibrils, which, in the drying of the Flesh, were so squeezed together, that they were almost twice as long as they were broad. In some of which I saw very distinctly those Vessels which are in the Nerves.

These nervous Fibrillæ were inclosed by a Sort of Half-round, separating them from their muscular Fibres, which Half-round consisted of a Row of small tendinous Fibrillæ, each of which was about twice as thick as a Hair of a Man's Beard. Without these tendinous Fibrillæ lay the muscular Fibres, that had been cut through transversely; and in this Part of the Half-round there were several Apertures, which seemed in the Microscope to be big enough for Hemp-seed to pass through them, which might well be taken for Vessels, but that there lay so many of them together. But, considering that the Nerves are commonly covered with fatty Particles, I concluded, that these Apertures were no Vessels, but mere fatty Particles, which I found to be true when I had cut through them, and discovered that the inward Fat was eaten out by the Mites, which had left only the Husks, or Cortices, of the fat Globules behind, which Cortices I never had as yet been able to discover, because the Cortices of the fat Globules would, upon any Heat, melt away as fast as the inward Fat.

I have formerly said, that the Matter which we call Meal, or Flour, in Wheat, Rye, Barley, Oats, and in all Sorts of Beans, is shut up, as it were, in little Cells, or Chambers, and that those little Cells are separated from each other by thin Membranes, which are thinnest in Wheat: And as in the Enquiry into what is called the Periosteum of an Ox or Sheep, I have often broke in Pieces the fat Particles thereof, and as often viewed them through a Microscope; so have I likewise placed a few of the fat Globules upon a clean glass Plate, and held it over a Coal-fire, or the Flame of a Candle, till they were all melted and reduced into a liquid Matter; so that not only the Fat, which was shut up in the Skin of the fat Globules, but likewise the Skin itself was reduced to a fluid Matter; and thereupon I immediately brought it before my Sight, and, viewing it with Attention, perceived, when the melted Fat was cold, that there were different Matters inclosed in the said fat Globules; for there appeared an inconceivable great Number of exceeding small coagulated Particles, and the rest of the Parts, of which the Fat was composed, lay in one smooth and even Substance, and I have considered, whether there might not be inclosed, in such a Globule of Fat, so many little Cells and Partitions, as we see in a little Grain or Seed, but, if it be so, it will remain concealed from our Eyes.

But having now again carefully contemplated these coagulated Globules of Fat, many of which go to the making of one little

little Bubble, I did often fancy, that I saw, that each of the said small Particles was provided with such a transparent Dent, as I have before said, that the Meal Globules of Wheat, &c. are furnished with.

Nay, I have fancied to myself, though it did not appear to my Sight, that each fat Particle is furnished with little Cells within, like the Seeds or Fruits of Plants.

Since I wrote this, I was informed my Butcher had killed a Sheep of an uncommon Bigness, and that it weighed 140 Pounds, without the Fat that they took out of it, after it was killed, which weighed 51 Pounds, so that the whole Sheep weighed above 190 Pounds.

I caused a Piece of the Fat that grew about the Kidnies to be brought to me, imagining, that its fat Particles would be of a coarser Grain than those of ordinary Sheep; for I have observed several Times, that the bigger an Ox was, the larger were the fat Particles thereof; and since not one Man in a Thousand has any Knowledge of the Contexture of these fat Particles, for we find that there are not any two of one and the same Figure, they being compressed by other Particles with which they are surrounded, I have caused some few of these fat Particles to be drawn, as between A. B. C. D. *Plate III. Fig. 1.*

Now when we meet with one of these little Bundles of fat Particles, as has frequently occurred to us, in which the fat Particles were four Times this Thickness, I imagine, that such fat Particles cannot be produced out of one single adipose Vessel, but that out of such a Vessel several small Springs issue forth, and out of each of those small Springs proceed others still smaller, and that out of these Particles one larger fat Particle is formed like a Bunch of Grapes.

Now I cut off with a Razor the Fat in several Places of a greater Piece, as thin as I could, laying the thin Pieces upon several glass Plates, and put them upon a Coal-fire, so as to cause them to melt; and, being melted, immediately viewed them with a magnifying Glass, when I observed the Skins, or membranous Coats of the fat Globules lying among the melting Particles, and in the said melting Particles there was nothing to be perceived but a limpid Matter, surrounded with small Air-bubbles; but, when the Fat was congealed, we could observe but very little of the Membranes, because they were covered with the Particles of Fat, with which these Membranes or Skins had before been filled.

I caused a few of these Skins of the fat Globules to be drawn, between E. F. G. H. *Plate III. Fig. 1.* During the said Observation, I fixed my Eye with Attention upon the fat Particles of the Sheep which had been melted, and were again coagulated; and I could not but judge, that these fat Particles, which were exceeding small, were analogous to that internal Matter, wherewith some of the smallest little Seeds are furnished, and, in a great many of these exceeding small Particles, I could in clear Weather discover some Transparency.

Moreover, I cut as thin Slices as it was possible of the Fat, yea, so thin, that five or six of them did not weigh a Grain, and put them into a little Water, in order to try whether I could make any farther Discoveries thereby, with Respect to the small Particles of Fat, but it was in vain; only I saw floating upon the Water very small Particles of Fat, which were coagulated in a spherical Figure, and the very biggest of those fat Particles was no bigger than a Grain of Sand. I placed these Particles upon a glass Plate, and viewing them with a Microscope, I observed the Figure, which I mentioned above, as plain as before, and other fat Particles seemed to be of a different Figure; I put one of these into the Hands of my Painter, or Designer, bidding him to draw what he had observed, it being the Figure of one of the said fat Particles, which was coagulated on the Water, as it is represented between I. K. L. M. *Plate III. Fig. 1.* which was not very conformable with the other melted fat Particles; for, in the doing it, all the Particles did not melt, for the fat Particles are not all extracted by the Water, and coagulated upon the Water in smaller and greater globular Particles; and when we take out of it the Remainder of the thin Slices of Fat, which float upon the Water, and view them with a Microscope, we find, that many of the fat Particles appear intire to the Eye; and whereas they were before very smooth and even in their Sides, they were now changed into rough and uneven Particles; so that one should be apt to think, that there were two different Sorts of Particles in the Fat, and that one Sort melted more easily than the other.

Now in order to get these melted Particles of Fat out of the Water, without altering them, I made Use of a round Glass, and with it skimmed the Superficies of the Water, by which Means some of the coagulated Particles stuck to the Glass. Moreover, I did again melt some of the fat Particles, which had been coagulated upon the Water, over a Coal-fire, as they lay in the Water; and, when they were again coagulated, viewing them with a Microscope, I found the small fat Particles to be yet smaller than those that were melted out of the Water.

In this last Observation I observed, with Astonishment, the inconceivable Number of Veins and Membranes, which were diffused through the Fat, and the Multitude of separated fat Particles, that were involved in their several Membranes.

After this there was laid before me the Hind-quarter of a sucking Lamb, over which was spread what we call the Net, or Caul; and having cut off some Pieces of the said Net, or Caul, upon which there was little or no Fat, with a pair of Scissars, and placing them before a Microscope, I observed again, that the fat Particles, where there were very few of them included between the Membranes, were of a more globular Figure than in other Parts, where a good many lay together, and that in other Places they were pressed and bruised, which I fancy was occasioned by the Butcher's squeezing the Caul in that Place with his Fingers; and in another Place the fat Particles had been so torn in Pieces, that I could see nothing remaining but the Skins of the fat Globules.

Moreover, I saw that the fat Particles had such a Pinch, or Dent, in them, as I have shewn, that there were in the Globules of Flour of Wheat; from which Spectacle, I am confirmed, more than before, in my Opinion, that the fat Globules might be separated intirely, or in Part, from the Skin with which they are surrounded, by opening the Dents, without breaking the Skin.

Then I took off the thin Membranes, which encompassed the fat Particles, and viewing them with a Microscope, observed, that the fat Particles had imprinted a roundish Figure on the Membranes inclining to a hexangular Shape, that it was a Pleasure to look on them; but in other Parts they were of an oval Figure.

Moreover, I took a flat Fish, which we call *Plaife*, and took off the Fat which adhered to the Vessels, or Bones, and viewed it with a Microscope, and observed, that the fat Particles were of several Sizes; and some were so small, that I judged that fifty of the least were no bigger than one great fat Globule; and moreover, I saw that many of the fat Globules had such a Dent in them, as we find in the Meal or Flour of those little white Beans, which we call French or Kidney-beans.

Afterwards my Servant brought to me the Fat of a Peach, which was nine or ten Inches long, and taking a little of it, I viewed it with a Microscope, but could not discover any small Particles in it, nor any internal Dent, as I had observed in the Fat of a small *Plaife*.

After that the Fat of the Peach had lain an Hour or two upon the Glass, I viewed it again, and observed, that the Particles were become smaller, and that the Skin of the fat Particles, which as yet was beset with some fat Particles, was, as it were, shrunk or wrinkled, and the Fat, that was burst out, lay about the fat Particles, and was so fluid and transparent, that we could not discover any Parts in it.

From this Observation I began to think, whether each of these fat Particles was not provided with an Orifice, or Hole, out of which the Fat might be protruded at all Times, as often as the Parts of the Fish stood in Need of Nourishment, without an intire Laying open the Skin of the fat Globules; for, we constantly find, that when the Eggs of the Peach, which we call the Roe, increase in Bigness, its Fat decreases, and that in such a Manner, that when the said Eggs, or Roe, are arrived at their utmost Bigness, there is seldom or never any Fat to be seen upon the Intestines of the Fish.

As to the Composition of Fat, it is formed by a small Portion of Earth, joined with elementary Fire, acid Salt, and Water, according to the Account Geoffroy gives of it, who adds, that if Oil of Olives and Spirit of Nitre be mixed together, and digested, a Substance will be found in every Respect resembling the Fat of Animals.

This confirms what I said under the Article of *ACID*, in Regard to the Inflammability of animal Oils, which see.

As to the medicinal Use of Fat, Quincy having mentioned that of the Goose, Dog, Man, Viper, and Bear, says, these are to be met with in the Intention of Ripening and Drawings, because they are reckoned to be of a penetrating Nature, and therefore suited to dissolve and rarefy the Humours inclosed in Tumors, and bring them, as it is called, to Maturity. There are some specific Virtues ascribed to these in particular Cases, but they have not been supported by Reason or Experience. And they seem not possessed of any Properties different from other Substances of like Kind, unless what may arise out of their different Consistencies and Degrees of Volatility.

I apprehend by this, that the Author means, there is little or no Difference with Respect to Medicine, betwixt the Fat of one Animal and another. But if we consider, that Fat is not an homogeneous Substance, but composed of Principles greatly different from each other, as are Earth, Fire, Water, and acid Salts; and again, that animal Fats have always a small Portion of alkaline volatile Salts mixed with them, we shall find Reason to believe, that the Fat of one Animal may have medicinal Effects, very different from that of another, as the Proportions, and Combinations of the component Principles vary, and as the volatile Salts are more or less volatilized, by circulating in the

the animal Juices. I should suspect the Fat of Animals who use little Exercise, and live on Vegetables, to be the most lenient and mollifying; and that of Animals which move a great deal, or feed on other Animals, to be more penetrating, warming, and resolvent, because, in these, the Juices in general are more exalted and attenuated than in others.

Thus we see the specific Virtues, ascribed to some animal Fats in particular Cases, are supported by Reason; and as for Experience, we have that of all Mankind to warrant them, who have mentioned them from the Infancy of Physic to this Day, unless a few, who have of late affected to determine the Efficacy of Medicines by particular Theories, without consulting Experience, the only sure Guide, which in the present Case, if carefully attended to, would have convinced Dr. Quincy, as it has me, that the Fats of different Animals are actually endued with different medicinal Virtues.

In the Course of this Work, I shall have frequent Occasions of making Remarks upon this Folly of contradicting actual Matters of Fact, only because their Causes are not obvious and manifest. Mean Time I will give some Account of the medicinal Virtues of the Fats found in different Animals.

FATS OF BEASTS.

Of the HORSE.

The Fat of the Horse is proper for anointing luxated Limbs. *Dale.*

Of Cows, or OXEN.

All Sorts of Fats are endued with the Virtues of Warming, Softening, and Rarefying.

But that of Bulls, Cows, and Calves, is in some little Degree restraining. *Dioscorides.*

Beef's Fat, or Suet, is particularly recommended in Mortifications of the Intestines, a Tenesmus, for Ulcers, and Chaps of the Lips, and gouty, or scirrhus Disorders. The Fat of the Buffalo is in Virtue like the Preceding. *Dale.*

The Fat is emollient, and is used in Balsams, Ointments, and Plaisters. It eases Pains proceeding from Colds; cures Kibes and Chilblains; and heals the Chapping of the Hands, Lips, Nipples, Fundament, &c. *Pomet.*

Of LIONS.

The Fat of Lions is in Virtue like those of Cows. *Dioscorides.*

The Fat of Lions, washed, according to the Directions of Dioscorides, and dropped into the Ear, eases Pains thereof; it is a good Application for Limbs in Danger of a Mortification from Cold. It is useful in scirrhus Tumors, and Kibes. *Dale.*

Of ELEPHANTS.

The Fat of Elephants keeps Serpents and venomous Reptiles away from those that are anointed with it. *Dioscorides.*

Of STAGS.

The Fat of Stags has also the same good Effects as that of Elephants, in preserving from venomous Reptiles. *Dioscorides.*

Hippocrates recommends the Fat of a Stag as a mollifying Ingredient in a Pessary. *De Natura Muliebri, L. 1.*

The Fat of Stags is said to be good for mollifying Tumors, for Kibes, and for easing Pains. *Dale.*

The Fat, or Suet, is equal to the best Emollient. It lenifies and softens Callosities, Contractions, scirrhus and cancerous Tumors. *Pomet.*

Of the GOAT.

Hippocrates recommends the Fat of a Goat as a good mollifying Ingredient in a Pessary. *De Natura Muliebri, L. 1.*

The Fat of Goats is somewhat astringent. The Fat of the He-goat is a powerful Discutient, and for that Reason a proper Topic in the Gout, beat with Trickles of Goats, and Saffron. *Dioscorides.*

The Suet, or Fat, of the He-goat powerfully discusses, is useful in the Gout, cures the Strangury, and relieves the Pains caused by the Piles. *Dale.*

We bring from Auvergne, near Lyons, and Nevers, a great deal of Goats-suet, it being not only of some small Use in Physic, especially that of the He-goat, but is also used to many different Purposes. It ought to be dry, of a clear White within and without, and take Care it be not mixed with Mutton Suet, which it is not easy to distinguish; therefore do not deal with Merchants you cannot trust.

Of SHEEP.

Hippocrates recommends the Fat of a Sheep as a mollifying Ingredient in a Pessary. *De Natura Muliebri, L. 1. and, De Morbis Mulierum, L. 2.*

The same Author advises the Fat taken from the Kidney of a Sheep, as preferable to any other, to be mixed with Elaterium for the forming a Pessary, to promote the Menstrues. *De Morbis Mulierum, L. 1.*

Hippocrates advises the Fat of Sheep boiled with Lentiles and Wine, for washing painful Exulcerations of the Uterus. *De Morb. Mul. L. 1.*

And in many other Places he advises Pessaries of Sheep's Fat made up in Wool, as being very mollifying.

Hippocrates directs the Fat of a Sheep to be taken internally, to prevent a Miscarriage. *De his quæ Uterum non gerunt.*

Sheep's Fat is a proper Topic in the Gout. *Dioscorides.*

The Suet, or Fat, of Sheep, given in red Wine, checks Hæmorrhages, stops Diarrhoeas, Dysenteries, and cures the Gripes. *Dale.*

Of SWINE.

Hippocrates advises the Fat of Swine, boiled with Lentiles and Wine, as proper to wash painful Exulcerations of the Womb. *De Morb. Mul. L. 1.*

Swine's Fat, or Lard, is accommodated to Disorders of the Uterus, and Anus, and for Burns. *Dioscorides.*

The Fat of Swine is said to heat less than that of other Animals, and therefore it is more proper in refrigerating Ointments. It eases inveterate Pains in the Loins and Joints.

The Fat of the Wild Boar has the same Virtues in a greater Degree. *Dale.*

Of ASSES.

The Fat of Asses is reported to make Scars of the same Colour with the rest of the Skin. *Dioscorides.*

Of BEARS.

Bears Fat is excellent for making the Hair grow, and a good Application for Kibes. *Dioscorides.*

The Fat of a Bear warms, mollifies, and discusses. It cures Baldness, is good for the arthritic Pains, and cures Swellings of the Parotid Glands, and other Tumors, as also Ulcers in the Legs. *Dale.*

Bears Grease and Tallow are brought from the Mountains of Switzerland, Savoy, and Canada. The Grease, if it be good, ought to be fresh, or new melted, greyish, gluey, and of a strong ill Smell, of a middle Consistence, that is to say, betwixt hard and soft; and meddle not with that which is white and hard, being mixed with Suet. This Fat, or Grease, is a sovereign Remedy for curing cold rheumatic Humours. It is also much valued for easing Pains of the Gout, by rubbing the afflicted Part, and to make the Hair grow; it being esteemed admirable against Baldness, especially when incorporated with Bees in Powder and Nut-oil. As for the Bears-tallow, there is but very little of it brought into France, it being little used, and that only by those who will not come up to the Price of the Grease. *Pomet.*

Of FOXES.

The Fat of Foxes is good in Disorders of the Ears. *Dioscorides.*

The Fat of the Fox is good for Convulsions, Tremors, and Contractions of the Limbs; it is useful in Pains of the Ears, Wounds of the Head, and Baldness. *Dale.*

Of the CAMEL.

The Grease, or Fat, is emollient, softening, and resolute, proper for the Piles or Hemorrhoids. *Leмери.*

Of the MOUSE.

At Venice they sell a Pomatum at an extravagant Rate, made of the Fat of Mice, which is famous for curing Baldness.

Of the CAT.

The Fat of a Cat is heating, emollient, and discutient, and wonderfully relieves Affections of the Joints. *Dale.*

Of DOGS.

The Fat of a Dog is warmer than that of most other Animals, and is given internally, to deterge and consolidate Wounds and Exulcerations, and therefore it is proper in a Phthisis, or to dissolve Blood coagulated by Falls or Bruises. Externally it is applied in the Gout, to ease Pains of the Ears, to kill Nits and Lice, to cure Deafness, and in the Itch. *Dale.*

Of WOLVES.

The Fat of the Wolf is equal in Virtues to that of the Dog. It warms, digests, cures Disorders of the Joints, and is good for Eyes that are inflamed. *Dale.*

If the Bridle of a Horse is anointed with the Fat of a Wolf, it is said the Animal will not move forwards.

Of the OTTER.

The Fat of the Otter is by Hollerus esteemed a very good Ingredient in Applications for Disorders of the Joints. *Dale.*

Of the HEDGE-HOG.

The Fat of the Urchin or Hedge-hog is reckoned by Hartman a Specific in Ruptures. *Dale.*

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Of the HIPPOPOTAMUS, or SEA-HORSE.

The Fat of the Hippopotamus, or Sea-horse, applied to the Pulse, or Stomach, relieves against Fits of the Ague, and is emollient and nervous. *Pomet.*

Of the CHAMOIS.

The Fat of the Chamois, or Gems (*Capra Alpina*) is recommended in a Consumption, and Exulcerations of the Lungs. *Dale.*

Of the HARE.

The Fat of a Hare, applied externally, has such a drawing Quality, especially when old, that it is said to bring away Thorns accidentally fixed in the Skin, or Flesh. It breaks Abscesses, and cures Pains of the Teeth. *Dale.*

Of the RABBIT.

The Fat of a Rabbit is useful for Indurations of the Joints and Nerves: (*I suppose he means the Tendons*). *Dale.*

Of the BEAVER.

The Fat of the Beaver is peculiarly adapted to Disorders of the Uterus, and nervous System, and therefore is useful in Epilepsies, Palsies, Convulsions, and Apoplexies. *Dale.*

The Fat of a Beaver is used as an Ointment against the Palsy, Convulsions, hysterical Fits, Apoplexy, and falling Sickness. Take half a Pound of Beavers Fat, Oils of Rosemary, Nutmegs, Amber, and Mace, of each one Dram. *Pomet.*

Of the TIGER.

The Fat of a Tiger agrees in Virtues with that of a Dog. *Dale.*

Of the LEOPARD.

The Fat of a Leopard is reported to be an excellent Cosmetic. *Dale.*

Of the LYNX.

The Fat of the Lynx, or Ounce, is recommended for Limbs that are paralytic, convulsed, or luxated. *Dale.*

Of the CROCODILE.

The Fat of the Crocodile is recommended in Wounds and Cancers. *Dale.*

Of VIPERS.

The Fat of the Viper is sudorific, resolute, and anodyne, taken internally or externally, the Dose from one Drop to six. *Lemery.*

Of HUMAN FAT.

Human Fat is said to strengthen and discuss, to relieve Pains, and cure Contractions, to mollify the Hardness of Scars, and to take away unseemly Marks left by the small Pox. *Dale.*

Human Fat or Grease is brought us from several Parts, as every Body knows in Paris; the public Executioner sells it to those that want it; so that the Druggists and Apothecaries sell very little. Nevertheless, they vend a Sort that is prepared with aromatical Herbs, and which is without Comparison much better than that which comes from the Hands of the Hang-man. This Adeps, or Axungia, is reckoned very good for Rheumatisms, and other Diseases, proceeding from a cold Cause.

Man's Grease is emollient, discussive, anodyne, and anti-paralytic. It is good against the Gout and contracted Nerves, made into an Ointment, as follows: Man's Grease two Pounds; Gum Elemi half a Pound; Bees-wax and Turpentine, of each one Pound; Balm of Gilead or Peru, four Ounces; mix and make an Ointment by melting all together. *Pomet.*

OF THE FAT OF BIRDS.

Of GEESE.

Hippocrates recommends the Fat of a Goose as a mollifying Ingredient in a Pessary. *De Natura Mulierum, L. 1.*

The same Author advises the Fat of a Goose, as a proper Ointment for painful Exulcerations of the Uterus. *De Morbis Mulierum, L. 1.*

Hippocrates says, the Fat of Geese is the best for Pessaries. *De Morbis Mulierum, L. 2.* And he advises Pessaries of Goose Grease in several other Places.

Hippocrates advises to take the Fat of Geese internally to prevent a Miscarriage. *De his quæ Uterum non gerunt.*

The Fat of Geese is proper in the Disorders of Women; and is useful in Chaps of the Lips, to smoothe the Skin, and to ease Pains in the Ears. *Dioscorides.*

The Fat of the Goose is more hot than that of the Swine, and, because of its Subtily, sooner penetrates and resolves, it is therefore used as a Clyster in Erosions of the Intestines. It makes the Hair grow in an Alopecia, heals Chaps of the Lips, removes Noises in the Ears, cures Spasms and Rigidity of the

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Nerves, (*Tendons I suppose he means*) and prevents Costiveness, especially in Children. *Dale.*

The Virtues of the Fat of Wild Geese are the same, but in a greater Degree.

Of HENS.

The Fat of Hens is recommended by Dioscorides in the Disorders of Women, and is useful in Chaps of the Lips to smoothe the Skin, and to ease Pains in the Ears. *Dioscorides.*

The Fat of Hens and Capons warms and moistens, is emollient and lenient, and is said to be of a middle Nature betwixt that of Swine and Geese, whose Acrimony it corrects. It is good for Chaps of the Lips, Pains of the Ears, and Pustules on the Eyes. *Dale.*

Of the OSTRICH.

The Fat of the Ostrich is a proper Application for the nervous Parts, by Inunction it mollifies an indurated Spleen, and relieves nephritic Pains. *Dale from Schroder.*

The Fat is hotter than Goose Grease, and may be used with great Advantage to dissolve hard Swellings, relax contracted Nerves, and ease Pains. *Pomet.*

Of the SWAN.

The Fat of a Swan is emollient, lenient, attenuant, and therefore useful in the Piles, and Indurations of the Womb; it clears the Eyes, and, mixed with Wine, takes off Freckles, or Pimples from the Skin. *Dale.*

Of the FRIGATE.

The Oil or Fat of these Creatures is a sovereign Remedy for sciatic Pains, and for all others, proceeding from a cold Cause. It is held in great Esteem throughout all the Indies as a precious Medicine. *Pomet.*

Of the SHELL-DRAKE.

The Fat of the Vulpanser, or Shell-drake, is recommended in an Herpes, and Tumors of the Face. *Dale.*

Of the RAVEN.

The Fat of the Raven is said to render the Hair black. *Dale.*

Of the PEACOCK.

The Fat of the Peacock, mixed with the Juice of Rue and Honey, is excellent in the Cure of a Colic. *Dale.*

Of the QUAIL.

The Fat of the Quail is said to be effectual in taking Spots off the Eyes. *Dale.*

Of the TURTLE-DOVE.

The Fat of the Turtle-dove is recommended as an Ointment proper for the Kidnies, Belly, Breast, and Groins. *Dale from Schroder.*

Of the VULTURE.

The Fat of the Vulture is peculiarly adapted to Disorders of the Nerves. *Dale.*

The Fat is the only Thing belonging to the Vulture Kind that is sold in the Shops, and used to anoint withal in Palsies and other nervous Cases. *Pomet.*

Of the KITE.

The Fat of the Kite is applied in Pains of the Joints. *Dale.*

Of the SPARROW-HAWK.

The Fat of the Sparrow-hawk is good in Disorders of the Eyes, and all Diseases of the Skin. *Dale.*

Of the OWL.

The Fat of the Owl, either white or gray, sharpens the Sight. *Dale.*

Of the CRANE.

The Fat of the Crane, instilled into the Ears, cures Deafness. It mollifies hard Tumors of the Spleen, and other Parts of the Body. It also immediately relieves Stiffness of the Neck. *Dale.*

Of the STORK.

The Fat of the Stork is good in gouty Complaints, and for Limbs that tremble and are unsteady. *Dale.*

OF THE FAT OF FISH.

The Fat of River-fish melted in the Sun, and mixed with Honey, clears the Sight, if the Eyes are anointed with it. *Dioscorides.*

Of the PIKE.

The Fat of the Pike is used as an Ointment to the Soles of the Foot,

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Foot, and Breasts of Children, in order to cure their Catarrhs and Coughs. *Dale*.

The CARP.

The Fat of a Carp is of Service in hot Disorders of the Nerves or Tendons. *Dale*.

Of the DARE.

The Fat of the Dare is good for Pains in the Ears, and Dimness of Sight, mixed with the Gall of the same Fish. *Dale*.

Of the GRAYLING.

The Fat of the Grayling wears away Specks and Films from the Eyes. Melted in the Sun and mixed with Honey it takes away Spots of the Skin, and Marks left by the small Pox. *Dale*.

Of the TROUT.

The Fat of the Trout is good for the Piles, and Fissures of the Anus. *Dale*.

Of the DOLPHIN.

The Fat of the Dolphin, melted and drank with Wine, cures the Dropsy. *Pliny. Dale*.

The Method of preparing Fat for Use is thus laid down by the Compiler of the *Edinburgh Dispensatory*:

The Fat, being first purged of its Membranes, Blood-vessels, and Strings, is to be washed in fresh Parcels of Water, till it will no longer tinge the same red; then let it be melted, strained, and preserved from the Injuries of the Air.

The Antients were more curious, and took greater Pains in preparing their Fat, as may be seen by the following Directions from *Diocorides*.

Of the Fat of HENS or GEESÉ.

The Fat of a Hen or Goose, either new, or kept without Salt, is good in Diseases of the Womb; but salted, or grown acrimonious with keeping, is hurtful to that Part. Take the fresh Fat of either of these Kinds, and, stripping it of the Membranes, put it into a new earthen Pot, that will hold double the Quantity you design to preserve. Expose the Pot carefully closed to the burning Sun, and let the Fat, as it melts, fall through a Strainer into another earthen Pot, till all be run off. Then remove it into a very cool Place, and let it stand for Use. Some, instead of the Sun, place the Pot over hot Water, or Coals that give a very gentle Heat. There is yet another Way of curing it. They take the Fat, and, clearing it from the Membranes, beat it, and put it into a Pot, where it is melted, with a little fine Salt cast therein. Then they strain it thro' a Linnen Rag, and place it aside. This Sort is an useful Ingredient in Remedies provided against Lassitudes. *Diocorides, L. 2. C. 86*.

Of the Fat of BEARS and SWINE.

The Fat of Bears and Swine is prepared after this Manner: Take the newest and grossest, such as grows about the Kidnies, and, stripping it of the Membranes, throw it into a good Quantity of Rain-water, perfectly cool; then break it, and rub it carefully with your Hands, as though you would reduce it all to Crumbles. Then wash it in several fresh Waters, and afterwards put it into an earthen Pot, that will hold double the Quantity. Pour in as much Water as will cover the Fat, and set it over a gentle Fire, and stir it with a Spatula. When it is thoroughly melted, pass it through a Strainer into Water, and let it cool. Let the Water drop clean away, and then shift it into another Pot, first washed, and, pouring in some Water, give it a gentle Melting. This done, take it off, and, having let it stand a little for the Dregs to subside, pour it into a Mortar first wiped with a Sponge. When it is congealed, take it out, and, first cleaning it from the Dregs residing at the Bottom, give it a third Melting without Water. Then pour it back into the Mortar, from whence, being well purged of all Feculencies, remove it into an earthen Pot, and place it aside well covered in a cool Place for Use. *Diocorides, L. 2. C. 87*.

Of the Fat of GOATS, SHEEP, and DEER.

The Fat of these Animals is thus prepared: Take either of them, wash it, clear it of the Membranes, and put it into a Mortar to be softened. Beat it, pouring in now and then a little Water, till nothing bloody rises to the Surface, or Greasiness swims at the Top, but all looks clear and shining. Then put it into an earthen Pot, with Water just enough to cover it, and set it over a gentle Fire, stirring it. When it is thoroughly melted, pour it into Water, and, after it is congealed, melt it over again in an earthen Pot first washed, and proceed as in the former Chapter. After the third Melting, which is without Water, strain it into the Mortar first moistened, and, when it is congealed, remove it into your Pot, and lodge it as was directed for Swines Fat. *Diocorides, L. 2. C. 88*.

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Of the Fat of OXEN.

This Fat is also to be chosen from the Kidnies, stripped of its Membranes, and then washed in Sea-water. After this, it must be put into a Mortar, and carefully beaten with Sea-water. When all is dissolved, pour it into an earthen Pot, with Sea-water enough to rise a Span above it, and boil it till it has lost its proper Smell. Then for every Pound of Fat cast in four Drams of Tyrrhene Wax, and strain it off. Next (after it is congealed) take away the Dregs that settled at the Bottom, and put it in a new earthen Pot, which is to stand covered every Day in the Sun, till the Fat has lost its rank Smell, and acquired a Whiteness. *Diocorides, Lib. 2. C. 89*.

Of the Fat of BULLS, PANTHERS, and LIONS.

The Fat of Bulls is thus prepared: Taken fresh from the Kidnies, it is washed in running Water, then stripped from the Membranes, put in an earthen Pot, and melted with a little Salt cast therein. After this they strain it off into fair Water, and, when it begins to congeal, they take and rub it well with their Hands in several fresh Waters till it be thoroughly washed. Then they clap it into the Pot again, and boil it with an equal Measure of sweet-scented Wine. After it has boiled up twice, the Pot is taken off the Fire, and left to stand all Night. The next Day, if any Rankness of Smell remains, it is removed into a new Pot, has more sweet-scented Wine poured upon it, and is treated as before, till all the ill Savour be vanished. Some melt it without Salt, especially for some Diseases, in which Salt is accounted hurtful; but, thus prepared, it will acquire no considerable Whiteness. After the same Manner is prepared the Fat of Panthers, Lions, Wild Boars, Camels, Horses, and the like. *Diocorides, L. 2. C. 90*.

ADEPTA PHILOSOPHIA. *Adept Philosophy.* It is generally understood of that Philosophy, whose End is the Transmutation of Metals, and the universal Remedy. The *Adept Philosophy* is represented by Paracelsus as one taught by Inspiration from Heaven, and which cannot be communicated from Man to Man, though in other Places he tells it may be learned from those who are *Adepts*. Both he and Helmont have taken much Pains to inform us what it is not, but have not been so obliging as to explain what it is. The Professors of this Philosophy in the Clouds are called *ADEPTI, Adepts*.

Paracelsus calls that *Adept Medicine, MEDICINA ADEPTA*, which treats of those Diseases only, which are contracted by celestial Operations, or communicated from Heaven.

Those, whose Curiosity may incite them to know more of this Philosophy, may consult Paracelsus's Treatise, *de Occulta Philosophia, L. 1. C. 8*. But I will not be answerable that they shall meet with satisfactory Information.

ADER. Rulandus explains this by *Lat recens sine Butyro*. I suppose he means either new Milk before it is creamed over, or else fresh Butter-milk.

ADHÆRENTIA. ADHERENCE, growing together. *Castellus*.

ADHATODA. The Malabar Nut.

The CHARACTERS are,

The Leaves grow opposite; the Cup of the Flower is oblong, and consists of one Leaf; the Flower is monopetalous, of an anomalous Figure, and consists of two Lips; the uppermost is crooked, and is raised in Form of an Arch; the under Lip is divided into three Segments, and hangs downward; the Ovarium becomes the Fruit, which is in Form of a Club, and is divided into two Cells, in which are contained flat Heart-shaped Seeds.

There are but two Species of this Plant known at present, which are:

1. *Adhatoda Zeylanensium*, H. L. The common Malabar Nut.
2. *Adhatoda Indica*; folio saligna, flore albo, Boerh. The Willow-leaved Malabar Nut, commonly called, *The Snap-tree*. *Miller's Dictionary*.

Its Virtue is to expel the dead Foetus, that being the Meaning of *Adhatoda* in the Zeylanic Language.

ADHEHE. Sour Milk. Butter-milk. *Rulandus*.

ADHO, or **ADOC.** Milk. *Rulandus*.

ADIACHYTOS, *Ἀδιάκτος*. From a Negative, and *διὰκτος* to diffuse, scatter, or be profuse. Decent in Point of Dress, or Habit. Hippocrates makes Use of this Word in his Treatise, *de decenti Habitu*. This great Man esteemed the Dress of a Physician of Importance enough, to take the Trouble of giving some Advice upon this Head. He thinks the Character of a Fop derogatory from the Honour of a real Physician; and describes a Set of Practitioners in his Days, who attempted to supply the Defects of Knowledge in their Profession, by Ornaments of Dress. These, he says, frequented the public Places, in order to deceive People by their Appearance into a good Opinion of them, and this for the Sake of Gain. He adds, that they may be known by their Dress, and that the greater their Extravagance is in this Respect, the more they are to be avoided, and despised, by those that see them.

ADIAN.

ADIANTHUM. Maiden-hair.

The Account Dioscorides gives of it is as follows :

Adiantum, by some called *Polytrichon*, has Leaves like the Coriander, indented at the Top, and growing on very slender, black, shining Stalks, a Span high.

The Decoction of the Herb, drank, helps Difficulty of Breathing, and the Asthma, Disorders of the Spleen, Difficulty of Urine, and the yellow Jaundice. It breaks the Stone, binds the Belly, and relieves those who are bitten by venomous Creatures. It is drank in Wine for Weakness of the Stomach. It provokes the Menfes, and the Lochia, but stops Vomiting or Casting up of Blood. It is applied in a Cataplasm against venomous Bites, to make Hair grow where lost, and to disperse scrophulous Tumors. A Lye made thereof cleanses scald and scabby Heads. Applied with Ladanum, Myrsinum, and Oil of Lillies, or, with greasy Wool and Wine, it puts a Stop to the Shedding of Hair, and strengthens what is left. The Decoction thereof, with the Lyes and Wine, produceth the same Effect. Given to Cocks and Quails among their Food, it incites them to fight. It is planted about Sheep-folds for the Benefit of the Sheep; and grows also in shady and marshy Places, on old mouldering Walls, and near Springs. L. 4. C. 136.

The Moderns have given the Name of *Adiantum* to many capillary Plants. The first is thus distinguished by Authors :

1. *Adiantum vulgare*, *Capillus Veneris*, Offic. *Adiantum*, Cod. Med. II. III. *Adiantum*, sive *Capillus Veneris*, J. B. 3. 751. Raii Hist. I. 147. *Adiantum*, *Capillus Veneris*, Chab. 555. *Adiantum verum*, sive *Capillus Veneris verus*, Park. 1049. *Adiantum foliis Coriandri*, C. B. 355. Tourn. Inst. 543. Elem. Bot. 433. Hist. Oxon. 3. 587. *Capillus Veneris verus*, Ger. 982. Emac. 1143. TRUE MAIDEN-HAIR.

ADIANTHUM VULGARE. This is a capillary Plant, which, from a brownish, stringy Root, sends forth black shining slender Stalks, near a Foot high, divided into several very fine Branches, on which grow small, very thin Leaves, roundish, in Shape of Coriander-leaves, set on alternately on the Stalks; on the Edges of the Leaves, when the Plant is come to its full Growth, are several small Folds, under which is contained a small Dust, which is the Seed.

This Maiden-hair is brought to us from the Southern Parts of France, though it is said to grow plentifully in the County of Cornwall.

This being the true *Capillus Veneris*, is what ought to be used in making the Syrup of Maiden-hair, and every where else, where the true is prescribed. But for Want of it, it not being to be had in any Quantity, we generally use the *Trichomanes*.

This Maiden-hair is opening and attenuating, good for Distempers of the Lungs and Breast, as Coughs, Shortness of Breath, Hoarseness, and the like; it is also accounted serviceable against the Stone and Gravel, Heat and Difficulty of Urine. The only officinal Preparation is the Syrup. Miller.

Adiantum, or the true Maiden-hair of the Shops, is a Plant that bears several slender, blackish Stalks, of about half a Foot or a Foot high, divided into fine delicate Branches, which are adorned with little Leaves, like those of Coriander, almost triangular, fragrant, and of an agreeable Taste: This Plant bears no Flowers; its Fruit, according to Mr. Tournefort's Observations, is produced in a Folding of the End of one of the Leaves, which, after it is stretched out, incloses several spherical Coverings, which are caked to the said Foldings, and cannot be discovered but by the Assistance of a Microscope. These Capsulæ, or Coverings, are furnished with, as it were, a Purse-string, which, by its Contraction, opens it; they contain some little Seeds in them that are almost round: The Root is fibrous and black; it grows in shady, moist, or stony Places, against Walls, or Sides of Wells and Ditches: The best they have in France, grows about Montpellier in Languedoc. Lemery.

The Leaves of the true Maiden-hair are much used. They are said to purify the Blood, by reducing the Humours mixed in the Mass thereof to a just Temper. It prepares and purges Phlegm, and the Bile of both Sorts, that is, the Bile, properly so called, and what the Antients called the *Atra Bilis*. It dissipates Superfluities, resolves serous Humours, and carries them off by Transpiration. It provokes Urine and Sweat, and powerfully resists Putrefaction; hence it is given with Success in all Sorts of Fevers.

It is specifically adapted to cure all Disorders to which the Hair is subject. Thus it is a Remedy against Baldness, clears the Hair of Scurf and Filth, restores that which is decayed to its former Lustre and Beauty, prevents its falling off, and preserves it from growing grey.

It excites all the Faculties of the Brain, tempers any Excess in the Humours deposited upon it, and corrects in them what is amiss. It therefore depurates the animal Spirits, restrains hot and bilious Vapours, and renders those mild, which are inclinable to be acrid, acid, or narcotic. It is on these Accounts admirable in Want of Rest, comatous Disorders, Epilepsies, Phrensies, Madness, Melancholy, Head-ach, and all Disorders,

and Tumors, which happen to any Part of the Head. It sharpens the Sight, and restrains and dissipates all habitual Fluxes of Humours upon the Teeth, Ears, and Glands of the Neck and Fauces. By its agreeable Odour it exhilarates the Heart, and strengthens the vital Faculties. It is good in Disorders of the Breast, purges the Lungs, incising and evacuating thick and viscid Humours, which stick to the Sides of the Branches of the Aspera Arteria. Hence it becomes an effectual Remedy against a Cough, Difficulty of breathing, Asthma, Peripneumony, Pleurisy, Spitting of Blood, fainting Fits, and Heart-burn.

It braces up, and restores a proper Tone to the relaxed Fibres of the Oesophagus and Stomach. It purges off Collections of the Excrements, which cause Nauseas, or Inclinations to Vomit. It quenches Thirst, and penetrates, moistens, and purges very gently the Stomach and Intestines. It cools the Liver and Spleen, and opens Obstructions formed therein, let them be never so inveterate. It wears away the Stone in the Kidnies or Bladder, and opens the urinary Passages. It is both a Preservative against, and a Cure for the Jaundice and Green-Sickness. It is particularly useful to the Parts of Generation. Thus it prevents Sterility, expels Immundities, and the Secundines out of the Womb, promotes the Menfes, if deficient, and restrains them, if immoderate, as it does the Fluor Albus. It is of Service in Disorders of the Joints, and nervous System, and cures Stupors, Spasms, and Pandaliculations, and windy Affections of the Muscles. It softens and resolves hard Concretions formed upon the Ligaments of the Joints, and, for this Reason, is serviceable in ischiadic Pains, and the Gout. It is also good against Tumors of all Sorts, whether hot or cold; oedematous, scirrhus, inflammatory, or erysipelatous. It is also good in Wounds, Ulcers, Fractures, Luxations, and all Disorders of the Skin. Ray from *Petrus Formius*.

This is a very great Character of a Plant, and perhaps stretched a little too far; but we may learn from hence, that it has been esteemed as a great Deobstruent, and excellent Alterative. And if we consider that most of the capillary Plants abound with a neutral, saponaceous Salt, which approaches to the Nature of Nitre, we may the easier believe that the *ADIANTHUM* may be possessed of great Virtues, in all Disorders where Obstructions are either the Cause, or the Effect. But then it must be taken in considerable Quantities, and those frequently repeated, and the Course must be persisted in for a long Time.

The best Way of taking it is in very strong Decoctions, or Infusions.

Mr. Ray observes, that because this Plant is temperate, in regard to all its Qualities, he is inclinable to believe the Virtues of it weak and inconsiderable. But we now know that the alterative and deobstruent Virtues of Simples, by no Means, depend on the Excess of any of their sensible Qualities, and therefore nothing can be concluded from this.

Somewhat like this, in Figure and Virtues, is the *ADIANTHUM CANADENSE*, Maidenhair of Canada, much used by the French, and thus distinguished:

Adiantum Canadense, vel *Capillus Veneris Canadensis*, Cod. Med. 4. *Adiantum Americanum*, Corn. 7. Raii Hist. I. 148. Fill. Hort. Pis. 3. Tourn. Inst. 543. Elem. Bot. 433. Boerh. Ind. A. 26. *Adiantum fruticosum Americanum*, Park. Theat. 1049. *Adiantum fruticosum Brasiliense*, C. B. Prod. 150. Pin. 355. Chomel. 83. *Adiantum fruticosum Americanum, summis ramulis reflexis, & in orbem expansis*, Pluk. Phytog. 124. Almag. 10. Hist. Oxon. 3. 588. CANADA, or AMERICAN MAIDEN-HAIR. Dale.

The Capillaries, or Maiden-hair, are little Plants that are brought intirely whole to us from several Parts; the chief and most esteemed are those which come from Canada, and are called *Maiden-hair of Canada*, and by the Botanists, *Adiantum album Canadense*, or the white Canada Maiden-hair. This grows about a Foot high, with a very slender Stalk, hard and blackish; from whence there arise small Branches, bearing green Leaves, pretty deep indented, as may be seen by the Figure. It grows likewise in Brasil. This is cultivated with great Care in the King's Garden at Paris, as well as other Sorts of exotic Plants, which are brought from several Parts of the World, by Messieurs Fagon and Tournefort, the King of France's principal Physicians.

The other Capillaries that are brought from Canada, are made Use of for Syrups, which are boiled to a good Consistence, and have Ambergreese added to them. There are many Virtues attributed to this Syrup, especially for Coughs, Catarrhs, Diseases of the Breast, and to administer to Infants new born, with a little Oil of sweet Almonds. As to the Choice of Maiden-hair, you must take such as is newest, very green, and the least broke that you can get. *Pamet*.

In Canada, Brasil, and several other Parts of America, there is a Sort of the dried Maidenhair, a great Deal larger than ours, called by C. Bauhine, *Adiantum fruticosum Brasiliense*, and is the same with the Maidenhair of Canada: The Stalk is slender, hard, and of a brownish Red, or purple Colour, tending to black, divided into many Branches, which bear little Leaves, almost like the common Sort, long, and indented on one Side, but

but whole on the other, soft, tender and fragrant; this is what is most valued, as being the best scented of all the Maiden-hairs. It is common in several Parts of America, and especially in Canada; so that the Traders pack up their Goods with it, instead of Hay, when they would send them to a distant Country. It is by this Means we have such Quantities of it; but it would be much better if they would pack it up in Papers or Bags, that would preserve the Scent and Virtue of it. Chuse such as is fresh, green, well scented, whole and soft to the Touch. This Plant contains little Phlegm, a good deal of Oil, but not much Salt; it is pectoral, aperitive, and promotes Expectoration, sweetens the Blood, and provokes the Menfes. *Lemery.*

The next Plant, called *Adiantum* by Botanists, is the Wall-Rue, thus distinguished.

ADIANTHUM. Maiden-hair.

ADIANTHUM ALBUM, *Ruta muraria, Salvia vitæ*, Offic. *Adiantum album*, Raii Hist. I. 146. Synop. 48. *Adiantum album montanum*, Herm. Hort. Lugd. Bat. 10. *Ruta muraria*, C. B. 356. Tourn. Inst. 541. Elem. Bot. 433. J. B. III. 753. Chab. 555. Boerh. Ind. A. 26. *Ruta muraria sive Salvia Vitæ*, Park. 1050. Ger. 983. Emac. 1144. WALL RUE, or RUE MAIDEN-HAIR. *Filicula petraea Ruta facie*, Hist. Oxon. iii. 585. *Muraria semper virens vulgaris*, Dill. Cat. 73. TRUE WHITE MAIDEN-HAIR. *Dale.*

This is a small low Plant, growing seldom above two or three Inches high, its slender Stalks being of a whitish Colour, whereon grow a few small roundish, stiff Leaves, resembling those of Rue, crenated a little about the Edges, of a whitish green Colour above, covered underneath, when come to its full Growth, with brown dusty Seed. It grows on old Stone Walls and Buildings, its little fibrous Root abiding several Years.

This is one of the five Capillary Herbs mentioned in the Dispensatory, and has the same Virtues with the rest of the Maiden-hairs, and is sometimes used in pectoral Decoctions, and diuretic Apozems.

This is the Herb that has been taken for the Hyssop of Solomon. It grows on Walls in hot Countries, and is of wonderful Virtue in curing Disorders of the Breast. It tastes like sweet Oil, and cures a stinking Breath. Bruised with warm Water and Honey, it helps the Asthma and other Distempers of the Breast; it provokes Urine, expels Gravel, and is good in the Asthma and Pleurisy. *Boerhaave.*

The third is the *Adiantum nigrum*, Offic. *Adiantum nigrum Officinatum*, J. B. iii. 742. Raii Hist. i. 152. Synop. 50. *Adiantum nigrum vulgare*, Park. 1049. *Adiantum foliis longioribus pulverulentis, pediculo nigro*, C. B. 355. Hist. Oxon. iii. 588. Boerh. Ind. A. 26. *Onopteris mas*, Ger. 975. Emac. 1137. *Filicula quæ Adiantum nigrum Officinatum*, El. Bot. 432. *Filicula quæ Adiantum nigrum Officinatum, pinnulis obtusioribus & acutioribus*, T. Inst. 542. Buxb. 113. COMMON BLACK MAIDEN-HAIR.

This Maiden-hair grows about a Span high, its slender Stalks being smooth and black, divided into many Segments, of small, firm, shining, green Leaves, notched pretty deep, and sharp pointed, growing on little Branches, sometimes two opposite together, and sometimes alternately to the Number of twelve or fourteen Pair, the Top ending like a Fern; the Backs of the Leaves have the Margin covered with a brown dusty Seed. The Root is pretty large and fibrous.

It grows in shady Lanes, and at the Roots of Trees.

This also is one of the five capillary Herbs, and its Virtues the same with common Maiden-hair; and is accordingly used for Coughs, and all Affections of the Lungs, and Diseases of the Kidneys; some commend it for the Jaundice.

The fourth is the *Adiantum aureum*, & *Polytrichum aureum*, Offic. *Adiantum aureum majus*, Raii Hist. i. 123. Synop. 28. Cat. Angl. vii. 123. *Polytrichum aureum majus*, C. B. 356. Park. 1051. *Polyt. Apulei, & majus quibusdam*, J. B. iii. 760. *Polytrichum Apulei majus*, Chab. 558. *Polytrichum vulgare & majus capsula quadrangulari*, Dill. Cat. 221. *Muscus saxatilis, aut sylvestris Trago*, El. Bot. 439. *Muscus capillaceus major, pediculo & capitulo crassioribus*, T. Inst. 550. Bux. 219. *Aureus capillaris medius*, Herm. Hort. Lugd. Bat. 431. *Muscus coronatus major pileolo villosa aureo*, Hist. Oxon. iii. 630. Boerh. Ind. A. 21. *Muscus capillaris, seu Adiantum aureum*, Ger. 1371. *Muscus capillaris, seu Adiantum aureum majus*, Ger. Emac. 1559. GOLDEN MAIDEN-HAIR. *Dale.*

This is a large kind of Moss, with a Stalk three or four Inches high, whose lower Part is wholly covered with small, short, hard and stiff brown Leaves; the upper Part is quite bare to the Top, on which grows a long roundish Head, or Seed-vessel, covered with a woolly, sharp-pointed, reddish yellow Cap, which falls off as the Head grows ripe; the Root is small and stringy. It grows in heathy, barren and boggy Ground, and frequently on old Ant-hills.

This is one of the five capillary Herbs, though it is but rarely used. Some Authors attribute as much Virtue to this, as to the former Maiden-hairs; besides which, it is said to be

very good to prevent the falling of the Hair, and to make it grow thick, being boiled in Water or Lye, and the Head washed with it. Dale says the Decoction is commended for the Pleurisy. *Miller.*

ADIAPHOROS. *Ἀδιάφορος*. From a Negative, and *διαφέρω*, to differ. Indifferent, or without Difference. *Constantine.*

It is sometimes applied to Foods.

ADIAPNEUSTIA. *Ἀδιαπνευστία*. From a Negative, and *διαπνέω*, to perspire. It is a Symptom arising from the Density of the Pores, when Perspiration is deficient. It is mentioned by Galen. lib. xi. *Metb. Med. Goræus.*

It signifies nothing more than a Stoppage of Perspiration, the Cause or Consequence of all Distempers, whether acute or chronic.

ADIAPTOTOS. *Ἀδιάπτωτος*. From a Negative, and *διαπίπτω*, to stumble, or slide. The Word signifies firm; but in Medicine it is the Name of a Remedy against the Colic, which Galen, lib. ix. *τὴν κατὰ τὸν*, says consists of these Ingredients, viz. Stone Parsley, the Seed of Henbane, white Pepper, of each forty Drams; Juice of Poppies twenty Drams; Saffron six Drams; Opobalsamum three Drams; made into an Electuary. It seems to take its Name from its prevailing Virtue in all Inflammations. *Goræus.*

ADIARRHŒA. *Ἀδιάρρηα*. From a Negative, and *διέρχω*, persudo, to flow out, or through. It signifies an intire Suppression of all the necessary Evacuations of the Body, and Retention of the Humours which ought to be discharged. *Foesius.*

ADIB. A Beast mentioned by Avicenna, which Castellus takes for the Wolf.

ADIBAT. Mercury, in the Alchymistical Jargon. *Rulandus. Johnson.*

ADIBISI, or ADIBIZI. *Testudo*, a Tortoise. The German Word which Rulandus explains it by, signifies a Snail. *Rulandus.*

ADIDACUS. Rulandus calls this *ADIDE ALARCHOS*; *ADIDA LARCHOS, id est, CALCECUMENON.* Johnson, the literal Transcriber of Rulandus, and Castellus, have both prudently omitted taking notice of this Word, and many more of the most difficult, because I suppose they could not explain them. As I have not met with the Word in any Author, except Rulandus, I can only explain it in his Words, which I confess I do not know what to make of.

ADJECTIO. The same as **ADDITIO**, the adding of any thing that is deficient. *Castellus.*

ADICE. *Ἀδίκεν*. The Nettle is sometimes called by this Name. *Goræus.*

ADIPSATHEON. This is, according to Pliny, a thorny Shrub, growing in the Islands of Nigros, and Rhodes. *Pliny, l. xxiv. c. 13.*

ADIPOSA MEMBRANA. See **CELLULOSA MEMBRANA** and **ADEPS**.

ADIPSON. *Ἀδίψων*. From a Negative, and *δίψω* Thirst.

Hippocrates, in his Treatise *de Ratione Victus in Acutis*, says the Psillana, by its Glutinousness, is (*ἀδίψων*) Adipson, that is, a Preventer, or Curer of Thirst; and in this Treatise he applies the same Word to Oxymel, meaning that it quenches Thirst.

Medicines were so called, because they prevented or allayed Thirst; whether drank, or in a Linctus, or Gargarism; and the Name may be applied even to such Medicines as simply do not provoke Thirst. Now because Dryness is the principal Cause of Thirst, it is plain that what quenches Thirst must be moist; and if it be cold besides, it is by so much the more effectual; for Coldness preserves the Moisture, which Heat would consume. However many hot things are effectual in allaying Thirst, as Liquorice and Pepper in some, if held in the Mouth; the first because of its moist and clammy Juice, the other by its drawing Phlegm from the Head into the Mouth and Jaws. Of the same Virtue are cooling Potions and Eclegms, many of which are described by Galen, lib. *τὴν κατὰ τὸν*.

ADIPSOS. *Ἀδίψος*. The Egyptian Palm. It is a great Tree, not streight but wreathed, green, smelling like a Quince-tree, with a Leaf like Myrtle, Fruit like Capers, not good to eat, but of a pleasant Smell, not at all ligneous. The Fruit, a little before it is ripe, is called *μυροβάλανος* [a Myrobalon] when ripe and blackish *γονιμακάλανος*. Theophrastus calls this Tree *βάλανος*, that is, *Mast*, from its Fruit; but it is called *ἀδίψος*, because its Fruit, gathered before it is ripe, and tasted, restrains Thirst; or because, as Solinus relates, a Drink is made of its cool, sour and astringent Juice, which quenches like what is made of our Pears, Apples, and the Fruit of the Service-tree.

ADIPSOS is also Liquorice; so called by Theophrastus, Dioscorides and Pliny, because with the sweet and clammy Juice of its Root it satisfies both Hunger and Thirst. Wherefore it was often given to hydropical Persons to prevent their Thirst.

ADIPSOS is also the Name of a Catapodium, or Pill, composed by Asclepiades as follows:

Take of the Seeds of Garden Cucumber and Purflane, each eight Drams, Gum- Tragacanth three Drams; dissolve the Tragacanth in the Whites of new-laid Eggs, and add it to the other Ingredients, which must be finely powdered, and all mixed together, and made up in the Form of Pills. Dry them in the Shade, and let the Patient hold one of them under his Tongue, and suck up the Liquor that comes from it. Galen mentions it, *lib. viii. τὸν καλὸν τόνον*. *Gorræus*.

ADIRIGE. Rulandus explains this by Armoniacum. I suppose he means the Salt, that being of more general chymical Use than the Gum Ammoniacum, is frequently called by Mistake Armoniacum.

ADJUTORIUM. The Bone of the Arm, called usually the Humerus. *Castellus, from Johannes Anglicus, and Vesalius*.

ADJUTORIUM also sometimes signifies a topical or external Remedy, applied to a Part affected, in Aid of internal Medicines. *Castellus from Theodorus Priscianus*.

ADJUVANTIA. Medicines are so called, which aid and assist Nature in the Cure of Distempers.

ADYLISTOS. *Ἀδύλιστος*. From a Negative, and *ἀδύλω*, to strain, or defecate. Wine not fined clear from the Dregs, or not passed through the Strainer, which was the usual Method of managing such Wines as were kept in order to improve their Taste; and was sometimes practised on others to lower their Strength, and make them milder and fitter for drinking. *Gorræus*.

ADMIRABILIS. An hyperbolical Epithet given by many of the Chymists to particular Preparations of their Invention. It is generally applied to factitious medicinal Stones, of which there are many. Lemery says, that which he describes is by much the best.

Powder and mix together of white Vitriol eighteen Ounces, of fine Sugar and Nitre each nine Ounces; of Alum two Ounces; of Sal Ammoniac six Drams; of Camphire half an Ounce. Put this Mixture into a glazed earthen Pot, moisten it to the Consistence of Honey with the Pickle of Olives. Put the Pot over a gentle Fire, and dry the Mixture leisurely till it acquires the Consistence of a Stone. Keep it close covered, because it otherwise readily attracts Moisture from the Air.

This Stone is deterfivè, vulnerary, and astringent. It resists Gangrenes, stops Hæmorrhages, either dry or dissolved; it is used in Collyria for Cataracts of the Eyes, is applied to scorbutic Ulcers, and is an Ingredient in Injections for Gonorrhœas.

Great Care must be taken, during the Operation, to moderate the Fire, otherwise the Camphire, by Reason of its Volatility; exhales. But with all the Care that can be taken, a great Part of the Camphire will be dissipated; for which Reason a little Camphire may be added to it when it is used. *Lemery Cours de Chymie*.

Castellus quotes a Lapis Admirabilis from Junken.

ADMISURAB. Earth. *Rulandus*.

ADNATA TUNICA. A Coat of the Eye, called also **CONJUNCTIVA**, and **ALBUGINEA**. It is that which makes the White of the Eye. It is formed by the tendinous Expansions of the Muscles which move the Eye. This Coat covers the whole Ball of the Eye, except the Fore-part, which is called the Sight, but is not numbered amongst the proper Tunicks of the Eye. It is extremely sensible and abounds with Veins and Arteries, which are very visible in Inflammations of the Eyes. *Winslow, Drake, Keil*.

It covers so much of the Eye as is called the White, and being reflected all round, it lines the two Eye-lids; it being thus returned from the Eye to the Inside of the Eye-lids, it effectually hinders any extraneous Bodies from getting behind the Eye into the Orbit, and smooths the Parts it covers, which makes the Friction less betwixt the Eye and the Eye-lids. *Cheselden*.

ADNATA, or **ADNASCENTIA**, are those Off-sets, which, by a new Germination under the Earth, proceed from the Lilly, Hyacinth, Narcissus, &c. which afterwards grow to true Roots; which the French call *Cayeux*. *Miller*.

ADNATA also signifies things that grow upon animal or vegetable Bodies, which are either inseparable from them, as Wool, Hair, Horns, and Fruits; or else accidental, as Fungusses, Mistleto, and Excrescences. *Galen*.

It is sometimes spelt **AGNATA**.

ADOC. Milk. *Rulandus*.

ADOLESCENS. The Iron Bars that support the Fire in a Grate, or Furnace. This is the Signification of the German Word, by which Rulandus explains it; but I do not know by what Analogy Iron Bars are so called. The German Word is **GRENDER**, which will bear another Signification. Paracelsus, amongst other Extravagances, had an Inclination to produce a Man without the Assistance of a Female, probably with a View of rendering that Sex useless, for which he had no great Com-

plaisance. His Disciples say he actually did produce something in the Shape of a little Man, by digesting Semen Masculinum inclosed in a Glass Vessel in a Dunghil. This Production was called the Homunculus of Paracelsus, which Sense the German Word will bear, and this answers better to **ADOLESCENS**.

ADONION. *Ἀδώνιον*. Gorræus says this was a Species of Southernwood, which used to be set in Pots, and served as an Ornament for Gardens.

ADONIS FLOS. Pheasants-eye. Red Maithes.

The **CHARACTERS** are,

The Leaves are like Fennel, or Chamomile; the Flowers consist of many Leaves, which are expanded in Form of a Rose. The Seeds are collected into oblong Heads.

There are three Varieties of this Plant.

1. **ADONIS hortensis Flore minore atrorubente.** C. B. The common red Birds-eye. *Miller*.

This, Gerard says, is called, by the Herb-women in London, *Rose a Ruby*.

The Seed is thought to be good against the Stone. The Powder of the Seeds stamped given in Wine, wonderfully helps the Colic. *Gerard*.

The Flowers infused in Wine and drank, are found by Experience to relieve the Colic. *Ray from Parkinson*.

2. **ADONIS sylvestris, Flore luteo, Foliis longioribus.** The long-leaved yellow Birds-eye. *Miller*.

This, Ray says, only differs from the former in the Colour of the Flower.

3. **ADONIS Hellebori Radice, Bupthalmi Flore.** The Hellebore-rooted Pheasants-eye, commonly called the Fennel-leaved black Hellebore.

This is used by the Germans in Medicine as the true Hellebore. *Miller*.

ADOR. A Sort of Corn called also **SPELTA**, and **ZEA**. See **SPELTA** and **ZEA**.

ADORAT. The Weight of four Pounds. *Rulandus*.

ADOS. Water wherein Iron has been extinguished. *Rulandus*.

ADPLUMBATUM. This is a Word used no where, that I know of, except by Scribonius Largus, 271. He directs a Sort of Acopum, there described, to be put into a Tin Vessel diligently covered, and (*adplumbato*) soldered with Lead I suppose he means. Cato, in giving Directions for making an Olive Mill, or Press, uses the Word *circumplumbato* in much the same Sense.

ADRA RIZA. Blancard says the Root of the Aristolochia is thus called. I meet with the Word in no other Author.

ADRACHNE. The Strawberry Bay. It is thus distinguished by Authors.

ADRACHNE Officinarum, Park. Theat. 1490. Raii Hist. ii. 1577. *Adrachne Theophrasti*, Ger. Emac. 1602. J. B. 87. *Adrachne Theophrasti, Arbutus, seu Cernaro, proxime accedens*, Chab 4. *Arbutus Folio non Serrato*, C. B. Pin. 460. Pluk. Almag. 49. Jons. Dendr. 65. Tourn. Cor. 41. *Arbutus Dioscoridis vera Cometa dicta*, Wheel. Itin. 452. **THE STRAWBERRY BAY.** Dale p. 312.

It grows plentifully in the Island of Candy, on the Hills of Leuce, and in other Places among the Rocks, more like a Shrub than a Tree. It is an Ever-green, and its Leaves are so much like Bay-leaves, that they are not to be distinguished but by holding them to your Nose; for the Leaf of the *Adrachne* has no Smell at all. The Bark of the Stem and all the Branches is so smooth, red, and shining, that they look like Branches of Coral. The Bark cleaves in Summer, and falls off in very thin Chips; at which time it loses its fine-red and shining Colour, and takes up with a Sort of Medium betwixt a pale and an Ash Colour. It flowers and bears Fruit twice in the Year, as does the Arbutus Strawberry-tree, and their Fruits are so alike, that there is no Way of distinguishing them. But this Tree differs from the Arbutus Strawberry-tree, in that it grows only on Hills, nor has the serrated Leaf, nor the Bark of its Stem ragged. The Wood of the Tree is extremely hard, brittle, and inflexible.

It serves the Peasants for Fuel, and the Women for Whirls to their Distaffs.

Theophrastus reckons this Tree among such as are not killed by stripping them of their Bark, and are always green, preserving the Leaves on their Tops in Winter.

This Tree, in Crete, and all over Greece, is called *Ἀδράκη*, *Adracla*. *Bellus*.

Bellonius observed these Trees in many Places of his Travels, particularly in his Journey from Aleppo to Antioch, upon the Hills, but robbed of all their Fruit by his Fellow-travellers to eat on the Road; for it was ripe, and of a very inviting Colour. It grew in Clusters, and was of the Bigness and Colour of a Raspberry.

None who have read the Account of this Tree in Theophrastus can doubt that the Tree thus described by Bellus was the *Adrachne*.

dracme of that ancient Author, which is confirmed by the Name *Adracla*, *Adracla*, by which the modern Greeks call it.

Adracla, *Adracla*, differs from *Andracla*, *Andracla*, as Pliny would have us observe; for the latter is an Herb, by the Latins called *Portulaca* [Purflane] the other a Tree.

Mr. Wheeler observed this Tree in Achaia, near the Pentelican Hills, and saw some of the Fruit at Smyrna. *Ray*.

ADRAM. Sal Gemmae. *Rulandus*.

ADRARAGI. Garden Saffron. Called also ALFAR, AFAN. *Rulandus*.

ADRARIGES. Green Ink. *Rulandus*.

ADRIANUS. We learn from Aurelius Victor, that the Emperor Adrian had some Knowledge in Physic. This Circumstance is of too much Importance for the Honour of the Profession to be omitted; though, upon the whole, the Art rather lost than got Reputation by this Prince, who died, as it is said, much out of Humour with Physic and Physicians, because he could not be cured of an habitual Hæmorrhage, which at last brought on a Dropsy, which occasioned him to kill himself, in order to avoid a lingering Death.

The Antidote which bears his Name has been said to be his Invention. It is thus prepared:

Take of Pepper, and Seed of white Henbane, each twenty Drams; of Opium ten Drams; of Saffron five Drams; of Spikenard, Euphorbium, Amomum, Pellitory of Spain, Cyperus, Cardamom, Malabathrum, or Indian Leaf, dried Leaves of Rue, Cassia, Castor, Seeds of Daucus, Myrrh, Parsley, of each one Dram; of dried Roses, and Seeds of Smallage, each a Dram and half; of Ginger, and Opobalsamum, each two Drams; Honey enough to make it into an Electuary.

The greatest Dose is the Quantity of a Hasel-nut, the least that of an Egyptian Bean. It is good for the Colic, taken in warm Water before Sleep; for Infirmities of the Stomach, and those who cannot retain their Food; it is given in Posca, [Vinegar, and Water]; for the Strangury, in warm Water; for spitting of Blood, in Posca; for the Dysentery, reduce it into Pills, and let the Patient take a little warm Posca after them. To consumptive People give it at Night in Hydromel; for a dry Cough take it in a Linctus with Honey; for the Bites of Spiders and Vipers, in Mulsam [Wine boiled with Honey]. It provokes the Menstrues, taken in Mulsam in which Pennyroyal, or Calamint, or Rue hath been boiled. *Aetius Tetr. 4. Serm. i. cap. 108*.

ADROP. *Rulandus* does not give much Information in his Explication of this Word, which he calls AZAR, LAPIS IPSE, AZANE.

Ripley calls it UZIFUR, or PLUMBUM RUBEUM. *Theatrum Chym. Vol. ii. p. 114*. By this he means the Mixture of the Philosophers-Stone, or the Substance whence that is to be procured, as appears by a parallel Passage of an anonymous Author in the same Collection, Vol. iv. p. 474. *Castellus* is mistaken when he explains it Lead; for Lead, in the alchymistical Sense, is Antimony, as the Luna Philosophorum is the Regulus of Antimony; and thus *Adrop* is to be understood in David Lagneus, *Theatrum Chymicum*, Vol. iv. p. 726, who, from Arnoldus, interprets *Adrop*, Saturnus, that is, Antimony, the Matrix of the Philosophers-Stone.

ADROBOLON. *Adrobolon*. From *adros* large, and *bolos*, a Glebe, Bole, or Mass. The Indian Bdellium, which is a coarser Sort than the Arabian, being impure, black, and in larger Lumps. *Constantine, Gorraeus*.

ADROS. *Adros*. Plump, of a good Habit, adult; in this last Sense it is used by Hippocrates, *Lib. de Genitura*. Hence *adros*, plentifully, mentioned by the same Author, speaking of purging melancholy Patients.

ADROS is also applied to the Pulse, when it is ample and full, and the Artery is greatly distended in all its Dimensions. *Gorraeus*.

ADSAMAR. Urine. *Rulandus*.

ADSELLARE. This Word is peculiar to Vegetius; for I do not know that it is used by any other Author. It signifies literally to go to stool. He mentions it *L. iii. c. 45*, and in some other Places.

Castellus quotes it from the *Rei Rusticae Scriptores*.

ADSTRICTIO. ADSTRICTION. It either signifies the Retention of any natural Evacuation by the Rigidity of the respective Emiffaries, and is usually in this Sense applied to the Pores of the Skin, and intestinal Excretion, or is used to express the styptic Quality of Medicines.

ADSTRINGENS. ASTRINGENT. Styptic. See STYPTICA.

ADULTERATIO. Adulteration of Medicines, or counterfeiting those which are genuine by something like them in Appearance, though not in Efficacy. This has been complained of in all Ages; but is at present become a Trade so common, that unless the Legislature finds some effectual Method of putting an End to it, half Mankind will be destroyed, and the Profession of Physic rendered utterly useless; for Physicians may prescribe with great Judgment, and Apothecaries may admini-

ster with an equal Degree of Honesty, and yet the Abilities of one, and Diligence of the other, will be rendered even prejudicial to the Patient, if the Medicine, designed as a Relief, is so artfully adulterated as not to be discovered unless by the Effects, which I know is too often the Case.

I am sensible that no good Effect upon those who are guilty of Adulterations can be expected from any thing I may say; for they who can reconcile themselves to Robbery and Murder, which is the Consequence of Adulteration in a heinous Degree, are too abandoned to be reasoned out of their Iniquity.

In the Course of this Work, I shall do all in my Power to discover these egregious Cheats, by laying open the usual Methods of Adulteration, and specifying the Marks of genuine Medicines, and the Ways of knowing those that are counterfeited.

ADULTERIUM. Paracelsus, in his enthusiastical Way, has made a figurative Marriage betwixt the sensitive Soul, which he treats as the Husband, and the Body, which, in his Sense, is the Wife. Hence he calls overloading the Body with Aliment by the Instigation of the Appetite, ADULTERY.

ADUSTIO. BURNING. Avicenna, in his Epistle to Harsen, *Theatr. Chym. p. 869*, explains *Adustio* with the usual Obscurity of the Alchymists. *Adustio autem est quando commiscetur, aut adurit, aut corrumpitur Humiditas substantialis rei*. *Castellus* has taken no Care to render it more intelligible.

ADUSTION, otherwise called SIRIASIS, is an Inflammation of the Parts about the Brain and its Membranes, attended with Hollowness of the Sinciput [Top of the Head] and Eyes, a pale Colour, and Dryness of the Body.

The Remedy is the Yolk of an Egg, with Oil of Roses, laid on the Forehead, in Form of a Liniment, for the Convenience of often changing. *Oribasius Synop. lib. v. cap. 13*.

Apply the Leaves of Turnsole, called *Scorpiurus*, (because it twists its Branches and Flowers like a Scorpion's Tail) to the Forehead; or the Paring of a Gourd, or the Skin that surrounds the Pulp of a Pumpkin, or the Juice of Garden Nightshade, with Oil of Roses. *P. Aegineta, lib. i. cap. 13*.

ADYNAMIA. *Adynamia*. From a Negative, and *δυναμις*, Strength, or Force. Weakness, or Impotence from Sickness. See ADUNATOS.

ADYNAMON. Of the same Derivation as the former. A Sort of factitious Wine, made by putting to two Gallons and a half of Must half as much Water, and boiling it to the Consumption of the Quantity equal to the Water. It is made for sick Persons, for whom pure Wine would be too strong; for it is weak and of no Force, whence it takes its Name. But Dioscorides prescribes an equal Quantity of Wine and Water, to boil till all the Water be boiled away, and when it is cold, to run it up in a Vessel well pitched. *Gorraeus*.

ADY. The Palm-tree of the Island of St. Thomas. It is a very tall Tree, exceeding even the Pine in Height, with a thick, bare, upright Stem, growing single on its Root, of a thin, light Timber, and full of Juice; its Leaves like those of the cocciferous Palm-tree. Its Head shoots forth into a vast Number of Branches, which being cut off, or an Incision made therein, they hang up a proper Vessel to receive the Tears or Juice that distil from the Wound; and this supplies the Place of Wine among the Indians, and easily intoxicates. It is sweet when new, but sour in a few Days; nor do the rest of the Branches which escape unhurt ever fail of bearing Fruit. The Inhabitants of this Island do not cut the Buds of this Tree, as the Indians do those of the cocciferous Palm-tree.

The intire Fruit is called by the Portuguese, *Caryocet*, and *Cariocet*; and by the black Natives, *Abanga*. Its outer Rind is yellow, under which is a yellowish Pulp, and after that a hard blackish Stone, which contains a black Kernel, that is good to eat, and peeled of its Skin, is white. The Fruit intire is of the Size and Shape of a Lemon. They eat it roasted, and frequently at their Tables mix the whole raw Kernels with Mandioc Meal. They believe these Kernels to be of wonderful Virtue in restoring Strength to those who pine under a Distemper, and give their Patients three or four of them twice or thrice a Day, to comfort their Hearts. Besides this, they make an Oil out of the Fruit, thus: They take the Pulp off the Stone; and mix it with a good Quantity of very hot Water, and afterwards set it over the Fire to boil a considerable time, carefully stirring it; then it is taken off, and suffered to stand till all the Dregs settle at the Bottom, after which, with a Ladle they take off the Oil that swims on the Water. This done, they repeat the Operation, by adding more hot Water. The Oil is of the Colour of Saffron, concretes with Cold, but is otherwise liquid, eatable, and serves the Inhabitants for the same Purposes that Oil of Olives, or Butter, does the Natives of our Climate; though, to speak the Truth, it is inferior to either of them, both in Smell and Taste.

This Oil is in common Use with the Inhabitants for anointing those Parts of the Body which are stiff and contracted; and they say it is of singular Efficacy in relaxing rigid Tendons. They anoint the whole Body with it also after Exercise and Weariness.

Weariness with Labour. By Exercise, say they, the similar Parts of the Body exhale and are dried up, which ill Effects are prevented by a slight rubbing with this Oil. In short, it is their Acopon, and a noble Remedy, they say, against Lassitudes. *Ray's History of Plants.*

ADYNATOS. *Ἀδυνατός.* Its Derivation is the same as **ADYNAMIA**, and **ADYNAMON**. In Hippocrates it signifies Weak, Feeble, or Impotent, and this Weakness is said to be a very bad Symptom, when it occurs in Diseases, where no Evacuation has happened sufficient to account for it. When it is attended with frequent Stools, Lassitude, Pain in the Head, Thirst, Want of Rest, and the Patient mutters obscurely, so as not to be understood, it is a Sign of an approaching Delirium. *Prædict. l. i. Coac. Prænot.*

AEAZO. *Ἀεζω.* To lament, complain, exclaim, or groan. *Foef. Castellus, from Hippocrates.*

AEDES. *Ἀέδης.* From *α* Negative, and *ἔδω*, Sweet. Unpleasant, Disagreeable. It is sometimes applied to Aliments.

AEDOIA. *Ἀέδοια.* From *αἰδέομαι*, Modesty. The same as **PUDENDA**, by which is meant the Parts subservient to Generation in both Sexes.

ÆGAGROPILA. From *ἄγρῳπος*, the Rupicapra, or Rock-Goat, Chæmois, or Gems, and *πίλος*, a Ball. Velschius wrote a Treatise on the Virtues of this. It is a little Ball found in the Stomach of Does and Goats in Germany, which some have pretended to be formed by the Doronicum, or Leopards Bane, on which these Animals feed; but it is now certain that it consists only of Hairs, which they swallow; and the like Balls are found in the Stomachs of Cows, Hogs, Boars, &c. and consequently are of no medicinal Virtue; though, from the false Opinion concerning their Original, some have celebrated them in Loosenesses, Hæmorrhages, &c. because of the Plants from whence they conceived them to be formed. They have likewise been recommended in a Vertigo, because the Goats which produce them climb very steep Rocks without being giddy. *Geoffroy.*

ÆGEIRINON. *Ἀγείρινον.* From *ἄγρῳπος*, a Poplar. An Ointment so called, because the Catkins, or Fruit of the Poplar is one of the principal Ingredients in it. It is made after the following Manner:

In the Spring Season, when the Seeds of the Black Poplar have most Resin about them, bruise them, and put four Ounces of them into a Pint of sweet Oil; let it digest forty Days in the Sun, or boil three Hours in a double Vessel (*a Circulatory I suppose*) and afterwards be strained. *Paulus Egineta, l. vii. c. 20.*

ÆGEIROS. *Ἀγείρος.* The Poplar. Hippocrates recommends nine Grains of the Cretan Poplar to be taken bruised in black Wine, as a Medicine to promote the Expulsion of the Foetus. Foefius interprets it the Black Poplar. See **POPULUS**.

ÆGIDES. *Ἀγίδης.* A Disorder of the Eyes. It is mentioned by Hippocrates, (*Prædict. l. ii.*) where, in the Opinion of Foefius, it signifies small white Cicatrices in the Eye, caused by an Afflux of corrosive Humours upon the Part. But he interprets the same Word in a different Manner in his Commentary on the Passage where it again occurs (*Coac. Prænot. 218*). Here, he says, it signifies small white Concretions of Humours, which stick upon the Pupil, and obscure the Sight. Castellus blames Foefius for calling one of these Cicatrices or Concretions *ἄγιδης*, which, he says, should be wrote *ἄγιδας*; but it is not certain that this Correction is right; nor do I see any Reason to think the Word should be taken in different Senses in the two Passages quoted above. Crispinus interprets *ἄγιδας* a white Membrane or Cicatrix in the Eyes. In Inflammations of the Eyes, where there is a considerable Afflux of Humours to the Part, we frequently observe little white Specks to arise upon the Pupil, which sometimes increase so much as to become a Film. These always disappear spontaneously, as the Inflammation is resolved, and the Humours diverted another Way. But if sharp painful Powders, or Collyria are applied, they are frequently so hardened and fixed, as not to be removed afterwards by any Means whatever.

These seem to be what are meant by **Ægides**.

ÆGIDION. *Ἀγίδιον.* From *ἄγιδας*, or *ἄγιδης*. The Name of a Collyrium described by Aetius against Defluxions or Inflammations of the Eyes. *Aetius.*

ÆGILOPS. *Ἀγίλωψ.* The *Cerrus Mas majore Glande* (Park.) is called thus. Gerard mentions it under the Name of *Cerris majore Glande*. HOLME OAK, with GREAT ACORNS.

It is the *Quercus Cæhye echinato*, *Glande majore ἄγιδωψ* *Idæorum*, *Aspris Maurorum*, *Cerrus Latinorum* of Casp. Bauhine. J. Bauh. thinks it the *Aspris* of Theophrastus.

We saw the Cups of the Acorns of this Tree at Venice, where they are called Vallonia, taking the Name from Apollonia, a City of Dalmatia, now called Vallonia, whence they are brought. They use them for the same Purposes as we do the Bark of Oak, namely, to dress Leather.

The Cup of this Acorn, which was brought from Cape d' Istria by Valerand Dourez, is thus described by J. Bauhine:

Its Cavity was an Inch and a half in Diameter, and somewhat less in Depth. The Cup itself was surrounded with a Multitude of thick stiff Prickles, somewhat resembling the Fragment of a craggy Rock. It was not less than three Inches in Diameter, and was hairy on the Inside; its Scales were broad, and of a white Ash Colour. Whether the Tree was ever described I cannot tell; for those found on the Road from Pesaro to Rome, described by Lobel, I suppose to be the same with those we saw about the Lake of Bolsena; but these Corri had smaller, smoother, and less prickly Caps.

Nor does that seem to be any other, whose Branches were sent to Bauhine by Dalechampius. It had the Leaves of the common Oak, only longer, and more finely and deeply jagged, the upper Face shining, the under of an ash Colour. The Fruit sticks close to the Wood, and the Cups of the Acorns were prickly and thorny, an Inch in Breadth, but the Acorn was not yet ripe, and the Cups were in every Respect like the prickly Cup of the Oak of Burgundy.

The Leaves of the *Cerrus* observed by us about the Lake of Bolsena in Tuscany were exactly such as Bauhine here describes; but the Cups of the Acorns were different from those of the *Cerrus*, which are called Vallonia.

The Use of the Cups is to die Woollen Cloth black instead of Galls; but they give a fainter Colour, and not so lasting or valuable. *Ray's History of Plants.*

There are some other Vegetables called by the Name of *Ægilops*, as the

Festuca Avenacea sterilis elatior, C. B. *Bromus herba frve Avena sterilis*, Park. *Bromus sterilis*, Ger. *Ægilops Matthiolo*, J. B. GREAT WILD OAT-GRASS, or DRANK.

The Roots are full of small Fibres, and entangled one with another; the Stalks rise several from one Root, a Cubit high or more, slender and divided by several Joints or Knots, often five, each Stalk bears a Panicle divided many Ways, little Bits of which hanging by long and slender Filaments, and compacted of several husky Substances laid one upon another, put on the Appearance of a small Ear, not much unlike the husky Heads of Oats, with a long soft Beard, sometimes of a purple Colour. The Leaves are of a moderate Breadth, rough and hairy at the Edges. When the Plant turns to Straws, the Root withers.

It grows by Hedges, Paths, and the Sides of Fields, in the Month of May.

The Root boiled in white Wine, and the Decoction drank for some Days together, is commended by Tragus as a singular Remedy for the Worms in Children. *Ray.*

Dioscorides gives the following Account of it:

The *Ægilops* is a small Plant, with Leaves like those of Wheat; but softer, and producing its Seed at the very Top, which are two or three in Number, of a red Colour, and inclosed in bearded Husks.

The Herb applied with Meal, by Way of Cataplasm, cures the *Ægilops*, and dissolves Hardnesses. Meal wet with the Juice, and afterwards dried, is kept for the said Purposes. *Dioscorides, l. iv. c. 139.*

The second Sort of *Ægilops* is the

Festuca longissima aristis, C. B. *Ægilops bromoides*, Tab. Ger. BEARDED WILD OATS.

It shoots forth many small, narrow, oblong Leaves, distinguished by several fine Curls, among which arise three or four slender Stalks, a Foot high, bearing Oaten Ears, with empty Husks, of a spadaceous [bright bay] Colour, and armed with a very long Beard, which proceeding from leafy Husks, leans all on one Side.

We observed this Species more than once in Germany. Tabernamantanus took notice of it between Worms and Frankendale. Its slender Beard is often turned in the Manner of Curls.

The third Sort is the

Ægilops Narbonensis, Lob. *Festuca frve Ægilops Narbonensis*, Park. *Festuca Italica*, Ger. *Gramen Festuca xiv. frve Festuca altera capitulis duris*, C. B. HAVER GRASS.

It has a little white and fibrous Root, which shoots forth some slender Stalks, about a Foot high. It has but few Leaves, and those best resembling the Leaves of Wheat and Barley; but softer and smoother, and hairy round the Edges. At the Top of the Stalk come forth small Ears, proceeding from two or three hard Heads, and consisting of some striated Husks, that contain the Seed, which is like Barley, only somewhat smaller and broader, and three in Number, immediately under the Cover of an inner chaffy Husk. From the Husks, and not from the Seed, comes forth a fine, sharp, oblong, white Beard.

It is very common in Sicily, Italy and Languedoc, and Provence in France, in hot and sandy Soils, and in Fields among Wheat and Barley (*Lob. C. B.*). Cultivated in Gardens, it grows higher and bigger, the Ears consisting of five or six Heads. In Sicily there is a white and a black Species, and the Beard is more raised. *Cas.* We observed no such Difference.

We have, more than once, had Experience of its Virtue against the *Ægilops*; but it was in the Beginning of that Distemper, and before it had made any considerable Progress. It is an Astringent and a Dryer, without much heating. The Seed made into Malt with other Corn, communicates an inebriating Quality to the Beer. *Lob. Ray* 1289, 1290.

An *Ægilops*, or *Anchilops*, is an Abscess in the Canthus of the Eye, next the Nose, containing Pus, which breaking, either corrodes the Bone, or discharges itself at the Canthus, or into the Nose. *Gal. in Isag. vel Medico, c. 15.*

Between the Bone of the Nose and the great Canthus near the Eye, a small Tubercle, like an Abscess, often rises, and usually breaking into the Corner, becomes difficult to cure, if not taken care of. *Gal. de Compos. Med. sec. Loc. l. v. c. 1.*

An *Anchilops* is a Tumor in the great Canthus, containing a Collection of Humours, perforated or not perforated. *Galen. Definit. Med.*

An *Ægilops* is an Abscess near the great Canthus. It is difficult to cure, because the subjacent Bone, from the Thinness of its Substance, is corroded. *Act. lib. viii. cap. 87.*

An *Ægilops* is an Abscess between the great Canthus and the Nose, which, if it breaks, and is neglected, causes a Fistula even to the Bone. Before it breaks and becomes an Ulcer, it is called an *Anchilops*. *P. Æg. lib. iii. cap. 22.*

An *Ægilops* is a suppurated Tumor between the great Canthus and the Nose. *P. Æg. lib. vi. cap. 22.*

An *Ægilops* is an Abscess broken between the great Canthus and the Nose. Before it breaks it is called an *Anchilops*; and, if neglected after it breaks, turns to a Fistula, and spreads to the Bone, being then not easy to be cured. *Albucasis, lib. i. de Diagnof. Path. cap. 7.*

In the Corner of the Eye next the Nose, a kind of small Fistula discovers itself, from which a Humour constantly distils. The Greeks call it *Ægilops*, and it is a perpetual Nuisance to the Eye. Sometimes it eats through the Bone into the Nose. Sometimes it turns cancerous, when the Veins appear distended and crooked, the Colour pale, and the Skin hard, and being easily irritated, it raises an Inflammation in the neighbouring Parts. It is a dangerous thing to attempt the Cure of those that are cancerous, because it only hastens Death.

When this Ulcer penetrates into the Nose, all Remedies are in vain, for the Patient will never be cured; but whilst it is confined to the Angle of the Eye, a Cure may be attempted, though even that is difficult; and the nearer the Foramen is to the Corner, the greater will be the Difficulty, because of the very little Room the Hand has to act; but the Work is like to be the easier, whilst the Distemper is recent.

The superior Part of the Orifice must be taken hold of with a Hook, then cut out all that is hollow, as in Fistula's, till you come to the Bone, the Eye and other adjoining Parts being well defended. The Bone is to be well cauterized, and if it be carious, some apply Caustics, that a larger Portion of the Bone may exfoliate, such as Chalcantum, Chalcitis, or Verdigrease, which last works more slowly and with less Effect than the two former. The Bone, thus cauterized, is to be healed as other Bones are which are treated in the same Manner. *Celsus. lib. vii. cap. 7.*

Ægilops, so called from *αἴς*, a Goat, and *ὄψ*, an Eye, because People who have this Distemper are said to have a Cast of their Eye, which resembles that of a Goat, and which Virgil alludes to, *Transversa iumentibus Hircis*. Paulus Ægineta has given it the Name of *Anchilops* before it is ulcerated, which Distinction has been observed by later Writers. When the Tumor is burst it is called *Ægilops*. Avicenna calls it *Garab* and *Algarab*.

It is a Tubercle in the inner Canthus of the Eye, and is either scrophulous, atheromatous, or of the Nature of a Meliceris; it is very apt to turn sinuous, and being so, whether it proves callous or not, is however called a *Fistula Lachrymalis*. *Wiseman.*

The Matter contained in this Tumor is so sharp and purulent, that it corrodes not only the Skin, but even the Lachrymal Ducts, the Fat seated near the Sinusses of the Eyes, and sometimes the Bones called *Ossa Plana*, and even the adjacent Bones of the Nose, where it causes frequently a dangerous Caries. Sometimes the inferior and superior Lachrymal Ducts are so totally eroded, that the Tears mixed with Matter continually flow into the Eye, from the *Puncta Lachrymalia*, and at last cause a true *Fistula Lachrymalis*. But oftentimes Tears only trickle from the Eye, when it is properly enough called *Epiphora*. *Heister.*

In the Beginning of this Disorder, a Tumor with, and sometimes without Inflammation often appears superficially; and at other times seated so deep, that unless the Part is pressed with the Finger it cannot be perceived. The Matter often makes its Way under the lower Eye-lid, from the Tubercle there ulcerated, where it increases by Degrees, till it runs over with the Tears. *Semertus.*

We generally find a *Fistula Lachrymalis* joined with the *Ægilops*, which is chiefly owing to its being seated in such a

Manner, that the Tears and Matter cannot pass to the Nose, and so consequently must weaken and extend by Degrees the Lachrymal Bag.

The principal Cause of an *Ægilops* is an Abscess consequent to an Inflammation. I have seen it very often caused by an Ophthalmia, and the Small-pox. *Heister.*

The Causes of an *Ægilops* are the same that produce the like Tumors in other Places; but in some Cases it is made by Fluxion, and appears first as a small Phlegmon. This Disease is frequently a Symptom of the *Laes Venerea*.

If it is made by Congestion, as in the Atheroma, Steatoma, and Meliceris, the Tubercle is round, without discolouring the Skin; but if by Fluxion, then it appears red, with Pain and Inflammation over the whole Eye. Sometimes it begins only with a weeping of that Corner, and is not discovered till it affects the Eye with Redness, and then, by Pressure with your Finger upon that Canthus, a mixed Matter may be discharged, Part of which is not unlike the White of an Egg. This Matter sometimes eats through the Bone, and discharges itself through the Nose with a foetid Smell. *Wiseman.*

The *Ægilops*, if not taken in time, is difficultly cured.

It is also very troublesome when seated deep; but is worse if it bursts inwardly, because it often corrupts the adjacent Bones.

If the Tumor is not inflammatory, as the Meliceris and Atheroma, the Cure is effected not so much by Medicine, as by Surgery.

If it turns cancerous, it is very dangerous to attempt a Cure, as Death is often hastened by it. *Semertus.*

If the Ulcer be accompanied with Erosion, it will be apt to terminate cancerous, in which Case the Cure is deplorable. *Wiseman.*

The Indication of Cure is taken from the Condition of the *Ægilops*, whether it is in its beginning with Inflammation, or Congestion, passing its Matter under the Cilium into the Eye.

In the Beginning, Bleeding and Purging are necessary, also such Alteratives as are prescribed in the general Cure of Strumas, (See STRUMA) with Regulation of Diet accordingly.

Externally we apply Repellents to the diseased Part, to prevent Fluxion, of the Waters of Purslane, Lettuce, Plantain, Horse-tail, Night-shade, and Frogs Spawn, with the Whites of Eggs, and Armenian Bole. To intercept the Matter, we apply Gum Mastic, Tacamahac, or the Rupture Plaster, to the Temples, and adjacent Parts.

If the Tumor increase with Tension and Pain, it will be then reasonable to endeavour Discussion, by a Decoction of Wormwood, Elder-flowers, Rue, Lentil and Vetch-meal, either in Wine or Water. If the Tumor tend to suppurate, it must be forwarded with a Cataplasm of white Lilly Roots, Mucilage of Marsh-mallow-Seeds, Linseed, Foenugreek, Wheat-flower, and Hogs-lard. When the Matter is well concocted, let it be discharged either by Knife, or Caustic. The only Caution is, that it must be opened at such a Distance from the Edge of the Eye-lid, that it may not divide; for in so doing, a remediless Blemish will be left, and the Eye will be subject to Fluxion, and apt to water ever after.

If it is opened by Caustic, it will require the greater Care. I, for the most Part, open them by Incision; then digest them with a Doffil dipt in Oil of Roses, and the Yolk of an Egg, over which I apply Galen's Cerate, or such like, with a Compress dipped in some of the before mentioned distilled Waters, to temperate the Heat in the Part; and afterwards deterge with Honey of Roses, and Syrup of Roses, or with this:

Take of common Honey two Ounces; Verdigrease a Dram; Spirits of Wine four Ounces; boil them till one third Part is consumed.

Then dispose them to cicatrize with this:

Take of yellow Myrobolans one Dram; Frankincense and Myrrh each two Scruples; Tutty one Scruple; Camphire two Grains. Infuse them in Rose-water and white Wine, each four Ounces; then boil to a Consumption of a third Part, and filtre for Use. And afterwards with Ointment of Tutty, and Lime-Water, and with good Compression cicatrize them.

If the Ulcer is fistulous, it becomes a *FISTULA LACHRYMALIS*, which see. *Wiseman.*

As the inflammatory *Ægilops* rather tends to Suppuration than Resolution, it must be brought to Maturation as fast as possible, lest perhaps by Delay it should degenerate into a troublesome Fistula. The Applications proper for this Purpose are emollient Cataplasms, or Plaisters of Diachylon with the Gums. But as soon as Matter is known to be formed, the lower Part of the Tubercle ought immediately to be opened with a Knife or Lancet, and the Matter being pressed out, the Abscess must be carefully deterged with the *Oleum Philosophorum*, a digestive Ointment, or with Honey of Roses, with a little Myrrh, Ægyptiacum, or red Precipitate, and then the Ulcer must be healed with some proper Balsam. But if the Abscess breaks of its own Accord, as it often does, and the Aperture

is so small that the Matter cannot discharge itself, it ought immediately to be enlarged with a Piece of prepared Sponge, or Gentian-root, or with the Knife, after which it must be treated as is said above. If the Bone is discovered to be carious, it will be proper to dress it with Lint wet with Spirits of Vitriol, or of Sulphur; or, instead of them, the Powder or Essence of Euphorbium may be used, and over the Dressings a Compress dipped in Lime-Water, or some cooling Liquor must be applied, till the Caries is removed, and the Wound fit for healing. The Caries may sometimes be scraped off with the Rugeine. But the actual Caustery applied through a proper Canula forwards the Cure surprisingly; the Ulcer afterwards will be cured by Balsamics. *Heister.*

A young Gentlewoman abounding with acid Serum, was seized with an Inflammation and Tumor in the great Canthus or Angle of her Eye. She had been dressed by some neighbouring Friend till the Inflammation closed up her Eye-lid, and alarmed her by the great Discharge of a mixed serous Matter. I observing the Tumor perfectly suppurated, and the Matter shining under the Cuticula ready to burst through, opened it by the Point of a Lancet, without drawing one Drop of Blood. The Matter discharged, I dressed it with a Doffil dipped in the Yolk of an Egg, with a Plaister of Galen's Cerate, and Cloths dipped in red Wine over all, with convenient Bandage. The next Day I took off the Dressings, and fomented it with a Decoction of the Leaves of Mallows, Violets, Betony, Sage, and red Roses, in Wine and Water, repeating the Dressings as before, and let her blood in the Arm. At the next Day's Dressing, I found the Swelling of her Eye-lid relaxed, and the external Inflammation mitigated, but the Eye itself inflamed. I fomented and dressed the Abscess with a Doffil dipt in Syrup of Roses, applying a Pledgit of Ointment of Tutty over it, with a soft Compress thereupon, leaving the Eye at Liberty to be refreshed with the Air, and to be dressed with Breast Milk as they pleased. To the Forehead Frontlets were applied, to restrain and intercept the Influx. Lenient Purgatives and traumatic Decoctions were prescribed. The Orifice was kept open sufficiently for the Discharge of the Matter, and Convenience of Dressing: Externally refrigerant and exsiccant Medicines were applied, and a few Drops of Tincture of Verdigrise were added to the Syrup, in which I dipped my Doffils. Yet notwithstanding my Endeavours, the Matter having made its Way into the Eye, flowed both Ways in too great a Quantity for some time. Upon which I dressed the Ulcer with a Doffil dipped in Precipitate, and applied over it a Pledgit with Vigo's Ointment of Tutty with Compress and Bandage. After I had thus digested it, I dressed it with a Doffil dipped in Aqua viridis, which I lessened daily, and at last cicatrized it firm. *Wise man.*

The Bandage is the same as for the Fistula Lachrymalis. See FASCIA.

ÆGIMIUS. A Physician who was the first that wrote a Treatise on the Pulse, as we learn from Galen. His Country was Velia, or Elis. His Age is uncertain. Le Clerc thinks he lived before Hippocrates. Pliny mentions one of this Name who was remarkable for his great Age, *lib. vii. cap. 48.* having lived two hundred Years. As he says nothing more of him, it is not known if he was the same as the above mentioned, or another.

His Treatise on the Pulse was entitled *Περὶ Πάλμῳν, Of Palpitations*, which was the ancient Word to express the Pulse. Hence Schulzius concludes he must be very ancient, as having lived before the other Words afterwards used by medicinal Writers to express the Pulse were in Use.

Another Argument for the Antiquity of *Ægimius* is drawn from Galen's representing him as the first who wrote on the Subject of Pulse, which cannot be true unless he was prior to Hippocrates, because the last named Author makes frequent Mention of the Pulse.

Schulzius makes a small Mistake in saying the *Ægimius* taken notice of by Pliny was of Velia; for Pliny only mentions his great Age, without specifying his Country.

ÆGINETA (PAULUS) a Physician of the seventh Century, was so called from *Ægina*, the Place of his Birth, as appears from two Lines prefixed to the first Edition of his Works.

Πάυλος αὐτὸν με γένετο, τὸ γὰρ τὸ παλαιόν
Διαδραμύσας, φησὶ ἐν γένει Ἀργίνας.

This is the Work of Paulus, a Native of *Ægina*, who had travelled over the greatest Part of the World.

This Circumstance of his Life is the greatest Part of what is known of him; and the Curiosity which the Mention of a Traveller naturally excites, must remain unsatisfied, and we must confine ourselves to an Account of his Works.

That Reputation of every kind is capriciously distributed cannot but be frequently observed; nor is it less usual for Authors, than for Men of every other Class, to be recompensed for their Endeavours in a Manner disproportioned to their

Merit. *Paulus* is, in the Opinion of Dr. Freind, one of those unfortunate Writers who have been long rated below their Value, and been despised for want of being read.

He appears, upon a careful Examination, not to be so implicate a Transcriber as he is generally represented; but to have considered the Practice of the Ancients attentively, and to have admitted or rejected it upon just Consideration. He sometimes differs from Galen, and once ventures to hint his Disapprobation of the Doctrine established by Hippocrates himself.

In his sixth Book, in which he professedly treats of surgical Operations, and which Freind esteems the best Body of Surgery produced before the Restoration of Learning, there are many Practices and Operations mentioned, which no preceding Author appears to have been acquainted with.

He describes the several Sorts of Hernia's with great Exactness; and very circumstantially lays down the Method of making the Incision, when the Gut cannot be replaced without it.

The Operation of opening the Arteries behind the Ears by a transverse Section, and the Application of a Caustery afterwards are very accurately laid down by him.

He has a very exact Account of Bronchotomy, which is translated by Dr. Freind, and will be given under the Article BRONCHOTOMY.

His Work in seven Books has been several times printed in Greek.

The first Edition is that of Aldus 1528.

The second was published at Basil 1538, by Andreas Cratander, under the Care of Hieronymus Gemufæus, who made some Emendations in the Text, and added some Notes.

It has been translated into Latin by three different Hands, Albanus Torinus, Johannes Gunterius Andernacus, and Janus Cornarius, to whom the World is obliged for many useful Remarks upon this Author.

The Arabians call this Physician *Bulos Al Agianithi*.

Herbelot says he lived in the time of the Emperor Heraclius, and in the Reign of Omar, the second Chalife of the Musulmans, who died in the Year of the Hegira 23, which answers to the Year of Christ 645. Honani, the Son of Isaac, translated the nine Books of *Paulus Ægineta* into Arabic. I do not know whether he met with two more than are now extant in Greek, or whether these seven were divided in a different Manner, so as to make nine. Fabricius is of Opinion, that the sixth and seventh Book, which are pretty long, were each divided by the Arabian into two.

It is esteemed the peculiar Excellence of this Author to have understood the Disorders to which Women are subject; he acquired the Name of *Al-Kavabehi*, that is, *Obstetricius*, because he used to instruct Midwives in the Duties of their Office, and teach them how to treat Women in Child-bed. *Fabricius.*

ÆGLE. An allegorical Daughter of *Æsculapius*. Le Clerc thinks by *Ægle* is meant the Light of the Sun, which purifies the Air.

ÆGLIA. *Ἀργία*, or *Ἀργίνα*. According to Gorræus and Castellus the same as *argis*, *Ægis*, or *argias*, *Ægias*. See *ÆGIDES*.

ÆGOCERAS. *Ἀργυρῆρας*. From *αἰς* a Goat, and *κερας* a Horn. Fœnugreek, so called from the Form of the Siliquæ or Pods which it bears; these were imagined to resemble the Horns of a Goat. *Gorræus.*

ÆGOLETHRON. From *αἰς* a Goat, and *ἐλεθρον* Destruction.

Tournefort describes a Plant by the Name of *Chamaerodendros Pontica, maxima, Mespili folio, flore luteo*, which he takes to be the *Ægolethron* of Pliny, and which he met with in Asia.

It is a Tree which grows higher than a tall Man, with a Trunk about the Size of the Leg. From this arise many Branches, subdivided again into smaller, which are uneven, weak, brittle, white within, and covered with a greyish Bark, naked except at their Extremities, where they are clothed with Tufts of Leaves like the Medlar. These Leaves are about four Inches long, and an Inch broad in the Middle, pointed at both Extremities, but most so at that next the Pedicle, of a lively green, somewhat hairy, and bordered at the Edges with Hairs like the Eye-lids. The Rib of the Leaf is strong, and divided into Nerves which are spread on the Surface. This Rib is only a Continuation of the Pedicle, which is three or four Lines long, and about a Line in Thickness. The Flowers grow at the Extremities of the Branches, eighteen or twenty together in a Tuft, each sustained by a Pedicle about an Inch long, hairy, and springing from the Axæ of certain small, membranous, whitish Leaves, seven or eight Lines long, and as many broad. Every Flower forms a Canal of two Lines and a half Diameter, superficially channelled, hairy and yellow, inclining to red, which, at about an Inch Distance from the Basis, is expanded, and divided into five Parts, one of which is about an Inch long, and as much broad, which bending backwards, like

like the other four; forms a kind of Gothic Arch; the Colour is a pale yellow, but more like Gold about the Middle. The other four Divisions are of the same Colour, but neither so long nor so broad. This Flower is perforated at the Bottom, and at this Perforation articulated with the Pistil, which is pyramidal, channelled, and about two Lines long, of a pale green, somewhat hairy, and terminated with a crooked Filament two Inches long, which ends in a pale green Knob. Round the Perforation of the Flower arise five Stamina, shorter than the Pistil, uneven, bent and furnished with Heads full of a yellowish Dust; the Stamina are of this Colour, hairy from their first Appearance as far as the Middle, and all bent to one Side, like those of the *Fraxinella*. The Pistil becomes a Fruit of about fifteen Lines long, and six or seven Diameter, and divided into seven or eight Apartments. Mr. Tournefort never saw the Fruit ripe.

The Leaves of this Plant are styptic. The Smell of the Flower is like that of the Honey-suckle, but stronger and intoxicating.

Mr. Tournefort goes on to tell us, that he was so taken with the Beauty of this Flower, that he made a Nosegay of it, which he designed as a present for Numan-Cuprogli, at that time Bassa of Erzerum, whom he had the Honour to accompany on the Black Sea; but he was informed by his Chaia that the Smell of it was thought to cause Vapours, and a Vertigo; and was told by the People of the Country, that it was esteemed prejudicial to the Brain.

These People have a Tradition, probably founded on repeated Observations, that the Honey which the Bees get from this Flower, stupifies those who eat it, and inclines them to vomit.

Dioscorides speaks of this Honey in much the same Terms, *lib. ii. cap. 103.* About Heraclea in Pontus, says he, at certain times of the Year, the Honey makes those mad who eat of it, and raises a plentiful Sweat; this Effect is owing to the Flowers from whence they gather it. Those whom it affects are relieved by eating Rue, and salt Meats (*ῥαπῆς*), and drinking Wine mixed with Honey, which are to be repeated as often as they are discharged by Vomit. I suppose he means Honey of a better Kind. Dioscorides adds, that this Honey is acrid, and makes those sneeze that smell to it. It takes away Freckles, by anointing them with it, mixed with Costus; and with a Proportion of Salt, Pliny says of Aloes, it cures Lividness from Bruises.

To this Pliny adds, that the same Disorders are communicated to Dogs, that eat the Excrements of those who have taken this Honey.

This Plant, and the *Chamerodendros Pontica, maxima, folio Laurocerasi, flore e ceruleo purpurascens*, grow about Heraclea in Pontus, now called *Penderastis*, or *Elegri*, and are found in great Plenty upon the Coast, and in the Woods all the Way to Trebifond and beyond.

The Account which Pliny gives of the Plants from whence the Bees extract this Honey, is more plain than either that of Dioscorides or Aristotle, which last believed that it was gathered from the Box-tree, and that it made those mad who eat of it, if they were well before; and on the contrary, cured those who were mad before they took it. The Passage in Pliny is thus. *lib. xxi. cap. 13.*

About Heraclea, in Pontus, some Years the Honey is extremely pernicious. Authors have not informed us what Plant it is gathered from; what I have discovered of this I shall relate. There is, in those Parts, a Plant called *Egoletbron*, from its being Poison to Cattle, but particularly to Goats. The Flowers of this, in a moist Spring, acquire a poisonous Quality when they wither. Hence it happens that the Honey is not every Year noxious. That which is poisonous is distinguished by remaining more fluid than the other Honey, and not concreting; the Colour also is more red, the Smell is different from that of good Honey, and causes Sneezing, and it is more ponderous than that which is wholesome. Those who eat of it cast themselves on the Ground, and seek by all Means to cool themselves, because they sweat immoderately.

The Antidote specified by Pliny is the same in Dioscorides. He adds, that Mead prepared with this is innocent when it grows old, and that in the same Country (Pontus) amongst the Sanni, there is another Sort of Honey, which, by reason of the Madness it produces, is called *Mænomenon*. This Effect is said to be owing to the Flower of the Rododendros, with which the Woods abound. And that Country, though it pays Tribute to the Romans in Wax, never sell their Honey, because it is Poison.

From this Passage Mr. Tournefort concludes, with very good Reason, that the *Egoletbron* is the Species of *Chamerodendron* I have described above; and that the Rododendros, mentioned by Pliny, is the *Chamerodendros maxima folio Laurocerasi, flore e ceruleo purpurascens*, which he says may be called *Rododendros Pontica Plinii*, to distinguish it from the common Rododendros, Oleander, or Rose Bay.

It is certain that the Oleander, or Rose Bay, Rododendros, does not grow on the Coasts of the Euxine Sea, that Climate being

too cold. Very few are to be found beyond the Dardaniels; but they are very common by the Sides of the Rivulets in the Islands of the Archipelago. Hence it is certain that the Rododendros of Pontus, taken notice of by Pliny, cannot be the Oleander, or common Rododendros. Tournefort, in these Quotations, has made some little Mistakes, which I have endeavoured to rectify.

Xenophon relates a very extraordinary Effect of this Honey upon the ten thousand Men, which he commanded, in their Retreat. He tells us when they approached near Trebifond, they found a great Number of Bee-hives, and the Soldiers eat plentifully of the Honey. Upon this they were seized with a Vomiting and Purging, which was succeeded by a Delirium, insomuch that those who were least affected seemed to be drunk, and the rest either mad or dying. The Camp had the Appearance of a Field of Battle, so many Bodies lying about, which seemed either dead or expiring. However nobody died by it; for the next Day the Disorder ceased about the same time that it began the Day before; so that the third or fourth Day the Men recovered, but remained weak and faint, as if they had taken some strong Medicine.

Diodorus Siculus relates this Story with the same Circumstances. The Father Lamberti, a Missionary, relates, that the Honey which the Bees collect from a certain Shrub in Colchis or Mingrelia, is dangerous and emetic. This Shrub he calls *Oleandro giallo*, yellow Oleander, which Tournefort thinks without dispute the same as the *Chamerodendros Pontica, Mespili-folio, flore luteo*, or *Egoletbron*. The same Lamberti describes the Smell of this Flower, as betwixt that of Musk and yellow Wax. Tournefort says it is not unlike that of the Honey-suckle, but much stronger. *Memoires de l'Academie Royale des Sciences. 1704.*

ÆGONYCHON. *Ἀγώνυχον*. Dioscorides, *lib. iii. cap. 158*, says the Lithospermon, Gromwell, is sometimes thus called. It is derived from *αἶς*, a Goat, and *ὄνυξ*, the Hoof. Because of the Solidity and Hardness of the Seed, in the Opinion of Gorræus.

ÆGOPROSON. The same as **ÆGIDION**, which see.

ÆGYPTIACUM UNGUENTUM. A Composition that is ascribed originally to Mesue, and has been received by most *Dispensatories* that have been since wrote, without any material Alteration. It is thus given in the *Dispensatory* of our own College.

Take of Verdigrease, or of the green Rust of Brass finely powdered five Parts; of Honey four Parts; of the sharpest Vinegar seven Parts; boil them altogether to a due Consistence, and a dusky red Colour.

The Scum of this Ointment is called *Mel Egyptianum*, Egyptian Honey.

The Compilers of the *Edinburgh Dispensatory* seem to have thought this too strong of the Verdigrease, and have lowered it by increasing the Proportion of Honey.

Take of Verdigrease, reduced to fine Powder, five Ounces; of Honey fourteen Ounces; of Vinegar seven Ounces; boil them together over a gentle Fire to the Consistence of an Unguent.

This is an admirable Detergent, and much recommended by chirurgical Writers to keep down fungous Excrescences in Ulcers; but it is too corrosive, especially that of the *London Dispensatory*, except lowered according to the Circumstances of the Case. The Hint of this Composition is taken from Dioscorides, who recommends Verdigrease boiled with Honey for deterring foul Ulcers. And Aetius, *Tetrab. iv. Serm. ii. cap. 3.* prescribes an Ointment very little different from this. See **ABSCÉSSUS**.

It would perhaps be somewhat difficult to account for the Name of this Ointment, because none of the Ingredients bear any Analogy to Egypt. Aetius however takes notice of an Application made use of by a certain Egyptian in the Cure of an Achor, wherein Verdigrease is a considerable Ingredient: Perhaps the Name may owe its Original to this, which indeed is not an Ointment, but a Plaster. *Tetrab. ii. Serm. ii. cap. 68.*

ÆGYPTION. *Ἀγίπτιον*. Very frequent Mention is made of this in Hippocrates, as a Topic in Uterine Disorders. Galen informs us there were four things which went by this Name. First, the

ÆGYPTIUM OLEUM. *Ἀγίπτιον ἔλαιον*, Egyptian Oil, also called *Cicinum*, which Dioscorides says was expressed from the Seeds of the *ξίκι*, (*Ricinus*) or, as we call it, *Palma Christi*; he represents it as unfit for internal Use (*ἀσφαλές*) but very proper for Lamps and Plaisters.

Aetius informs us it was prepared in Egypt from the Seeds of the above mentioned *Ricinus*, which was also called *Croton*, by Bruising, Expression and Boiling. He recommends it in Leprosies, Foulnesses of the Skin and Freckles, which he says it will take away by continual Use.

The Second was the **ÆGYPTIUM OLEUM ALBUM**, *αἰγύπτιον ἔλαιον λευκόν*, White Egyptian Oil, prepared, according to Galen,

Galen, with Lillies, and called also Crininon, or Sufinon Oleum. This is probably the simple Oil of Lillies mentioned by Dioscorides.

c third Sort of *Ægypti* on was the *αἰγυπτίαν μέρον λευκόν*, *Unguentum Ægyptium Album*, white Egyptian Ointment, called also *Mendesium*, *αἰγυπτίαν μέρον*, or *σάβωνα μέρον*, and is probably that described thus by Dioscorides.

Take of Oil nine Pounds five Ounces; of Calamus five Pounds and a Quarter; of Myrrh five Ounces; mix them well with sweet-scented Wine, and then boil them. Then strain off the Oil, and, after infusing in it three Pounds and a half of Cardamoms, that have been bruised, and macerated in Rain-water, pour it back. Let them macerate, and then press them. This done, take of this Oil inspissated three Pounds and a half, with Lillies a thousand in Number. Strip these of their Leaves, and put them in a broad but not deep Bason, and pouring the Oil upon them, stir them well with your Hands anointed with Honey. Afterwards let them rest a Day and a Night, and the next Morning remove it into your Sieve and strain it, speedily taking off the Oil that swims upon the Water that was pressed out with it; for this will not bear Water mixed with it, like the Rosaceum; but, if they are heated together, ferment and putrefy. It may be convenient therefore to move it often from one Vessel to another anointed with Honey, first sprinkling a little fine Salt, and taking away carefully the Impurities that gather upon it. After this, take the Residuum out of the Sieve into the Bason, and pour on it an equal Quantity of Oil impregnated with the same Aromatics as before, and cast therein ten Drams of bruised Cardamoms. When you have well stirred it with your Hands, after a short Rest, press it, and remove the Impurities of the Liquor. Pour on Oil the third time, and do as before, adding the Cardamoms and Salt, and working it with your Hands anointed with Honey. The Oil that comes off by the first straining is the best, the second next, and the last in Order is the worst. Then again take a thousand Lillies, and plucking off the Leaves, dispose them as before, and pour upon them the Oil that was first drawn off, and proceed with them in the same Manner as with the first thousand, adding the Cardamoms before straining. This done, pour on the second Oil, and likewise the third, observing a like Process for each as for the first. The oftener you macerate fresh Lillies, the more Virtue and Goodness will there be in your Ointment; but when you think you have done enough, add to every Preparation of the best Myrrh seventy-two Drams, of Saffron ten Drams, of Cinnamon seventy-five Drams; others put an equal Weight of Saffron and Cinnamon. Bruise them and put them in a Bason of Water, and pour thereto the Ointment that was first drawn; a little after pour it into small dry Vessels, first rubbed with Gum, or Myrrh, or Honey and Saffron diluted with Water. Do the same by the second and third Ointment. Some content themselves with a simple Ointment, made of the Oil of the Ben-Nut, or any other Oil, and Lillies.

What is made in Phœnicia and Egypt seems to excel others, and of this the best is that which has the fragrant Smell of the Lillies.

It warms, softens and opens Obstructions of the Womb, and is good in Inflammations of the same Part; and, in general, is very beneficial in Women's Disorders. It also cures scurfy and scald Heads, and soon removes the Blackness from Wounds or Blows, and makes them of the same Colour with the rest of the Skin. Drank, it purges Bile downwards, and provokes Urine; but it is hurtful to the Stomach, and creates a Nausea. *Dioscorides, lib. i. cap. 62.*

The simple Oil of Lillies is probably that described by Paulus Ægineta, *lib. viii. cap. 20.*

The Oil of Lillies he says (which others call Sufinum, perhaps because it was invented at Susæ) is made of two Ounces of the dried Leaves of white Lillies put into an Italic Point of Oil, and very closely stopped, so as nothing can transpire, and set to stand three Days in the Sun. Then it is strained, the old Leaves cast away, and two Ounces of fresh ones put to the Oil, which is to stand likewise another three Days, and then to be strained and kept up for Use.

The *μύρον αἰγυπτίαν*, *Unguentum Ægyptium*, without the Addition of *λευκόν*, Album, was, according to Galen, made of the Flowers of the Acantha. He says it was called *μύρον*.

Paulus Ægineta, *lib. vii. cap. 20.* gives the Composition of the Metopium; but it cannot be the same that Galen means, because the Flowers of the Acantha are not any Part of its Ingredients.

ÆGYPTIUM LINUM. This is mentioned by Hippocrates (*de Morbis, lib. ii.*) speaking of the Cure of a Polypus

in the Nose. He advises to cut a Sponge round like a Ball, of a Size to fit the Nostril, and to involve it in Egyptian Flax, (*λίνα αἰγυπτία*) for it does not seem to mean Thread, but rather a kind of Tow.

ALUTA ÆGYPTIA. *Αργυρίδιον σκῆτος*. It is named by Hippocrates (*de Fractis*) and seems to be a soft Leather, like what we use to spread Plaisters upon.

Αἰγυπτίη ἐτυμωμένη, Egyptian Alum. See ALUMEN.

ÆGYPTIUM ANDROMACHI EMPLASTRUM. Aetius, *Tetrab. iv. Serm. iii. cap. 13.* introduces this Plaister with great Encomiums. He says it is famous for uniting the largest Sinusses, for healing Cuts that lay the Bone bare, for Distortions and Luxations of the Limbs and Joints, for Bites inflicted by Men, Quadrupeds, or Reptiles; laid on the Forehead, it stops Defluxions on the Eyes; it heals the largest and deepest Cuts with a Sword in three Days. It has an excellent Virtue for discharging, so as to disperse a Collection of Pus, unless there be a very large Quantity, without Perforation of the Skin. It mollifies and supple the Limbs, though never so stiff and hard, and brings malignant Ulcers to cicatrise. It is thus prepared:

Take of Wax, Litharge, of each one hundred and twenty four Drams; of Gum Ammoniac sixty-two Drams; of Turpentine thirty-two Drams; of greasy Wool, burnt, eighteen Drams; of Birthwort, Frankincense, Squama Æris, each eight Drams; of the Scoria of Steel eight Drams; of Myrrh three Drams; of Opoponax two Drams; of the Oil called Cicinum, or the Sicyonium, or old Oil, three Pounds. Boil the Litharge with the Oil to a Consistence; then adding the Squama, let it boil till it will no longer raise a Spot in your Cloaths. Then add first the Wax, after that the Gum Ammoniac bruised. When these are melted put in the Turpentine, and taking it off the Fire, mix in with it the Frankincense bruised, and the Ashes of the burnt Wool, and work it up with your Hands, and use it sometimes pure, sometimes diluted.

ÆGYPTIUM CROCEUM UNGUENTUM. This is an Ointment described by Aetius, *Tetrab. ii. Serm. iv. Cap. 45.* It takes the Name from *Crocus*, Saffron, that gives it the Colour.

ÆGYPTIUS PESSUS. This Pessary is described by Paulus Ægineta, from Antylus, *lib. vii. cap. 24.* It consists of Honey, Turpentine, Butter, Oil of Roses, or of Lillies, and Saffron; of each equal Parts. If the Vagina is fordid, and not inflamed, the Author says that Verdigrise may be added in a Quantity equal to half that of each of the other Ingredients. From this Addition it probably took the Name.

ÆGYPTIUM PHARMACUM AD AURES. Aetius, *Tetrab. ii. Serm. ii. cap. 83.* speaks of this as excellent for detaching fetid Ulcers of the Ears, which he says it cures, though the Patient was born with them.

Take of bitter Almonds two Drams; of white Pepper two Drams; the Inside of Egyptian Beans two Drams; of Saffron, Myrrh, Opium, Frankincense, Castor, each two Drams; Omphacium four Drams; Vitriol four Drams; Aphronitrum two Drams. Pound them in Vinegar, in which the Bark of Pomegranates has been boiled, till they come to a Consistence somewhat viscid. Dilute this with Ointment of Nard, and so drop it into the Ears.

ÆGYPTIA ULCERA. Aretæus describes a Species of malignant Ulcer of the Tonsils and Fauces, which he calls Egyptian or Syrian Ulcers, because very frequent in these Countries. The Passage is in *lib. i. de Causis & Signis Acutorum Morborum, cap. 9.*

Of all Countries, says he, Egypt is most subject to this Distemper, because of the Dryness of the Air, and the Variety of Food; for the Inhabitants live upon Roots, Herbs, acrid Seeds, and all Sorts of Garden-stuff, and their Drink is the thick Water of the Nile, or a sharp Liquor made of Barley. Syria also is infested with this Disease, especially that Part of it called Coelosyria; whence they are called Egyptian or Syrian Ulcers.

They who die of it make a miserable End. The miserable Patients labour under sharp Pains, with a burning Heat, as in a Carbuncle. Respiration is quite depraved, for they breathe forth nothing but the filthy Vapour of the Ulcer, and immediately draw in the same again; and are so troublesome to themselves, as not to endure their own Smell. Their Faces are pale or livid, they have an acute Fever, a Thirst so violent as if they were on Fire, and yet dare not drink for fear of Pain; for they are tormented beyond Measure, if the Drink runs against their Tonsils, or back into their Nostrils. If they lie down they are forced to rise; nor can they bear to sit up, for their Pain obliges them to lie down again. But for the most Part, they choose to walk about; for being incapable of Relief or Ease, they avoid all Rest, and seek to lose the Sense of one Pain by introducing another. They gasp and draw their Breath much inwards, as greedy to be refreshed with the cool Air; but

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but breathe forth very little, because the Ulcers, which are as hot as Fire, are still more inflamed by the fervent Breath; a Hoarseness and Loss of the Voice comes on, and these Symptoms increase more and more, till the Patient on a sudden falls to the Ground, and there expires. See TONSILLÆ.

ÆGYPTIA ANTIDOTUS. The Ægyptian Antidote. Many of these are described by Nicolans Myrepsus, in his first Section, which treats of Antidotes. Their Descriptions are pretty long, and not of sufficient Importance to be inserted here.

AEICHRYSON. 'Αειχρύσον. From αἰ, always, and χρῦς, Gold. A Name of the *Sedum majus*. *Gorræus*. See SEDUM.

AEIGLUCES. *Ἀειγλυκὴς*. From *αἰ*, always, and *γλυκὴς*, sweet. A Sort of sweet Wine, that went by that Name, as though it were always Must. It is thus prepared; as soon as the Must is tunned immediately from the Wine-press, they set the Vessels under Water, to stand during Winter, that it may keep always cool; for it is only the Heat of the Must that turns it into Wine.

ΑΙΡΠΑΘΕΙΑ. *Ἀιρπάθεια*. From *αἰ*, always, and *πάθος*, an Affection or Passion. A never-ceasing Affection or Passion.

AEITHALES. Ἀειθαλής. From αἰ, always, and θάλλω, to be green. Another Name for the *Sedum majus*.

AEIZOON. *Ἀϊζών*. From *αἰ*, always, and *ζών*, Life. *Sempervivum*, *Sedum*, Houfeleek. An Herb, of which there are three Species in Dioscorides, the great, the small, and a third, called by the Greeks *ἀνδράχνη αγγρία*, by the Latins *Illecebra*. The great Sort is described as having a Stalk above a Cubit high, as big as a Man's Thumb, fat, green with Incisions after the Manner of the *Lactaria vallis*, called *χαράκις τριθύμαλος*, Wood Spurge, with fat carnos Leaves, of the Size of a Man's Thumb, like a Tongue at the Top, some turning their convex Sides toward the Ground; others standing at the Head, and so compacted together all around, as to represent the Figure of an Eye, whence it is called *ὠφθαλμός*, and *βερβαλμός*. The small *Sempervivum* has many Stalks sprouting from one Root, with slender, round, fat, sharp-pointed Leaves. The middle Stalk rises a Span high, bearing an Umbella, with a small herbaceous Flower. The two first Kinds of Houfeleek are cooling, and are also moderately drying and astringent. The third Kind has a small, thick, hairy Leaf, most like Purslane. It is of a heating, acrimonious, exulcerating Nature. *Gorræus*.

ÆLIANUS MECCIUS. A Physician that lived in the time of the Emperor Adrian. We learn from Galen that he wrote well on the Dissection of the Muscles. It is also said he was one of Galen's Masters, by whom he is recorded to have been a Physician of Abilities, and a very worthy Man.

ÆLIUS PROMOTUS. There seems to have been two of this Name, one a Disciple of Ostanes the Persian. This *Ælius* accompanied Xerxes into Greece.

The second was a Physician of Alexandria; who lived in the time of Pompey. He wrote a Treatise *περί τοξικών καὶ ἀντοξικών φαρμάκων*, of Poisons, and deleterious Medicines. Gefner and Tiracquellus say this Work is preserved in some of the Italian Libraries in Manuscript; Mercurialis and Fabricius say in the Vatican.

ÆMILIUS MACER. A Poet of Verona, who lived in the Reign of Augustus. He was Contemporary with, and somewhat older than Ovid, who speaks of him thus:

*Sape suas volucres legit mihi grandior ævo
Quæque nocet serpens, quæ juvat herba, Macer.*

From hence we learn he wrote on Birds, Serpents and Plants; but Mr. Le Clerc is of Opinion he only gave an Account of such Vegetables as were Antidotes to those Poisons as he speaks of. Seryius says the same Author wrote a Poem on Bees.

It is on Account of his Poem on Birds, Serpents and Herbs that he is numbered amongst the medicinal Authors. His Works are lost; those which go under his Name being, in the Opinion of all the learned, supposititious, and are said to be wrote by one Odoconus, who lived in the 13th Century.

ÆOLIPYLÆ. ÆOLIPILES. I do not know that this Word has any Right to a Place in a Medicinal Dictionary, it properly belonging to experimental Philosophy. However, as Castellus has taken notice of it, I would not omit it. *Æolipiles* are Vessels made either of Iron or Brass, with a small Orifice; into these Water is put, and when they are placed in a hot Fire, the Water, rarefied into Vapour, bursts out with a great Noise and Force, imitating Wind.

ÆON. *Æon.* The whole Age of a Man, from his Birth to his Death properly, but used frequently by Hippocrates to signify the Remainder of a Man's Life.

It also signifies the spinal Marrow, and it is said should be wrote at the latter End of the seventh Book of the *Epidemics* instead of *venia*. The Passage will then run thus, *ὁ τὸ αἷμα χόρτα, ἰσχυρὰς ἀνέστη, A certain Person being ill of a Tabes Dorsalis, died the seventh Day.* Erotian. Foesius. Hefychius. Varinus.

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AEONION. *Αἰώνος*. The *Sedum majus*, or greater House-leek is by some called thus. *GOTTAEUS*.

ÆONESIS. *ἄκονα.* From *ἀκονάω*, *perfundo*, *irrigo*, to pour upon, or to wet by pouring a Fluid upon. It signifies a moistening the external Parts by Perfusion, or Fomentation. *Erotian. Foes.*

ÆORA. *ἄνωγειν*. From *ἀνίσταω*, to lift up, suspend, or hang on high. Gestation, a Species of Exercise used by the Ancients, of which Aetius gives the following Account. *Tetrab. i. Serm. iii. cap. 6.*

Other Kinds of Exercise, says he, consist in Motion of the Body; but Gestation is compounded of Motion, and such a Disposition as much resembles Rest, in which most Parts of the Body seem to lie still, while the whole is carried along the Way in which the Gestation is directed. Hence it appears that Gestation is at once the most beneficial and most gentle Kind of Exercise, since it procures no Lassitude, and yet moves the Body after the manner of great Exercises.

All Gestation has the Virtue of exciting and ventilating the innate Heat, of dispersing the redundant Humours, of strengthening the Habit, and raising the dull and languid Powers.

There are many different Species of Gestation, some of which, in particular, are those which follow: A Gestation may be performed in a Bed, either made pensile (*perhaps like the modern Hammocks*) or moveable on the Fulcra, or Feet which support it. A second Way of Gestation is in a Litter, which is also two-fold, that is, when the Person carried either sits or lies along. A third Way is in a Chariot, and a fourth in a Ship or Boat: Riding also may be accounted a Species of Gestation.

Position in a Bed is convenient for feverish Persons, and such as have lain sick a long time, who cannot well raise their weak and wasted Bodies. It is also proper for those who begin to recover Strength after a Fever, and for such as have taken Hellebore; it is good likewise in a Phrensy, for it gently composes the Perturbation of the Spirits, and inclines to Sleep. Lethargies also, and Loss of Appetite, are relieved by it.

Generation in a Litter is proper for such as labour under a lethargic, or semitertian, or quotidian Fever; and hydropical Persons; such as are seized with a Stupor, the Remains of an Apoplexy, or Palsy; and for those who are afflicted with the Gout or Stone. Persons under a perfect Intermiffion of a Fever are carried this Way in a sitting Posture.

As for Gellation in a Chariot, there is something shaking in it, which works upon chronic Distempers; but of this Kind some are more gentle and easy, others rougher and more vehement. The first, or softer, is to be used in Distempers of the Head, and Fluxes of the Intestines; the latter, or more violent, is proper for Infirmities of the Breast or Stomach, for lax Tumors, hydropical Persons; and such as are seized with a Stupor. But vertiginous Persons, and such as have half their Head affected should sit backwards, and move gently. We have known many cured this Way, who needed no other Help; but then their Seat must be so contrived, as that they may sit in a pretty supine Posture.

Laſtly, Geſtation in a Boat or Ship, if near Land, and on a calm Sea, is proper for ſuch as have a Dropſy, or Elephantiaſis, ſuch as are ſwelled, or ſtruck with a ſudden Paſſy. This Geſtation at firſt turns the Stomach, but ſoon grows familiar and agreeable. But Geſtation upon the Sea is moſt violent, and cauſes many and great Changes, as it muſt happen where the Mind is diſtracted betwixt Hope and Sorrow, Fear and Danger, and the Ship's Crew ſometimes exulting with Joy and Alacrity, at other times ſunk into Deſpair. All theſe things put together, are of Force ſufficient to drive any old Diſtemper out of the Body, and exclude it for ever, not to mention that a Mixture of Reſt and Motion, if any thing can do it, nourishes the Body.

ÆPOS. ἄρος. It signifies in Hippocrates a steep Place, or rising Ground, of somewhat difficult Ascent.

AQUALIS. EQUAL. This, in a medicinal Sense, is applied to any thing that is consistent with itself, and always the same, or that is the same in all its Parts. In this last Sense, Pus or Matter is said to be equal, or of an equal Consistence, when it has no Admixture of Ichôr or Sanies, but is all alike.

A Temperament or Constitution is said to be equal, which is not subject to Alteration or Excesses, but is always the same.

A Pulse is called equal that keeps the same Tenor, without any Variation with respect to the time and manner of the Contraction and Dilatation of the Artery.

Urine is called equal, when it always preserves the same Appearance in regard to its Colour, Consistence, and Contents, so that what is made at one time shall be exactly the same as that made at any other time; and the Hypostasis or Sediment in Urine is said to be equal, when it is the same in every Part, and seems homogeneous.

A Disease is called equal, when it perseveres without any Variation in the Symptoms and Circumstances that attend it. The Greeks express this by *ίσους*. Hence Medicines that re-

duce to the Equality above mentioned are called *Æquantia* by some Authors, amongst which Castellus quotes Jul. Cæs. Claudinus.

ÆQUILIBRIUM. The general Signification of this Word is too well understood to want Explanation. In a medicinal Sense it is used to express a just Proportion betwixt the Solids and Fluids of the Body, which is necessary to the Performance of the animal Functions, and a perfect State of Health.

ÆQUINOCTIUM. The Equinox, of which there are two, the Vernal and Autumnal. Physicians have taken notice of these Equinoxes, as productive of certain Disorders. Thus *Ægineta*, from Diocles, *lib. i. cap. 100.* says the Vernal Equinox increases Phlegm and sweet Serosities in the Blood, till the rising of the Pleiades, which is six and forty Days. Therefore we are to feed on aromatic and acrid Aliments, and to use much Exercise. The Autumnal Equinox increases Phlegm, and thin Defluxions, till the Fall of the Pleiades, which is six and forty Days. During this Season we are to stop Defluxions by the Use of highly aromatic and acrid Food, to avoid Emetics, to use much Exercise, and abstain from Venery.

The Autumnal Equinox is placed about the twenty-fourth Day of September by Paulus *Ægineta*, *lib. vii. cap. 11.*

The Vernal Equinox is placed by Aëtius on the twenty-third of March, and the Autumnal on the twenty-fifth of September. *Aëtius Tetrab. i. Serm. iii. cap. 167.* See AER.

ÆQUIPOLLENS. Equal with respect to Strength. It has been used to express an Equality of Force in the antagonist Muscles, which move the same Part in different Directions.

AER. *Ær.* The AIR. What is meant by this Word is so commonly known, that it would be superfluous to attempt to define it. Physicians in all Ages have esteemed the Air as the grand Instrument in producing all Changes that happen in natural Bodies, and of great Importance both in producing and curing Distempers, and in destroying and preserving Health. In Medicine it is numbered amongst the Non-naturals, and is more immediately necessary to animal and vegetable Life, than even Nutrition.

Hippocrates, in his Treatise *de Flatibus*, gives his Sentiments with respect to the Air. He says the Bodies of Men and all other Animals are nourished by three things, which are called Meat, Drink, and Spirits (*anímala*); these, when within the Body, are called Wind or Flatulences (*pneumata*), but out of the Body, Air. As this Air bears a great Part in whatever happens in the Universe, the Force thereof is a Subject considerable enough to deserve Examination. The Wind is nothing but a Flux, or Effusion of Air. When therefore there is a great deal of Air, it makes a Stream or Flux strong enough to tear up Trees by the Roots, and to raise Waves in the Sea capable of elevating Ships of immense Burden to a prodigious Height, such is its Force. Notwithstanding this, it is invisible, however manifest to the Understanding by the Effects. What is there transacted in the Universe without Air? What Body is without it? Or where is it not present? All the Space betwixt the Heavens and the Earth is filled with Air (*anímalos*). By this Winter and Summer are caused; in the Winter it is condensed and cold, in the Summer mild and calm. The Sun, Moon and Stars perform their Courses by the Assistance of the Air; for the Air is the Nourishment of Fire, inasmuch that Fire deprived of Air cannot subsist; the Air being itself perennial and thin, furnishes the Sun with the means of continuing its perennial Course.

That the Sea also participates of Air is manifest; for how could Sea Animals live without it? And how could they participate of it, unless they drew it through the Water, or out of the Water itself. The Air is the Support of the Moon, and the Chariot of the Earth, and nothing in Nature is void of it. The Air therefore of all things has the greatest Influence, as has been said above.

The Air is the Support of the Life of Mortals, and the Cause of those Diseases to which Mankind is subject. And so necessary is the Air to our Bodies, that though a Man may live two or three Days or more without Meat or Drink; yet if the Passage of the Air into the Body is intercepted for a very small Part of a Day, it is certain Destruction, so absolute is the Necessity for it. Men sometimes rest from all other Actions, for Life is full of Changes, Respiration alone is perpetual in all Animals, who are perpetually employed either in Expiration or Inspiration.

I have said that there is a great Communion betwixt all Animals and the Air; I now proceed to shew that it is not probable that Diseases can be caused by any thing but the Air, as it is received into the Body either in Quantities too small or too large, if it is either too much condensed, or infected with Contagion.

I have quoted this Passage with a View, first to shew that Hippocrates had taken notice of the general Influence of the Air on Animal Bodies, which will appear more abundantly in his Treatise of *Air, Water and Climates*. Secondly, as an Instance of the Precariousness of Theory in Physic, since this great Man, whose Penetration enabled him to observe the Changes which happen

in Diseases, and describe them with the greatest Accuracy, and also to accommodate Methods of Cure to Distempers, perhaps the very best that could possibly be contrived, with the Materials Mankind had, in his Days, arrived to a Knowledge of, could not however avoid running into Puerilities and Error, when he attempted to reason about things which were not the Subjects of his Senses, and consequently out of his Reach.

That great Poet and Philosopher Virgil has been somewhat more fortunate in his Account of the Effects of the Air on Animal Bodies, inasmuch that he seems to have been acquainted with some of its Properties demonstrated since by means of the Air-Pump, and by other Experiments, which will be related under this Article.

After having given an Account of the Prognostics of the Weather, from the Changes produced in the Brute Creation, he goes on to give the Reason for it thus:

*Haud equidem credo, quia sit divinitus illis
Ingenium, aut rerum fato prudentia major:
Verum ubi tempestas, & cæli mobilis humor
Mutare vias, & Jupiter humidus Austris
Densat erant quæ rara modo, & quæ densa relaxat,
Vertuntur species animorum, & pectora motus
Nunc alios, alios dum nubila ventus agebat
Concipiunt: hinc ille avium concentus in agris,
Et lætæ pecudes, & ovantes gutture corvi.*

Upon the Whole, it will appear by the Quotations I shall give from different Authors, that the ancient Physicians were perfectly sensible of the Importance of the Air; both with regard to the Preservation of Health, and Cure of Diseases; and that they took more care than is usual amongst us, not only to correct the noxious Qualities which the Air may contract at particular Times and Seasons, and prevent the ill Effects thereof, but also to render it medicinal, and of Assistance in the Cure of Diseases.

The very Air that surrounds us is continually perverting our Temperament, while it changes to hot or dry, or cold or moist, beyond a just Degree. As to other Causes, we are not all at once obnoxious to them, nor meet with them every Day; but the Air that presses on our Bodies is circumfused around us all, and is drawn into us by Respiration. Hence the Bodies of Animals must of necessity have their Temperament affected, according to the various Alterations it undergoes. Sometimes the ambient Air acquiring an Excess of Heat and Moisture induces a pestilential Constitution, and because the Humours of the Body, which are bred of unwholesome Food, are subject to putrefy, a Foundation is laid for a pestilential Fever. *Aëtius Tetr. ii. Serm. i. c. 94.*

Oribasius, in his medicinal Collections, *lib. ix. cap. 1.* transcribes from Galen the following Passages relating to the Air.

The best Air is that which is the purest, not charged with moist and heavy Vapours from any standing Pools or Marshes, nor infected with unwholesome Damps and Exhalations from some neighbouring Caverns, like that of Sardes and Hierapolis. Air that has contracted ill Qualities from the common Shores belonging to some great City or Army, or from the Stench of putrefied Carcasses or rotten Dung of Vegetables, must needs be bad, and stands condemned. So likewise is that which is dense and foggy from some neighbouring Lake or River, or confined on every Side with high Mountains, and never stirred or ventilated by the Winds; for this last Sort corrupts and suffocates, being like the Air in Houses that are uninhabited and shut up, which contract much Filth and Mouldiness for want of airing. All these Kinds of Air are hurtful to all Ages, as, on the contrary, a pure Air is universally agreeable. Those Differences of the Air, which are in regard to Heat or Cold, Dryness or Moisture, do not affect all Persons alike. To Bodies that are in the best Temperament the best temper'd Air is most agreeable; but for such as transgress in some prevailing Quality, that Air is to be chosen which exceeds in the contrary. Thus Heat counterbalances Cold, and Dryness Moisture, when too great a Measure of one is compensated by an equal Excess in the other.

Alexander Trallianus, speaking of the House in which an *hæstical* Patient is to be lodged, We are not only, says he, to give the sick Person all the Means of Refrigeration that can outwardly be applied; but we should study, by some artificial Method, to change the Air, by producing in it a cooling Quality, that may be serviceable to our Design. If therefore it be Summer, let the Sick lie in a subterraneous Room, and let the Floor be plentifully sprinkled with cold Water, to cool the Air. Let Water also fall from one Vessel into another, which, besides the forementioned Benefit, by its moderate and equable Murmur induces Sleep. It would be yet better, and more for our Purpose, if we could so change the Air, as that it might not only refrigerate, but corroborate the Body. And this may be, in a great Measure, effected by strewing the Floor with Roses, Housleek, Brambles, Twigs of the Lentisk-tree, or Vine-

Vine-tendrils, or something of like Tendency, which has a strengthening as well as cooling Virtue. An Air thus tempered must certainly be good for all heetical Persons, but especially for those who feel their Heart and Lungs principally affected with a burning Heat, like Fire; for such Patients do not find so much Relief from a refrigerating Diet, as from the Inspiration of the cool Air; as, on the contrary, they who have their Liver, Belly, or any other Part, most sensibly disordered, receive more Benefit from Choice of Food than Change of Air. In short then, while the Summer holds, we are to alter the Air by Refrigeration; but in Winter we are not to induce a Warmth therein, because however cold it be, it never hurts the Persons we are speaking of. The Body, for the same Reason, must be moderately clothed, and not heated with a Multitude of Garments, which may cause a Faintness. *lib. xii. cap. 4.*

Paulus Aegineta, for such as have taken too violent Purges, advises, among other things, that they may be kept from Air that exceeds a moderate Degree in Cold or Heat. The first, says he, drives the Matter from the outer Parts inwards, and augments the Flux; the other dissolves the Body, and destroys the Strength. *lib. vii. cap. 7.*

The same Author, after speaking of the Alterations made on the Bodies of Animals by the Changes of the Air, in the same Terms as Aetius, before quoted, thus goes on: He who knows these things will not only be able to foretel what Distempers will naturally happen from every Constitution; but will find out Methods to prevent them, by instituting a Regimen quite opposite to the present prevailing Intemperies of the Air. Whatever Bodies then are subject, from their proper Temperament, to fall into any Disease, are easily affected and hurt by a concurring Disposition of the Air; but such as are of a Temperament contrary to that of the Air, not only receive no Injury, but find themselves better; the Measure of their Excess in one Quality compensating for that of the Air in the contrary. A wise Man, therefore, who understands these Things, will preserve his Health by opposing Contraries to one another, sometimes using refrigerant, sometimes heating Medicines, as need shall require.

To serve the first Intention, or Refrigeration, he makes frequent Use of Water, indulges Rest, eats little, and drinks plentifully; but when he has Occasion to acquire a contrary Quality, he knows by warm Cloathing, much Exercise, full Eating, and sober Drinking, to heat his Constitution as much as shall be requisite. A cold and moist Air may, in a good Measure, be remedied, and converted into the opposite Qualities of hot and dry, by making large Fires, which Acron the Agrigentine is said to have done, in order to destroy the pestilential Infection in the Air. *lib. ii. c. 35.*

This Chapter on Air is taken from Galen, and repeats verbatim what is before quoted from Oribasius, as far as that Passage which condemns Air that is pent up between high Mountains, and then goes on thus: The Air on high Mountains, and in hilly Countries, when no Wind stirs, is more wholesome, and good for asthmatic and consumptive People, and all Indispositions of the Head and Breast. But the Air of low Regions, which is pure, is best for old People, and such as are subject to Faintings. The Sea Air is beneficial in hydropical and watery Distempers, especially such as have a cold Cause; for Nerves affected by Consent of Parts, and Prostration of Appetite. The Air of rocky Places is not good; for in the Winter it is too cold, and in Summer sultry hot. Air filled with the Exhalations of Metals is bad; the Air of a clayey Soil relaxes the Stomach; but what comes from a light yellow Earth, is more drying than the former; the best exhales from a black Loam.

The Air also changes according to the Seasons of the Year. In the Spring it is hot and moist, in the Summer hot and dry, in Autumn cold and dry, and in the Winter cold and moist. Again, there are three Differences in each Season, the first, middle, and last; of these the middle bears the truest Characteristic or Temperament proper to that time; for the Extremes participate of the adjoining Seasons. Moreover the Moon causes four Changes in the Air every Revolution. The first Septenary, or Quarter, which is reckoned from the new Moon to the seventh Day inclusively, is, like the Spring, hot and moist. The second Septenary, which holds to the full Moon, is like the Summer. The third, the Moon now decreasing, resembles the Autumn; and the last, the Winter. Yet farther, every Day has its Differences of Air; for the Morning is hot and moist like the Spring, in which the Bodies both of sick and sound Persons are relaxed, so that even feverish Patients find it the most tolerable Part of the Day. The Middle of the Day may be compared to Summer, the Twilight to Autumn, and the Evening to Winter. And lastly, to conclude, the first Part of the Night is likened to the Spring, the Middle to Summer, and the rest according to Order.

By Air is understood that Fluid, which is scarcely to be perceived by our Senses, but which manifests itself by its Resistance to Bodies moved in it, and by its strong Motion against other

Bodies, when it is called Wind; and by this Resistance and Motion of the Air, we know it is incumbent every where upon the Surface of our Earth. We all live in it, we enjoy it, and are perpetually kept alive by it. The Laws of our Existence, and inevitable Necessity oblige us to inspire and expire this Air, be it what it will; inasmuch that all the Assistances of Art are vain, and all that is done for us in the common Course of Nature is fruitless, if we are deprived of the Benefit of the Air.

If we examine into the Manner in which Nature operates according to the Laws which the great Creator has ordained, we shall plainly discover, that this Air is the grand, efficacious, and necessary Instrument which Nature universally employs in almost all the Operations she is perpetually engaged in. For in this, Bodies of all Kinds are placed; in this they move, and in this they perform all their Actions, as well those which proceed from their private and particular Natures, as those which depend on their Relation to other Bodies. There is scarcely any Liquid, as appears by Experiments, which has not Air intermixed with it; scarcely any Solid, out of which Air may not be extracted by Art. So that it is scarce possible to specify any Operation of Nature, which happens without the Assistance of Air, or utterly exclusive of it. The Operations of Fire, the Loadstone, Gravity, and the particular Attraction and Repulsion of Corpuscles, may perhaps be alone excepted, as capable of being performed without it; to all others it is absolutely necessary. Whatever is performed in Chymistry is done in the Air, without any Exception, unless, perhaps, as the Alchemists will have it, that the Matter of the Philosophers Stone, rightly prepared, and carefully locked up in the Philosophical Egg, is entirely deprived of all crude Air, and is brought to its Maturity in *vacuo*; for they all are of Opinion, that nothing is so great an Obstacle to the Maturation of this beautiful Fruit as the crude Air: But this is to be understood of other Particles that are intermixed with the Air, rather than of the pure Element itself.

It is very certain, that Fire which puts all things in Motion, can neither be collected, preserved, directed, increased, or moderated without Air. Hence, then, if Air is necessary to Fire, Air is also necessary to every Operation of Fire; so that without it Fire would cease to operate, nor could it be applied to other Bodies. The Fire here meant is that which is excited and supported by inflammable Fuel, by the Means of which both Art and Nature execute their principal Purposes.

Whoever has Leisure and Inclination to take a View of the more general Classes of natural Bodies, will find, that Air is every where required to their Vitality, Growth, Vigour and Action; for if their Lives consist in the Circulation of Humours through proper Vessels, and by a peculiar Power converting the extraneous Juices they receive into their own Nature, or at least by a singular Virtue applying them to their Substance, and thus increasing in their Magnitude, it seems utterly impossible that one of these Functions can be performed without the perpetual Assistance of Air.

The Chymists, I am sensible, will be surprised, when they hear the Air named as concerned in the Oeconomy of Fossils; since the great Simplicity of the Matter of which they are formed seems to require Fire alone, in order to be capable both of acting and undergoing whatever is brought about in this Species of Bodies; but certainly those who have duly considered the Nature of things, have long ago understood that Fossils are brought forth and multiplied in the deepest Recesses of the Mines, and are thence protruded upwards, and that all this is accomplished by the great Force of a subterraneous Fire. And as this is certain, so likewise it must be allowed, that this subterraneous, vestal, and perpetual Fire is there retained, collected and applied by the Air alone. This it will be proper to set in a true Light, as it is a Point which has not been clearly treated any where else. Air then is a heavy, elastic Fluid, dense in proportion to the Weights that compress it; acts more powerfully upon the same Fire, in Proportion to its acquired Density; expands itself in the same Ratio, as it is freed from Compression; rarefies proportionably to the Intensity of the Fire that acts upon it; and insinuates itself into all things, and exerts chiefly all its Properties in those Parts which are deep, and towards the Center of the Earth. Hence, therefore, it always operates the more violently, the deeper and denser it is; and being agitated by the Fire, which by this very Attrition of the Air is collected there in greater Quantity, becomes the physical Cause of the most violent Compression, Attrition, Compaction, Depuration, and Union of homogeneous Particles; and hence the Fossils which are generated there, are of a Nature suitable to such a Cause. Without Air none of these would be produced; and perhaps this is the sole Reason why they are only formed in those Places.

What Boerhaave says here about subterraneous Fires, and the Production of Metals by Means of the Air, seems to want Proof.

Nor will it be any ways necessary to explain the Power of Air upon Animals and Plants; for some late very accurate Experiments

ments have fully taught us, that no Eggs of Animals, or Seeds of Plants, be they ever so ripe, pregnant, and the best of the Kind, and cherished with ever so kindly a Warmth, will ever bring forth the Embryo's contained in them, but will remain intirely unactive, if they are either deprived of Air, or are inclosed in stagnating Air in Glasses hermetically sealed. All small Plants likewise, even the most minute Mosses, or aquatic Vegetables, when they are kept in a Place void of Air, or when it is not renewed, presently wither and die. That the same also happens to all Animals, even to the smallest Insect, is true, beyond all Contradiction.

An accurate Knowledge, therefore, of the Air, by which its actuating Properties may be understood, is absolutely necessary for the Chymist, Physician, and Natural Philosopher; for by this means alone we shall be able to comprehend a great many Operations which are performed by Art or Nature itself, their principal Cause very often being some innate Power of the Air, that exists nowhere else.

Mean time, there is not, perhaps, any natural Body, the perfect Knowledge of which it is more difficult to arrive at, because, of itself, it scarcely affects the Organs of our Senses. This one may justly attribute to its exceeding Subtily, to which the Dulness of our Nerves renders us insensible; inasmuch, as even by the Assistance of the most perfect Microscopes, we are not able to discover any thing in it. But there is yet somewhat else in the Air, which is still a greater Obstacle to our rightly understanding its Nature; and that is, its containing so many various Kinds of Corpuscles, that in the whole Universe there is not found a Fluid compounded of a greater Variety.

It is highly necessary therefore, first of all, to consider distinctly every single Property of the Air, carefully avoiding all Confusion. This done, and each being separately examined with due Application, it remains, by making an Aggregate of the whole, that we obtain as true a Knowledge of it as the Nature of the Thing will permit.

The first Property then of Air, which offers itself to our Consideration, is its Fluidity. This is so natural to it, that there is no Experiment the Event of which proves that Air could be deprived of it. It is evident to every one's Observation, that even in the sharpest Frost, when every thing, almost, is congealed, the Air still remains liquid; even in an artificial Cold, forty Degrees greater than ever Nature has been observed to produce, the Air still retained its Fluidity, notwithstanding it was acted upon by such a prodigious Excess of Cold. If you compress the Air with ever so great Weight and Force, into the utmost Density, yet it does not then become solid by Concretion, but remains equally fluid as before; and as soon as ever the Compression is removed, it resumes its former Degree of Liquidity. Among the many Experiments I have made with respect to the Coagulations of various Liquors, I have never yet met with one single Experiment, by which it appeared that Air was coagulated into a solid Mass. I must own, that once about Noon, in a frosty Day, when the Air was very serene, I observed some very small Corpuscles floating about in it, glittering in the Sun, and, by the Reflection from their little Surfaces, sparkling with extraordinary Coruscations; but after a careful Examination, I discovered that these were nothing but little Globules of Water, which before were dispersed in the Air, but were now united and congealed, and thus appeared in Form of a very subtil Hoar-frost. If therefore Fire can concrete with other Bodies, Air certainly appears to retain its Fluidity much more obstinately than Fire itself. But, indeed, it rather seems probable, that there are in Nature two Fluids, the Elements of which will never unite with each other, nor will ever harden with any other Bodies into one homogeneous Mass: And these two are Air and Fire. In the mean time, however, I have not forgot, that the Air concretes together, and unites with every kind of known Bodies, and serves as a kind of Element in their Composition: For this is sufficiently evident from the large Quantity of Air which spontaneously makes its Way out of almost every Body, whilst it is reducing into its Principles; and this is now usually, though perhaps not altogether properly, called factitious Air. The Fact upon Examination appears to be thus: It is contained in all known Liquors whatsoever; it penetrates together with them into all the Recesses of compound Bodies; thus at last, after a Coalition of the whole, it remains locked up in the Pores of Bodies, as it were, in very minute Vessels; and afterwards, the Liquor in which it was conveyed thither being diffipated, it is left there alone. Hence then it is evident, that this Air was not concreted there, but only lay concealed, being retained by the including Body. As soon as ever, therefore, it can disengage itself from this Confinement, it rushes forth not in the least changed, and returns with Velocity to its proper Nature. But this still appears in a stronger Light, if we consider common Water, whilst freezing. There is concealed in it a great Quantity of invisible Air: As soon then as ever the Water begins to form itself into Ice, and its Particles are pressed nearer, and united together, as they are now deprived of that Degree of Fire which is necessary to keep

them asunder, and prevent their running into their natural Union, the Particles of Air, detained between the Corpuscles of Water, cannot congeal, but are pressed out of these Interstices, where being united with other Particles, they are collected in Bubbles, and become again a most fluid Air; thus evidently evincing, that this Air was in reality intercepted, but not concreted, coagulated, or altered. The same Thing being supposed in the like Manner in all other Bodies, the Fluidity of Air is sufficiently demonstrated.

The extreme Smallness of every individual Particle of Air contributes greatly to its Fluidity; for they are so exceeding minute, that no one of them can be represented to the Eye by any Microscope whatever. And yet they are far larger than those of Fire; for they can neither make their Way through Metals, Glass, Stone, or thick Wood, nor even through strong Paper. And hence, Air may be excluded from any Place. It cannot so much as pass through those invisible Pores of Bodies, through which Wine, Oils, Water, Brine, Lixivia, and acid Spirits, are able to insinuate themselves. These Observations are all evidently confirmed by the Air-pump: For if a leathern Ring is placed on the Brass Plate which supports the Receiver out of which the Air is exhausted, and the Receiver is set on the said Ring, then the Weight of the Atmosphere, when the Air is exhausted from the Cavity of the Receiver, will press the Edge of the Receiver with so much Force upon the Ring of Leather, that the external Air will not pass into the Cavity through the Ducts of the porous Leather, but will be intirely kept out; and yet, if you pour any one of the before mentioned Liquors upon the Outside of the Leather, it will be immediately imbibed, and it will soon insinuate itself under the Glass into the Vacuum; a manifest Proof, that other Fluids, though somewhat thick and tenacious, can easily pass through the Pores of Bodies that repel and keep out the Air. And the same Thing is also demonstrated by an infinite Number of other Experiments.

In the next Place, these ultimate aerial Particles are easily separated from one another, insomuch, that their Disunion may be procured by a Force so small, that it scarcely comes under the Observation of our Senses. And this Separability of the Air is such, that it does not alter the Case, whatever is the Direction of the Body that divides it, whether upwards, downwards, or sideways. This easy Divisibility every one may observe, who considers the Motion of a small polished Body through the still Air. Thus a Steel Needle moves with great Facility in the circumambient Air, which Way soever you please; and it is the same with all other Bodies. This properly, therefore, may be called the Lubricity of the Air.

However, upon a critical Examination, we discover some Tendency towards a Union between the Particles of the Air; by means of which they readily run together into a mutual Association, though a very slight one, and which may easily be destroyed: For it appears, that whenever one single Particle of Air lies concealed in any Liquid, it is not perceived; but as soon as ever a like Particle is united with it, there presently arises a Bubble from this Union, which by a certain Tenacity resists Diffipation; and if afterwards another, and another like Bubble meets with the former, there succeeds, in Proportion, a still greater Bubble, tenacious, as the former, of its Magnitude and spherical Figure. It may, perhaps, be thought, that this is rather owing to the Compression of the ambient Liquid; nor do I deny that it may possibly happen by that means: But yet, the Effort at least of the aerial Particles towards an Union with one another will be still greater than that between the Particles of Water and the very minute Particles of Air. The Attraction, however, between these Particles, I acknowledge to be very small. It may, perhaps, be said, these Particles repel each other, as the great Newton has demonstrated; and this is not to be denied. However, it remains certain, that there is a Power in these Particles, by which, when they are united in a spherical Figure, they long maintain themselves in that Form, against the Force of Bodies that surround them.

If we examine this Inclination to Cohesion more closely, we shall soon perceive, that the aerial Particles, singly and separately considered, very easily suffer themselves to be mixed with any other Liquid void of Air; and that they obstinately abide in it, quietly resting in its Interstices, in the same Manner as any Salts are dissolved in Water. Besides, it appears, that a large aerial Bubble, that is composed of many united Particles of Air, and placed on the Surface of a Liquor intirely deprived of it, will resolve into its elementary Particles; and that these, when they are thus separated, will be carried into the empty Pores of the Liquid, and never gather themselves into a Bubble again, unless by the additional Force of a stronger Cause.

And hence the Imperceptibility of the Air to our Senses may be understood; for nobody would ever have thought of this Air which we now treat of, had not some large Bodies, and principally such as contain but a small Quantity of Matter under a large Surface, been moved broadways through it. In this Case, the Air resisting the Motion with a remarkable repulsive Force, immediately

immediately manifests itself to be a hard Body. And as these Resistances, which are in reality actual Repulses, increase according to the augmented Velocities with which the Bodies are moved, or, as the Mathematicians compute, in a duplicate Proportion, hence it may happen that this imperceptible Softness of the fluid Air may become as hard as a Stone: For if one should take a very thin Brass Plate, an hundred Feet square, and attempt to move it directly forwards, erect through the Air when it was calm, with so great a Velocity that it should move through a Space of two and twenty Feet in a Second, he would then find in this Air an incredible Resistance or Hardness, easily to be computed by Mariotte's Method. And if with this Plate, erect and quiescent, any one should receive the Shock of a Wind, rushing with the greatest Rapidity, he would then likewise experience with what Hardness the Air is capable of striking, when it is moved with such Velocity.

This is to be understood of the whole Air as a Compound, in which very large and heavy Bodies are capable of floating, as appears by the Instances of Birds and Things of some Weight carried away by the Wind; not to mention those of a light Nature, as Dust, &c.

The next Property of Air, considered in the same Manner as before, is the particular Weight of its whole Bulk; for in this Respect all the Parts together, which in the Aggregate constitute this Air, press with such a Force towards the Center of the Earth, that by their Fluidity they form a Sphere around its Surface, which may properly enough be called the Atmosphere, and which, on account of the large Quantity of exhaling Vapours contained in it, has hitherto, by Philosophers, been called the Atmosphere.

The great Tuscan Geometrician Torricellius, in the Year 1643, attempted to ascertain the Weight of the Air. After him the famous Otto Guericke proved this Gravity by several sensible Experiments. That subtle Philosopher, Monsieur Pascal, afterwards cleared it farther up; and the great Mr. Boyle rendered it more complete. It was Mariotte, however, who gave the finishing Stroke to it, by the most curious Experiments of all, inasmuch, that now no Part of Natural Philosophy stands upon surer Principles than this of the Gravity of the Air; for by the Assistance of what these Gentlemen have done, the Weight of the whole gravitating Atmosphere may be obtained to the greatest Nicety, and expressed under the Denomination of common Weights.

It has hitherto, however, remained impossible to determine the exact comparative Weight of the Body of Air; it appearing that no two equal Portions of Air, taken at the same time, but at different Heights, were ever of equal Weight; but that, on the contrary, the lower Air always outweighed the higher. And this holds so universally true, that the very same Thing is observed from the Surface of the Earth to the Tops of the highest Mountains; and in the very same Place, at different Times, the specific Gravity of the Air will be different.

The Atmosphere in our Climate, where-ever it has hitherto been observed, is very considerably, and almost always wonderfully changing with respect to its Weight, which never continues long the same. This Variation is chiefly apparent whenever there is any Alteration in the Meteors in the Air, which is very frequent: For Rain, sudden great Showers, Fogs, Hail, Snow, Lightning, Thunder, Winds from various Quarters, Storms, Whirlwinds, Drought, and the Changes of the planetary Aspects, are certain Indications of the Atmosphere's becoming very soon of a new or different Weight. In this Affair the different Seasons of the Year likewise produce an incredible Variation. By means, therefore, of this successive and incessant Mutability, depending on such a Number of Causes which are continually reviving, it comes to pass that the Weight of the Atmosphere never continues long the same. And hence an infinite Number of Effects about the Earth, which almost all depend upon the Action of the gravitating Air, are in a perpetual Vicissitude and Inconstancy: So that this single Mutability of the Air, in point of Weight, is the Source of a great many Causes which produce different Events. In the mean time however, by the help of very accurate Observations, continued for the Space of above eighty-six Years, we are now come to the Knowledge of the greatest and least Gravity of Air that happens in Europe: For, upon Examination, it has been found, that the greatest Weight of the Atmosphere is in *equilibrium* with thirty Inches and a half of Quicksilver in the Barometer, but that the least would raise it only to twenty-seven and a half; so that the Difference appears to be almost a tenth Part of its greatest Weight, within which Compass the perpetual Variation of the Gravitation of the Atmosphere is included.

This daily Alteration depends on many particular, and perfectly different Causes; but yet, however, such as are intirely certain, and may be come at by diligent Observations. And whenever this shall be accomplished, then we shall be able to form a regular Judgment of this Fluctuation, which at present is looked upon as uncertain. Nicholas Kruquius, whose Genius, Learning, and indefatigable Industry, highly qualify him for the Cultivation of these Studies, and whose Meteorological Tables,

composed with infinite Diligence and Accuracy, shew us at one View all the Causes contributing to every Degree of the increased Weight of the Atmosphere, has given Reason to expect farther Discoveries. It were to be wished that the Inquiries of this great Master in Natural Knowledge might meet with Encouragement equal to their Author's Merit; lest, when he is gone, we should look in vain for another that is equally qualified for making Discoveries of this Nature.

Lastly, It has been likewise observed, that the Weight of the common Air, about our Earth, at the time of the middle Weight of the Atmosphere, and in the most temperate Season of the Year, is to that of Water as 1 to 850: But this must be understood with the Conditions mentioned above, otherwise nothing certain can be affirmed about it.

The Air resting with its whole Weight upon our Earth, presses its Surface perpetually. And this Pressure upon any particular Body is equal to a Force which would sustain a perpendicular Column of Mercury to the Height it then stands at in the Barometer; the Base of which Column will be a horizontal Plane, cutting a Pyramid, whose Apex is in the Center of the Earth, whilst its Sides touch the horizontal Limits of the Body thus pressed by the Air. Thus then may this Power be every where exactly computed, by considering the Height of the Quicksilver in the Barometer at the time the Computation is made, and the Magnitude of the Surface of the Body pressed upon. And hence it is inferred, in the second Place, that Bodies placed on the Earth are so much the more pressed by the incumbent Air, the nearer they are to its Center; for it is evidently demonstrated in Hydrostatics, that the Pressures of Liquids upon their Bases are in Proportion to their perpendicular Altitudes. Hence, therefore, if we consider the Air as a Liquid, every where homogeneous and incompressible, then the Proportion in which Bodies are compressed in every Part of the Perpendicular, from the Surface of the Earth to its Center, might be easily discovered: But as the elastic Power of the Air induces a great many very different Considerations, it will be necessary to treat of its Effects particularly. Mean time, it appears, on the other hand, that all Bodies, the farther they are raised above the Center of the Earth, the less in Proportion they are affected by the Pressure of the Air. But it must be farther observed, that Bodies in the very same Situation will be more closely compressed together, as the Weight of the Air is augmented, according to the above mentioned Observations. And, again, as soon as ever the same Air decreases in its Weight, the Pressure upon these Bodies will be proportionably diminished. Moreover, all those Bodies that are exposed to the Air are never long compressed with the same external Force, but the Compression they suffer is varying continually; with this Limitation however, that the Difference of the Pressure is never found in the same Place to exceed one tenth of the whole: Therefore, the Air itself, while by resting on all Bodies it thus compresses them with various Forces, must likewise in Proportion be repressed by them, provided they are elastic, or such as have in them an innate Effort to expand themselves, or to recover that Size which is natural to them. Hence it appears, that in all Bodies, which are situated in the Air, there is a perpetual Oscillation of their Particles, corresponding to the reciprocal Augmentation or Diminution of the Weight of the Air: This Oscillation is but small indeed, as being confined within the Limits above specified, for the Compass of its Variation; but still it is a proper Oscillation, and is almost continual. This Alteration, joined with the perpetual Change brought about with respect to the Bulk of Bodies by the Actions of Heat and Cold, must have very considerable Effects. We acknowledge, therefore, two perpetual Causes of the constant, internal Motion of all the Particles of elastic Bodies; which are Fire, and the Atmosphere. However, it must be remarked, that upon Bodies which are absolutely soft, if any there are intirely destitute of a Power to recover their former Figure, when the Force that presses them is removed; and upon Bodies, such as Water, which cannot by any external Weights be reduced into a smaller Space; upon such, I say, the compressive Force of the Atmosphere, with regard to its Increase or Diminution, has no Effect; and, consequently, upon such Bodies the reciprocal Oscillation we have mentioned will be of no Efficacy. Seeing then that Fire acts equally, and even more upon these very Bodies than on all others, it plainly appears, that the Power of Fire, on this Account, is to be regarded as far more universal than that of Air, and consequently of any other Body.

It will now be of Service to us, if, with a View to Chymistry, we take notice of those Effects which the external Air produces, considered as a Fluid and gravitating Body together; for in this Light it evidently appears, that it must rest with some Force upon the outward Surfaces of all Bodies, as has been explained above. Hence therefore, in the first Place, it will innuinate itself between the Surfaces of all Bodies, the Distances of which, from one another, leave Interstices wide enough to admit the external Air, which, by its Subtlety, or the loose Texture of its Parts, may be able to enter into these void Spaces: Hence, also, it is evident, that all the little invisible Pores

of Bodies, though, in Appearance, perfectly empty, are, in Reality, common Air. And since this Air must certainly, in those Interstices, perform all the Effects which are proper to it, hence an infinite Number of the Operations of Nature will of consequence depend upon it. Secondly, it is a curious Observation in Hydrostatics, that the heavy and fluid Air presses upon every Side of Bodies with an equal Force, whether the horizontal, vertical, superior, inferior, or oblique. This is demonstrated in that Science.

We now proceed to the Consideration of those peculiar Properties which are possessed by the Air alone.

The first then that here offers itself to our Observation, is its Elasticity. This is that singular Quality, by which all known Air, possessing a certain Space, and being confined there, so that it cannot escape, will, if it is pressed together by a determined Weight, reduce itself into a less Space, which will be always in a reciprocal Proportion to the Quantity of the Weight that acts upon it; with this Circumstance, however, always attending it, that it will constantly, by a spontaneous Expansion, recover again the Space it had lost, in Proportion as the compressive Force is diminished; and when this Force comes to be the same as it was in the Beginning of the Experiment, then the aerial Mass will always infallibly expand itself throughout the whole Space that it before took up, provided that no other Cause, in the mean time, intervenes to prevent it. If the Pressure is lessened, Air extends itself to a larger Space; if it is increased, it reduces itself into a less.

Now such a Disposition to yield so readily to such a Compression, and yet recover itself with such a Spring, I do not remember to have been observed in any other Liquid hitherto examined. It is certain no such thing is discovered in Alcohol, Oil, Water, Spirits, or any Lixivia. For though all these are contracted by Cold, and dilated by Heat, yet they are not compressed by Weight so as to take up less Space; nor being freed from Pressure, do they expand themselves. This, therefore, is the peculiar Property of Air.

This Elasticity of the Air cannot be destroyed, inasmuch as, upon Examination by every Kind of Experiment, it has always remained elastic; nor are its elastic Parts, either by long Rest, or the greatest Pressure, ever so altered as to lose their Elasticity. For Mr. Boyle and Mariotte having, with a particular View to this, kept common Air strongly compressed, and shut up in a Wind-gun, found, upon their setting it again at Liberty, that it was perfectly as elastic as it was before. And lastly, that great Geometrician Robervalius, examining Air which had been shut up for the Space of fifteen Years in the like Manner, found that it had not lost any thing of its Elasticity. See *Du Hamel, Hist. de l'Ac. Roy. des Sc. p. 368.* But it will hereafter farther appear, that even those elastic Particles of Air which are detained in the Interstices of the most internal Parts of fluid or solid Bodies, do, when they are set free from those Confinements, and are afterwards united to other Particles, exert again that Elasticity, which they seemed to have lost, to such a Degree, as not to give the least Indication of retaining it; for as soon as ever they recover their Liberty, they produce incredible Effects, which can be attributed to their Elasticity alone; and hence it evidently appears, that neither Time nor Rest, nor even their supposed Concretion with animal, vegetable, or fossil Substances, are ever able to destroy this wonderful Property of the Air. In the mean time, however, such is the Nature of Air, that its elastic Particles, when separate and by themselves, may be so united to other Bodies, by which they are intercepted, or at least may rest in them in such a Manner, as not, for Ages together, to produce any elastic Effect; and that upon being freed from those Bodies, and united with others of the like Nature, they demonstrate that they have intirely retained their Elasticity. Hartshorn, for Example, may be preserved for Ages; and yet, upon a chymical Examination of some which had been kept above fifty Years, and by this Means was grown exceeding hard and dry, it is surprising what a prodigious Quantity of elastic Air it yielded in its Resolution. Hence, therefore, it is very probable, that one single, aerial Particle is not elastic, with respect to the Increase or Decrease of incumbent Weights; but that this Elasticity then only exists, when two such Particles of Air come to touch and repel one another; and that, consequently, if these aerial Particles were so far distant from each other, as that this repelling Force should utterly cease, then this whole Fluid would, for that time, neither spontaneously expand itself, nor in the least resist any Compression; but would then only exert this Power, when by being pressed close to one another, they should begin to come within the Sphere of each other's Activity. One aerial Particle, therefore, would have nothing of this elastic Power; but it would be only the joint Effort of several. Hence then, in all Appearance, the elastic Force of Air ought to be regarded as constant and immutable.

But in what Manner, or to what Degree soever Air has been condensed by the utmost Power of Weights, it has always remained, even in that Condition, very fluid; for after it has been contracted to a great Density, it has constantly restored

itself again, so as to fill exactly the former Space; all the Particles receding from each other as readily as they before came together. Since, therefore, by every Experiment that has been hitherto made, this Property has been always found to take place, we may safely assert, that the Fluidity of the Air, in all the large Compass, from the most rarefied to the most condensed, remains without Alteration; and that therefore it is neither capable of being consolidated by the intensest Cold, or the greatest Degree of Compression we are acquainted with.

But nothing in this Elasticity of the Air appears a greater Paradox to Persons not acquainted with these Speculations, than what Mr. Boyle has evinced with much Certainty, viz. that the elastic Power which prevails in any particular Portion of the Air, can, without any greater Condensation than what is owing to the compressing Air itself, sustain all the Force of a whole Column of the incumbent Atmosphere. And secondly, that this elastic Power, in such a very small Portion of Air, can, by expanding itself, repel the Bodies which compress it with as much Force, as that which is exerted by the whole external Body of Air.

This efficacious Power of the Air the Chymists ought to have a particular Regard to, since in all their Operations performed by Means of Fire in close Vessels, this elastic Force produces wonderful and often very terrible Effects, acting with a violent compressive Force upon the Contents, often bursting the Vessels, and producing many other great Events.

A very little Portion of Air, therefore, wherever confined, is capable of producing the very same Effects as a very large Quantity in another Place; for if any Portion of common Air is contained within a Cavity that is easily compressible, it will there sustain the whole Pressure, and wholly keep out the intire Body of the Atmosphere. And whenever the Air in that Place is heated by Fire, or freed from its external Pressure, it immediately, by expanding itself, becomes so rare, as to produce such Effects as are equal to those of the greatest Body of Air.

Another Law of the Elasticity of the Air is, that when it is condensed in a certain and determinate Degree, it acquires by the Application of Heat a greater Power to expand itself on all Sides, than it had before. And this Power of Rarefaction arising from Heat, has the same Effect as if that Air had been made denser in Proportion to the Degree of Heat which it before obtained.

This Expansion by Heat is sooner brought about in Air, than any other Body, either fluid or solid, hitherto known in the Universe. In Drebbelius's Thermometer, an Increase of Heat, not perceptible without such a Contrivance, shews immediately a sensible Rarefaction of the Air.

It is farther evident from Experiments, that of all known Bodies, Air is the only one which can be expanded by Fire to so great a Degree; for Air, by the Application of Fire, becomes so rare, that neither the Measure or Limits of such its Dilatation have been yet discovered. The Heat of boiling Water expands the Air to a third Part of its Bulk. *Hist. de l'Acad. Roy. des Scien. 1699. p. 101.* In the Heat then which is capable of fusing Iron, certainly this Expansion of the Air must be immensely great.

In this Part of the History of Air Boerhaave seems to mistake; for Water is capable of a much greater Degree of Expansion by Fire than Air, so as to exert a prodigious Force, by which very large Weights are easily elevated. Now I know no Experiment which evinces clearly that it is possible to rarefy Air by the Heat of an artificial Fire, so as to make it take up more than three times the Space into which it is expanded in its natural State.

It is also found, that unequal Masses of Air, but of the same Density, are always expanded in the same Measure by the same Degree of Fire; so that these Expansions in the same Degree of Density, by a constant Law of Nature, always are in Proportion to the Augmentations of the Heat applied. Hence, therefore, if the Expansion of Air of a given Density, by a certain Degree of Heat, is once discovered, it will constantly hold good in all similar Cases. Upon this Subject let me refer you to some very curious Observations in the *Memoirs of the Royal Academy of Sciences, 1699. p. 113.* and likewise in the *Memoirs* for 1702.

But with regard to the Elasticity of the Air, this is likewise constantly observed, that the more it is condensed by Pressure, the greater elastic Force will it acquire by the same Degree of Fire, and that nearly in a direct Ratio of the Densities; which very curious Property, to the great Advantage of Chymistry, was discovered by the ingenious Monsieur des Amontons's *Hist. de l'Acad. Roy. des Scien. 1702. Mem. 155.* Hence, then, it follows, that a Portion of Air that is exceeding dense, may, by Means of a very little Fire, acquire the greatest resisting Force.

If, therefore, it were possible that common Air could in Reality be condensed into a Space eight hundred times less than what it naturally takes up, then it might, by being acted upon by the Heat of boiling Water, sustain 29600 Inches of Mercury; since common Air, by the same Degree of Heat, will elevate it

to 37; which immense Force teaches us, that if the fiercest subterraneous Fire should, in the Bowels of the Earth, be applied to Air reduced to one eight hundredth Part of its Bulk, there would thence arise a most incredible Force, vastly superior to all that we are acquainted with. This, however, is certain, that if you increase the Density of the Air, and at the same time augment the Heat that is applied to it, then the elastic Power of the Air will always be increased in a compound Ratio of both.

But, on the contrary, the less the Air is compressed, the less is the elastic Force that it acquires from the same Degree of Heat. So that Air which by any Means is rendered twice rarer, requires twice as much Heat to make it require the same Elasticity that it had before, and thus in any Degree of Rarefaction.

These things the same celebrated Author, in the Places last mentioned, has demonstrated by the most correct Experiments. And hence we understand, that the Air in the highest Regions of the Atmosphere will scarcely acquire any Increase of its elastic Force from the most intense Heat; but, on the contrary, will become almost unactive, on account of its exceeding Rarity; and this answers perfectly to Observation.

The last Law which is discovered in the Elasticity of Air is, that it is contracted into a smaller Space by Cold, as it is by an Increase of Weight. Hence its Density is always increased in Proportion to the Augmentation of the Cold.

It may be of some Importance to Chymistry to consider these Properties of Air, which I have related from the illustrious Boerhaave, who has collected every thing material which occurs in Authors who have wrote on this Subject. It will be of equal Use, with respect to Physic, to be acquainted with those Bodies which float in the Air. And these are incredibly numerous, of various Natures, and perfectly different in different Parts of the Atmosphere. We shall not therefore deviate much from the Truth, if we consider it as a Chaos, in which Corpuscles of almost every Kind being confounded together, make a Composition, consisting of the most different Things, of which it will be incumbent on us to give a particular Account, that from hence we may be enabled to make just Conclusions concerning it.

In the first Place, then, in the common Air, there is always and every where Fire, or Heat.

In the second Place, there is Water contained always in the Air, and in every Part of it, and that in such a Manner, that it does not appear possible, by any known Methods, to separate the Water intirely from it. Water is every Moment perspiring from every Person in Health, in an invisible Vapour. Sanctorius computes, that in the Space of one Night and Day, there exhales from such a Person nearly the Weight of five Pounds, much the greatest Part of which is Water. A vast Quantity of aqueous Steams must therefore be continually exhaling from the Animals of all Kinds that are scattered all over the Earth; and that all Plants likewise send forth a dewy aqueous Vapour, is a Thing that has been long confirmed by Observation. But the very industrious and ingenious Dr. Hales has lately, in his curious Treatise of *Vegetable Statics*, proved by Experiments what prodigious Quantities of aqueous Vapours exhale from Plants; not to mention the Water, that by means of subterraneous, culinary and chymical Fires, is continually rarefied so as to rise up into the Air. Dr. Halley, from the Observations which he made with the greatest Care and Accuracy, has made it appear, that from the Surface of the Mediterranean alone, in one Summer's Day, there exhales, by the Heat of the Season only, without any Assistance from the Wind, 52,800,000,000 Hogheads of Water. See the *Phil. Trans.* And the Wind and Sun elevate from the Surface of that Sea, still a much larger Quantity, *ibid.* If we compare now the Quantity of Fog, Dew, Rain, Hoar-frost, Hail, Snow, and nocturnal Moisture, that may be collected in the Space of a whole Year, with the Water which in the same Space of Time, by means of the natural Heat, has exhaled into the Air, we shall find, that in one Year there falls upon the Earth enough to cover the Surface of it to about thirty Inches high, as the industrious Kruquius has plainly proved by his Meteorological Tables. Hence it is probable, that there every Year exhales into the Air, from the whole Surface of the Earth, a Quantity equivalent to thirty Inches Height of Water. And of consequence, since the Area of the Earth's Surface is sufficiently known, it is easy to compute the immense Quantity of Water that is perpetually suspended in the Air.

And that Water is contained in every Portion of the Air, is evident to the Eye in the Air-pump; for there, as the Air, by the Action of the Pump, becomes more and more rare, and less fit to suspend the Water, the Inside of the Glass becomes clouded with an aqueous Moisture; the same Experiment thus evidently evincing, that Water does really reside in all Parts of the Air; and that as the elastic Part of the Air is rendered more rare, it becomes less capable of retaining it.

But that there is a very large Quantity of Water always and every where dispersed through the Air, appears evidently to

the Eye in dry, alkaline, fiery Fixed Salts; for if these, when they are perfectly pure, are exposed to the Air, they will spontaneously dissolve, by attracting the Water out of it. I took at nine in the Morning, two Ounces and one Dram of Salt of Tartar, dried in such an intense Heat, that it melted in the Crucible, so that no Water at all remained in it. I then placed it in a Glass Bason, made very clean, and in this Manner exposed it to the Air, in cold, dry Weather, from the 17th of January to the 20th, in a Place which was very dry. The Consequence was, that upon examining it by the Balance, it weighed three Ounces four Drams and a half; so that it increased in Weight an Ounce, three Drams and a half. But if we thus examine this Salt by a Pair of Assay Scales, we find it is every Moment gaining something in Weight. And as there appears such an Increment of Weight within the Compass of three Days, so if it is kept a considerable time in the Air, the whole of it generally dissolves into a Liquor intirely fluid, pinguious, thick, somewhat tenacious, and unctuous, which is almost three times heavier than the Salt first exposed, and this Liquor the Chymists call *Oil of Tartar per Deliquium*; besides which, there will remain at the Bottom of the Bason a very small Quantity of a white Earth. If this Liquor thus produced by the Salt and Air be put into a Glass Cucurbit, with an Alembic, and distilled to a Dryness, very pure elementary Water will come over into the Receiver, and a dry Salt of Tartar, purer than it was before, and less ponderous, will remain at the Bottom of the Cucurbit. The Salt, therefore, receives from the Air this large Quantity of Water. And here we may observe, that the Water thus communicated to the Salt from the Air, dissolves it in a very different Manner from what it would have been dissolved by pure Water poured upon it; for this Dilution in the Air being slow and successive, by the Application but of a very small Quantity of Water at a time, dissolves only the pure alkaline Salts that are easiest of Solution, and therefore separates this Part from the rest which is dissolved with more Difficulty, that is, which is somewhat more terrestrial; and this cannot be effected by any other Art. And hence, by such repeated Dissolutions and Coagulations this whole Salt is at last converted into an Earth, and a volatile Principle, which disappears, and is not perceptible afterwards. This Van Helmont knew very well, and other Alchymists had come to the Knowledge of it long before him. In this Experiment, it appears particularly surprising, that the very Moment, as it were, that this Salt is taken out of the strongest Fire, and exposed to the Air, this Humectation and Dissolution commence, and the Increase of Weight perceptible by an exact Balance is begun, and from that Instant increases every Moment. And this, which I have very often beheld with Astonishment, has happened even while the Salt has continued exceeding hot, and been kept in a Place, at the same time, which was very much heated by the Fire; so that I could not, with the utmost Care, keep the Water of the Air from uniting with the Salt. But there is yet another thing to be observed, in this wonderful Attraction of Water from the Air into a dry alkaline Salt, which, some Years ago, a good deal engaged my Attention. I wanted a very acrid, dry, fixed alkaline Salt, in order to demonstrate to some Persons, who would not believe, and even denied the Possibility of it, that there might be a Tincture produced in an Instant from that Salt, and pure Alcohol; a Truth which some famous chymical Authors have, in their Writings, mentioned as a Fiction. This Salt, then, rightly prepared, glowing hot, and as yet in Fusion, I poured into a very hot Brass Mortar, and with a very hot Brass Pestle rubbed it as fast as I possibly could, and as soon as ever it became a Powder, I put it up into a very hot and dry Glass Bottle, and immediately stopping the Mouth with a Cork, and a Piece of Bladder softened with Oil, secured it as close as I possibly could. The Consequence was this; when I came to try the Experiment, though I had frequently before met with Success, yet the Event at that time would not answer. Surprised at this, I carefully examined every Circumstance that might produce this Variation, and discovered at last, that the Surface of the Salt was a little moistened by the Air in the Bottle; and that therefore this being already impregnated with Water, the Alcohol could not immediately act upon it.

Now, when I consider this, I am clearly convinced, that in so small a Portion of Air as can be contained in a Bottle, which will hold but three Pints of Water, there is Water enough to moisten an Ounce of Salt of Tartar, and to increase its Weight. And having repeated the Experiment with the same Success, I learnt at the same time, that the Water contained in that Portion of Air, which Water is about eight hundred and fifty times heavier than the common Air, must of consequence make up the greatest Part of the Weight which is statically discovered in the Air itself: For if one eight hundred and fiftieth Part of the common Air was Water, then the whole Weight of the Air would certainly be owing to Water alone, which floats in it; and the other Parts, contained in the aerial Mass, would make nothing towards the Weight of it, and would not, perhaps, gravitate at all. Upon this Subject I had some Conversation

fation formerly with my Friend Mr. Henry Van Deventer, famous for his valuable Writings on Midwifry, who told me, he had observed the very same Thing.

If we consider all these Phenomena with Attention, we must hence infer one, two, or all three of the following Propositions. Either, first, the Air, in all still, close, and subterraneous Places, must be in a perpetual Motion, in order to be able to apply that little Quantity of Water, which is diffused through its whole Mass, to the Surface of the Salt of Tartar, so as to leave it there; for if a Cubic Foot of Air contains at the most $\frac{1}{12}$ of a Pound Troy Weight of Water, and communicates, within a Vessel close stoppt, this Water to the Salt, then it follows, that all the Air must so revolve about the Surface of the Salt, as that all its Parts may successively come in Contact with it, and thus deposite the Water they contain: Or else, secondly, we must conclude, that those Particles of Water, which at one time are dispersed throughout the whole Mass of Air, are at another time so moved through that Mass, as that they are perpetually and successively, sometimes in one Part of the aerial Space, and sometimes in another, till at last they all meet with that Salt which is placed within it: Or, in the third Place, we must acknowledge, that there is a true attractive Power betwixt a fiery, fixed Alkali, and Water; so that, like two Magnets, they reciprocally attract each other, in the same Manner as we read in *Sendiogius*, of an Alkali of the Earth, that attracts the celestial Dew, in order to Fertilization. If a mutual Attraction is the Cause of these Appearances, the attractive Power betwixt the Water of the Air and an alkaline Salt must extend to a considerable Distance, since a very little of the Salt will grow four times as heavy at it was at first, by means of the attracted Water; for an Ounce of Salt of Tartar, whilst it is converted into four Ounces of Oil of Tartar per Deliquium, must have drawn into it three Ounces of Water: But three Ounces of Water require at least two Cubic Feet and a half of Air to be diffused through it, in order to be attracted into that one Ounce of Salt; which Space, with respect to that one Ounce of Salt, is very great; but from all kinds of Experiments, it appears very probable, that all these three Causes concur, at the same time, in the Production of this Effect.

But nothing appears more extraordinary in this Affair, than that, whilst the Water is drawn into the Alkali from the Air, and thus makes Oil of Tartar per Deliquium, which in Weight is to Water as seven to five, but to Air as 1190 to 1, there should be found in it nothing of the aerial Elasticity; so that this Alkali thus separates the Water from elastic Air, and unites it to itself, but rejects intirely the aerial elastic Quality. Hence, therefore, it appears, that Air, free from Water, is very elastic; but on the contrary, when it is replete with watery Vapours, it proportionably loses somewhat of its proper Elasticity; and again, that by means of a great Quantity of fixed alkaline Salt produced on the Earth, a vast deal of Water may be drawn out of the Air.

In continued serene and very dry Weather, the Air becomes always more ponderous, the Atmosphere heavier, and the Water mounts higher in the Air; so that, in reality, there is never more Water in the Atmosphere than at that time, when, by reason of the Dryness here below, People generally imagine there is the least of all: But the Water then is far more widely distributed and dispersed; for the higher from the Earth the Water ascends in the Atmosphere, the greater are the Spaces into which it is diffused, and the farther, consequently, its Particles recede from each other; and then they exist separately, and do not immediately unite, nor afford any Moisture. But if the Barometer is very high, and at the same time thick and stinking Fogs appear, then the watery Particles almost always float below, along with gross, unctuous, and saline Exhalations; all which, at that time, are not equally mixed together. Again, when the Barometer is very low, and the Weather at the same time is very hot and cloudy, then the Water comes down to the lower Regions, but in a uniform Vapour, very moist, but not yet producing Rain. From these Observation it is manifest, that the Air, when loaded with abundance of Water, often appears very dry, bright, and perfectly clear; and that, on the other hand, when there is less Water in it, it may, by the Descent, Collection, and unequal Distribution of the Water, appear cloudy, dark, and very moist. And this is demonstrated evidently in Cucurbits, Alembics, and Glass Receivers, whilst Water is distilling in them: For if the Vessels are kept stoppt very close, whilst the Distillation is going forward, all appears bright and clear, and no cloudy Vapour is seen; but as soon as the Water in the Cucurbit, upon the Removal of the Alembic, begins to evaporate freely into the Air, the whole appears covered with watery and very thick Vapours, the equable Compressure being now removed.

But in the Summer Season, when the Weather is fair and very dry, and the Surface of the Earth has been for a considerable time parched with the Heat of the Sun, then not only the Water, but other Particles likewise less volatile, as the oily and saline, are, by the Power of the solar Rays, carried up into the Air, and fill that Part of it which lies nearest the Surface of the

Earth. And as long as these Exhalations are kept in Agitation by the Heat of the Sun, so long nothing of them appears to the Eye: But as soon as the solar Heat, which at Three in the Afternoon is the greatest, begins to remit, the Air soon after begins to grow cool, though the Earth, which retains the Heat communicated to it by the Sun a thousand times longer than the Air, being yet hot, continues to breathe out Exhalations; and hence there is collected a white, dense Vapour, which is cool above, but still continues warm below. This Vapour, therefore, appears first in Ditches, and watery or marshy Places; whence dispersing itself by Degrees, it covers the Face of the Earth in the Evening and Night-time, with a Cloud, consisting of Particles of this Sort, which in the Morning is again dissipated by the Heat of the rising Sun. And this is what we usually call Dew; which appears, from what is here said of its Production, to be a very compound Fluid; so that nothing material can be asserted concerning its Properties, which would under all Circumstances hold true: For since it is a Composition of all the Corpufcles of the Earth, which are rendered volatile by the solar Heat in Summer, exhaling and descending again, and blended and confounded together, it must doubtless appear, upon the least Consideration, to be a perfect Chaos. Moreover, in every particular Part of the Earth, it must be of a Nature intirely different, according to the various Sorts of the Bodies in the Place where it is produced. In Gravel-pits, for Instance, and in high, dry, heathy Grounds, of a large Extent, there is collected but a very small Quantity of this Vapour, and that almost intirely watery; whilst that which is collected about standing Waters, Fens, Morasses, fat bituminous Grounds, and Places abounding with the Exhalations of putrefied Fish and other Animals, is perfectly of a different Nature, and often pernicious to Mankind. It is no wonder, therefore, that the Chymists, in the artificial Resolution of Dew, have met with such contrary Principles, and written so differently upon the Subject, that you can scarcely find two of them that give the same Account of it. And as for those who expect to find the Spirit of Life, the universal Menstruum, the Mercury of the Philosophers, and the Nitre and Steel of *Sendiogius* in Dew, they scarcely seem to have read the Works of these Philosophers to any Purpose. That this, however, is a very sharp, saponaaceous, pinguous Liquid, abounding with a good deal of Nourishment for Vegetables, I do not deny. A Dew too, collected in a certain Part of the Earth, has yielded, by Distillation, a Liquor that impressed upon Glass the lively Colours of the Rainbow, which could neither be removed by Friction, an alkaline Lixivium, or Aqua-fortis: And this Liquor was inflammable, like Spirit of Wine, as appears from the chymical Experiments related in the *Republic of Letters*, tom. i. p. 590. And again, distilled Dew, digested for the Space of eight Days in a gentle Heat, and by repeated Distillation rendered six times more subtil, is said to have broke three Glass Vessels, and to have remained perfectly insipid, though it was so very thin, that it resembled pure Spirit, *ibid.* 1708, p. 152. And farther, in the *Philosophical Transactions*, Dew is described as being like Butter, of a yellowish-white Colour, soft, melting by being rubbed upon the Hand, and growing dry and hardening by a moderate Heat, of a foetid Smell in the Winter, and, in the Spring particularly, produced in the Night-time in pretty large Lumps. But the Nature of Dew is likewise surprisingly various, according to the different Dispositions of the Weather, and according to the various and successive Changes of the Meteors in the Air; for hence it comes to pass, that the very minute Seeds of small Plants, and the invisible Eggs of the smallest Insects, are mixed with it, together with an infinite Number of other Things; which being all digested, fermented, putrefied, and distilled together, yield, at different times, Principles of very different Natures, and hence lead the Chymists into very extraordinary Opinions. The principal Part, therefore, of Dew, is Water; the rest, because of their great Variety, cannot possibly be determined.

That the Clouds are produced in the Air, from Water only, scarce any body doubts; but Water, every where equally disposed, is transparent. Clouds, therefore, are collected from what is beginning to be Water, the Parts of which are circumsolved among one another with an unequal Motion, neither resting nor moving equally. If the Water that is floating about in the Air mounts higher and higher, its Particles at last obtain a Situation so far above the Earth, that they are not any longer much united together, but receding from each other, they do not then constitute Water, but only the Elements of it: But when these Elements of Water come to descend again from the upper Regions, and are contracted into smaller Spaces, they associate together, and become a kind of Water, then forming Clouds. The higher therefore the Water ascends in the Air, the more serene and dry the Weather will be, and the freer from Clouds; and the contrary. But Water is carried up to a very considerable Height in the Air; for in Carniola, in the Neighbourhood of Venice, there are Mountains 10274 geometrical Feet high, on the Tops of which there are Indications of Moisture, *AA. Lips.* 1689. p. 552. And on the highest

highest Tops of those Mountains, Nature presents to our View perpetual Snows; a certain Proof of the Elevation of Water to such Heights. And even over Teneriff, one of the highest Mountains in the World, there constantly, about Noon, hang Fogs, or little white Clouds, which are daily resolved into Water, which flows in such Plenty down the Mountains, that it supplies the Place of Showers, and waters the whole Island without Rain, *Aët. Lips.* 1691, p. 98. We are certain, therefore, that Water ascends to such a Height: But had we sufficient Observations to confirm the Account Maignanus of Thoulouse gives, in his *Treatise of Perspective*, p. 93, of the wonderful Phenomenon which he says he had observed, the Ascent of the Water in the Atmosphere would be found to be abundantly higher: For he tells us, that in a very clear Night, and that at Midnight too, there appeared, in the Month of August, an exceeding bright little Cloud, which spread itself almost as far as the Zenith, or vertical Part of the Heavens; and says, that Riccius observed the same Thing in the Neighbourhood of Rome: And, from these Observations, he infers, that Clouds may be elevated beyond the Projection of the Earth's Shadow. But this Projection, if astronomically computed from the given Time and Place of the appearing Cloud, would make it at a prodigious Distance from the Earth; and hence, perhaps, that Appearance was rather to be ascribed to some other unknown Cause, residing in the upper Regions of the Air, such a one as forms the *Aurora Boreales*, or Northern Lights; since, on the Tops of the highest Mountains there are rarely observed any Clouds; but, on the contrary, to a Spectator placed there, they appear below him, towards the Valleys.

The lower Air being full of Water, the Elements thereof begin to unite, and, by this Association, to form small Drops, which falling down, produce a light Rain, generally thick, but descending with no great Force: For the less these Drops are, the greater are their Surfaces with respect to the Quantity of Water they contain, and consequently are the less inclinable to descend with Velocity through the resisting Air.

But when the Water in the upper Regions of the Atmosphere is collected together, and becomes heavier, and begins to descend, then, by gradually falling down, it continually unites to it the other Particles of Water which it meets with in its Fall. By this means are produced those very large Drops which in Europe have been observed of three Lines in Diameter, but among the Negroes, a whole Inch, *Aët. Lips. Suppl.* i. 425; which Drops, containing a great Weight of Water under a Surface small in Proportion, rush more violently through the Air, and fall to the Earth with a considerable Force. The higher the Place is from which they fall, the larger the Drops are, and so *vice versa*; for it has been always observed, that the Rain, in the upper Part of a high Mountain, is the smallest; but that, as it gradually descends, larger Drops are formed, till at the Foot of the Mountain it produces the largest of all. Hence, the hardest Showers happen in Summer, when the Water, being driven rapidly downwards on a sudden, Thunder, Lightning, and Tempests are caused. And hence also, the Drops of Showers, in Summer-time, are usually larger than they are in Winter. Lastly, Observation has made it very certain, that Rain, in every Part of the Atmosphere, is there the smallest where it is first produced.

But when the Air, abounding with Water, and growing cold during the Night-time, is carried against the upper Parts of high Mountains, especially if they are disposed in a long Range, then this cold and dense Mass of Bodies, particularly towards the North and East, during the first Part of the Night, and towards the South and West after Midnight, stops, cools, and unites this Water of the Air, and converts it into a real Fluid, which gives Rise to a great many little Rills, which in the highest Part of the Mountain are small, but, as they descend, and are joined together, become larger, and by this Means produce a perpetual Trickling down the Mountain, and afford an incredible Quantity of Water, which runs down, and produces various Rivulets, according to the various Channels of the Mountain or the Lands about it; and when these, by subterraneous Passages, descend from a high Part of the Mountain to any Part of the Declivities, and there burst through Outlets, and so discharge their Stream, they then yield a pure Water, either falling down, or bubbling up from a Spring. And here it is very easy to conceive, that, according to the different Height of the Springs, in respect to the Outlets, the playing of the Fountains must be various. And hence, likewise, it is easy to account for the Variety of Springs, both in the Quantity of Water and every other Circumstance. And hence again it appears farther, how it comes to pass that there are no Springs but where there are pretty high Mountains; and that wheresoever these are, Springs are also observed: The Truth of which appears no where more evidently, than in the fortunate Valley of Caffimire, mentioned by Bernier in his *Description of the Empire of the Great Mogul*.

This Account of Springs may possibly be right with respect to some; but I can by no means agree with the illustrious Author, that this is the Origin of all Springs. An easy Computation will

make the contrary evidently appear. Boerhaave has shewed that the Waters exhaled from the Earth in one Year, would cover the Surface thereof to about thirty Inches high. And if this is all, the Surface of the whole World would not be sufficient to supply the Thames, Trent, and Severn, with the Quantities of Water they yearly carry into the Ocean.

Again, wheresoever there are such Mountains and Springs, there the Water, after running down from the Mountains, or perpetually bubbling from the Springs, is discharged into Rills or little Currents, continually flowing; but, for the most Part, with a gentle Course at their Origins. But, when different Currents join their Courses together, the Stream becomes stronger; and being continually augmented by Rivulets, which discharge themselves into it, in a short time a River is formed. This again, not long after, being still, as it passes, augmented in Strength and Quantity by the Accession of other Streams, forms a River still flowing with a more rapid Course, always tending from the higher to the lower Ground, and at last discharging itself into the Sea, from which it never returns again; whose Contents, however, in the whole, are by this Means never increased, inasmuch, as what it receives by the Discharge of the Rivers into it, it gives up again continually by Exhalation. Sometimes it happens, also, that the rapid Torrents of Rivers sink down into subterraneous Passages, disappear, and rise up again in some other Place. Hence, in flat Countries, where there are no Mountains or Springs, no Rivers are formed; and for this Reason the Supreme Wisdom has thus distributed Mountains throughout the whole Earth, that they might be beneficial to Mankind, by producing these Collections of Water. And hence, lastly, all the World over, the Courses of Rivers correspond with the Order of the adjacent Mountains. Upon this Subject, let me refer you to the Discoveries of the incomparable Halley, in the *British Philosophical Transactions*, which he truly has a Right to the Merit of. All these Things it concerns us to be particularly acquainted with, who are prosecuting the Study of Chymistry, in which there is almost a perpetual Necessity of considering the Variety of the Qualities of Air and Water.

But by all that has been hitherto said, it does not appear certainly how great the utmost Height is, to which Water can ascend in the Atmosphere: But this, at least, we are absolutely sure of, that on the Top of the highest Mountain on the Earth, there never is any Air without some Water in it, since the Top is always found moistened with humid Vapours. And hence it is evident, likewise, that it is not possible, by any Manner of Art, to make Use of Air in chymical Operations, void of Water. Perhaps, indeed, from a given Quantity of Air, pent up very close in a dry Glass Vessel, all the Water may be drawn out: For if some Salt of Tartar, coming as hot as possible from the Fire, is reduced to a fine Powder, and thrown very dry into this Glass Vessel, and the Mouth of it is immediately stopt close, then this exceeding dry Alkali will attract into it all the Water that is contained in the included Air: But then no-body can apply this Air to any chymical Operations, because, as soon as ever the Vessel is opened, this dry Portion of Air mixes again with the common Atmosphere, and is immediately moistened by the Water with which it was filled.

But farther, we are assured, from undeniable Observations, that the higher the Water is carried into the Air, the more its Parts are disunited, and dispersed through wider Spaces, and at the same time grow colder: For, upon Examination, it has been constantly found, that in every Part of the habitable World, the Heat is greatest at the Surface of the Earth; and that, at the very Summits of the highest Mountains, a freezing Cold preserves a perpetual Snow. This is true, even at the Equator, and in the Torrid Zones: So that there is not, in the hottest Part of the Earth, a Mountain very high, whose Top is not exceeding cold: And the Cold even increases gradually, as you ascend from the Foot to the Summit of the Mountain, in such a Manner, that the Increment of Cold is always in proportion to the Increase of Height. This is an Observation that will always hold true, if all other Circumstances are alike. When Water, therefore, ascends to such a Height in the Air, that it meets with a freezing Cold, it must necessarily be congealed into Ice, unless its Elements are so separated, that none of them touch one another; for so long as the Particles of Water are there dispersed from one another, so long there will be no Appearance of Ice: But, as soon as ever, in this high and cold Region of the Air, these Elements begin to come into mutual Contact, then they begin immediately to be congealed into little icy Globules, which float up and down through the clear Air, and falling upon the Surfaces of the Bodies they meet with in that Region, produce a very fine Hoar-frost, but otherwise are scarcely perceptible. In the Atmosphere, therefore, there is an Orbit concentric to the Earth, in which the Water of the Air, when it is carried up to that Height, is always frozen if it is united together. And the higher it is elevated above this Orbit, so much the sooner it will be frozen. But it is not, however, improbable, that when the Water arrives to such a Height, its Particles will be so much the less united,

united, and therefore will seldom be congealed; but, on the contrary, will float about separately, till some other Cause shall happen to unite them together, and by this means form them into Ice.

When the Water, therefore, in this Orbit is congealed, then by an Union of a great Weight of Water under a less Surface it must immediately become heavier; by which means it will of consequence begin to fall downwards, and thus descending into Spaces that are smaller, and are more replete with Water, will associate to itself other watery Particles, and so gradually form larger icy Concretions, which will now put on the Appearance of Snow, or small Hail. But as there may be a great Number of Causes, and those too perfectly different from each other, by Means of which, the Elements of Water that were before scattered in the upper Air, may on a sudden, and in a very large Quantity, be brought into Contact with one another in the icy Region of the Atmosphere, hence we readily apprehend, that considerable Pieces of Ice may in a very short time be produced.

But these icy Masses may be collected together; and when this happens, there will appear little Clouds high in the Air, and white, because of the Reflection of the Sun; which suddenly falling downwards with a considerable Velocity, seem to increase very fast in their Magnitude, and rushing from on high upon other Clouds of the same kind, by their Collision produce Thunder, Lightnings, Tempests, Showers of Rain and Hail, which are always the more violent, the higher the Place is from which they fall. And hence, in Summer-time, when the Weather has been long clear, the lower Air very dry, the Atmosphere heavy, and the Water therefore in it carried up to a very great Height, then the Atmosphere being on a sudden rendered lighter, the Phenomena just mentioned usually succeed, especially betwixt the Tropics, where, if a little white Cloud appears very high in the Air, it is a Sign that a terrible Storm is at hand. And it is exceedingly probable, that the Hail, which is always formed in the upper and colder Regions of the Air, as it descends by its Weight into those that are lower and warmer, is there dissolved by Heat, and produces those great Showers of Rain which accompany, follow, and put an End to the Thunder and Lightnings. But if the Hail happens to be so swiftly carried through the Air, as that, by reason of its quick Descent, it cannot be melted, it then falls to the Earth in form of icy Concretions, which often, by their Size, Weight and Motion, do a great deal of Mischief. In the Abridgment of the *Philosophical Transactions*, N. ii. p. 144. we have an Account of some of these that weighed a full Pound.

This certainly we are assured of, by Observation, that Clouds of a very white Colour, to which there presently succeeds a pitchy Blackness, terrible Thunder, Lightning, and Tempests, are always accompanied with Hail. Hence it may be questioned, whether, for producing even the greatest Thunders and Lightnings, Nitre and Sulphur are always necessary; since the very violent Collision of hard Ice suffices, perhaps, for the striking out a vast Quantity of Fire; doubtless it is sufficient for producing loud Peals of Thunder; especially if we likewise consider, that the Fire of the Sun, by its Heat, Reflection and Refraction, can act in infinitely different Ways upon the aqueous congealed Matter we are here speaking of. If this then be taken into Consideration, what Variety of Colours, what Diversity of Figures, and what Difference of Dimensions may we not suppose to happen in this aerial Ice?

This Account of Thunder and Lightning without Nitre and Sulphur seems more curious than true.

But amongst the principal Causes that are concerned in the sudden Production of such extraordinary and various Phenomena in the Atmosphere, which before was calm and serene, we may reckon the Diminution of its Weight; for the Water always begins spontaneously to separate itself from the Air when the Air becomes lighter; and thus the Water discovers itself, though before it did not appear. In the next Place, we apprehend, that the Bodies of Air which are driven from opposite Quarters, often strike against one another, and by this Collision suddenly unite together the Elements, which before were separate. Something likewise may perhaps be owing to the various Aspects of the Planets; not to mention the Efficacy of the Winds, and the Vicissitudes of Heat and Cold towards these Productions. Every one of which, separately, or all of them together, may easily enough bring about the Effects we have mentioned, with many others.

On the other Hand, if we examine into the Causes which incorporate Water with the Air, and elevate it, we shall find a great many which contribute to it. The principal, however, of these is the Sun, the Direction of whose Rays upon the Water, the nearer they approach to a Perpendicular, the more consult the Observations of Dr. Halley, which I have already cited in their proper Place. Another Cause greatly assisting the foregoing, is the subterraneous Fire, which is always in Action, never at Rest. For it has been evinced by Observations, that

in Mines sunk lowest, or in the deepest Wells, you first come to a Depth in which Water never freezes, but which continues almost always of the same Heat, without any Alteration, as the celebrated Academy at Paris observed long ago, in the Well of their Observatory; but as you descend lower, the Heat begins to grow greater, increasing gradually more and more, in Proportion to the Depth, till at last it becomes so suffocating, that unless it be tempered by the Coolness of running Water, and the Air that is thence produced, it suffocates the Miners. And we see also that in Winter, when the Water is covered with Ice, and the Earth with a hard frozen Crust, if the Ice is broke, or the Earth is opened, both the Water and the Earth smoke with Heat. Nor had the Philosophers, whom I have formerly heard discoursing on this Subject, any Grounds for asserting that this was all a Fiction, and that it was impossible that Fire should thus exist in the Bosom of the Earth, because it can neither be supplied with a proper Pabulum, or be agitated by Air; for certainly we ought to consider, that by the sole Attrition of the condensed Air, in the Bowels of the Earth, this Fire may be produced and preserved without any other Air, or any Pabulum. For should the Air, at any vast Depths under Ground, be condensed six hundred times more than the common Air, what Effects would it not be capable of producing? Incredible ones without Dispute, since Authors worthy of Credit have declared, that Air forcibly compressed in an Iron Tube has there grown warm. It is not to be questioned, therefore, but that, in the deepest Parts of the Earth, where the Bodies are compressed by the prodigious Weight of those which lie above them, the smallest Attrition must produce the greatest Heat. And hence, as the Action of this Fire is perpetual, so likewise must be the Effect of it too, that is, a continual Exhalation of Water. *The Existence of this subterraneous Fire seems to want farther Evidence, notwithstanding Boerhaave so little disputes it.*

Regard is also to be had to the very great and constantly repeated Effects of common Fires, made use of by Mankind in every Part of the inhabited World, in the Dissipation of Water, whether alone, or contained in Animals, Vegetables, or Fossils; for, doubtless, if any one computes the Measure of this exhaling Water, which such Fire carries up, and distributes through the Air, he will find it to be incredibly great.

Again, the Force of a very sharp Frost carries off from Ice every Moment a surprising Quantity of Waters, so that in a little time the Mass is consumed, being dispersed into the Air by the Cold alone, as the excellent Mr. Boyle plainly discovered by an Experiment made with the Balance. But daily Observation certainly evinces, that by the piercing Cold of a very severe Winter, all Kinds of Bodies are strangely worn away, diminished, consumed, and dispersed through the Air.

It seems probable also, that every physical Cause, which is capable of so disuniting the Particles of Water from one another, as to make every one of them exist separately, will also, by this means, make those Particles immediately acquire so large a Surface, in Proportion to their very small Weight, that they will be able to float in the Air. And indeed, this Solution of Bodies into their smallest Parts appears at last so to increase their Surfaces, in respect to their Quantity of Matter, that in every Division of them, this Aptitude to swim in a lighter Liquid is very much augmented, as the Geometricians have long ago observed. But it is farther discovered by physical Observations, that, besides the Gravity of Bodies, there is likewise a certain repelling Force, which tends to prevent the Contact of the Surfaces of different Bodies, and which, consequently, is always increased in Proportion to the Augmentation of their Surfaces. Hence it follows, that Bodies very minutely divided, descend, on this Account, with more Difficulty by the Force of their Gravity, than they would do if they were acted upon by the Law of Gravitation only. And the Action of this second Property of Bodies seems particularly to prevent the immediate Descent of all the Particles of Water out of the Air that surrounds the Earth.

It seems to be the Effect of the very same Property, that the Particles of Water may be expanded round the Air contained in them, and thus form that spherical Body which we call a Bubble. And besides, any Heat or expanding Spirit whatever, while perhaps it acts in the same Manner, may, as well as Air, be always, at last capable of rendering Water lighter; but when afterwards, the Water being so divided into very light spherical Bubbles, is carried upwards, then does every Bubble expand itself more and more continually, and so is able to ascend for a long time, and to remain aloft in the Atmosphere. And hence it is manifest, that the Particles of Water may ascend to a great Height. See Halley, in the *Philosophical Transactions*, 1692. N. cxcii. p. 468, &c.

But in the last Place, there is no Cause whatever which carries up such a Quantity of Water from the Earth into the Air as the Wind, as the same admirable Halley has elegantly demonstrated, and as I myself have learned from various Experiments, not without Astonishment; for having exposed a Copper Cylinder full of Water to the Wind in

in stormy Weather, I was surpris'd at the incredible Quantity of Water carried off in a little time; whereas, when the Wind was still, which happened presently after, but a very little Water exhaled, though the Heat of the Weather was still the same. For this Reason it seems ordered, that high Winds should follow large Quantities of Rain, that, by thus agitating the falling Water, and carrying it up again into the Air, they may prevent its stagnating and putrefying, and by this Means proving destructive to the vegetable Kingdom. All these Causes, therefore, when they conspire together, are sufficiently capable of dissipating Water into the Air, and there keeping it in continual Motion.

If we consider now the Action of this elastic Air, replete with Water, on the Body of a Man, Fossil, or Vegetable, we shall find it bring about many and very wonderful Changes; for if we reflect upon its singular Fineness, which renders it exceedingly penetrating, and that it is perpetually insinuating itself into every little void Space; and if at the same time we take into Consideration its constant Mobility, by which it is always kept vigorous and active, it is manifest that these Qualities being determined upon Bodies by the Force of Gravity, are capable of producing an infinite Number of Effects. But the Water that is distributed through the Air will also be still more efficacious, being itself agitated by the Motion of the Air, and by this Means it will more readily dissolve the Salts, and the saline and saponaceous Substances of the Bodies it is applied to. And as there are many such Parts in most Bodies, and those Parts too are the principal Instruments of their Action, hence we easily apprehend, that, by means of the Application of the Air, the proper Virtues of Bodies may be excited to Action, so far as they depend upon their Salts and Soaps. In the mean time, the principal Alteration wrought upon Bodies by the Water of the Air, is its rendering fixed Salts, and other compound Bodies, volatile. This Phenomenon was observed by all the Chymists of old, and is constantly found to hold true, that is, all native Salts, if they are rendered exceeding dry by an open Fire, and then pounded and exposed to the Air in a Glass Balon, will there, by means of the Water in the Air, be converted into a Liquid, and from the perfectly saline Part there will be separated an Earth, which did not appear before. If this saline Liquor, thus freed from this Earth, is again thoroughly dried by a clear Fire, and if afterwards the Salt is beaten, and again dissolved in the Air, it will deposit some more Earth. And if, by several Repetitions of this Solution and Infusation, you thus remove all the Earth that is every time produced, you will at last procure an incredible Quantity; but at the same time you will have nothing else remaining; for that other Principle, which before, in Conjunction with the Earth, constituted the Salt, is, by this repeated Action of the Water of the Air so disengaged from its Earth with which it was incorporated; that now, existing separately, it becomes perfectly volatile, is dissipated in the Air, nor does ever again come within the Cognizance of our Senses. Nor has the Industry of the Chymists discovered this wonderful Metamorphosis in native Salts alone, but likewise in the fixed Salts prepared by Fire from Vegetables; for by this tedious Operation, these Salts are likewise resolved into an Earth, which fixes them, and a Principle perfectly volatile, which is intimately united with it. And these Resolutions, which are very singular and wonderful, can be performed by no other Means than this very subtle Application of the Water distributed in the Air, which Art, formerly held a Secret, being now more practised, has let abundance of Light into the Art of Chymistry; though at the same time it has too often proved of Diservice to the Chymists, who being quite tired out with the Tedioufness of the Work, have lost, in the End, both their Labour and the Thing they were in search of. But again, whenever the Air abounds with Water, and is, at the same time, agitated by Heat or Wind, then this Water will relax the Parts of Bodies so suddenly and so efficaciously, as must surprise every one who is not acquainted with these Subjects. But by this Means, likewise, many Bodies are macerated, and others are thrown into Fermentation. And as for the Putrefaction of the Bodies, certainly it is scarcely more promoted by any other Cause than the Humidity of a hot Air, which, in a very little time, resolves the Bodies, which are that Way disposed, into a putrid sanious Matter. And for this Reason, the Physicians long ago asserted, that the Plague itself is generated among Animals, from an Air that has been both very moist and warm for a considerable time. In short, therefore, since it so dissolves Salts and saponaceous and saline Substances, elevates them all together, disperses them about, drives them against, and makes them penetrate into what Bodies they meet with, it is manifest, that, by this Means, it must apply the Forces of some Bodies to others, and thus bring about such Actions between Bodies, as hardly ever happen from other Causes; for what other Cause could produce the foetid Butter-like Dew, described in the *Abridgment of the Philosophical Transactions*, Tom. ii. 141? Or what else could cause the salt Rain, observed at Sea, *Journal des Sav.* 1683. 435?

Thus far we have sufficiently considered the Air, with respect to its Elasticity, and the Fire and Water contained in it. We

are now to examine it in another View. Let us then carefully enquire what other Corpuscles, besides those we have specified, float perpetually in this Air; but this is a Field of Enquiry which is boundless: For as the Earth, considered in its whole Extent, receives every thing that falls out of the Air, so, on the other Hand, the Air receives every thing again from the Earth; and thus, between these two Elements, a perpetual Revolution and Distillation of all things is carried on.

In the first Place, then, all the Parts of Vegetables perpetually changing, are dispersed throughout the Atmosphere. That the Spirits of Vegetables do always and every where exhale, and fill the Air with a continual Fragrance, nobody can dispute. And it is very certain, that the Odour of Plants dispersed through vast Tracts of Air, inform Mariners, before they discover Land, of their Approach to the Shore. It is farther known, that these Spirits spontaneously exhale out of the Bodies, in which they are generated, and are scarcely to be confined and preserved, except in Vessels stopped very close. Hence, then, it follows, that whatever odoriferous Spirits are at any time by Nature produced in Plants, all these are, at last, contained in the Air. And for this Reason it is not at all to be wondered, that these Spirits should afterwards return with the Water of the Air into the Bodies destined to receive them, and that the Air should thus yield up to the Earth what it originally received from it. In fact, we find nothing in Nature less imitable by Art, than the fragrant Spirits peculiar to each Plant. But these, when they are once freed from the Tenacity of the Sulphur or Oil that entangles and retains them, always, from their own proper Nature, become volatile, and are dispersed through the Atmosphere. How various, then, must be the Effects that are hence produced; and how wonderful the grand *Metempsychosis* or Transmigration that is, by this Means, brought about!

But again, when we consider that Vegetables, duly prepared by a proper Fermentation, yield a large Quantity of vinous Spirits, that are continually exhaling, must we not hence conceive, that all those Spirits which have ever been produced from any fermented Vegetable whatever, over the whole Face of the Earth, have at last exhaled into the Air? And in this View we now look upon this Air again as a Cloud, as it were, of Spirits of Wine. In Reality, whether Wine be drank by Men, or any other Animals, be outwardly applied by Way of Fomentation, or made use of either in Cookery or Physic, certainly all its Spirits must sooner or later exhale into the Air, there remain for some time, and thence, at a convenient Season, return to the Earth again. What Wonder, therefore, if Fermentation, which is the productive Cause of Wine, should never produce Wine, without the free Admission of the external Air. May it not, possibly, return back again to Places and Bodies the Spirits which it had before received; and must it not, for this Reason, be always called in to our Assistance, when they are to be generated again?

And finally, all those Parts of Vegetables, which the Fire divides into exceeding minute Corpuscles, and converts into a volatile Vapour, the Chymists have likewise called Spirits; but these are also elevated into the Air, and are continually floating about in it. As the Water of Vegetables, therefore, so all these Kinds of Spirits are perpetually tending upwards into the Atmosphere.

But farther, it is certain, that the native Oils of Vegetables do, in time, by the natural Heat of the Air, intirely evaporate; and that whether they remain in the Vegetable, or spontaneously exude out of it, or are forced out by Pressure; for there are but few Sorts of Wood, in which their Oils are so united with their proper Earth, that they are able to remain for Ages together in the open Air. And as for the Oils of Vegetables, which Chymistry draws from them by Fire, whether this be done with Water or without, these are far more volatile, and sooner fly off. Thus then they form pinguious Exhalations in the Atmosphere, which are very well disposed both to take fire, and to support it; for as these oleaginous Particles are now so minutely divided, that they nearly resemble Alcohol while they float in the Air, being first heated by the Attrition of the Clouds, they may be excited into a Flame by Fire, which may be produced in the Air, all these Oils, therefore, which ever were contained in Vegetables, a very few perhaps excepted, are dispersed into the aerial Chaos; whence, as Water and Spirits do, they return in their time, impregnate the Earth with a pinguious moistening Dew, and by thus circulating backwards and forwards, bring perpetually fresh prolific Supplies, and being deposited for a short time, return into the Air again. All this now happens principally in very hot Weather. For if a long Drought, with a very great Heat, has carried upwards both the Water and the pinguious Corpuscles of the Earth, then the first Fires that happen aloft with Thunder and Lightning, send down a Rain which is very different from that pure Snow that falls in a sharp Frost, and is far more acrid and more disposed to Froth. And hence Summer Rain, or Rain produced in hot Weather, is always fruitful; whereas that in cold is scarcely endued with any such Quality.

I must observe, that Spirit of Nitre rendered extremely strong and volatile, when mixed with some aromatic Oils, as that of Cloves, will explode with great Violence, and form a Kind of artificial Lightning. How far, therefore, the aromatic Exhalations from Vegetables may, by mixing with the Acid of the Air, set it on fire, and be concerned in making Thunder and Lightning, I leave to the Determination of Philosophers.

If we consider now the native, acid, austere, saponaceous Salts of Plants, and those which approach the Nature of an Alkali, which are procured by Crystallization, Fermentation, Putrefaction, and Combustion, we shall find, that all these do, sooner or later, disappear, not one of them excepted; since all these Bodies, when they are freed from their fixing Earth, ascend into the Air.

Even that very Earth too, which furnishes a fixed Element to Plants, by being reduced into small Particles, acquires such a Disposition, that it flies off, and is carried aloft: For Soot, collected at the very Top of a Chimney, from the volatile Smoke of a burnt Vegetable, yields, by a chymical Distillation, a remarkable Quantity of pure Earth. Hence, therefore, we are assured, that Smoke, which floats at Liberty through the Air, carries along with it real Earth, mounts with it aloft, and widely disperses it through the Air. Not to mention the Winds, which sweep away the Egyptian and Lybian Sands in Waves, as it were, through the Air, and carry the Ashes of Mount Ætna to prodigious Distances: Farther Instances of this are the Sparks of Vesuvius, scattered above a hundred Miles through the Air, *Phil. Transf. Abr. tom. ii. 142.* Ivy-berries, dispersed over a vast Tract of Land, *ibid. 144.* Small Fish, *ibid.* or the seminal Dust of Vegetables, *Phil. Transf. 168. p. 911.* Hence, then, from Observations it is clear, that all the Elements of Vegetables may be carried and intermixed with the Air.

But it is likewise certain, that Parts of Plants, and those pretty considerable ones, are carried into the Air to an incredible Height. Consider the Seeds of downy Plants, which are carried up to the Tops of the highest Towers, and there, as is daily seen, if they meet with a very little Earth, propagate their Species. The celebrated Tournefort has demonstrated, from Observations, that the Fungusses, which are almost all feminiferous, by Means of the Air, disperse their invisible Seeds all about, which meeting with a proper Soil, thrive and spring abundantly. Mosses, likewise, and the mucilaginous and capillary Plants, as also the *Epiphyllasperma*, or those which bear their Seeds upon their Leaves, scatter and disperse their Seeds to very distant Places. Even the small seminal Dust of the Male-Willow, being shaken from the Apices of the Flowers, and carried by the Winds into Places remote from those Trees, and afterwards, when the Wind was down, falling out of the Air, has been taken, by Persons unacquainted with these Things, for Flower of Sulphur, and afterwards believed, by the credulous Vulgar, to be a Shower of Brimstone, *Vide Phil. Transact. Abr. tom. 3.* And if such a small Dust should happen to be of a remarkable red Colour, why should not the same Vulgar, for the same Reason, have asserted, that it had rained Blood? There were Ashes thrown out of a Vulcano, and carried by the Wind, in the Year 1633, the Space of one hundred Miles, *Phil. Transf. N. xxi. p. 377.* But these are Things not to be wondered at, since that excellent Philosopher, Mariotte, in his *Treatise of the Motion of Waters*, p. 334. observed in a Cloud that poured forth a Shower of Hail, that the Air had carried this Cloud for fifty French Miles. If we reflect, therefore, upon these Things, we must believe, that there are a vast Number of surprising Phenomena in the Air, and produced by it; all which are intirely owing to a Mixture of vegetable Substances that are distributed through it.

If, in the next Place, we enquire whether the Parts of Animals are contained also in the Air, we shall find there is a great Quantity of exhaling Spirits, and those wholly peculiar to every Animal, and distinguished among Physicians by the Name of the *perspirable Matter of Sanctorius*, that are continually diffused and carried into the Air from living Animals, and adhere to other Bodies; and by these Spirits it is that Dogs, which pursue by Scent, distinguish so accurately the Animals from which they exhale, and follow them over large Tracts of Land. And how full the Air is frequently of Effluvia, exhaling from Animals, appears evident from the Infection too often observable in contagious Distempers.

The Excrements continually discharged by every Kind of Animals, are also, in so short a time, dissipated and disappear, that we are hence convinced, that the whole Quantity of excrementitious Matter will be always dispersed into the Air, hardly leaving so much as the lightest Dust behind it. In the hotter Countries, the Dung of Animals, being exposed to the open Air, becomes perfectly volatile by the Heat of one single Day: And even in our own Country, which is not so hot, the very Dunghills are quickly consumed. And as for Urine, how quickly does that spontaneously become volatile, and exhale?

But there is something in this Affair still more remarkable: For does not an intire Whale, the largest of Animals, when in hot Weather it is by the Sea thrown dead upon the Shore, quick-

ly infect the Places, to a great Distance about it, with a pestiferous Stench? And is not the whole of it resolved into volatile infectious Particles, so that at last some whitish Bones only remain, all the rest of the entire Mass being rendered volatile, and dispersed in the Air? What vast Numbers of Carcasses of Elephants, Camels, Horses, and of almost all other Animals, as well as human Bodies, that are the Carnage of War, remain from time to time uninterr'd, and are resolved into Putrefaction, become volatile, and dissipate almost all their Elements into the Air? Hence, therefore, it follows, that Bodies of Animals are, from their own natural Disposition, as much intombed in the Air as in the Earth; and those very Bodies, likewise, which are buried in the Earth, are not then preyed upon by the Worms, but are soon converted into a very light volatile Matter, which afterwards easily exhales into the Air out of the Earth itself. All the corporeal Matter, therefore, that has ever entered into the Composition of the Bodies of living Creatures, has been carried up into the Air, with this Difference only, that if the Bodies were burnt, this was brought about immediately; if left to rot in the Fields, more slowly; and still in a longer time, if they were interred: But yet, even in every Case, they have in time exhaled away. What wonder, therefore, if, from the Air, there should be returned a Matter of the same Nature or Kind with the Food of the former Animals, which is capable of affording a proper Nourishment to the Bodies, that are by this Means to spring up afterwards?

But there is yet another Thing upon this Subject, which will be worth while to take under Consideration, as the right understanding of it will keep us clear of many Mistakes. I assert then, that the very Eggs, impregnated with the fruitful Offspring of their respective Animals, are carried into the Air. For the excellent Redi has demonstrated, that all Insects, without Exception, are generated by the Copulation of Male and Female. Leeuwenhoeck has proved, that the Seed of the Male lodges the first Embryo in the Egg of the Female. And Boyle has made it appear, that pregnant Eggs will not exclude their Young, except they are in the open and fresh Air. Being furnished, then, with these Observations, I purposely took a Piece of Flesh, which had been kept a pretty while in boiling Alcohol, and was afterwards rubbed over with some bright Oil of Turpentine, and fastening it to a long small Thread, hung it up in a moist warm Air, in a Place where it was imagined there were no Animalcula, and the Consequence was, that in a little time after the suspended Flesh was full of living Maggots, which were devouring whatever of the succulent Parts remained therein. In this Case, then, the Eggs, from which these Animalcula were produced, could not possibly come at the Flesh, unless they were conveyed to it by the Air, in which it was suspended. How much do the Husbandmen experience the Truth of this to their Detriment, when, in a warm Spring, certain Winds very suddenly infect the Trees with numberless Vermin, which in an Instant, as it were, are produced from their invisible Eggs? But give me Leave to mention one Thing farther, which is still more remarkable; and that is, the Rains that frequently happen among the Negroes, which strike a Man with such a sudden Chills, that it makes him shudder. These Rains fall in Drops, of an Inch Diameter, which, if they come upon the Skin, eat into it; but, if they lodge on any Garments, produce living Worms and Moths, *Act. Lips. Suppl. tom. i. p. 425.* Many other Things of this Kind might be here taken notice of; but these may suffice, to let the Chymists understand that the new and wonderful Animalcula, which are oftentimes produced in Bodies, and even, perhaps, while they are at work upon them, owe their Being intirely to little Eggs, which are thus sustained in the liquid Air, and not to the Efficacy of any chymical Substance or Operations. Let them, therefore, be always mindful of the Nature of the Air, and its wonderful Fecundity, before they deduce the Origin of such Appearances from any other Cause. But the Knowledge of these Things, at the same time, is not less necessary and advantageous to the Physician and Natural Philosopher.

Let us now proceed to Fossils; for Fossils are likewise discoverable in the Air. For all Fossil Salts, however fixed, at last fly off into the Air, if they are dissolved in Water (especially in that which they attract from the Air) and are afterwards digested for a long time in a putrefying Heat, and are then distilled with a great Degree of Fire, and have their fixed Residuum calcined with a strong open Fire, and are then dissolved in the Air again. This is a Truth which a great Chymist communicated to the World more than an hundred Years ago. Not to mention the Distillation of these Salts, with Sand, Bole, Brickdust, Potters and Tobacco-pipe Clay, performed with the intensest Heat. Do not the Chymists, every Year, convert, by this Method, many thousand Pounds Weight of such Salts into acid volatile Fumes, which they call Spirits? And does not every such chymical Operation infect the very Air? And does not this Air destroy the Bodies that are exposed to it? The single and simple Mixture of Oil of Vitriol, Oil of Alum, or of Oil of Sulphur by the Bell, with Nitre, Sea Salt, or Sal Gem, converts in an Instant those very fixed Salts into Fumes,

Fumes, so volatile that they can hardly be confined, with which the Air is in a short Time so strongly impregnated, as to carry those Salts to great Distances all around. But infinite are the Methods by which the same Thing is effected. Before the industrious Glauber's Time, indeed, this admirable Method of thus changing Salts was not discovered. But who will pretend to determine, how many Methods lie hid in Nature, even at this Day, by which the like Conversion from a fixed to a volatile Matter may be brought about? The Vapours about Mines, which are often so fatal, that no living Creature can breathe in them with Safety, sufficiently prove, that Nature herself thus disperses Salts through the Air, and consequently has secret Methods which we are not acquainted with, for performing the very same Operations. In the mean Time, however, it is true, that this happens only in certain Parts of the Earth, that is, in those Places where there is Plenty of such a Matter, and where likewise the Means are not wanting of acting upon it after this Manner. And it is likewise as certain a Truth, that even those saline Vapours are elevated only to a certain Height in the Air, and that not a very considerable one. And upon this Foundation it was, that the Adepts asserted long ago, that the Air was divided into certain distinct Strata or Beds, each of which contained a distinct Kind of Exhalation and Vapour. Hence, then, it is evident, that by the Means of Water, Heat, Digestion, Solution, Ex-ficcation, Distillation, Calcination, Combustion, Mixture, Union, and Separation, fossile fixed Salts are rendered volatile, and are thus intermixed with the Air.

The Principles of Fossils, which go by the Name of Sulphurs, whenever Fossils are burnt, are intirely carried up into the Air, and, being intermixed with it, disappear, the saline acid Part changing into a suffocating Fume, and the oleaginous Part being attenuated by the Action of Flame, and flying off in an invisible, or a sooty black Vapour. It is certain, that hardly any Thing at all of these Parts remains in the Earth. Sulphur now itself, when alone, is carried into the Air in Form of an impalpable Flour, and is there dispersed about. But, when it is mixed with other Bodies, it often acquires a surprising Volatility. The Chymists have taken Notice of a great many Methods, both natural and artificial, by which Sulphurs are so changed, that they fly off into the Atmosphere, and carry up other Things along with them. In Mines, from Time to Time, there appear pinguious, stinking, suffocating Fumes, often very troublesome to the Miners, to which, if the Flame of a lighted Candle is applied, they instantly take Fire, not without extreme Danger to the Workmen. But it is certain, that Arsenics, Orpiments, Cobalts, Sulphur of Antimony, Bismuth, Zinc, and other Bodies furnish the Matter of these Vapours. We are also informed of the Falling of a Shower of Brimstone, attended with Lightnings, which, when it was once on Fire, could neither be extinguished by Water nor Motion. *Nov. Literar. An. 1684. P. 63.*

Metals themselves have been found to be so far changed, that even these, under the Form of a volatile Fume, have been elevated and scattered in the Air. This is universally known to be true of Mercury, which, when agitated only by a Fire of six hundred Degrees, flies off, and becomes invisible. And, if the Air, impregnated with it, surrounds, and is applied to a human Body, how wonderfully does it penetrate it, and how quickly does it raise a Salivation! But besides, while it thus flies off, it carries up and bears away with it some Part of certain Metals; as appears from the Distillation of Lead and Tin with Mercury. Even Lead, Tin, Iron, and Copper, if they are disposed in a very strong Heat, at last disappear, by Means of the Volatility they acquire, and thus far are dissipated likewise into the Air. A great Part of imperfect Metals is carried off too by Lead in the Test. But when Cobalts, Arsenic, and the like rapacious Sulphurs, are intimately united with Gold and Silver Ore, the Particles of the Ore being by this Means rendered volatile, when they come to the Fire, these noble Metals are carried away to such a Degree, that, to the great Damage of the Owner, a good Part of them is lost; which, by a gentle Calcination, and the Addition of some fixing Powders, might be intirely preserved. Hence, therefore, it appears, what an Abundance of Gold and Silver may be raised up into the Air. Nothing seems a greater Paradox than volatile Gold, and yet, we are certain, from undeniable chymical Experiments, that, if you take common Sublimate of Mercury, and rub it well with Gold reduced to Powder, and then distil it in a Retort with Regulus of Antimony, the very Body of the Gold will ascend in Form of a red Oil, and become perfectly volatile. By Sulphur, also, calcined Vitriol, and Sal Ammoniac, mixed and applied properly, almost all Metals may be rendered volatile in the Fire. No Wonder then, that, in clear Weather, there very often appear about Mines sudden Fumes, which extinguish the Light of a Torch, (see *Boyle's Works*) since even the most dense Bodies may, in the Form of a Fume, be so carried into the Air, that it can hardly be determined what

Bodies they were. But there is another Cause, which is frequently concerned in impregnating the Air with these metallic Parts; and, that is, the Air itself as it abounds with Salts and Sulphurs. For, as I have already shewn above, that the whole Air is full of Salts and Sulphurs, and, as it appears from what I have now delivered, that those Salts and Sulphurs can carry aloft even Metals themselves, when they are dissolved, it is easy to apprehend, that the Air itself can by this Means cause the Parts of Metals to be suspended and float about in it. Are not Iron, Copper, and Lead, by the Contact and Motion of the Air, always, and that in a short Time too, turned into a Calx, Flour, and Dust? And are not they hence converted into Rust, Verdigrise, and a Ceruss? And it may be observed, that when, after these Changes, they are reduced to an impalpable Powder, they fly away, and are carried through the Air by the Wind. I confess, that Silver, Gold, and Tin are less subject to these Alterations, because the volatile Acids of Nitre and Sea-salt, which are the proper Dissolvents of these Metals, are hardly ever dispersed through the Air, except about the Laboratories of the Chymists. [*I believe this is a small Mistake, for the Air is certainly furnished, and that plentifully, with an acid Spirit, which, fixing it in a proper Matrix, gives the very Essence to Nitre.* See NITRUM.]

The Air in America, indeed, is of so corroding a Nature, that it consumes the Tiles of the Houses, stony Bodies, and almost all Metals; as the English unanimously agree of the Air of Bermudas; for even Metals themselves perish there very soon. And that surprising Phenomenon, which in all Ages has been observed by Miners, seems also to be owing to the Residence of these metallic Parts in the Air, I mean that the fossile Glebes, when they are dug out of the Earth, and are exposed to the Air, are affected by it in a very extraordinary Manner. How frequent is it seen, that Marchasites, the Pyrites, vitriolic Stones, and metallic Substances that are quite exhausted, are so acted upon by the Air, that they increase, come to Maturation, are changed, renewed, and afresh impregnated, and become again enriched with a true metallic Matter. In Fact, the Air seems to be the grand universal Distributer of the Seeds of Bodies, which, being plentifully stocked with every Kind of Matter, commits to the Earth the Elements of Bodies it had before received from it, and thus generates most Kinds of Bodies, rather by Means of a Revolution, than a new Production. It is certain, that Dew, being changed by Distillation, has yielded a Liquor, which stained Glass with the Colours of the Rainbow, penetrating so deeply in it, that it could neither be removed by Aqua fortis, Oil of Tartar, or a strong and long continued Friction; and yet, at the same Time, the Liquor itself was so subtle, that it burnt in the Fire like Alcohol: *Republic of Letters, T. 1. P. 590.* Certainly this Effect is very like that of a metallic Tincture upon Glass. *Philosophical Transactions abridged, T. 2. P. 143.*

Thus, then, the few Things I have specified are sufficient to instruct us in our chymical and medicinal Enquiries, what Ideas we ought to form of the Air. In Reality, it is to be considered as a true Chaos of all Things intermixed and compounded together; for in it the attenuated Particles of all Bodies whatsoever float. And, since these little Corpuscles are always in Motion, they may, by meeting in this aerial Space, produce all those surprising Operations of Nature, which are owing to the Efficacy of particular Bodies: But these are almost infinite. So that it is not at all to be wondered at, that there are produced and appear, in this Scene of the Atmosphere, such extraordinary, and frequently such terrible Events in Nature, as never happen any where else; I mean, the Meteors. In this Air there doubtless must be Bodies that are endued with a magnetic Virtue, which, by their mutual Attraction, Repulsion, Cohesion, Rarefaction, and, by infinite other Methods, must every where excite stupendous Phenomena. Of this the following Experiment may serve as an Illustration: Take in one Hand a small open glass Vial, in which there is an alkaline Spirit of Sal Ammoniac, and in the Left another, in which there is Spirit of Nitre. Whilst these Bottles are kept at a Distance from each other, nothing at all appears extraordinary; but, as soon as they are brought gradually so near each other, that the Vapours, issuing from the two Bottles, begin to meet with each other, there immediately appears a little Cloud, arising from the Concurrence of the Alkali and Acid in the Air. If an Amalgama, prepared with Tin and Mercury, is distilled in a Retort, with Spirit of Sea-salt, it yields a Liquor, which, if it be kept in a close Vessel, produces no Effect; and yet, if it is exposed to the open Air, though many Years after its Preparation, it immediately goes off in a very thick Smoke. But Nature is every where full of these Instances. We know not what other hidden Salts there may be besides in the Air, that we are not acquainted with, or with what Virtues they may be endued; nor are we less ignorant, what Spirits and Oils may float in it; though in the mean Time, from the particular Nature of those unknown Salts, Spirits, and Oils, such stupendous

Effects may be produced, as are never observed to proceed from any other Causes. If the distilled Oil of Sassafras happens to meet with Glauber's Spirit of Nitre; what a terrible Effect is produced in an Instant, an Effect hardly to be exhibited by any other Experiment! This Experiment will be given under the Article NITRUM.

If at any Time, now, a Number of Particles, endued with the like Properties, should happen to get into the Air, and these should be there mixed together, very strange and surprising Appearances must necessarily follow. Certain Times, it is evident, present to us with Phenomena, that are never seen at any other. To the Production, now, of these rare and very extraordinary Effects, it is possible, that the Comets, Meteors, various Aspects of the Planets, and, perhaps, the Influence of the Stars themselves, may contribute; those Actions may be very considerable, on Account of their Attraction, and Repulsion, of their Heat, Light, and Cold, and of the Effluvia which they generate and emit.

In Consequence of all the Things here mentioned, Air is of a quite different Nature in different Places; first, on Account of the Land or Soil, or the Part of the Earth which the Air under Consideration hangs over: For, according to the various Bodies with which the Earth abounds in any particular Part, the Exhalations and Vapours, that arise from it, will possess as various Qualities, and for this Reason the Air in that Part will be full of Corpuscles, that are not to be met with any where else. The Truth of this has always been confirmed by numberless Examples. And hence, in such particular Parts of the Air, certain Experiments may be made, that will never succeed in any other. In the second Place, a great Diversity is here observed, in Respect to the Soil, in different Places, according as Men inhabit it, and keep Animals there, and according as they dung and turn up the Ground, and exercise various Occupations there, and by this Means raise up almost all Kinds of Bodies into the Air: On which Account again, an infinite Number of Changes are observed to happen, which are not to be effected elsewhere. A certain Chymist, for Instance, in his Laboratory, where he was daily employed in the Distillation of large Quantities of Vinegar, exposed to the Air some pure, dry, alkaline Salts of Tartar on a glass Plate. The Air, of Consequence, being full of acid Vapours, dissolved the Salt into an Oil of Tartar *per deliquium*, and at the same Time so closely united the acid Parts of the volatile Vinegar with the Alkali of the Tartar, as at last to convert the saturated Mass into a Tartarus Regeneratus, or regenerated Tartar, which melted in the Fire like Wax, and yielded a very noble Remedy for resolving of viscid tenacious Humours, in almost all Diseases. He was mightily pleased therefore with this Production, for he thought he had now discovered the Secret of the Alchemists for incrating, according to the Language of those Artists, a fixed alkaline Salt: But when afterwards he attempted to repeat the Experiment in another Place, where there was not so great and constant a Quantity of Vinegar in the Air, he did not meet with the former Success. The same Thing might be farther made appear by a vast Number of Instances. Consider then, how prodigiously the Air may be changed in any particular Country, when a great Earthquake has occasioned Exhalations to arise there, very different from those which before usually arose in the same Place. And this is again confirmed by History, which informs us, that certain Parts of the Earth have become uninhabitable, by Reason of the abominably foetid Vapours, with which they have been infected, after Earthquakes. But again, Inundations by Rain, Overflowings of Rivers, and the Breaking in of the Sea, make such Alterations in the Atmosphere, by Means of humid Vapours, and Exhalations from putrefied Substances, that the whole Nature of the Air, in those Places, is intirely changed. The Winds also must always carry along with them something from the Places from whence they began to blow, and consequently are thus always varying the Contents of the Air, continually carrying off from particular Places the Matter peculiar to them, and supplying them again with what they just brought from some others. From which Cause, likewise, there must necessarily happen, in chymical Operations, a remarkable Diversity. And as for the Influences of the Heavens, particularly with Respect to the various Aspects of the Sun and Moon, their Accessions, Recessions, perpendicular or oblique Radiations, Conjunctions, and Oppositions, what Changes must these produce in the Air, by their Attraction, Repulsion, and the Heat and Cold that depend upon them? What Variation must they cause in the Vapours and Exhalations that are carried up from the Earth into the Air? But there is one Thing farther on this Subject, which ought to be taken-particular Notice of; and that is, the Vicissitude of the Seasons of the Year, which is here of such Efficacy, as is wholly incredible. Thus, if the Sun on the tenth of March, in a certain Altitude, and with a certain Degree of Heat, exerts its Power on the Earth, it then acts on a Body, which during the preceding Winter, being locked up by the Cold, has

kept in, and accumulated, under an icy Crust, its own proper Exhalations, and, at the same Time, has received and retained whatever it was furnished with by the Air. Hence, as soon as it begins to dissolve, and the Earth is resolved into a loose Mould, the first succeeding Heat of the Sun acts upon this fertile pregnant Body, and immediately fills the whole Air with Vapours; on which Account a vernal Heat hardly ever succeeds a Frost of long Continuance, but there presently follow Showers, Thunders and Lightnings, and a Sprightliness appears in all Animals and Vegetables, and in the whole Creation; but now, when, on the tenth of September, the Sun, at the same Altitude, and with the same Degree of Heat, acts upon the Earth, it then finds it parched up, and exhausted by the Heat of the preceding Summer, and not yet moistened with autumnal Showers; for which Reason, neither the same Heat in the Earth, or Air, will produce the same Effects, nor will excite this Vigour in Animals and Vegetables, as it does in the Spring. These few Things then will be sufficient to let us easily see the Variety there is in the Atmosphere, according to the Diversity of the Season of the Year, as far as it arises from this Cause; a Speculation very useful both in Chymistry and natural Philosophy. And, it is plain, the Chymists had some Knowledge of this long ago, when they attributed to the vernal Rain a Virtue so much superior to that of the autumnal, produced in the very same Degree of Heat; for they found that this Lixivium of the Air brought along with it very different Vapours and Exhalations, according to the Diversity of the Season, in the Manner just now explained.

Before we leave the Examination of the various Bodies that are contained in the Air, and of the different Powers which prevail in it, we must take under Consideration that Quality of it, which renders it salutary, and necessary to the Life of Animals and Vegetables; a Quality which has not been yet accounted for from any Property of the Air, but by a diligent Enquiry, however, we may possibly, hereafter, come at the Knowledge of it. Whether this latent Virtue of the Air is actually drawn out of it by Animals and Vegetables, and hence is in a short Time exhausted and consumed; and whether, when it does thus fail, the Animal dies, no-body is, I think, at present able to determine. This, however, is certain, that if a small Bird is put into a large Receiver, full of common cold Air, and the Receiver is then very closely stopped, the Bird will grow sick and vomit, within a Quarter of an Hour, and die in the Space of half an Hour after. Boyle, *Of the Air*, 184. A Fish, kept in Water in a Vessel well closed, without renewing the Air, dies in a short Time. Fish likewise die in Ponds, that are every where frozen, and quickly perish in Water out of which the Air is exhausted, *Hist. de l'Acad. Roy. des Scien.* 1699. 240. 1701. 46. and *Mem.* 224. Flame, and a red-hot Coal, quickly go out in Air that is close pent up. The little Eggs of any Insect whatever, being accurately stopped up in glass Vessels, do not produce their Young, though assisted by a kindly Warmth. The Seeds of Plants likewise duly moistened, and sowed in the best Earth in close Glasses, do not grow, or give any Signs of Life, though excited by a due Degree of Heat. On the other Hand, the upper Surface of Blood, that is exposed to the Air, is of a bright Scarlet Colour, whilst, in every other Part which the Air does not come at, it grows as black as the Blood of the Cuttle-fish; and yet, as soon as ever this black Part is laid open to the Air, the black Colour is immediately changed again into a Scarlet. All these Experiments then make it appear, that there is in the Air a certain hidden Virtue, which cannot be accounted for from all the Properties of the Air, which have been hitherto discovered. Sendivogius maintained it openly, that there lies hid in the Air the occult Food of Life, and other Chymists have asserted the same. But, what that is, or how it acts, or what is the proper Effect of it, is a Matter still in the Dark. Happy the Person that shall discover it! Thus far Boerhaave.

This vivifying Principle in the Air, so necessary to the Support of Flame and Fire, as well as animal and vegetable Life, seems by every Phenomenon to be the universal Acid distributed through the intire Atmosphere in a certain Proportion, inasmuch that no Portion of Air seems to be without it. This, though not perceivable by the Senses, is however very manifest by its Effects. It is this Acid that corrodes the baser Metals in a very short Space of Time, and even Gold and Silver are not intirely free from its Influence. By this Acid the Calx of Vitriol, of Alum, and the Earth from which Nitre has been procured, are again replenished in such a Manner, as to be capable of producing acid Spirits afresh. We may conclude, that Flesh, exposed to the Air for some Time, contracts a Redness from the Influence of this Acid, because Nitre has the very same Effect in producing the same Colour. Vegetable aromatic Oils also are changed by the Acid of the Air red, for, if a Vial is filled with certain aromatic Oils, and close stopped, it will preserve its original Transparency; but, if a Part of the very same Oil is inclosed in a Bottle not quite full, the small Portion of Acid, in the Air contained in the Vacancy, will

will change the Oil red, as Hoffman informs us. Hence there is Reason to suspect, that Flowers, which are all, more or less, furnished with an aromatic Oil, are obliged to the Acid of the Air for their beautiful Colours, which it strikes upon them variously, as the Oil, or Sulphur, which it meets with on the Petals determines it to one Colour or another; and the Chymists have long since discovered, that Sulphur, as they call Oil, is the Parent of Colours. It is remarkable that Scarlet-dyers cannot strike their Colours without the Assistance of an Acid. Hence the Phenomenon of the Surface of Blood, when exposed to Air contracting a Redness, may be in some Measure accounted for. And indeed, all those concerned in the Business of Dying observe, that a cloudy moist Air very much interferes with the Beauty and Vividness of their Colours; and that, on the Contrary, a serene Sky exalts them, and makes them more elegant. Now it is known, that in this State of the Air an Acid abounds much more than when the Weather is cloudy, and full of Vapours. Flowers are also liable to the same Influence of the Air in different States, for their Colours are never so much exalted as when the Air is serene and clear, that is, when it abounds with an Acid.

Every body, concerned in Medicine, knows, that all antimonial Preparations will contract an emetic Quality from Acids, and it is also certain, that the same Medicines will prove emetic, if they are exposed to the naked Air; hence it is very probable that an Acid is communicated to them from the Air.

Nitre also borrows its Acid intirely from the Air. See NITRUM.

Upon the Whole, I am convinced, that the Acid of the Air finds some Way of mixing with the Blood of Animals, though I cannot determine the specific Manner in which this Union is accomplished. But I am inclined to believe, that this grand Operation is performed in the Lungs, because Air is insufficient for the Purposes of Respiration after repeated Inspirations, unless a free Intercourse is maintained with the external Air. Hence it should appear, that something contained in the Air is wasted, of which it stands in Need of a fresh Supply, in order to render it capable of maintaining Life. Now if we consider, that the Blood most certainly acquires a red Colour in the Lungs, and at the same Time, if we reflect on what was observed before, with Respect to the Power of Acids, in producing this Colour, when mixed with Sulphurs, it will be a Step, at least, to the Confirmation of this Sentiment. Add to this, that Asthmas, which prevent the Air from being taken regularly into the Lungs, are productive of Dropsies, the Blood loses its Colour as well as Texture, and becomes pale and watery. Girls also, in a Chlorosis, have a temporary Asthma, and hence, perhaps, their Blood is always pale and thin, sometimes even as white as Milk or Chyle.

I know that I am singular in this Sentiment, as the Modes of Philosophy now stand, and that Boerhaave, for whose Judgment I have the greatest Deference, is of the contrary Opinion. But I see no Reason, why so exceeding subtle and penetrating a Body as this Acid of the Air may not as well enter the Pores of the Vessels of the Lungs, during Inspiration, as a more gross and even visible Halitus, or Vapour, exhale thro' the same Pores in Expiration. We know the Particles which constitute the Blood are large enough to be visible in Microscopes, but those which compose the aerial Acid are so extremely minute, as not to be discoverable to the Sight, by any Art whatever. Hence then it appears very plain, that Vessels may admit the Acid above-mentioned, from without, and yet easily retain the Blood circulating within.]

From this Account of the Air, its Properties, and Contents, many curious Appearances, relating to the animal Œconomy, may be understood.

First then, Air, as a fluid Body, is the Vehicle of the Effluvia of all odorous Bodies to the Organs of Smelling, and, as a ponderous Fluid, it presses them on the Nerves of these Organs with a Force sufficient to make them sensible. It also impresses sapid Substances upon the Organs of Taste, and renders them observable by the Senses. It is also the Instrument of Sound, for the Undulations caused in it, by Bodies moved in various Manners, strike upon the external Ear, which, by a singular Mechanism, communicates this Notice to the Nerves expanded upon the internal Ear. This Weight of the Air too, by pressing upon the Surface of Animals and Vegetables, prevents a Rupture of their Vessels, from the Force necessary to circulate their Juices, to which it is, as it were, a Counterbalance. All these Things are evident, because on the Tops of high Mountains, where the Air is very rare, the Senses of Smelling, Tasting, and Hearing, are very languid; it is said, that on the Pico of Teneriffe, Pepper, Ginger, Salt, and Spirits have no sensible Taste, and that nothing affects the Organs of Taste, except Canary Wine, which, it is supposed to do in these Circumstances, by Reason of its Oiliness, which makes it adhere to the Nerves of the Palate. On the Tops of Mountains also the Blood-vessels are very subject to burst, whence frequent Hæmorrhages happen to those who travel to their Summits.

The Air also, in Virtue of its Elasticity, contributes greatly to the Solution of the Aliment in the Stomachs of Animals. For, when that which is contained in every Part of the Food is rarefied and expanded by the Heat it meets with in the Stomach, it destroys the Cohesion of the component Particles, and assists in reducing it to a State of Fluidity. At the same Time, as it is confined in the Stomach, all its Action must be determined to the Aliment, which it must therefore act upon with great Force, in this rarefied State.

Respiration, so necessary to the Continuance of animal Life, is performed by Means of the Air. For, when the Air is expelled out of the Lungs, the pulmonary Vessels through which the Blood circulates, from the right Ventricle of the Heart, and by which it is returned to the left Auricle, collapse, and are no longer pervious, till the Air, rushing into the Branches of the Aspera Arteria upon the Elevation of the Breast, distends the Lungs, and thereby opens not only the Air-vessels, but also the Branches of the pulmonary Vein and Artery, which accompany, every where, those of the Aspera Arteria. Here the Air, as a heavy Fluid, acts upon, compresses, and comminutes the Blood, and, as it is elastic and dilatable by Heat, the Action of it upon the Blood in the Lungs is by this Property rendered greater. If also, as I have supposed, the aerial Acid, or vital Spirit, is communicated to the Blood in the Lungs, from the Air, some Effects of great Importance to the animal Œconomy must necessarily arise from hence.

And, indeed, if we consider the Air in all Lights, we shall find, that every Alteration it undergoes, must induce some great Change on the animal Machine, if I may so call an animal Body. Thus, when it is very heavy, it must press upon the Surface of our Bodies, and the internal Parts of the Lungs, with a greater Force than when it is light. It has been proved by curious Observers, that the Difference of Weight, with which our Bodies are pressed, by the Atmosphere, in the greatest Degree of its natural Gravity, from that which we sustain when it is the lightest, amounts to 3982½ Troy Weight. Now, as this Difference is very great, the Effects of it must also be considerable.

The different Degrees also of Heat and Elasticity in the Air must have Effects proportioned to the Causes upon the Bodies of Animals. The various Contents also of the Air must of Course induce great Changes, as it some Way or other finds Means to communicate the Qualities it borrows from them to the Blood and Juices of Animals. Hence it becomes the Vehicle of Contagion, and the Propagator of Diseases, both epidemical, and endemial, which admit of infinite Variety, because the Alterations of the Air, with Respect to its Properties, and to the innumerable Combinations of Bodies contained in it, are infinite.

However, we may venture to conclude, that the most healthful is that which is serene and dry, and consequently ponderous, and replete with the acid vital Spirit. A gravelly Soil is most likely to be furnished with such an Air, because from such a one few or no oily Particles can exhale to infect it. Countries also, where there is a Variety of Hills and Vallies, with swift Rivulets of Water running through them, are productive of a good Air, because such Situations cause a Circulation of the Air, and such Currents of Water always produce one in the Atmosphere.

I must not dismiss the Subject of the Air, without taking Notice of a great Error, which many inconsiderately run into with Respect to Exercise; it is, that they esteem Motion only conducive to Health, and this Sydenham seems to give into, when he attributes the Advantages of Riding to repeated Succussion. However, we find by Experience that the same Degrees of Motion or Succussion by Exercise in a House, or under Covert, come far short in Point of Efficacy in curing Diseases, and preserving Health, of that performed in the fresh Air, especially when it is pure, and not abounding with Vapours and Exhalations. The Reason of this is very plain, for, when an Animal is moving forwards, he is perpetually respiring Air, which has not, by repeated Inspirations, been robbed of the vital Principle, be that what it will, so necessary to the Support of Life, and Preservation of Health. Hence, Sailing even upon calm Rivers, an Exercise much recommended by the Antients in the most obstinate Distempers, though attended with a very small Degree of Succussion, is nevertheless efficacious, by Reason of a perpetual Change of Air.

Vitruvius, sensible of the Efficacy of the Air in preserving or destroying Health, lays down the following Rules for chusing a proper Situation for a new City, which ought to be regarded in every new Settlement, and should not be neglected even in building a Farm-house. His Philosophy, however, is not always the best; but the Reasons for his Rules will appear by the preceding Pages, inasmuch that the Reader will not be at a Loss to account for what he asserts.

In erecting Walls we are to proceed on these Principles: First, a healthy Situation is to be chosen; such a one must be raised above the Annoyance of Fogs or cold Dews, and must regard,

regard, or face, not the cold or hot, but the temperate Quarters of the Heavens. Our next Care must be to avoid the Neighbourhood of a Marsh; for in such a Situation the gross Vapours exhaling with the rising Sun, and condensed into a Fog, together with the poisonous Spirits of the Animals inhabiting the Fens, are wafted with the Morning Breeze to your new City, and disperse their unwholesome Blasts on the Inhabitants, so as to cause a Pestilence. If your Walls run along by the Sea, facing the South or West, the Place will not be healthy. For, in the first Case, the Southern Air is heated by the rising, and burns with the meridian Sun; and in the latter Situation, it is warmed by the rising, heated by the meridian, and burns with the declining Sun; so that the Inhabitants suffer very much in their Bodies by these great Vicissitudes of Heat and Cold. We are taught this Reflection even from inanimate Things. In your close Wine-cellars, none opens a Light to the South or West, but always to the North, because that Quarter is subject to no Changes from any Season, but remains for ever firm and immutable. From the same Cause the Granaries, which any Ways face the Course of the Sun, are soon corrupted; and Provisions, or Apples, laid in a Place that is not turned from the Sun, will not keep long. For Heat, by perpetually rarefying, destroys the Firmness of the Air, and, by continued Attacks of fervid Vapours, draws forth its natural Powers, and dissolves, or softens and enfeebles them by its quick and penetrating Quality. We perceive the Effects of Heat on Iron, which, though hard by Nature, yet, when thoroughly heated at the Forge, becomes so soft and ductile, as to be capable of all Manner of Forms. Let the same Iron, when soft and sparkling red, be refrigerated, by dipping it in cold Water, it shall revert to its former Nature, and resume its original Hardness. This will be further illustrated, if we consider, that in the Summer all Bodies, as well in healthy as unhealthy Regions, grow weak with Heat; but, in Winter, the most pestilential Countries become healthy, because Bodies are at that Season consolidated and strengthened by Refrigerations. For the same Reason, Bodies, removed out of cold into hot Regions, cannot endure the Heat, but are dissolved; whereas, on the contrary, transported from a hot Climate to the cold Northern Countries, they are so far from being injured by the Change of Place, that they are strengthened and hardened by it.

It appears from these Considerations, that, when we would raise our Walls, we are to appoint them a Situation proper to guard against those Regions, whence hot and unwholesome Blasts may proceed, and scatter their baleful Influence over the Bodies of Men. For, all Bodies are constituted of Elements, which the Greeks call *συνχρημα*, namely, Heat, Moisture, Earth, and Air; of a due Mixture of these Elements, according to the Order of Nature, are all the Animals of the World, with their specific Properties, composed and tempered. Hence, where Heat is the predominant Principle, it destroys the rest, and dissolves that Body by its Fervor. And this is the ill Effect of an hot Blast from certain Quarters, which, being received into the open Pores, overpowers the other Principles, and proves too hard for the Constitution. In like Manner, if Moisture fills the Veins, and overflows the Body, and by that Means destroys the Equilibrium, the other Principles are corrupted by the redundant Liquid, and all the Virtues and Powers of that Composition are dissolved and washed away. Bodies are also sometimes injured by Refrigerations of Moisture from fresh and cooling Gales. No less do the other two Elements that enter the Composition of the natural Body, which are Earth and Air, by their Excess or Defect, weaken and subvert the rest; the Earth, for Instance, by oppressing Nature with Plenitude of Food, and the Air by an overcast and gloomy Sky.

But, for the more evident Demonstration of these Things to the Senses, we need only watch the Steps, and observe the Operations of Nature, in Birds, Fishes, and terrestrial Animals, by which Means their different Temperature will come under Consideration. For the Kind of Birds are of one Composition; the Fishes of another, and terrestrial Animals of a third, widely different from them both. Birds have less of Earth and Moisture, but much of a temperate Heat and Air; so that, being constituted of lighter Elements, they may the more easily make their Way in the Air. Fishes, whose Nature requires Water for Existence and Motion, are temperate as to Heat, and chiefly composed of Earth and Air, but have very little Moisture, the less of which Principle they have in their Composition, the better qualified they are to subsist in it. Hence, when they are cast on Land, they lose their Lives with their Water. In terrestrial Animals, the Elements of Air and Heat are clogged with Earth and Moisture, so that, because the humid Parts abound in them, they cannot live long in Water.

Now if the Case be thus as we have represented it, and that we are convinced by our Senses, that the Bodies of Animals are constituted of these Elements, or Principles, and labour under Excesses and Defects of these Constituents, and are subject to Dissolution, we cannot doubt of the Importance of

our chusing and making the best Advantage of the most temperate Quarters of the Heavens, when we propose to ourselves an healthy Situation of the Walls we are about to erect. And here I cannot help wishing again and again, for the Custom of the Antients. Our Forefathers used to examine the Livers of the Cattle they offered in Sacrifice in those Places where they built a Town, or pitched their Camp; and if the first were livid, or corrupt, they offered others, because they doubted whether the Defect were owing to some Distemper, or to the Badness of their Food. After they had proved, by many Experiments, the Goodness of the Water and Forage, from the Soundness and Solidity of the Livers, there they erected Fortifications, and projected Settlements. But, if the Livers were found defective, they concluded, that the same Food and Water would work a like Effect on human Bodies, and so occasion a Pestilence. Therefore they speedily decamped, and went in Search of better Air and Diet, preferring Health above all Things.

That we are beholden to the Soil for the Goodness and Wholesomeness of Provisions, both for Man and Beast, is demonstrable from the Lands of the Cretans, which lie along the River Pothereus, between the two Cities Gnosos and Cortyna. Sheep and black Cattle graze to the Right and Left of the said River; but those which feed next to Gnosos are not without a Spleen; on the other Side, those next to Cortyna have no Appearance of any. Whence Physicians, inquiring into the Cause of this Phenomenon, discovered an Herb, which the Cattle had eaten, and by its Virtue washed away their Spleen. They gathered this Herb, and from that Time made Use of it to very good Purpose, in Disorders of the Spleen; for which Reason the Cretans gave it the Name of *Αντισπλην*. This Example shews us, that the natural Wholesomeness or Unwholesomeness of a Place may be known from the Food and Water it affords.

If the Walls be erected in a Marsh, which lies along by the Sea, and facing the North, or between the North and the East, and those Marshes be higher than the Sea-shore, there seems to be Reason for chusing such a Situation; for by digging Canals an Outlet may be made for the Waters to the Shore, and, at every tempestuous Swelling of the Sea, the salt Waters, overflowing and mixing with those of the Marsh, will hinder the Generation of those noxious Animals that breed in standing Lakes and Marshes, and such as swim from higher Grounds towards the Shore are killed by the Saltness of the Waters, to which they are not accustomed. We have Instances to this Purpose in the Cities of Altinum, Ravenna, and Aquileia, and other Towns situated by the Marshes of Gallia, which, by the Means aforesaid, are very healthy Places. But a Town seated by a Marsh or Lake of standing Waters, that have no Outlet either by Canals or by Means of a River running through them, must of Necessity suffer in Point of Health, for such Waters putrefy by Standing, and send forth noisome and pestilential Exhalations. For Example, the old Town of Salapia which was built by Diomedes, in his Return from Troy, or, as others write, by Elphias the Rhodian, had the Misfortune of such a Situation. The Inhabitants, being yearly visited with an epidemical Sickness, addressed themselves by public Petition to M. Hostilius, and intreated him to survey and chuse for them a commodious Place, whither they might transfer their Habitations. He immediately undertook the Affair, and, having first well examined the Nature and Reason of his Undertaking, purchased a Tract of Land near the Sea, in a healthy Place, and then preferred a Petition to the Senate and People of Rome, that the Salapians might have Leave granted them to remove their Habitations, and build a new City. This obtained, he erected Walls, plotted out the Ground, and allotted to every Freeman his Possession in Fee-simple, paying only a single Sestertius [a Piece of Silver worth about Two-pence]. Matters thus settled, he opened a Way for the Lake to discharge itself into the Sea, and, in so doing, made of the Lake a Port to the new City. And thus are the Salapians, by a Remove of four Miles from their old Town, now established in a healthy Situation. *Vitruvius, L. 1. C. 4.*

I shall add to this Account of Air the Sentiments of the famous de Villa Nova, which are in the general extremely just, and from which many excellent Hints have been taken by Boerhaave, in the foregoing Treatise on this Subject. Some small Allowances must be made on Account of the Time in which the Author wrote.

A clear, subtle, and pure Air clarifies, subtilises, and refines the Blood and Spirits. Of Consequence, therefore, it makes the Heart glad, the Mind serene, the Body lightsome, and accelerates Digestion throughout all the Members. On the contrary, a cloudy, gross, and turbulent Air darkens the Heart, disturbs the Mind, makes the Body heavy, and retards and hinders Digestion, so that the Superfluities, at least such as are fuliginous and vaporous, cannot soon be resolved by the Body. The Air is influenced from external Causes, as from the Stars, from Minerals, Plants, and Animals, or other insensible Powers, which most effectually alter the Body; so that at some

some Seasons and Places it becomes poisonous and pestilential; at others so pure and salutary, and, as it were, theriacal, that no Venom can there find Place to hurt the Body, or but very little, as in Ireland, and the adjacent Islands, in some of which, even dead Bodies, exposed to the Air, will not corrupt. And so remarkable are the Effects of the Air upon human Bodies, at some Seasons, as to attemper and illuminate the Brain and Spirits to such a Degree, that they are elevated, in an extraordinary Manner, to the Contemplation of occult Intelligences, and the Speculation of Futurities, and to an expedite Performance of all the Acts of Reason. At other Times, on the Contrary, such Disturbances in the human Frame are wrought by the Air, that Reason receives infinite Damage thereby, and is either totally lost or suspended. The accidental Effects of Air are innumerable, according to the various Dispositions of the Body in the different Stages of Life: As, for Instance, a cold Air comforts the digestive Faculty, and corroborates the Body, where the Viscera abound with Spirits, by compressing and repelling the natural Heat inwards; a warm Air, by its contrary Operation in drawing it outwards, has a contrary Effect. A Physician, therefore, ought to know the Causes of the Changes that are wrought in the Air. It is altered by the Influence of celestial and elementary Bodies. By the first it undergoes a Multiplicity of Changes, the most obvious of which are those made by the Sun in the four Seasons of the Year, and the Moon in her four Quarters. The common and natural Disposition of the Air in these four Seasons is best observed in the Middle of each; for in their Extremities they coincide with one another. In the Spring, for Instance, according to the common Course of the Sun, the Air is temperate as to the four Qualities [Heat, Cold, Dryness, Moisture] and therefore it is called a temperate Season. Such a one it must be, which maintains the Body in a middle Disposition, not altering it by any manifest Quality, neither causing it to sweat or burn with Heat, nor shake, shiver, or shrink with Cold; neither hardening, withering, furrowing, or wrinkling it with Dryness, nor softening, benumbing, or loading it with Rheumatisms by excessive Moisture. The Predominancy of Heat and Dryness is most evident about the Middle of Summer, especially while the Sun passes through Leo, and is in Conjunction with the Dog-star. In the Middle of Autumn, the Air is moderately cold, and manifestly inclined to Dryness; in the Middle of Winter cold and moist. But in these very Seasons the Air is liable to Alterations from its usual Disposition from accidental Causes. In the four Quarters of the Moon, the Changes of the Air are most evident in the Intention and Remission of Coldness and Moisture.

The Changes, caused in the Air by elementary Bodies, are either made by Fire actually working on inferior Subjects, from Water, Earth, or their Contents, or from Vapours resolved and exhaling [which are Effluvia or Exhalations] from them.

Fire heats and dries, and sometimes overcasts it with Smoke; now, if the Air of an Habitation, where are several Ovens, or Furnaces, and great Fires often made, should be naturally warm and dry, it will be excessive in those Qualities, when the Fires are kindled. But, if the Air naturally incline to the opposite Qualities, it will be purified, and the Excess of Cold and Moisture corrected.

Waters of themselves cool and moisten the neighbouring Air, and fresh Waters more than those which are salt. But from the Refulgency [Reflection] of the Sun's Rays that strike upon them, they double both the Heat and Luminousness of the Air; for, whenever the Sea, or a great Body of Waters, lies between the Sun, especially when it is in the Meridian, and an Habitation, the House is the hotter, and the Air so luminous, that, in a Summer's Noon, the Inhabitants, especially those who have tender Eyes, have no Use of their Sight.

The Earth influences the Air by its Qualities and Situation; first, by its Qualities, for, if it be a fat clayey Soil, it renders the Air moist and thick; if dry and sandy, it makes a dry and dusty Air; but dry and stony a dry and pure Air. The Situation of a Portion of Earth is fourfold; on a Hill, on its Declivity, in a Valley, or in an open Champagne. The Air on the Top of Hills, compared with that of the circumjacent lower Regions, is very thin, free from Vapours, and cold. In Vallies, surrounded by Hills, the Air must be gross and impure, and hot; compared with that on the Hills, because of the Reflection of the Rays, especially in Summer. But in the Winter, if the Mountains be extraordinary high, the Air is coldest in the Valley, because it is overshadowed. The Air on the Declivity of Hills is of a middle Substance, and moderately pure, unless it be accidentally influenced, as by Vapours ascending thither from some neighbouring Marsh, and reflected by the Tops of the Hills, by which Means the Air is considerably thickened, so as to be sometimes warmer, sometimes colder than on the Top, sometimes it is of a middle Quality; for, if the Declivity lies to the North, it is coldest when shadowed by the Top; if to the South, it is the warmer

for reflecting the Noon-tide Rays, and being sheltered from Northern Blasts. If the Declivity faces the East or West, it will be hot or cold in a moderate Degree. An open Champagne, or Field, lies out of the Reach of any Shadow from Hills, but receives the whole Benefit of the Sun's Course. The Air in such a Situation is moderate in all its Dispositions.

The Contents of the Earth and Waters cause Alterations in the Air, but those of the Waters more seldom. For the Contents of Waters in constant Agitation, as is the Sea, make no sensible Change of the Air; but standing Waters, like the Carcasses of Animals, or rotten Plants, infect it with their hurtful Qualities. But the Things, contained in the Earth, very often influence the Air; some of these are natural, others artificial. Of the Natural, some are Minerals, some Plants, and some are Superfluities generated from Animals.

Minerals operate according to their natural Properties. Thus Mines of Sulphur and Arsenic heat and dry the Air; Marchasites and Antimony cool and dry it; and so of the rest. Mines of theriacal Stone, such as those which the Arabians call Bezabar, make a theriacal Air, opposite to all Poisons.

Plants alter the Air, by their Quantity and Quality. In Quantity; for high Trees, especially if they stand thick, as in Woods, obumbrate the Air, and hinder its Ventilation, whence it grows thick and heavy, therefore a House situated within a Thicket of Trees is no healthy Habitation. If a Wood lie on the North-side of your Mansion, it defends it from the cold Winds that blow from that Part; if to the South, it moderates the sultry Heat of Summer. Plants influence the Air also by their Qualities. The Aromatics temper it with their aromatic Sweetness and Purity, and the foetid ones, with their noisome and disagreeable Effluvia, and so of other Qualities. Hence the Brain and Spirits are much damped and clouded by sitting under a Tree of a sharp and bitter Taste, as the Fig-tree, the Walnut, and Pomegranate-trees, but especially a Tree of a rank or foetid Smell, as the Elder: The same is to be said with Respect to the Cuttings of Plants that are strewed in Houses.

The Superfluities, generated of Animals, are either such as proceed from them while alive, or their Remains after Death. Among the first only the Excrement evidently causes an Alteration. All Excrements heat the Air, and some dry it, as does that of a Dove; others, as that of a Cow or Hog, thicken and moisten it; only Man's communicate to it a foetid Quality. Dead Carcasses manifestly change the Air by their Putrefaction.

The Things resolved [that fly off] from the Earth, and the Water, and their Contents, are Vapours: That the Particles resolved [Effluvia] from the Contents of the Earth and Sea, cause an Alteration, is evident from what has been said; and indeed they have so great an Influence as to corrupt its Substance, and render it pestilential, and inclined, by its poisonous Qualities, to vitiate and putrefy the Blood and Spirits in the Heart and Arteries, especially in such as are infirm or predisposed to Putrefaction. Such are Vapours from dead Carcasses and Intestines of Animals, and Multitudes of Sick in great Armies, especially in a hot, close, still Air. The Vapours which exhale from Water infrigidate and moisten the Air, and if very dense, as in a Mist, render it gross and inactive.

Vapours that fly off from the Earth cause a manifest Change in the Air, as well as the Winds. Of these there are four principal ones, according to the four Cardinal Points, and all of them by Nature dry. But passing over Seas, or very watery Regions, drive the humid Vapours before them into remote Countries: Whence the South-wind brings Rains, and a moist Air; to those who live North of the Mediterranean Sea, but Heat and dry Weather to those who live to the South of that Sea. The North-wind is the Reverse of the other; and the same Judgment is to be formed of the East and West-winds, which are moist in one Country and dry in another, for the above-mentioned Reason. But the South-wind is hot in itself, and the North-wind cold; the rest are temperate. Yet all of them, in passing over the intervening Regions, may acquire accidental Qualities; for Instance, Cold in their Passage over black and snowy Countries, or Heat in blowing over burning Sands and Deserts. But their Impression is most felt, when they blow through the Straits of Mountains into narrow Vallies.

Air may also be changed artificially by human Industry; as, in Mansions, according to Matter, Form, Situation, Quantity, and Residence. As to the first of these Particulars: A House built all of Stone, or Earth, or Bricks and Mortar, makes the circumjacent Air cold, but one erected with Wood, and thatched with Straw, heats the Air, or if the Floor of the House be paved with Stone, or Brick, the Air will be the purer but much the colder; but an earthen Floor renders the Air dusty and offensive to the Lungs.

Secondly, the Form, as well as the Matter, or Materials of a House, influences the Air, as in the Abundance or Defects of Spiracula, that is, Windows and Chimnies; for the Multitude of these ventilates and purifies the Air, though it renders it less still and quiet. Windows towards the North cool the House,

as those towards the South warm it; those towards the East and West are indifferent. If a House want Spiracles, like a Shell, or have them stopped, the Air becomes gross and impure, and difficult to breathe. If it be very much frequented, it is soon heated, and grows sultry, as in Stoves, and where sick Persons are lodged, in which Places, from Nastiness and Putrefaction of Humours, it is soon corrupted. Whence it follows, that under Tents and Pavilions, erected in the open Field, the Air is purer and freer, for it vents itself every Way through the thin Cloth. But it is not safe, for all that, to lodge in the open Air, because of its sudden Alterations, and the perpendicular Incidence of the celestial Rays, which have the greatest Force. Therefore the Pavilions, which are covered with good thick Leather from the Top to the Middle, are most commodious to sleep in.

In the third Place, a House may be situated on the Superficies of the Earth, or below it. On the Superficies the Earth is certainly purer and finer; a subterraneous Room has a thick and impure Air, very cold in Summer, and hot and smoaky in the Winter, and disposing to Rheumatisms, at all Seasons.

In the fourth Place, the Quantity of an House may be considered with Respect to the Whole, or the Parts. A large and lofty Mansion has the purest and always the coldest Air, the Opposite to this, the warmer Air, but less pure. That which has the thickest Walls, and is covered most towards the South, is the colder, but if its thickest Walls and closest Covert stand towards the North, it is so much the warmer. If the Fences be thin on both Sides the Impressions from either of these Qualities, Heat or Cold are the more easily felt.

Fifthly, if the House be constantly inhabited, the Air in the same will be warmer, and purer, and also drier, for it is warmed and purified by the Heat of the Body, and by Fire; but, if it remains long without any Inhabitants, the Air grows cold and moist, and is corrupted, especially if it be close pent in, subterraneous, want Vent-holes, or the Space under Cover contain many Ditches and Caverns. *Arnaldus de Villa Nova*.

I cannot omit inserting in this Place the celebrated Treatise of Hippocrates, *περί αἰσῶς, ὑδατός, τόπου*, because the preceding Pages will assist us in accounting for, and explaining many important Assertions of its admirable Author, besides that if I have made it intelligible in our own Language, it will afford many agreeable Speculations.

HIPPOCRATES of AIR, WATERS, and SITUATIONS.

Whoever has an Inclination to pursue a right Method in his medicinal Enquiries, should observe this Order: First, he should study the Seasons of the Year, and learn, what Effects each of them is capable of producing; for they are in no Respect alike, but differ exceedingly, both in Regard to each other, and to the various Changes, which happen in each respective Season. Next the Winds should be regarded, the hot as well as the cold; principally those which are common to all the World, and afterwards those by which particular Regions are chiefly affected. The Qualities of Water should also be considered, because each of these differ not less in their Effects than in Taste and Gravity.

Upon these Accounts, when a Physician arrives at a City, with which he is not acquainted, he should inform himself well of the Situation, learn what Winds principally affect it, and remark how it lies with Respect to the rising Sun; for the Influences of a North or South-wind, the Morning or Evening-sun, upon the Place, cannot be alike. These Circumstances therefore must be diligently considered; nor must the Water pass unregarded, for it is of Importance to know whether the Place is supplied with soft Water from Lakes, or by Currents from Hills or Rocks, with that which is hard; as also whether the Water is salt, heavy, and difficult to boil, or the Contrary.

It should also be considered, whether the Country be naked and dry, or covered with Woods and damp; and whether it be a Valley, and for that Reason subject to suffocating Heats, or elevated, and consequently cool. Observe, moreover, the Diet to which the Inhabitants are in general addicted; whether they indulge themselves in Excesses of Eating, Drinking, and Inactivity; whether, on the Contrary, they are inured to much Exercise and Labour; or, lastly, whether their Intemperance consists more in Eating than in Drinking. For from these Circumstances we are to form a Judgment of their Diseases, and of the Things best adapted to relieve them; insomuch that a Physician, perfectly well acquainted with all these Particulars, or, at least, the greatest Part of them, when he arrives at a City to which he was an utter Stranger, cannot be ignorant of the endemial Distempers of the Country, or the Nature of the Inhabitants; and hence the Investigation of sure and infallible Methods of Cure will not be difficult, which without this previous Knowledge would be less easy. Besides, he will be able to foresee, whether particular Seasons,

or the Year in general, will be sickly, or healthful, and to foretell what epidemical Distempers will prevail, either in the Summer, or in the Winter; and also what Kinds of Diseases particular Persons will be in Danger of incurring, from an Alteration in their Diet. [*I suppose the Author means that Alteration of Diet, which the Seasons necessarily induce.*] Thus being acquainted with the Seasons, and the Risings and Settings of the Stars, as they happen in Order, he may know what Sort of Year is likely to ensue; and these Enquiries into the Nature of the Seasons will enable him to form a right Judgment of particular Cases which occur, will contribute to make him successful in Practice, and to preserve him, as much as is possible, from Error.

If any one should disregard these Things, as barren meteorological Speculations, he may readily learn, if his Obstinacy does not interfere, that Astronomy is of no small Importance to Medicine, because the Changes of the Seasons constantly induce an Alteration in the digestive Organs of Men. But in what Manner the above-mentioned Particulars should be considered and explored, I shall proceed to specify.

Whatever City is exposed to and frequently affected by the hot Winds, which are those that blow from betwixt the Rising and Setting of the Winter-sun, but is sheltered from the North-winds, is plentifully furnished with Water of a saltish Taste, and which is not very subject to evaporate, being also hot in Summer, and cold in the Winter. *

Cities which enjoy a better Exposure in Regard to the Sun and Winds, and which use good Waters, are less sensible of the following Changes; but Cities which are obliged to make Use of stagnating and marshy Waters, and which have a worse Situation with Respect to the Sun, and Winds, are yet more subject to the Influences of the Alterations in the Seasons.

If the Summer is dry, Diseases are of shorter Duration, but if rainy, they continue longer; on this Occasion also, Ulcers are very inclinable to grow phagedenic from slight Causes.

If the Winter is cold, Men are subject to Rheums in their Heads, and to Diarrhoeas, caused by Phlegm falling from the Head upon the Intestines. They also seem relaxed, and neither eat with Appetite, nor drink plentifully; which last is not to be wondered at, because weak Heads are not likely to bear much Drinking, and besides are considerably affected by a Debauch.

The reigning Diseases are as follows: First, the Women are unhealthy and subject to Rheums, and many are unfertile, not on Account of any natural Infirmary, but for Want of Health; and are subject to frequent Miscarriages. The Children are often afflicted with Convulsions, and Asthmas, which are esteemed productive of the Epilepsy, a Disorder frequent among Children. The Men are affected with Dysenteries, Diarrhoeas, Fevers, attended with perpetual Shiverings, obstinate, wintery Fevers, frequent Eruptions, and the Piles. But Pleurifies, Peripneumonies, burning Fevers, and those Distempers, which generally go by the Name of Acute, are seldom heard of; and indeed it is not likely they should, when the Habit is so inclined to be laxative. Besides these, moist Inflammations of the Eyes, which are slight, and of no long Duration, are common, unless some general Distemper rages epidemically, on Account of Alterations in the Season. Men above sixty, being subject to Defluxions from the Brain are infested with Palsies, especially if they expose their Heads suddenly to the Sun, or to the Cold. These are the Diseases to which such a Southern Situation is principally subject, unless some epidemical Distemper from the Change of Seasons prevails, of which the ordinary Diseases participate.

Cities which have an Aspect directly contrary to the above-mentioned, that is, which are exposed and much accustomed to Winds, which blow from the Points betwixt the vernal Rising, and Setting of the Sun, and which are sheltered from the South-winds, and vernal Gales, are thus affected: First, it is remarkable, that their hard and cold Waters are generally sweet. The Inhabitants are necessarily strong, dry, and generally difficult to purge, and costive; but vomit, however, more readily, and are more affected by Bile, than Phlegm; their Heads are healthy and hard; and they are subject to frequent Ruptures of the Vessels. Their usual Distempers are Pleurifies, which are very common, as well as all those Diseases which are esteemed Acute. And indeed it cannot happen otherwise, by Reason of their habitual Costiveness; they are also liable to Suppurations on very slight Occasions, on Account of the Tension of their Fibres, and extraordinary Costiveness; but their Dryness, and the Coldness of the Waters, incline the Vessels to Rupture. These People must of Course be great Eaters, and but moderate Drinkers; for it is scarcely possible for the same Person to indulge himself in Excesses both of Eating and Drinking at the same Time. They are subject to violent and acute Inflammations of the Eyes,

* The Words *μὴ μωρὸν* have embarrassed the Interpreters a great deal, and it has generally been translated in such a Manner as to embroil the whole Passage not a little. I believe the Author means here by *μὴ μωρὸν* the same as by *ἀνυπόμωτον*, that is, not easy to boil, or to be elevated. But I will not be positive I am right in this Case.

Eyes, which endanger the Rupture of the Part; and those under thirty, to copious Hæmorrhages from the Nose, in Summer. Epilepsies are not very common, but vehement, when they happen; and these People are more likely to arrive at a greater Age than most others. Moreover, they are but little afflicted with cold corrosive Ulcers; and as to their Manners, they have a greater Tendency to the Savage, than to the Polite. Such are the Diseases of the Country, which principally infect the Men, when no unusual Alteration in the Seasons introduces an epidemical Disease.

As to the Women, they are contracted, and of tense Fibres, in the general, because the Waters are hard, difficult to boil, and cold. The Catamenia are not regular, but faulty, both in Quantity and Quality; add to these, that their Labours are difficult; that they are not very subject to Miscarriages; and that they cannot always give Suck to their Children, when born, because the Hardness and Intractability of the Waters dry up their Milk. Many fall into Consumptions after Lying in, the Violence of their Labour causing Ruptures of the Vessels, and Convulsions. The Children, whilst little, are subject to contract Dropsies in the Scrotum, which, as they grow up, disappear; and they arrive at Puberty very late in a City thus situated. Thus it is with Respect to the hot and cold Winds, and to the Cities subject to their Influences.

As for Cities which are exposed to those Winds which blow from betwixt the Risings of the Sun in Summer, and in Winter, or to those which blow from the opposite Quarters, they are thus affected by their Situation. Those which face the rising Sun are likely to be more healthful than others, which are either subject to the Northern Blasts, or exposed to the sultry Southern Winds, though at no greater Distance than a Furlong from each other; both, because here the Heat and Cold are more moderate, and because Waters which spring toward the rising Sun, are necessarily clear, sweet, soft, and agreeable to the Inhabitants of the Place; for the Rays of the rising Sun purify the Waters, and prevent Intemperatures in the Air, by clearing it of Vapours. The Inhabitants are, as to Complexion, well coloured and florid, unless any accidental Disease interferes with their natural Habit; their Voices are clear; their Passions are more regular, and their natural Parts and Understandings better, than those of the People who live exposed to the North; and indeed all the natural Productions are generally brought to greater Perfection.

A City, thus situated, enjoys, as it were, a perpetual Spring, in Regard to the Temperature, being neither immoderately hot, nor excessively cold; and the Diseases, affecting the Inhabitants, are neither so frequent, nor so violent as in other Places; and they are of the same Kinds with those by which Cities exposed to the warm South-winds are affected. The Women here are extremely fruitful, and have very easy Labours. Such are the Advantages of this Situation.

Cities which have an Exposure towards the Setting of the Sun, and are sheltered from the Winds which blow from the Sun Rising, but are open to the hot Winds from the South, and the cold ones from the North, have undoubtedly the most unhealthy Situation of all others. For, First, the Morning Fogs are a long Time retained, which, mixing with the Waters, render them turbid, for the Sun does not shine upon them, till it has acquired a considerable Altitude. Besides, in the Summer, the cold Breezes blow, and the Dews fall upon them. As to the rest, the Inhabitants are parched by the declining Sun, and hence they must probably become pale, and sickly; hence also they partake of all the above-mentioned Diseases, having nothing to protect them against them; their Voices are moreover likely to be deep, and hoarse, because the Air they respire, is generally impure, and unwholesome, being very little ventilated by the North-winds, which do not frequently blow upon them; and those Winds, which principally affect them, being of all others the most moist. Add to this, that the Western Winds, to which such a Situation is exposed, make the Temperature resemble that of Autumn, with Respect to the Alterations of the Weather, which happen on the same Day, for there is a great deal of Difference betwixt the Morning, and Evening Air. Thus it is in Regard to the Healthfulness and Unhealthfulness of the Winds.

I shall next consider the Waters, distinguish those which are unwholesome, from those which are wholesome, and specify the Advantages and Disadvantages which attend the Use of each Sort. For this is of great Importance to Health.

Stagnating Waters of Marshes, and Fens, must of Necessity be warm, muddy, and stinking in Summer; and, moreover, for Want of Motion, and because they are perpetually supplied by the Rains, and warmed by the Sun, they must of Course be white, bilious, and unwholesome. In the Winter, as they are frozen, and cold, and turbid with Snow and Ice, they are productive of Phlegm and Hoarsenesses. Those who drink them have their Spleens large, and much obstructed; their Bellies hard, thin, and hot; and their Shoulders, Necks,

and Faces wasted; for, as the Spleen enlarges, the Flesh dissolves; and hence they are emaciated. These have great Appetites both as to Eating and Drinking. Their Stomachs and lower Bellies are extremely dry, and hence they require stronger Vomits and Purges; and this is habitual to them both in the Summer and Winter. They are subject to frequent and fatal Dropsies; and, during the Summer, to Dysenteries, Diarrhoeas, and very chronic Quartans, which, as they continue long, in such Constitutions bring on Dropsies, by which they perish. Thus it happens to them in the Summer.

In Winter the Younger are subject to Peripneumonies, and phrenetic Disorders; the Elder, to burning Fevers, by Reason of their Costiveness. The Women contract Tumors and oedematous Disorders, incline to Sterility, have difficult Labours, bring forth large and bloated Children, and which, in their tender Years, have a Tendency to waste and become unhealthy; their Purgations after Delivery also are not well performed. The Children are much afflicted with Ruptures, and the Men, with Varices, and Ulcers in their Legs. Hence it is plain, that People with such Constitutions are not calculated for a great Age, but that they must early in Life contract the Infirmities of old Age. It is farther remarkable, that the Women frequently imagine themselves with Child, and, when the Period of Delivery approaches, the Fulness of the Belly disappears. This is caused by the hydropical Humours which are determined to the Womb. Such Waters, as the above-mentioned, I esteem improper for all Manner of Uses.

The next, in Degree of Unwholesomeness, are those which spring from Rocks, for these are necessarily hard, those whose Sources are warm, or which are impregnated with Iron, Brass, Silver, Gold, Sulphur, Alum, Asphaltus, or Nitre (*not what we call now by this Name*); for all these are produced by the Force of Heat; therefore Waters from such Strata cannot be good, but, on the contrary, hard, and heating, difficult to pass the urinary Glands, and inclining to Costiveness. The very best are those which spring on elevated Places, and loamy Hills; for these are sweet and clear, and a very small Quantity of Wine communicates to them both Colour and Taste. [*The Author mentions this as an Instance of their Lightness and Simplicity.*] In Winter they are warm, in Summer cool, and this, because their Reservoirs are at a great Distance from the Surface of the Earth. Those, however, whose Fountains face the Sun-rising, especially its Rising in Summer, are much the best; for these are necessarily the most limpid, sweet, and light. But those which are salt, not easy to boil, and hard, are not fit to drink. There are, however, some Diseases, and Constitutions, which I shall hereafter specify, where these are properly given as a Medicine. Thus it is with Regard to these Waters.

Fountains, as I observed, afford the best Water, which face the East; next to these, such as have an Aspect towards any Point betwixt the Rising and Setting of the Sun in Summer (*reckoning towards the North*) those especially, which incline most to the East; and the third Degree of Salubrity may be allotted to those Waters, whose Sources regard the Quarters lying betwixt the Settings of the Sun in Summer and in Winter. The very worst are those which spring towards the South, or which face some Point betwixt the Rising and Setting of the Sun in Winter (*that is, betwixt the South-East and South-West*). These, however bad, are not so pernicious to Inhabitants of a Northern, as those of a Southern Climate.

As to the Use of these Waters, the following Rules are to be observed:

He that is in a perfect State of Health, need be under no Restrictions, but may use any that presents indiscriminately; but if a Person that is ill will confine himself, on that Account, to that Sort which is best adapted to the Circumstances of his Disease, he will thereby much forward his Recovery.

Those whose Bellies are hard, and inclinable to be heated, find Advantage from those Waters which are sweetest, lightest, and most limpid. On the contrary, Waters which are very hard, not easily boiled, and somewhat salt, are better suited to others, whose Bellies are soft and moist, and abound with Phlegm; for these Waters will help to dry up the redundant Humours. Whatever Waters boil best, and soonest, are most likely to dissolve, and liquefy the Belly. But those which are heavy, and hard, and the least easy to boil, are drying and astringent. For it is a popular Error, founded on Want of Experience, to imagine, that salt Waters promote Stools, whereas, in Fact, they powerfully restrain them; and this, because, for the same Reasons that they are difficult to boil, they are also not easily subdued by the digestive Powers, and hence they produce Costiveness instead of liquefying the Belly. And this is the true State of the Case, with Respect to Fountain Waters. I will now proceed to explain the Natures of Rain and Snow Waters.

Rain Water is of all others the most light, sweet, thin, and limpid. For the Sun exhales only the lightest and thinnest Particles of Water. That this is true, is evident from the Nature of Salt, which, consisting of the most dense and heavy Particles, remain and become salt, whilst those which are most

light

light and thin are attracted by the Sun, and elevated into the Atmosphere, because of their Lightness. Nor does the Sun raise Vapours from Lakes only, but it exhales them also from the Sea, and from whatever contains Moisture, with which every Thing more or less abounds. Amongst other Things, thus influenced by the Sun, is the human Body, from whence the thinnest and lightest of the Fluids are attracted, as appears by the following Instance. Let a Man walk or sit in the Sun with his Cloaths upon him; that Part of his Skin exposed to the Sun will not appear to sweat, because, before the Moisture is visible in the Shape of Sweat, the Sun causes it to evaporate; mean Time, the Parts covered by Garments, or by any other Thing, will sweat. Thus the Sun forces out the Moisture from the Body, which being defended from the Sun by something that covers it, becomes visible. But, upon retiring into the Shade, it perspires equally at the Parts covered and uncovered, because it is not then subject to the Influence of the Sun.

These Properties of Rain-water render it more subject to Putrefaction than others, and incline it to contract a disagreeable Smell, to which also the different Exhalations of which it is composed, and the various Substances with which it is impregnated, contribute greatly; add, that when these heterogeneous Particles are drawn up, and elevated, and are carried about in, and mixed with the Air, what is the most turbid, and dark, separates from the rest, and forms Mists, and Clouds, whilst the thinnest and lightest Particles remain, are digested, and, as it were, boiled by the Heat of the Sun, and are thus rendered sweet; for all Things grow sweet by Boiling. So long, therefore, as they remain dispersed, and rarefied, they are carried to the superior Part of the Atmosphere; but when they are collected together, and condensed suddenly by Winds blowing in opposite Directions, the Cloud, thus formed, breaks in that Part where it is most dense. And indeed, it is most likely to happen thus, when the Clouds, not permitted by the Winds to preserve any fixed Station, but agitated and hurried along in the Air, are suddenly dashed against another Cloud, brought by an opposite Wind; it is on this Occasion the Condensation begins in the first Vapours that meet, which is continued amongst those that succeed, till growing dense, black, and too heavy to be longer suspended, they break, and fall down in Showers. Hence it appears, that such Waters must be the best; but they require to be boiled, and filtered, otherwise they are subject to contract a disagreeable Smell, and to affect such as drink them with a Hoarseness, and Roughness of Voice.

Waters from dissolved Snow and Ice are all bad, for, after being once frozen, they never recover their original Nature; for the limpid, light, and sweet Particles are separated, and evaporate, whilst the most turbid and heavy remain. The Truth of this is evinced by the following Experiment: Take a Vessel in Winter, and fill it with a certain Measure of Water, then expose it to the Air, so that it may be frozen, the next Day place it in a Heat sufficient to thaw it, and, when it is dissolved, measure it again, and you will find it has wasted considerably; now this Waste must be of the lightest and thinnest Particles, for it is impossible the most ponderous and dense should evaporate first. It is for these Reasons that I esteem the Waters of dissolved Snow and Ice, and all that bear any Resemblance to them, the very worst of all others, for any Uses whatever.

Men who drink habitually a Mixture of all Sorts of Waters, as those of large Rivers, which receive a great many smaller in their Courses; or Waters of Lakes, into which many Currents, consisting of different Sorts of Waters, flow; or who are obliged to use Waters carried to them from a considerable Distance, are much subject to the Stone, to nephritic Disorders, to Stranguries, to ischiadic Complaints, and Tumors; for it is not probable, that one Water should exactly agree with another in Qualities; thus some will be sweet, others salt, or aluminous, whilst others are impregnated with hot Ingredients; now, when several of these are mixed together, an intestine Motion is produced, till the strongest Quality prevails; the same Quality is not, however, always most prevalent, but sometimes one, and sometimes another; and it is very possible, that the Winds may in this cause an Alteration, the North-wind increasing one Quality, and the South another, and the same may be said in Regard to the other Winds. Hence Mud and Sand must of Necessity subside to the Bottom of Vessels containing such Waters; and Men, who constantly drink them, must be subject to the Distempers above-mentioned; that these Effects are not, however, universal, I shall proceed to shew.

The Bladder of those whose Belly is naturally inclined to be soluble, and healthy, is not subject to be heated, nor is the Orifice thereof contracted; hence they make Water freely, and consequently no condensed Sediment remains in the Bladder. On the Contrary, those whose Bellies are inclined to be hot, have their Bladders necessarily affected in the same Manner, and the Orifice thereof subject to be inflamed.

Hence the Urine passes with Difficulty, and, being retained, is digested, and heated in the Bladder, where the lightest Particles are separated from the more gross, and the most pure are discharged, whilst the most thick and turbid are retained, and form a Concretion, small at first, but which afterwards increases; this, being perpetually surrounded by the Urine, adapts to itself the most dense Particles, increases, and in Time forms a Stone, which is forced upon the Orifice of the Bladder, by the Efforts to make Water, where it obstructs the Passage of the Urine, and causes violent Pain; this makes Children afflicted with the Stone handle and extend the Penis, where it seems to them that the Cause of the Obstruction is situated. That the Case is thus, is manifest from the Urine discharged by People who labour under the Stone, which is always extremely limpid, the thickest and most bilious Part remaining, and concreting. This is the most general Way of contracting the Stone. But Milk gives Children sometimes the Stone, when it is unwholesome, hot, and very bilious, for then it heats the Belly, and the Bladder, and consequently the Urine, whence a Stone is formed. I am therefore of Opinion, that Wine, very much diluted, should be preferred before such Milk for Children, because it heats and dries the Vessels less. With Respect to Females the Case is somewhat different, for their urinary Passages are shorter, and larger, so as to permit an easy Discharge of the Urine; nor are they tempted to rub the Pudenda, like Males, nor to handle the urinary Passage, which in them opens within the Pudenda. And, because the Urethra is larger, they can drink more than Males. This I take to be a just Account of Waters, or very nearly approaching it.

As to the Constitution of the Year, it may be foretold by the following Observations, whether it will be healthy, or sickly. If the Rising and Setting of the Constellations are followed by their natural and usual Effects; if the Autumn be rainy, and the Winter moderate, that is, neither too mild nor too hard; if the Spring and Summer be tempered with seasonable Showers, we may conclude that a healthy Year will succeed. But if the Winter be dry, and attended with frequent Northerly Winds, and the Spring rainy and warm with the South-wind, the Summer must necessarily produce Fevers and Inflammations of the Eyes. For on the sudden Approach of sultry Weather, at the same Time that the Earth is moistened by vernal Showers, and relaxed by the South-winds, a double Degree of Heat is excited, by the Moisture and Warmth of the Earth, and the Influence of the Sun concurring to produce it, whilst the Belly continues relaxed, and the redundant Moisture of the Brain is not yet dried up; in such a Spring the Body and whole Habit must, of Necessity, abound with Humours, so as to make very acute Fevers epidemical, especially in phlegmatic Constitutions; and to produce frequent Dysenteries, particularly in Women, and Men of moist Constitutions.

If the Rising of the Dog-star be attended with Rain and wintery Weather, and the cool Etesian Breezes (*from the North-East*) blow as usual, we may hope that the prevailing Distempers will cease, and that the Autumn will be healthy; but, if the Contrary happens, there is great Danger of Mortality amongst Women and Children, whilst old People are less in Danger, and those who recover of Fevers contract Quartans, which at last terminate in Dropsies.

If the Winter be much affected with South-winds, rainy, and mild, and the succeeding Spring rendered cold by the Northern Blasts, dry, and wintery, first, Women that happen to be pregnant, and expect to be delivered in the Spring, will be in Danger of Miscarriages; or, if these do not happen, the Children which are born will be weak and sickly, so as to die immediately, or, if they survive, to be thin, weakly, and unhealthy. Thus will such a Season affect Women. The rest will be troubled with Dysenteries, and dry Ophthalmies, and some will be subject to Defluxions from the Head upon the Lungs. Men of phlegmatic Constitutions, and Women will be afflicted with Dysenteries, the Phlegm flowing from their Brains, because of their natural Humidity. Bilious Constitutions will be subject to dry Ophthalmies, because of the Heat and Dryness of their Habits. People advanced in Years will be affected by Catarrhs, on Account of the Rarity and Relaxation of their Vessels, inasmuch that some will die suddenly, whilst others will be seized with a Paraplegia either on the right, or left Side. For, when the Winter has been moist, and warm, and in Consequence of this, neither the whole Habit, nor the Vessels competently firm, if the succeeding Spring happens to be dry, cold, and much influenced by the North-winds, the Brain, when it should be relaxed by the natural Mildness of the Spring, and purged of those Humours, which cause Distillations from the Nose, and a Hoarseness, is, instead of that, braced, and contracted, so that, Summer coming on suddenly, the great Heat, and the Change from one Extreme to another, are the Causes of the above-mentioned Diseases, which, as they disappear, are succeeded by Lienteries and Dropsies, the Humidity of the Viscera not being easily dried.

If the Summer be rainy, and hot South-winds blow, which continue till the latter End of Autumn (*περοναια*) the Winter must, of Consequence, be sickly. Phlegmatic People, and those above forty, will be seized with burning Fevers, and the Bilious, with Pleurifies and Peripneumonies.

But if the Summer be dry, and much ventilated by the North-winds, and the whole Autumn rainy and much affected with Southern Blasts, the Winter will probably introduce Head-aches, and Sphacelations of the Brain, and, moreover, Hoarsenesses, Colds, Coughs, and, in some Constitutions, Consumptions. But if the Autumn be dry, and rendered cold by Northerly Winds, and there be no Rain, neither about the Rising of the Dog-star, nor of Arcturus, the Season will be favourable to phlegmatic, and moist Constitutions, and to Women, but very bad for the bilious, because it dries them excessively, and brings on dry Ophthalmies, and acute Fevers of long Continuance, and inclines some to Melancholy. For, the moist humid and diluted Part of the Bile being consumed, there remains only the thickest and most acrid Part; as it happens also in the Blood; hence the Diseases above-mentioned are immediately produced, whilst this Constitution of the Season is favourable to the Phlegmatic, because they are dried by two succeeding Seasons, and arrive at the Winter without any superfluous Humidity.

If the Winter be infested with North-winds, and dry, and the succeeding Spring affected as much by South-winds, and rainy in the Summer, violent Inflammations of the Eyes will be epidemical; as will Fevers amongst Women and Children.

Whoever examines and considers these Things, will not be at a Loss to prognosticate most of those Events which these Changes naturally produce.

It imports us most of all to take especial Notice of the great and remarkable Changes of the Seasons, that we may not at such a Juncture prescribe Purging without urgent Necessity, nor make Incisions in, or cauterise the Parts about, the Abdomen, till ten Days or more are past, but ten Days are of the greatest Moment. The two Solstices are very dangerous Seasons, especially the Summer Solstice; and so are the Equinoxes, principally the Autumnal. Besides, we are to regard the Risings of the Constellations, especially those of the Dog-star and Arcturus, and to observe the Setting of the Pleiades; for these Days are particularly critical to Distempers, and either carry off the Patient, or give a favourable Turn to the Disease; and, indeed, all other Things alter their Forms and Constitutions, upon these great Changes. And thus it is with Respect to the Seasons of the Year.

My Design also is to shew how different Europe is from Asia in all Respects, and how various Nations differ from each other, in Regard to Form, and every other Circumstance. This Subject would engage me in too long a Discourse, were I to enter into Particulars: I shall therefore content myself with giving my Sentiments; as to the most essential and important Points wherein this Difference consists.

Asia remarkably differs from Europe in the Nature of Plants and Men; for all Things are produced more beautiful and large in Asia than in Europe. The Climate is more temperate than ours, and the Manners of the People more polished and civilised. The Cause of these Things is the good Temperature of the Seasons; for Asia is situated towards the East, in the Middle of the Sun's Risings, and remote from an Excess of Cold. Now, what most contributes to the Growth of Things, and Mildness of Manners, is a well-tempered Climate, in which no violent Quality predominates, but every Thing is equable and temperate. But all Parts in Asia are not in all Respects alike. But that Part which lies between the Extremes of Heat and Cold, is the happy Region which abounds with all Sorts of Fruit, which is covered with Trees, which enjoys an excellent Air, and, besides sufficient Refreshments of seasonable Rains from Heaven, it is plentifully supplied with such Waters as the Earth affords; which is neither scorched by Heat, dried for Want of Moisture, nor hardened and stiffened with Frosts, but opened and cherished by the warm Breezes of the South-wind, and moistened and refreshed by Showers, and kindly Snows. Hence it must of Necessity produce all Kinds of Fruit, seasonably and in Perfection, not only those which the Earth brings forth spontaneously, but such as are planted and sown by Man, who eats of them, and makes Use of them after having by Culture rendered them mild, and subdued their Wildness by Grafting and Transplanting. All Flocks of Sheep, and Herds of Cattle, prosper better in these Climates, than in any other Region; they bring forth Young more frequently, and feed better. The Men also are of a better Habit of Body, more graceful, of a larger Size, and better shaped, and hardly differ from one another in Form and Stature. It is probable therefore that this Climate approaches nearer than any other to the most temperate and natural Constitution. But it is impossible that Strength, Hardiness, Vigour, and personal Courage should belong to such Constitutions; nor can they be supposed to be regular in their Affections for their own, or a different Species. They are given up to sensual Enjoyments; and hence it is, that we see so many

Monsters among the very Brutes. The same may be said of Egypt and Lybia.

As for those People who inhabit the Countries to the Right of the Sun's Rising in Summer, as far as the Pajus Mæotis, which separates Europe from Asia, they are more different from each other than those I have described, because of the different Changes of Seasons, and the Nature of their Country, which, as well as that of the Inhabitants, varies according to these Changes; for, where these Changes are most frequent and sensible, the Country is most savage and irregular. There you find many Mountains and Forests, and sometimes Plains and Meadows. But, wherever these Changes are least felt; the Country is more uniform, and even; and the Case is the same with Men, if they are strictly observed. The Natures of some Men bear a Resemblance to Mountains, Forests, and unwatered Deserts; others to light and well watered Soils; some to Meadows and Marshes; and others to Plains, which are dry, and naked. Seasons, which change the natural Forms of Things, are various, and as they differ from one another, their Effects are no less different.

Of the MACROCEPHALI.

I shall say nothing of those Nations where the Difference is inconsiderable, but confine myself to those among whom the Varieties, whether they proceed from Custom, or Nature, are most sensible, and begin with those People whom they call Macrocephali, because they have very long Heads, there being no Nation in the World equal to them in that Respect. Here Custom alone was first of all the Cause of that excessive Length; but now Nature acts in Conformity to Custom. These People esteem a long Head as a Mark of Distinction, and hence a Custom arose, as soon as a Child was born, while its Head was yet tender, to fashion it with their Hands to as great a Length as possible, and by Application of proper Bandage and other Arts, to destroy as much as possible the spherical Figure of the Head, and force it to increase in Length. Thus, what at first was nothing but Custom, became by Degrees Nature, which in Time no longer wanted the Assistance of Custom. The Seed comes from all Parts of the Body, and partakes of the Affections of the particular Part from whence it proceeds, whether they are sound, or distempered; if therefore the Children of bald Fathers are also generally bald, and those who have grey Eyes beget grey-eyed Children, and Parents with distorted Eyes procreate a squinting Off-spring, and if this holds true with Respect to all other Imperfections of the Body, what should hinder a Macrocephalus from begetting a Macrocephalus? At this Time indeed they are not born with so long Heads, which is owing to their Negligence, in letting their antient Custom grow into Disuse. Such are my Sentiments concerning these Affairs.

Of the PHASIANS.

In Regard to the Inhabitants about Phasis, the Country is marshy, hot, moist, and abounding with Woods, and frequent and heavy Rains fall there at all Seasons. They live in Marshes, where they build their Houses with Wood and Reeds; in the midst of the Waters. They seldom exercise themselves by going to the City, or the Market, but ply here and there about their Canals, of which there is a great Number, in small Boats, which they make out of a single Trunk of a Tree. Their habitual Drink is warm, stagnating Water, which is corrupted by the Sun, and supplied by the Rains. The Phasis itself is the stillest of all Rivers, and flows the slowest. The Fruits which grow in the adjacent Parts are all effete, afford little Nourishment, never arrive at Perfection, and are insipid. The Country, moreover, is much subject to Fogs, by Reason of the neighbouring Waters. On these Accounts, the Phasians are in Person different from all Mankind. For they are of an excessive Bulk, and prodigiously bloated. Neither Joint nor Vein are to be discovered upon their Body. They are pale like those who are affected with a Jaundice. Their Voice is more deep and hoarse than that of any other People, because of the Grossness and Humidity of the Air they respire; they are excessively lazy and indolent; the Change of Seasons is insensible with them, either as to Cold or Heat; all their Winds blow from the South, except a Wind which is peculiar to them, and which is sometimes very violent, troublesome, and hot, and this they call *Cenchron*. The North-wind never reaches them, or, if it comes so far, is so weak and languid, as to be hardly sensible. And thus it is with Respect to the Natures, Differences, and Forms of the Inhabitants of Asia and Europe.

With Regard to the Effeminacy and Cowardice of the Asiatics, who are far inferior in Courage to the Europeans, but exceed them in Delicacy of Manners, the Cause hereof is to be attributed, principally, to the Seasons, which, with the People of Asia, never change from one Excess to another, either as to Heat or Cold, but are always in a State of Equality. Upon these Accounts the Inhabitants never suffer any great Trans-

ports of Mind, nor undergo very violent Changes in their Bodies, which are the two moving Causes that excite the Passions, and are more likely to render the Imagination lively and warm, than if such Excesses and Alterations were never to happen. Changes, however, there are, either greater or less, in all Things, and these stimulate the Passions, and disturb the Sedateness of the Mind. Besides these Reasons for the Cowardice of the Asiatic Nations, which appear to me very probable, another may be deduced from Custom. Most of the Asiatics are subject to the Tyranny of absolute Kings. And wherever Men of Sense are deprived of Liberty, and the Power of acting conformable to their own Inclinations, but are Slaves to others, it is Policy in them to avoid all Appearances of Courage, and to dissemble Cowardice. For, under these Circumstances, the Danger is disproportioned to the Motives of Valour. Thus they are obliged to fight, undergo Fatigues, and to die for the Sake of their Lords, and this at a Distance from their Children, Wives, and every Thing they hold dear; whilst all their Fortitude and Bravery serves only to increase the Power of their Tyrants, and rivet their own Fetters the faster, all their Recompence being Dangers and Death. Besides, such a Country must in Time become desolate, since the wisest and bravest Men equally detesting such Motives for War, and Inactivity, will abandon an arbitrary Government, so little suited to their Genius.

A sure Confirmation of this Truth is, that all the Greeks as well as Barbarians in Asia, who are their own Masters, and independent of Kings, are incomparably more warlike than the others; for they labour for themselves, they run no Hazards but on their own Account, and they reap all the Fruits of their Bravery, as they suffer all the Inconveniences of their Cowardice. You will, however, find even amongst the Asiatics considerable Differences, some being better, and others worse, and this Variety is to be attributed to the Mutability of the Seasons, before taken Notice of. And thus is the State of Asia.

Of the SAUROMATÆ.

There is in Europe, about the Palus Mæotis, a Scythian People, called Sauromatæ, which differ from all others. Their Women mount on Horseback, draw the Bow, throw the Dart, and fight Battles, while they are Virgins. They are obliged to preserve their Virginity, till they have killed three Enemies, and are not allowed to approach their Husbands, before they have offered a certain Sacrifice by Law appointed. The married Women are discharged from mounting on Horseback, and going to War, except the whole Country is obliged to take up Arms on some very urgent Occasion. They have but one Breast, which is the left, for their Mothers take Care to burn off the Right, while they are very young, with an Instrument of Brass, made on Purpose; so that, this Breast ceasing to grow, all the Strength and Nourishment go to the right Arm and Shoulder.*

Of the other SCYTHIANS.

As for the rest of the Scythians, they are like one another in Form, but have no Resemblance to any other People. The Case is the same with the Egyptians, with this Exception, that they are as much oppressed by the excessive Heat, as the Scythians are by the extreme Cold.

What they call the Desert of Scythia, is a vast Plain, quite bare of Wood, but interspersed with Meadows, and pretty well watered. It has also large Rivers, into which the Waters of the Plains discharge themselves. It is here that those Scythians live, whom they call Nomades, because they have no Houses, but live in Waggons, the smallest of which have four Wheels, and the others six, but all covered, and closed with large woollen Carpets, and made like Houses, with three Floors one above another, which secure them under Covert from Snow and Rain, and defend them against the Violence of the Winds. These Waggons are drawn by two or three Yokes

of Oxen, which have no Horns, because of the extreme Rigour of the Cold. The Women live in these Waggons, but the Men are generally on Horseback, followed by their Sheep, Cattle, and Horses. They remain in one Place so long as it will afford them Subsistence for their Cattle, but, when that fails, they remove to another Place. They feed upon Flesh boiled, and drink the Milk of their Mares, and eat Hippocrene; as they call Cheese made of Mare's Milk. Such is their Way of living, and such are their Customs, in which, as well as in their Climate and Persons, they differ from all other People; but they all resemble each other, as do also the Egyptians. They are of all People the least fruitful, and the Country produces the fewest Animals, and those the smallest of all others. They live under the Bear and the Riphean Mountains, whence the piercing Northern Winds blow. The Sun never approaches them but towards the End of its Summer Periods, and then warms them but for a very short Time. Few Winds from the warm Quarters reach them, and those weak and of short Continuance. But they are perpetually exposed to the Northern Winds, which the Snow, Ice, and Water render extremely piercing, and which, blowing perpetually from those Mountains, render them uninhabitable. These Plains are subject to frequent Fogs, during the Day, so that they are obliged generally to respire a moist Air. Their Winter is perpetual, but their Summer continues but a few Days, and has even then but very little Influence; for these Plains are elevated, bare, and sheltered by no Mountains, but altogether exposed to the North.

The Animals of this Country are very small, because the Severity of the Seasons would destroy such as are too large to retire for Warmth into Holes made under the Earth; for there are neither Woods nor Coverts to preserve them from the Cold, nor Sun to warm them. There are no very great or sensible Changes of the Seasons, which are always equal, or have but little Variation. Hence the Inhabitants are all like each other. They eat the same Food, and wear the same Clothes, in Summer and Winter; they breathe in a thick and moist Air, and drink nothing but dissolved Water of Snow and Ice. For these Reasons they are neither remarkable for bodily Strength, nor the Faculties of the Soul; for it is impossible there should be either in Perfection, in a Climate not subject to violent Changes. Hence, the People are fat and carnosous, and their Limbs moist and relaxed; their Bellies abound with Moisture, and are in general more laxative than those of other People; and it is impossible it should be otherwise in such Constitutions, inhabiting such a Country, and subject to the Influences of such a Climate. The Tendency these People have to grow fat, and the universal Smoothness of their Skins, produce an extraordinary Similitude in their Persons, inasmuch that Men can scarcely either be distinguished from each other, or one Female from another, of the same Sex; and this because the Seasons being always equal and uniform, there can happen no Consumption, or Irregularity in the original Formation of the Fœtus, unless by Disease, Violence, or Accident.

That I may give abundant Proof of their excessive Humidity, I must remark, that most of the Scythians, and all the Nomades in general, are burnt in their Shoulders, Arms, Wrists, Breasts, Hips, and Loins, on no other Account but that of their excessive Moisture, and Softness of Contexture, which enervates them to such a Degree, that they have neither Strength to draw a Bow, or throw a Dart; but after they are burnt, and the Humidity of their Joints is dried up, their Bodies grow robust, more firm and nervous, and of a better Habit. The first Thing which inclines them to be lax, and spread in Bulk, is their Neglect of swathing their Children, as they do in Egypt; and this Negligence Custom has established as a Law, with a View of enabling them to keep a firmer Seat on their Horses. A second Cause of their Relaxation, and enormous Increase in Flesh, is, their sedentary Way of Living, for the Males, so long as they are incapable of mounting on Horseback, scarce ever stir out of their Carriages,

* The Women amongst many of the Tartarian Nations are at this Day extremely warlike. Bernier, in relating a Conversation which passed betwixt him and some Ambassadors from the Kan of the Usbec Tartars, tells the following Story, which, notwithstanding some Exaggerations, proves the Valour of their Women.

Then, says he, they proceeded to commend the Strength and Valour of their Women, which they described to me quite otherwise than the Amazons; telling me very wonderful Stories of them, especially one, which would be admirable indeed, if I could relate it with a Tartarian Eloquence, as they did: They told me, that, at the Time when Aureng-Zebe made War in their Country, a Party of twenty-five or thirty Indian Horsemen came to fall upon a small Village; whilst they plundered, and tied all those whom they met with to make them Slaves, an old Woman said to them, Children, be not so mischievous, my Daughter is not far off, she will be here shortly, retreat if you be wise, you are undone if she light upon you. They laughed at the old Woman and her Advice, and continued to load, to tie, and to carry away herself; but they were not gone half a Mile, but this old Woman, looking often backward, made a great Outcry of Joy, perceiving her Daughter coming after her on Horseback; and presently this generous She-Tartar, mounted on a furious Horse, her Bow and Arrows hanging at her Side, called to them at a Distance, that she was yet willing to give them their Lives, if they would carry back to the Village all they had taken, and then withdraw without any Noise. The Advice of this young Woman affected them as little as that of her old Mother; but they were astonished, when they found her let fly at them, in reverse also. But she kept herself at that Distance from them, that none of them could reach her. She laughed at all their Efforts, and which was of another Temper than theirs. So that after she had killed half of them with her Measure from the Strength of her Arm, she came and fell upon the rest with her Sabre in her Hand, and cut them all in Pieces.

Carriages, and walk but very little, and this on Account of their frequent Transmigrations, and rambling Way of Life. The Corpulency of their Females is surprising. The Complexion of these Scythians is usually dark, and fallow, because of the Cold, for the Sun has very little Influence upon them; the Whiteness therefore is affected by an Excess of Cold, as it is in hot Countries by an Excess of Heat, and the Sallowness of their Skins is produced in its Stead.

It is not likely that, under these Circumstances, the People should be very prolific. For the Men have no strong Inclinations to Women, because of the Moisture of their Constitutions, and the Relaxation and Coldness of their Bellies, all which tend to disable them from propagating their Species; besides, their habitual Exercise on Horseback is no inconsiderable Cause of Imbecillity. These are the Reasons for the Infecundity of the People, so far as the Men are concerned; but with Respect to the Women, their Obesity, and the Moistness of their Habit, prevent Conception; for these Reasons the Uterus cannot attract, and retain the Male Principle of Generation; the Catamenia are moreover neither sufficient as to Quantity, nor regular as to the Periods; and the Orifice of the Uterus, being obstructed by Fat, does not readily receive Impregnation from the Male. Add to these, that the Fibres of the Women are not braced by Exercise, and that their Bellies are cold and relaxed. On these Accounts the Scythians are necessarily the most unfertile of all People. That these are the Causes of their general Infecundity, is evident from their Maid-servants, who no sooner admit of a Man's Embraces, than they conceive, because their continual Exercises keep down their Flesh, and render them lean.

It is farther remarkable of these People, that many amongst them become Eunuchs, and this to such a Degree as to act, and even talk like Women, they perform all the Functions of Women, and speak like them; they are called the Impotent (*ἀνδραπίστis*). * The Inhabitants of the Country believe, that this Disease is inflicted by the Anger of the Gods; for which Reason they pay a particular Respect to, and even worship those who are thus affected, with a View of averting the same Misfortune from themselves. For my Part, I believe that this, as well as all other Distempers, proceeds from the Gods, and that there is nothing more Divine, or more human in one than in another, all Diseases coming alike from the Gods; not but every one has its proper Cause, for there is nothing in Nature that is not an Effect of some Cause. As to the Distemper which is the Subject of our present Inquiry, I shall give my Opinion how it is produced:

As the Scythians are always on Horseback, and have their lower Extremities perpetually in a depending Situation; these are much subject to receive a Flux of Humours, which renders them lame, and, as the Disorder grows inveterate, the Joint of the Thigh becomes immovable. For a Cure they have Recourse to the following Method: When they begin to be disordered, they open the Veins behind their Ears, and, when the Blood has flowed sufficiently, they fall asleep through Faintness. When they awake, some find themselves relieved, and others not in the least better. Now it seems to me, that this very Remedy destroys their Virility; for behind the Ears are Veins, which, if a Man suffers to be cut, he loses his generative Faculty, and these appear to be the very fame which they open. When therefore they approach their Wives, and find their Virility fail, they are not much concerned at it the first Time, but betake themselves to Rest; but, when after several Essays they find the same Inability continues, they no longer doubt but they have offended the God, who they imagine inflicts this Punishment upon them. They then put on Women's Clothes, and make no Secret of their Infirmary; they live like Women, and do all Female Offices. But this Misfortune seldom befalls the poorer Sort, but only the Rich, and those of Distinction amongst the Scythians, because these never stir but on Horseback, whereas the Poor are less subject to it, because they walk on Foot. Now if this Disorder in particular was sent by the Gods, it would visit one Sort as well as another, or the Poor rather than the Rich, because the Poor pay much less Honour to the Gods, if it be true that the Gods take Pleasure in being honoured by Men, and that they reserve their Blessings to reward their Worshipers. Indeed, they are the Rich who offer frequent Sacrifices to them, and load their Altars with Gifts, which the Poor are unable to do, but instead of honouring the Gods are more frequently guilty of accusing their Justice, because of the unequal Distribution which they make of Riches. The Punishment for all these Crimes ought then rather to fall upon the Poor than the Rich. But, as I observed before, this Disease is of Divine Origin-

nal equally with all other Distempers, for they are all produced by natural Causes; amongst which this Distemper of the Scythians is brought upon them in the Manner I have specified; and indeed the same Cause produces the same Effects in all other Countries; for much Riding on Horseback renders a Person subject to Tumors of the lower Extremities, to Sciaticas, and Gouts, and is a great Enemy to venereal Commerce, and this it is that renders the Scythians of all Mankind the most impotent. Besides, their Custom of wearing perpetually a particular Sort of Breeches, together with their Posture on Horseback, which is almost continual, prevents them from touching and warming the generative Organs with their Hands, when they require it; hence overcome by Cold and Fatigue, they think of nothing less than venereal Enjoyments, inasmuch that a Deprivation of Virility is, in their Circumstances, no great Misfortune. And this is the Case with Respect to the People of Scythia.

All the other Europeans are very different from one another, both in Person and Stature, and this is owing to the Variations of Seasons, which are great and frequent among them; for they have severe Winters, and insupportable Summers, great Rains, great Droughts, and high Winds, which produce many very considerable Changes, and these Changes must affect the tender Principles of Generation, in the original Formation of the Foetus, which are not always alike in the same Persons, being quite different in Summer from what they are in Winter, and in a dry Season from what they are in one that is rainy. And this I imagine to be the Reason why the Europeans resemble one another less than the Asiatics, and why we find such a Difference in the Stature of People even in the very same City amongst us; because there happen many more Alterations, with Respect to the Principles of Generation, in Countries subject to those frequent Changes of Seasons, than where they are almost constantly equal. The same Reason will also account for the Difference in Manners; Rusticity, Unsociableness, Intrepidity, are produced by Climates much subject to Changes; for frequent and sudden Turns, and Alterations, in the Spirits beget Roughness of Manners, but extinguish Meekness and Delicacy. On the same Accounts I esteem the Inhabitants of Europe to be more courageous than those of Asia; for a perpetual Equality of Seasons produces Indolence; whereas frequent Changes stimulate both the Body and Mind to Action. Whence Cowardice is the Off-spring of Sloth and Indolence, but Courage is maintained by Exercise and Labour; for these Reasons the European Nations are more warlike than those of Asia, because of their Government, for they are not subject to Tyrants like the Asiatics; and it may be laid down as a Maxim, to which there is no Exception, that Slaves are necessarily Cowards, as I observed above; because, by their Subjection, they contract a Meanness of Spirit; besides, it is not probable, that they should voluntarily expose themselves to Dangers, in Support of another's Tyranny. But the Europeans, who enjoy their Freedom, rush with Alacrity upon the most difficult, and dangerous Enterprizes, because the Hazards they run are purely for their own Sakes, and they themselves reap the Advantages of their Victories. In this Manner does the Constitution of a Government affect the Courage of those who live under it. And such is the general State of Asia and Europe. There are, however, in Europe Nations which differ in Stature, Person, and Strength from each other; but the Cause of this Difference proceeds from what I have explained already, and shall endeavour farther to illustrate.

All such as inhabit a Country which is mountainous, rough, elevated, and dry, and are subject to very considerable Changes of the Seasons, are consequently of a large Size; and well suited to Fatigue, and manly Exercises, and their Constitutions incline them to be rustic and savage. On the contrary, those who inhabit a low Country, abounding with Meadows, and suffocating, because exposed more to the Influence of the hot than of the cold Winds, and where they drink warm Waters, can neither be large as to Size, nor muscular, but spread into infirm Flesh, and are inclined to be fat; their Hair is black, and they are rather of a black than fair Complexion; they are moreover less subject to be phlegmatic than bilious; such Constitutions therefore are not likely to be remarkable for Courage and Strength, though the Nature of their Laws and Government may effect even this. If their Country is furnished with Rivers, to convey away the stagnating and Rain-waters, they may be healthful, and of florid Countenances; but if they have no Rivers, but are obliged to drink the stagnating and stinking Waters of Ponds, they unavoidably contract Diseases of the Stomach and Spleen.

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* This Disorder of the Scythians is mentioned by Herodotus, who informs us, it was inflicted on them by the Goddess Venus, as a Punishment, because, in some of their Wars, they pillaged her Temple. Herodotus calls it, as I remember, the *ἄλυσος νόσος*, and Longinus quotes the Expression as an Instance of a beautiful Periphrasis. The Commentators on Longinus have taken a great deal of superfluous Pains, to explain away the obvious Meaning of this, and to extract either Filthiness or Obscenity from a Passage where no such Thing could possibly be intended.

The Inhabitants of an elevated open Country, exposed to the Winds, and well watered, are large of Size, upright, are much alike, and of mild Tempers. Those who live in a Country which is barren, not well watered, open, and not subject to great Changes, are likely to have dry Habits, and tense Fibres; and their Complexions more inclinable to be yellow than black; as to their Manners and Passions, they are subject to be arrogant, and opinionated. For, wherever the Changes of Seasons are very frequent, and considerable, there we shall find the Inhabitants very different from each other, with Respect to their Persons, Manners, and Constitutions.

These are the principal Causes which operate so as to induce a Change in the Natures of Men; and to these may be added the Soil, and Waters of each particular Country where a Person is bred; for you will find, that Men generally, both in Person and Manners, are affected by the Country they inhabit. Thus, wherever the Soil is fat, soft, and furnished abundantly with Waters, which are ponderous, and consequently hot in Summer, but cold in Winter, and the Seasons are subject to no remarkable Alterations, there the Inhabitants are full of Flesh, enervated, moist, incapable of undergoing Fatigue, and of corrupted Morals; they are indolent and sleepy, have no Genius for Arts and Sciences, and are wanting in Point of Vivacity, and Quickness of Apprehension.

But whatever Country is naked, and destitute of Woods, and Coverts, barren, exposed to the Inclemencies of Winter, and the scorching Heats of the Summer, there the People have elastic Fibres, are lean, nervous, strong, and hairy; they are also ready and dexterous at any Sort of Work, and vigilant. As to their Manners and Passions, they are daring and opinionated, and participate more of Rusticity than Delicacy; they are ingenious, and quick at learning or improving Arts, and their Genius is warlike. And in the same Manner, whatever is produced by the Earth is much affected by the Parent Soil. And thus it is with Regard to the great Differences we observe in the Natures, and Persons of Men. And these Considerations will lead us into a Knowledge of many other Things, of great Importance in the Art of Healing. *Hippocrates.*

AERA. *Ἀῖρα.* The Greek Name for Cockle, or Darnel. See **LOLIUM**.

AERDADI. A Name given to certain Spirits by Paracelsus, which he has imagined to be Inhabitants of the Air, and says, they enjoy a very long Life. He mentions these *Aerdadi* in his *Treatise de Vita longa*, L. 4. C. 3. amongst a great many other imaginary Beings.

ÆREOLUM. A Weight of about two Grains. It is also called *Chalcus*. The Name seems derived from the Metal of which the Weight was made.

AERIFICATIO. It is the producing of Air from other Bodies, or rather converting them into Air.

AERITIS. *Ἀἰρίτις.* The same as *Anagallis*, which see. *Gorræus.*

AEROLOGICE. That Part of Medicine which treats of Air, and explains its Properties and Uses in the animal Economy, and its Efficacy in preserving or restoring Health. It is derived from *ἄῖρ*, Air, and *λόγος*, a Word, Dissertation, or Treatise.

AEROMELI. *Ἀἰρομελί.* Honey. It seems to have gained this Name from Virgil, who calls Honey *Aerial*:

*Protinus aerii Mellis, caelestia dona
Exequar.*

Manna is also called by this Name. *Gorræus.*

AEROPHOBI. From *ἄῖρ*, Air, and *φόβος*, Fear. *Cellius Aurelianus, Acut. Morb. L. 3. C. 12.* says, some Phrenitics are afraid of a lucid Air, others of that which is obscure. These he calls *Aerophobi*. So that this *Aerophobia* is a Symptom of a Phrenitis.

AEROSIS. An imaginary Resolution of the Blood into Vapour, supposed necessary to the Support of the vital Spirits, and said to be brought about by the Ventilation of the Air during Inspiration, in the Manner that the Flame of Fewel is kindled by blowing it.

As it does not appear there is the least Foundation for this Conceit, it would be superfluous to say more about it. Those who desire to be farther informed, may consult Charlton's *Exercitationes Physico-Anatomicae*.

ÆRUGINOSUS. Of the Colour of Verdigrase. Green. It is frequently applied to what is discharged by Vomit of that Colour. See **VOMITUS**. And to the Bile. See **BILIS**.

ÆRUGO. Rust of any Metal, particularly of Copper, called Verdigrase. See **ÆS**.

ÆS. Copper. This is called **CUPRUM** in Latin, *Χαλκός* in Greek, and *Venus* by the Chymists; is one of the ignoble Metals, softer than Iron, sonorous, of a red Colour, shining when polished, fusible and ductile to a very great Degree. It is sometimes found pure in the Mines, in Form of small Rods, Branches, Globules, or Masses of other Figures; but

most commonly it is contained in a Kind of Pyrites, or particular Ore. This Pyrites is in some Mines of a shining Gold-colour, but is not on that Account to be esteemed more rich, because that Colour is owing to a combustible Sulphur. Other Copper-ores are yellow, violet, or purple, and some are blackish, and mixed with Gold-coloured Sparks, or Veins, intermingled with green. Copper is seldom found alone, but is generally accompanied with some other Metals, such as Silver, Iron, or Lead, and with a large Quantity of combustible Sulphur, very difficult to be separated from it. Copper-ore is differently managed, according to the Substances mixed with it. If it abounds with Sulphur, it undergoes repeated Calcinations, till all the Sulphur is consumed. The Copper-ore of Goslar in Germany is first broke into Pieces of the Size of a Man's Fist, then burnt in an open Fire, made of Wood and Charcoal mixed together, and, being afterwards broken into smaller Pieces, it undergoes two Torrefactions more. Afterwards it is melted into a stony red Substance, called *Lapis Cupri*; which having suffered another Torrefaction, and being after that melted again, becomes black Copper; which, after a fifth Torrefaction, becomes quite free from its Sulphur, but still contains Silver. This Silver is extracted in this Manner: They mix with the Copper about four Parts of Lead, more or less, according as the Lead they use is more or less free from Silver.

These Metals thus mixed are melted together by a vehement Heat, and then poured out into Moulds, where they harden into a Kind of flat Cakes. These Cakes, covered with Charcoal in a proper Furnace, are heated with a gentle Fire, till the Lead and Silver melt, and, leaving the Copper, fall down into a Vessel set to receive them. The Copper remains unmelted like a Sponge or Honey-comb; and in this State it is termed *Æs pauperum*, and is by repeated Fusions brought to be malleable. In this last Operation, some Scorix appear, which are specifically heavier than the Mass consisting of Copper, Silver, and Lead. These Scorix are afterwards melted with a Mixture of Litharge, and by that Means the several Metals it contains are separated.

There are some Springs of Copper-waters, of which Vitriol is made by Boiling, and Copper may be precipitated from them, by Means of Iron, which has made some Persons imagine, that these Waters turned Iron into Copper. There is a famous Spring of this Kind near the Carpathian Mountains on the Confines of Hungary, the Waters of which corrode Iron thrown into it, and in Place thereof substitute Copper; so that a Horseshoe that has lain several Days in this Water shall, when taken out, appear not to be Iron, but Copper.

The richest Copper-Mines are in Sweden and Germany. Copper is softer than Iron, but harder than Lead or Tin. It ignites or becomes red-hot in the Fire before it melts. Its specific Gravity is to that of Gold nearly as Four to Nine. When exposed to Moisture, it contracts a Rust of a green Colour, which, when handled, has a very disagreeable Smell, and an austere, sharp, nauseous Taste. A Solution of Copper by acid or fixed alkaline Salts is green, but, when made by urinous Salts, it is of a beautiful blue Colour. Filings of Copper, thrown into the Flame of a Candle, burn and emit a greenish Flame, but do not sparkle; when melted with Nitre, they flash a little. If we mix one Part of Filings of Copper with something above two Parts of corrosive Sublimate, and distil them in a glass Retort, the Quicksilver disengaged from the Salts comes over in running Mercury; but the Copper remains at the Bottom intimately united to the Salts, in Form of a yellowish or reddish Rosin; sometimes transparent, sometimes opaque, which by the Flame of a Candle may be melted, and set on Fire; the Flame it gives is of a green Colour. Copper, calcined long by a very strong Fire, till it loses all its Sulphur, turns to reddish Ashes, which being exposed on a Tile to the Focus of a great Burning-glass, turns to an intensely red Glass almost opaque. If this Glass be melted on a Piece of Charcoal, in the Focus of the same Glass, it recovers its Form of Copper. From these Things we may conclude, that Copper contains a large Quantity of combustible Sulphur, though not so much as Iron, and that the metallic Substance is a red vitrifiable Earth. Copper, exposed to the Fumes of Quicksilver, or of Arsenic, acquires a Silver-colour, which is not permanent; melted with Lapis Calaminaris, or Zinc, it turns of a yellow, or Gold-colour; the different Ways of doing which are related in the Articles *Cadmia* and *Zinc*. See **CADMIUM**. See **ZINC**.

Copper, because of its great Ductility and shining Colour, is much employed in domestic Uses; but is never used inwardly as a Medicine, unless in Tincture, because this Metal, and especially its Rust, are reckoned Poisons; and any Kind of Food, or even Water, that has stood long in Copper Vessels, is pernicious. The Symptoms, produced by this Poison, are Pains in the Stomach and Intestines, excessive Vomitings, Irritations to Stool, Ulcers in the Intestines, sometimes Difficulty of Breathing, and spasmodic Contractions of the Limbs, and lastly Death itself, if the Quantity of the Poison be great.

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The Remedies proper in such Cases are, first, to take a great Quantity of Milk, Oil, or melted fresh Butter; then to drink warm Water till the Patient vomits plentifully. Clysters made with Oil, Butter, or fat Broths, are likewise proper, and lastly strengthening Cordials, and a Milk-diet.

Various Recrements of Copper were prepared by the Antients, and employed in Medicines such as *Ærugo*, *Flos Æris*, *Æs Ustum*, *Squama Æris*; of which the *Flos*, *Squama*, and *Ærugo* are mentioned by Hippocrates; but the *Ærugo*, or Verdigrease, is the only Recrement now much in Use. It is a green Rust, raised on Copper-plates; the Method of making it is thus: The Husks, Stones, &c. of Grapes, being first dried, and after dipped in some strong Wine, are laid for nine or ten Days in wooden or earthen Vessels, till they begin to ferment. Then being squeezed together with both Hands, they are formed into Balls, which are put into proper earthen Pots, and Wine is poured upon them, till about half is covered; the Vessels have a straw Lid thrown over them, and are set in a Wine-cellar, where the Balls are left in Maceration for twelve or fifteen Hours, being turned every four Hours, that the Wine may penetrate every Part of them. After this the Balls are raised about a Finger's Breadth above the Surface of the Wine, and set upon wooden Bars; the Vessels are then shut again, and left in that State for ten or twelve Days more. After which Time, the Balls emit a strong and penetrating Scent, and are then fit for dissolving Copper. For this Purpose they are broken and bruised with the Hand, that the outer Part of them, which is driest, may be exactly mixed with the inner, which is still moist with Wine; then they are stratified with Copper-plates in the same Vessels upon wooden Bars, the Plates making always the lowest Stratum, and the Balls the uppermost. The Plates are four Inches long, and three broad; and, if the Copper be new, they must be previously buried for twenty-four Hours in Verdigrease, and then heated a little in the Fire. The Vessels being filled in this Manner, and shut close, are left without any farther Management, till the Verdigrease is made, which happens sooner or later, according to the Nature of the Copper. Some Copper yields its Rust in six or seven Days; some requires twelve or fifteen Days. The Verdigrease thus compleatly extracted, the Plates covered therewith are taken out of the Vessels, and their Edges moistened with the strongest Wine; they are then wrapped up in linnen Cloths, dipped in the same, and laid in a Wine-cellar for three Weeks. By this, the Makers tell us, the Verdigrease is nourished, and then it is separated off from the Plates with Knives, and kept for Use.

Verdigrease is used by Painters and other Artists, but is seldom prescribed inwardly by Physicians. It is often used outwardly to deterge and dry Ulcers, and to eat away fungous and callous Flesh. It is the principal Ingredient in the *Unguentum Ægyptiacum*. *Geoffroy*.

The Directions of Oribasius from Antilius, with Respect to the Use of Verdigrease in Plaisters, is, that it must not be added to the other Ingredients, whilst boiling, but the Verdigrease must be put into a Mortar and rubbed with Vinegar, and the other Ingredients are to be poured upon it, and mixed with it.

Verdigrease is reckoned among Emetics, by Oribasius, *L. 7. C. 26*. And amongst Cicatrifiers, *L. 14. C. 57*.

Acturius recommends it for ficious and callous Disorders of the Eye-lids.

Verdigrease shews its acrid Quality by the Taste. It discuses, takes off, and consumes hard as well as tender Flesh. A little of it, mixed with a good Quantity of Cerate, makes an extorsory Medicine without Mordacity. *Paulus Ægineta, L. 7. C. 3*.

Oribasius says the same Thing in nearly the same Words. *L. 2. C. 1*.

The natural Verdigrease is a greenish Marchasite, like the Drops of Iron, and is found in Copper Mines, and is of no Use.

The greatest Part of the Authors who have treated of Verdigrease tell us, that it is made with Vinegar, which is not true, for the best Wine is not too good for it; and this is so true, that there is scarce any but Languedoc Wine that will make good Verdigrease. It is in and about Montpellier that the greatest Part of the Verdigrease, used in France and other Countries, is made, and it is a Commodity very difficult to make, and to hit right, although it seems as if nothing were more easy; for, if ever so little happens to be wrong, it grows greasy and black, and good for nothing, and will never come to a true Consistence.

There are some Authors, who say, that one may make Verdigrease, by putting Plates of Copper in a Crucible, with Salt, Sulphur, and Tartar, which being calcined and cooled, the Plates are converted into a very good Verdigrease; but these Operations, supposing them to be true, are at present of no Use, because all the Verdigrease we sell, is made in the fore-mentioned Manner.

We have two Sorts of Verdigrease from Montpellier, the one in Powder, the other in Cake: If it is good, it must be dry, of a beautiful deep Green; and with few white Spots. Verdigrease is a Merchandize that loses a great deal by drying, and this makes those who deal in it mix several Things with it, and render it so moist, that the Merchant loses much by the Waste, besides the Skin which covers it, for which they pay as much as if it were Verdigrease. Therefore they who use it should consider its Goodness, and not stand upon the Price; for I can affirm, that there is no Cake of Verdigrease, such as they send from Montpellier, that weighs twenty-five Pounds, but, after it is dry, has lost a third Part; so that the Verdigrease that cost twenty Pence, when soft, will be near twenty-eight Pence, when hardened.

Verdigrease is a Drug much demanded, and the Quantity of it that is used is almost incredible, not only in Physic, but by Dyers, Skinners, Hatters, Farriers, and Painters; but it is remarkable, that Verdigrease alone, ground with Oil, cannot be used; so that it is absolutely necessary for Painting, to add white Lead to it, for otherwise, instead of being green, it would be black. As for the Properties of Verdigrease, one of them is Eating off dead Flesh. They who colour Paper green, make Use of Verdigrease and white Tartar to give it that Colour.

The Apothecaries who have Occasion for Verdigrease in the afore-mentioned Compositions, and others, instead of the Powder, may dissolve it in Vinegar, and strain it through a fine Sieve, and so avoid, in reducing it to Powder, the Effects of the ill Quality of the Dust flying from it. *Pomet*.

It deterges powerfully, consumes proud Flesh, attenuates and resolves, and is used only in external Medicines; it is sharp and digesting, and cicatrises Ulcers, being mixed with Oil and Wax.

It is of good Use in the Gout, being dissolved in fair Water, and used warm to the Part.

It cures Diseases of the Eyes, and effectually takes off Pearls and Films. But before you use it for the Eyes, or for Wounds or Ulcers, you must purify it after this Manner: Powder it, and put upon it Spirit of Vinegar, six or seven Times its Weight, digest till the Vinegar is tinged very green, which decant, and cast away the Fæces; then evaporate the Vinegar in a brass Vessel, and so you will have an excellent Verdigrease at the Bottom, of which one Ounce is worth ten Ounces of the other.

Take of this fine Verdigrease, a Dram; Spirit of Sal Ammoniac, half an Ounce; Alcohol of Wine camphorated, two Ounces; mix them for a Collyrium to wash the Eyes. Take the White of an Egg, beaten well with Spring-water, four Ounces, and add to it Saccharum Saturni, ten Grains; white Vitriol, six Grains; and so many Drops of this Collyrium as may make it of an azure Colour, with this wash the Eyes two, three, or four Times a Day.

This fine prepared Verdigrease being made into an Ointment with Honey, Juices of vulnerary Herbs, Vinegar, and absterive Sulphur of Vitriol, is applicable to weeping Wounds, Ulcers in the Joints, &c. *Lemery*.

OF VERDIGREASE CRYSTALLIZED:

The crystallized Verdigrease, or Crystals of Verdigrease, or as it is called by Merchants and Painters, calcined or distilled Verdigrease; is Verdigrease dissolved in distilled Vinegar, and afterwards filtered, evaporated, and crystallized in a Cellar. These Crystals are of some small Use in Physic, to consume dead Flesh. They are likewise used by Painters to make a green Colour, especially in Miniature Pictures.

All the Crystals of Verdigrease that are sold in Paris, come from Holland or Lyons, and are not unlike Sugar-candy, except in Colour, especially to that which is on Sticks: These Crystals, if good, are beautiful, clean, and transparent, very dry, and free from Sticks. It must be observed, that the Verdigrease which the Apothecaries make is reduced to Crystals by the Means of a Cellar, whereas that which comes to Paris is made after the Manner of Sugar-candy, as I have been informed.

I cannot tell what has induced the Merchants to call these Crystals distilled or calcined Verdigrease, seeing it is neither distilled nor calcined, but made after the Manner above-mentioned.

They likewise make Crystals of Verdigrease by dissolving Copper granulated in Spirit of Nitre, and afterwards evaporating to a Pellicle, and setting it in a Cellar to crystallize.

If you would reduce these Crystals to a Liquor, after having dried them, you must carry them back to the Cellar, to resolve them into a Fluid; and this Liquor is called by the Apothecaries and Chymists, the Liquor of Copper, or Venus, and the Crystals, the Vitriol of Venus, or Copper. *Pomet*.

OF *ÆRUGO SCOLECIA*.

There are two Sorts of *Ærugo Scolecia*; one is a Fossile, the other factitious, and made after the following Manner:

Put a Quarter of a Pint of strong White-wine Vinegar into a Mortar of Cyprian Copper, which has a Pestle of the same Metal, and rub it about till it grows viscid and ropy; then put to it a Dram of round Alum, and the like Weight of transparent fossile Salt, or the whitest solid Sea-salt, or at least Nitre; beat them well in the Sun, during the Heat of the Dog-days, till they take the Colour of Verdigrease, and become of a ropy Substance; then draw it out, and make it up in the Form of Worms, such as breed on Rose Bushes, and keep it for Use. It acquires the more Virtue, with a very fine Colour, if two Thirds of stale Urine be mixed with one of Vinegar, and the rest managed as before. Some take their *Ærugo Rasilis* that was spoiled or damaged in working, and make it up with Gum, and sell it; but have a Care of the Cheat. The Goldsmiths also make a Sort of Verdigrease, to solder Gold, of a Boy's Urine, with a Copper Mortar and Pestle.

All these Sorts of Verdigrease answer the Purposes of the *Æs Ustum*, but more effectually. Among them the *Fossile Scolecia* is the most esteemed, the *Rasilis* takes the second Place, and the *Factitious* the last, which is the most biting and astringent; but the Goldsmiths Verdigrease answers to the *Rasilis*.

They are in general of an astringent and heating Nature; they eat away and attenuate Cicatrices in the Eyes, excite Tears, check phagedenic Ulcers, preserve Wounds from Inflammation; mixed with Oil and Wax, they bring Ulcers to cicatrise; boiled with Honey, they deterge foul and callous Ulcers; applied as a Collyrium (See COLLYRIUM) with Gum Ammoniac, they consume the Callosities of Fistulas; they help Swellings and Excrescences of the Gums; mixed with Honey, they mightily reduce the Swellings of the Eye-lids that are anointed therewith; but then, after Anointing, they are to be fomented with a Sponge dipped in warm Water; compounded with Refine of Turpentine and Copper, or Nitre, they cure the Leprosy.

Whatever Sort of Verdigrease you use, must first be burnt in the following Manner: Having broken it into very small Bits, set it over burning Coals in an earthen Pot, and stir it about till it turn to a Sort of an Ash-colour; then take it off, and when it is cool set it aside for Use. Some burn it in an earthen Pot never burnt before, but then it does not always take the same Colour. *Dioscorides*. L. 5. C. 92.

OF *ÆRUGO RASILIS*.

Ærugo Rasilis is prepared the following Ways: Put some of the strongest Vinegar into a Firkin, or such like Vessel, and set over it a Copper Pot, inverted, well scoured, and without a Vent-hole; it is best if the Pot be bellied, but a cylindrical one will serve the Turn. After ten Days, remove the Cover, and you may scrape off the Verdigrease that sticks about it. Or, hang a Copper Plate in the Vessel over the Vinegar, so as not to touch it, and after the same Space of Time scrape off the Verdigrease, or put one or more Lumps or Plates of Copper into stale Husks of Grapes that are growing sour, and turn them in like Manner. Verdigrease may also be made of Filings of Copper, or Plates on which Gold is hammered into Leaves, by sprinkling them with Vinegar, and turning them three or four Times, till they contract a Rust on all Sides. It is said, that two Sorts of Verdigrease are produced in the Mines of Cyprus; one that sticks upon the Stones which have a Mixture of Copper in them, and another Sort that in the Dog-days distils from a Cave in a Rock: The first Sort, it seems, is excellent, though but little in Quantity; the other, though plentiful and of a fine Colour, is vitious, being mixed with much stony Matter.

Verdigrease is adulterated many Ways, especially the following: Some mix with it Pumice-stone, others Marble, or Vitriol. But you may find out the Pumice-stone and Marble, by wetting your left Thumb, and with the other rubbing on it a little of the Verdigrease; for this will dissolve and run, but the Marble and Pumice-stone remain undissoluble, and with continued Rubbing and Wetting grow white. Or you may discover this Defect by biting it, for the pure Verdigrease feels smooth, without the least Roughness under the Teeth. But the Vitriol is discovered by the Fire; for if you rub a Plate of Metal, or Tile, with this vitiated Sort, and set them on hot Embers, or Coals, what is mixed with Vitriol will turn red, because Vitriol burnt naturally takes that Colour. *Dioscorides*. L. 5. C. 91.

Oribasius transcribes this literally from *Dioscorides*,

OF BURNT COPPER.

The *Æs Ustum*, or burnt Copper, is made of red Copper cut into Plates, and put into a Crucible with Sulphur, and a little common Salt, Stratum super Stratum, and put into a fierce Charcoal Fire; and when the Sulphur is burnt away,

and the Copper taken out, it is of an iron Colour without, and of a reddish one within, shining, and very brittle.

The *Æs Ustum*, if it be good, should be inoderately thick, and of the Colour before-mentioned; and, being rubbed, should make a Red like that of Cinnabar, which it cannot do, unless some Salt be put to it. This is the Secret of the Dutch, whereby they make it better than they do, in other Places.

The *Æs Ustum* is of some small Use in Physic, because it is deterfive; but they who make Use of it, make it red-hot in the Fire nine Times, and quench it as often in Linseed Oil; and, reducing it to Powder, use it for eating off dead Flesh; and they call this Powder of the *Æs Ustum* so prepared, *Crocus*, or Saffron of Copper. *Pomet*.

Good Burnt Copper is red, and, when rubbed, takes the Colour of Cinnabar; the Black is burnt too much. It is prepared of the Nails taken out of Ships that are broken up. These Nails are laid in an earthen Pot never baked, with Sulphur and Salt in equal Quantities strewed under them, and laid Stratum super Stratum. The Pot being covered, and the Lid well closed around with Potters Clay, is set in the Furnace, till it be thoroughly baked. Some, instead of Sulphur and Salt, use Alum; others burn the Nails laid in the Pot, without Salt or Sulphur, for several Days together; others, again, burn them with Sulphur only, but then the Nails are stained with a sooty Colour. Some anoint the Nails with Icifile Alum, and, with an Addition of Sulphur and Vinegar, burn them in an earthen Pot never baked. Lastly, others sprinkle the Nails with Vinegar, and burn them in a Copper Pot three Times over, and then lay them by.

The best Burnt Copper is made at Memphis, the next in Cyprus. It is of an astringent, drying, attenuating, repelling, drawing, cleansing Quality, and brings Ulcers to cicatrise, wastes Excrescences on the Eyes, consumes luxuriant Flesh, and restrains spreading Ulcers. Drank in Hydromel, or taken in a Linctus, or mixed with Honey, it gives a Vomit. It is washed like the Cadmia, changing the Water four Times a Day, till no Froth arise. The Scoria, washed after the same Manner, acquires the same Virtue, but in a less Degree. *Dioscorides*. L. 5. C. 87.

OF THE MOUNTAIN, OR SEA VERDIGREASE.

The Mountain or Hungarian Verdigrease, is a Sort of greenish Powder in Grains, like Sand, which is found in the Mountains of Kernaufen in Hungary, and comes from Presbourg to Poland. It is found likewise in the Mountains of Moravia; and some will have it, that what the Antients call Flowers of Brass, was made by throwing Water, or rather Wine, upon Rose Copper, whilst red, that is to say, as it comes out of the Furnace; and that this Flower, or Mountain Verdigrease, is gathered and found sticking to other Plates of cold Copper, which they place over them, in small Grains like Sand; and that this is made by Vapours which arise, when they throw Water or Wine upon the hot Copper, and that it is this which makes, what we call Rose Copper, to be so unsmooth, and to be full of little Figures. Others affirm, that this green Powder was Plates of Copper dissolved in Wine, which was made almost after the same Manner as Verdigrease; but as I know no more of it, I shall only say, that such is to be made Choice of as is dry, of a high Colour, well granulated, that is to say, like Sand, which is the Mark of natural Mountain Verdigrease, and makes the Difference betwixt that and the artificial, which some make by pulverizing Verdigrease, and putting a little white Lead amongst it.

The Verdigrease of the Mountain is of no other Use but in Painting, principally for making a Grass-Green; and therefore it is that most of the green Painting we see in Gardens is done therewith.

As it is a dear Commodity, and comes from several Parts, so there are different Sorts of it, and different Prices; therefore they who use it should regard the Qualities of it, rather than the Cheapness. *Pomet*.

OF THE FLOS *ÆRIS*.

Flos Æris Officinar. is nothing but Copper reduced to small Grains like Millet-seed; which is done by pouring cold Water upon melting Copper, which thereupon immediately flies every Way into Grains, which are collected and kept for Use. *Geoffroy*.

The *Flos Æris*, which some of the Antients called the *Offal* [Fiqua] of the Nails, is best when it is friable, of a deep Yellow when rubbed, like a Grain of Millet, small, ponderous, and moderately shining; which is not intermixed with Filings of Copper, with which it is often adulterated. The Fraud is discovered by the Filings giving Way, and dilating under the Teeth. The *Flos* is obtained, when the Copper, after Fusion, runs from the Furnace to the Receiver, through the Strainers of the Pipes that belong to it: For, at that Time, the Overseers of the Works for refining of Metals pour fair Water upon it, to refrigerate it. The Metal by this sudden Check condenses, concretes, spurts, and, as it were, spues out the *Flos*.

It has an astringent Quality, and restrains Excrefcences. It clears the Pupil of the Eye of Things which darken the Sight, but is of a very corrosive Nature. Given to the Weight of twelve Grains, it expels gross Humours. It consumes fleshy Excrefcences in the Noftrils, and in the Anus. Taken in Wine, it restrains Eruptions. The Powder of the white Sort, blown into the Ear through a Pipe, helps an inveterate Deafness; and applied with Honey, represses Tumors of the Uvula and Tonsils. *Dioscorides, L. 5. C. 88.*

Pliny takes his Account of the *Flos Aeris* from Dioscorides.

Of the SQUAMA AERIS.

Squama Aeris Officin. is little different from *Aeris Ustum*, being only the Particles of burnt Copper that fly off while it is hammered. These *Squamae*, or instead thereof, the Filings of Brass, mixed with Sulphur, and the Powder of Florentine Orrice, and wore in the Shoes, cure stinking Feet; but this Practice may be attended with great Inconvenience, for, by checking suddenly that stinking Sweat, Diseases of a worse Kind may ensue. *Geoffroy.*

The *Squama* produced in the Cyprian Copper-Works, which is thick, and goes by the Name of *Helitis*, is of a good Kind. But what comes off in the Working of white Copper, being thin, and of little Substance, is accounted of no Value. Therefore, rejecting this, we are to chuse what is thick; of a deep Yellow, and will rust with the Sprinkling of Vinegar.

It represses, attenuates, stops the Progress of eating Ulcers, suppurates, and cicatrises. Drank in Hydromel, it purges Water. Some give it made up in Meal in the Form of Pills. It has a Place also among the Collyria or Medicines for the Eyes, for it takes away the Roughness of the Eye-lid, and dries up Rheums.

The Washing of it is thus performed: Put half a Pound of dry *Squama Aeris* cleaned into a Mortar with Water; stir it well about with the Hand till the *Squama* subside. Fling away what swims at the Top, and, pouring off the first Water, put in a small Glass-full [$\frac{1}{2}$ of a Pint] of Rain-water, and with your flat Hand rub the *Squama* in the Mortar, as if you would reduce it to Powder. When it begins to grow viscid, pour in now and then a little Glass of Water, till it amount to six Glasses, or half a Pint, rubbing strongly all the while. Then take the *Squama* in your Hand, and rub it well against the Side of the Mortar; and, there strongly pressing it, receive all the Moisture that comes from thence in a Box of red Copper. This is, as it were, the *Flos Squamae*, being full of Virtue, and most effectual in Distempers of the Eyes; what is left is of little Value. However, you may continue to wash it, till it will grow no longer viscid, and then cover it with a clean Cloth, and lay it aside for two Days, after which, letting the Water that stands upon it run off, when it is sufficiently dry, keep it in a Box for Use. *Dioscorides, L. 5. C. 89.*

The most usual Medicines, prepared with Copper, are the *Green Precipitate*, described among the Preparations of Mercury, and the *Eus Veneris* of Mr. Boyle, which is made in this Manner:

Take of Colcothar, made of blue Hungarian, or Copper Vitriol, well calcined and washed, two Drams; of Sal Ammoniac, four Drams; mix them well, and sublime the Flowers three Times, by cohobating them on the *Caput Mortuum*. The Dose is from one to six Grains. These Flowers are much commended by Boyle in the Rickets, and are said to be a powerful Remedy in a virulent Gonorrhoea.

The *Tinctura Caerulea*, or *Collyrium Caeruleum*, is made from Copper, Sal Ammoniac, and Lime-water. It is used for Diseases of the Eyes, to stop Gonorrhoeas, and to deterge and dry Ulcers. *Geoffroy.*

Thin Plates of Copper infused all Night in Lime-water only, or in Lime-water mixed with volatile Salt, or Spirit of Sal Ammoniac, make an admirable *Collyrium* for the Eyes, to wash with against Mists, Clouds, Films, Pearls, Suffusions, &c. *Lemery.*

The Chymists dream, that a red Sulphur is contained in Copper, called by Helmont, *Ignis Veneris*, and *Sulphur Philosophum*, which, he says, prolongs Life. They try to extract this Sulphur for two Reasons; first, to obtain thereby a sovereign Remedy in all Diseases, and a present Anodyne in all Pains: Secondly, To deprive Copper of its red Colour, and make it a white Metal, resembling Silver. But I can find no other Sulphur in Copper, except that bituminous inflammable Substance common to all Metals, and, indeed, to all combustible mixt Bodies. In giving such large Encomiums to this Sulphur, the Chymists therefore only shew their own Ignorance; for the red Colour of Copper is owing to the Earth, not to the Sulphur contained in it; and it is perfectly vain to pretend to extract a fixed Sulphur from that Metal; for these red Tinctures are only the Copper itself divided into very small Parts, and suspended in different Menstrua, as appears by precipitating these Particles. They have likewise vainly endeavoured to rob Copper of its red Coat, as they term it; what they call white

Copper, does not owe that Colour to the Loss of its red Sulphur, but to the Addition of a white Earth, found in the fixed alkaline Salts, which they make Use of. This Becher has very well observed. *Geoffroy.*

The Solution of COPPER in distilled VINEGAR, from *Boerhaave.*

Take a large glass Body, cut so as to have a very wide Mouth, with an alembic Head answering to it; in this Head put thin Plates of Copper, so as to stand somewhat erect, without falling, all around the hollow Part of the Ledge. Put Vinegar into the Body; set it in a Sand-heat, put on the Head with the Copper-plates, apply a Receiver, and distil with a gentle Fire for twelve Hours, the Vinegar then comes over green, and, if the Operation is continued for a sufficient Length of Time, the whole Substance of the Copper will be dissolved. The Liquor thus procured filtered; and inspissated with a moderate Heat, acquires a green Colour, like that of an Emerald; but of a disagreeable nauseous Smell, and the very smallest Drop of it proves instantly emetic. The Plates, being dried, yield an *Aerugo*, or Flower of Copper, but not the true Verdigrase of Copper, which is made only at Montpellier, in the Manner above described.

If the common Verdigrase of the Shops be boiled in a tall Bolthead with pure distilled Vinegar, till a Tincture is extracted, and if that is poured off, and fresh Vinegar added, and boiled again, and these Operations repeated, till the last Vinegar by boiling will be tinged no longer, there will then remain a good deal of indissoluble Matter at the Bottom; and this demonstrates something is mixed with the common Verdigrase, and that it is adulterated. If all these tinged Liquors are depurated by Filtration, and are then distilled till there remains only one fourth Part, they make a strong Liquor of Copper.

From this Process, we learn the great Solubility of Copper, and the Origine of Verdigrase; and, because Copper so readily grows green with Acids, this furnishes us with a Method of discovering this Metal (which has a surprising emetic and purgative Quality) when it lies concealed in Silver. If watery, lax, sanious, virulent Ulcers are touched with this Liquor, it helps to quicken, contract, dry, and cleanse them.

The Solution of COPPER by SAL AMMONIAC.

With one Part of Filings of the purest Copper, mix three of Sal Ammoniac, pour upon it four Parts of clean Water, in a Cucurbit cut for the Purpose, and, with a moderate Fire, dry the Paste, and then suffer it to dissolve again in the Air. Repeat this Resolution and Exsiccation many Times, and you will at last obtain almost an intire Solution of the Copper. Boil this Mixture in Water, filter it, and inspissate it a little, and a blue Tincture will be procured; and if, according to Art, you bring this to crystallize, you will have some beautiful Crystals of Copper.

This Process shews how Copper and Salts act upon each other. This Liquor is the famous Anti-epileptic for Children. If a few Drops of it are given to them fasting in Mead, it operates by Stool, excites a Nausea, and has a considerable Effect upon their languid, tender Stomachs, which it stimulates, and brings away any Water, or Mucus lodged therein, and in the Intestines, and destroys Worms. By this, therefore, some bad Habits of Body, and some Kinds of Epilepsies, are cured.

The Solution of COPPER in AQUA FORTIS.

To common *Aqua Fortis*, or Spirit of Nitre, in a clean glass Vessel, add a small Quantity of very fine Filings of pure Copper. Upon this there will arise a prodigious Effervescence with red Fumes, and in an Instant the whole Liquor will acquire a beautiful green Colour. Proceed in this Manner till the last Portion thrown in will no longer increase the Greenness. When the Liquor is depurated by standing quiet, and filtered, evaporate it to one half.

Here we see the Effect of the Acid of Nitre upon Copper. This Tincture proves an Emetic in the very smallest Quantity. It kills all Insects, and hence, if it is diluted with a good Deal of Water, it expeditiously destroys Fleas, and Lice, both the common Sort, and the flat ones that breed upon the Pubes. It has the same Effect upon Ulcers as the Vinegar of Copper; but must be used with Caution.

The Solution of COPPER in AQUA REGIA.

Into *Aqua Regia*, or Spirit of Salt, throw Filings of Copper, and proceed as in the former Process, and the Effect will be just the same.

Hence it appears, that *Aqua Fortis* and *Aqua Regia* dissolve Copper alike. There is no Ground, therefore, for the Opinion of those Chymists, who, from an imaginary Diversity in them, have pretended to give the Reasons why one dissolves Gold only, and the other Silver. This certainly arises purely from the singular reciprocal Disposition of Bodies to one another, nor can we come to the Knowledge of it, but by Experiments. And for the same Reason, they argue as unreasonably concern-

ing the Resemblance of Metals, from their being dissolved by the same Menstruum. Sound Chymistry proceeds very cautiously in Things of this Nature, and is afraid of Universals, unless when collected from certain Observations.

The Solution of COPPER in a volatile ALKALI.

Upon one Dram of Filings of Copper in a clean glass Vessel, pour twelve Times as much of a good alkaline Spirit of Sal Ammoniac. Stop the Vessel, shake it about frequently, and you will have a Tincture at first of an Azure, and afterwards of a violet Colour, which will be very beautiful. Pour off the Tincture; upon the Residuum put fresh Spirit, and by this Means almost all the Copper will be gradually dissolved, and converted into a Tincture.

If Filings of Copper are moistened with three Times the Quantity of Oil of Tartar *per Deliquium*, and then digested, dried, and dissolved, and this is often repeated, and then the Matter is boiled, filtered, and inspissated, by this Means such another Liquor, but of a fixed Nature, will be obtained.

This volatile alkaline Tincture contains the Substance of the dissolved Copper. If a Person takes it fasting in a little Mead, and walks gently after it, beginning at first with three Drops, and afterwards doubling the Dose every Morning, till the fourth Time, and then repeating the last Dose for some Days, it opens, attenuates, warms, and proves an exceeding powerful and speedy Diuretic. By the Help of this alone, Boerhaave says, he cured a perfect *Ascites*, such a prodigious Discharge of Urine being excited, that it was discharged as if it ran out of an opened Cock, upon which the Integuments of the Abdomen became so loose, that they might be wrapped over one another. He then only ordered a dry restorative Regimen, and the Patient recovered perfectly, and enjoyed a good State of Health many Years after. This, as it happened in his younger Days, he says, gave him great Encouragement; but, upon trying the same Medicine afterwards in the like Cases, its Inefficacy gave a Check to his Vanity, and taught him, that Nature has a great Hand in these happy Events. He adds, I am convinced, that among the various Kinds of Dropsies, some may be cured by different Methods, and some not at all. In acid, watery, weak, cold, mucous, pituitous Disorders, the same Tincture, however, is often used with Success. The Solution of Copper, in all acid, alkaline, and compound Salts, either latent or open, appears by every Kind of Trial to be very easy; for even the expressed Oil of Olives, and the distilled Oil of Turpentine, and others, which always contain a latent Acid, will, by being digested with Copper, acquire a green Colour, and at the same Time be rendered fit for some surgical Uses. *Boerhaave's Chymistry.*

I have been thus particular with Respect to Copper, that no Body, whose Duty it is to be acquainted with every Part of the *Materia Medica*, may be subject to the Imputation of being ignorant of these Preparations, which Pliny casts upon the Physicians of his Age. This Author, speaking of the Recrements of Copper, says, that Physicians are not acquainted with them, few knowing them, even by Name, so far are they from understanding how Medicines ought to be prepared, which is properly the Province of Physicians. But now, instead of this, when they meet with any Thing in Books, which they have an Inclination to try, at the Hazard of the miserable Patient, they trust to the (Sepulchre) Preparers of Medicines, who corrupt them by all Manner of Adulterations, and content themselves with stale Plaisters, and Collyria, and the very Refuse of Drugs.

Every Body, who is in any Degree acquainted with the Education and Learning of our own Country Physicians, will know this Character is not in the least applicable to them. And I know many Apothecaries that have had proper Opportunities of Information, who, I am convinced, deserve no Part of this Inveective.

In the Days of Pliny, the Physicians at Rome must have been infected with the general Corruption of the Times, or else the Author must have been very malicious to those of the Profession that were his Contemporaries, perhaps on Account of some personal Enmity against one Man.

ÆSALO. *Ἄισαλος.* The Name of a small Hawk, called also *Merillus*, or *Smerillus*, mentioned by Aldrovandus, and by Aristotle. I don't find that any medicinal Virtues are attributed to it, nor can I tell why Castellus has inserted it. It is one of the Birds which the Jews were forbid to eat.

ÆSCHOS. *Ἄισκος.* Deformity of the Body in general, or any particular Member. *Constantine. Castellus.*

ÆSCHRION. The Name of a Physician of the Empiric Sect. All that is farther known of him is, that he was very well versed in the *Materia Medica*, and was one of Galen's Masters, who describes a Remedy he learned from him, against the Bite of a mad Dog, which he esteems of considerable Efficacy. The Medicine is this:

Take of the Ashes of Cray-fish burnt alive, in a red Copper Pot, ten Parts, of Gentian five Parts, of Frankincense one Part. Let the Patient take a large Spoonful of this in Water forty Days together. But if Application be not made for a

Cure, till some Days after the Bite, the Dose must be doubled. At the same Time apply to the Wound a Plaister made of Pix Brutia, Opopanax, and Vinegar, compounded according to the Rate of Pix Brutia one Pound, an Italian Pint of the strongest Vinegar, and three Ounces of Opopanax. Galen says, that he very much confided in this Medicine, because not one of those who used it died. *Æschion* burnt his Cray-fish after the Rising of the Dog-star, when the Sun was passed into Leo, and on the eighteenth Day of the Moon [the third Day after the Full Moon].

ÆSCHYNOMENOUS Plants, [of *Ἀισχynomένους*, of *αἰσχύνωμαι*, Gr. I am ashamed.] Those Plants are commonly called *Sensitive*, or *sensible* Plants; as giving some Tokens of Sense: They are such whose Frame and Constitution is so nice and tender, that on the Touch, or least Pressure of one's Hand, they will contract their Leaves and Flowers, as if sensible of the Touch. *Miller's Dictionary.*

ÆSCULAPIUS. The History of this great Physician, for such he appears to have been, is so involved in Fable and Romance, that it is impossible to extricate the Truth with any Certainty. Tully says, there were three of the Name. The first was the Son of Apollo, and the same that was held in great Veneration by the Arcadians: He was the Inventor of the Probe and Bandage.

The second *Æsculapius* was Brother to the second Mercury. This is he that is reported to have been struck with Thunder by Jupiter, and is said to lie buried at Cynosura in Peloponnesus.

The third was the Son of Arfippus and Arfione. He invented Purging, and Drawing of Teeth.

Monsieur Le Clerc is of Opinion, however, that there never was more than one *Æsculapius*, and that he was a Phenician, or rather a Nephew of Chanaan, which last he apprehends to be the same as Hermes. Or at least, if there was an *Æsculapius* amongst the Greeks, that he borrowed not only the Name, but the Character of the Phenician.

The Egyptians relate, that *Æsculapius* was taught Medicine by Hermes, whom they represent as the Inventor of the Art. And if the Account given by Sanchoniathon is true (See *Eusebius*) *Æsculapius* and Hermes were nearly related, for Misor, the Father of Hermes, had a Brother, whose Name was Siduc, or Sadoc. This last had seven Sons, called *Dioscures*, *Cabires*, or *Corybantes*, and an eighth, which was *Æsculapius*, by one of the Daughters of Saturn and Astarte. By this Genealogy, it appears, that Hermes and *Æsculapius* were first Cousins, and it renders the Egyptian Account, that *Æsculapius* learned Medicine of Hermes, the more probable. Upon the Whole, the intire Family seems to have been concerned in making Improvements in, or inventing Medicine, for the Sons of the Cabyres or Corybantes are by the same Sanchoniathon represented to have employed themselves in discovering the Virtues of Plants, and Remedies against venomous Bites.

The Oriental Authors relate, that *Æsculapius* was a Disciple of Edris, who is the same as Enoch; and the Oriental Christians have a Tradition, that Enoch, or Edris, is the same as the Hermes of the Egyptians, called TRISMEGISTUS.

This *Æsculapius*, according to the Accounts given of him by the Eastern Writers, gave the first Rise to Idolatry, in this Manner: After the Death of Edris, or Enoch, *Æsculapius*, by the Instigation of the Devil, made a Statue in Honour of his Master and Patron, whom he represented, holding a Branch of Althæa, or Marsh-Mallows in his Hand, and, being constantly before it, seemed to pay it extraordinary Honours. This was afterwards imitated by his superstitious Countrymen, till at last it rose to Idolatry.

This is the Sum of what is related, with respect to the Egyptian, or Phenician *Æsculapius*. The Accounts we have of the Grecian *Æsculapius* are much more ample, but equally uncertain, and perhaps more fabulous, it having been the Custom amongst the Greeks, to rob the Egyptians of their Mythology, and to disguise the allegorical Meaning with Fictions of their own.

The Mother of this *Æsculapius* was Coronis, a Daughter of Phlegias, King of the Lapithæ in Thessaly; or, according to some, Arfioce, Daughter to Leucippus of Messenia. This Lady, being clandestinely with Child by Apollo, was delivered of her Son on a Mountain in the Territory of Epidaurus, during a Journey with her Father into Peloponnesus, where the Child was left. A Peasant of those Parts, missing a she Goat and his Dog, went in Search of them, and found the Goat giving Suck to the young *Æsculapius*, and the Dog mean-While guarding them.

Others give a different Account of his miraculous Birth. They agree, that Coronis was with Child by Apollo; but say, that Apollo having discovered that the Nymph granted the same Kind of Favours to a young Arcadian, which she had bestowed on him, in a Fit of Jealousy, sent his Sister Latona, to spread a Plague in the City where his Mistress lived, of which she died. But, as she was on the Funeral Pile, the God came, and took his Son away, out of the Midst of the Flames, and conveyed him to Chiron the Centaur, who undertook the Charge of his Education. *Pindar.*

Other fabulous Accounts are given of the Birth of *Æsculapius*, and many Countries dispute for the Honour of producing him, as was usual amongst the Greeks, with respect to their eminent Men. But it is agreed on all Hands, that he was bred under the Tuition of Chiron the Centaur, and that, by his Instructions, and the Assistance of his Father Apollo, he arrived at a very extraordinary Knowledge in Physic, which gained him a Place amongst the heathen Divinities, after he had rendered himself agreeable to Mankind, by curing those who stood in Need of his Assistance, of Ulcers, Wounds, Fevers, and painful Disorders, by Means of Incantations, lenient Potions, Incisions, and external Applications. It was on Account of his extraordinary Skill in all Branches of Physic, that he was chosen by the Heroes concerned in the Argonautic Expedition, to accompany them in that hazardous Enterprize.

The Greeks, much used to Exaggeration, when the Honour of any of their Countrymen is in Question, relate, that *Æsculapius* could not only recover People from dangerous Distempers, but also knew a Way of restoring Life to those that were dead; and of this they give many Instances, among which, the last was Hippolytus. Upon this, they say, Pluto made a Remonstrance to Jupiter, that, if *Æsculapius* was suffered to proceed in this Manner, the Regions under his Jurisdiction would in Time become desolate. Upon this Complaint Jupiter struck *Æsculapius* with a Thunderbolt, and with him Hippolytus, whom he had raised from the Dead; but at the Request of Apollo he was afterwards placed among the Stars by the Name of *Ophiucus*.

He left two Sons Machaon and Podalirius, of whom Homer makes honourable Mention. The Wife of *Æsculapius* was called *Epione*, or according to others *Hygiea*, or *Lampetia*. His Daughters were *Egle*, *Panacea*, *Jaso*, *Reme*, and *Aceso*. He is also said to have had a Sister called *Eriopis*. All these are said to have been concerned in improving the medicinal Art.

After the Death of *Æsculapius*, a great Number of Temples were built in Honour of him in Greece, and the Grecian Colonies. Schulzius reckons up from Pausanias, and other Authors, sixty-three; to which People from all Parts resorted, in order to be cured of their Distempers, which were probably performed by common Means, but were attributed to the miraculous Influence of the God by the Address of his Priests.

The Romans did not fail to imitate the Greeks in every Species of Superstition and Idolatry. Accordingly they built a Temple to *Æsculapius* in the Island of Tiber, upon the following extraordinary Occasion, according to the Account Aurelius Victor gives of it.

Rome, at that Time, and the adjacent Territories, were ravaged by a Plague. Upon this Occasion an Embassy, consisting of ten, with Q. Ogulnius at their Head, was dispatched to Epidaurus, in order to invite the God *Æsculapius* to Rome. When these Ambassadors arrived at Epidaurus, as they were admiring the extraordinary Statue of *Æsculapius*, a large Serpent came from under the Altar, and passing from the Temple to the Roman Ship, went into the Apartment of Ogulnius. The Ambassadors rejoiced at this Prodigy, immediately set sail, and arrived safe at Antium with their Charge, but being detained there some Days by the Tempestuousness of the Seas, the Serpent got out of the Vessel, and lodged himself in a neighbouring Temple dedicated to *Æsculapius*, but as soon as it was calm, returned, and then the Ambassadors pursued their Voyage; but when they arrived at the Island of Tiber, the God in the Shape of a Serpent quitted the Ship, and went on Shore, where they built him a Temple, and the Plague immediately ceased.

Pliny says, this Temple was built there out of some Disrespect which the Romans had for the Art over which *Æsculapius* presided. A very childish Reason; as if that wise People would have been at the Trouble to have sent a solemn Embassy to Epidaurus for the God, in order to affront him.

Plutarch, in the Opinion of Le Clerc, has given a better Reason. This Author seems to think, that both the Temple at Rome, and the other Temples in Greece, dedicated to *Æsculapius*, were built in open and high Situations, that the Sick which resorted to them might enjoy the Advantage of a good Air.

There can be no Doubt, but that the Romans built this Temple to *Æsculapius*, at a Distance from the City, in Imitation of the Greeks. And there is a better and very obvious Reason, why the latter chose such Situations for these Temples, I mean, because they intended to prevent contagious Distempers from being brought into their Cities, by the Sick which resorted to the Priests of *Æsculapius* for their Cure, and from being bred in the close Air of a populous Place by a Concourse of diseased People.

The Statue of *Æsculapius* at Epidaurus, made by Thrasy-medes, the Statuary, was remarkable for the Size, the Workmanship, and the Materials, which were Gold and Ivory.

In this he was represented sitting on a Throne, with a Staff in one Hand, and leaning with the other on the Head of a large Serpent, with a Dog at his Feet. Pausanias says, the Dog was placed there, because he guarded *Æsculapius* in his Infancy. Le Clerc rather thinks this Animal an Emblem of that Sagacity which is necessary to a Professor of the Art over which this God presides.

From the same Pausanias we learn, that he was sometimes figured holding a Pine-cone in his Hand. And that a large brown Serpent, peculiar to the Country of Epidaurus, was sacred to him. This Sort of Serpent was esteemed harmless, and some of them were always kept in his Temple at Epidaurus. In most of his Figures this Serpent is drawn twisted round the Staff he holds in his Hand.

Sometimes a Cock is placed at his Feet to represent Vigilance; sometimes an Eagle, an Emblem of Discernment or Longevity, on his right Side, and a Ram's Head on the left, which is said to be expressive of Dreams and Divinations.

Upon some Medals *Æsculapius* is accompanied by a little Figure of a Youth, clothed in a Habit which covers his Head; this, Mr. Spon says, was the Emblem of Sicknes, the Object of Medicine, because amongst the Antients the Sick covered their Heads, whereas those that were in Health went bare-headed. This little Figure was called by the Names of *Telesphorus*, *Acesus*, *Evamerion*, or, as Mr. Le Clerc remarks, *OB*. What the last-mentioned Author adds upon this Occasion, is too curious to be omitted. With that, therefore, I shall conclude the fabulous Accounts of *Æsculapius*.

Monsieur Patin gives an Account of a Medal struck in Honour of the Emperor Adrian (perhaps on Account of his Knowledge in Physic) where on one Side *Æsculapius* is represented accompanied with *Hygiea*; on the other *Telesphorus* with this Inscription round it:

ΠΕΡΤΑ ΕΠΙ ΚΕΦΑΛΑΙΩΝΟΣ.

And just before *Telesphorus* the Letters *OB*. Mr. Patin explains the first Words *Pergamensurum sub Cephallione*, adding in Italics, *Telesphorus*. He afterwards adds, from Pausanias, that *Telesphorus* was a Divinity of the Pergamenians, who was so called by the Directions of an Oracle, and that some translate the Word by *Familiar Spirit* (Devin) or *Ventriloquist*. This, says Mr. Le Clerc, made me imagine that *TELESPHORUS* and *OB* were the same, having found *OB* in other Places also translated *Familiar Spirit*, or *Ventriloquist*.

Selden tells us, that the Word *OB* was usually translated *Python*, or *Magician*. This *OB* was a Spirit, or Demon, that gave Answers which seemed to come from the Pudenda, the Head, or the Armpits, but in a Voice so low, that it appeared to proceed from some deep Cavity, as if a dead Person spoke in a Tomb, inasmuch that those who consulted it, sometimes did not hear it at all, but formed in their Imaginations what Answers they thought proper. Selden adds, See the History of *Samuel*, whose Figure was represented to Saul by a Woman, from the Pudenda of whom *OB* either spoke, or was imagined to speak. The Scripture, in the first Book of *Samuel*, Chapter 38. * calls this Woman *Pythonesse*, or *Ventriloqua*, as it is translated, a Woman who had *OB*; hence Saul addresses her thus, *Prophecy to me, I pray you*, by *OB*, which the Septuagint translate, *Prophecy to me by VENTRILOQUUS*. *OB* therefore was a Spirit which was supposed to speak from the Belly.

Thus far Mr. Le Clerc, and as the Hebrew Word is אבוב; *OB*, which in the Septuagint is translated, *εγγαστριμυθος*, and our Translators render *Familiar Spirit*, I think there can be no Dispute of his being right.

Buxtorf renders the Hebrew Word *OB* by *Pytho*, one who, in giving Answers by diabolical Arts, seduces Men from God, *Levit. XIX. 31. XX. 27.* The Word also, as he observes, signifies *Bottles*, *Job XXXII. 19.* Hence *Pytho*, according to Aben Ezra, means one who uttered Oracles from a swollen Belly, as from a Bottle, whence the Person was called *εγγαστριμυθος*.

I must remark farther, that there have been People in our Days, who were Masters of the Art of managing their Voice in such a Manner, as to make it in Appearance proceed from any Part about them, or even near them, and that in much such a Tone as that of *OB* described by Selden. There was a Fellow about Town about twenty-five Years ago, called the speaking Smith, who was a great Master in this Way, and who, instead of being ambitious of the Character of a Conjuror, employed this Talent in frightening Porters, Drawers, and other People, who were not acquainted with the Trick, and whom their Friends contrived to bring into the Smith's Company, on Purpose to be teased and terrified. About ten Years ago there was another who possessed this Art, though in a less Degree of Perfection. I have been several Times in his Company in the Country, where he used to travel as a Rider, so far as I remember, to a Tobacconist. And a Woman who begged

X x

about

* See the Passage.

b See the Septuagint.

c Regard not them that have *Familiar Spirits*, אבוב, *Oboth*, neither seek after Wizards.

d A Man also or Woman that hath a *Familiar Spirit* אבוב, or that is a Wizard, shall surely be put to Death,

e Behold my Belly is as Wine that hath no Vent, it is ready to burst like new Bottles באבוב.

about the Country, was said to excel them both in this Way, being able to carry on a seeming Conversation betwixt several People, whom, she told the Ignorant, were her Husband and Children that had been long dead. It is not to be disputed, but these would have had it in their Power, with a little Artifice, in the Days of Ignorance, to have been esteemed conversant with familiar Spirits; and they might even have surprised a more enlightened Age, if they had been artful and designing enough to have guarded the Secret.

As to the History of *Æsculapius*, without having any Regard to the fabulous Accounts of him in the Grecian Theology, I am inclined to think he was a Phœnician, who having made very successful Searches into Nature, especially that Part of it that related to Pharmacy and Medicine, had gained great Reputation and Honour among his Countrymen.

His true original Name, I imagine, is lost to us in that, which the People that had experienced his Skill and Abilities in Physic, had given him by Way of Eminence and Distinction; for it was a Custom in the Eastern Nations, when any Person appeared among them of singular Talents, to honour him with an Appellation declarative of his Merit, after the Manner of the Agnomen among the Romans. Hence it was, that Hermes, the Restorer of the Egyptian Learning, was called *Trismegistus*, or rather by the Egyptian Name that answered that Meaning, for *Trismegistus* was the Greek Translation of the Egyptian Original; this Man's true Name was *Siphoas*, as Sincellus informs us out of Manetho. Σιφωας; ὁ ἑγύπιος.

As the Egyptians distinguished Hermes by the Name of *Trismegistus* for his great Learning, so the Phœnicians, according to the Taste of those Times (for *Æsculapius* is supposed to be cotemporary with *Trismegistus*) gave him likewise a Name of Distinction, on Account of his Skill in Physic and Medicine. They called him אב אשכל, *Haskel-ab*, the *Father of Knowledge or Skill*, which last Word, by-the-by, seems to take its Original from the Hebrew-Phœnician Word שכל, *Sekel*, *Knowledge or Understanding*.

It was an usual Phrase amongst the antient Orientals, where they would describe a Person that had been beneficial to Mankind, by some useful Invention or Discovery, to call him the *Father* of it. For Instance, this Hebrew Idiom is used in Holy Writ, with Regard to Jubal, Gen. IV. 21. where he is called *The Father of all such as handle the Organ and Harp*, from his first inventing Music. Tubalcain also, from his first Invention of fabricating Iron by Fire, was called אב אשח, *Ab Esta*, or *The Father of Fire*; from whence the Greek formed their Ἡφαιστος; as the Latins did their *Vulcan* from *Tubalcain*; in like Manner the Phœnicians from the Skill in Medicine, that they found in the Person the Subject of this Enquiry, called him *Ashkel-ab*, the *Father of Skill* (in Medicine) which the Greeks afterwards corrupted into *Æsculapius*.

What Mr. Le Clerc in his *History of Physic* observes, that *Æsculapius* was a Phœnician, and that the Original of his Name was to be sought for there, is undoubtedly true. But I am afraid that cannot be said of the Etymology he gives of it; he derives it from Is CALAPHOT, *A Man of the Knife*; supposing him to be so called from the Use of the *Knife* in chyrurgical Operations, in which Case it is much to be suspected, if the Use of the *Knife* was then so much known, as would be necessary to support the Etymology of this learned Man.

By all the fabulous Accounts of the Grecian *Æsculapius* it appears that he was a considerable Benefactor to Mankind. It remains that we endeavour to come at the Reality of his Person and Character, and to extricate Truth out of a Multitude of Fables. And in order to do this, it is reasonable to make Use of the Testimony of medicinal Writers, who, it is to be supposed, are best acquainted with what relates to the Patron of their Art. Amongst these Celsus is the first, who in his Preface says thus: As the End of Agriculture is to supply the Body with Aliment, that of Medicine is to procure it Health. No Part of the World has been without some Share of Knowledge in this Art; for the most barbarous Nations were acquainted with the Virtues of Herbs, and other obvious Remedies, for their Wounds and Diseases. However, it was cultivated in Greece more than in other Nations, not however originally, but a few Ages before it flourished among us, for *Æsculapius* is celebrated for being the first Inventor of it, who was deified, because he reduced the Science, before his Time rude and empirical, to a more regular Art.

We find something more particular with Respect to *Æsculapius* in Galen, who has in a great Measure avoided the Exaggerations usual amongst his Countrymen, though he speaks of the national Divinity of the Place where he was born.

Æsculapius, the Deity of our Country, prescribed entertaining Songs, Buffoonery, and some Sorts of Music, for such as by the too vehement Motion of the Mind had rendered the Temperament of their Body hotter than was consistent with Moderation: To others, and those not a few, he enjoined Hunting, Riding, and Exercises at Arms, and directed the Kind of Motion they were to be employed in, and the Arms in which

they were to exercise. He did not think it enough to teach in general, how the Mind, when sunk, might be raised, without ascertaining the Measure of it from the Idea of the Exercise. Galen, *de Sanit. tuenda*, L. 2. C. 8.

True Medicine forms Conjectures concerning the Nature or Constitution of the Patient, which the Generality of Physicians call *Idiosyncrasy*. But this is by all confessed to be incomprehensible; therefore all ascribe the true Art of Medicine to Apollo and *Æsculapius*. Galen, *Metb. Med.* L. 3. C. 7.

The Greeks ascribe the Invention of Arts to the Sons, or near Kindred of the Gods, by whom they were communicated. On this Account it appears, that *Æsculapius* was the Inventor of Medicine, in the Knowledge of which he was first instituted by his Father Apollo, and afterwards delivered the same to Mankind. Before his Time the Art of Healing was unknown, though the Antients had some Insight into the Virtues of Medicines and Herbs; such as Chiron, the Centaur, among the Greeks, and the Heroes under his Tuition. They had also, it seems, by what is ascribed to Aristæus, Melampus, and Polyidus, made some Experiment that Way. That the Egyptians had some Notion of other Remedies besides Herbs, seems evident enough from Homer.

Besides, the first Physicians must have learnt many Things in Surgery and manual Operation from the Opening of Carcasses, which it was the Custom to do, in order to embalm them. Some Inventions are imputed to Chance, as Couching for a Cataract to the casual Observation of a certain Goat, who, labouring under that Defect, recovered its Sight by impressing its Eye on a sharp-pointed Rush. The Use of a Clyster also, they say, is derived from the Bird Ibis, who, making the Skin of her long Neck serve instead of a Bladder, fills it with the Water of the Nile, or Sea-water, and by the Help of her Beak introduces it into her Body through the Anus. And Herodotus, the Historian, writes, that it was an antient Custom to bring out their Sick into the Street, and most frequented Places, to receive the Advice and Prescriptions of such Persons, as had laboured under the same Distempers, and had been cured; and so, by this Means, was Medicine at length established, being raised into an Art from the Multitude of Facts and Experiments. But all this while Reason was wanting to assist and perfect Experience, and *Æsculapius* alone was the first Inventor of true and rational Medicine, and such as, on all Accounts, deserved that Name. His Successors, the Asclepiadæ, delivered it down to Posterity, as it were, by hereditary Succession. Among them Hippocrates was the most eminent by many Degrees, and was the first among the Greeks who perfected the Art of Medicine. *Galen's Introduction.*

If we reflect upon the fabulous Accounts related of the Grecian *Æsculapius* above, and join with these what is said by Celsus and Galen, we may perhaps have Reason to believe the following Conjectures, in Regard to the true History of this *Æsculapius*, to be not very distant from the Truth.

He appears therefore to have been the illegitimate Son of some Lady of Distinction, who exposed him on a Mountain in the Territory of Epidaurus, to avoid the Reproaches usual on such Occasions. In this Situation he was probably found by the Means of the Dog of some Shepherd, or Goatherd, for it is usual with these sagacious Animals to apprize their Masters of any Thing uncommon that occurs, by staying near it and barking; and, if this was the Case, a very small Degree of Superstition, joined with a strong Imagination, would furnish him with a Goat for his Nurse, whilst under such a Distress.

When he was once found, it is not unlikely that his Mother might privately take Care to have him delivered to Chiron, a Man in those Days eminent for the Education of Youth.

We may very reasonably suppose that the young *Æsculapius* had very extraordinary Parts, for which a great many natural Children, both amongst the Antients and Moderns, have been remarkable, and that upon this Account his Tutor Chiron took more than ordinary Pains in the Instruction of his Pupil. Add to this that the Youth, finding he had nothing to depend on but his own Genius and Diligence, might be prompted by his Ambition to an extraordinary Application, that he might sometime make a Figure in the World, equal to that of his Fellow Students, who were Sons to People of Condition, thus supplying the Disadvantages of Birth by Industry. This Supposition will appear less chimerical, if we reflect, that those who have in all Ages made very extraordinary Progresses in Sciences, have generally been such whose Circumstances have obliged them early to take uncommon Pains.

Æsculapius, thus furnished with a Capacity, would not fail to lay hold of the Opportunities of Improvement which presented, and to pursue the Way to Eminence by the Road to which he was directed by his Genius. His favourite Study therefore being that of Physic, when he arrived at such a Degree of Knowledge in the Art, as to excel his Contemporaries in the Cure of Diseases, his Countrymen, or perhaps Chiron himself, might give him the honorary Appellation of *Æsculapius*, a Name borrowed from the Phœnician Inventor of Physic, with the

the History and Character of whom the Greeks had at that Time been made acquainted.

The Circumstances of his Birth, added to his Eminence in Medicine, would give his superstitious Countrymen an obvious Hint to call him the Son of Apollo, and a national Vanity might at last make him a God.

This appears to me the most real and genuine Account of the Greek *Æsculapius*, for I can by no Means agree with those Authors who are of Opinion that there never was such a Person amongst the Greeks. Hippocrates is said to be a Descendant from him, and a regular Pedigree is produced; by which it appears that he was the eighteenth from *Æsculapius*, inclusive. Now if this was not real, the *Asclepiadæ* could never have been guilty of so impudent a Fiction, attended with a great many Circumstances that might have been disproved, which, however, it does not appear to have been ever attempted; even by the Physicians of the Cnidian School, who, as it seems, were no great Friends to Hippocrates, and who maintained a Spirit of Emulation against the Physicians of Cos. This Pedigree will be given with the Life of Hippocrates; mean Time it may suffice to remark that the Posterity of *Æsculapius*, by Podalirius, reigned Kings of Caria, till the Time of Theodoros the Second of that Name, who was obliged by the Heraclidæ to retire from their Country, and settle in Cos, an Island not far from Caria.

I shall end this Account of *Æsculapius* with remarking, that if the Art of Healing had not been very much advanced before the Time of Hippocrates, it would have been impossible for any one Man to have made Observations sufficient to establish those universal Rules, laid down by that extraordinary Man; Rules which, at the Distance of more than two thousand Years, are confirmed by every Case that occurs in the Practice of Physic, inasmuch that it may be truly said, that if the Writings of Hippocrates had been lost so far, that later Writers in Physic could not have borrowed his Sentiments, Medicine which, though far from being perfect, is nevertheless beneficial to the World in an eminent Degree, would have been scarce worth regarding, and of little Importance to Mankind. This I venture to affirm, because I am certain that every Physician in Europe, who is acquainted with this Author, and knows his Profession, will agree to it.

ÆSTAS. The Summer. This is too well known to want Explanation.

Some Remarks have been made on this Season by Authors, which deserve Notice.

Whence comes it that Lippitude, or Soreness of Eyes, more frequently happens in this hot and dry Season, than another? For it seems reasonable to imagine, that the natural Dryness of this Time of the Year should put a Stop to all De-fluxions, and yet we are not sensible of the Benefit we might expect with Respect to Eyes, from that Constriction and Denfation which are the natural Effects of Heat. I answer, that, granting these to be Consequences of the Season, yet the extraordinary Splendor of the lucid Air, which dazzles the Sight; is very offensive and hurtful to the Eyes, which cannot be doubted, since every uncommon Degree of Whiteness is wont to disturb and dissipate the Senfes. For this Reason, when we are prescribed Rest, we seek out a dark Retreat, where we may avoid all Causes of Motion. It is plain then, that the Frequency of Lippi, or People troubled with sore Eyes in the Summer, is owing to the Radiancy of the Sun-Beams. *Cassii Problem. 16.*

Diseases, which the Summer produces, are continual, burning, or tertian Fevers, Vomitings, Looseness, Pains in the Ears, Ulcers of the Mouth, cancerous Sores, especially in the Pudenda, and whatever Distempers waste a Man by Sweating. *Celsus, L. 2. C. 1. from Hippocrates.*

To these Distempers Aetius adds Inflammations of the Eyes. *Tetr. 2. Serm. 3. Cap. 12.*

In the Summer the Pulse beats quicker, because of the Heat of the circumambient Air. *Philanatus de Pulsibus, Cap. 6.*

In this Season, Rest is convenient, and a Diminution of Exercise and Aliment.

The Food ought to be of a colder Nature, and Drinking is to be indulged, and all Things done in order to refrigerate and moisten. *P. Æginetæ, L. 1. C. 53. Oribas. Euporist. L. 1. C. 10.*

In Summer eat and drink often, but little at a Time, for the Body wants frequent Refreshment. For this Reason it will be convenient to make a Dinner; Flesh and Greens are proper Food. Drink ought to be very much diluted, that it may quench the Thirst, without Inflaming; cold Bathing, Meat roasted, Aliment of a cold or refrigerating Nature are to be used. *Celsus, L. 1. C. 3.*

With Respect to the Summer, it is worthy of Observation, that the Digestion is not so strong, and that the Appetites of most People are not so great as in Winter, for the very same Reasons that the Inhabitants of warm Climates eat less, and digest solid Food with more Difficulty than those of cold.

The Case seems thus: In warm Weather, and hot Climates, Heat relaxes the animal Fibres in general, and consequently impairs the Elasticity of those which form the Organs of Digestion, the unavoidable Consequence of which is, that the Appetite, and Power of changing the Aliment, that is, of Digestion, must be diminished. Hence the Inhabitants of hot Climates are weak, and People who live in the same Climate are not so strong in Summer as in Winter. In warm Countries therefore, and in Summer, Providence has provided Food suitable to the Climate and Season, I mean Fruits; and it is remarkable, that Rice, produced in such Plenty in Southern Countries, as to be the usual Food of the Inhabitants, is an Astringent, which their Situation in Regard to Laxity from Heat seems to require. These warm Climates also are well stored with Aromatics, which are known by Physicians to promote Appetite and Digestion, by increasing the Elasticity of the Fibres which compose the Organs subservient to both, and of these the Inhabitants make considerable Use.

On the Contrary, Cold contracts the animal Fibres, and increases their Elasticity; thence People during Winter are stronger, eat more, and digest better than in Summer; and hence the Northern Nations produce a Race of Men more robust, and suited to bear Fatigue, than those who live nearer the Line. Their Food, for these Reasons, consists principally of Animal Flesh, which they are enabled to digest, and Providence has not thought it necessary to furnish the cold Climates with many aromatic Vegetables, because they are of little or no Use to the Inhabitants.

It is remarkable that our own Countrymen who change this Climate for one that is very hot generally fall into some very dangerous Distemper; but we do not find the same Complaints arise from removing from a hot Country into one that is cold. The Reason appears plain from what has been said of the Effects of Heat and Cold. In the first Case, our People are obliged, by Necessity, whilst on Ship-board, to eat Flesh hardened by Salt, and rendered still harder by the Vinegar it is usual to eat with it; or else farinaceous Vegetables unfermented, both which are very difficult to digest, especially when the Organs of Digestion are perpetually growing weaker, by Reason of the Heat, and a proper Degree of strong Exercise, which in all Climates and Seasons ought to accompany strong Aliments, cannot be used. Others by Inclination pursue the same Method of Living in Jamaica or Barbadoes which they have been used to in England, without considering that the Powers of Digestion are altered.

The Case is just the Reverse, when a Man removes from a warm Country into one that is cold; for, though he is obliged by Necessity, or makes it his Choice, to live on Aliment not so easily changeable by the animal Actions, yet as the Fibres grow daily stronger as he approaches the Tropic, by Reason of the Increase of Cold, the bad Effects specified in the other Instance are prevented, at least in a considerable Degree.

Hence appears the Reasonableness of those Rules laid down by the Antients with Respect to Summer.

ÆSTATES. Freckles on the Face. Pliny, *L. 28. C. 12.* says, these are to be taken away by Calves-dung mixed with Oil, and Gum Arabic.

ÆSTHESIS. *Ἀίσθησις.* Sensation, or the Faculty or Power of Sensation. *Constantine.*

ÆSTHPHARA. Incineration, or Burning of the Flesh, or any other Part of the Body. *Cæstilius from Dorneus.*

ÆSTUARIUM. The Name of many Instruments, contrived to convey Heat to the whole, or particular Parts of the Body, in English properly called Stoves. Blancard explains it a Vapour-bath, which is but one Species of *Æstuarium.*

ÆSTUATIO. It signifies in some Authors the Boiling up of Liquors, which effervesce, or ferment, when mixed together. But it is not classical in this Sense.

ÆSTUS. Heat of any Sort, whether raised by Fire, Distempers, Medicines, Effervescence, or Fomentation.

ÆTAS. Age. Different Ages are subject to Distempers, which do not so frequently happen in others. Thus, according to Hippocrates, *Aph. 24. L. 3.* new-born Infants are subject to Aphthæ, or Thrushes, Pukings, Coughs, Want of Sleep, Startings in their Sleep (*Φόβοι*) Inflammations of the Navel, and Running of the Ears.

It is remarkable that Celsus has translated this Passage, *L. 2. C. 1.* literally, except that he has omitted *Φόβοι*, which I have translated as above, Starting in the Sleep. *Φόβοι* signifies Fear, or the Causes of Fear, and no Distemper that I know of.

When Children arrive at the Age of breeding Teeth, they are affected with Pains and Exulcerations of their Gums, Fevers, Convulsions, Diarrhoeas, especially when they breed their Fore-teeth, which are called *Canine*. These are very dangerous, especially to those who are of a costive Habit. *Hipp. Aph. L. 3. 25. Celsus, L. 2. C. 1.*

In a more advanced Age, they are subject to Inflammations of the Tonfils, Distortions of the Spine (as Celsus translates the Passage) Difficulty in Breathing, round Worms, and Ascarides, Warts, Tumors of the parotid Glands, Stranguries, King's Evil, and many other Tumors, but especially those above-mentioned. *Hipp. Aph. L. 3. 26. Celsus, L. 2. C. 1.*

I have translated *Σαρκώματα*, Tumors of the parotid Glands, in Deference to the Judgment of Heurnius, tho' I suspect it signifies an Achor, or scald Head; it cannot signify a Satyriasis, because Children are not subject to it; the other Signification of the Word is a Leprosy, which Children are not often affected with. Now, as Children are very often troubled with scald Heads, which is something like a Leprosy, it seems not unlikely that Hippocrates may mean an Achor, especially as that is not otherwise taken Notice of in this Catalogue of Distempers to which Children are subject. Celsus omits it.

As Children approach to Puberty, they are afflicted with many of the Disorders above-mentioned, with long Fevers, and Hemorrhages from the Nose. *Hipp. Aph. L. 3. 17. Celsus, L. 2. C. 1.*

The Lives of Children are most endangered from Distempers about the fortieth Day, others at the seventh Month, others at the seventh Year, and others again at the Time of Puberty. And whatever Disorders Children are affected with, which do not cease in Men at the Time of Puberty (Celsus adds, or at the first Coition) and in Women at the Eruption of the Menfes, are usually very obstinate, and continue a long Time. *Hippocrates, Aph. L. 3. C. 28.*

This Passage I have translated according to the Explication of Celsus, *L. 2. C. 1.*

Youth is particularly subject to Spitting of Blood, Consumptions, acute Fevers, Epilepsies, and the like Disorders. *Hipp. Aph. L. 3. 29. Celsus, L. 2. C. 1.*

They who are advanced beyond Youth are most liable to be affected with Asthmas, Pleurisies, Peripneumonies, Lethargies, Phrenisies, burning Fevers, chronical Diarrhoeas, Cholera Morbus, Dysenteries, Lienteries, and Piles. *Hipp. Aph. L. 3. 30. Celsus, L. 2. C. 1.*

Old People are afflicted with Shortness of Breath, Coughs from Catarrhs, Stranguries, Dysuries, Pains in the Joints and Kidnies, Vertigos, Apoplexies, Cachexies, Itchings all over the Body, Want of Sleep, too much Moisture in the Intestines, Eyes, and Nose, Dimness of Sight, Glaucomas, and Thickness of Hearing. *Hippocrates, Aph. L. 3. 31.* To these Celsus adds, that such as are lean, and thin, are principally affected with Loosenesses, Distillations (Catarrhs) Pains in the Viscera, and of the Sides; but they who are fat, are more subject to acute Distempers, and Difficulties of Breathing, of which they frequently die suddenly, and which seldom happens to those that are thin. *L. 2. C. 1.*

Celsus makes also the Observations following on the different Ages:

The Differences of Age, as to Health, are thus considered with Respect to the four Seasons of the Year. Children and Youth bordering upon Childhood are in their best Health in the Spring, and are safest in the Beginning of Summer. Old Men are most vigorous in Summer and the first Part of Autumn. Winter agrees best with young Men and the Middle-aged. Winter is most prejudicial to old Age, as Summer is to Youth. *Celsus, L. 2. C. 1.*

Middle Age is the safest, because it is in no Danger from the Heat of Youth, nor the Coldness of old Age. *Celsus, L. 2. C. 1.*

Aetius lays down the following Rules for the Management of People in different Ages:

An Infant ought to be nourished by Milk, till it has acquired a Firmness; after which it may be fed with Crums of Bread in Wine mixed with Honey, sweet Wine or Milk, and, after a little while, with a poached Egg; for Food which requires Chewing is filled with Saliva in their Mouths. The Drink must be diluted Wine. When you can safely venture to give Food made of Corn (which is commonly about the twentieth Month) by Degrees, and in an artful Way disuse it to the Breast. If it falls into a Distemper after Weaning, put it to the Breast again. When the Disease is gone, use your best Care to nourish and restore it, and then set about Weaning it as before. *Aetius, Tetrabib. 1. Serm. 4. C. 28.*

Weaned Infants must be diverted and recreated all Manner of Ways, and their Aliment must be light, and of good Juice. But the Child who has a good Temperament of Body must not be suffered to drink much Wine, for, in hot and moist Bodies, Wine fills the Head with Vapours. Nor is it my Opinion that they should be forbid cold Water; for, in hot Weather especially, and the Intervals of Eating, I allow them the Drinking of it, provided it be good.

At seven Years old let them be taught the Elements of Literature, and put into the Hands of Masters of known Mildness and Humanity. From fourteen to twenty-one is their proper Time to exercise themselves in the Study of Philosophy. They are to be forbidden the Use of Venus. Wine is to be

drank sparingly, and their Exercises are to be increased. When they have attained to Manhood, and are in full Vigour of Age, a more remiss Way of Living, and Relaxation of Regimen, with Respect to Body and Mind, agree best with them. But when natural Heat begins to lessen, and the Principle of Cold to operate on the Habit, their Exercises of Body, of what Kind soever, are to be slackened by Degrees, and their Proportion of Food by little and little is to be diminished. *Aetius, Tetrabib. 1. Serm. 4. Cap. 29.*

The REGIMEN for OLD AGE.

Natural old Age is a cold and dry Temperament of Body, the Effect of Longevity. For when the essential Parts of the Body, with the native Heat, waste away by Degrees, and the Organs grow drier than is convenient for Service, both the Actions are performed in a more languid Manner, and the Animal himself sinks in Bulk, grows little, lean, and extenuated. As Dryness comes on more and more, Rugosity succeeds Leanness, with Weakness of Limbs, and a tottering Motion. Whoever then understands the Theory of Coldness and Dryness, will make a proper Physician for an old Man. He knows that these Qualities are to be corrected by such Things as heat and moisten; such are warm Baths of sweet Waters, drinking good Wine, and Aliments which warm and moisten at the same Time, and moderate Frictions with Oil in the Morning, then Walking, or Gestation, within the Bounds of Laffitude. An old Man must eat often, but little, for an Excess in Quantity hurts him much. He is allowed to eat three Times in a Day; about the third Hour let him break his Fast, on good Bread, and the finest clarified Honey. At the seventh Hour, after Friction, and such Exercises as are proper for old Men, let him wash, and sit down to Dinner.

And here let his first Dish consist of such Things as mollify the Belly, such as, Garden Salads of Beets and Mallows, after that he may eat Sea-fish, and such as live about the Rocks; after this Meal let him repose a While, and then use some moderate Motion. At Supper let him abstain from Fish, let his Meat be of good Juice, that will not easily corrupt, such as a Puller, or other Fowl, boiled in pure Water only, and without Sauce. Wine is very beneficial to old Men, not only as it diffuses a Warmth throughout the whole Body, but also as it purges the Serum of the Blood by Urine, which is needful for most of them, because they abound with aqueous Superfluities. *Aetius, Tetrabib. 1. Serm. 4. C. 30.*

ÆTHALE. *ἄθρον.* Soot. It is sometimes wrote *ἄθρον.* See **FULIGO.**

ÆTHALES. From *ἄθ*, always, and *ἄλως*, to be green. a Name for the Sempervivum, Houfelleek.

ÆTHER. A Word much used by natural Philosophers, to signify an extremely fine Fluid, that pervades all Bodies, of which nothing is known, not even so much as its Existence.

But the Name of *Æther* has been given to an extremely light and penetrating Fluid, made of Spirit of Wine deprived of its Phlegm by Distillation with Oil of Vitriol, of which we have the following Account in the *Philosophical Transactions*:

The *Æther* of Plants appears to be almost destitute of all gross Air, from placing it under the Receiver of the Air-pump; for, exhaust the Air ever so accurately, this *ætherial* Liquor remains unmoved, nor does it emit any Air-bubbles which immediately arise in other Liquors, and according as their Quantity of intrinsic Air is greater, so much the sooner are such Liquors put into Agitation, and emit also more Froth, and more vehement Ebullitions in Proportion to their Viscidity. Hence it follows, that this *Æther* may be preserved best (because without any Diminution) under the Receiver in Vacuo, whereas, on the contrary, exposed to the open Air, its Parts soon evaporate, and its whole Bulk vanishes.

This Experiment failed remarkably, as we learn from a Note in the *Abridgement of the Transactions*. But I am well informed it would have succeeded, if the Spirit made Use of in the Preparation of the *Æther* had been concentrated upon the Flowers of Zinc.

A little of it, poured on the Surface of the Hand, affects it with a Sense of Cold, equal to that from the Contact of Snow, and blow upon it but once or twice with your Mouth, immediately your Hand becomes dry. Beware, however, of approaching a lighted Candle with your Hand thus wet, lest it take Fire and burn you. This Experiment succeeded.

It causes such a Stridor and Hissing, being poured upon hot Water, as is frequently occasioned by a Piece of hot Iron thrown into it. Take a Lump of Sugar, let it imbibe some of this *ætherial* Liquor, and put it into a Vessel full of hot Water, the Sugar will indeed sink to the Bottom, but the *ætherial* Liquor rushing violently forth, excites a great Ebullition in the Water. If one Spoonful of this *Æther* be poured into a Copper Pot full of boiling Water, without any Sugar in it, and you approach immediately with a Candle, or lighted Paper, instantly there issues from the Water very great Lightning. The Handle of the Spoon, as well as the Tongs for holding and applying the lighted Paper, must be of a proper Length, that

the Effusion of the *ætherial* Liquor upon the hot or boiling Water, and the Application of the lighted Candle, or Paper, may be performed at the same Time; otherwise the *Æther* is immediately dissipated, without any such Effect. There is therefore Need of an Assistant, or of both Hands, and also of a Room where Entrance may readily be given to fresh Air, proportionable to the Magnitude of the Flash of Lightning which so rarefies the Air, as to endanger the Stoppage of Respiration. This Experiment succeeded.

Hence it appears, that this *Æther* is both Fire and a very fluid Water, but so volatile that it soon evaporates, and that it is the purest Fire, inasmuch that, if kindled in a thousand Times the Quantity of cold Water, it burns unextinguishable. Therefore, if you take an earthen Vessel of any Magnitude, whose Mouth or Orifice may be one or two Yards wide, but the inferior Latitude of the Vessel may contain six hundred or six thousand Gallons of Water, the Experiment will be the same, pour on the Top but one Ounce, or a small Vial full of this *Æther*, and apply to it a lighted Wax Candle, it takes Fire immediately, burns placidly, is so far from being extinguished by the most profuse Superaffusion of common Water, that it much increases the Vehemence of the Flame, and lasts till the subtle Parts of the *Æther* are consumed and ventilated by the Flame. This Experiment should be made in a large and lofty Room, not in Danger of taking Fire.

The Sense of Touch does not manifest the least Oiliness or Fatness in this *ætherial* Liquor, notwithstanding that it is the true, natural, and only Dissolvent, or Menstruum of all Fat, Oil, Rosin, and Gum whatsoever: By Means whereof all Sorts of Fat, and every Kind of Fire or Flame is extricated by a speedy, safe, and pleasant Operation. On these Accounts it is, that this *ætherial* Liquor will not unite with any Kinds of Salts whatsoever, but all Sorts of Oils, Pitch, Turpentine, Opobalsams, Camphire, Wax, Ambergris, Sperma Ceti, Mastic, Musk, Copal, and the like, it dissolves most readily, and with the greatest Ease extracts their best Essences.

And indeed a wonderful Harmony is observable betwixt Gold and this *Æther*, even greater than between Gold and Aqua Regia; inasmuch as from hence Gold appears to approach nearer to the Nature of Oils than of Earths. If a Piece of Gold be dissolved in the best Aqua Regia, and upon the Solution, cold, be poured half an Ounce, or what Quantity you please of the *ætherial* Liquor, shake the Glass carefully, and all the Gold will pass into the *ætherial* Liquor, and the Aqua Regia, robbed of all its Gold, will presently deposit the Copper at the Bottom of the Vessel as a white Powder, which, turning of a green Colour, contains the Portion of Copper wherewith the Gold was adulterated. The *Æther* will swim like Oil on the Surface of the corrosive Waters. This Experiment deserves the utmost Attention; for here the heaviest of all Bodies, Gold, is attracted by this very light *Æther*, or (whereas the Air, which with a common Force presses alike all Bodies, is here excluded, and the *Æther* itself encompasses and touches the Surface of the Water) the Gold, by the Force of its Gravity, as by an Impulse, would descend from thence; or, lastly, this Phenomenon is owing to a certain Harmony and Similitude of both of them. This Experiment was shewn and succeeded.

Æther then is certainly the most noble, efficacious, and useful Instrument in all Chymistry and Pharmacy, *ubi enim ignis potentialis, ibi actuali non opus est*, inasmuch as Essences and essential Oils are extracted by it immediately, without so much as the Mediation of Fire, from Woods, Barks, Roots, Herbs, Flowers, Berries, Seeds, &c. from Animals, and their Parts too. Thus from Castor, by a certain Manufacture, may be prepared an Oil, sweeter than that of Cinnamon, and also the true Oil of Saffron, and all by this particular Encheiresis, without the Help of Fire or Distillation. For an Example of our Method, take Mint, Sage, or Orange-peels, Cinnamon, &c. or all these together; cut and bottle them; pour upon them a Spoonful or two of the *ætherial* Liquor, and, after it has stood an Hour in a cold Place, fill up the Bottle with cold Water, and you shall see the essential Oil, swimming upon the Water poured upon them, easily separable by the Funnel. Of this essential Oil, one Drop only upon a Lump of Sugar manifests to the Taste, &c. the medical Virtues of the Plant, exquisitely drawn out, comprehended in this Essence, deservedly named COS, as containing the Colour, Odor, and Sapor, or Taste, of the Plant, or Plants. In like Manner the essential Oils of Exotics are easily prepared. This succeeded. It is not however a true essential Oil, but an excessive strong Tincture, which you may call the Essence.

Of the like Use it is in the animal Kingdom, where it produces an essential Oil of Phosphorus; as likewise in the mineral Kingdom, though not so immediately, because the Resolution of Earths must proceed. Moreover, it is easily proved, that the same Liquor extracts the purest Gold, or every Part of the golden System from any, or all the baser Minerals, and that this Gold, thus extricated, is by this one

Operation better and sooner purified than by Fusion of Minerals with Antimony.

This our Water is neither corrosive nor joined with apparent Corrosives; wherefore fill as many Bottles with *ætherial* Water as there are Sorts of Salts, and into the first Drop by Drop distil Oil of Vitriol; put into the second Spirit of Sea-salt; into the third, Spirit of Nitre, or of Alum; or of Sal Ammoniac prepared with Water, or the Lixivium of Tartar, or rectified Vinegar, all the Salts immediately sink to the Bottom: Besides, it is the lightest of all Liquors; for, fill any Vessel with twenty Ounces of Oil of Vitriol, the same, emptied, will contain but seven Ounces of *Æther*. It is the very Ens, or Being, most pure of Flame; wherefore neither Soot nor Ashes are ever found upon its Deslagration. This succeeded.

Thus far Dr. Frobenius; but to make this Paper more than a mere Harangue, it is absolutely necessary to subjoin two Paragraphs out of a Paper of that excellent Chymist Mr. Godfrey, Dr. Frobenius's Fellow-labourer, in these Experiments which he delivered in when this *Æther* was made public before us.

Feb. 19, 1738. That this Liquor *Ætherius* was formerly very much esteemed and enquired into, doth clearly appear by an Experiment I made formerly for my worthy Master, Esquire Boyle, by the Means of a metallic Solution, namely, by the Solution of crude Mercury united with the Phlogiston Vini, or other Vegetables, and this *Æther* swam on the Top of the Solution, which I separated per Fritorium. Note, This is what I have done formerly in Esquire Boyle's Laboratory, and Sir Isaac Newton was very well acquainted with it too; which by Reason of Shortness of Life was not brought to a full End, to do it so readily in Quantity. But when Dr. Frobenius, by Experiments on this in my Laboratory, did produce it in greater Quantity, he wanted to see how Sir Isaac Newton had gone on with it in his Book. There we saw that great Man's Application in Fol. 330. that he had done it *cum Ol. Vitr. & Sp. Vini*.

This of Sir Isaac Newton is the *Sp. Vini Ætherius*; only there is a Difference in the Process. The Liquor *Ætherius* is made with equal Parts in Measure, not Weight. The upper yellow Liquor is separated from the inardent sulphureous per Tritorium. The inferior Liquor is thrown away, and the superior yellow is put into a Retort to be distilled with the most gentle Heat; and the Extraction of the *ætherial* Liquid continued so far until the superior Hemisphere feels cold, and the Retort being clapped in the Hand, there is found in the Receiver a Vino-sulphureous Gas very *ætherial*. Let the Sulphur be precipitated by adding an Alkali, and gently throwing it in till all Ebullition ceases, and the Liquor will not farther strike itself against the Hand, but will strangely attract it. Then the Alkali will go to the Bottom of itself, or precipitate itself in the common Water. *Abridgement of the Philosophical Transactions*, Vol. 8. P. 744. ad P. 747.

ÆTHERIA HERBA. Eryngo. *Calis Aurelianus*.

AETHES. *Arabis*. From a Negative, and *Ar*, Custom, unusual, not according to Custom. The Word *Arabis* is applied to the Spittle, Hippocrates, *Prædict. Lib. 1. 122.* but Foësius alters the Reading to *Arabis*, with the greatest Appearance of Reason.

ÆTHIOPICUM CUMINUM. *Æthiopic Curamin*. See CUMINUM.

ÆTHIOPICUS LAPIS. The *Æthiopian Stone*, affirmed by Oribasius to be of more Virtue than the *Hæmatites*, the *Melinites*, the *Galactites*, or the *Schistos*. It is brought from *Æthiopia*, and is of the Colour of greenish Jasper. It is resolved into a Juice of a milky Colour, but of a biting Taste. *Oribasius*, L. 15. C. 1.

Æthiopsis, Offic. Ger. 634. Emac. 779. Chab. 435. Raii Hist. 1. 543. *Æthiopsis Multis*, J. B. 3. 315. *Æthiopsis foliis sinuosis*, C. B. Pin. 241. *Scalaria vulgaris lanuginosa, amplissima folio*, Tourn. Inst. 179. Elem. Bot. 148. *Scalaria Æthiopica, frons Æthiopsis, laciniatis, & non laciniatis foliis*, Park. Theat. 57. *Horminum Æthiopicum incanum foliis sinuosis*, *Æthiopsis dictum*, Herm. Hort. Lugd. Bat. 318. Volck. Flor. Nor. 214. *Horminum Æthiopicum foliis sinuosis*, Hist. Oxon. 3. 392. **ÆTHIOPIAN CLARY.** *Dale's Pharmacologia*.

Æthiopsis has Leaves like those of Mullen, very hairy and thick, and standing in a Circle about the Head of the Root. The Stalk is quadrangular, thick, and rugged, like that of Baum, or the Woolly-headed Burdock, beset with many Branches. The Seeds are of the Size of bitter Vetches, and two in a Cell. It shoots forth many long, thick, and clammy tasted Roots from one Head, which blacken as they grow dry, and harden so as to look like Horns. It grows plentifully in Messenia and about Mount Ida. *Dioscorides*, Lib. 4. C. 103.

This Description is repeated Word for Word by *Oribasius*, L. 11.

It first comes up with Leaves of the Breadth of a Hand, and not much longer, and covered on both Sides with Plenty of soft Down as it were Lint, otherwise not much unlike the
Y y common

common Garden-clary, channelled in some Plants, some jagged, others not. From the Midst of these shoots up a square Stalk, hairy in like Manner, and surrounded with Leaves like the former, but often lesser, and thick beset with Branches, on which at the Joints stand the Flowers in Whorles.

They consist of two Leaves, forming a close Empalement like those of common Clary, of a snowy White, one of them which is raised and gathered like a Woman's Hood, producing from its Bosom, which is concave, like the Lip of May-weed, yellow Clusters, and a Silver-coloured Pointal. The Flower-cup is oblong, cut into five Divisions, and almost hid by the Thickness of the Down. It has the stinking Smell of Archangel, or the Hedge-Nettle. The Root is fibrous; the Seeds are four in a Cell, not two only, as C. Bauhinus, and Parkinson from him, have related, like the Seeds of Clary, of a dark Brown, and triangular. It grows plentifully in Greece and Illyria. There are two Species of this Herb; one with jagged Leaves, and another whose Leaves are whole and even round the Edge. *Raii Hist. Vol. 1.*

It is cultivated in Gardens, and flowers in Summer; its Root is the Part in Use. *Dale.*

The Decoction of the Root, drank, relieves the Sciatica, Pleurisy, Spitting of Blood, and Hoarseness. It is taken with Honey in the Form of a Linctus. *Dioscorides, Lib. 4. Cap. 105.*

The same is repeated, after Dioscorides, by Paulus Aegineta, *L. 7. C. 3.* and *Dale* in his *Pharmacologia*.

Ethiops is an Ingredient in a Drosaton, against Coughs and Pleurisy, described by *Myrepsus, Sect. 8. Cap. 54.*

Pliny relates, that the Magicians boasted, that the *Ethiops* would dry up Rivers and Ponds, if only cast into them, and open every Thing that is shut at a Touch. But he laughs at these monstrous Accounts, *L. 26. C. 4.*

ÆTHIOPS MINERALIS. *Ethiops Mineral.* This Medicine takes the Name from the Colour, which is very black. It is made either with or without Fire. The Process for that made with Fire is thus:

Take an unglazed earthen Vessel that will bear the Fire, put into it what Quantity of Sulphur you please, let it melt over the Fire, and, during the Fusion, mix with it, by Means of an iron Spatula, an equal Weight of Mercury revived from Cinnabar. Set the Mixture on Fire, and when the Sulphur is burnt away, the remaining Mass, which is black, friable, and heavy, is the *Ethiops Mineral*.

The Dose of this Medicine is, according to Lemery, betwixt eight Grains and two Scruples, but it may be given in much larger Quantities. It is recommended in an Asthma, Epilepsy, Rheumatism, Venereal Disorders, and King's Evil. *Lemery.*

The *Ethiops Mineral* without Fire is made by rubbing equal Parts of crude Mercury and Flowers of Sulphur together, till they are intirely incorporated, so as the Mercury intirely disappears, in a glass Mortar, according to the Directions of the *London and Edinburgh Dispensatory*, but according to Wilson, in one of Iron. It requires much Labour to mix the Mercury and Sulphur intimately together, but a great deal of this may be saved by warming the Mortar over a gentle Fire, during the Trituration, for then they unite readily, and the Medicine cannot be worse for it.

The *Ethiops Mineral* does not mix with any other Substance without Difficulty. The Dose is from ten Grains to a Dram, but a much larger Quantity may be taken.

Various are the Accounts given of this Medicine by Authors. Some recommend it in all Foulnesses of the Skin, old Ulcers, and every Species of the Venereal Disease, and I think every one agrees that it is effectual in destroying Worms. Some have affirmed, that it will give a white Colour to Gold carried in the Pocket, and that a great deal of it has been found upon the Plaisters which have laid on the Ulcers of those that have been under a Course of it. One great Advantage which attends it is, that there is no Danger of a Salivation from its Use, if well prepared, but I do not think this any Evidence of its Efficacy.

But Boerhaave is of a very different Opinion with Respect to the medicinal Virtues of *Ethiops Mineral*. He affirms, it cannot enter the Lacteal Vessels, but is discharged out of the Intestines as it goes in; however, if it is attended with great good Fortune, he says, it may possibly kill Worms, and that this is all the Effect it can possibly have. He farther also throws out a Suspicion, that so ponderous and unactive a Mass may do a great deal of Mischief in the tender Intestines of Children. This great Man appeals to Reason, and his own Experience, for the Truth of what he asserts. As to Reason, it is difficult to conceive, that the intimate Union of two such penetrating Substances as Sulphur and Mercury, should make a third Body utterly unactive. And if his Experience did not furnish him with any Evidence of the Efficacy of this Medicine, he must have been very unlucky in this Instance, for it has certainly done great Services in other Hands; but to confess the Truth, it requires a long Perseve-

rance, in order to have any great Effects, except in the Case of Worms.

On the other Hand I believe, those who have been very lavish in the Praise of this Medicine, have done it without any very good Foundation, for it has the least Efficacy of all the Class of Mercurials.

Upon the Whole *Ethiops Mineral* has had the Fate of most other Medicines. When one considerable Man spoke well of it, this was sufficient to make all those concerned in the Practice of Physic, who have neither Character nor Ideas of their own, to extol it beyond all Bounds of Credibility. And the Disapprobation of another great Man, however ill founded, has been sufficient to sink it into its present Disrepute.

The Proportion of the Mercury to the Sulphur, in this Preparation, is different in different Authors. Boerhaave directs three Parts of Sulphur to two of Mercury.

Somewhat in Imitation of this is a Medicine of much greater Efficacy, described first, I believe, by Dr. Cockburn, in his Treatise on a Gonorrhœa, and now generally called

ÆTHIOPS ANTIMONIALIS. It is thus made: First flux equal Parts of Antimony and Sea-salt in a Crucible for an Hour, then let the Matter cool, break the Crucible, and knock off the Scoria, then rub equal Parts of the Regulus made in this Manner, and Mercury together, till they are incorporated. This requires more Labour than the *Ethiops Mineral*, but largely repays the Trouble by its great Efficacy, for, I believe, there are few Medicines in Use of equal Virtue. It will cure most chronical Disorders of the Skin, and is admirable in all Sorts of Obstructions. Hence it becomes serviceable in the King's Evil, and the most obstinate glandular Diseases, and many chronical Distempers that are out of the Reach of other Medicines. I do not give a great deal of Credit to Accounts that may be found dispersed in medicinal Authors of Cures performed on cancerous Patients, but I have the greatest Reason to attribute the Cure of two Tumors, that were esteemed cancerous by every Body that examined them, to a long Use of this Medicine, and Holt Waters, which in these Cases were drank at a great Distance from the Spring. In Venereal Disorders of a long Standing, I have often been a Witness of such Effects as I have not seen from any other mercurial Medicine whatever. This, like all Antimonials, will contract an emetic Quality by being exposed to the Air, which is probably owing to the Acid it imbibes. It may be given in the Quantity of a Scruple, or more in some Constitutions, but I have learnt to begin its Use in a smaller Quantity from an Instance I once saw of its proving a strong Emetic, when there was no Reason to expect such an Effect, and when the Dose was only eight Grains. The Case was that of a young Lady, who had complained some Time of shooting Pains in a Tumor of her Breast. The very same Morning another Lady took fifteen Grains of the same Medicine, and from the same Apothecary, and, as I was well informed, out of the same Vial, and, notwithstanding this, in the last Instance it had no visible Operation, though it acted with so much Violence in the first.

ÆTHNA. Rulandus and Johnson explain this, that subterraneous, invisible, and sulphureous Fire, which calcines Rocks in the Bowels of the Earth. Hence they call igneous Meteors that appear about burning Mountains in different Shapes, **ÆTHNICI**, which they seem to think the Spirits of Men.

ÆTHOLICES. *Ἀθήλιες*. From *ἄθω*, to inflame. Superficial Pustules of the Skin, raised by Heat. They seem to mean Boils.

ÆTHYA. *ἄθυα*. A Sea-fowl, called by the Latins *Mergus* or *Fulica*. A Coot.

ÆTHYIA. *ἄθυια*, signifies a Mortar.

ÆTIA. *ἄττια*. The Cause of a Distemper. Hence

ÆTIOLOGIA. *ἄτιολογία*. *Ætiology*, that Part of the Theory of Physic, which explains the Causes of Diseases and their concomitant Symptoms.

ÆTITES. The *Eagle-stone*, thus distinguished by Authors:

Ætites, *Aquila lapis*, *Offic. Ætites*, seu *Aquilinus lapis*, Worm. 77. Charlt. Foss. 31. *Ætites*, Schrod. 345. Schw. 361. Kentm. 34. Aldrov. Mus. Metall. 580. *Lapis Ætites*, Boet. 375. De Laet. 114. Matth. 1389. *Ætites*, Gefn. de Lap. 10. p. 9. Geoff. Prælect. 68. *Ætites*, *Ochreo ferreus*, Wodw. Att. Tom. 2. P. 1. pag. 9. **EAGLE-STONE.** A Stone, big, as it were, with another Stone rattling in its Womb, of a dark, russet, or Ash-Colour, and commonly of an oval Figure. The Oriental is accounted the best. *Dale.*

The Stone *Ætites*, being shook, sounds as if it were pregnant with another Stone. Tied to the left Arm, it retains the Fœtus in those Women who are subject to miscarriage: But, in Time of Labour, it must be taken from the Arm, and tied to the Thigh, and the Woman will be delivered without Pain. Mixed with Bread, it finds out Thieves, for a Thief will never be able to swallow it, after he has chewed it. Boiled with Victuals, it is said to work the same

Feat,

Feat, and that a Thief cannot eat of any Thing boiled with it.

Bruised, and applied with Cyprian or Gleucine Cerate, or any other heating Composition, it is very effectual in Gouts and Palfies. *Actius, Tetrabib. 1. Serm. 2. Cap. 32. P. 69. F.*

Dale having cited Shroder for the same Virtue which Aetius above ascribes to this Stone in retaining the Foetus, and facilitating Labour, with this Addition, that after Delivery the Stone must immediately be removed from the Thigh, for Fear it should draw the Womb to it, subjoins the following Remarks from Amman :

The natural Effects of the *Eagle-stone* are commonly magnified on Account of the Traces of some Signature, while it is believed to be of Service in Time of hard Labour, and to facilitate Delivery. This I do not deny ; but this natural Effect of the Stone was by Galen, Pliny, and others, immediately blended and overlaid with Superstitions. For who will prove, (1) that an *Ætites* tied to the Arm prevents Miscarrying ? Which too is an Effect contrary to the former. (2) That the *Ætites* has such an attractive Power, as to make the Womb fall out ? Wormius, *P. 72.* and Valeriola produce their Observations as to this last. But, in my Opinion, these Observations are not well grounded. For we know by Anatomy, that the Uterus is held fast in its Situation by Ligaments formed by Nature for that very Purpose. How then can this Stone work such an Effect ? Indeed, unless a Power of relaxing, or breaking these Ligaments, be ascribed to it by the forementioned Authors, we cannot admit the Observation of Valeriola, which he makes on a Woman of Valentia, unless we suppose the Uterus to be drawn out of its Place, by the violent and unskilful Hands of the Midwife, which has sometimes been the Case. And yet too many such Absurdities are inserted among anatomical Observations. (3) There is no Proof that ever this Stone discovered if Poison were mixed with any Thing, as is reported. (4) That it finds out Thieves, being pulverised and mixed in their Bread, by their Incapacity of swallowing it, is a precarious Assertion, depending on a fallible Mark, for Deglutition may be hindered by other Causes. (5) It neither procures Love, nor increases Riches, which it is said to do. (6) Therefore if we ought to speak the Truth, let us content ourselves with allowing the *Ætites* the same Virtue as the sealed Earth, in malignant Distempers, against Poisons, &c. *Dale.*

AETIUS. There appears to have been three Physicians of this Name, who all made themselves enough known to be recorded by the Learned.

The first was *Actius Sicanus*, out of whose Writings, together with others, the Book, *de Atra Bile*, ascribed to Galen, is said to be collected. *Fabricii Biblioth. Græc.*

The Second was *Actius* of Antioch, a Man remarkable for changing his Profession several Times, and for being a great Patron of the Arian Heresy. He was originally bred to the Cultivation of Vines, which he quitted, and took up the Trade of a Gold and Silversmith. After this he got into the Service of one Sopolis a Physician, and then being supplied with Money by a certain Armenian, he applied himself to Letters, and, upon the Credit of having been a Servant to a Physician, set up for one himself ; but changed once again his Way of Life, and entered into holy Orders, where he seems to have succeeded somewhat better than in Physic, for in or about the Year 361. we find he was made a Bishop.

This *Actius* appears to have been extremely zealous in propagating the Arian Heresy, which he carried to a greater Length than even the Author of it himself ; it is for this Reason that he has incurred the Scandal of being an Atheist, which however must be malicious, for it is not probable that a Man who was an Atheist, would be very solicitous in establishing any Modes of Belief with Respect to the Christian Religion.

Different from this, in the Opinion of the Learned, was *Actius* of Amida, whose Works are preserved. He is said to have lived in the latter End of the fourth, or Beginning of the fifth Century. All that we know of him for certain is, that he travelled into Egypt, where he probably studied, and into Cælo-Syria.

He was undoubtedly a Christian, as appears from two Passages in his Works. One in *Tetrabiblos 2. Serm. 4. Cap. 50.* where he gives the Method of extracting any Thing that happens to stick in the Throat. When other Ways fail, he advises the following as the last Refuge, and on which he seems to lay some Stress : Turn, says he, to the Patient and bid him attend, then say, Bone come out (if it happens to be a Bone) as Jesus Christ brought Lazarus out of the Sepulchre, and as Jonas was brought out of the Belly of the Whale. Then, laying hold of the Throat, say, Blasius the Martyr and Servant of Christ says, Either come up or go down.

The next Passage I would bring for a Proof of his being a Christian is in *Tetrabib. 4. Serm. 1. Chap. 11.* where speak-

ing of the Stings of Wasps and Bees, he says, that the venerable and vivifying Image of the Cross, engraved upon an iron Seal and pressed upon the Part stung, is of great Service, preventing all Manner of Inflammation. To this Prescription of *Actius*, I must add, and I hope without Danger of any Imputation of Superstition, that the Remedy he advises has great Effects in the Cases he mentions, generally taking off the Pain and preventing Inflammation. But for Fear I should mislead my Readers, I must remark, that an iron Seal without the Figure of the Cross, or even the Blade of a Knife, will do as well.

These Passages prove *Actius* a Christian, but at the same Time such a one as brings very little Credit to the Faith he professed, since a small Degree of Evidence was sufficient to influence his Belief ; for, though the Truth of the Christian Religion admits of all the Proof that a reasonable Man could require, yet these Fooleries, the Effects of a mistaken Zeal, which he seems to give Credit to, are not in the least countenanced either by Reason or Revelation.

Upon the Whole *Actius* appears to have been a very credulous Man in many Instances, and was far from giving the Composition of Medicines which had acquired a Character, with a Design to expose them, as Dr. Friend thinks, for in the very Instances that are brought to prove this, I mean the Collyrium of Danaus, and the Antidotum Isotheos, the Author does not seem to dispute the Reality of the Virtues attributed to them, but mentions their great Price in all Appearance with a View to increase his Readers Opinion of their Value.

Notwithstanding the Credulity of *Actius*, he is a very valuable Author, and has preserved many Things considerable with Respect to the Practice of Physic in his Collections from Authors whose Works are now lost. Of this frequent Instances will occur in the practical Part of this Work, for which Reason I shall omit taking Notice of them in this Place.

Fabricius and Friend relate, that in some Manuscripts he is stiles *Καμης Ὀψιμας, Comes Obsequii*, which the last-mentioned Author explains, *The chief Officer of those who used to go before the Emperor as his Attendance and Harbingers.*

His Works are at present divided into four Tetrabiblos, and each of them into four Sermones, which are again subdivided into Chapters. This Division appears not to have been made by *Actius* himself, but was probably the Work of some Copyist, that transcribed his Writings since the Time of Photius, for in his Days they were divided into sixteen Books, the Number of Sermones which the four Tetrabiblos contain.

Photius says, that *Actius* did not only make his Collections from the same Authors that Oribasius extracted his from, which he dedicates to Julian, Eustathius, and Eunapius, but also from the Therapeutic Tracts of Galen, and from Archigenes, and Rufus, and besides these from Dioscorides, Soranus, Philagrius, Philomenus, Posidonius, and some others who had made their Names famous for their Skill in Physic.

He begins his Works (says our Author) with the Virtues of simple Medicines and Aliments, which he abbreviates from Galen, and closes with the Sixteenth Book, which treats of the Diseases of Women ; to which he adds some Chapters containing Medicines to clear the Face, and cleanse the Skin, with the Preparation of Oinantharia [*Sweet Ointments made with Wine and Lilies*] and other Things of the like Kind. So the Work begins and ends ; but, to be more particular,

The First Book treats, in a summary Way, of the Nature of simple Medicines and Aliments. This is the first Sermon of the first Tetrabiblos, according to the present Division of his Works.

The Second speaks of the Virtues and Use of metallic Substances, and of Animals, both whole, and their Parts, in a compendious Manner. And this may be reckoned to contain no inconsiderable Part of the Materia Medica. This is the second Sermon of the first Tetrabiblos.

The Third Book treats of Gymnastics and its Preparatories. Then, after speaking of insensible Evacuations, he discourses largely on Phlebotomy, distinguishing the different Ways of Section, and directing the Form and Bigness of the Incision, with the Time and Measure of Evacuation. He goes on to the Section of an Artery, prescribes a Medicine to stop the Bleeding of an Artery, speaks of Cupping, Scarification, and the Choice of Leeches. From thence he proceeds to treat of Cathartics, and the different Preparations of purging Wines, of purging Meads, and medicated purging Wines, of Absinthaton, Rosaton, Honey of Roses, and Oxy-mel, purging Garum, Honey, Metheglin, and Oxygarum, of emollient Broths, Milk, and purging Olives. Concerning all these he gives Directions ; and proceeds to compound Oxy-poria, and different Sorts of Cathartics, to purging Loaves, and Troches. He describes the purging Medicines prepared of Aloes, and also of Salts [*Αλωνδάρια ης άλάρα*] with the five Hieras.

He prescribes Help for those who have taken Purgatives which will not work, or, on the Contrary, evacuate too much; gives his Advice concerning Emetics, shews the Virtues of Hellebore, and the Persons for whom it is proper, and who are qualified to take it; how to make Experiments of the Strength of Hellebore, and how the Patient is to prepare himself for the taking of it; of the various Uses of Hellebore, and the different Ways of administering it, and the Care that ought to be taken of those who have drank it. He proceeds to purging Epithems, and takes Notice of those Parts of our Bodies which may be purged, as the Eyes, Ears, and the rest in Order. Of Suffumigations producing the same Effect, and of Medicines evacuating the small Intestines, and the concave Part of the Liver and its Appurtenances; of the Air, Winds, and Significations of the Stars; of Waters, of Baths natural and artificial; of cold Bathing [ψυχρῶν] of Baths of Oil [τῶν ἐν ἔλαιον ἐμβάσεων] of pouring Water on the Face [τῶν ἐπὶ τὸ πρόσωπον ἐκχυσμάτων] of Perfusions, Injections, Irrigations, and dry Fomentations [πυρρῶν]. Moreover the Book treats of the various Kinds of Cataplasms; of the Dropax, Pication, Sinapism, Rubification [φωσφύρε] and metasympcritical Remedies [μετασυνκριτικαὶ συνδύσεις]. This is the third Sermo of the first Tetrabiblos.

In his Fourth Book he discourses on Regimen, or the Method of preserving Health. Here he begins with the Nature of Infants, describes their Diseases, and gives Remedies. Then he prescribes a proper Regimen for all Ages and Conditions of Life; tells when we are to exchange Flesh for a thinner Diet; treats of Lassitude from Exercise, and its different Kinds; of Lassitude from Venery; of that Species which arises from no manifest Cause, and which they call *spontaneous*; of the Care we ought to take of Concoction; of Perspiration stopped, and its Cure; of burning Heats [ἐνθαλάσεις] and seasonable Friction; of Indigestion, Crapula [καραιδνός] and equal Dyscrasies [ἐπαλῆς δυσκρασίας]. How to know the best Temperament; gives us the Characteristics of a hot Temperament, and of others, both simple and mixed, and that not only of the whole Body, but of the Head, Brain, Belly, Lungs, Heart, Liver, and Testicles; and prescribes Remedies for all their Disorders. This is the fourth Sermo of the first Tetrabiblos.

The Fifth is a Treatise of Diseases. Here first he recommends the Study of Hippocrates, and discourses on Fevers, their Signs [σημείους] Prognostics and Diagnosticks, with their Cures, and whatever else belongs to this Branch of Medicine, in a very exact Manner. What is to be accounted the Beginning of Distempers, and that the same is threefold; what we are to understand by Paroxysm [παροξυσμῶ] and Remission, the Height and Declension [ἀνὰ καὶ παρακμῆν] of the Paroxysm, either affecting the whole Body, or some Part of it. What are the Signs of Death or Recovery to the Patient, and which of them portend quick or slow, or in a middle Way, Destruction or Delivery. Of the Signs of Pulses, and Diagnosticks by Urines, and what is to be learnt by them; of the Marks of Excrements, with the Signs and Prognosticks of Vomiting; of an Hæmorrhage, from the Nose, and of the Catamenia; of the critical Signs of Sweats and Abscesses, and what may be gathered from the Spit. That a skilful Physician will know when a Disease is past a Solution, and when it only seems to be so, and can foretel the Day and Hour when the Sick will die. He goes on to treat of general, epidemic, and pestilential Distempers, of such as, on some Occasions, are seized with Faintings, and of Lipothymies and their Causes; of Pain in the Head, Ears, and Eyes; Want of Sleep, and Dulness of Sight attending a Fever; of such as under a Fever are seized with an Hæmorrhage, and their Cure, and what Care ought to be taken of feverish Patients. Moreover, it treats of the Bladder, of Difficulty of Urine, Pains in the Loins, Exulceration of the Parts about the Os Sacrum, of the Testicles and Anus, Breakings out of Pustules [ἐκθύματα] over the whole Body, or some Part thereof; of Tremors and Convulsions, and gives a Detail of Medicines which are both agreeable and effectual. This is the first Sermo of the second Tetrabiblos.

Actius, in his Sixth Book, treats of the Disorders incident to the Head and Brain universally, and not only describes them, but shews a Way to cure them. He proceeds to speak of those who are bit by a mad Dog, of the Apoplexy and Palsy; of the Resolution of the Eye-brow, Eyelid, Tongue, vocal Instruments, and Oesophagus; and prescribes Cures for them all. Thence he goes on to the Spasmus Cynicus, and shews how to cure a Resolution of the Bladder, Penis, and Intestinum Rectum, the Leg, or any other Member; treats of a Tetanus [τετανός] and of the different Sorts of Headaches, from whatever Cause they arise, of a Cephalgia [an intense Pain in the Head] and a Hemisrania [a Pain confined to one Side of the Head]; prescribes a Cure for the Alopecia, and Defluxions of the Hair, and for bald Eyebrows; gives Receipts for dying, curling, eradicating Hair; to make it fine, and to prevent its shedding; and teaches the Making of Psilothra [Ointments to fetch off Hair]; speaks moreover, of the Pituriasis [a Sort

of Scurf] Phthiriasis [lousy Disease] Achores, and those Pustules [ἐκθύματα] which rise about the Head without any manifest Cause; for all these and the like Distempers he gives us a Cure; also for those various Indispositions from different Causes, to which the Ear is incident; for an Hæmorrhage from that Part, and for the Parotides. Thence he passes to the Nose, and its Distempers, when he treats of Sternutatories, and how to suppress immoderate Sneezing. This is the second Sermo of the second Tetrabiblos.

In the Seventh he proceeds to consider the Nature of the Eye, and those manifold Disorders to which it is subject, whether they proceed from an internal or external Cause. He instructs us in the Section of an Artery, in scarifying the Sinus [πρωκισμῶ], the Edition of Photius's *Bibliotheca at Rome*, 1653, has it *πρὸ σκελετῶ*, which Error has passed into the Latin Translation] and the Forehead, in the Method of Bleeding; among the rest he gives us Prescriptions for Ointments, Cataplasms, and various Sorts of Collyriums; and all this with no small Accuracy and Judgment. This is the third Sermo of the second Tetrabiblos.

In the Beginning of the Eighth he has something to say about adorning and setting off the Eyebrows; then speaks of a black Eye, how it comes, and how to cure it; teaches us to defend the Face from Burning, either by Sun or Wind, to preserve the same from Wrinkles, to alter a black Colour, with other additional Beautifyings, and to diffuse a good Scent over the Skin. Hence he passes to consider at large the Distempers incident to the Face, Mouth, and Tonsils, whether from an internal or external Cause. He treats of the various Maladies to which the Teeth are liable, and prescribes a Cure; also those of the Tongue, Uvula, and all that are comprised within the Compass of the Mouth. Among this Number are the Cynanche and the Synanche, which have their Seat in the Jaws; the Tonsils also have their Place among the rest. He shews a Way to revive those who are strangled, but not dead; discourses on the Diseases of the Arteries, and their Remedies; of Coughs also, and Catarrhs, where he prescribes Anodynes for the Cough, with Suffumigations and Epithems. After these he considers those who are afflicted with Asthma, Difficulty of Breathing, and Palpitations of the Heart; and having first treated of the Diseases of the Breast and Lungs, he closes the Book with a Discourse on the Pleurisy, the real and the reputed one, describes them both, and shews a Method of Cure. This is the fourth Sermo of the second Tetrabiblos.

The Ninth Book begins with the cardiac Passion, and proceeds to speak of those who have their Stomach affected with Atrabilis, or the Mouth of the Ventricle any Way disordered, describing the Cataplasms, and other Remedies for the various Distempers of the Stomach. Here he considers the Case of those who suffer Convulsions of the Stomach, after the Manner of epileptic Patients; treats also of Want of Appetite, of the canine Appetite, of Indigestion, and their Cures. Then he shews how to cure a Surfeit, and prescribes a Remedy for Costiveness; treats moreover of Flatulencies, the iliac Passion, and the Colic, of Fluxes of the Belly, and what is called a Disposition to the Colic, of Colliquations, of Worms, round and broad, of those called Ascarides, and of the Affections of the Intestines. He prescribes a Remedy for those who have swallowed Gold, Brass, or any such Thing; as also for such as labour under a Dysentery, to be taken at the Mouth, or injected beneath, such as Pustils, Suppositories, Ointments, Epithems; and at last ends his Book with treating of a Lien-tery. This is the first Sermo of the third Tetrabiblos.

He begins his Tenth Book with the Liver, its Weakness, and other Disorders, and prescribes Medicines for them. Then proceeds to consider the Affections of the Spleen, and its various Disorders, such as Inflations, Inflammations, Scirrhoties, preternatural Tumors, and Hardness, and shews how to cure them; after these, of the Jaundice, Cachexy, and Dropsy; shews you whence every one of these Distempers proceeds, and puts you in a Way and Method how to cure them. This is the second Sermo of the third Tetrabiblos.

The Eleventh Book treats of a Diabetes, and the lax Tone of the Reins, of bloody Urine, of Stone in the Kidnies and Bladder, of Inflammation, Hardness, and Suppuration of the Kidnies; of Dysury, Strangury, and Ischury; of Resolution of the Bladder, of such as cannot hold their Water in Sleep, of the Inflammation, Hæmorrhage, Clots of Blood, Tubercles, and Ulcers in the Bladder; also of the Flux and Itch of the same Part; of a Satyriasis, Priapismus, Gonorrhœa, and venereal Dreams. To all these Distempers, as far as possible, he assigns proper Causes, and subjoins the necessary Cautions, and Cures. At the End of this Book he prescribes Exercises and Medicines for Impotency. This is the third Sermo of the third Tetrabiblos.

In his Twelfth Book he considers the Sciatica, and the Gout, and examines into the Causes, both general and particular, of these Distempers, and prescribes Variety of Remedies for them, and for other Disorders consequent upon them. He

recounts

recounts the several Ways of Evacuation, the Chrims, Emollients, Anointings, the Acopa, and the Ointments, as also the proper Cathartics, and Antidotes, and Abundance of other Things proper to give Relief under these Diseases. This is the fourth Sermo of the third Tetrabiblos.

His Thirteenth treats of the Bites of Animals, what Alterations and Symptoms they produce in the Subject bitten, and how to remove and cure them. He makes the like Observations on Animals that ejaculate their Poison, and points out those Plants and Herbs which are venomous and destructive, with singular Care and Diligence. He discourses on Fungi, Bull's Blood, and Milk clotted in the Stomach; informs us what metalline Substances are hurtful to an Animal, when taken inwardly; explains how drinking of cold Water or Wine may be hurtful; makes Observations on those who are strangled, drowned, or precipitated from some high Place; of Precaution and Foresight in Brute Animals, especially domestic ones. He then discourses of the Theriaca Andromachi, of Vipers, gives its Preparation, Uses, Seasons of using it, Ways to try it, the Dose, and the Distempers in which it is properly administered; also the other Theriaca, particularly the Antidotus Mithridatica, or Mithridate, its Preparation, Use, and in what Cases it is to be administered. To this he subjoins other Antidotes, and to them the two Cyphi [precious Ointments]. From thence he proceeds to write of the Elephantiasis, of pruriginous Eruptions [*αἰματώδης ἐκσυσπιδίων*] Psyraces, and Pustules arising from Sweat [*ὑδατώδης ἢ ὑδαρῖδης*] ulcerous Eruptions [*θλαστώδης ἢ βλαστωδῆς*] in the Legs, Scars from Ulcers which blacken and deform the Body. He proceeds to treat of the two Species of Alphas [*ἄλφα*], a Kind of Leprosy and of the Leuce [*λευκή*], a white Sort of Leprosy and lastly of the Leprosy; shews their Original and Causes, and prescribes their Cures. This is the first Sermo of the fourth Tetrabiblos.

In the Fourteenth Book *Aetius* treats with great Accuracy of the various Diseases incident to the Anus, of Warts [*ὄνυχες*] and Fissures in the Pudenda, of a Phlegmon, Carbuncle, phagedenic Ulcers, and such as have their Seat in the urinary Passages; of a scabbed Scrotum, of an Inflammation in that Part and the Testicles, and the Species of Hernia; of the Composition of Plaisters, and the Way of preparing the Ingredients. He treats moreover of wounded and bruised Nerves, of Buboec, and Phlegmons in general; also of Abscesses, and hollow Ulcers, declaring their Nature, and prescribing Remedies for all, and also for Worms bred in Ulcers, and against the Spreading, Putrefying, and Bleeding of the same. He carries on his Discourse to a Sinus, Fistula, Gangrene, Sphacelus, cancerated Tumors, Carbuncles, Erysipelas, Herpes, Terminthus, and Pustules, specifying their Causes and Cures. He prescribes healing Medicines for such as are burnt with Fire, scalded with Water, or scourged with Whips; for Abrasions, Galls, Contusions, where the Flesh is whole or broken [*σπασμένη ὁλοκήνη ἢ ἐκσυσπιδίον*] for Convulsions, Contorsions, Luxations, and Chilblains, not omitting Excrescences over the Nails, Whitlows [*καρτερύχων, καρτερύχων*] Nails crushed, bloody, loose, or rotten; also to make fresh Nails grow out in the Room of those which are fallen off, to get off Rings that are grown into the Flesh, to cure Corns and Chaps in the Feet, and also Varices. The Book concludes with the Management and Cure of the Dracunculi in the Arms and Legs. This is the second Sermo of the fourth Tetrabiblos.

The Fifteenth Book contains the Theory and Cure of oedematous, emphysematous, indurated, and incysted Tumors, of Strumæ, Bronchocele, Melicerides, Steatomata, Ganglia, Aneurisms, Favi, and Hydrocephalus. Of all these you have the Origin, and Causes, with the chirurgical and other Methods of Cure, and the Preparation of many and various Sorts of Plaisters. This is the third Sermo of the fourth Tetrabiblos.

In the Sixteenth, and last, the Author treats of the Situation, Structure, and Magnitude, of the Womb, with the Seasons of its Purgation and Semination. Of Conception, of the Marks of Fecundity, and having actually conceived, and of the Symptoms peculiar to pregnant Women. Of the great Care that is to be taken of them; who are qualified for easy Labour, and who are unhappy in that Respect. Of hard Labours, and preternatural Births, of the Cæsarean Section, and Extraction of the Scundines; what are the Causes of Infecundity in Man or Woman. For all these fore-mentioned Evils, Remedies are provided in this Book; as, for Instance, Potions, Pessaries, and Suffumigations are prescribed to promote Conception. Hence he goes on to the Diseases of Womens Breasts, which he treats of in a skilful Manner, explaining their Origin, Essence, chirurgical and other Methods of Cure. After this, he enquires into the Causes of the Obstruction of the Menfes, of their too plentiful Efflux, both the red, and the white; of Hysterics, and a Fluor albus, with excellent Prescriptions in these Cases. He proceeds to treat of other Distempers of the Uterus; as Abscesses, oedematous Tumors, Moles, Dropsy, Ulcers, &c. and other Things of the like Kind, not forgetting to speak of the Phimosis, and Imperforation, and other like Incidents, with their proper Remedies; also

of the Section of the Nymphæ, Cercosis, the Hernia varico-sa, Thymi, and such like; and how to cure them. To all these he subjoins some Smegmata [a Sort of Wash-balls] for the Face, and other Parts of the Body, with Prescriptions for the Composition of some precious Ointments, with which he closes his Treatise of the Art of Medicine. This is the fourth Sermo of the fourth Tetrabiblos.

This Work of *Aetius*, in my Opinion, excels the Synopses of Oribasius, I mean those dedicated to Eustathius and Eunapius, on all Accounts; for he does not only give us the Definitions, the Causes, the Diagnostics, and Prognostics, in a more perspicuous Manner, but is more full and copious in the therapeutic Part. And he is not only his Superior in those Respects; but even in what he has epitomised from Galen, both in Perspicuity, and Extensiveness, as comprehending more Diseases. But, perhaps, there is no Comparison between this Work and that of Oribasius, which takes up seventy Books, because our Author has not only omitted Anatomy, which Oribasius has explained, but has said nothing about the Use of the Parts, which indeed more properly comes under the Consideration of a Philosopher than a Physician. On these Accounts, perhaps, it will be thought inferior to the fore-mentioned Epitome of Galen's Works. But, to speak my Mind freely, in this negligent Age, which minds nothing less than the Sick, I would recommend this Collection above all other Works of that Kind, especially to those who do not care to search into the Depth of the Theory of Medicines; but have the Health of Mankind more at Heart. They will here find Remedies in Abundance, and an ample Recompence for all their Pains and Study on this valuable Piece of Medicine. *Photii Biblioth.*

This is the Character Photius bestows on *Aetius*, and Cornarius agrees with him so exactly, that he seems to transcribe him.

Of the Works of *Aetius*, only the two first Tetrabibli, or eight first Books, have yet been printed in Greek, and these only once in Folio, at Venice, 1534. The rest are said to remain in Manuscript in many Libraries.

Johannes Baptista Montanus, a Physician of Verona, was the first who published a Latin Translation of all his Works, at Basil, 1535, in Folio.

In 1542, Janus Cornarius published his Translation of all the Works of *Aetius* at Basil in Folio. This has been several Times reprinted, and is published amongst the *Medicæ Artis Principes*, by H. Stevens.

AETOI PHLEBES. *Ἀετοὶ φλέβες.* Eagle-veins. According to the Report of Rufus Ephesius, Philistio, an Italian Physician, who wrote in the Doric Dialect, which was spoken in that Part of Italy where he was born, called certain Veins which ascend through the Temples to the Head by this Name: *Rufus Ephes. L. 1. C. 33.*

ÆTOLION. *Ἀετὶον.* The same as *Gramen Cnidium*. *Gorræus.* See *CNIDIA GRANA.*

AETOMA. *Ἀετομα.* The Roof of a House. This Word is used by Hippocrates, in his Treatise *de Articulis*, and for that Reason claims a Place here.

AETONYCHUM. From *ἄετις*, an Eagle, and *ὄνυξ*, a Claw, or Nail. The same as *Lithospermon*, so called from the Hardness of the Seeds. See *LITHOSPERMON.*

AFFAX, AFFARX, or AFFARIS. *Ἄφαξ.* *Rulandus.* *Johnson.*

AFFECTIO, or AFFECTUS. An Affection. This is expressed in Greek by *πάθος*. It signifies a Disorder that all, or any Part of the Body is affected with, or suffers. Thus *Affectio Colica* is the Colic; *Affectio Melancholica* is Melancholy. And in this Manner by adding an Adjective to *Affectio*, or *Affectus*, most Distempers, to which the Body is subject, are expressed.

AFFENICUM. The Soul. *Rulandus.*

AFFEOS. The same as *ἄφρος*, Spuma, Froth, or Foam. *Rulandus.*

AFFIDRA. *Ἀφιδρά.* *Rulandus.*

AFFION. A Name for Opium. A particular Sort of Electuary also prepared in Bantam; in which Opium is an Ingredient, is thus called. It is famous for exciting Courage and venereal Vigour. *Castellus.*

AFFLATUS, or, as it is sometimes wrote, ADFLATUS. A Vapour, or, as the Country People call it, a Blast, preserving the Analogy of the Latin Word, which affects the Body with some sudden and dangerous Distemper. It is used to express such violent Effects of something contained in the Air, or of the Bites of Serpents, and is often applied to Inchantments, with a View to which Horace says:

velut illi
Canidia affasset pejor serpentibus Aëris.

AFFLICTIO. AFFLICTION. I do not know that this has been admitted into the Catalogue of Distempers, but it is certainly productive of a great many, and those often fatal. For, according to the vulgar Way of expressing it, many People

ple die of a broken Heart; and for Reasons that appear very obvious.

It is known, that those Passions of the Mind, which increase the Velocity of the Blood, augment the Stricture, Tenuity, or Elasticity of the animal Fibres. This Effect these Passions have in common with every other Cause which makes the Heart contract with greater Force, and expel the Blood from it with more Strength. Because, under these Circumstances, the Blood acts with a greater Force; or, as the Mathematicians call it, *Momentum*, upon the solid Parts, and the reciprocal Action of the Vessels on the Blood is also increased; hence, with Respect to the Solids, the Application of Part to Part is brought about with more Force, or, in others Words, what is supplied by Nutrition is more firm. With Respect to the Fluids, these, being pressed upon by the Solids with an increased Strength, are more compacted together, and consequently contain an equal or perhaps a greater Quantity of Matter under a less Surface. The Secretions also are performed with more Vigour, and a great Part of the watery Particles is separated from the Blood, and carried off by the proper Emunctories. Hence the Fibres are rendered hard, elastic, and rigid; and the animal Strength is in general increased. But if this State is carried beyond a certain Point, various Diseases are thence produced, as Madness, Inflammations, Gout, Stone, and malignant Ulcers.

The Passions, usually said to produce these Effects, are Anger, Envy, and Hatred. Thus Achilles, the strongest Man of the Grecian or Trojan Army, is represented as extremely passionate; and thus the envious Man is said to grow lean in a literal Sense at the Prosperity of his Neighbour.

But, on the Contrary, those Passions which diminish the Velocity of the Blood have an Effect directly the Reverse; for the reciprocal Action betwixt the Solids and Fluids, being lessened, neither can be so compacted as in the other Case. The Secretions also must be carried on with less Vigour, and many Particles which ought to be discharged as of no Use to the Economy of the Whole, are retained; hence the Muscles become relaxed and flabby, the Glands obstructed, and the whole Habit bloated, and weak.

The Passions which induce this Alteration, are Fear, Grief, and those also which cause a great Complacency, as Joy and Delight. Hence Fear and Grief are observed to bloat those affected much with either; and Prosperity to make People fat, which are both Degrees of Relaxation.

It will be difficult to specify the Manner how the Passions either increase or diminish the Force of the Heart, till such Time as the Action of the Soul upon the Body is better known. Instead therefore of attempting this, I shall give a remarkable Instance of the Effect of Afflictions from the *History of the Royal Academy of Sciences*.

A Lady of Dauphiny, aged Forty-seven, being seized with a violent Sorrow on Account of the Death of her only Son, in September, 1729, began, from that Time, to fall into a very languishing Condition; and a Leanness that still grew upon her. At the End of nineteen Months, M. Patras, Doctor of Physic at Grenoble, who obliged the Academy with this Relation, found her under a slow Fever, and felt a hard Tumor in the Hypogastrium; of the usual Bigness of the Uterus, three Months and a half after Conception; and, indeed, he thought it was the Uterus itself. This Lady, since her Misfortune, had lost her Menfes for some Time past.

The Disease grew more and more considerable, the whole Abdomen swelled, the Water was felt in its Cavity, and Tapping was resolved upon, which was performed twice at her Seat in the Country, the Autumn of 1731. At the first Operation there came some Drops of Water; at the Second nothing at all.

As this Swelling of the Abdomen, which continually increased, caused a violent Oppression on the Breast, M. Patras was for another Tapping, but in a different Place. The Physician, who had directed the first, had no Concern or Thought of any Thing but the Ascites, which was visible before him, not dreaming of the Tumor in the Hypogastrium, which M. Patras then privy to, and which was then hid by the Dropsy. M. Patras then chose another Place for the Tapping; but, to his great Astonishment, there came out nothing but some Drops of Blood. Notwithstanding this, the Fluctuation of the Waters in the Abdomen was very sensible, inasmuch that M. Patras thought himself obliged not to be discouraged by those hitherto fruitless Attempts of Tapping, since all other Remedies had no Effect. In short, the Operation was renewed, and there came forth just nothing.

After this the Legs of the Patient broke without any Assistance, whence in the Space of fifteen Days issued out Abundance of Serosities, which, at least in Part, belonged to the Abdomen, for the Oppression on the Breast was considerably diminished; but this Relief was the only good Consequence. The slow Fever still continued, and M. Patras, who could then easily perceive the Tumor in the Hypogastrium, found it very much augmented. Besides this, it was accompanied

with a raised Border, in Form of a Girdle, which went across it from one Side to the other. This Girdle was of a soft Consistence, and bore out about half an Inch.

At last, the Patient, quite exhausted of Strength, and frightfully lean and extenuated, could no longer take any Substance, but died the first of May, 1732.

The Body being opened, to pass over the Difficulty of disentangling the Parts, which had hardly preserved any Thing of their natural Disposition, M. Patras very plainly perceived, that the Tumor of the Hypogastrium which he had first touched, and which he thought had been the Uterus, was indeed the left Kidney, so prodigiously increased in Bulk, that it weighed thirty-five Pounds. Its natural Structure was altered, in Proportion to that Augmentation of Bulk and Weight. What looked like a Girdle, whose Bearing out might be felt, was the Colon, which passed above the Tumor, and had stuck thereto.

It is now no longer to be wondered, that the Waters were felt floating in the Abdomen; and yet that the Tapping got none of them out. For these Waters only floating in the Spaces left void by that enormous Mass of the Kidney; there was not a sufficient Quantity found in the very Places where the Trocar had penetrated. Perhaps a little too went off, and took another Situation, so that when the Instrument was taken out, and the Caniula came to be applied, it met with nothing but a Mass too solid for its Purpose. What is most worthy of Observation in this strange Accident, is the Power of great Afflictions in changing, to such an excessive Degree, the very Structure of the Human Body. *Hist. de l'Acad. Roy. des Sciences, Année 1732.*

AFFODIUS. A Sort of Serpent, according to Castellus, the same as the *Hæmorrhous*, or very like it.

AFFORMAS. *Glass.* *Rulandus.*

AFFRENGI. *Red Lead.* *Rulandus.*

AFFRODINA. The same as *Venus.* *Rulandus.*

AFFRONITUM. See *APHRONITUM.*

AFFROTON. *Frathy.* *Rulandus.*

AFFUSIO. *Affusion.* The Pouring a Liquor upon any other Substance. Sometimes it signifies the same as *Suffusio*, a Catarrh.

AFRA. An *Ostrich.* See *STRUTHIOCAMELUS.*

AFRAGAR. *Verdigrease.* *Rulandus.*

AFRICANUS FLOS. *African Flower.* There are many Species of this Plant; the fourth mentioned by Gerard is thus distinguished:

Othonna; Offic. Othonna; Tagetes Indicus; Flos Africanus. Chab. 358. *Tagetes Indicus minor simplicis flore, sive Caryophyllus Indicus, sive Flos Africanus,* J. B. 3. 98. Raii Hist. 1. 343. Boerh. Ind. A. 114. Tourn. Inst. 488. Elem. Bot. 390. *Flos Africus minor simplicis flore;* Ger. 611. Emac. 750. *Flos Africanus minor simplex,* Park. Parad. 304. *Tanacetum Africanum sive Flos Africanus minor,* C. B. 133. *Chysanthemum Africanum: Tanacetii folio procumbens, sive minus flore simplici,* Hist. Oxon. 3. 16. *Tlapalcotli Coaxochitl, Caryophyllus Mexicanus,* V. Hern. 156. *Tagetes minor flore luteo-rubescens,* Act. Reg. Par. An. 1720. 315. **AFRICAN MARYGOLD.**

Gerard mentions four Sorts of this Plant, the first he calls:

FLOS AFRICANUS MAJOR POLYANTHOS. *The great African double Marygold.*

This, he says, hath a great, long, brown, reddish Stalk, crested, furrowed, and somewhat knobby, dividing itself towards the Top into other Branches; whereon grow Leaves composed of many small Leaves, set upon a middle Rib by Couples, much like unto the Leaves of white Valerian, bearing at the Top very fair and beautiful double yellow Flowers, greater and more double than the greatest Damask-Rose, of a strong Smell, but not unpleasant. The Flowers being past, there succeedeth long, black, flat Seed; the whole Plant perishes at the first Approach of Winter.

The Second differs not much from the First, only that this Plant is less, and brings forth more Flowers, we may therefore call it, **FLOS AFRICANUS MINOR MULTIFLORUS.** *The small double African Marygold.*

The Third he calls, **FLOS AFRICANUS MAJOR SIMPLICI FLORE.** *The great single French Marygold.*

It hath a thick Root, with some Fibres annexed thereto; from which riseth up a thick Stalk chamfered and furrowed, of the Height of two Cubits, divided into other small Branches; whereupon are set long Leaves, compact or composed of many little Leaves, like those of the Ash-tree, of a strong Smell, yet not very unpleasant. On the Top of the Branches grow yellow single Flowers, composed in the Middle of a Bundle of yellow Thrums hard thrust together, paled about the Edges with a Border of yellow Leaves; after which cometh long black Seed. The whole Plant perishes with the first Frost, and must be sown yearly as the other Sorts must be.

The Fourth is called:

FLOS AFRICANUS MINOR SIMPLICI FLORE. *The small French Marygold.*

The common African, or as they vulgarly call it, *French Marygold,*

gold, hath small, weak, and tender Branches, trailing upon the Ground, leaning every Way, beset with Leaves consisting of many particular Leaves, indented about the Edges, which being held up against the Sun, or to the Light, are seen to be full of Holes like a Sieve, even as those of St. John's Wort; the Flowers stand at the Top of the spriggy Branches, proceeding from long Cups, or Husks, consisting of eight or ten small Leaves, yellow underneath, on the upper Side of a deeper Yellow, tending to the Colour of a dark Crimson-Velvet, as also soft in handling; but to describe the Colour in Words, it is not possible, but this Way; lay upon Paper with a Pencil a yellow Colour, called Masticot, which, being dry, lay the same over with a little Saffron steeped in Water, or Wine, which setteth forth most lively the Colour. The whole Plant is of a most rank and unwholesome Smell, and perisheth at the first Frost.

The unpleasant Smell, especially of that common Sort with single Flowers (that stuffeth the Head like to that of Hemlock) doth shew, that it is of a poisonous and cooling Quality; and also the same is manifest by divers Experiments; for I remember, saith Dodonæus, that I saw a Boy, whose Lips and Mouth, when he began to chew the Flowers, swelled extremely; as it hath often happened to them that playing or piping with Quills or Kexes of Hemlock, hold them a While between their Lips; likewise, he saith, we gave to a Cat the Flowers with their Cups, tempered with fresh Cheese, she forthwith mightily swelled; and a little While after died; also Mice that have eaten of the Seed thereof have been found dead. All which Things declare, that this Herb is of a venomous and poisonous Faculty; and that they are not to be hearkened to, that suppose this Herb to be a harmless Plant. So to conclude, these Plants are most venomous and full of Poison, and therefore not to be touched or smelled unto, much less used in Meat or Medicine. *Gerard's Herbal.*

Miller reckons up thirteen Species of these Plants.

The fourth Species, mentioned by Gerard, is called OTHONNA, as is taken Notice of above. But it does not appear certain, that it is the *Othonna* of Dioscorides and Pliny, of which they give the following Account:

Some assert the OTHONNA to be the Juice of the greater *Celandine*, others of the *Glaucium*; some will have it to be the expressed Juice of the *Papaver corniculatum*, while others pretend to assure us that it is a Mixture of the Juices of female *Pimpernel*, *Helenbane*, and *Poppy*; and to name no more, some affirm it is the Juice of a troglodytical Herb, called OTHONNA, which grows in that Part of Arabia, which borders upon Egypt. Its Leaves are most like those of Rocket, full of Holes, as if they were Moth-eaten, dirty, and few in Number; so that some have taken it for a Species of *Anemone*.

The Juice expressed is proper for the Eyes, in Cases that require Cleansing; for it has a biting Quality, and absterges whatever may dim or cast a Mist before the Pupil of the Eye. It is said, that a moist Substance distils from the Herb, which, after it is washed and cleansed from Gravel, is made up into Troches, for the Purposes aforesaid. But some will have this to be an Egyptian Stone, that is found in the Province of Thebais, of the Colour of Copper, and of a hot biting Taste, mixed with an Astringency. *Diosc. E. 2. C. 213.*

OTHONNA grows in Syria; it is like the Rocket, having its Leaves perforated in many Places, and a Flower like that of Saffron, for which Reason some have called it *Anemone*. Its Juice is good in Collyria, for it gently stimulates and dries, and has an astringent with its drying Quality. It clears the Eye of Cicatrices and Nubeculae, and whatever else incriminates it. *Plin. Nat. Hist. L. 27. C. 12.*

AFROB. Rulandus explains this by *Plumbum nostrum*, *Corpus immundum*. I suppose he means Alchymistical Lead, which is ANTIMONY.

AGA CRETENSIMUM. This, according to Ray, is the *Silybum minus* *Bæticum* of Parkinson. *Cardus lacteus peregrinus* *Camerarii*, J. Bauh. *Albis Maculis notatus*, C. Bauh. The small Spanish Milk Thistle. See *SILYBUM*.

AGALACTIA. *Ἀγαλακτία*. From a Negative, and γάλα, Milk. A Defect of Milk in Childbed. Hence *ἀγάλακτος*; *agalaktos*, an Epithet given to a Woman that has no Milk when she lies in by *Hippocrates*.

AGALLOCHUM, is a Sort of Wood, which is exported from India and Arabia, like the *Thya*, marked with Spots, odoriferous, of a bitterish astringent Taste, with a thin skinny Bark, and somewhat mottled.

Chewed, or the Mouth rinsed with the Decoction, it makes the Breath sweet; dried and powdered, it serves as a Diapasm [Perfume] for the whole Body, and is used in Suffumigations, instead of Frankincense. The Weight of a Dram of the Root, drank, cures the excessive Humidity, Laxness, and burning Heat of the Stomach [usually called the Heart-burn]. Drank in Water, it relieves those who are afflicted with Pains in the Side or Liver, or labour under a Dysentery, or the Gripes. *Dioscorides. Lib. I. Cap. 21.*

Ἀλόν, an Indian Tree, whose sweet-scented Wood is called *ἑλάνθη*, and is the same with *Agallochum*. Ἀλόν is an Herb,

as much Indian as the other; but growing also in other Countries, whose Juice is recommended among the principal Cathartics, chiefly on Account of its Bitterness. Hence we see that most Authors, both antient and modern, have confounded the aromatic with the purging Aloe. *Agallochum* is from the Hebrew *אבלח*, *Abalstb*. The Masculine *אבלח*, *Abel*, whose Plural is *אבלים*, *Abalim*, is found, they say, to bear the same Signification. Thence come the Greek *ἀλόν*, which was very much in Use among the later Greeks, who also say *ἑλάνθη*, whereas the Antients more frequently used *Ἀγρόδον*; and yet the Septuagint were not ignorant of the aromatic *ἀλόν*. The cathartic *ἀλόν*, in Syriac, is *עלר* *Olar*. Hence that Word came to be adopted by the Greeks. The Arabic has its *Cebat*, *Sebat*. In an antient Græco-Arabic Glossary, we find written, *סבט, ἢ ἀλόν*. In the printed Serapion, *Laber* is injudiciously put for *Saber*. A very antient Latino-Arabic Glossary interprets Aloe by *Seru*; and *Seru* is the Cypress-Tree, in the same Book. And *Seru*, by an antient Interpreter of Avicenna, is taken for the same Tree. I am of Opinion, that the Author of that old Glossary put this *Seru* for the aromatic Aloe. A manuscript Copy of Dioscorides, of great Antiquity, with Arabic Notes, under the Word *ἀλόν*, subjoins, with an Article [the Arabic Article *Al*] *Alcebar*. Hence comes the Spanish *Acera*.

As for the aromatic Aloe, or *Agallochum*, the later Greeks, who are beholden for it to the Arabians, make two Species of it, *Ἀγρόδον Ἰνδικόν* [*Agallochum Indicum*] and *Ἀγρόδον Σινί* [*Agallochum Sinhi*]. So I find it in Charito, the Physician. In Serapion's Interpreter, *Seifi* is wrongly put for *Sens* or *Sinfi*; from an Indian Island, called *Sinf*: For there is a Difference between the *Sinfi*, and what they call the Indian *Agallochum*. The latter is so denominated, rather from its Colour than its Country, for they call the Black by this Name, which is the most valuable Sort. So of the various Kinds of Myrobalans, which are all Indian, only the Black is honoured with that Name. And in other Things I have observed the Appellation of *Indian* bestowed on the blacker Sort. The Indian *Agallochum* is also mentioned by Avicenna, under the Letter *A*, where he enumerates the several Kinds that come from different Parts of India, as the Mundalic, the Cumeric, those which come from Calay and China, and others. In that Chapter, he renders *Haud* by an Arabic Word, which signifies Wood in general. *Haud* also with them signifies a Flute; and we [the French] too call a Flute Wood, *Hautbois*, which, perhaps, is compounded of the Arabic Word and its Interpretation. But *Agallochum* was called *Haud* *καὶ ἑλάνθη*, by Way of Eminence; and this was its proper Name among the Arabians. Garcias ab Horto relates, that in Decan, and Guzarate, which is thought to be the Country of the antient Gedrosii, the *Agallochum* is called *Ud*, which Word he supposes derived from the Arabic. Perhaps the Arabic was derived thence. In the Writings of the Portuguese, it is called *Udo*; doubtless the same as *Haud* in the Arabic Pronunciation. It is better, therefore, to render what the Arabians call *Haud*, *Heud*, by *Agallochum Indum*, than, as learned Men do, by *Lignum Indum*. In the Exposition of Andreas Alpagus, the Author is wrong in reading *Heudem*, i. e. *Lignum Aloes Indum*. Read *Heud Hen*, or *Haud Hend*, which is from *Haud Hendi*. In Greek I read *ἑλάνθη* [*Eudchento*]; as *καμαρχέντι* [*tamarcenti*] for *tamarhendi*. So *Haud alumeri*, in the Arabian Geographer, is not the *Lignum Comaricum*, but the *Agallochum Comaricum*; as the *Ἀγρόδον Σινί* in Charito is *Haud Sinfi*. It is otherwise called by the Arabians *Agalugi*, which is a Corruption from the Greek *Ἀγρόδον*; and in Avicenna it is read *Agallugun*. The modern Greeks most commonly call it *ἑλάνθη*, *Xylaloes*, having no Regard to the Meaning of the Arabic Word, but only to distinguish it from the other Aloe, which stands recommended on Account of its Juice, and not for its Wood. *Salmasius de Homonym. Hyl. lair. Cap. 6.*

The *Agallochum* is thus distinguished by Authors:

1. *Agallochum*, *Xylaloes*, & *Lignum Aloes*, Offic. *Agallochum* & *Xylaloes*, Offic. Geoff. Tract. 309. *Agallochum sive Lignum Aloes*, Park. Theat. 1564. *Agallochum Officinatum*, C. B. Pin. 393. Raii Hist. 2. 1808. *Agallochum verum*, Ephem. Germ. Dec. 11. Ann. 3. p. 74. *Agallochum Lignum Aloes*, *Xylaloes*, Chab. 35. *Agallochum Officinatum*, alius *Lignum Aloes*, Johnf. Dendr. 460. Sinkoo vulgo *Japonum Kavoriki*, i. e. *Lignum seu arbor fragrans, Siamensis Kiffina*, Latinis *Arbor Aquilæ* & *Aloes dicta, cujus fragrans Lignum appellatur Agallochum*, Kempf. Amoen. Exot. 903. *Lignum Aloes vulgare*, Ger. Emac. 1622. *Lignum Aloes, vel Xylaloes*, Ind. Med. 67. *Lignum Aloes, Agallochum, Xylaloes*, Morit. Exot. 7. *Lignum Aloes Officinatum, & Agallochum plerisque putatum*, J. B. 1. 477. WOOD OF ALOES. Dale.

It is an Indian Wood, like the *Thya*, sweet-scented, and chewed in the Mouth makes a sweet Breath. *P. Eginet. Lib. 7. Cap. 3.* from *Dioscorides*.

It has an astringent mixed with a bitterish Taste; its Bark is like Leather, and of various Colours. *Oribas. Lib. 11.* from *Dioscorides*.

AGALLOCHUM. This is a Wood brought to us from the East Indies, and is said to grow in China, and there to be called Calambac: But we have no certain Account or Description of the

the Tree, whose Wood it is. It is brought over in small Pieces, we seldom seeing those of any great Length or Bigness: It is of a hard, solid Texture, firm and ponderous, of a yellowish brown Colour, with several black or purplish resinous Veins interspers'd; of a bitterish hot aromatic Taste, of no very strong Scent till it is burnt. Though several Authors set it down as a principal Note of the Goodness of this Wood, that it will swim in Water, yet I have never met with any but what would sink in it, notwithstanding it had all other Characters of true Lignum Aloes.

This Wood is heating and drying, cordial, and strengthening the Nerves, revives the animal Spirits, comforts the Heart and Brain, prevents swooning Fits, and Disorders of the Womb; it is frequently put among Cordials, Species, and Powders. *Miller. Dale.*

Dale seems to esteem the two following Woods near a-kind to *Agallochum*.

2. *Aspalathum*, Offic. Geoff. Tract. 310. Mont. Exot. 7. *Lignum Aspalathum*, Pharmacop. *Aspalathus*, Ind. Med. 15. *Agallochum præstantissimum*, Johnf. Dendr. 460. C. B. Pin. 393. CALAMBAC WOOD.

This Wood also is brought from the East Indies in Pieces that are thicker and less solid than the Lignum Aloes, of a paler Colour, and fainter Smell, bituminous, fat and resinous, and of a bitterish Taste.

Its Virtues are the same with those of the preceding (for which it is often sold) but weaker.

3. *Lignum Aquile*, Ind. Med. 67. EAGLE WOOD.

It is used in the Shops at Paris, instead of *Aspalathum*; but seldom met with among us.

Most Botanists take the *Agallochum* of the Antients to be the Lignum Aloes of the Shops; others suppose the *Aspalathum* of the Antients to be the same. Again, others, especially the Arabians, make several Kinds. Garcias knew but one Indian Species. The Shops, as Clusius observes, can shew us two Kinds of Lignum Aloes. Caspar Bauhinus divides it into three Sorts. The first he calls the finest *Agallochum*, which is reserved for the Use of the Indian Kings. The second Kind is what is sold in Shops, and the third is the wild *Agallochum*. There are only two Sorts to be met with in the Shops, as we said before. And, it is assured, that we have the true *Agallochum*, or Lignum Aloes, brought to us from China, called *Calambac*. This is a tall Tree, described by none, that I know of; for what Garcias ab Horto writes of is not the same, but the *Aspalathum*, abovementioned, as some skilful Botanists, who have travelled in the East Indies, assure us.

Why *Agallochum* is called *Lignum Aloes*, says Paulus Ammanus, many are at a Loss. *Hoffmannus*, Lib. 2. Cap. 25. says, "Perhaps 'Αλν, in the Indian Tongue, signifies a Perfume." *Bontius ad Cap. 16. Garc. ab Horto*, p. 43. derives it from *Savour*. "This Wood of Aloes, says he, has a peculiar aromatic and bitterish Taste, whence, perhaps, it took the Name of Aloes." I would have none think the Aloes of the Shops to be the concrete Juice of this Tree, as Wormius makes it, p. 272. For this is a peculiar tall Tree, but the Juice of Aloes comes from a Plant of the same Name.

The Lignum Aloes, exported from Manilam in Cochin-China, is of three Sorts. 1. *Sokbio*, which seems to be the outer Part of the Trunk; it is not ponderous, is of an Ash-colour, with Veins of Black, a very little bitterish, moderately fragrant, not gummy. 2. *Thimbio*, is to be had at the Shops. This is of a blackish Colour, solid and ponderous, intersected with Veins and Channels, gummy, bitter, very fragrant, swimming in Water, called by the Spaniards, *Calamba*. 3. *Gilam-bio*, which is of an Ash-colour, inclining to pale, soft, and very fragrant.

There is another Sort brought from *Kalapa*, of a darker Colour than the *Thim-bio*, and more ponderous, sinking in Water. The Chinese export a very black Wood, moderately fragrant, which they call *Kai-bio*; and another reddish Sort, of an extraordinary Fragrancy, called *Chi-tua*.

An Account of the LIGNUM CALAMBAC, and LIGNUM ALOES, sent by Mr. Cunningham to Mr. Petiver.

The true *Calambac* is known by its fragrant Smell, its bitterish and aromatic Taste, and its Softness, like Wax or Mastich, receiving Impressions from the Teeth or Nails. There are several Degrees of Goodness in it; for in the Kingdom of Cochin-China, or Annam, the chief, if not the only, Place of its Growth, it is sold from 10 to above 50 Tael an English Pound. In Respect of Colour, there are three Kinds, viz. 1. The mixt-coloured, or black-purple, like a Duck's Head, as the Natives make the Comparison. 2. The spotted, like a Tiger. 3. The yellow, like the Yolk of an Egg. What falls of itself, without felling, is for the most Part of a Variety of Colours, and most valued. The *Calambac*, in the Annamic Tongue, is called *Kenam*. The Chinese Merchants of Fokien pronounce it *Kelam*, whence perhaps is derived the Word *Calambac*. *Lignum Aloes*, boiled in the Decoction, or Juice of

Calambac, is sold, by some, for the true *Calambac*; but left a while to dry, it loses its Fragrancy, Softness, &c.

The nearer the *Lignum Aloes*, or *Agallochum*, approaches to *Calambac*, the better it is. But the former is, for the most Part, harder, and feels dryer, and, as it were, like Dust in the Mouth; and is not so fat, but weaker in all its Qualities. A Pound of it is worth from 5 Mas. to 6 Tzel. *Lignum Aloes* is called by the Portuguese *Pao Agula*, by the Natives *Keang*, that is, *fragrant*. The Chinese in the Mandarin Language call it *Tchin-hiang*, that is, *the fearful or sinking Fragrant*; but the *Calambac* they call *Suk-hiang*, that is, *the fat Fragrant*. Some tell you that the *Lignum Aloes* is produced by several Trees: But all agree, that the *Calambac* is the Product of a Tree that bears Fruit (some of which I send you) supported by a *quinquesfid Calyx*, almost in the Shape of a Pear, covered with a Down, of the Size of a Citrine Myrobalan, with a thick ligneous, or fungous Coat, cleaving in the Middle, and containing on each Side a Kernel, shaped like a Top, and supported by membranous Appendices. The Fruit pulverised is an excellent Remedy for the Gripes. *Dale.*

A Tael is the Value of six Shillings and eight Pence Sterling; and a Mas, the tenth Part of a Tael, that is, eight Pence.

A Dram of the Powder of the Root, drank, cures the too great Humidity and Laxness of the Stomach; it is good also in Distempers of the Liver, Dysenteries, and Pleurifies. *P. Eginet. Lib. 7. Cap. 3.*

Of all the Woods sold in the Shops, we have none more precious, more valuable and rare, than the true Wood of Aloes or Xyloaloes: Upon which Account it is very little known, and every one is liable to mistake the Wood, which makes it easy to be counterfeited; so that it is a difficult Matter to know it positively, it being described so differently, by different Authors.

There are several Sorts of it, but the best is the *Agallochum* of India, which comes from Calcut. The finest is the black Kind, of a changeable Colour, full, heavy solid, and thick, which cannot be whitened, and is difficult to set on Fire.

There are others which pretend to affirm, we cannot have the true Wood of Aloes, and that it grows not in this terrestrial Paradise, it having been swept away by Deluge: And others will not allow it us, because it is not produced among us, except in Deserts, and upon inaccessible Mountains; not only from their Height, but because of the wild Beasts that inhabit among them, as the Lion, the Tiger, the Panther, and the like; besides a Thousand other idle Stories, that are told about this Wood: To confute all this, I shall only tell you, that the Ambassadors from the Kingdom of Siam, brought of this true Wood to present to the King of France now reigning, as well wrought as unwrought; among the rest, a Basin with its Salver, proper to wash the Hands in, made at Siam, after the Mode of that Country. This Basin, though of Wood, is more esteemed than if it had been of massy Gold, because made of the Tree of the true Aloes Wood growing at Bantam and in China, and which is of the Size and Shape of the Olive-Tree, having Leaves something after the same Sort; upon which grows a little round Fruit like our Cherry. They bring a Quantity of it from Surat, but the most resinous of it is most valued, and it is distinguished into larger and lesser Pieces.

It is observable, that the Trunk of this Tree is of three Colours; the first Wood, which lies immediately under the Bark, is of a black Colour, solid, heavy, and almost like black Ebony; and by Reason of its Colour, the Portuguese call it Eagle-Wood. The Second which is a light veiny Wood, like rotten Wood, and of a tanned Colour, is what we call Columbac or the true Wood of Aloes. The third Sort, which is the Heart, is a precious Wood of Tambac, or Calambac: I shall say no more of it, having never seen any of it, but that it is very scarce and dear. *Pomet.*

The Arabians say, that on a Mountain of Comorin, grows the most precious of all Woods, which is that of Aloes, called by the Greeks *Xylaloe*, and by the Arabians *Ud*, and *Al Ud*, that is to say, *The Wood*, by Way of Eminence. It grows plentifully in that Place, and excels all that is imported from other Countries. *Herbelot, Bibl. Orient. Art. Cameron.*

All the Eastern Geographers agree, that this Wood, whose Smell is exquisite, grows only in those Countries of India which lie under the first Climate. The most valuable Sort of this Wood is in the Island called Senf, which lies in the Indian Sea, and the Passage to China. They call it *Al Oud Al Senfi*, to distinguish it from what they call *Al Oud Al Comari*; because it grows in another Island called Comar, not far distant from Senf, but whose Wood is far inferior to that of the other.

However, several Authors are of Opinion, that the Wood of Aloes of Camnon, or Comron, which is Cape Comorin, is the best. And this is what the King of India presented Noufchirvan with, to the Weight of ten Quintals, which ran and blazed in the Fire like Wax.

Some Geographers remark also, that the greatest Quantity of Wood of Aloes, comes from the Isle of Semender, which we call

call Sumatra, and the Sheriff Al Edriffi says, that it is found also in the Isle of Serandib, called by us Zeilan. *Herbelot.*

This Nouchirvan is the same as Khosroes the first of that Name, King of Persia. This Prince, when he had finished his great Conquests, retired to his Capital, to spend the Remainder of his Days in Peace. All the bordering Princes sent Ambassadors to him, loaded with rich Presents. Amongst these were a Female Slave, seven Feet high; a Carpet made of the Skin of one Serpent, of an extraordinary Size, and as soft as Silk. A third great Rarity was the *Abes-wood* mention'd above, sent him by the King of Indostan.

AGARICOIDES. A Sort of Fungus thus distinguished. *Agaricoides parvum, album, lamellis subulatis. Fungus parvus, lamellatus, peduncululi forma, alno adnascens,* Raii Syn. Vaill. 70. Dr. Martyn has found it in Woods, as in Bishop's Wood near Hampstead, and in Madingley Wood. *Tournefort by Martin.*

AGAPE. *Ἀγάπη.* Love. It also signifies an Afternoon or Evening Meal of Victuals.

AGAR. Calx. Lime. *Rulandus.*

AGARICUS. *Agaric* was mistaken by some of the Antients for a Root, as we learn from Dioscorides, who gives the following Account of it:

Agaric is said to be a Root like Silphium, though not of a close Surface and Contexture, like the Silphium, but all porous and spongy. There are two Kinds of *Agaric*, the Male and the Female; the latter is the best, and is distinguished by the strait parallel Veins that run within it. The Male is round, and every where uniform: However, they taste alike, that is, sweet at first, while they diffuse a Bitterness that stays on the Palate. *Agaric* grows in a Country of Sarmatia, called *Agaria*. Some affirm it to be the Root of a Plant; others say it is bred like Mushrooms, of Putrefaction, in the Trunks of Trees. It is produced also in Galatia, a Country of Asia, and in Cilicia, on the Cedars; but very thin and friable.

It has a warming and astringent Quality, and is effectual against the Gripes, Crudities, Fractures, and Bruises from Falls. The Dose is six Grains, in Wine mixed with Honey, if the Patient be free from a Fever; but if feverish, it is given in Water mixed with Honey. But for those who are affected with Distempers of the Liver, an Asthma, yellow Jaundice, a Dysentery, the Gravel or Dysury, Hysterics, or an ill Colour [*κακὸς χροὸς*] the Weight of a Dram is prescribed. To consumptive Persons, it is administered in sweet Wine [*γλυκύος*] to the Splenetic in Oxymel. By those who are troubled with four Belchings, or other Infirmities of the Stomach, it is chewed and swallowed raw, without any liquid Vehicle. Half a Scruple, taken in Water, stays Vomiting, or Spitting of Blood. The like Quantity in Oxymel is useful in the Sciatica, Gout, and Epilepsy, provokes the Menes, and is good for Inflammations in the Womb. Given before the Fit of an Ague, it takes off the Shaking. A Dram or two taken in Water, mixed with Honey, purges the Belly. A Dram of it taken in Wine, diluted with Water, is an Antidote against Poisons; and half a Scruple, in a Draught of Wine, cures the Bites of venomous Reptiles. In short, it is adapted to all internal Maladies, administered with Regard to Age and Strength, to some in Water, to others in Wine, to this Person in Oxymel; to another in Water mixed with Honey. *Dioscorides, Lib. 3. Cap. 1.*

The Root *Agaric* grows from the Trunk of a Tree, of a lax Consistence, compounded of an airy and earthy Substance. It has the Virtue of dissolving and incising gross Humours, and powerfully opening Obstructions of the Viscera. It has the Property of Colocynthis, working slowly, and not much disturbing the Stomach. It is given to the Weight of two Drams, in Honey and Water. Chuse what is whitest, very friable, and least ligneous and worm-eaten. *P. Aeginet. Lib. 7. Cap. 3 & 4.*

Agaric purges Flegm and Bile, and not violently. The Dose is two Drams in Honey and Water, or Oxymel. *Oribas. Med. Collect. Lib. 1. Cap. 17.*

The Root of *Agaric* tastes sweet at first, but soon after bitter, and at last leaves a Sort of Acrimony, and light Astringency on the Palate; whence it is evident, that this Medicine is compounded of an airy and earthy Substance, which is attenuated by Heat. But it participates least of an aqueous Essence. For these Reasons, it has the Faculty of digesting and incising gross Humours, and clearing the Viscera from Obstructions. *Oribas. Med. Collect. Lib. 15. Cap. 1. from Galen.*

By its digestive and incisive Qualities, it cures the yellow Jaundice, when it arises from an Obstruction of the Liver; the Epilepsy; takes off the cold Fits of an Ague, which arise from thick and glutinous Humours. *Oribas. Virt. Simpl. Lib. 2. Cap. 1.*

Agaric is thus distinguished by the Moderns:

Agaricus, Ger. 1183. Emac. 1366. Sterb. 245. Tab. 27. C. *Agaricus, sive Fungus Laricis*, C. B. 375. Elem. Bot. 441. Tourn. Inst. 562. *Agaricus ex Larice*, Park. 249. *Agaricum*, J. B. 1. 268. Raii Hist. 1. 107. **AGARIC.** *Dale.*

There are two Species of *Agaric*: The Female *Agaric*, which is white, light, friable, and tender, sweet at first to the Taste,

but leaves a Bitterness behind, and is of a penetrating Smell; this is the best Sort. The other, called the Male *Agaric*, is yellow, compact, heavy, and tenacious; and this is good for nothing.

It is of the Class of the Fungi, and grows on the Trunks and largest Branches of many Sorts of Trees, especially the Larch and the Oak. It consists of a fistulous Wood: If it be beaten with a Hammer, and a Spark afterwards light upon it, it becomes all in a Blaze; whence it is called *Ignarius*. *Boerhaave.*

It does not shoot up in a Night, like the rest of the Fungi, but requires a whole Year for its Perfection. *Dale.*

If *Agaric* works not downwards, it is apt, in some, to cause a Tremor and Resolution. *Aetius Tetr. 4. Serm. 1. Cap. 81.*

It is ranked among the poisonous Roots, Thapsia, Aconite, Ilias, white Hellebore, and Ephemeron. *Ibid. Cap. 45.*

The poisonous Sort is called *Black Agaric*, by *Aetius*; *Metb. Med. Lib. 5. Cap. 12.* and *P. Aeginet. Lib. 5. Cap. 64.*

AGARIC is a woody, fungous Excrescence, that grows on the Body of old Larch-trees; outwardly it is covered with a hard, tough, brown Crust or Bark; which being pared off, the *Agaric*, is of a white Colour: That which is very light and friable, easy to cut, and without Knots, of a pure white Colour, is to be preferred. The Marks of the best *Agaric*, according to Dale, are contained in this Distich:

*Res frangi praesto pretiosus Agaricus esto;
Candidus et splendens, bonus in libra leve pendens.*

It is of a bitter, nauseous Taste, with an ungrateful Sweetness, which makes it rarely given by its self, but mixt with other purging Medicines.

It is accounted a strong Purger of watery and bilious Humours; useful in the Gout, Rheumatism, Dropsy, and Jaundice, and to cleanse the Lungs of tough Flegm, and is of Use in Epilepsies, and obstinate Head-achs. The best *Agaric* comes from Barbary; what comes from Russia, is not so good. What comes from the Woods near Trent, and those Parts near the Alps, is accounted the best, says Dale.

Official Preparations, are *Pilula de Agarico*, & *Agaricus Trochiscatus*. Miller, Bot. Offi.

It is corrected with Ginger, Clove Gillyflowers, Sal Gem. Crystals of Tartar, &c. *Dale.*

Agaric is an Excrescence, that is found upon the Trunks, and large Branches of several Trees; but chiefly upon the Larch-tree, called by the Latins *Larix*, and upon several Sorts of Oaks; but the best of all ought to be such as is white, light, tender, brittle, and of a bitter Taste, pungent, and a little styptic. And this is the *Agaric* the Antients used to call the Female. As for that which is termed the Male, it is usually heavy, yellowish, and woody, which ought intirely to be rejected from Physical Uses.

The best *Agaric* is that from the Levant, it being abundantly better than what comes from Savoy or Dauphiny. We have likewise some brought from Holland, that is rasped, and blanched, on the Outside, with Chalk. In short, none is fit for Use but the Levant *Agaric*.

Agaric was a Medicine so familiar to the Antients, that they made Use of it, not only for purging Flegm, but likewise in all Distempers proceeding from gross Humours and Obstructions; such as Epilepsy, Vertigo, or Giddiness of the Head, Madness, Melancholy, Asthma, and Distempers incident to the Stomach, and the rest of that Kind; yet they complained, that it weakened the Bowels, and purged too churlishly; upon which Account, Galen steeped the Powder of it with Ginger, and gave it, to a Dram, in Oxymel, or Honey of Squills, it is prescribed, tho' rarely, from a Dram to two; but in Decoction, or Infusion, from two Drams, to half an Ounce.

By a chymical Solution, it passeth almost all away into Oil. It yields no volatile Salt, but abounds with a Sort of scaly Earth, and an acid Flegm, from whence the Infusion of *Agaric* makes blue Paper of a purple Colour. Hence it clearly appears, that it ought to be corrected with Cloves, Cinnamon, Mace, Mint, Worm-wood, and others of this Kind. Its Slowness in Working may be helped or promoted with Scammony and Calomel; or it may be wetted in some purging Decoction, made of Asarabacca, Sena, and other Purgatives, and then dried again, and formed into Lozenges, adding Balsam of Peru, or Oil of Cinnamon.

We must not forget to take Notice that Lusitanus admonishes us to make Use of the Treches of *Agaric*, or Lozenges, while they are fresh, and new made, lest their Virtue be weakened by long Keeping. *Pomet.*

Agaric appears to have been in high Esteem with the Antients, however, disregarded by the Moderns, for good Reasons. It is very slow in Operation, and, by its long Stay in the Stomach, excites Vomiting, or, at least, insupportable Nauseas, followed by Sweats, Faintings, and long Weakness, with a lasting Aversion for all Kinds of Food. Very likely

the Antients, who had not so great a Choice of Purgatives as we have, were not so delicate.

Agaric is a Kind of Fungus, that grows upon the Larch-tree. Some take it for an Excrescence, or Tumor, produced from a Disease in the Tree: But M. Tournefort makes no Scruple to place it with the other Fungi among the Plants. 'Tis supposed, that what is brought to us from the Levant, which is the best, comes from Tartary. We have it also from the Alps, the Mountains of Dauphiny, and from the Trentine. There is a bad Sort of *Agaric*, which does not grow upon the Larch-tree, but upon Oaks, Beeches, &c. whose Use would be very pernicious. To proceed, *Agaric* is divided into Male and Female. The Male is of a rough and uneven Superficies, its inner Substance very fibrous, ligneous, not easily separated, ponderous, and of various Colours, excepting white. The Female, on the contrary, has a fine smooth Superficies, of a brown Colour, and under that a white friable Substance, easily reduced into a Meal, and consequently light and porous. Both of them taste sweet at first upon the Tongue, but leave a Bitterness, and Acridness behind them, especially the Male, which is never used in Medicine; and perhaps this is what never grows upon the Larch-tree.

M. Boulduc made Experiments upon the Female *Agaric*, with the two grand Dissolvents, the Sulphureous and the Aqueous. He extracted, with Spirit of Wine, a resinous Tincture, of an intolerable Smell and Taste. A Drop of it, put upon the Tongue, raised a Vomiting, and caused a Disgust to every Thing for the whole Day. Two Ounces of *Agaric*, yielded six Drams and a half of Tincture. The Residuum, which weighed but nine Drams, would afford no more; it was nothing but a Mucilage, or a Sort of Mud.

Upon this, M. Boulduc began to suspect, that this useless Mucilage, which was in so great a Quantity, might come from the farinaceous Part of the *Agaric* after it was thus moistened and macerated, and the resinous Tincture only from the superficial or cortical Part. He assured himself of this by Experiment, for having separated the two Parts, he extracted all his Tincture from the Outer, and hardly any from the inner Substance; which shews, that the former is the only Cathartic, and all of it that is useful, supposing it be used, for it is always very disagreeable, creating great Nauseas, and must be mixed with other Cathartics, to diminish its ill Effects.

The aqueous Dissolvents had no extraordinary Success upon the *Agaric*, more than the other. Water, by itself, extracted nothing: Nothing came off it, but a thick Mucilage, with a Dirt, and no Extract. Water with the Help of Salt of Tartar, the alkaline Salts of Plants, usually dissolving their resinous Parts, produced another Mucilage, which, after some Days Settlement, shewed its upper Part transparent, in form of a Jelly, and very different from the Bottom, which was very close and dense. From this upper Part, separated from the other, M. Boulduc drew, by Evaporation, in a gentle Heat, an Extract of a pretty good Consistence, which ought to contain all the resinous and saline Parts of the *Agaric*, one extracted by the Water, the other by the Salt of Tartar. Two Ounces of *Agaric*, with half an Ounce of Salt of Tartar, yielded an Ounce and half a Dram of that Extract. It purges very well, without Nausea, and much more gently than the resinous Tincture, extracted by the Spirit of Wine. As to the under Part of the Mucilage, it does not purge at all, being no more than the Earth of *Agaric*.

M. Boulduc having used distilled Vinegar, instead of Salt of Tartar, and after the same Manner, he obtained an Extract in all Things like the other, and of the same Virtues, but in a less Quantity.

The Distillation of *Agaric*, yielded M. Boulduc, a good Quantity of volatile Salt, and a little essential Salt. There was very little fixed Salt in the *Caput Mortuum*.

The Male *Agaric*, which M. Boulduc calls False *Agaric*, with which he would not have troubled himself; but that he was willing to neglect nothing in this Affair, has very few resinous Particles, and still fewer of volatile or essential Salt: Whence it seems to proceed only from old rotten Trees, who have undergone a Resolution or Diffipation of their active Principles.

The Infusion of this *Agaric*, in Water, turns it as black as Ink, when mixed with a Solution of Vitriol. The Use of Male *Agaric* is to dye Black, and hence we see a good deal of Agreement between it and the Gall, which is an Excrescence of a Tree. *Histoire de l'Academ. Royale*, 1714.

Lemery says, the Dose of *Agaric* is from half a Dram to a Dram and a half in Infusion.

Agaric is so variously described by the Antients, and with Characters so different from those of the modern Drug of that Name, that I am forced to believe they are not the same. What it was, or whence it came, was not thoroughly understood by the Antients themselves. You may learn its Country by its Name; for Dioscorides would have it called *Agarikon*, because it grows in *Agaria*, in *Agaria*; and yet he tells us, that it is generated in *Agria*, in *Agria*, a Country

of Sarmatia; but then its Name would not be *Agaricum*, but *Agrium*, or *Agriacum*. The foregoing is rendered wrong, by some Interpreters, *In incultis & agrestibus Sarmatia, In the wild and uncultivated Regions of Sarmatia*. The *Agriai*, *Agriai*, in Stephanus, are a People of Pannonia, between Hæmus and Rhodope; and Strabo places the *Agri*, near the Palus Mæotis, which would be more to the Purpose, for their Country would then be called *Agria*, *Agria*. But still the Nomen *Agria* [Name formed from that of the Country] would be *Agria*, *Agria*, not *Agarikon*, *Agaricum*, which requires that the Country from whence it is called be named *Agaria*, *Agaria*. But where is this *Agaria*? Ptolemy mentions the River *Agarus*, and the *Agarian* Cape in European Sarmatia. The Sheep of the same Place are called *Agaricæ*, *Agaricæ*, in an Epigram of Crinagoras among the Anecdotes. It describes a strange Kind of Sheep that came from *Agaria*, which it seems to make a Country of Armenia, situated upon the River *Araxes*:

Τὸς αἰὲς γὰρ μὲν Ἀγαρίων, οὗτος Ἀγρίων
Ἰδὼν ἀνδροφόνος ὠμίαν Ἀγαρίων, &c.

But the Incoherence of the Sense proves, that there is something wanting in the Beginning of this Epigram, which we are to supply by saying, that the Breed of these Sheep were brought from *Agarica*, a Country of Sarmatia, into Armenia. The old Scholiast on this Epigram remarks, that this Kind of Sheep were found not only in Armenia but Scythia. I make no Doubt but the *Agri*, of Strabo, L. II. ought to be read *Agaric*, *Agaric*, and the *Agria*, *Agria*, of Dioscorides is put by Mistake for *Agaria*, *Agaria*. From thence comes *Agaricum*, and *Agria* in Crinagoras, who doubled the *Rho* for the Sake of the Metre, as we read *Agria*, and *Agria*. Well then *Agarikon*, *Agaricum*, comes from the *Agarians*, a People of Sarmatia, and being so far fetched, I do not wonder that the Antients knew so little of it, but should much wonder, if the Moderns were better acquainted with it. Nay, we may conclude, from what has been said, that what is now sold for *Agaric*, is not *Agaric*, if it be fetched no farther than the Mountains of Trent, or Tyrol, and the Country of the Grisons, where Larch-trees abound; for they say it is produced from no other Tree but the Larch-tree. But had the Antients found that *Agaric* grew so near their Doors, and on so common a Tree, they had not been at so great a Loss, about its Nature as well as the Place of its Growth. Dioscorides doubts whether it be a Root, but takes it on Report. *Agarikon ἔστι φέρονται σφόδρα ὑψηλῶς*. "*Agaric* is said to be a Root resembling Silphium." The Root of Silphium, according to Theophrastus, is a Cubit long, and has a tuberous Head, which appears above Ground. If the modern *Agaric* be compared with this Description, it will hardly stand the Trial, for it is a mere Fungus of the Larch-tree, of that Sort of Fungi which grows and adheres to the Trunks of old Oaks, and served the Antients instead of Tinder, to light their Fires. The later Greeks call it *ῥοκας*, that is to say, *Escas*, *Baits*. Had the *Agaric* of the Antients been thus qualified, they could hardly have questioned its being a Root not unlike the *Laserpitium*. But Pliny plainly signifies *Agaric* to be a Fungus, growing chiefly on glandiferous Trees in Gallia. "It is, says he, a white Fungus, odoriferous, medicinal, growing on the Tops of Trees, shining in the Night, whence it takes its Characteristic, which is to be gathered in the Dark." Dioscorides says not a Word of this Sort of *Agaric*. As for Pliny, I do not question, but a Piece of Wood, putrefied to the Degree of shining by Night, was imposed upon him for *Agaric*. I have often seen the like in Burgundy, and held it in my Hands. It is a Piece of Oak, putrid, white, and odoriferous. It smells like a Sort of Mushroom, commonly called *Potirones*, and shines by Night at such a Rate, that it frightens those who are just awoke from Sleep, and know nothing of the Matter, with its wonderful Lustre. The Peasants call it *Shining Wood*. It is indeed of a fungous Nature, and a thin Contexture, as Dioscorides describes his *Agaricum*; and hence Pliny, or he from whom he borrowed it, suspected it to be a Fungus. But this Rareness of Contexture is not natural but adventitious; for it is a Wood which becomes thin and fungous by Putrefaction. Besides, it has strait Veins within its Substance, as Dioscorides relates of the Female *Agaric*. Lastly, he tells us, from the Opinion of others, that *Agaric* is generated by Putrefaction, and grows on certain Trees; and this too is true of our *Shining Wood*. The Words of Dioscorides, in which he recounts the various Opinions concerning the Rise and Generation of *Agaric*, are written in a very antient Copy, which is widely different from the Vulgate, after the following Manner: *Ἀγρίων δὲ αἰ μὲν φασὶ ἔχειν, οὗτος δὲ ἐν σκίνοισι δίδρασι κατὰ σὺν γένεσιν. καὶ ἄλλοι δὲ μὲν τινος ὑψηλοῦ, i. e. Some say it is the Root of a Plant; others that it is generated from Setime-trees by Putrefaction, after the Manner of Fungi.* The Passage, as it stands thus, is much to be preferred before that in our Edition. Mark his Words: He does not say it is a Fungus, but is generated, like a Fungus, from a Tree, suppose an Oak, or another Tree.

Tree. Now the common *Agaric* is plainly a Fungus of the Larch-tree. And indeed, if *Agaric* were a Fungus, it could never have entered into the Heads of the Antients to fancy it the Root of a Tree, especially when it is reported to resemble the Root of *Laserpitium*, which, they say, is above a Cubit long, and of a competent Thickness.

Let us now inquire what are those *Setine-trees* from which Dioscorides writes that *Agaric* is generated by Putrefaction; for so are the Words in that forementioned choice Manuscript, which is written in larger Letters than ordinary, τὴν δὲ ἐν στήναις, &c. as before; whereas our Editions have it: τὴν δὲ ἐν τοῖς τριχύναις τῶν δένδρων, i. e. others say in the Trunks of Trees. As Decay begets *Agaric* on Trees, so Corruption, rather than Correction, begot this Reading. We know that Avicenna read στήναι δένδρα in Dioscorides, by his Version of the same; for he translated that whole Chapter of Dioscorides concerning *Agaric*, and rendered στήναι by *corrofas*, *corroded*, as if it were στήναι. Nay, in the Beginning of the Chapter, he cites Dioscorides by Name, in the Arabic Edition, not the Son of Mesue, as it is in the Latin Version. Serapion also reads Dioscorides after the same Manner, for, after mentioning him, he quotes all his Words, and renders this Passage thus, according to the Latin Interpreter: *Et quidam dicunt quod generatur in putrefactione Arborum, quando corroderentur, sicut generantur fungi.* Some say it is generated in the Putrefaction of Trees, when they are corroded, as Fungi are generated; where it is plain, that he takes στήναι, *setina*, for στήναι, *setobrota*, *corroded*.

This Depravation of the Text in Dioscorides is of such Antiquity, that all the Copies I have seen, except that most ancient one, agree with the Vulgate, in reading ἐν τοῖς τριχύναις τῶν δένδρων, in Trunks Arborum, in the Trunks of Trees. But the Original was not altered in the Days of Avicenna and Serapio. They had however the Misfortune to make a wrong Interpretation of a right Reading; for, I believe, none who understands Greek will acquiesce in their Exposition of στήναι, *setina*, by *corrofa*. For, in the first Place, the Greeks do not call those Worms which corrode Wood, στήναι, *Setas*, but θρίπας, *Thripas*, and σκώληκας, *Scolecus*. Hence they call σκώληκώβροτα δένδρα, *Scolecobrota dendra*, and θρίπώβροτα, *Thripobrota*, *Worm-eaten Trees*. Σὺν στήναι, *ses*, properly signifies a Worm, or Moth, that lives among Garments; hence στήναι ἱματίων, *setecopa himatia*, *Moth-eaten Clothes*. Again, I think, that στήναι, *setinon*, can by no Means, according to the Greek Idiom, be put for στήναι, *Setobrota*, or στήναι, *Setacopon*; and all that are well versed in the Greek will agree with me. For who ever found σκώληκον, *scolecium*, to signify what is corroded by Worms? At this Rate of Etymology, a Man bitten by a Dragon must be said to be δρασίνων, *Dracontinus*; one stung by a Viper, *Viperinus*; and another, devoured by a Serpent, *Serpentinus*. Lastly, *Agaric*, indeed, springs from a Decay by Putrefaction in Trees, but not from their Corrosion by Worms. For the Fungi, which have the same Principles of Growth, as owing their Rise to Putrefaction, yet delight to grow on whole Trees. A little after, Dioscorides adds, that it grows in Galatia and Cilicia on Cedars, but does not say that these Cedars were Worm-eaten.

It remains therefore for us to conclude, that στήναι, *Setinum*, is the Name of a particular Sort of Tree, on which *Agaric* grows, according to the Report of those from whom Dioscorides had it, for no other Interpretation, but what is false, can be given of the Word in this Place. And after all my curious and diligent Enquiry, I could find no Tree among the Greeks, that would agree with this Name and Place, except that celebrated one, so often mentioned in *Holy Writ*, where we read that this and that Utensil or Structure was made or fabricated of Wood of *Setim*, for the Ark of the Covenant, and the Tabernacle with most of its Vessels, were made of this Wood. They call it עֵשֶׂב שִׁטִּים *Sittim*. It was otherwise written, שִׁטִּי, *Setim*, as the vulgar Version has it *Ligna Setim*, *Wood of Setim*, and it was commonly understood to signify the finest and choicest Sort of Cedar. From this שִׁטִּי, I could almost swear, some Hellenistical Writers formed their στήναι δένδρα, *setina dendra*, to signify Cedars. So from Φοινῖς, *Phonix*, comes Παλαιστίνος, *Philisti eim*, *Palastini*, and from Χερύβει, *Cherubini*. The Arabians also say *Cherubin* for the Hebrew *Cherubim*; and Σήναι δένδρα, *Setina dendra*, is said after the Manner of Κέδρα δένδρα, *kedra dendra*, *Cedrina leucina*, *dryina*, *dendra*, in the same Dioscorides, *de Bryo*, Lib. 1. Cap. 20. It was very natural therefore for the Hellenist Writers, to put στήναι δένδρα, *setinon dendron*, *setine Wood*, for the Hebrew שִׁטִּי, *Sittah*, or *Sittah*, which is of the singular Number, and makes in the Plural *Setim*. It is put for a Kind of Tree, *Isai*. XLI. 19. where some erroneously join it with הָדָס, *Hadas*, a *Myrtle*, in Nature of an Adjective. Others combine it with the preceding Name of a Tree, which they interpret the Cedar, עֵץ שִׁטִּי, *erez sittah*, which they would have to be the best Sort of Cedar. But there are three Kinds of Trees reckoned up in that Place, *Erez*, *Sittah*, and *Hadas*; if then *Erez* be a Cedar, *Sittah* will be another Sort of Tree. And, indeed, the Arabians call the Cedar by the Names of *Erz* and *Erza*; but most take *Sittah* for the choicest Kind of Cedar, which Opinion of theirs seems confirmed by this Place, where the στήναι

δένδρα, *setina dendra*, are κέδρα, *Cedrina*, *Cedar-wood*. The Septuagint for *Wood of Setim* constantly render ἀσπίς ἕβρα, *incorruptible Wood*; now Incorruption is a Property of the Cedar, which is not sensible of Age or Rottenness. "The Matter of it," says Pliny, lasts to Eternity, therefore the Images of the "Gods were made of it." The incorruptible Nature of the Cedar is also celebrated by Theophrastus. What Dioscorides writ about *Agaric*, he collected from different Authors; so that when he found in one that *Agaric* grew ἐν στήναις δένδρων, on *Setine-trees*, and in another, that it flourished ἐν κέδραις, i. e. upon Cedars, he concluded they were different Trees; whereas they who asserted that *Agaric* grew on *Setine-trees*, and the others, who would have it to be generated from the Cedar, said both the same Thing, for the *Setine-tree* is the Cedar.

But if *Agaric* grows on Cedars, I do not see how it can come from Scythia or Sarmatia, where are no Cedars. But it took its Name from *Agaria Sarmatica*. Let others examine into the Reason of that. Theodotion translated *Setim*, a *Thorn*, ἀκανθῶν; and indeed, there is a thorny Kind of Cedar, which the Greeks call ὀξύκεδρον, *Oxycedrum*, which grows plentifully in Lycia and Cilicia; and there *Agaric* also is very common, as Dioscorides writes from bare Report. But Theodotion meant quite another Thing than the *Oxycedrum*, or thorny Cedar. Jerome expounds it to be a Tree that grows in the Wilderness, like the white Thorn, whose Wood is incorruptible, and the smoothest (ῥαβδωτός) of all Woods, and for Strength, Solidity, Brightness, and Beautiffulness, as far exceeding them. This is very applicable to the Egyptian Thorn, which the Greeks call ἀκανθῶν, or ἀκανθα, the *Thorn*, by Way of Eminence. It grows in the Desert, is incorruptible and everlasting, and remarkable for its Firmness and Brightness. By saying it is like the white Thorn, Jerome means the *Oxyacanthus* of the Greeks, which we also call white Thorn at this very Day. It is called white Thorn by Columella also. And the Comparison is not amiss between the Egyptian Thorn and this white Thorn. For the Egyptian Thorn is not very tall, nor does the white Thorn grow to a Tree of any considerable Height. Theophrastus makes two Kinds of Egyptian Thorn; the *White* and the *Black*. The *White* is of no firm Substance, but Subject to Putrefaction; the *Black* is solid and incorruptible, therefore its inner Substance, or Heart, is used in Ship-building. Pliny, speaking of the Trees peculiar to Egypt, says, "Nor is the Thorn of this Country less worthy of Notice, that is, the black one, for it endures under Water incorrupted, whence it is very useful in building the Sides of Ships." Of this Thorn must Theodotion be understood, when he renders *Setah* and *ligna Setim*, by ἀκανθα, *Acantha*, and ἀκανθίνη, *Acanthina*; the Name will suit with nothing else. For the Arabians call this Tree *Seitan*, or *Saten*, which may also be read *Sitan*. It is that Thorn from which they gather the Gum Arabic, and make the *Acacia*. Alphagus, in his *Index* to Avicenna, says, "Alcharad; or Alchara, or Alchrath, is the Fruit of the great thorny Tree; which grows in the Country called Bassera in Egypt, and is called by the Egyptians *Setan*." Prosper Alpinus says, it is called *Sant*. "Acacia, which the Egyptians call *Sant*, grows in those Parts of Egypt, which are most remote from the Sea."

The Fruit of the Egyptian Thorn is called in Arabic *Karath*, from the Greek κάρατος, which signifies a *Husk*; with the Article *al*, *Alkarath*, for its Fruit is a *Husk*, according to Theophrastus. I make no Doubt, but the *Sittah*, or *Setah*, of the Hebrew is the same with the *Setten* of the Arabians, which is the Egyptian Thorn that grows in the Desert, and is rightly translated by Theodotion ἀκανθα, *Acantha*. For in the Place of Isaiah above quoted, *Setah* is manifestly distinguished from the Cedar, which the Arabians, as well as Hebrews, call *Erez*. Besides the Name all their Characters agree. Yet the Hellenist Authors, from whom Dioscorides borrowed his Information, that *Agaric* grew on *Setine-trees*, seems to have taken them for Cedars, as that Word is generally interpreted; for it was the prevailing Opinion that *Agaric* was generated on Cedars.

Many other Things did Dioscorides borrow from Hellenist Writers, who translated foreign Words into their own Greek Idiom; as when he says of *Cancamum*, that it was a Tear, ἄρβυκος ἕβρα, *Arabic Ligni*, for ἄρβυκος δένδρα, *Arabic Arboris*; which is according to the Syriac Idiom, and quite remote from the Greek. So in his Account of the Palm-tree, he tells us that the unripe Date, while it is yet in its Husk, is called ἑλάτης, *Elates*, and by some βόρσος, *Borassus*; which is purely Hebrew, only transposed for βόρσος, *Borassus*; for בֹּסֶר, *Bofer*, is a *four Grape*. The Arabians also call an unripe Date *Besser*, which the Greeks, who adopt the Arabic Terms, name *Betré*. An ancient Interpreter of Avicenna has it *Bussurum*.

Pliny, Lib. 16. Cap. 8. will have *Agaric* peculiar to Gallia; and a Fungus of glandiferous Trees; but, in Lib. 25. Cap. 9. he says it is generated like a Fungus on the Trees about the Bosphorus. These are very different Accounts; and yet in this last he mentions the Gallican *Agaric*, which, he says, is thought to be of a weaker Kind. Perhaps he was led into an Error by the Homonymy of the Words in the Name *Galatia*, which with the Greeks signifies both *Gallia* and *Galatia*. Dioscorides always calls this last Γαλατίας τῆς κατ' Ἀσίαν, *Galatia which is in Asia*;

to distinguish it from the other Galatia, that is in Gallia, which in another Place he calls *Galatia* *zari* *Agaricus*, Galatia, in which are the Alps, L. 3. C. 28. But, to come to a Conclusion, the Gallican *Agaric* of Pliny seems quite different from the Galatian *Agaric* of Dioscorides. The latter grows on Cedars, like a Fungus. Pliny's *Agaric* is a Fungus peculiar to glandiferous Trees, and shines by Night, which are the very Characters, as I said, of the putrefied Wood, most commonly Oak, which so remarkably glitters in the Dark. Dioscorides, in his Description, has divided *Agaric* into Male and Female, and takes no Notice of the Distinction into White and Black. But in another Place, Lib. 5. he mentions black *Agaric* among the Poisons, and reckons it in the List of venomous and deadly Roots, which, according to his Account, are Hellebore, Ixias, black *Agaric*, and the Ephemeron, which some call Colchicum. I wonder, he says nothing of it in his Chapter of *Agaric*. I suspect the Male *Agaric* was the black and the poisonous Sort, though he says no such Thing there. "But the Male Kind is not good, but hard and black," says Avicenna. The two Kinds are made to differ very much in Form and Substance, according to Dioscorides; and yet their Tastes, he says, are alike. The Moderns set the highest Value on that *Agaric* which is most friable. Dioscorides depreciates the Cilician and Galatian *Agaric* on that very Account, because it is of a weak Contexture, and very friable.

All these Things considered, I am almost persuaded that the *Agaric* of the Antients was not the same with that which now passes under that Name. I read in Isidore, that *Agaric* was the "Root of the White Vine." Hesychius tells me, that *Agaric* was "an Herb so called by Physicians." He terms it an Herb, because others had made it a Root. Galen, L. 7. Περὶ δυνάμεως, after he has named *Agaric*, and declares its Virtues, begins, as it were, again, with mentioning the Root of *Agaric*, in these Words, which are corrupted. Ἀγαρικὸν ῥίζα τὸ ἐν τῷ κορμῷ τῆς ξύλου. i. e. "The Root is what grows to the Stock of the Tree." They seem an Interpolation, except you read them thus: Ἀγαρικὸν ῥίζα τὸ ἐν τῷ κορμῷ τῆς ξύλου, i. e. "That is accounted the Root of *Agaric*, by which it grows to the Trunk or Body of the Tree." The Arabians have nothing about *Agaric*, but what they learned from the Greek Books. The Name they have for it is purely Greek, viz. *Garicon*, and in an old manuscript Translation of Dioscorides into Arabic, you have the Word kept intire, viz. *Agaricon*. *Salmas. de Homonym. Hyl. Iatric.*

There are several of the Fungi which are also called *Agarics*, as:

Agaricus digitatus maximus, ex luteo, coccineo, & nigro colore elegantè variegatus.

Agaricus villosus tenuis, inferne lævis, C. Giff. 193. *Fungus arboreus villosus*, inferne planus, Doody Syn. 2. App. 335.

Agaricus membranaceus sinuosus substantia gelatinæ, C. Giff. 194. *Fungus membranaceus parvus aureus*, Sterb. P. 242. Spec. 113. T. 26. Luteus Sambucino similis, colore suo manus inficiens, Genista vulgari spinosæ adnascens, Merr. Pin. putridus arborum ramis inhaerens, plurimis simul coherentibus, C. B. Pin. 372. 2. *Fungi dicti spongiae lignorum perniciosi*, J. B. 3. 841. F. perniciosi, Gen. 24. Species 3. Clus. H. 288. Syn. 2. 19. 40. On rotten Wood in England and Ireland. Observed by Dr. Sberard and Mr. Dale.

Agaricus mesentericus violacei coloris, C. Giff. 194. *Fungus arboreus purpureus corrugatus*, Doody Syn. 2. App. 336.

Agaricus Lichenis facie variegatus, Inst. R. H. 562. *Fungus salignus Lichenis forma variegatus*, C. B. Pin. 372. 7. *Quartus perniciosus*, Clus. H. 277. *Depictus*, Sterb. 240. T. 26. A. *Fungi Salicium*, colore varii, perniciosi J. B. 3. 842. Nec lamellatus, nec porosus est. A. D. Sberard observatus.

Agaricus pedis equini facie, Inst. R. H. 562. *Fungus durus sive ignarius*, Park. 1323. (fig. mal) in caudicibus nascens, unguis equini figura, C. B. Pin. 372. 3. F. arborei ad ellychnia, J. B. 3. 840. Touchwood or Spunk.

Agaricus intybaceus, Inst. R. H. 562. *Fungus intybaceus*, J. B. 3. 839. Syn. 2. 14. 21. *Arboreus maximus porosus*, diversimode se dividens & protrudens, Doody Syn. 2. App. 336.

Agaricus officinali similis, C. Giff. 192. *Agarico similis Fungus diversarum arborum caudicibus adhaerens*, C. B. Pin. 375. 2. *Fungus arboreus albidus maximus*, seu *Agaricus spurius*, Doody Syn. 2. App. 335.

Agaricus porosus rubens carnosus, hepatis facie, C. Giff. 192. *Fungus hepatis facie & colore*, Merr. Pin. *Arboreus rubens carnosus, hepatis facie*. Doody Syn. 2. App. 340.

Mr. Doody found it near Hally in Kent, and since received it very fair from Mr. Chaplin, gathered in Suffolk, as you go from Sir Robert Dillington's House to the new Church in the Isle of Wight. Merr. Pin.

Agaricus multiplex porosus, C. Giff. 193. *Fungus circulum gradatim perficiens*, cujus diameter quandoque triginta vel plures pedes conficit, Merr. Pin. In montosis pascuis non infrequens, referente Merret. Memorabilis est magnitudinis & plures juxta se oriri solent, qui satis latum spatium ambitu suo complectuntur.

Agaricus porosus ignarius Fagi, superne candicans, inferne fuscus, C. Giff. 193. *Fungus pedem equinum referens, subtus foraminosus*, Dood. Syn. 2. App. 336. Ad arbores. Ignarius dicitur, quod ca-
ro ejus in fomitem igni concipiendi idoneum præparari queat.

Agaricus porosus ignarius Carpini, C. Giff. 193. *Fungus arboreus maximus fuscus, subtus planus*, Doody Syn. 2. App. 335. Lateraliter Ulmo adherentem prope Epsom invenit D. Plukenet.

Agaricus varii coloris squameus, Inst. R. H. 562. *Fungus arborum & lignorum putrescentium, coloris varii*, Syn. 2. 18. 31. *Cerasorum imbricatum alter alteri imitatus variegatus*, C. B. Pin. 372. 8. *Fungi Cerasorum coloris varii perniciosi*, J. B. 3. 842. *Fungus semicircularis durus, multos durans per annos*, Merr. Pin. *Holofericeus iridiformis quasi, colorum alternatione variegatus*, Cat. Alt. *Inferne foraminulentus est, non lamellatus, colore albicante. Non Ceraso tantum, sed & aliis passim arboribus adnascitur.*

Agaricus villosus & porosus, substantia coriacea, C. Giff. 193. *Fungus arboreus variegato illi Cerasorum, &c. C. B. Similis, sed hirsutior, foraminulis etiam majoribus*, Doody Syn. 2. App. 336. *Arboribus junioribus plerumque adnascitur.*

Agaricus villosus, lamellis sinuosis & invicem implexis, C. Giff. 192. *Fungus arboreus villosus albus, foraminibus oblongis, semicircularis*, Doody Syn. 2. App. 336.

Agaricus quernus lamellatus, coriaceus albus, C. Giff. 191. *Fungus arboreus inferne foraminibus longis & rotundis insculptus*, Doody Syn. 2. 18. 33. Hic a D. Dale pariter observatus.

Agaricus quernus lamellatus coriaceus villosus, C. Giff. 191. *Fungus arboreus holofericeus, inferne lamellatus*, Syn. 2. 14. 26.

Agaricus parvus lamellatus, pectunculi forma elegans, C. Giff. 192. *Fungus parvus lamellatus, pectunculi forma Alno adnascens*, Syn. 2. 14. 27. Common in Woods in Ireland. Dr. Sberard. In the Woods near Dulwich, and many other Places. Mr. Doody.

Agaricus parvus lamellatus croceus, e Corylorum ramulis dependens. Undulatus est & figura sua lobum nucis juglandis non male refert. Croceo colore manus inficit. Corylorum ramis aridis & emortuis plerumque adnascitur.

Agaricus coriaceus longissimus, pectinatim inferne divisus. Raii Synopsis Methodica.

AGARICUS also is a Name for the *Marga Candida*, or white Stone Marl. See MARGA.

AGASYLLIS. Ἀγασύλλης. According to Dioscorides, the Shrub (θάμνος) that produces the Guma Ammoniacum, L. 3. C. 98. See AMMONIACUM.

AGATHARCIDES. An Author quoted by Plutarch, Symposiac. L. 8. Probl. 9. as giving an Account of the endemial Distempers, to which the Inhabitants of the Coasts of the Red Sea were subject. For this Reason Le Clerc ranks him amongst Physicians. But in Reality he was not of the Profession. He wrote amongst other historical Pieces an Account of the Red Sea, and in this gives a Description of the Dracunculi, a Sort of Worm of a considerable Length, that breeds in the muscular Parts of the Legs and Arms. See DRACUNCULI, and UENA MEDINENSIS.

Agatharcides, who is distinguished from other Authors of the same Name, by the Appellation of *Cnidius*, lived in the Time of Ptolemy Philometor, who reigned about 130 Years after Alexander the Great. He wrote many Treatises, as we learn from Photius, but nothing relating to Physic, except what the natural History of the Red Sea led him into.

His Works are lost.

AGATHINUS. A Physician quoted by Galen, Caelius Aurelianus, and Aetius. He wrote upon Hellebore, and the Pulse, and other Subjects. He was of the Pneumatic Sect, and consequently a Follower of Athenæus. Suidas informs us he was Master to Archigenes, who practised Physic at Rome, in the Time of Trajan. His Works are lost.

AGATHON. Ἀγάθων. The common Signification of this Word is good. But, according to Galen, Hippocrates uses it in a Sense somewhat different from other Writers, which is no uncommon Thing, both with Respect to this Word and many others. In this Author it sometimes signifies certain, firm, true, or perpetual.

AGATHONIS ANTIDOTUS HEPATICA. Agathon's Antidote for the Liver. This is a Medicine described by Myrepsus, S. I. C. 268. It is thus prepared:

Take of Gentian six Drams; of Elicampane, Wormwood, Spikenard, each one Dram. It is given to feverish Patients in Water, to others in Wine.

AGATY H. M. Galeæ affinis Malabaricæ arborescens, siliquis majoribus articulatis, D. Syen.

It is four or five Times the ordinary Height of a Man, and its Body as much as a Man can fathom. The Branches that grow out of the Middle and Top of the Tree, extend themselves in Height more than in Breadth. It grows in sandy Places. The Root is of a dark Colour, and spreads its hairy Fibres all around to a considerable Compass, and is of an astringent Taste. The Wood is of a soft Substance, and its inmost Pith, or Heart, softest of all. If an Incision be made in the Bark, there distils from it a thin and watery Liquor, which afterwards grows thick and gummy. The Leaves are pennated, almost a Span and a half long, two Lobes being connected to the main Rib, directly opposite to one another, the Pedicles very short, and bending forwards, the Lobes small, of an oblong Figure, and roundish

roundish at the Edges, about an Inch and half long, and a Finger's Breadth wide, almost of an equal Breadth from the Base to the Top, of a pretty close Contexture, and very soft, of an extraordinary Smoothness, of a lively Green on the upper Part, but fainter beneath, smelling like Beans, if they are rubbed. From the main Rib issue fine subtile Veins, which disperse themselves over the Leaf. The Leaves shut in the Night, with their opposite Lobes drawn close to one another. The Flowers which are of the papilionaceous Kind, and have no Smell, grow four, five, or more, on a little Twig, or Stalk, that comes out from the Axæ of the Leaves. The Flowers consist of four Leaves or Petals, which have this Peculiarity, that one of them, which raises itself above the rest, and two lateral ones bend in an Angle, are somewhat thick, whitish, and striated with Veins lengthwise; and the fourth, which is the broadest, is a round Oblong, striated with numerous subtile Veins, which proceed from the Base lengthwise, being first whitish, then yellowish, and a purplish Red. The Stamen forms an Angle, and is divided at the Summit into Filaments, or Threads, bearing oblong yellow Apices. The Calyx or Cup is deep, surrounding the Bases of the Petals with four short roundish Leaves, of a faint green Colour. The Flowers are succeeded by Pods, four Spans long, and a Finger's Breadth wide, somewhat round, strait, green, of a thick Rind, and containing Beans of an oblong Figure, each in its proper Cell, separated by carnosus Partitions, placed lengthwise in the Length of the Pod, somewhat protuberating, tasting like a Bean, and exactly resembling our Kidney-beans, only they are less, and turn whitish, or a greenish White; when they are ripe, they serve for Food.

It bears Flowers and Fruit, in rainy Seasons, two or three Times a Year, and sometimes, though but seldom, all the Year round. The Root mixed with the Urine of a Cow, and applied to the Place, discusses Tumors. The Juice of the Bark mixed with Honey, and used in Gargarisms, is good for the Quinsy, and Pustules in the Mouth. The Bark, boiled in Water and eaten, is beneficial in the Small Pox. The Juice of the Leaves, drawn up the Nostrils, relieves the Patient under inveterate Quartans, when the Day of the Fit comes. The Decoction of the Leaves purges pituitous and bilious Humours, and the Leaves themselves so eaten give Relief in the Vertigo and Cholera Morbus. The Flowers boiled are prescribed for a Catarrh, which Way they are also said to incite to Luxury. The Juice of the Flowers, dropped into the Eyes, takes away Films and restores the Sight. Ray, Lib. 31. Cap. 23.

AGELÆOS. Ἀγελᾶος. Gregarious, vulgar. It is sometimes joined with ἀγρός, and used to express the coarsest Sort of Bread. Athenæus.

AGEM. A Name of the *Syringa Persica*, or *Lilac Persicum*. Incisis Foliis. See SYRINGA.

AGER CHYMICUS. Dorneus in his *Genealogia Mineralium* says, Water is the Field (*Ager*) in which the Omnipotent has ordained that the Root of Minerals should be fixed, and from whence the Trunk and Branches shoot into the Earth.

The Uterus is also called the *Ager Naturæ*.

Ager, or *Agrorum Terra*, is also the common Earth or Soil. All fat Earths are good Applications for any Parts which want drying. The Egyptian clayey Soil was used by hydropical and splenetic Patients. Many also daubed with it their Legs, Thighs, Elbows, Arms, Sides, Backs, and Breasts, and found great Benefit by it. It cured old Inflammations and lax Tumors, and such as through an immoderate Evacuation by the hæmorrhoidal Veins, were over-run with hydropical and watery Humours, and it also intirely removed inveterate Pains fixed upon any Part. Aetius, *Tetrabib. l. Serm. 2. C. 3.* from Galen. See TERRA.

AGERASIA. Ἀγροσία. From a Negative, and ἥρως, Old Age. That State which maintains the Health and Vigour of Youth, in an advanced Age. What the Latins call *viridis Senectû*.

AGERATUM.

Maudlin thus distinguished: *Ageratum*, *Eupatorium Mefues*, Offic. *Ageratum foliis serratis*, C. B. 221. Boerh. Ind. A. 125. *Ageratum plerisque*, *Herba julia quibusdam*, J. B. 3. 142. *Ageratum*, *Herba julia*, Chab. 367. *Ageratum vulgare*, sive *Costus hortorum minor*, Park. 78. Raii Hist. 1. 364. *Achillea lutea*, *Agerati folio longiore*, A&R. Reg. Par. An. 1720. 322. *Balsamita fœmina*, Ger. 523. *Balsamita fœmina*, sive *Ageratum*, Ger. Emac. 648. *Parmica lutea suaveolens*, Elem. Bot. 398. Tourn. Inst. 497. MAUDLIN. Dale.

Ageratum is a spriggy Plant, producing from one Root many Stalks, no higher than a Span, not branched, but very like Origanum, bearing an Umbella, with yellow Flowers, like Gold Drops, less than the *Helichrysus*. It is called *Ageratum*, because the Flower preserves its Beauty for a long Time. Dioscorides, *L. 4. C. 59*. His Description is transcribed by Oribasius, *Collect. L. 11*.

This Plant from a woody branched Root, abiding long in the Ground, sends forth many round Stalks, little or nothing branched about a Foot high, on which grow a great

Number of small, long, narrow, round-pointed Leaves, deeply serrated about the Edges; on the Tops of the Branches stand Umbels of numerous small Gold yellow naked Flowers, in scaly Cups or Calyces, containing very small Seed. The whole Plant has a strong and not unpleasant Scent; it grows with us only in Gardens, it being a Native of Italy and the warmer Countries, and flowers in July and August. Miller, Bot. Off.

Its Decoction is good in Fomentations. The Vapour of the Herb burnt provokes Urine, and mollifies the Hardness of the Uterus. Dios. *L. 4. C. 59*.

It is a Digestive, and gently mitigates an Inflammation. Orib. Med. Coll. 1. *L. 15. C. 1*. Eginet. *L. 7. C. 3*. Aet. *Tetr. 1. Serm. 1*.

Maudlin is of a bitter Taste, warming and drying, and useful in Disorders of the Stomach and Liver. It is good in the Jaundice, and Obstructions of the Menes, provokes Urine, and kills Worms. Miller, Bot. Offic.

It contains the Virtues of Costmary and Tansey, and is an Ingredient in all capital Compositions. The Seed has been given, with Success, instead of Wormseed, to kill Worms. The distilled Water and Spirit yield a most fragrant Smell. This Plant is used in Syrup, Oil, Infusion, Decoction, Powder, and Pills. Mr. Boyle observes this Plant to be hurtful to the Eyes. Boerhaave.

Besides the common Maudlin taken Notice of by Dale, Miller enumerates the following Species:

Ageratum quæ ptarmica incana, pinnulis cristatis, F. Voy. The hoary Oriental Maudlin.

Ageratum Peruvianum, arboreum, folio lato, serrato, Boerh. The Peruvian Tree Maudlin, falsely called The Jesuit's Bark Tree, because at first supposed to be the Tree from whence the Jesuit's Bark was taken.

Ageratum serratum Alpinum glabrum, flore purpurascens, Tourn. Smooth Ageratum of the Alps, with a purplish Flower.

Ageratum Americanum erectum spicatum, flore purpureo, Houst. American Ageratum, with purple Flowers growing on a Spike.

Ageratum Americanum procumbens, gnaphalii facie, floribus ad foliorum nodos, Houst. Creeping American Ageratum, having the Face of Cudweed, and the Flowers coming out at the Setting on of the Foot-stalks.

Ageratum Americanum frutescens, Chamædryos folio, floribus ex foliorum alis, Houst. American Ageratum, with a Germander Leaf, and the Flowers growing from the Setting on of the Leaves.

AGERATUS LAPIS. A Stone, used by Coblers, to polish Womens Shoes. It is esteemed discutient, and astringent, and is useful in Inflammations of the Uvula. Galen, and from him him Paulus Aegineta, *Lib. 7. Cap. 3.* and Oribasius, *Lib. 14. Cap. 10*.

AGES. Ἀγῆς. The Palm, or Hollow of the Hand. Hesychius.

AGE VITA. The Name of an Antidote, described by Myrepsus. The Place is much corrupted, but the Commentator conjectures, that Myrepsus wrote ἰόςυς βίτα, *Jugis Vita*, long or continual Life, and that this Antidote took the Name from its great Virtues in procuring Longevity. This, Myrepsus informs us, is called *Meelchagee* by the Saracens. It is a medicated Wine, of which the Author gives the following Account:

Take six Measures of good Red Wine, and put into it, after they are well beaten, and passed through a fine Sieve, the following Ingredients: Of Galangals, two Ounces; of long and white Pepper, each an Ounce; of Sage an Ounce and a half; of Ginger and good common Cinnamon, an Ounce and a half; of Saffron, three Drains; of Cloves, a Dram and a half. Boil them well in the Wine, till of the six Measures there remains but one Measure and a half, and then pour it into your Vessel. The Dose is half an Ounce in the Morning fasting in a Glass of Wine.

It is beneficial in all cold Distempers, for paralytic, stomachic, shaking, cachectic, and hydropical Patients. It helps Crudities, Inflatons, and all Imbecillities and Coldness of the Stomach and Body. It cures Inflatons in the Uterus, the Tenesmus, the Maladies proceeding from Defluxions, as the Gout in the Feet and the Joints, and all nervous Distempers, arising from Crudity and Humidity. Nich. Myrepsus, *Seet. 1. Cap. 500*.

This seems to be a very good Stomach Medicine, and must be of considerable Efficacy in the Disorders for which the Author recommends it. On this Account it is called *νεύρον τῆς ζωῆς* the Nerve of Life.

AGEUSTIA. From a Negative, and ἡσυχία, to taste. It signifies a Fasting, or Fast.

AGGLUTINATIO. Agglutination. It signifies the Joining together, or Re-union of any separated Parts of the Body, or Healing. Hence Applications, that promote that End, are called Agglutinants.

Agglutination is also used in a different Sense by *Aetius*, as appears by the following Passage:

AGGLUTINATIO PILORUM. A Healing or Reducing the Hairs of the Eye-lids, that grow inwards, to their natural Order and Situation. This may be done by Mastich, applied with a Probe, which bends the Hairs back into their proper Order. Bitumen, the Slime of a Snail taken off with a Needle, the Juice of Hawk-weed, the Liquor of *Agglutinans*, or Ammoniac, work the same Effect. A compound Remedy may be thus prepared:

Take of dry Rosine, dry Pitch, Sulphur vivum, Bitumen Judaicum, each one Dram; Wax half a Dram. Melt them together, and reserve them for Use till Occasion offers, when touch the Mass with a heated Probe, and *agglutinate* the Hairs as before directed. *Aetius, Tetrabib. 2. Sermon. 3. C. 681.*

AGGREGATUM. An Aggregate. A Body resulting from the Union of a great many others, which are smaller, of which the whole Sum or Collection is the Aggregate.

AGIAHALID. An Egyptian Plant thus distinguished by Ray: *Lycio Affinis Egyptiaca*, C. B. *Agialalid Egyptiaca Lycio affinis*, Park. *Agialalid Egyptium folio Buxi, aut Lycium?* J. B.

It is a large Tree like the wild Pear, with but few Branches, and prickly, formed like the Lycium or Boxthorn. Its Leaves are like those of Box, but bigger and at a greater Distance one from the other. Its Flowers are but few, of a white Colour, resembling those of Hyacinth, but less. They are succeeded by little black Fruits, like those of dwarf Elder, of a styptic Taste, a little bitterish. This Tree grows in Æthiopia, and Egypt.

Its Leaves are sourish and astringent, and are esteemed good to kill Worms. *Lemery de Drogues.*

AGITATIO. Agitation, Shaking. In Medicine it is considered as an Exercise, and to this Dr. Sydenham attributes the great Benefit of Riding; and, no doubt, it is very efficacious in removing Obstructions of the Viscera, when assisted by the fresh Air. See AIR.

AGLIA. See AEGLIA and AEGIDES.

AGLITHES. *Ἀγλίθης*. The Divisions or Segments of a Head of Garlick, which we usually call Cloves. It is used by Hippocrates, in his Treatise *de Morbis Mulierum*, Lib. 2. See ALLIUM.

AGME. *Ἀγμέ*, or *Ἀγμέ*. From *ἀγν*, to break. A Fracture.

AGNACAT. *Scaligeri Pyri Specie.*

In a Country of America beyond the Terra de Labrador, towards the Isthmus of Darien, there grows a Tree of the Figure and Size of the Pear-tree, always covered with Leaves, and of an extraordinary Greenness and Lustre. It bears a Fruit also like a Pear, but green, even when it is ripe. The Pulp is of the same Colour, sweet, fat, and tastes like Butter. It is a powerful, and next to miraculous, Promoter of venereal Vigour. *Ray's Hist. of Plants.*

AGNANTHUS. A Genus of Plants mentioned by Vailant. It bears the Flower at the Extremity of the Stalk and Branches after the Manner of Grapes. Every Flower, which resembles much that of the Agnus Castus, is a small Pipe, the anterior Edge of which commonly expands and divides itself into six unequal Parts, three superior which are disposed like Trefoil, and three inferior, of which that in the Middle is the largest of the six, and the two lateral the smallest. There arises from the Bottom of the Cup or Calyx, which is indented, an Ovary. This Ovary is articulated to the Bottom of the Pipe or Channel of the Flower, and when the Flower falls off it becomes, according to Plumier, a Berry containing a single Seed.

Agnanthus comes from the Greek Word *ἀγνός*, chaste, and *ἄνθος*, a Flower, because the Flower of this Plant resembles that of *Agnus Castus*, or *Vitex*.

There is but one Plant of this Genus known which is the *Agnanthus Viburni folio*. *Cornutia flore pyramidato, caeruleo, foliis incanis*, Plum. Nov. Gen. 32. *Calychirichibou Caraibæarum*, Surian. Hort. Sicc. *Memoires de l'Academie Royale des Sciences, Année 1722.*

AGNATA. See ADNATA.

AGNINA MEMBRANA, or PELLICULA. *Aetius, Tetrabib. 4. Sermon. 4. C. 2.* calls one of the Membranes which involves the Fœtus by this Name, which he derives from its Tenderness. From him, probably, Bartholine and Drelincourt have borrowed the Expression. It is what Anatomists usually call the *Amnios*.

AGNINA LACTUCA, is *Lamb's Lettice*. See LACTUCA.

AGNOIA. *Ἀγνοία*. From a Negative, and *γινωσκω*, to know. When a Patient in a Fever, or any other Disorder, forgets, and does not know his familiar Acquaintance. This is called *Agnoia*, by Hippocrates, who pronounces it a very bad Symptom, especially when joined with a Rigor. *Prædict. L. 1. 64.* The Truth of this is evinced by every Day's Experience.

AGNUS. A Lamb. This Animal is too well known to want a Description. Many of its Parts are recommended for

particular medicinal Purposes. Thus Hippocrates in his Treatise, *de Superfœtatione*, advises us to apply the warm Skins of Lambs (*ἀγνιδας*) to the Bellies of Virgins who are disordered for Want of Menstruation at a proper Age, no doubt, with a View of relaxing the Uterine Vessels, and removing thereby that Part of the Difficulty, which depends upon their too great Tension. Dr. Friend, in his *Emmenologia*, recommends emollient Fomentations for the same Purposes; but the balsamic Warmth of a Lamb-skin, just taken from the Animal, seems more likely to relax, than any artificial Heat whatever.

The Lights are recommended in Disorders of the Lungs, and the Gall in Epilepsies, in the Quantity of two Drops to eight for a Dose. *Lemery.*

The Coagulum which is found at the Bottom of the Stomach is esteemed a good Antidote against Poisons. *Lemery.*

The Lungs, burnt and powdered, cure the Bruises from uneasy Shoes. *Aetius, Tetrabib. 1. Sermon. 2. C. 155.*

Lamb contains a great deal of volatile Salt and Oil.

The best and lightest Parts of a Lamb, according to Celsus, are the whole Head and Feet. *Celsus, L. 2. C. 18.*

It affords a glutinous Juice. *Oribas. Eup. L. 1. C. 21.*

It is of a moistening and loosening Nature, very nourishing, and lenifies sharp and pungent Humours.

It produces viscous, phlegmatic, and gross Humours, especially when it is too young.

It agrees in warm Weather, with young bilious People, but Persons of a hot and phlegmatic Constitution ought to refrain from it, or use it moderately. *Lemery on Foods.*

AGNUS SCYTHICUS. The Vegetable called the *Scythian Lamb*, in the Barbarian Language *Barametz, Borometz, or Boronetz*, is much noted among the Writers of Natural History.

The first who treated of it were Athanasius Kircher, in his *Ars Magnetica* (who cites Sigism. L. B. ab Herberstein, Hayton the Armenian, Surius, and Jul. Cæs. Scaliger) Lord Bacon, Fortunius Licetus, Andreas Libavius, Eusebius Nierenbergius, Adamus Olearius, and Olaus Wormius, to pass over the rest, among whom are many Botanists, who do little more than repeat what has been said before them.

This Plant is described by *Jul. Cæs. Scaliger*, under the Title of the *Scythian Lamb, Borometz*, as follows: "What has been related may pass for a Jest, if compared with the wonderful Tartarian Shrub. The chief Hord among the Tartars is the Zauolhan, distinguished as well for its Antiquity as Nobility. In that Country they plant a Seed very like that of a Melon, only less oblong; from this Seed springs a Plant, which they call *Borometz*, that is, a *Lamb*; for it grows in the Shape of a Lamb, almost three Feet high, resembling that Animal in Feet, Hoofs, Ears, and all the Head, except the Horns; instead of which, it has a Tuft of Hair that looks like a Horn. It is covered with a very thin Hide, which is stript off by the Inhabitants, to make a Covering for their Head. They say the inner Pulp resembles the Flesh of a Sea Crevise, and that Blood follows from a Wound made in it; that it is wonderfully sweet to the Taste; that the Root raises itself out of Ground as high as the Waist; a Circumstance that greatly heightens the Miracle. As long as it is surrounded by neighbouring Vegetables, it lives and enjoys itself like a Lamb, in a fat Pasture: When they die, or are extirpated, it pines away, and perishes. This Event does not happen only by Chance, or Length of Time, but has been brought to pass, by making the Experiment, and removing all Plants from its Neighbourhood. What increases the Wonder is, that it is greedily coveted by Wolves, and not by other carnivorous Beasts. But this last, I presume, is made only for the Sake of Allusion, to the Name *Lamb*, and to grace the Story: But I want to know, after what Manner four distinct Legs, with their Feet, are produced, and proceed from one Trunk."

What is here related, I have had by Information, partly from Persons of the highest Rank, and partly from the most curious Inquirers into the Secrets of Nature."

Other Authors give us the same Account, or rather transcribe Scaliger; however, some of them vary in certain Circumstances, and Kircher, in particular, to his Description, has added, or, to speak more properly, invented, a Figure: Nay, further, in some Museums of the Virtuosi, as those of Wormius and Swammerdam, the Skin, as it is pretended, of this remarkable Production of Nature, was formerly to be seen.

Antonius Deusingius, after nicely weighing the Matter in the Balance of Reason, suspected this Account of the *Lamb* as fabulous, and endeavours to persuade us, that Scaliger himself, who was one of the first that mentions it, treated it as a Fable; and it was called in Question by others, who were not willing to be imposed upon.

To speak the Truth, if we examine the whole Story of this *Lamb*, with a Mind void of Prejudice, we shall find that it favours strongly of the Romance; nay, in reality, is nothing else, and that Deusingius was in the right; which will appear from the following Reasons:

1. No Person of Credit ever saw this Vegetable *Lamb*. What Olaus Wormius had by Relation from Monf. Eovaldi de Kleifs, Ambassador of the Elector of Brandenburg (who told him, that while he lived on the Borders of Tartary, he was offered by a Tartar, in Exchange for some Leaves of Tobacco, a dried Plant, bearing on its Stem a Fruit, which plainly resembled a *Lamb*, a Foot in Dimension, and covered with a curled Fleece) is not convincing, for that noble Person might easily be imposed upon by some cunning Tartar.

2. The very learned and experienced Naturalist, Engelbert Kämpfer, M. D. took a great deal of Pains in searching for this *Lamb* in its own Country, but could find nothing like it. "They have no Notion, says he, nor Memory, in Tartary, neither among the vulgar Sort, nor the Skilful in Botany, of the Existence of a Zoophyte that feeds on Grass, tho' I have searched all over the Country for it, till I have been ashamed and laughed at for my Pains; nor is there any Thing called *Borometz* besides Sheep, and what belongs to that Kind. Therefore I am well assured, that whatever has been related of that Plant is meer Fiction". *Amoenit. Exotica*.

3. The whole Story of this *Lamb*, is so like a Fable, as one Egg is like another. What gave Rise to it, has been very well discovered by that most diligent Searcher after Nature, in those Eastern Countries, Kämpfer, before mentioned, in the Place cited, where, (having premised somewhat concerning the Etymology of the Word *Borometz*, which, he says, is corrupted from the Muscovite *Boranzet*, in Polish *Baranek*, which is a Diminutive of *Baran*, a Word of Slavonic Original, and used by the Russians and Poles, to signify a Sheep) he tells us that in some of the Countries about the Caspian Sea, there is a Species of Sheep very different from the common Sort, and highly valued for the Fineness of their Skins, which he describes, and the Manner how they are dressed, in order to serve as Ornaments, to set off the Garments worn by the Tartars and Persians: "Persons of Quality, says he, and the Rich, whose Pride and State require better Clothing than the common Sort of People, covet the Skins of Lambkins, which are much finer than when they are grown, and the younger they are, the more they are valued; for their Hairs may be twisted into finer and thicker Curls, which augments the Beauty and Price of the Skin. Hence a greedy Thirst after Gain has prevailed with some, in order to obtain Skins of the utmost Fineness, to exercise Cruelty, so far as to anticipate the Birth of the Lambkins, by ripping the Bellies of their Dams. A Skin, thus procured and skilfully dressed, is of so exquisite a Fineness, as to put it out of the Power of the Unacquainted to determine what it is, and when the Extremities are cut off retains scarce any Thing of the Figure of a *Lamb*, but just enough to deceive the Ignorant and Credulous with the Show of a woolly Membrane, in form of a Gourd." To this he subjoins, "The Price of a Skin, according to its Goodness, amounts to three Pieces of Gold, or more. It is used to line their Turbans, and often serves, by Way of Ornament, to border their Gowns and Cloaks". He concludes, at last, in these Words: "Whether this Fable owes its Rise to the Conjectures of some contemplative Philosopher, or the Ignorance of the first Relater, who, either through Carelessness, or Unskilfulness in the Language, might misunderstand a Thing he heard talked of by the by, or whether we refer it to some other Original, the Mistake being propagated to far distant Regions, and spreading every where, first occasioned this Pellicle the Loss of its true Name and History. Provision being thus made for its Reception, the Bauble itself was imported to us, under the specious Name of a *Miracle*, and lighting upon some illustrious Person of Curiosity, and an Admirer of this foreign downy Piece, it gained Credit and Admission, as all Prodigies are apt to do, by its Vegetable Face. This Error being illustrated by Authority, and soon after confirmed by Writing, took such firm Rooting in the Judgments of the Learned, as well as the Opinions of the Vulgar, that the Pellicle is shewn to this Day, among the rarest Curiosities in the Musæums, as a Species of Zoophyte, when, indeed, it is no other than a Fœtus of the Cæsarean Section".

From what has been quoted, it appears, that those Persian *Lamb-skins*, which our Skinners call *Persianische Baranken*, are of this Kind, that is, stript from Lambs that are cut out of the Bellies of their Dams, by the Cæsarean Section. But we have none of the choicest, the Price of which, as Kämpfer says, is three Pieces of Gold, or more, in their own Country, whereas we can buy the best that is imported, for one Piece, at most.

About three Years ago, a Russian, who was a Man of Learning and Curiosity, in his Travels, came to our City, and was pleased to desire a Sight of my Musæum, which, among other Natural Curiosities, was not unprovided with this Scythian *Lamb*, which passed for the true *Borometz*, the Wonder of Wonders. It was about six Inches in Length, and furnished with a Head and Ears, and four Legs of the Colour of Iron, and covered with a Sort of Down, like the knappy Silks called by us *Gammet*, except its Ears and Legs, which

were bare, and of a darker Colour. When it came to be examined, I found it was not of an Animal Nature, nor the Fruit of any Plant, but the Root of some Vegetable, thick, spreading, and hairy; or rather the Stem, or Stalk of some Plant, which, in its Climbing, had, by the Ministry of Art, acquired some Sort of Resemblance of a Quadruped; or the four Legs were the Reliques of so many Stems, or, if you will, Pedicles, which had born Leaves, and were lopped off, as were also the Ears, tho' they were like Horns. Besides this, the Fibres shooting out here and there, by which the thick Root, and through that the Plant, like all others, received Nourishment, left no Room for Doubt. Moreover, one of the fore Legs was not, like the rest, continuous to the Body, but inserted therein by Art; and the Head itself, with the Neck, was very artificially connected to the same, as I found upon making a more accurate Inspection. So that this *Lamb* was fabricated and put together, from this and that Root or Stump, by the same artificial Means, as your Homuncios or Pigmies are composed and pieced up of the Roots of Mandrake and Briony. But there still remained a Doubt with me, out of what Plant this Ludibrium of Art and Nature could be formed, tho' a Thought soon came into my Head, that it must be one of those commonly called the Capillary Kind, for which I had several Evidences, both from the Comparison of some Exotic Plants which I myself knew, and of others which are described and delineated by Hans Sloane, M. D. and the Rev. M. Plumier, in their costly and elaborate Works; for some of these Plants shoot up in several Stalks, which are covered with a ferruginous Down, or, as they call it, reddish Moss. But what Kind precisely to fix upon for this Piece of Handicraft, I could not determine, tho' I am apt to think, it is a Species peculiar to Tartary, and not yet described, till Time shall inform me better.

I am farther confirmed in this Opinion, by what I have since read in the English *Philosoph. Transf.* where Sir Hans Sloane, describes, and gives us the Figure of one of these pretended Scythian *Lambs*, which he procured from the East Indies; but it is far more unlike the Figure of a *Lamb*, than mine before mentioned.

I suppose, that such Sorts of Lambs are shaped out of certain Roots or Stumps in Russia and Tartary, so as to make this Story of the Scythian Vegetable *Lamb*, in some Measure, a Truth. But every one sees, that such a *Lamb* is a quite different Thing, from what is described by the forementioned Authors, and not to be so much wondered at; for it is no difficult Piece of Work, out of Roots and Stumps of Plants, to construct and frame several Sorts of Prodiges, which shall have some Resemblance of Natural Things, as was observed before of the Roots of the Mandrake; and the grotesque Figure of these Roots, may, with as good Reason, be called an *Hæmuncio*, or *Little Man*, as the other, which is constructed, and set together, from the Roots and Stems of another Kind or Kinds of Plants, be taken for a *Lamb*. *J. H. Breynius, M. D. Dantisc. Phil. Transf.*

The Description of Sir Hans Sloane, above referred to, is as follows:

It was above a Foot long, as big as one's Wrist, having several Protuberances, and towards the End some Foot-stalks, about three or four Inches long, exactly like the Foot-stalks of Ferns; both without and within. Most Part of the Outside was covered with a Down, of a dark, yellowish, Snuff Colour, shining like Silk, some of it a Quarter of an Inch long. This Down is what is commonly used for Spitting of Blood, about six Grains of it going to a Dose; and three Doses pretended to cure such an Hæmorrhage. In Jamaica are many scandent and Tree-ferns, which grow to the Bigness of Trees, and have such a Kind of Lanugo on them; and some of our Capillaries have something like it. It seemed to be shaped by Art; to imitate a *Lamb*, the Roots, or climbing Parts, being made to resemble the Body, and the extant Foot-stalks the Legs. This Down is taken Notice of by Dr. Merret, at the latter End of Dr. Grew's *Mus. Soc. Reg.* by the Name of *Poco Sempie*, a golden Moss, and is there said to be a Cordial. Dr. Brown, who has made very good Observations in the East Indies, says he has been told there, by those who have lived in China, that this Down, or Hair, is used by them for the Stopping of Blood in fresh Wounds, as Cobwebs are with us; and that they have it in so great Esteem, that few Houses are without it. I have known it, says the Doctor, much used for Spitting of Blood; but on Trials I have seen of it, though I may believe it innocent, I am sure it is not infallible. *Philosoph. Transf.*

AGNUS CASTUS. *Agnus Castus*, *Vitex*, Offic. *Agnus Castus*, Hort. Monsp. 7. Chab. 63. Herm. Hort. Lugd. Bat. 11. Mill. Cat. 124. *Agnus folio non serrato*, J. B. 1. 205. Raii Hist. 2. 1696. *Vitex*, *Agnus Castus*, Rand. Ind. 94. *Vitex*, Rivin. Rupp. Flor. Jen. 201. *Vitex sive Agnus Castus*, Ger. 1201. Emac. 1387. *Vitex folio angustifolius*, Park. Theat. 1437. *Vitex foliis angustioribus*, *Cannabis modo dispositis*, C. B. Pin. 475. Tourn. Inst. 603. Elem. Bot. 475. Boerh. Ind. A. 2. 222. THE CHASTE TREE. *Dale*.

The *Vitex*, or *Lygus*, is a willowy Shrub, almost deserving the Name of a Tree, which grows on the Banks of Rivers, and in marshy Fields, and in rough and rugged Places, and Channels worn by Torrents. It bears long flexible Rods, hard to break; and its Leaves resemble those of the Olive, but are longer, and more tender. One Kind of it bears a white purplish Flower, the other a Purple. The Seed is like Pepper.

It is of a warming and astringent Nature. The Fruit drank heals the Bites of venomous Beasts, and relieves such as labour under Disorders of the Spleen, and the Dropsy. The Quantity of a Dram, taken in Wine, breeds Milk in Abundance, and provokes the Menstrues; but it endangers a Miscarriage, and affects the Head, bringing on a Carus. A Decoction of the Herb and Seed makes a good Inseffion, for Women who are troubled with Inflammations, and other Disorders of the Uterus. The Seed drank with Penroyal, or in a Suffumigation, moves the Belly; a Cataplasm made therewith cures the Pain of the Head, and it is used with Oil and Vinegar in Embrocations for Lethargies and Phrenesies. A Fumigation, or bare Substration of the Leaves, chafes away venomous Animals, and applied in a Cataplasm heals such as are bitten by them. With Butter and Vine-Leaves, they mollify the Hardness of the Testes. A Plaister of the Seed, with Water, heals the Fissures about the Anus, and used with the Leaves cures Wounds and Luxations. A Rod, or Branch, of the Tree, carried in the Hand, is supposed to prevent Galling in Journeys.

This Shrub is called *ἀγνός*, [*castus, chaste*] because the Matrons, who lived chaste during the Thesmophoria [Feasts of Ceres] used to lie upon them at Nights: And it is called *λύγος*, [*Lygus*, as it were, *Offer*] for the Toughness, or Tenacity, of its Rods. *Dioscorides, Lib. 1. Cap. 135.*

Hippocrates (*de Morbis Mulierum, L. 1.*) recommends the Seed of the *Vitex*, for bringing away the Secundines; and those of the white Sort for expelling the Foetus.

This Tree arises not to any great Height or Thickness, having many ash-coloured Branches, flexible, tough, and not apt to break; on which grow many digitated Leaves, or such as are composed of five, and frequently seven, long, narrow, sharp-pointed Divisions, on one common Foot-stalk, pretty much resembling Hemp, but that they are not at all serrated about the Edges; they are of a deep Green above, and whitish underneath: On the Tops of the Branches grow Spikes of small whitish purple Flowers, consisting of a single Leaf, cut irregularly into five Parts, which makes them appear, as it were, galeated and labiated. They are set on Verticillatim, like the Flowers of Lavender, and are succeeded by small, round Seeds, like Pepper, but less, of a blackish, grey Colour, set in hoary Calyces, of a hot astringent Taste.

This Tree grows in the warmer Countries, as in Italy, in the Kingdom of Naples, and in Sicily, and flowers in August.

The Leaves, Flowers, and Seed of *Agnus Castus*, are accounted warming and drying, and useful against the Hardness of the Liver and Spleen, to expel Wind, and bring down the Catamenia. The Seed has been formerly mightily commended to allay venereal Heats, and Desires which arise from the Sharpness or Turgescence of the Seed, and by that Means preserve Chastity, but there is little Use made of it now, and the *Syrupus de agno casto* is left out of the new Dispensatory. *Mill. Bot. Off.*

The Leaves, Flowers, and Seed of this Shrub consist of very fine Parts. The Fruit is eaten, and sensibly heats the Body, and causes Head-ach. Fried in the Pan, it does not so much affect the Head, but heats and dries the Body, affording but little Nourishment, and that not in the least flatulent, whence it restrains the Inclination to Venus. It is supposed to promote Chastity not only when taken in Meat and Drink, but even if it be but laid under the Bed-cloths. The Seed of it is more effectual than Rue for Hardness of the Liver or Spleen. *Actius Tetr. 1. Serm. 1. Agnus.*

It contains a great deal of Salt and Oil and but little Phlegm.

AGOGÉ. *Ἀγωγή*. From *ἄγω*, to lead, or conduct. It signifies the intire Order or Tenour of a Thing, as the Manner of a Man's Life; the Procedure of a Distemper, or the State of the Air. *Castellus.*

Pliny, *L. 33. C. 4.* calls little Channels *Agogæ*, through which the Water runs from Gold-ore that has been washed with it, and in which the Gold is deposited.

AGOMPHIASIS, or GOMPHIASIS. *A Distemper of the Teeth.* It consists in their being loose in their Sockets. *Blancard.*

AGONE. The *Hyoscyamus*. *Henbane*. *Helychius*. See *HYOSCYAMUS*.

AGONIA. *Ἀγρία*. From a Negative, and *ῥέω*, an Offspring. Sterility.

AGONIA. *Ἀγρία*. From *ἄγω*, a Combat, or Struggle. Agony, when there is supposed to be a Sort of Struggle betwixt Life and Death.

AGONISTICON. *Ἀγωνιστικόν*. Paulus Aegineta (*L. 2. C. 30.*) makes Use of this Word as an Epithet to Water, which he explains by (*ὑπερβαίνειν*) *excessively cold*.

AGONOS. *Ἀγνος*. From a Negative, and *ῥέω*, an Offspring, or *ῥέω*. Barren.

Hippocrates, according to Coelius, calls those Women thus, who have never had Children, but are however in a Condition to breed. Or such to whose Fecundity there is at present some Impediment, which may be removed.

The Word is also applied to (*ἡμέραι*) *Days*, when it signifies equal Days, as the Fourth or Sixth, on which a Crisis is not to be expected; to distinguish them from (*ῥήματα ἡμέραι*) *unequal*, or genuine Days (as the third or seventh) on which a Crisis, especially if it is compleat, generally happens.

AGORÆUS. *Ἀγορεύς*. From *ἄγορά*, a Market. An Epithet for Bread that is very coarse.

AGOSTUS. *Ἀγρός*. From *ἄγω*, to bring, or lead. That Part of the Arm from the Elbow to the Fingers. Also the Palm, or Hollow of the Hand. *Castellus. Constantine.*

AGRESTA. *Verjuice*. The Juice of unripe Grapes. Or, the four Grape itself.

Lemery says, the *Agresta*, *Omphax*, or unripe Grape, contains a great deal of essential Salt and Phlegm, and a small Portion of Oil and Earth. He adds, that it is deterfive, astringent, and cooling; that it tempers the Acrimony of the Bile, and raises the Spirits.

AGRESTEN. *Acid Stone-tartar*. *Castellus.*

AGRESTIS. *Wild*. It is applied to Vegetables to distinguish those which grow spontaneously in the Fields, from such as are cultivated.

It is used also to express a malignant Disposition in some Distempers; and likewise a Brutality in the Manners and Dispositions of Men.

It is frequently used as an Epithet to Animals, to distinguish them from those which are domestic, and tame.

Wild Animals are more heating and drying, than those which are tame. *Actuarius de Spirit. Animal. C. 315.*

Wild Animals afford better Nourishment than tame ones. *Oribasius, Synopsis. L. 4. C. 1.*

Domestic or tame Animals are of a more humid Temperature than wild ones, whose Flesh is firmer, and has little or no Fat, and will therefore keep much longer without Putrefactions than that of domestic Animals, who are bred up and fattened in Idleness. Hence it appears that wild Animals afford an Aliment much less excrementitious than the others. *Orib. Med. Col. Lib. 2. Cap. 41.*

Wild Animals in general, by Reason of the strong Exercise they use, have their Salts and Oils more highly exalted than those which are tame, and hence proceeds their high Taste. For this Reason also they are usually more healthful, and vigorous, and consequently afford better Nourishment to Stomachs able to digest them, for their Flesh is more firm and hard, for the same Reason that their Salts and Oils are exalted.

AGRIA, in the Sense of the Botanists, signifies the same as *Agrifolium*, *Holly*, according to Blancard; but

AGRIA, is also a Sort of malignant Pustule, taken Notice of by Celsus, where he distinguishes two Kinds of Pustules, or Papulæ. The first, he says, is a very small Sort, which casts a Roughness and Redness over the Skin, but slightly corrodes it. It is somewhat smoother about its Center, and spreads but slowly. This Malady assumes a round Figure at its first Appearance, and preserves its Roundness as it proceeds. The other, here taken Notice of, is called by the Greeks *Ἀγρία*, which does not only cause an Exasperation like the other, but an Exulceration, with a vehement Corrosion and Redness of the Skin, sometimes making the Hairs fall off. The less this Sore approaches to a round Figure, the more difficult it is to cure; if it be not timely extirpated, it turns to the Leprosy. But the flightier Sort of Pustules, if they are every Morning wetted with fasting Spittle, are healed without much Trouble. For the greater Kind there is no better Remedy than the Herb Pellitory of the Wall, bruised and immediately applied. As for compound Medicines, the Remedy of Mycon, which follows, is effectual:

Take of red Nitre, Frankincense, each P. i. Cantharides cleansed P. ii. Of crude Sulphur a like Quantity. Of Refine of liquid Turpentine, P. xx. Meal of Darnel, three Pints. Of Fennel Flour, a Quarter of a Pint. Of crude Pitch, an Ounce. *Celsus, Lib. 5. Cap. 38.*

AGRIAMPELOS. From *ἄγρος*, *Wild*, and *ἄμπελος*, a Vine. The wild Vine. See *VITIS SYLVESTRIS*. Gerard says, it is the black Bryony.

AGRICULTURA. *Agriculture*. This is no other Way concerned in Medicine, than as an Exercise. The Exhalations from a light gravelly Earth just turned up, are reckoned extremely healthful. For this Reason People have frequently been

been directed to follow the Plough, in order to respire Air impregnated with these salutiferous Effluvia.

AGRIELÆA. From *Agros*, wild, and *Ælia*, an Olive. The wild Olive. See OLEASTER.

AGRIFOLIUM. *Agrifolium*, Offic. Ger. 1155. Emac. 1338. Raii Hist. 2. 1622. Synop. 3. 466. Merc. Bot. 1. 17. Phyt. Brit. 3. Mer. Pin. 3. *Agrifolium* sive *Aquifolium*, Park. Theat. 1486. *Aquifolium* sive *Agrifolium*, Chab. 605. *Aquifolium* sive *Agrifolium* vulgo, J. B. 1. 114. Tourn. Inst. 600. Elem. Bot. 473. *Aquifolium* *Tournefortii*, Rupp. Flor. Jen. 35. *Aquifolium* *baccis rubris*, Herm. Hort. Lugd. Bat. 56. Boerh. Ind. A. 2. 219. *Ilex aculeata baccifera folio sinuato*, C. B. Pin. 425. Johnst. Dendr. 206. The HOLLY TREE. Dale.

AGRIFOLIUM, seu AQUIFOLIUM [of *Agros*, a Prickle, and *Folium*, Lat. a Leaf, because the Leaves are armed with sharp Prickles]. The HOLLY-TREE. Miller's Dict.

This Derivation is very unnatural and far fetched. It seems more to the Purpose to derive it from *Agros*, rustick; rough, fierce, and *Ælia*, a Leaf.

The CHARACTERS are,

The Leaves are set about the Edges with long, sharp, stiff Prickles; the Berries are small, round, and for the most Part of a red Colour, containing four triangular striated Seeds in each. Miller.

This Plant is too well known to want a Description.

The Berries of Holly are hot and dry, of thin Parts; and expel Wind. They are good against the Colic; ten or twelve being inwardly taken bring away by Stool thick phlegmatic Humours.

The Birdlime, which is made of the Bark, is no less hurtful than that of Mistletoe, for it is marvellous clammy, it glueth up all the Entrails, it shutteth and draweth together the Guts and Passages of the Excrements, and by this Means it bringeth Destruction to Man, not by any Quality, but by its gluing Substance. Holly, beaten to Powder and drank, is an experimented Medicine against all the Fluxes of the Belly, as the Dyfentery, and the like. Gerard.

They make Birdlime after the following Manner:

In June or July they strip the Holly-trees, and boil the Bark in Spring-water, seven or eight Hours, till it becomes very tender. Then they take it out, and first letting the Water run off, till it is dry, they afterwards pile it up with Fern, intermixing for every Lay of Bark a Lay of Fern. There it is suffered to ferment and rot, for two or three Weeks, till it becomes a Mucilage. This they take and pound in a Mortar till it is capable of being moulded like a Lump of Dough, and afterwards work it well in their Hands in running Water, which in a short Time will cleanse it of all Sordes, and leave nothing but the pure and defecated Birdlime. Then put it in an earthen Pot, and let it stand three or four Days, till it has thoroughly purged and perfected itself by Despumation, and after that remove it into a fresh Vessel, and keep it for Use. Raii Hist.

N. B. Birdlime is not only made of the Bark of this Tree; but also of the Fruit, of Mistletoe, the Chestnut, and Sebesten.

The following Species of this Tree are enumerated by Miller:

1. *Aquifolium*; *Baccis rubris*, H. L. The common Holly with red Berries.
2. *Aquifolium*; *Baccis luteis*, H. L. Yellow-berried Holly.
3. *Aquifolium*; *Baccis albis*. White-berried Holly.
4. *Aquifolium*; *Foliis ex luteo variegatis*, H. R. Par. *Aquifolium aureum*, Munt. H. 163. Yellow-blotched Holly.
5. *Aquifolium*; *Foliis ex albo variegatis*, H. L. White-blotched Holly.
6. *Aquifolium*; *Echinata Foliis superficie*, Corn. 180. Hedge-hog Holly.
7. *Aquifolium*; *Echinata Foliis superficie Foliis ex luteo variegatis*. Yellow-blotched Hedge-hog Holly.
8. *Aquifolium*; *Echinata Foliis superficie Limbis aureis*. Gold-edged Hedge-hog Holly.
9. *Aquifolium*; *Echinata Foliis superficie Limbis argenteis*. Silver-edged Hedge-hog Holly.
10. *Aquifolium*; *Foliis longioribus, Limbis & Spinis ex unico tantum Latere per totum argenteo pictis*, Pluk. Alm. 38. BRODERICK'S Holly, vulgô.
11. *Aquifolium*; *Foliis subrotundis, Limbis & Spinis utrinque argenteis*. *Aquifolium elegans*, D. Doct. Eales. Pluk. Alm. 38. EALES'S Holly, vulgô.
12. *Aquifolium*; *Foliis oblongis lucidis, Spinis & Limbis argenteis*. Sir THOMAS FRANKLIN'S Holly, vulgô.
13. *Aquifolium*; *Foliis oblongis, Spinis & Limbis argenteis*. Hertfordshire White Holly.
14. *Aquifolium*; *Foliis subrotundis, Limbis argenteis, Spinulis & Marginalibus purpurascens*. BRIDGMAN'S Holly, vulgô.
15. *Aquifolium*; *Foliis oblongis, Spinis & Limbis flavescens*. LONGSTAFF'S best Holly, vulgô.
16. *Aquifolium*; *Foliis oblongis lucidis, Spinis & Limbis aureis*. BRADLEY'S best Holly, vulgô.
17. *Aquifolium*; *Foliis oblongis, Spinis & Limbis aureis*. WISE'S Holly, vulgô.

18. *Aquifolium*; *Foliis subrotundis, Spinis minoribus, Foliis ex luteo elegantissime variegatis*. The British Holly, vulgô.

19. *Aquifolium*; *Foliis oblongis atro-virentibus, Spinis & Limbis aureis*. BAGSHOT Holly, vulgô.

20. *Aquifolium*; *Foliis latissimis, Spinis & Limbis flavescens*. Glory of the East Holly, vulgô.

21. *Aquifolium*; *Foliis oblongis, Spinis majoribus, Foliis ex aureo variegatis*. Glory of the West Holly, vulgô.

22. *Aquifolium*; *Foliis subrotundis, Spinis & Limbis aureis*. ASLET'S Holly, vulgô.

23. *Aquifolium*; *Foliis longioribus, Spinis & Limbis argenteis*. The Union Holly, vulgô.

24. *Aquifolium*; *Foliis & Spinis majoribus, Limbis flavescens*. Fine PHYLLIS Holly, vulgô.

25. *Aquifolium*; *Foliis minoribus, Spinis & Limbis argenteis*. Painted Lady Holly, vulgô.

26. *Aquifolium*; *Foliis angustioribus, Spinis & Limbis flavescens*. FULLER'S Cream Holly, vulgô.

27. *Aquifolium*; *Foliis oblongis, ex luteo & aureo elegantissime variegato*. Milk-maid Holly, vulgô.

28. *Aquifolium*; *Foliis oblongis viridibus; maculis argenteis notatis*. CAPEL'S mottled Holly, vulgô.

29. *Aquifolium*; *Foliis oblongis, Spinis & Limbis luteis*. PARTRIDGE'S Holly, vulgô.

30. *Aquifolium*; *Foliis oblongis, Spinis & Limbis ocruleis*. MASON'S Copper-coloured Holly, vulgô.

31. *Aquifolium*; *Foliis parvis, interdum vix spinosis*. Box-leaved Holly, vulgô.

32. *Aquifolium*; *Foliis parvis, interdum vix spinosis, Limbis Foliis argenteis*. WHITMILL'S Holly, vulgô.

33. *Aquifolium*; *Carolinianum, angustifolium, Spinis raris brevissimis*. Carolina Holly with smooth Leaves, vulgô.

AGRIMONIA. *Agrimonia*.

Agrimonia is a Plant of the spriggy Kind [*Geranioides*] shooting forth one slender, woody, strait, black, hoary Stalk, a Cubit high, or more, with Leaves at Distances cut mostly into five Divisions, and sometimes more, best resembling the Leaves of Hemp or Cinquefoil, of a dark Colour, and serrated round the Edges. The Seed grows about the Middle of the Stalk, being somewhat rough, and bending down, so as, when dry, to stick on your Clothes.

The Leaves, bruised and applied with old Hogs-lard, heal Ulcers that are hard to cicatrize. The Plant, or its Seed, drank in Wine, cures such as are afflicted with the Dyfentery, a distempered Liver, or are bitten by Serpents. Some, by Mistake, have given this Plant the Name of Mugwort, which is quite another Thing. *Dioscorides*, Lib. 4. C. 41.

This Herb is called *Hociamsanum* by *Marcellus Empiricus*, Cap. 20.

Agrimonia is thus distinguished by the Moderns:

Agrimonia, *Eupatorium Græcorum*, Offic. *Agrimonia*, Ger. 575. Emac. 712. Raii Hist. 1. 400. Synop. 3. 202. *Agrimonia vulgaris*, Park. Theat. 594. *Agrimonia Officinarum*, Tourn. Inst. 301. Boerh. Ind. A. 79. *Agrimonia seu Eupatorium*, J. B. 2. 398. Chab. 172. *Eupatorium Veterum sive Agrimonia*, C. B. Pin. 321. *Eupatorium Veterum sive Agrimonia inodora, vel minus odora*, Hist. Oxon. 2. 614. AGRIMONY. Dale.

This is the *Eupatorium* of *Dioscorides*, *Galen*, and the ancient Greeks; it grows about two Feet high, or higher, having several winged hairy Leaves, of a pale green Colour, composed of unequal Numbers of Parts, sometimes five, oftener seven, whereof the three at the End are largest; they are serrated about the Edges, like the Leaves of Strawberries, having several smaller Leaves intermixed among them, and are set alternately on the Stalk, on the Tops of which grow the Flowers in long Spikes a little bending down, they are small and yellow, made of six small Leaves, with two green Appendices growing by them, and are succeeded by little rough Burs, which stick to any Thing that comes in their Way; each Bur containing two Seeds. The Root is long and slender, and creeps in the Ground, shooting out fresh Leaves and Branches every Year; it grows in Hedges and Borders of Fields, and flowers in June and July.

Some Authors will have this Plant called *Eupatorium quasi hepatorium*, from its Usefulness to the Liver; others will have its Name derived from *Mithridates Eupator*, who, as *Pliny* says, first found out its Virtue.

Lemery adds, that it is good for Loosenesses, and often put amongst astringent Clysters, as also in Gargarisms and Apozems. *Lemery de Drogues*.

Agrimonia is reckoned a Cleanser and Purifier of the Blood, a great Strengtheners of the Liver, and serviceable for all Diseases arising from the Weakness thereof, as the Dropsy, Jaundice, and the like; it is commended likewise for the Strangury, and making bloody Water, and *Riverius* extols the Powder of the dry Leaves, for Incontinence of Urine. It is also reckoned among the vulnerary Plants, and put in Wound-drinks, and outwardly used in Baths and Fomentations. *Miller, Bot. Off.*

It is a most noble Hepatic, Vulnerary, and Splenetic, as any we have, and therefore most frequently used in Distempers proceeding from a weak Liver, as the Dropsy, Cachexy, and Jaundice.

dice. It is prescribed also in Catarrhs, Coughs, and Retention of the Menfes; and very often used in Baths and Lotions. Dale.

It has a very fine fragrant Smell, and, infused in Wine till it has communicated its Fragrance, is accounted a sovereign Remedy against Sadness and Melancholy. It is a principal Vulnerary, and, though a Corroborative and Astringent, is good in Inflammations. It is of peculiar Service in Diseases caused by the Laxness of the Fibres, in Fluxes incident to Camps, and Obstructions of the Viscera from Weakness of the Fibres. It is of excellent Virtue against the Fluxus Hepaticus, the Diarrhoea, Dysentery, Scurvy, Rottenness of the Gums, Inflammation of the Jaws, Consumption, Spitting of Blood, Dropsy, and Languor consequent on a Fever. Externally, the Leaves boiled in refined Wine and Bran, and applied, are useful in Luxations and the Falling down of the Womb. Hence it appears to be a prime Medicine in Cases that require Strengthening or Exhilarating.

It may be used as Tea, in which, if it be thought too astringent, Honey may be put. This Herb is said to be appropriated to the Liver, because, if infused in Water or Whey, and drank, it opens and scours the Intestines, and strengthens them afterwards, which must be of singular Benefit to the Liver. It is of excellent Use in cold Countries. Boerhaave.

The Species of this Plant, according to Miller, are:

1. *Agrimonia officinalis*. Tourn. Common or medicinal Agrimony.
2. *Agrimonia odorata*, Cam. The Sweet-smelling Agrimony.
3. *Agrimonia minor, flore albo*, Hort. Cath. Lesser Agrimony with a white Flower.
4. *Agrimonia Orientalis humilis, radice crassissima repente, fructu in spicam brevem & densam congestis*, T. Cor. Dwarf Eastern Agrimony, with thick creeping Roots, and the Seeds growing in short thick Spikes.

The Leaves of *Agrimonia*, in the Quantity of five Pounds, being chymically treated, yield four Pounds of an acid and almost austere Liquor, two Ounces of an urinous alkaline Liquor, two Ounces of thick Oil, six Drams of fixed Salt, and an Ounce of insipid Earth. From this Analysis it appears, that this Plant contains very little Salt of the ammoniacal Kind, since no concrete urinous Salt is got from it, but the acid Salt, wherewith it abounds, joined with Earth, forms a Concrete resembling Tartar, or Salt of Coral, combined with a large Proportion of Sulphur. Moreover, *Agrimonia* has a saline Taste, a little astringent and acid, and its Juice turns the Tincture of Heliotropium to a faint Red; so that its astringent and aperitive Virtues seem both owing to the same austere Salt; for, though these Effects are contrary to one another, yet they often flow from one and the same Principle; the Strengthening of the weak and lax Fibres of the solid Parts. Experience shews, that *Agrimonia* has the Virtues which are supposed to arise from its Composition; for it is astringent, detergent, resolvent, vulnerary, and aperient. Geoffroy.

AGRIMONOIDES.

Agrimonia similis, C. B. *Agrimonoidea*, Park. Col. *Pimpinella folio Agrimoniae, nonnullis*.

It has a small, fibrous, woody, and reddish-coloured Root: The Leaves next the Ground are joined to hairy, reddish Pedicels, of nine Inches long, these are like Strawberry Leaves, but blacker, and more in Number, disposed after the Manner of Agrimony-leaves, with smaller ones interspersed (as is observed also in Agrimony) hairy, soft, serrated at the Edges with finer and more acute indentings than Agrimony; and the Leaves themselves are rounder. It produces several supine, hairy, red Stalks, that send forth three or four Branches, which are furnished with smaller, fewer, and rounder Leaves, that have Auricles about the Stalk, like others of the same Kind, and at their Top bearing three or four hairy Buds, like those of the Pomegranate, very much jagged at the Edges, and containing the small yellow Flower of the Agrimony, which sometimes hardly opens, though the Fruit is duly formed within. After the Flowers are fallen off comes the Seed, which is of a round oblong Figure, of the Size of a Grain of Wheat, and formed with two Protuberances. When ripe, it falls off spontaneously, leaving the Husk gaping. It is of an absterfive, drying, and bitter Taste; and in Smell is a Mean between the fragrant and common Agrimony.

It flowers in April, comes to Perfection in May, and grows among Bryers and Shrubs in some mountainous Parts of Italy. Raii Hist.

It agrees with Agrimony in Virtues. Boerh.

AGRIOCARDAMUM. From *Ἀγρίος*, wild, and *Καρδάμω*, Nasturtium. The same as *Iberis*, Scitica Cressies. See *IBERIS*.

AGRIOCASTANUM. The same as *Bulbocastanum*, Earth-Nut, or Pig-Nut, which see.

AGRIOCINARA. From *Ἀγρίος*, wild, and *Κινάρα*, Artichoke. The wild Artichoke. See *CINARA*.

AGRIOCOCCIMELEA. From *Ἀγρίος*, wild, *Κόκκος*, a Berry, and *Μέλεα*, an Apple-tree. The same as *Prunus Sylvestris*. Blancard.

AGRIOMELA. From *Ἀγρίος*, wild, *Μέλεα*, the Fruit of the Malus

Sylvestris. The *Malus Sylvestris*, or Crab-tree, is thus distinguished by Authors:

Malus Sylvestris, Offic. Ger. 1276. Emac. 1460. Jonf. Dendr. 1. Raii Synop. 3. 452. Park. Theat. 1502. *Malus Sylvestris fere agrestis*, J. B. 1. 26. Raii Hist. 2. 1448. *Mala Sylvestria, quæ & alba, & rubra, & majora, & minora*, C. B. Pin. 433. *Malus Sylvestris acido Fructu*, Tourn. Inst. 634. The CRAB-TREE, or WILDING. Dale, Pharmac.

It is commonly lower than the cultivated, more crooked, scraggy, branched, and is supposed to be of a harder and firmer Substance. The disorderly and entangled Multiplicity of its Branches and Twigs; and the Luxuriance and native Rigidity of the Shoots which it sends forth on all Sides, as well from the Stem as the Root, easily discover its wild and uncultivated Nature. The Leaves are generally lesser, and more shrivelled than those of the cultivated Tree; but their Flowers are alike, only the wild ones are, for the most Part, smaller, of a fragrant Smell, and sometimes inclining to a Red. But the principal Difference is in the Fruit, or Apples; for those of the Crab-tree are small, seldom as big as Walnuts, but near about the Size of Medlars, only rounder, and hanging by a somewhat long and slender Pedicle, with a green Rind, or Skin, which at last turns to Yellow, and in some to a beautiful Red. But they will bear no Comparison with the worst of those which grow on cultivated Trees, neither in Softness of Substance, nor Agreeableness of Taste, for they are endued with such a Sourness and Astringency, as renders them utterly unfit to be eaten.

There are as many Species of Wildings as of cultivated Apple-trees, and more than it is possible, or worth While to enumerate.

They are in Blossom at the same Time with those which are cultivated, or a little later, and their Fruit is also ripe after the others, that is, in October.

They are common in Woods and Hedges, not only in England but in foreign Countries.

The Fruit is vehemently austere, acid, and astringent, as well as the Juice expressed from it, which is very frequently used in England, France, and Germany, instead of Vinegar. Some call it *Agresta*. It will keep several Years. The French and Germans think it renders Fish, that are boiled in it, firmer, and more savoury; and this has been found true also amongst us, says Bauhine. The English call it *Verjuice*, that is, green Juice, borrowing the Name from the French. Raii Hist. Plant.

Wild Apples [such as grow on Crab-trees] are like your early ones, and have an astringent Quality. In Cases which require the Use of Astringents, you are to chuse those which are most unripe. Dioscorides, L. 1. C. 163.

Verjuice mixed with Yeast, and applied to the Place, is good for the Erysipelas, Itch, and all Sorts of Inflammations. Dropped into the Eyes, it is believed to cure their Redness, Inflammations, and Lippitude.

For the Scrophulæ [King's Evil] first wash and cleanse the Ulcers well with Verjuice, and afterwards apply thereto black Wool, moistened with Oil of Neat's-foot. Raii Hist. L. 2.

Its Fruit and Juice are the *Agresta* of the Shops, called *Verjuice*; it is vehemently austere, acid, and astringent. Dale Pharmac.

AGRION. Blancard says, this is a Name for *Peucedanum*; I do not know his Authority, having met with the Word in no other Author. See *PEUCEDANUM*.

AGRIOPHYLLON. This also, according to Blancard, is a Name for *Peucedanum*.

AGRIORIGANUM. From *Ἀγρίος*, wild, and *ὀρίγανος*, *Origanum*. Wild *Origanum*, or wild *Marjoram*. See *ORIGANUM*.

AGRIOSELINUM. The same as *Hippoeselinum*, which see. Dioscorides.

AGRIOSTARI. A Species of Wheat, called *Triticum Creticum*. See *TRITICUM*.

AGRIPALMA. A Name of *Cardiaca*, Motherwort. See *CARDIACA*.

AGRIPPÆ. Those Children are thus called, who are born with the Feet foremost, because Agrippa, the Roman, was said to be born in this Manner.

Of all Births, where the Child presents any Part but the Head; the least dangerous, and most easy, is that, when the Feet come foremost, and even often, by the Hands of a skilful Man-midwife, it is accomplished sooner and with less Pain, than a Birth where the Head presents.

Since the Head is to open the Passage, it has no Way to do it, but by pressing strongly against the internal Orifice, and redoubling its Efforts at each Pain, which are reiterated for that Purpose. But after the Waters are pierced, if the Feet present at the Passage, the Operator, by gently drawing them, causes the Orifice to dilate, in order to give a Passage to the Legs, and after them to the Thighs, and so on to the whole Body. Thus the Parts which come out first, being less in Bulk than those which follow them, they open the Way one after another; so that in this Situation, the Birth is often sooner brought about, and a great deal of Pain saved to the Mother.

There

There are Signs by which we know that the Child is not rightly turned, and that some other Part presents, and not the Head: For Example; if the Pains are remis, and at long Intervals; if they begin in the Region of the Reins, and do not press strongly downwards, there is Reason to believe the Head does not present. But the Operator is certain of it, when he touches the Woman, and perceives that nothing pushes against the internal Orifice; or if he does perceive something, it is not hard and round like a Head. In this Case, he feels the Waters prepared, but in pressing his Finger against the Membrane, he does not meet with the same Resistance, as he would from the Head of the Child.

In this Juncture, the Man-midwife is to wait till the Waters break of themselves, and, by their Evacuation, make Way for the Infant to descend, and for the Part which presents, to sink down. If the Feet, or a Foot, present, he is not to think of returning the Infant, or endeavour to give it another Posture; but he is to receive and bring it away by the Feet, conducting himself by the following Directions.

When, I say, that he is to wait till the Waters break of themselves, I do not pretend to make it a general Rule: I mean, when the Pains are remis, and the Delivery seems at a Distance; but when the Pains are frequent and intense, and the Waters are distended, so as to fill up the internal Orifice, the Operator ought to break them with his Nails, in order to make Way, by their Evacuation, for the Infant to descend, and present itself at the Passage. If it be rightly turned, its Head comes upon the internal Orifice, and hinders the rest of the Waters from running off, by this Means facilitating a Passage for the Body of the Infant, after the Head has made Way. But if any other Part, besides the Head, place itself at the Passage, all the Waters run off by little and little, there being nothing to stop them; so that, when the Child is coming away, there is none left, which makes the Birth the more difficult.

It would not be impossible, if the interior Orifice were enough dilated, to introduce the Hand, as soon as the Waters were pierced, and before the Infant was fixed in the Passage, to return it, when it presented the Feet, and to make it take its natural Posture, which is to come with the Head foremost; as it would neither be impossible, when it presented the Head, to return it, and make it come by the Feet: But we are not to aim at changing either of these two Postures, which are the most natural; and whether it present the Head or the Feet, we are to receive it after both Manners, and not expose the Mother to Pains that can be of no Service, nor the Infant to the Violences which must be offered it, in order to make it change its Situation.

As soon as the Waters are pierced, and the first Flow is over, the Man-midwife, who must have no Rings on his Fingers, nor his Nails too long, having anointed his Hand with Oil or Butter, must introduce it into the Vagina. If he finds the internal Orifice not enough dilated to pass his Hand up to the Infant, he must try gently with two or three Fingers, to dilate it. If the Feet present, he must grasp them, and, drawing them without Violence, oblige the rest of the Parts to follow: And so is the Woman happily delivered, and in a very little Time.

If one Foot only presents, we are to bring it down into the Vagina, and examine whether it be the right or the left Foot; in order to guide the Hand along the Inside of the Leg which is held; the more easily to find out the other; which is no difficult Matter to a skilful Practitioner, who, when he has got hold of one Foot, soon finds the other. Having got hold of both, he must join them together, and, wrapping them in a warm Cloth, draw them gently out, with the rest of the Body, which is obliged to follow them.

Mauriceau advises us to take Care, that the two Feet we hold, do not belong to two different Children; but as it is impossible for such a Case to happen, that Caution is unnecessary. When there are two Children, they are inclosed each in its particular Membrane, which never break together, but one after another, so that four Feet cannot present at one Time. Of the two Children, one is at the Passage, the other at the Bottom of the Uterus, which hinders them from coming out together. Besides, if one had a Mind to join the right Foot of one Infant, with the left Foot of another, he would find it impossible, for the Distance that there is between them. So that he might have spared his Pains in making an Observation, which can never exist but in Idea, and not in reality.

Deventer, and Heister, however, in this Point, are of a different Opinion, and agree with Mauriceau, that two Feet, belonging to different Children, may possibly present together.

They who have the Precaution to tie the first Foot of the Child which comes out with a Ribbon, which they fasten to the Mother's Thigh, for fear it should retire, while they are employed in finding the second, and so put them to the Trouble of searching for it a second Time, doubtless believe that it is in the Power of the Child to draw back its Foot: But they are mistaken; for the Mother who presses downwards, with-

out ceasing, rather constrains the Infant to advance in its Way out, than suffers it to replace itself within. So here is another needless Precaution, that can never be of any Service.

In drawing gently the Foot that is come out, the other often presents itself; but if it delays ever so little, it must be searched for, which is done by sliding the Hand along the Thigh of the Infant up to its Buttock, where you are sure to find it. The two Feet being brought out, and joined together, are to be wrapped in a dry linnen Cloth, to prevent the Moisture with which they are covered, from making them slip out of the Hands of the Operator, in the Time of the Operation.

The Child being thus extracted beyond the Hips, the Operator stops a while, in order to disengage the Arms, one after the other; and to lay them at Length by the Body. When this is done, he renews his Efforts, and pulls with more Force, because of the Shoulders, which, being the most bulky Part of the Body, are brought away with most Difficulty. When the Shoulders are passed, the Head follows easily, except it be of an extraordinary Bigness; and in order to prevent its being stopped, the Operator must call upon the Mother to redouble her Efforts, that while he is drawing on one Hand, and the Mother bearing down on the other, the Head may the more easily be extricated, and follow the rest of the Body.

Mauriceau would not have one Arm of the Child left for a Conductor and Stay to the Neck of the Infant; without bringing it down, though it is the Practice of many other Men-midwives, who say it succeeds very well. He says, that the Arm which is left, causing the Head to bend to one Side, hinders it from coming in a strait Line; and so may cause it to stick at the Os Pubis. But, in Answer to this, they say, there needs no more than to leave both Arms, for then the Head will be right, and its Bulk not the more augmented, because they are placed at the Sides of the Head, on the Temples, where it is flat. But whether the Arms are laid along by the Sides, or left in their Situation by the Sides of the Head, it makes no material Difference, and can do no Manner of Prejudice.

When the Feet of the Child come foremost, it is a Sign that it did not turn in the Beginning of the ninth Month, like all other Children, but that it presents in the same Posture it always kept in the Womb. If it lies on its Back, with its Face upwards, which is easily known by the Feet, which are brought out, the Operator must take a great deal of Care not to extract it in this Situation, because, the Face lying upwards, the Chin would be sure to catch upon the Os Pubis, which would extremely perplex the Operation. He must, therefore, in extracting the Child, gradually turn it, as it comes, on its Face, with its Back upwards, which is the most convenient Situation for the Birth, and where it runs least Hazard of being stopped by the Bones which surround the Passage.

The Child thus turned with its Face downwards, is brought away without much Difficulty, provided the Bulk of the Head be proportioned to that of the Body. But when the Head is of an extraordinary Size, it has the Misfortune to be stopped by the Bones of the Pelvis; which being incapable of giving Way, will not suffer it to pass. When this happens, you must not be too violent in pulling the Body of the Child, for fear of separating it from the Head, as it too often happens. In this Case the Operator is to give the Feet to be held by an Assistant; with a Charge not to draw before he orders it. Then, the Back of his left Hand being turned towards the Coccyx, he slips one or two Fingers into the Mouth of the Child, to press down its Chin; and with his right Hand grasping the Neck near the Occiput, he draws gently, with the Assistance of the Person who holds the Feet, and has Directions to draw in Conjunction with him. And thus the Child is born, without running the Risque of losing its Head.

If we ought to take Care of drawing the Child away with too much Violence, we are, at the same Time, to avoid leaving it too long in that Situation, because it would infallibly die if it remained there above half a Quarter of an Hour. It wants Respiration, in order to maintain the Circulation of the Blood, and Respiration cannot be performed, while the Head is thus encumbered. Nor can the Circulation between the Mother and Child be carried on, because the Cord, by Means of which it is preserved, is pressed between the Head of the Child, and the Bones that surround it. Since then, neither of these can be performed, it must unavoidably perish. Such a Misfortune happened in 1695, to a Male Infant of the Duke of Savoy; who had continued too long in that Situation, by the Fault of the Mid-wife. Upon this Account, two Years afterwards, when the Duchesse of Savoy, now Queen of Sicily, was with Child, the Duke, her Husband, now King, sent his chief Surgeon to Paris, to learn the Art of Midwifery, who afterwards returned to Turin, and delivered the Queen of all the Children she has had, who did very well. *Dionis des Accouch.*

Deventer, a very good Judge of these Affairs, agrees pretty much with Dionis as to the Manner of treating these Cases. He is very particular in directing, that one Foot should not be suffered to sink too far into the Passage, but that as soon as ever the Waters break, if one Foot presents it should be kept back;

mean Time the Operator must slide his Hand along the Inside of the Leg which presents, to which he is directed by the great Toe, and by this means he is infallibly directed to the other Leg, if he does not meet with it in the Way; this he is to join with the other, and bring both together out of the Passage.

But if it happens, that the Leg is already sunk too deep into the Passage, he advises to place the Woman with her Head considerably lower than her Hips, that the Uterus together with the Child may recede a little, and then to return the protruded Leg, or at least the Knee, that there may be more Room to search for the other Leg, and bring both away together in the Manner directed above.

This Author is utterly against bringing down either one or both Arms, but recommends it strongly to bring the Child away without that Trouble to the Mother, or Operator, and Danger to the Child, who must necessarily remain longer confined in the Passage. And gives repeated Assurances that leaving the Arms to come away lying on each Side the Head, can be of no ill Consequence.

At the Time the Head is extracting, all Authors agree with Deventer in advising the Mother to bear down forcibly, whether she has Pains, or not.

The grand Point wherein Authors upon this Subject disagree, is with Respect to bringing down the Arms, when the Child is advanced as far as the Shoulders. La Motte, Giffard, and Chapman advise it. Dionis, as we have seen, leaves the Thing indifferent, and Deventer is utterly against it. Hence we must conclude, that all these Authors have succeeded very well in their different Ways of delivering Women under these Circumstances. And if so, that Method which gives a Woman the least Pain, the Operator least Trouble, and the least endangers the Child, is to be preferred; and therefore Deventer's Method of leaving the Arms of the Child to come away with the Head, must be the best.

There is not much Difficulty in Births of this Sort, till the Child is extracted as far as the Head, but it is sometimes subject to stick a little there, some Management is therefore necessary to bring the Head away expeditiously, otherwise, as Dionis observes, the Circulation by the Intervention of the Umbilical Vessels being hindered, the Child must perish. The following Observations will set all Circumstances relating to Labours of this Sort, in an intelligible Light, and either confirm, or illustrate the Doctrine laid down by Dionis as above.

When the Head sticks, and does not come away readily, one, or two Fingers are to be introduced into the Child's Mouth, whilst with the other Hand the Operator lays hold of the back Part of the Neck, then by acting with each Hand alternately, and sometimes with both together, the Head is generally readily extricated. *La Motte.*

As soon as the Child is advanced as far as the Buttocks, if the Toes are turned towards the Mother's Belly, the Body as it is extracted must be turned by Degrees in such a Manner, that the Toes may be towards the Anus, and consequently the Heels towards the Belly of the Mother, otherwise the Chin will catch upon the Os Pubis, and endanger the Child and the Mother too. In this Case a greater Force is requisite to bring away the Child, and Pulling too hard may separate the Head from the Body, and cause a great deal of Trouble in bringing away the Head afterwards. *La Motte.*

When this Precaution has been neglected, and the Child is advanced as far as the Chin, where it sticks, being intercepted by the Os Pubis, the Method is to introduce the Fingers of one Hand betwixt the back Part of the Head, and Os Coccygis, and with these to thrust back a little the hinder Part of the Head, mean Time, one or two Fingers of the other Hand are to be introduced betwixt the Os Pubis and Chin, till they can be got into the Mouth of the Child; then turning the Head a little on one Side, and acting sometimes with one Hand and sometimes with the other, and sometimes with both together, as Occasion requires, the Head is to be freed from its Confinement, without endangering its Separation from the Body, which by pulling hard without these Cautions would probably be effected. *La Motte.*

The Reasonableness of this Method will appear very plain to whoever considers the Figure, and present Situation of the Head. When the Chin is thus fixed on the Os Pubis, the back Part of the Head is thrown towards the Os Sacrum, and this the more, the greater Force is used in drawing the Child in order to bring it away, inasmuch that it lies in some Measure across the Passage, with the Chin at the Os Pubis, and the Crown of the Head pointing towards the Os Sacrum; in this Situation then it is next to impossible for it to come away, unless the Passage is very large. But when the back Part of the Head is thrust from the Os Sacrum towards the Bottom of the Uterus, the Chin approaches nearer the Neck, and consequently is more likely to be brought off the Os Pubis, which obstructs it. On the contrary, when the Chin is made to approach the Neck, the Crown of the Head is made to recede from the Os Sacrum. So that each Hand in this Way of acting, recommended by La Motte, assists the other in the best Manner that can be conceived,

and gives them a Command of the Head to turn it a little on one Side, that the Child may be extricated from this dangerous Situation.

If both Feet cannot be found without Difficulty, the Child may be extracted by one; however, in this Case, Care must be taken, not to draw one Foot with the same Violence as both would bear, for Fear of stretching the Ligaments, and laming the Child for ever. *La Motte.*

La Motte observes in another Place, that before we attempt to bring away a Child by one Leg only, we should be very sure that the Child can come in that Posture, I suppose he means, that the Passage is large enough, in Proportion to the Size of the Child; for, he says, when the Child is engaged in the Passage to a certain Point, it is not in the Midwife's Power to bring it any other Way, that is, to get the other Foot.

The late Writers on the Subject of Midwifery of our own Country, I mean Chapman, and Giffard, are of Opinion that both Feet should be brought out, provided it can be done conveniently; but if they can get one Foot, they are in no farther Pain about the other than to assure themselves that it is bent forwards, towards the Belly; and then wrapping a soft warm Cloth about the Leg, they readily bring the Child away by that only; especially when the Passage is tolerably large, the Woman has had a Child before; and the Infant is of a moderate Size.

This Sort of Birth is of Importance enough to deserve a particular Attention, because all Births whatever, where the Child presents any Part but the Head, must be reduced to this, for the Method of turning a Child, which presents in a wrong Posture, in such a Manner as to bring the Head to the Orifice, as it ought to be naturally, is now exploded by the best Authors, and Practitioners, as more inconvenient and dangerous to the Mother and Child, as well as troublesome to the Operator. Deventer is even of Opinion, that in Cases where the Head presents, but the Birth is retarded by a bad Position of the Womb, it would be the best Way to bring the Child away directly by the Feet, without waiting to reduce the Womb to its natural Situation, which is not done without much Difficulty and Pain. Heister, in this Case, agrees with Deventer, provided the Womb, and with it the Head of the Child, cannot immediately be reduced to the natural Position. By a bad Position of the Womb, I mean, when it inclines too much, either forwards, or backwards, or to either Side, for then the Orifice, instead of answering directly to the Passage, is thrown either upon the Os Sacrum, Os Pubis, or the Bones which form the Sides of the Pelvis, which obstruct the Birth, and render the Pains, let them be never so strong, of no Effect.

I must not omit taking Notice, that Heister recommends another Method of extricating the Head, when the Face is turned towards the Os Sacrum. This Author is apprehensive, that the Tenderness of the lower Jaw would render it liable to be broke or dislocated, when the Fingers of the Operator are placed in the Mouth. He therefore advises to introduce the Hand far enough to place two Fingers one on each Side of the Child's Nose, and then with this Hand to press gently towards the Intestinum Rectum, in order to make more Room for the Egress of the Child.

He also advises, when the Face of the Child is turned towards the Mother's Belly, to place the Fingers on each Side of the Nose, instead of introducing them into the Mouth. Whilst the Operator is in this Manner endeavouring to bring the Head away, an Assistant should draw the Child gently, that by these united Efforts the Birth may be expedited.

When the Body of the Child is turned in such a Manner, during the Extraction, that the Toes point downwards, by which it should appear that the Face is turned towards the Os Sacrum of the Mother, it is possible, however, that the Neck may be twisted in such a Manner, that the Face may point towards the Mother's Belly, and then the Chin will catch on the Os Pubis. This Case is not to be discovered otherwise than by Feeling, and when the Operator is certain of it, he must conduct himself by the Directions given above.

It is a general Rule, that the Force with which a Child is drawn when it comes with the Feet foremost, should not be directed in a right Line from the Passage, but inclining somewhat downwards towards the Os Coccygis.

A few Cases will be sufficient to illustrate these Rules.

CASE I. from LA MOTTE.

In September, 1693, I was called to the Wife of a Carpenter. I found the Midwife pulling with all her Force the Child, who had presented the Feet, and was extracted as far as the Neck, but the Chin appeared to be fixed upon the Os Pubis. I immediately introduced one Hand betwixt the Os Pubis and Face of the Child, who had been dead a considerable Time, and got a Finger into the Mouth, and with the other Hand, which I introduced betwixt the Rectum and back Part of the Head, I pushed the Head a little backwards. By Means of my two Hands placed in this Manner, I had Command enough of the Head to turn it a little on one Side; and this gave me Room to introduce my Fingers somewhat farther,

ALARIS, or **ALIFORMIS**. *In the Shape or Form of a Wing.*

ALARTAR. *Æs Ustum. Burnt Brass. Rulandus.*

ALASALET. *Sal Ammoniacum. Rulandus.*

ALASTROB. *Lead, according to Rulandus; but according to Johnson, Lime. Castellus.*

ALATAN. *Litharge of Lead. Rulandus.*

ALATERNUS. This is the *Alaternus*, Offic. Chab. 43. Park. Parad. 603. *Alaternus* 2. Clusio. J. B. 1. 542. *Alaternus major & minor*, Raii Hist. 2. 1608. Park. Theat. 1445. *Spina Burgi Monspelienfium*, ejusd. *Alaternus Plinii*, & *humilior*, Ger. 1212. Emac. 1398. *Alaternus*, sive *Philyca elatior & humilior*, C. Bauhini. Pluk. Almag. 12. *Alaternus* 1. Clusii & *minoris folio*, Tourn. Inst. 595. Boerh. Ind. A. 2. 213. *Alaternus prior & altera*, Clus. Hisp. 56. Elem. Bot. 468. *Philyca elatior & humilior*, C. B. Pin. 476. Jonsf. Dendr. 261. EVERGREEN PRIVET.

It is a small Shrub, about the Bigness of the Privet, covered with a black Bark, almost like that of the Cherry-tree. Its Wood is of a light Yellow, the Leaves oblong towards the Top, moderately large, firm, set all round with small Prickles, disorderly placed, resembling those of the Philyrea, but disposed in alternate Order on the Branches, whence it takes the Name *Alaternus*, whereas the Leaves of the Philyrea grow in Pairs, Side by Side. The Flowers are small, and stand many together. They are shaped like a Funnel, or Top of a Tent, and cut Star-like into five Points, or Rays, of a white Colour, odoriferous, succeeded by Berries, about the Bigness of Elder-berries, clustered like Grapes, soft, juicy, black when they are ripe, each inclosing three Seeds joined together, rounded on the Back, and flattened on the Sides where they touch. The Roots run a great Way in the Earth. It grows in the Hedges, and is cultivated in Gardens. It contains much Oil and Phlegm, and but little Salt. *Lemery des Drogues.*

The Plant is of a deterfivè, astringent, and cooling Nature, and is used in Gargarisms for Inflammations of the Mouth, and for the Quinsey. *Boerhaave. Lemery.*

The Fruit moderately binds the Belly. *Dale.*

Clusius confesses, that he knew no Use of either of the two Kinds of his *Alaternus*, but that he was assured by the Portuguese, that their Fishermen used to dye their Nets of a reddish Colour, with a Decoction of the Bark in Water; and that Dyers used the Decoction of the Chips of the Wood, which is of a pale Colour, to give a dark Blue. *Raii Hist. Plant.*

Another Species of the *Alaternus* is the

CELASTRUS, Offic. Jonsf. Dendr. 262. *Celastrus Theophrasti*, C. B. Pin. 477. Ger. Emac. 1600. Park. Theat. 1448. *Celastrus Theophrasti Clusio*, Parad. 603. *Alaternus latifolia*, *Celastrus dicta*, Herm. Cat. Hort. Lugd. Bat. 11. Raii Hist. 2. 1608. *Alaternus Hispanicus*, *Celastrus dicta*, Boerh. Ind. A. 2. 213. THE STAFF-TREE. *Dale.*

It grows to above a Man's Stature, with a firm and hard Body, which runs out into many Branches, that are covered with a green Bark while young, but blackish after a Year. The Leaves are numerous, always stand opposite, and are thick set, of a deep Green on the upper Face, but fainter on the lower, perennial, that is, never falling off, till displaced by new ones, which is the Case of most Evergreens. The Leaves are of a shining Smoothness, and no larger than those of the *Alaternus*, but most of them smaller, especially those of a Year old, which cover the lower Part of the Sprays, not jagged, especially the young ones, which, though they seem to have somewhat resembling Jaggs, cannot be called jagged; they are of a bitterish Taste. At the utmost Part of the young Sprays, among the Leaves, grow Pedicles, which bear five or six small Flowers, consisting generally of four or five small Leaves, of a greenish Yellow, and a sweet Smell, disposed in Clusters like the Flowers of the Mastick-tree, not expanded in the Form of an Umbrella, like those of the Wild Bay, or Elder. They open very late, and not before the latter End of Autumn, or Beginning of Winter, and sometimes not before the mild Air of the Spring breathes on it. So far Clusius; to which P. Paauwius adds, This Tree in the Leyden Garden, 1610, in the Month of June, began to shew the Rudiments of a Fruit, producing a short Pedicle, on which grew a Berry, about the Size of a Myrtle-berry. While growing it was green, but red at its full Growth, which turned by Degrees from a light Red to a coral Colour, extremely like the Berry of Sparrow-grass, I mean the lesser Sort. It kept up this lovely Colour to the Beginning of August, when its Skin, or Superficies, began to shrivel; and at the same Time to change Colour, and from a round to become of an oblong Figure, turning first of a dusky Colour, which grew at last to a Coal Black. After it fell off, we discovered in its Inside one single oblong, and in some Sort triangular, Seed, very like the Kernels of Grapes, and breaking the Shell, which was hard and somewhat stony, we found but one Kernel, covered with a thin Membrane, or Skin, of a Saffron Colour, under which lay the Pulp; hard, whitish, and like that of an Hasle-nut. *Raii Hist. Plant.*

A third Species of the *Alaternus* is the

Cassina Offic. C. B. Pin. 170. *Herba Cassiana famem stimule retardans*, J. B. 3. 631. Chab. 655. *Cassina vera Florida-narum*, *Arbuscula baccifera Alaterni ferme facie, foliis alternatim*

Jitis, tetrapyrene. Pluk. Mant. 40. Phytog. Tab. 376. f. 21. *Apalachine sive Cassine*, Ind. Med. 11. *Alaternoides Africana Lauri serrata folio*, Comm. Rar. Exot. 1. 61. *CASSINY. Dale.*

It grows in Carolina. The Leaves are about an Inch long and half as wide, shaped like the Leaves of Sena, blackish when dried, shining in the upper Part, but greener underneath, of no Smell, but a Taste somewhat aromatic.

It is accounted a very good Medicine in the Small-Pox, restraining the immoderate Fermentation of the Blood, without putting too great a Check upon the expulsive Faculty. It promotes Expectoration, preserves the Lungs, and keeps off the Small-Pox from the Head and Throat. *Dale Pharmac.*

The fourth Species of the *Alaternus* taken Notice of by Dale is the

Perygua, Offic. Marl. Obs. Mont. Exot. 8. *Cassine vera perquam similis Arbuscula Phyllireæ Foliis antagonistic ex Provincia Carolinensis*, Pluk. Mant. 40. Phytog. 381. f. 3. THE CASSIO-BERRY BUSH.

It is found in Carolina. The Fragments of the dried Leaves, and the Powder of the Stalks, are used.

Sometimes it purges, at other Times excites Vomiting, or promotes insensible Perspiration, still acting as Nature inclines. It is accounted an excellent Specific in the Diabetes, and several Histories of Cures done by it in that Distemper are related by Marloe. A Tea made of the Herb is good in the Nephritic Colic.

Of what Plant the *Perigua* are Fragments, is a Question not easy to be determined, nor can the Opinions of learned Botanists be well reconciled. Some take it for a Species of *Alaternus*, whose Authority I have followed in placing it here. Others put a Question, whether it be the *Peragua*. *Hort. Mal. Tom. 2.* To me it seems most likely to be the Plant of which Du Biscaï gives an Account, in his Voyage on the Rio de la Plata, by the Name of the Plant of Paraguay, which the Natives use as a Preservative against noxious and mineral Vapours, and also for a Vomit on Occasion. Query whether the Fragments of Plants of late imported, under the Name of PARAGUAY-TREE, be the same with the forementioned *Perygua* of Marloe. *Dale Pharmacologia.*

Miller enumerates six Species of *Alaternus*.

ALATERNOIDES [from *Alaternus* and *Eidos* Gr. Form or Shape] a Sort of *Alaternus*.

This differs from the *Alaternus* in having three Seeds joined together, in the manner of Tithymallus (or Spurge) whereas the *Alaternus* has three Seeds inclosed with one common Covering, and appears to be a single Berry till it is opened.

Miller enumerates three Species of *Alaternoides*.

ALATI. Those are called so whose Scapulæ, or Shoulder-blades are very prominent, and stand like Wings. Those who have such a Conformation are esteemed very subject to a Consumption.

ALATI PROCESSUS, or **ALARES**, are Processes of the Os *Sphenoides*. See SPHENOIDES.

ALAUDA, a Gallic Word for *Galerita*, a Lark. This Bird is a most effectual Remedy in all Pains of the Colon and other Intestines, both for Men and Cattle, whether it be roasted and eaten, or burnt to Ashes, and three Spoonfuls thereof carefully pulverized given in warm Water for three Days together.

It is called by the Greeks *Kopidantes*, and is to be burnt Feathers and all, in an earthen Pot plaistered over, and set in a Furnace, till it may be reduced to Powder. *Marcellus Empiricus. Cap. 29.*

The Lark eaten with the Broth made of it cures the Colic; but it ought to be frequently used. *Paulus Ægineta. Lib. 7. C. 3.*

The Lark is a little grey Bird very well known, celebrated for its agreeable Singing early in the Morning, when it is fine Weather; she lays her Eggs in May, July, and in August; her young ones are ready to fly in ten or twelve Days.

There are two Sorts of Larks, one that has a Crest, and another without one; the last fly in Flocks. The Lark is esteemed the Harbinger of the Spring; that with a Crest lives more on the Ground than the other; they both eat Wheat, Worms, and Pismires; they keep some in Cages; when young they are a delicious Meat; their Flesh is firm, brown, and of a good Juice easy to be digested; those are most eligible which are very tender; and well fed.

The Heart and the Blood of Larks are good for the windy Colic, and to extricate Gravel and Phlegm from the Kidnies and Bladder.

Schroder says the fresh Blood, taken in sharp Vinegar, or warm Wine, effectually relieves the Stone and Gravel.

They say that the Name *Alauda* is taken from the antient Gauls, and that Julius Cæsar having raised Soldiers in France they were called by the Name of Larks, because the Figure of their Head-piece resembled a Lark with a Crest. *Lemery de Drogues.*

When the Lark is old, her Flesh is hard, dry, and difficult of Digestion, and the Juice bad.

It contains much Oil and volatile S. It.

It agrees with any Age and Constitution, especially in Autumn when this Bird is fatter and more delicious, than at any other Time of the Year.

The Lark is a delicious Bird, and much esteemed for the Goodness of its Taste, and the happy Effects it produces. As it is much upon the Wing its Perspiration is abundant, and consequently it must contain but a few gross Humours, and many volatile and exalted Principles. *Lemery on Foods.*

As the Lark uses much Exercise, its volatile Salts must be much exalted, and its Juices alcalescent, especially as it feeds sometimes on Insects.

The crested Lark is thus distinguished, *Galerita*, Offic. Bellon. des Oyse. 268. *Alauda cristata*, Schrod. 5. 314. Aldrov. Ornith. 2. 841. Mer. Pin. 176. Jonf. de Avib. 70. *Alauda cristata, albicans*, Gen. de Avib. 72. *Alaudas cristata major*, Raii Synop. A. 69. *Alauda cristata, Galerita*, Ejusd. Ornith. 208. *Alauda cristata, Vienna Austria visa & descripta*, Will. Ornith. 151. *Alauda, Galerita cassina, cristata*, Charlt. Exer. 88.

The Sky Lark is thus named by Authors, *Alauda*, Offic. Mer. Pin. 176. *Alauda non cristata*, Schrod. 5. 314. Johnf. de Avib. 70. Aldrov. Ornith. 2. 844. Bellon. des Oyse, 269. *Alauda vulgaris*, Raii Ornith. 203. Ejusd. Synop. A. 69. Will. Ornith. 149. *Alauda altera*, Gefn. de Avibus.

ALAUROT. Nitre. *Rulandus.*

ALBA ANIMALIA. White Animals are almost universally weaker than black ones, which is evident from comparing their Flesh together, that of the latter being more savoury. *Act. Tetr. 1. Serm. 2. Cap. 88.*

In every Species of Seeds, Roots, or Juices, also some Indication of the Temperament may be taken from the Colour. For Instance, an Onion, a Squill, and Wine, the whiter they are, the less Heat they have in them; but the deep, or pale Yellow, carry the most Heat. The same is observable in Wheat, Kidney-Beans, and Chiches; as also in the Roots of Iris, Daffodil, and many others; and universally the pale or bright Yellow, and the Ruffet, are hotter than the White. *Act. Tetr. 1. Serm. 1.*

ALBA TERRA. David Lagneus, in the *Theatrum Chymicum*, Vol. 4. Page 721. tells us, that the Matter of the Philosophers Stone is Quicksilver and Sulphur, and that this Composition is called TERRA ALBA.

ALBA VITILIGO. See VITILIGO.

ALBADARA. It signifies in Arabic the Sefamoide Bone of the first Joint of the great Toe, which is about the Size of a small Pea. Its Use is to that Joint much the same as the Patella is to that of the Knee.

The Magicians are said to attribute extraordinary Virtues to this Bone. Some of the Jewish Rabbies relate strange Stories of a little Bone, which is called *Luz*, and which they say is found betwixt the last Vertebra of the Loins, and the Os Sacrum. As there is no such Bone to be found in that Place, perhaps they may mean this Sefamoide Bone, and may have borrowed some fabulous Accounts of it from the Magicians. They relate, that this Bone is not to be destroyed by either Fire or Water; and that God will make Use of this Bone at the last Day, to raise the Dead, making the Body to grow again from it, as a Plant does from the Seed.

But as there is something very remarkable in this Bone, with Respect to Physic, without recurring to Jewish Fables, and Magic Tales, I shall relate what I have heard and observed on this Subject.

About twenty Years ago, there was a Cure performed by a Physician, who then lived at Oxford, which was much talked of, and, I believe, most Gentlemen of the Profession who studied there, about that Time, may remember it. A young Lady had been subject to frequent Fits of an odd Kind, against which all Remedies which were tried had proved ineffectual. At last, a Physician was consulted, who was of Opinion, that these extraordinary Fits were caused by a Dislocation of the Bone, which is the Subject of this Article, and that an Amputation of the great Toe would cure them. The Lady pursued his Advice, the Toe was cut-off, and she recovered perfectly. I neither knew the Lady nor Physician; but the Fact was well known at that Time, and I never heard it disputed. The following Case in which I was concerned is a farther Evidence, that such Cases may, and actually do sometimes happen, though they have been generally overlooked by Medicinal Writers.

In the Summer of 1737, I was called to one Mr. Fitter, a substantial Farmer of Henwood-Hall, near Solihull in Warwickshire. I found him sitting on the Side of his Bed, where he told me he had been all that Day, and the preceding Night, without daring to move, because he was sure of having a Fit, the Moment he moved his Foot, the Apprehensions of which gave him great Terror. He said, that a few Days before, in crossing a Waggon Road in Haste, where the Ruts were deep, and the Sides of them very hard, he stumbled at a Clod, and hurt the great Toe of his left Foot very much; that in a few Minutes he fell into a Fit, and that whenever he moved that Toe, which he never did without a great deal of Pain, he was sure to fall into another of the same Sort. These Fits much re-

sembled those of the Epileptic Kind, except that no Froth was discharged at the Mouth, and that the injured Foot first began to be convulsed, then the Leg, and from thence a very uneasy Sensation ascended to his Head, and then the Convulsions began to be universal.

Upon Examination, I found he had never been subject to any Disorder like Convulsions before. He was at this Time upwards of fifty. Before this Accident, he was in all Appearance a very hearty Man, and had now no Complaints of any Kind, except the above-mentioned.

I do not recollect exactly what I directed for him; but I remember nothing did him the least Service, insomuch that in a Week, or thereabouts, he died, perhaps as much by the Neglect of those about him, as by his Distemper; for, as the Accident happened in the very busiest Time of Harvest, he had not the Attendance which a Case of this Importance merited.

I could never, with all my Intreaties, get Leave to examine the Toe, with the Attention and Exactness it deserved, for he was so excessively afraid of having it touched, or moved, that he was almost in Agonies, whenever I attempted to move my Hand towards it. I should have solicited for Liberty to dissect the Toe, if an Opportunity had presented, but he had been buried some Days, before I heard of his Death.

Hippocrates (*de Morbis Mulierum*, L. 2.) has a most exact Description of the Sort of Fits this Patient was affected with, which he attributes to Hysterics, or, in his Phrase, to the Uterus; this I shall transcribe from him, in order to give a better Idea of this Patient's Case: *Ἡ ἐστὶν τὰ σκίλα τῶ ἀπὸ τῆς μήτρας, γυναικὸς ὡδὶ. Ὅτι μεγάλοι δάκτυλοι τῶν ποδῶν σπένται ὑπὸ τῶν θυγῶν, καὶ ὅδῳ ἔχουσιν τὰ σκίλα καὶ τὸ μέν, καὶ ἔχουσιν καὶ σπένται τὰ ἀπὸ τὸ μηρὸν πύρα. Ἡ δὲ ἀναυδὸς γίνεταί ἐκ αὐτῆς, τὰ σκίλα ψυχρὰ εὐραὶ αὐτῆς, καὶ τὰ γυναικῶν καὶ τὰς χεῖρας, καὶ ἡ καρδία πάλιν καὶ βρύχει, καὶ ἰδρὸς πλουτὺς, καὶ τ' ἄλλα ὅσα ὑπὸ τῆς νύκτος ἐκδηλοῦνται ἀσάφως.*

ALBAGIAZI. The Arabic Name for the Os Sacrum. *Castellus from Fallopius.*

ALBANI. *Rulandus* explains this *Lapis Salis Laeti*, which is not very intelligible. *Johnson*, and *Castellus*, as is usual with them, in Case of Difficulty, take no Notice of it. There is a Kind of Salt to be procured from Milk, which crystallizes in the Form of a Cake, the Discovery of this is attributed to *Ludovicus Teffi*. It is possible that this Salt may be meant by *Albani*; and that *Ludovicus Teffi* might take the Manner of preparing it from some chymical Author that preceded him.

ALBANUM. Salt of Urine. *Rulandus.*

ALBARA. A Species of Leprosy. *Castellus*. See VITILIGO.

It signifies also the White Poplar. *Brunfelsius.*

ALBARAS. *Arsenic.* *Rulandus.*

Blancard explains *Albaras alba*, by *Leuce*, the white Leprosy; and *Albaras nigra*, by *Lepa Græcorum*.

ALBATIO, ALBIFICATIO, and DEALBATIO, are alchemical Terms, not easily understood. They seem to mean Reducing the baser Metals to a Whiteness, in order for their Transmutation into some of the more noble Sorts.

They also signify the Calcination of Metals, or Minerals, to a Whiteness, without any View to Alchemy.

ALBEDO. Is the Whiteness procured by Albification. Or Whiteness of any Kind.

In Proportion as the Flesh of Animals alters from its Whiteness, so much it loses of the Goodness of its Juices. *Aëtuarius de Spir. Anim. Cap. 7.*

Of Whiteness, with respect to Urine, there are four Kinds, viz. the Crystalline, the Snowy, that of Lime, and the Limpid, like that of fair Water. For Ice, Crystal, Snow, Lime, and Water, have a Whiteness, but not in the highest Degree. The Colour of Milk comes short of the highest Degree of Whiteness, but exceeds the aqueous and crystalline. Then the Whiteness of the glaucous Colour falls as much short of that of Milk, as it exceeds the *χαρδύς*, *Charopos*: For the Glaucous is perspicuous like a clear Horn, or the Cornea Tunica of the Eye; but the *Charopos* [Latin *Ravus*] is like the whitish Hairs of Camels; or the Colour of the Onyx Stone. *Theoph. de Urinis Cap. 5. Aëtuarius de Urinis Cap. 8.*

ALBERAS. The Arabic Name for the *Staphisagria*. *Schroder.*

ALBERICK. *Rulandus* explains this *Album Eris*. The German Word signifies *White Ore*.

ALBESTON. Quick-Lime. *Rulandus.*

ALBETAD. Galbanum. *Rulandus.*

ALBI. Both *Rulandus* and *Johnson* explain this by *Sublimari*.

ALBIFICATIO. See ALBATIO.

ALBINUM. A Name of the *Gnaphalium marinum*. SEA CUDWEED or COTTON-WEED. See GNAPHALIUM.

ALBIR. Pitch got from the Bark of the *Taxus*, Yew. *Johnson.*

ALBOR. Urine. *Rulandus.*

ALBORA. A compound Species of Itch, or rather Leprosy, of which *Paracelsus* gives the following Account:

I say that *Albora* is a Complication of three Things, the Morpew, the Serpigo, and the Leprosy.

When

When several Diseases of different Origins meet together in one Center, there is generated a new Disease under a new Name.

THE SIGNS.

When Cicatrices appear in the Face, like the Serpigo, and then turn to small Blisters of the Nature of Morpew, for which there is no Name, I say, the Patient has the *Albora*.

THE TERM.

It terminates, without any Ulceration, in extremely foetid Evacuations from the Mouth and Nostrils. The Distemper is known only by its outward Signs; it takes its Seat too in the Root of the Tongue.

A CAUTION.

Avoid all internal Medicines, and strong corrosive Waters.

THE CURE.

Take of Tin, Lead, Silver, each a Dram; distilled Water of the Whites of Eggs, half a Pint; mix them together. The boiled Whites of Eggs are to be distilled, and the Water put to the Filings of the said Metals, and the *Albora* is to be washed with the same. *Paracelsus de Apostematibus*, Cap. 42.

ALBORCA. *Mercury*. *Johnson*.

ALBOT. *A Crucible*. *Rulandus*. *Johnson*.

ALBOTAT. *Cerufs*. *Rulandus*. *Johnson* calls it ALBOTAR. It is also called ALFIDAS.

ALBOTIM. *Turpentine*. *Rulandus*. According to the same Author it is also called ALBOTAI.

ALBOTIS. The same as TERMINTHUS, which See.

ALBUCASIS. An Arabian Author, known also by the Names of *Albucasis*, *Albuchasius*, *Buchasis*, *Bulcasius Galaf*, *Alfaharavius*, and *Azaravius*, according to Fabricius, who places him in the eleventh Century. Hence it appears, that Dr. Friend is not the only Author, nor the first who acknowledged *Alfaharavius* for the same as *Albucasis*. He is esteemed an excellent Surgeon. *Wolf*. *Justus* places him about the Year 1085. Dr. Friend says a great deal about his Practice, which does not belong to this Article. What he says, however, concerning his Person, Character, and Writings, I shall insert.

Alfaharavius is an Author never mentioned by any other Arabian Physician, and scarce known in Europe, to any but *Matthæus de Gradibus* (who died in 1460.) till *P. Ricius's* Translation of him (a very bad one) appeared in 1519, and this itself never seen by *Gesner*. The Translator gives him a very great Encomium, and says, he is a very clear Writer, succinct, and at the same Time very comprehensive; and, in his Opinion, inferior to none, except *Hippocrates*, and his Interpreter, *Galen*. He compiled a Work, called *Al-Tasrif*, or a *Method of Practice*, divided into thirty-two Treatises, in which he is supposed by some to be excellent for the diagnostic Part, and describing the Symptoms of Diseases. The Book, indeed, is very methodically writ, and, without doubt, deserves a good Character: But then, I must observe, that the greatest Part of this Work is almost exactly the same with what we may read in *Rhazes*: For Instance, the 26th Tract, about the Distempers incident to Children; the 28th, concerning arthritic Disorders; the 30th, which treats of mortiferous Medicines, are all, in a Manner, transcribed from that Author. More particularly in his Account of the Small-Pox, in the 31st Treatise, he copies almost every Word of what *Rhazes* had written upon the Pestilence; and so little varies from him, that he retains the very same Divisions, and even Titles of the Chapters: Nay, he mentions the same extraordinary Virtue of a Medicine, which, though nine Pusules are come out, will prevent a tenth; though he describes the Medicine itself a little differently.

In perusing this Author, I observed, that he refers to a Book, which contained the Precepts and Practice of Surgery: This he does very often, particularly p. 80, 81, 88, 97, 99, 107, 117, 118, 129, 123, 124, 125, 127, &c. I compared these Passages with *Albucasis*, as he is commonly called the only Arabian, who has left us any separate Treatise of surgical Operations; and I had the Satisfaction to see, that every Case in Surgery, as mentioned by *Alfaharavius*, was treated of by him. I desired the Favour of Mr. Gagnier, who has very great Skill in the Oriental Languages, to enquire whether the Arabic Original of *Albucasis* could be found in the Bodleian Library. Upon searching, he met with one Manuscript, in Archbishop Marsh's Collection, No. 54. with this Title (translated into Latin thus) *Traſtatus x libri Zaharavi dictus operatio manſis (id est) Chirurgia & ars medica, circa cauterizationem, & disſectionem & commiſſionem fracturarum, in tres partes diſtributus*—but not finding the Name of *Abulcaſim* (which is the Name given him in a Latin Manuscript there, by *Gerardus Carmonensis*, who translated him) he went further, and found another Manuscript amongst Dr. Huntington's, No. 156, with this Title at large—*Pars xi libri Al-Tasrif, Authore Abul-caſem*

Chaiſ Ebn-Abbas Al-Zararavi—and, at the End of the Manuscript, were these Words translated out of Arabic thus, *Explicit hic Traſtatus de Chirurgia, eſque conſuſio totius libri Practices medicine cujus Author eſt Abul-caſem, &c. Die primo menſis Saſar, A. H. 807.* and, in the Latin Manuscript already mentioned of *Gerardus*, it is called *Particula 30 libri Albucasi*. The joint Authority of these two Manuscripts, concurring with what I have observed before, about the References to a Treatise of Surgery, puts it, I think, beyond all Dispute, that what we have now under the Name of *Alfaharavius*, and *Albucasis*, were writ by the same Person. Add to this, that *Albucasis* often refers to a Book, which he had writ concerning the Practice of Physic.

I do not find any Certainty of this Author's Age; but he is generally (though for what Reason I do not apprehend) supposed to have lived about the Year 1085: But there is some Ground to think he was not so antient. For, in treating of Wounds, he describes the Arrows of the Turks: A Nation which scarce made any Figure, till the Middle, at least, of the twelfth Century. And from what he says, that Surgery, in his Time, was in a Manner extinct, so that scarce any Footstep of the Art remained: One may, I think, infer, that he lived long after *Avicenna*; for, in that Physician's Time, we know, Surgery was in good Repute. *Albucasis* revived it; and thinks it is the highest Impudence to attempt any Thing in it, without being well versed in Anatomy, and in the Virtues of Medicines, especially the former, and adjures all of this Profession never to undertake, for the Sake of Gain, a Case which they do not understand. Though he takes a great deal from the Greeks, and especially from *Aetius* and *Paulus*, yet of the practical Writers he mentions only *Hippocrates* and *Galen*: And this, by the Way, may be another Reason to make us believe, that he is the same Person with *Alfaharavius*, who, in like Manner in his practical Work, does not quote above four or five Authors, viz. *Rhazes*, *Honain*, &c. besides these two. He throws by, he says, all that is superfluous in Surgery, and retains only what is useful, and necessary: And acquaints us, that he had joined long Reading and Experience together, and protests he will relate nothing but what he has seen. He is, to be commended particularly for this, that he is the only one among the Antients, who has described the Instruments in each Operation, and explained the Use of them; and the Figures of these Instruments are in both the Arabic Manuscripts which I have named, though not so finely and elegantly drawn, as in the Latin Copy. Another Thing very remarkable and indeed, peculiar to himself, is, that he gives his Reader Warning, wherever there is any Danger in the Operation: A Caution many Times as useful, as the long and minute Directions of others, how to perform it.

A Translation of *Albucasis*, intitled, *Methodus medendi certa, clara, & brevis, pleraque, quæ ad Medicinæ partes omnes, præcipue quæ ad Chirurgiam requiruntur, Lib. 3. exponens, cum Instrumentis ad omnes ferè Morbos utiliter & præcipue depictis*, was published, together with some other Authors, at Basil, 1541, in Folio.

Albucasis was also published in Latin at Venice, 1500, in Folio. And at Strasburgh, 1532, in Folio. *Vander Linden*.

ALBUGINEA TUNICA OCULORUM. The Coat of the Eye called *Adnata*, or *Conjunctiva*. See ADNATA.

A Coat of the Testicles is also called ALBUGINEA. It is so called from its Colour, which is white. It is a strong, thick Membrane, very smooth on the outward Surface; the inward, which adheres to the Substance of the Testicle, is rough and uneven. Into the upper Part of this Membrane are inserted the Blood-vessels, Nerves, and Lymphatics, which send from thence divers Branches into the Substance of the Testicle. *Drake*.

ALBUGINEUS HUMOR OCULI. The aqueous Humour of the Eye. See AQUEUS HUMOR.

ALBUGO OCULORUM. A Pearl or white Speck in the Eye.

Nitre finely powdered, and mixed with Oil, soon takes away Pearls from the Eye anointed with it. The Juice of *Anemone* has the same Effect, by its attenuating Virtue. *Oribasius de Loc. affect.* Lib. 4. Cap. 24.

The Collyrium of *Archigenes*, which at the first Anointing takes off most Part of the Pearl or Speck in the Eye, and is also an excellent Remedy for a bleared or blood-shot Eye, though long and dangerously affected.

Take of Snails calcined, three Drams; *Æs ustum*, four Drams; *Squama æris*, six Drams; *Squama ferri Stomomatis*, twelve Drams; *Ærugo*, six Drams; *Lapis Scissilis*, one Dram; *Aloes*, one Dram; *Omphacium* dried, two Drams; *Indian Thorn*, four Drams; *Chalcitis*, *Myrrh*, *Frankincense*, each three Drams; *Cortex thuris*, *Saffron*, *Crocomagma*, each two Drams; *Spikenard*, three Drams; the Flowers of *Pomegranate*, two Drams; *Gum Arabic*, eight Drams. Bruise them in Water, and make

make them into a Collyrium, which use with Water; or you may bruise the Collyrium, and use it dry. *Aetius, Tetrab. 2. Serm. 3. Cap. 39.*

All Cicatrices appear white in the Black of the Eye, for, the Cornea Tunica being thickened, the caerulean Colour cannot appear through it; the most eminent Parts of the said Tunica turn white, the even Parts are less white, and those which subside, are, in a manner, of the same Colour with the Black. Those Parts which have been treated with astringent Medicines, till the forming of a Cicatrix, are darker than the rest, because the Pellicles are much thickened by Adstriction. Now though old, callous, and thick Cicatrices, or Albugines, ought not to be meddled with, because, in such Cases, it is necessary to use Collyria that are of a very acrid Quality, which may endanger an Ulceration of other Parts of the Eye, we shall however describe some of those Medicines that have the Virtue of dying those Albugines, or white Cicatrices, of another Colour. For this End keep the Powder of Galls by you, and, upon Occasion, heat the blunt End of a Probe, and, taking up some of the Medicine upon it, apply it to the *Albugo*, and after that some Vitriol diluted in Water: Or apply the Powder of Malicorium, and then the Vitriol as before. Another Medicine from *Oribasius de Loc. Lib. 4. Cap. 24.* quoted by *Aetius*.

Take the Pulp of a sweet Pomegranate, and beat it well, adding now and then a little Water, and, after you have used this about the Eye for some Time, anoint the Place with the Juice of Henbane for fifteen Days together; this will take off the Colour of the Albugines, and with often using, in a Year's Time, leave no Sign of them. *Aetius, Tetrab. 2. Serm. 3. Cap. 37. & 40.*

Cicatrices in the Superficies of the Eye, are only so called by some, others call them *Nubeculae* [little Clouds,] and those that are deeper seated, *Albugines*. The Juice of Anemone, or the lesser Centaury, takes off the *Nubeculae*; the more inveterate, are attenuated and dissolved by Oil of Cedar, and Copper beaten in Water, and used as a Collyrium; and by all detergent Collyria. For *Albugines*, Nitre finely powdered, and mixed with old Oil, is a fine Detergent, and so is the calcined Shell of the Cuttle-Fish, beaten up with Honey. Among the Collyria, the following is a good mild Deterfive:

Take of Mamera (the Root of an Herb, supposed by the Commentator on *Myrepsus*, to be *Doronicum*) Gum Ammoniac, Myrrh, Crocodiles Dung, equal Quantities, and make them into a Collyrium: Or, take the Dung of the Land Crocodile, and beat it in Water for a Collyrium. *Aeginet. Lib. 3. Cap. 22. Actuarius, Lib. 2. Cap. 7.*

For the *Albugines*, Take Saffron and Pepper, of each equal Quantities, and, with a Cat's Gall, make them into a Collyrium. *Actuarius de Meth. Med. Lib. 6. Cap. 5.*

Take a Fox, and cut out his Tongue, and then let him go; dry the Tongue, and hang it by a scarlet Ribbon about the Neck of the Patient. *Marcel. Empir. Cap. 8.*

For the *Albugines* of Infants, caused by their Crying, anoint them with the Juice of the *Solanum Nigrum*, Black Nightshade. *Aetius Tetr. 1. Serm. 4. Cap. 11.*

ALBUHAR. *Cerufs. Rulandus.*

ALBULA. The same as ALBUGO.

ALBULA is also the Name of a Fish in the Lake of Zurich, mentioned by *Aldrovandus*; and said to be very good Food.

ALBULA. A little Pearl. *Rulandus.*

ALBULÆ AQUÆ, or ALBÆ, according to *Cælius Aurelianus*. These were much celebrated amongst the Antients for their medicinal Virtues.

The Waters called *Albæ*, or *Albulæ*, in Italy, were approved by the antient Physicians in Palsies and Fluxes, and other like Disorders affecting the natural Functions, because of their cooling Quality. *Cælius Aurelianus, Chron. Lib. 2. Cap. 1.*

Aluminous Waters, such as those they call *Albulæ* in Italy, are good for all Kinds of Ulcers, but especially such as are subject to a Flux of Humours, by speedily drying them up, and by that Means effecting a Cure. *Galen. de Simp. Med. Lib. 1. Cap. 7. 50.*

Galen, in his *Method. Med. Lib. 8. Cap. 2.* gives the History of a Cure he performed on a Man who contracted a Fever by bathing in the aluminous Waters called *Albulæ*; which stopping all the Pores occasioned that Disorder.

The *Albulæ Aquæ* are recommended by *Archigenes*, in *Aetius*, for Ulcers of the Bladder, to be drank after Walking in the Morning, three half Pints the first Day, and then to go on to five or six; for, besides their washing the Intestines, their fuliginous Vapour blunts the Sense of Pain in the Part, and, making a Separation of the Humours, renders the Blood more pure and florid; and they also cleanse the Ulcer effectually, and give an agreeable Sensation at their Entrance into the Bladder. So that, in short, nothing can more contribute to the Cure of the Patient. They are fittest to be drank after the Cool of the Morning. *Aetius, Tetr. 3. Serm. 3. Cap. 30.*

Aetius says, these Waters are sulphureous, aluminous, and warm as new Milk. *Ib.*

ALBUM GRÆCUM. The white Dung of Dogs gathered in March, called also *Spodium Græcorum*, *Nihil Album*, and *Album Canis*. It is esteemed drying, abstergent, discutient, and aperient. It is said to promote the Breaking of Abscesses, and to deterge Exulcerations; hence it becomes useful in Dysenteries, and Colical Pains. It is applied externally to the Throat in Quinsies, generally mixed with Honey, and to malignant Ulcers. It mollifies hard Tumors, draws away the Water in a Dropsy, and cures Warts. *Dale.*

ALBUM HISPANICUM. Spanish White, called also *Bianca Alexandrina*, seu *Album Hispania*. This is made from Tin in the same Manner that Cerufs is prepared from Lead. It is only used as a Paint, being thought to make the Skin look white. *Dale.*

ALBUM OLUS. A Name of the *Lactuca Agnina*, Lambs Lettuce, or Corn Sallet. *Dale.*

ALBUM NIGRUM. Mouse-dung. See *Mus*.

ALBUM OCULI. The White of the Eye.

Things preternatural, among which are oftentimes Hairs, growing in the White of the Eye, which cause no Pain, and differ not much in Colour from the natural, are cured by taking hold of, and raising them with the Hook, and then cutting them off with the Knife appointed for the Pterygia; after which a little fine Salt is applied, and a Lock of Wool bound on the Place; and the Management is the same as in the Cutting of the Pterygia. But Things that put on a reddish Aspect, and appear humid, and with turgid Veins, that are painful, and affect the Temple by Consent of Parts, are better let alone by the Surgeon, as being of a malignant Nature, full of Hazard, and endangering the Loss of the Eye itself. *Aet. Tetr. 2. Serm. 3. Cap. 57.*

ALBUM IUS. White Broth, good for sick People, is thus prepared: Boil Whiting, Haddock, Cod, or any such white-grained Fish, in Plenty of Water, with a sufficient Quantity of Oil, and add some Anis, and Leeks; when they are parboiled, put in a little Salt, just enough to give a Taste. *Oribasius, Med. Col. Lib. 2. Cap. 51.*

ALBUM is also a Name of many compound Medicines, as, ALBUM SEVERI COLLYRIUM. The White Collyrium of *Severus*, much recommended by *Aetius*, is prepared of the Juice of Fenugreek, Cadmia, Cerufs, and Gum Tragacanth. *Aetius, Tetr. 2. Serm. 3. Cap. 102.*

ALBUM UNGUENTUM. This is commonly called *Unguentum Album Rhafis*, and is thus ordered in the College Dispensatory:

Take of Oil of Roses nine Ounces; of Cerufs carefully washed in Rose-water, and powdered, three Ounces; of white Wax two Ounces. After the Wax is melted in the Oil, sift in the Cerufs after it hath been well dried from its Washing, first in common, and then in Rose-water, so that, together, they may be made into an Ointment, S. A. To which add two Drams of Camphire, rubbed with a few Drops of Oil of Almonds, and then it is called the *Camphorated white Ointment*.

There is a very different Ointment in the *Pharmacopœia Regia*, under the same Title, and which too is ordered at Pleasure to be camphorated: But that hath not been thought worth any one's Prescription, since *Avicenna* likewise directs one under the same Name, which the Augustane Dispensatory hath got, wherein Litharge is made an Ingredient, and the White of Eggs beat into it; but that also now is quite laid aside. That which is here retained is attributed to *Rhases*, whose Compositions are generally more uniform, and simple, than any of the Arabians. But our wholesale Dealers in Medicine, have learned grievously to corrupt it, by using Hog's Lard, for the Oil of Roses, and Wax, which greatly frustrates the Intention of the Medicine as a Cooler; inasmuch, that it may not be unworthy the particular Care of a Prescriber, to enquire into this Matter, when any Stress is laid upon this Medicine, which is the most commonly used of any of this Intention. *Quincy's Notes.*

The *Unguentum Album*, of the *Edinburgh Dispensatory*, is something different from the preceding.

Take of unripe Oil Olive three Pints; of Cerufs, a Pound; of white Wax, nine Ounces; and mix them together according to Art, so as to make an Unguent.

ALBUMOR is also sometimes used to signify the same as ALBUMEN, The White of an Egg.

ALBUMEN. The White of an Egg.

As the White of the Egg supplies the Fœtus of Birds with its first Nourishment, and bears a great Analogy to the Serum of the Blood, it becomes a Matter of some Importance to be well acquainted with its Nature.

The *Albumen*, says *Fabricius*, called the *Ovi Albus Liquor* by *Pliny*; *Ovi Candidum*, by *Celsus*; *Ovi Albor*, by *Palladius*; *Ovi Album*, and *Albamentum*, by *Apicius*; by *Aristotle*, *ἀλβύνη*; by *Anaxagoras*, *ἐπίθεον γάλα*, the Milk of Birds. It is a cold,

a cold, viscous, white Liquor of the Egg, differing in Consistence, for towards the acute and obtuse Parts of the Egg, it is more liquid, in other Parts of a more dense Consistence, and likewise in Distribution, being more copious towards the obtuse, than towards the acute Part of the Egg, and more copious in this last, than in the other Parts of the Egg, surrounding and covering the Vitellus, or Yolk, on all Sides.

I have not only observed this Difference in the *Albumen* of an Egg, but also that there are two *Albumens* different from each other, and involved in their proper Membranes: Of these, one is very thin and liquid, the other more dense and viscous, and of a somewhat whiter Colour; but in old and stale Eggs, after some Days Incubation, inclining to a Yellow. As this second *Albumen* covers the Vitellus or Yolk on all Sides, so it is itself surrounded by the other external Liquid. That these two *Albumina* are distinct, will thus appear: If you take off the Shell, and penetrate both the adjacent Membranes, you will see the Liquid and exterior *Albumen* immediately all run out; but though these Membranes are opened, and reclined on each Side upon the Dish, yet the interior and denser *Albumen* will keep its Place and globous Figure, as being circumscribed within its proper Membrane, which is so fine, as not to be discerned by the naked Eye. If you cut this Membrane, the second *Albumen* will instantly fly out on all Sides, and lose its round Figure, just as when you cut a Bladder the contained Liquor bursts out on a sudden; and when you break the Membrane that holds the Vitellus, the yellow Liquor runs out, and its former Globosity subsides. *Harvæus de Generat. Animal. Exercit. 11.*

As the Eggs of Hens consist of two Liquors, each of a different Colour, separated from one another by Membranes, and distinguished by two Branches of umbilical Veins, one of which goes to the Vitellus, and the other to the *Albumen*, so it is very probable they are of different Natures, and consequently, appointed for different Purposes: "The Vitellus of the Egg," says Aristotle, differs from the *Albumen*, not only in Colour, but in other Properties. The Vitellus is condensed by Cold, the *Albumen* is rather liquefied. On the contrary, the *Albumen* is condensed by Fire, the Vitellus retains its Softness, if it be not burnt; and concretes, and dries, more in boiling, than in roasting." When the Vitellus grows warm with Incubation, it becomes more humid, and like melting Wax, or Fat, whence it takes up more Space; for, as the Fœtus increases, the *Albumen* insensibly wastes away, and condenses; the Vitellus, on the contrary, seems to have lost little or nothing of its Bulk, when the Fœtus is perfected, and only appears more liquid and humid, when the Abdomen of the Fœtus begins to be formed.

The Chick in the Egg is first nourished by the *Albumen*, and, when this is consumed, by the Vitellus, as with Milk. Therefore the umbilical Process of Veins that goes to the *Albumen*, when that is spent, withers, and breaks off before the Birth, leaving no Sign behind it, but vanishing even before the lower Belly comes to be bounded with an Abdomen.

Both the *Albumina*, are designed for Nutrition, and the outer one is first consumed, as being the first that receives the umbilical Branch of Veins, that visit the *Albumina* before they enter the Vitellus, which is the last Nourishment of the Chick. *Harvæus de Generat. Animal. Exercit. 59.*

The *Albumen* is contained in concentric Membranes, but is not all of the same Consistence; for the exterior Part of it is thin, and diffuses itself almost like Water, when the Membranes are broke, whereas its interior Part is more viscous.

It can make its Way through the Shell, as it appears from its Wasting by keeping, especially if it is exposed to a gentle Heat.

It is specifically lighter than the Vitellus.

By Incubation, the *Albumen* becomes thinner, and more turbid, especially on its upper Part, near the obtuse End, where it is also first consumed; and it is afterwards diminished towards the sharp End of the Egg, till at last nothing of it is left, except a white cretaceous Substance at the lower Part of the Shell.

The *Albumen* of a fecundated Egg is as sweet and free from Corruption, during all the Time of Incubation, as it is in a new-laid Egg. *Edinburgh Medical Essays.*

Boerhaave has given some Experiments on the White of an Egg, and immediately afterwards, nearly the same Experiments on the Serum of Blood, with a View of shewing the Similitude there is betwixt the two Substances just mentioned. These I shall insert in this Place, as they will contribute much to our Information, with respect to many Things relative, not only to the Whites of Eggs, but also to the Effects of Heat upon nutritious Juices.

EXPERIMENTS upon the WHITES of EGGS, in order to prove them neither ALKALINE, ACID, nor in any Degree ACRIMONIOUS.

Put some Whites of new-laid Eggs, well cleared from their Shells, Membranes, and Yolks, into clean glass Vessels. Into each of these pour different Acids, then shake and mix them

well together, and there will not in any of them appear the least Sign of an Effervescence. Put into another Glass, wherein is a Portion of the same Whites of Eggs, a fixed, and into another a volatile Alkali, and you will find them continue perfectly at Rest, without discovering the least Tendency to Ebullition.

If the fresh Whites of Eggs are put into a Cucurbit, and distilled with a Heat of a hundred Degrees, an insipid Water comes over, which contains nothing in the least spirituous. If these Whites of Eggs are applied to the Eye, or the bare Nerves; they do not excite the least Degree of Pain; they scarcely affect the Organs of Smell; applied to the Tongue, they taste perfectly insipid, and inert, and to the Touch they feel viscid, and mucous; without the least Indication of Activity.

REMARKS.

Hence it is evident, that in the fresh White of an Egg, neither an Alkali, nor an Acid exists, nor any Thing formed by a Combination of these two together. But it is a thick, viscid Liquid, utterly inert, and perfectly insipid. It appears, however, that by this truly animal Fluid, within the Space of twenty-one Days, and in a Heat of ninety-three Degrees, a Chicken is formed by Incubation under the Hen, which weighs more than an Ounce, and this from a Body so small, that it scarcely weighs the hundredth Part of a Grain. Here then we find a Fluid different from all others, out of which, by the Application of requisite Causes, Fibres, Membranes, Vessels, Viscera, Muscles, Bones, Cartilages, all the Parts both tendinous, and ligamentous, the Beak, Claws, and Feathers, and all the Humours contained in all these are produced. And yet in this Liquid we find a Softness and Inactivity, without the least Appearance of any Thing either acid, alkaline, or spirituous, or any Disposition to an Effervescence. And indeed, if there should happen any Effervescence, the Egg must unavoidably burst. The whole Substance therefore consists of such a Matter as has been described; and demonstrates to us from how tenacious and inactive a Mass all the Parts of the Chicken, both solid and fluid, may be formed. And yet this very Substance, by a somewhat greater Degree of Heat, is rendered absolutely unfit for the Production of a Chicken; it scarcely bearing a hundred Degrees to any good Purpose, whilst a little less proves equally prejudicial; fewer than eighty Degrees not being sufficient.

The ingenious Malpighi has demonstrated, that this White of the Egg is not a Liquid every where equally fluid, like the Serum of the Blood, which circulates through the Vessels of the Body, but that it is a Substance composed of many membranous Bags which are distinct, and filled with their proper Fluids almost in the same Manner as we observe the vitreous Humour of the Eye to be formed. And hence those Waves, as it were, concentric to the Sacculus Colliquamenti, by which the nutritive Juice being gradually attenuated, is at last strained into the Ainnios of the Chicken.

EXPERIMENT tending to shew the ANALOGY betwixt the SERUM of the BLOOD, and the WHITE of an EGG.

If Blood, drawn with a free Stream from a young Person in Health, whilst fasting, is immediately set to rest in a clean Vessel, it soon spontaneously separates into two Parts, a concreted solid Cake, and a fluid, yellowish, thin Serum, which perpetually increases for a considerable Time, whilst the Mass remains without Motion. Let this Serum be separated from the red concreted Part as accurately as is possible, and divide it into separate clean Vessels. Into one Portion of it pour some of the strongest Vinegar; into another Spirit of Salt; into a third Spirit of Nitre; and into a fourth Oil of Vitriol; and you will observe that neither of the Mixtures discover the least Effervescence.

To a Portion of Serum in another Vessel add a fixed Alkali, and to another a volatile Alkali; and the Consequence will be, that in both Cases they will remain perfectly at Rest, without the least Conflict, or Appearance of Ebullition.

This Serum has a Taste, which is mild, and but very little inclinable to Saltiness. It diffuses a Smell which is disagreeable, but by no Means acrid or very active. If a Drop of it is instilled warm into the Eye, it excites no painful Sensation, but is one of the most speedy Lenients in Inflammations and Wounds of that Part. And if it is applied to the Nerves laid bare in Ulcers, or Wounds, it is scarcely perceived.

REMARKS.

This plastic Serum is soft and inert, perfectly like the White of an Egg; and as out of that are formed all the Parts of a Chicken, so this furnishes all the Parts of the human Body with Nutriment.

EXPERIMENTS on the WHITES of EGGS with HOT WATER.

If an Egg is exposed to a continual Heat of eighty Degrees, the White soon loses its Tenacity and Thickness, and becomes so subtle as to perspire through the great End, where the Membranes being separated from the Shell, are depressed towards the

Yolk, and form a large Cavity. The other Part of the White at the same Time will be dissolved, grow thin, and ichorous, nor will it afterwards harden with the Heat of boiling Water, but becomes foetid, putrid, and very acrid, and destroys the vital Stamina of the Chicken.

The fresh White of an Egg thrown into Water heated to a hundred and sixty Degrees, loses its Pellucidity, grows white and opaque, and becomes concreted into one thick, scissile Mass. Or if into Water boiling in a glass Urinal you drop a little White, it will be coagulated surprisingly, even during the Motion of the boiling Fluid, though it is agitated about by it to every Side. Or, lastly, if you put a whole Egg into Water as hot, it will be hardened in the same Manner. Hence therefore it appears, that this Coagulation does not arise from any Loss of the Liquid of the White, dissipated by this Heat, but from the true Action of the Fire applied in such a Degree; for it happens in the Middle of the Water. And if you put the White into a large Quantity of cold Water, it will harden and separate itself from the Water as soon as it begins to be near boiling.

If an Egg is boiled till it is very hard, and you then accurately separate the White from the Membranes, Tread, Yolk, and Sacculus Colliquamenti, and lay it in a glazed Bason, it begins gradually to sweat, as it were, and to be resolved into a subtile Liquid, which appears of a watery Nature, but is a most penetrating Solvent, insinuating itself into the Body of Myrrh and other Substances, that are otherwise dissolved with Difficulty.

REMARKS.

By this Experiment then we learn, how that Matter is disposed with Regard to Heat, out of which all the animal Parts without Exception may be formed in a short Space of Time. We see here that a certain Degree of Heat dissolves it, that a greater coagulates it, and that a less again resolves it, when it is coagulated. All these Things therefore are owing to determined Degrees of Heat, without a proper Regard to which nothing can be asserted that will always here hold true. And it will appear still farther, that a Heat exceeding two hundred twenty-four Degrees will attenuate and dissolve this Coagulation brought about by a less Heat. Hence, therefore, let us be warned to conclude more cautiously concerning the dissolving or coagulating Power of Fire with Regard to plastic, nutritious Humours, or the Degrees of Heat necessary to attenuate, putrefy, inspissate, or again resolve them.

EXPERIMENTS ON the SERUM of the BLOOD with HOT WATER.

Pour Serum of the Blood into clean Water, boiling on the Fire, it immediately grows white, and a Kind of Coagulation is formed in the Middle of the Water. In this Property, therefore, Serum agrees with the White of an Egg, though it must be observed, that the White of an Egg forms a more solid Coagulation than the Serum of the Blood.

REMARKS:

Hence then the Effects of Heat upon Serum of the Blood are manifest; hence also we may learn how boiling Water acts upon the Humours when it is applied to, and consequently burns the Parts of a living Body. It is plain, that by that Means neither the saline Parts, nor the Oils of the Blood are rendered volatile.

EXAMINATION of the SERUM of the BLOOD with a DRY HEAT.

Take some Serum of Blood, put it into a clean Vessel, and gradually expose it to the Fire, and when it begins to smoke, that Part which is in Contact with the Vessel, will grow opaque and white, and coagulate; and thus proceeding successively, the whole Serum will at last be hardened into a white, tenacious, opaque, scissile Mass, lying in Waves, as it were, in the Middle of the Surface, perfectly solid, of a mild Taste, like that of the White of a boiled Egg, and almost without Smell. If this Mass is kept in the open Air, a thin watery Liquid gradually exsudes, perfectly in the same Manner again, as it happens in the boiled White of an Egg. And here, if the Coagulation is made with a proper Degree of Fire, that is, with such a one as will just effect it, and no more, it will then harden without any Empyreuma, without expelling any Salt, and without the least Appearance of an Alkali. When it is once consolidated in this Manner, it can scarcely be by any other Means resolved.

REMARKS.

Hence it appears, that in a certain Degree of Heat, not much exceeding a hundred, all our Humours will be reduced into Masses, that will not be able to pass through their Vessels. A Heat, therefore, of a little above a hundred Degrees, arising either from an internal or external Cause, cannot be supported in the human Body, because it would utterly stop the Circulation of the Humours, and consequently cause immediate Death. And

the Effects of such a Heat would be first sensible in the Head and Lungs, because their proper Actions would be first disturbed.

EXAMINATION of the WHITE of an EGG with ALCOHOL.

Put the White of an Egg into a transparent Vessel, upon which pour some of the purest Alcohol of Wine, in such a Manner that it runs very gently down the Sides upon the White; and this do very carefully, that you may evidently perceive that every Part of the Surface becomes coagulated, as the Alcohol touches it, whilst the lower Part still continues liquid and pellucid. Then shake them gently together, the Coagulation still spreads with the Alcohol; and by shaking them thoroughly, and mixing them well together, the White is intirely coagulated. If the Alcohol is heated before the Experiment is made, the Coagulation is effected in a greater Degree, and the same Effect is produced, by shaking the *Albumen*, and Alcohol together with Rapidity, the Heat and Motion here promoting the Coagulation.

REMARKS.

Hence it appears, that the purest vegetable Spirits coagulate that plastic Matter which is the Basis of Nutrition; and certainly in that Instant of Time it becomes absolutely unfit to perform its Office. This Admixture, however, of Alcohol preserves the White from Putrefaction. How much then does the plastic Matter of Animals tend towards Coagulation? What unexpected Powers does the too great Depuration of some Bodies produce in them? Wine will suffer itself to be mixed with this White; the Alcohol produced from it becomes coagulated with the coagulated White; and yet Alcohol diluted with a pretty deal of Water will not coagulate it.

EXAMINATION of the SERUM of the BLOOD with ALCOHOL.

To Serum, contained in a transparent Glass, pour some very pure cold Alcohol, and immediately, in those Parts which it touches, the Serum begins to grow turbid, white, and opaque. Shake them together, the same Thing happens throughout, and the Whole becomes coagulated, though not so strongly as the White of an Egg, but in Pieces, cohering less firmly together. If Alcohol is mixed with it very hot, the Coagulation becomes much more solid. When the Serum is coagulated in this Manner by Alcohol, it will never grow putrid, but may be kept for Years without Alteration.

REMARKS:

Here then we observe a farther Analogy betwixt the Serum of our Blood, and the White of an Egg; that is, in their Coagulation by Alcohol. That the Serum is not consolidated by the Alcohol into so dense a Mass as the White of an Egg, seems to be owing to the original greater Solidity of the White. For the White which contains all the Matter of Nourishment which is conveyed to the Chicken, so long as it continues inclosed in the Shell, has nothing putrid in it, nor is it much diluted; whereas the Serum of the Blood contains both urinous Particles, and a large Portion of Water; but Alcohol, diluted with Water, will not condense the Serum in such a Manner, nor even the White of an Egg. Hence we may learn the Efficacy of pure Alcohol upon our Blood, for it condenses it like Fire, and preserves it from a spontaneous Corruption, on both which Accounts it is the most ready Styptic we are acquainted with, at the same Time that it prevents Putrefaction, producing a very thin, indeed, but solid Eschar. For if a Tent dipped in the purest Alcohol made scalding hot, is applied to a bleeding Wound, pressed on pretty strongly, covered with a Piece of Hogs-Bladder softened with Oil, and then secured with a proper Bandage, the Hæmorrhage will be immediately stopped, and the whole Dressing may be kept on for the Space of three Days, in which Time the Vessels generally coalesce, being very much contracted and consolidated by the Alcohol. Thus then does Alcohol coagulate all our thicker Fluids, contract the fibrous Parts into a hard dry Coalition, and defend both of them from the Putrefaction they are naturally disposed to. A famous Instance of this is communicated by that excellent Physician, Samuel Cabelliau, in a Leg that was perfectly sphacelated, which by the Help of Spirit of Turpentine, and alcoholifated Spirits of Juniper, was preserved from Extirpation for the Space of six Months, without any farther Putrefaction. *Eph. Germ. Dec. 3. An. 5 and 6. p. 495.* But those Parts of the Body that are composed of exceeding fine Vessels, soon grow hard in Alcohol, together with their contained Humours. No Wonder therefore, that those poor Wretches who use this Alcohol, though somewhat diluted, too freely, should be obnoxious to such terrible Disorders of the Nerves, and Polypuses in the Blood.

The fresh WHITES of EGGS resolved by DISTILLATION.

Boil some new-laid Eggs in clean Water, till they are hard, and then accurately separate the Whites, and chop them to Pieces. Put these into a clean glass Cucurbit, and fitting on an Alembic

Alembic apply a Receiver. Place the whole Cucurbit in a Bath of Water, and urge it by successive Degrees, till the Water in the Bath keeps constantly boiling. By this Means there do not appear any Streaks like those of Spirits, but there comes off a simple Water discovering itself in dewy Drops, and that in such an incredible Quantity, as to rise to nine Tenths of the whole Weight of the original Mass. Continue patiently this Distillation with the Heat of boiling Water, till not a Drop more of this Liquor will rise. This Water then, upon Examination, discovers no Sign of any Oil, Salt, or Spirits in it. It is very pellucid and insipid, except that towards the latter End it tastes a little bitterish, and is almost inodorous, except that at last it smells a little empyreumatical. Nor does there appear the least Sign of any Alkali, though examined by proper Experiments; nor by any Trial does it discover an Acid. A very small Quantity, in Proportion to what was put in, remains at the Bottom of the Cucurbit, each Fragment being contracted into a small Bulk from their former Magnitude; and they are of a golden Colour, especially in those Parts which were in Contact with the Glass, but yet they are transparent, like stained Glass. When taken out of the Cucurbit, they appear to be light, hard, and perfectly brittle, so that they break with a Noise like Glass, and have a slight empyreumatical Smell, and a bitterish Taste, occasioned by the Fire, but are by no Means either alkaline or acid.

Fill a glass Retort one Third full with the Fragments above-mentioned, apply a large Receiver, place the Retort in a Sand-heat, carefully lute the Joint, and then distil with successive Degrees of Fire to the very greatest, called a suppressing Heat. By this Means a pinguious, oily Spirit arises, which runs down in Streaks, and at the same Time a volatile Salt fixes itself to the Sides of the Receiver, considerable in Quantity, with Regard to the dried Fragments, but little in Comparison of the whole Whites before the Water was drawn off. Last of all, besides a light gold-coloured Oil, mixed with the former Parts, there comes over a black, thick, pitchy Oil; and when this last Oil is forced out by the extreme Torture of the Fire, then the Earth at the Bottom of the Retort, still intimately united with its ultimate, exceeding tenacious Oil, rarefies, puffs up, and rises to the Neck of the Retort, and, if it happens to be filled too full, enters into the Neck, and chokes it up, and hence has sometimes caused the Vessels to burst, not without Danger to the Operator. Continue the Operation till nothing more comes over. The first oily, pinguious Spirit appears strongly alkaline, by every Mark; thus, upon being mixed with an Acid, it causes a very violent Effervescence. By Rectification it is resolved into a volatile alkaline Salt, an Oil, and an inert foetid Water. The Salt that adheres to the Sides, is perfectly alkaline, very acrid, fiery, oily, and volatile, and the last Oil is acrid, caustic, and remarkably foetid. The Earth that remains at the Bottom of the Retort, is exceeding black, shining, light, rare, and brittle, and has a foetid Smell from the empyreumatical Oil that is united with it, and a bitter Taste from the same. If this is burnt in an open Fire, it leaves a little fixed, white, insipid, inodorous Earth, from which no Salt can be procured, exhibiting only an exceeding subtle Powder.

REMARKS.

Hence it is evident, that the White of an Egg contains a very large Proportion of Water, but that it has in it not the least Portion of an Alkali, which will rise even with a Heat of two hundred and twelve Degrees. That Matter therefore, which by a greater Degree of Heat is converted into a volatile Alkali, is not by one of two hundred and twelve Degrees, though very considerable; disposed either to be alkaline or volatile. Hence therefore it may be inferred, that there is no volatile Salt naturally contained in it; for, in Chymistry, that is called a volatile Salt which is more so than Water, and rises with a much less Degree of Fire. Nor do we discover any Spirit, that rises with the Heat of boiling Water; nor any Oil that suffers itself to be separated by the same; nor indeed is the Residuum, after the watery Part is drawn off, so altered by this Action of the Fire, as to give the least Indication of its containing any Salt; but, the more liquid Parts being expelled, it spontaneously acquires the Appearance of a brittle Glass. By this Experiment therefore, we learn, that a volatile Salt may be produced from the White of an Egg, but does not naturally exist there in that Form; for when this Salt is, by a proper Degree of Fire, separated from the rest of the Mass, and become volatile, it will then rise with a Heat of sixty Degrees, though it was not to be raised before by one of three hundred. That Volatility therefore is not natural to the Salt of the *Albumen*, but is communicated to it by Fire; and this is true also with Respect to its alkaline Quality. And hence we discover, the tenacious Adhesion of the Oil to the more fixed Parts of the White, whilst the Water is separated from them very easily; and we also see, that an animal Coal will never part with all its Oil in a close Vessel, but that it adheres so obstinately to the terrestrial Elements, that no Fire, except in the open Air, can destroy the Union. From what has been said then, we may be en-

abled to form just Notions concerning this Matter of the White of an Egg, from which all the Parts of the Animal are afterwards produced.

PUTREFACTION of the WHITES of EGGS.

Sound Eggs, or their Whites, when kept in a Heat of seventy Degrees, or upwards, begin in a few Days to be attenuated, grow foetid, dissolve, and putrefy, and at the same Time, if the Eggs are whole, they begin to grow empty about the large End, and, if they are then boiled, will not harden, but retain their Fluidity. And this Change happens much sooner in those Eggs which are impregnated, than in those which are not; for in these the greatest Part of the putrid Moisture exhales, so that at last the whole Shell almost is filled only with Wind or Air. If you continue to keep the Eggs or Whites in the same Degree of Heat, at last all the Parts grow surprisingly putrid, and alkaline, cause an Effervescence with Acids, and, in Distillation the first Part that rises from them is an alkaline Spirit, and an alkaline Salt, exactly in the same Manner as in putrefied Urine. If the White is suffered to putrefy in the open Air, it becomes almost totally volatile, exhaling in Proportion as the Putrefaction advances, and at last leaving nothing behind but a few Skins, all the rest being dissipated into the Air. In all these Experiments there is never generated the least Portion of Acid.

REMARKS.

If a little Quantity of Egg, putrefied to such a Degree as to become of an alkaline Nature, is taken into the human Body, it produces there very extraordinary Effects, exciting a Nausea, Horror, Vomiting, great Uneasiness, a Diarrhoea, and Gripings; inflaming the Bile, and exciting Heat, Thirst, and a Fever, and by its putrid Exhalation only it induces a Horror, Nausea, and Vertigo, and wonderfully dissolves the Humours of the Body like a pestilential Poison. This, therefore, we know to be the Nature of that Matter, which is nearly in a State fit to being changed into all the Parts of an animal Body. Rest only, and such a Degree of Heat as has been specified, produce all these Qualities in that Substance. Hence therefore we learn its spontaneous Alteration and Corruption. But it is farther very surprising, that if an impregnated Egg is digested in a proper Stove, with a Heat of ninety-two Degrees, the Parts that are attenuated and altered by this Heat, are spent for the Space of twenty-one Days in nourishing, increasing, and perfecting a Chicken, in which there does not appear any Thing alkaline, foetid, or putrid. Here then the Physician may observe some very wonderful Phenomena; for by Rest, and a certain Degree of Heat, a Substance from thick becomes thin; from tenacious, liquid; from inodorous, foetid; from insipid, of a fracid, very acrid, abominable Taste; from exceedingly mild, caustic; from non-alkaline, extremely alkaline; whilst the latent Oil which was sweet, grows extremely putrid. These Experiments are made in particular upon the Whites of Eggs, the other Parts, where it could be done, being accurately separated from them, because the White alone is that Matter which supplies the Embryo with Nourishment, all the other Parts assisting only to the Alteration of the White, that, when it is changed in a proper Manner, it may be applied to the Carina of the Chicken that is to be brought to Perfection by it.

PUTREFACTION of the SERUM of BLOOD.

Serum put into a tall open Glass, and exposed to a Heat of seventy Degrees, will grow every Hour more and more thin, so as in the Space of three or four Days to be quite resolved and sanious. At the same Time also, from being almost inodorous, it becomes foetid, and exhales a cadaverous Stench; from being insipid, it acquires a fracid, rancid, acrid, abominable Taste; and, if it is kept in this Degree of Heat a few Days, it grows alkaline, putrid, and intolerable to our Senses, evidently discovering its alkaline Nature, by raising an Effervescence with Acids. If it is committed under these Circumstances to Distillation, it yields the first Time a volatile alkaline Salt, exactly like the White of Eggs, treated in the same Manner.

REMARKS.

Hence then we observe, that Serum, when exposed to the Observation of our Senses, by Rest, and the Degrees of Heat mentioned, becomes spontaneously thinner. When it stagnates therefore in the obstructed Vessels of a sick Person, by a gentle Heat, and Time, it dissolves of itself, and often opens the Vessels it had obstructed. Hence in acute inflammatory Disorders, when the Body is reduced to a moderate Heat, in a certain Number of Days, the obstructing Matter becomes capable of circulating in its Vessels, as in Practice is every Day observed. During the Alterations the Serum undergoes in this Experiment, it never becomes acid; whatever the greatest Artists write to the contrary, but always grows putrid. Nor do we ever observe the least Sign of Fermentation, what-

ever Arts are made Use of in order to raise one, but a determined Putrefaction only. It must indeed be confessed, that by thus putrefying it rarefies and produces an elastic Air that flies off from it, but not one that is fermentative, and spirituous. Nor are there any fermented inflammable Spirits generated by this Putrefaction, but putrid Spirits, of another Kind, which are, however, volatile, and capable of taking Fire. For Excrements, close stopped up in a Jakes, and compressed together, have sometimes conceived a strong intestine Motion, and at the same Time have exhaled an extremely foetid Vapour, which, upon the Application of a Candle, has burst out into a violent Flame. From the same Cause sometimes a Heat and Rarefaction have been excited in a dead human Body, about the Abdomen only, and that not very considerable. From what has been said then, the Physician may learn the spontaneous Degeneration of the Humours, when they stagnate, either in their Vessels, or in the Cavities of the Body when extravasated. By acid, compound, saline, and spirituous Bodies, however, this Putrefaction may be prevented.

By the foregoing Experiments, which seem made with great Judgment and Accuracy, we are taught that a great Similitude exists betwixt the *Albumen* of an Egg, and the Serum of the Blood. Now, as the White of an Egg has all the Requisites to the Formation of an animal Body, that is, to Nutrition, when properly applied by the vital Actions to the Parts which require it, and this without any previous Digestion by the Stomach, it must necessarily be one of the most proper Aliments in the World, in morbid Cases, where the digestive Organs are relaxed and weak, where the Fibres of the whole Body want a due Tension, and Elasticity, and where consequently Restoratives are indicated. But in order to answer any good Purpose in this View, it must be given fresh, raw, and without the Application of the least Heat, for Heat, as appears by the foregoing Experiments, renders it unfit for Nutrition; the genial and plastic Warmth of the Body being all that is required to apply it to the Parts which require Nourishment.

It is to be given in a little Milk and Water, or Broth, or may be taken alone, well separated from the Yolk.

It is recommended for many medicinal Purposes, as will appear by the following Quotations.

The raw *Albumen*, or White of an Egg, refrigerates, stops up the Pores; instilled into the Eyes, mitigates an Inflammation there; prevents Pustules from rising after Scalds or Burns, if the Place be immediately anointed with it. It keeps the Face from Sun-burning; applied with Frankincense, as an Anacollema, to the Forehead, it restrains Defluxions; mixed with Wine, Honey, and Oil of Roses, and applied in Wool, it mitigates an Inflammation of the Eyes. Supped raw, it is good against the Bite of the Serpent *Hæmorrhoids*. Used with the least Degree of Warmth, it is effectual in Corrosions of the Bladder, Ulcerations of the Kidnies, Roughness of the *Aspera Arteria*, Vomiting of Blood, and Distillations, or Defluxions, on the Breast. *Dioscorides, L. 2. C. 155.*

The White of an Egg has a refrigerating, astringent, and agglutinating Quality.

It is frequently used for Redness of the Eyes, to conglutinate Wounds, mixed with common Bole, and in Fractures. It is of Service also in Anacollemas. See ANACOLLEMA.

Hippocrates prescribes three or four Whites of Eggs in Fevers for Refrigeration, and the Expulsion of the morbid Matter.

The Yolk of an Egg is endued with an anodyne, maturing digesting, and relaxing Virtue. Hence it is very often an Ingredient in Clysters, and, mixed with a little Salt, is commonly applied, in a Walnut-shell, to the Navels of Infants in order to loosen the Belly.

They make a Drink of it, which the German Women commonly use in Child-bed; they call it *Seiff*. It is thus prepared:

Take two or four Yolks of Eggs, and one Measure of Water, with half a Measure of Wine (more or less); boil them very well together, in order for drinking. *Schroder. Pharmacop. Med. Chy.*

Sydenham advises the Whites of Eggs as a good Gargarism in a Quinsey, in the following Manner:

Take of distilled Waters of Plantain, red Roses, and Frog-spawn, of each three Ounces; the Whites of three Eggs, beat to a Liquor; white Sugar, three Drams; mix them together for a Gargarism.

ALBURNUM. The white, soft Part of Wood next the Bark. Artificers call it the Sap, to distinguish it from the Heart, which is harder, and of a deeper Colour.

ALBURNUS AUSONII, is a little River Fish which resembles an Anchovy; with a little Head, its Eyes in Proportion large and red, its Back somewhat green, and its Belly white, with two Lines on the Sides.

It is esteem'd aperitive. *Lemery de Drogues.*

It is esteem'd a very ordinary Fish. The Flesh is flabby. It is taken Notice of by Aldrovandus.

ALBUS. A Sort of very ordinary Fish taken Notice of by Aldrovandus, and Gesner. The Flesh is hard, and difficult to digest. Gesner calls it *Capito Lacustris*.

ALBUS FLUOR, or **FLUXUS**. See **FLUOR ALBUS**.

ALCADD. *White Ink.* *Rulandus.* Johnson calls it **ALCADDY**.

ALCAFIEL. *Antimony.* *Rulandus.*

ALCAHEST. This is an arbitrary Word derived from no Language, and coined by Paracelsus, to express an universal Menstruum, or Solvent, as Helmont explains it. As the Discovery of such a Menstruum would be of infinite Importance to Medicine, the Sentiments of the principal Authors who have wrote about it, seem to deserve Consideration. But I am sorry to say, that we are left at last much in the dark, with Respect to this grand Arcanum.

After the elder Van Helmont had published his Writings, the Chymists began to be acquainted with the History of a secret, universal Menstruum, which Paracelsus was said to have possessed, and which he, according to his extravagant Way, called the *Alcahest*. If any such Thing was ever known to Man, as Helmont solemnly avers it was, it certainly ought to be esteemed the most excellent Gift, that the Divine Being ever bestowed on Mankind, either with respect to Chymistry, or any other Art; for without Dispute it would be infinitely a greater Treasure than the Philosophers Stone, and much more desirable, as, by the Help of it, might easily be obtained, the most certain Instruments, both of Health and Riches. This, with a great deal of Reason, was the Opinion of Mr. Boyle, who, after infinite Diligence, and much Skill thereby acquired, could scarcely believe the Existence of such a Menstruum, so far was he from arriving at a Knowledge of it. The greatest Chymists, however, have so far depended upon the Authority of Helmont, that they speak of it as a Thing he was certainly acquainted with. And here Impostors have taken the Opportunity of cheating People curious of such Kind of Arcana: Prudent Men have always remained in Suspence, not daring absolutely to pronounce any Thing either one Way or other, concerning it. For these Reasons, I shall give an historical Account of this Affair, just as it is, that is, as it may be collected from the Writings of those Authors, who alone have wrote of this Menstruum; that at least we may know the Opinions of those, who tell us, they have possessed, and made Use of this Arcanum. Every Thing, however, that Authors have said on this Subject, has been borrowed from Helmont alone; for, from what Paracelsus himself wrote of the *Alcahest*, no Mortal would ever have thought of any such Thing, had not Helmont given the Hint, that such great Mysteries were couched under this uncommon Word. As I am not Master of this Chymical Secret, all, therefore, that I can do, is, by carefully examining, and faithfully comparing one Passage with another, to lay before you what is to be found in these Authors upon the Subject of the *Alcahest*. And if these were really acquainted with it, and design that one who studied their Writings attentively, should find it out, I know no better Way of searching for it, than that which I have proposed. By this Means, at least, any one who is inclined to set about this grand Work, may know what Matter he must make Use of, by what Instruments he must operate, and in what Method he must proceed, that he may not lose both his Labour and his Money. And it will have this farther Advantage, that it will secure us from being cheated by the Artifices of itinerant Impostors, whose confident Boasts of Things they are not in the least acquainted with, render this Caution to the unwary and credulous, in some Degree necessary; for these Pretenders may be easily detected by any one who is acquainted with the Doctrine of Paracelsus, and Van Helmont.

First, let us consider the Name **ALCAHEST**. This Word, before Paracelsus, no Body ever made Use of, not even among the Chymists. And even he himself, as far as I have been able to discover, never used it, but in one Passage, and that in his Treatise, *De Viribus Membrorum, Lib. 2. Cap. 6.* where there are these Words: 'The Liquor *Alcahest* is of wonderful Efficacy in comforting, strengthening, and preserving the Liver, and consequently preserves against Dropsies, and all Sorts of Distempers, which arise from Disorders of the Liver. The Process for its Preparation is by Resolution after Coagulation, and by coagulating again into a transmuted Form; as the Process of coagulating, and resolving, teaches. And if it separates its like, it becomes a Medicine for the Liver, superior to all Medicines; so that, if the Liver itself were to burst and dissolve, this Medicine would supply its Place, as well as if it had never been burst or dissolved. Whoever therefore apply themselves to Physic, ought to use their utmost Endeavours to be Masters of the Preparation of the *Alcahest*, that they may be able to avert many Diseases that arise from the Liver.' So that Paracelsus never made Use of this Word but twice, and that only in this Place; nor is there the least Mention of any such Thing, either before or after, that I could find, by a careful Examination of all his Works. No Mortal, therefore, from what he said upon this Head, would ever have thought of this grand Arcanum, had not Helmont afterwards added his Interpretation.

The Derivation, therefore, of this new Word, thus coined by Paracellus, was examined into. And upon considering, that it was usual with him to conceal common Words by the Transposition of their Letters, it was imagined that was the Case here; though sometimes he formed strange Words, by joining the Beginnings of different Words together. Thus, when he would have you make Use of (Tartarus) Tartar, to resolve the Saburra in the Spleen, he says, *take Sutratar, L. 11. De Vir. Memb. C. 7.* And again, when for Diseases peculiar to the Kidnies, he prescribes Saffron, which, from its golden Colour, the Chymists called *Aroma Philosophorum*, he says, *these Distempers are cured by Aroph. Lib. 11. de Vir. Memb. Cap. 10.* Hence, therefore, some have thought, that *Alcahest*, signified *Alkali est. Rolfinc. Eph. Germ. D. 12. Ann. 6, 7.* Rulandus in his Lexicon, Glauber; and hence supposed, that it has always an Alkali for its Basis, which is then saturated with a proper Acid. Others have been of Opinion, that it was called *Alcahest*, that is, *Staltzgeist*, because if the *Alcahest* is the same with the *Circulatum*, they imagined it was made from Sea Salt, coagulated, resolved, and coagulated into a transmuted Form. But again, others suspected, that it was called *Alcahest*, quasi *Algeist*, or a perfectly pure simple Spirit: This they thought its Process of Coagulation, Resolution, and Coagulating, seemed to teach us. And lastly, there is Faber's Opinion, who says, it is a pure, mercurial, metalline Spirit, which is so united with its own proper Body, that hence two become one Body, that is inseparable, and indestructible. *Eph. Germ. D. 11. Ann. 8. App. 3.* This, then, being all we can learn from the Etymology, let us pass on to the Terms, and see, if by comparing them together, we can get any farther Light into it. Paracellus himself has left us no synonymous Name, but Helmont has a great many; and therefore these we will now examine. And in short, we have no other Assistance, besides the Authority of Van Helmont alone, who declares, 'that the very same Bottle was delivered to him.'

That I may explain Helmont's Doctrine of the *Alcahest*, so far as it is possible to render it intelligible, I will give the principal Passages in this Author, where it is mentioned, or any Thing said relating to it, and then shall give the Sentiments of Boerhaave, by way of Commentary.

'I know a Water, which I do not care to discover, by Means of which, all Vegetables are changed into a distillable Liquor, without the least Fæces at the Bottom of the Glafs; which Liquor being distilled, with the Addition of Alkalies, is reduced into insipid elementary Water. *Helmont. Complexionum atque Mistionum elementalium Figmentum, Sect. 27.*

'I put of oaken Coals, and a certain Water, an equal Quantity, in a Glafs hermetically stopped. In three Days, all the Coals were turned, by the Heat of a Bath, into two diaphanous Liquors, differing in Gravity and Colour, which being distilled by Sand, with two Degrees of Heat, the Bottom of the Glafs appeared as clean, as when it came new from the Glafs-house; and soon after, the two Liquors ascended in a Bath-heat both together, equiponderating the Mass of Coals; but the dissolving Liquor remained at the Bottom, keeping its own Weight and Virtues. Moreover, the two Liquors, mixed with a very small Quantity of Chalk, by a third Distillation, ascended almost with their first Weight, and with all the Qualities of Rain-water. Therefore the Gas of the Coals, which does not exhale, except the Vessel be open, and vehemently heated; together with its Ashes, are no other, materially, than meer Water. For the seminal Property of the Concrete which remains in the Gas, by Length of Time, and the Cold, perishes, and the Gas returns to its original Water. *Helmont. ib. Sect. 29.*

'I thought on a Method how to transfer all my Tribulations on the Heads of Nero and Tiberius; and being greatly fatigued, I was on a sudden wonderfully refreshed and comforted, and falling into a Kind of Slumber, I found myself in a Palace superior to human Architecture, where was an exalted Throne, environed with an inaccessible Light of Spirits. He that sat on the Throne was called *Eft*, and his Footstool *Nature*. The Keeper of the Gate was named *Understanding*, who, without speaking a Word, reached me out a Book, *Election from Darknes*, the Title of which was, *The Bud of the Rose not yet opened*. And though the Door-keeper spoke not a Word, I knew I must eat it; I held forth my Hand therefore, took it, and eat it, and it was of an austere and earthy Savour, so as almost to stop my Larynx, and it was with much Time and Difficulty that I got it down. When I had so done, I fancied my Head to be diaphanous; after which came another Spirit of a higher Order, and gave me a Cup, in which was comprehended in a Word, *Ignis Aqua*, a Name purely simple, singular, indeclinable, inseparable, immutable, and immortal. *Potestas Medicaminum. Sect. 3.*

'It is the *Arbor Vitæ*, the Tree of Life alone, that can restore lost Strength, and make Life flow on for a certain Space of Time. But the Difficulty of preparing lies in this, that the Wood [the Cetim] must be resolved, without a Resolution of its Virtues, by such a Warmth as that of Sol Martius, as far as its *Ens Primum*. For it is on account of

these Qualities that it is endued with a fermentative Faculty of preserving and seasoning, with free Ingress into our first constituent Principles; and insinuating itself, through the Organs, into the Familiarity of our natural Spirits. Now the Liquor obtained by such a Resolution has all the Virtues of the Vital Cedar, together with its seminal Property, and that which is formative of long Life. For the whole Mass of Wood is resolved into a Liquor, which Mass, if it were otherwise distilled, would undergo Transmutation, and become a new Creature; which is sufficiently proved by distilling *Aqua Vitæ* from Grains of Corn or Lees of Beer; and also by Oil distilled from Wood, and even from the Oil of Olives itself. The Manner of Preparation is as follows:

'Resolve Fragments of the Wood Cetim with an equal Weight of the Liquor *Alcahest*, in a sealed Glafs, over a gentle Heat; and within a Week you will see all the Wood dissolved into a milky Liquor. About the fifteenth Day there will swim at the Top distinctly two Sorts of Oil, which will increase in Quantity for a Month; and their Separation appear more obvious. Then separate the Oil from the Water by manual Operation, and distil the Water in a Bath, and the Liquor *Alcahest* shall remain, with its first Weight at the Bottom. But digest the Water and Oil for three Months in a gentle Heat, and all the Oil shall take the Nature of Salt, and mix itself with the Water. This is the *Ens primum Cedri: Helmont. Arbor Vitæ.*

'The highest and most dignified of all Salts, is what has attained the utmost Degree of Purity, and Subtlety, which pervades all Things, is the only Thing that whilst it acts, remains itself immutable, and which resolves all at Pleasure by a ready Obedience, triumphing over rebellious Matter, with as much Ease, as warm Water melts and volatilises Snow. *Helmont. Potestas Medicaminum. Sect. 24.*

'I am taught by spagyric Theorems that a small Liquor may be prepared, which shall keep the Constitutions of Simples uncorrupted without any other Seasoning. *Helmont. Pharmacopolium. Sect. 34.*

'*Alcahest* reduces all the tangible Bodies of the Universe to their first Life, without any Change in itself, or Diminution of its Virtues, and can be changed or subjugated by none but its Equal. *Helmont. Ignita Actio Regininis. Sect. 11.*

'None ever cured the Leprosy, who had not first obtained the Liquor *Alcahest*, which being so tedious in Preparation, no Man, though he understands the Art, will ever arrive at the Possession of it, except whom the Most High, by special Grace, shall conduct thither: For he must be elected by a peculiar Privilege, and be otherwise qualified, in order to obtain so extraordinary a Medium, by which all sensitive and insensitive sublunary Things are equally penetrated, even to the seminal and intrinsic Root of the *Primum Ens*; whence it puts all Things under Subjection to it, and changes them without Reaction of the Patient, or Depauperation of the Agent, and is therefore the same in Number, Weight, and Activity after the thousandth Action, as after the first. *Helmont de Lihiasi. Sect. 27. de Febribus. 11.*

'Take of the Ludus or Cevilla Paracelsi, and the Liquor *Alcahest*, each one Pint. Distil off the *Alcahest*, and the first Time all the Ludus will be changed into a Salt which will run down in a glafs Plate set in a moist Place, without any earthy Residuum, and the defluent Liquor will be of a yellow Colour, and, being hermetically stopped, will rise in small Bubbles, like Froth, and swim at the Top in the Form of green melted Fat. And this is the *Altholizoin* correctum of Paracellus, and the Gall of the Earth. But the Man who thinks he can attain it by an Addition of Salt-petre, or the like, must know that such Salts, how often, or how carefully soever they are mixed with the Ludus, the Salts will only all run down, and leave the Earth in Dregs, in the Plate. But the Ludus ought to be all transmuted into the tinctured Sal Volatile, reserving nothing of its Adjunct, the *Alcahest*, which, as well as the Ludus, preserves its former Weight, and the Ludus keeps its mineral Virtues, which were bestowed on it by the great Creator. This is an extremely difficult Operation, not as to the Preparation of the Ludus but of the *Alcahest*. *Helmont. de Lihiasi. Sect. 23.*

'The Liquor *Alcahest*, *Ens primum Salium*, Lili, the first Metal, the Mercurius Diaphoreticus, or the Aurum Horizontale, one of these, which so ever it be (for they all conspire as Unions in Consanguinity of one Dissolvent) is sufficient to cure all Diseases. *Helmont. Respondet Author. Sect. 1.*

'The Arcana of Paracellus are,
1. 'The Tincture Lili, reduced from an immature Electrum to a Vinum Vitæ, one Part of which is the first Metal, the other the Essence of the Members.
2. 'The Mercury of Life, the intire Offspring of Stibium, which absolutely cures all nervous Distempers.
3. 'The Tincture Lili, an Antimonial Preparation, of the same Virtues with the preceding, but weaker.
4. 'The Mercurius Diaphoreticus, which is sweeter than Honey, and fixed by the Fire, has all the Properties of the horizontal Sun. It will perform all that the Physician, or Surge-

Surgeon can with, as to the healing Part; but is not so powerful in Renovation, as the preceding Preparations.

5. 'His *Alcabeft* is more eminent, than immortal Liquor, that immutable resolving Water.

6. 'His *Sal circulatus*, which reduces all tangible Bodies to the Liquor of their Concretes.

7. 'Then follow the Element of Fire out of Copper, the Element, or Milk of Pearls; but the Essences of Gems, and Herbs, are far inferior to the foregoing.

8. 'Lastly volatile Salts carry in them the precise Particularity of Herbs and Stones, but attain not to the Efficacy of Universals. But the Salt of Coral, which is the only Cathartic among them, cures Ulcers of the Lungs, Bladder, Larynx and Reins by Purging; and even extirpates the Gout.

'It is common Mercury from which the Liquor *Alcabeft* is once distilled, and resides at the Bottom coagulated and pulverisable, neither increased or diminished in Weight. The Water of the Whites of Eggs is to be cohobated with this Powder, till it has acquired the Warmth of Coral.' *Helmont.*

Arcana Paracelsi.

In the first Place Van Helmont calls it simply, *Water*; telling us that he 'Knew a *Water* which he must not discover, by the Mediation of which all Vegetables might be transmuted into a distillable Liquor, without the least Fæces remaining at the Bottom of the Vessel.' And he farther tells us, that 'He mixed together a certain *Water* and Coals made from Oak, in an equal Quantity, and digested them with a Bath-heat, in a Glass hermetically closed.' He calls the same a *thick Water*, for he says, 'that in the second Book of the Maccabees,' Chapter the First, there is Mention made of a 'Thick Water, which was a perpetual Fire, and perhaps not unlike his Water.' And he in another Place calls it a *solvent Water*, when he says, 'The Liquor *Alcabeft* is an immutable, solvent Water.' But he came still nearer the Thing, when, in one Word, he called it (*Ignis Aqua*) Fire Water; for whilst he is giving an allegorical Account how he came by his Knowledge, he pretends 'He received a Bottle in which there was *Ignis Aqua*, of one Word only, a Name perfectly simple, singular, indeclinable, inseparable, and immortal.' And again he calls it, 'A *Latex* reduced to its least Atoms possible in Nature.' But he very frequently calls it a *Liquor*. 'By the Addition of the Liquor *Alcabeft* of Paracelsus, may be known how much any Vegetable contains of either Luminary.' And he calls it also the *solvent Liquor*. All these Things, therefore, seem to intimate, that this ARCANUM was of a moist, liquid Form, like a Sort of Water. In another Place, as a Synonymon, he makes use of the *Fire of Hell*; for he says expressly, by the 'Fire of Hell, which is the Liquor *Alcabeft* of Paracelsus. Original Sand resists both Art and Nature, nor can by any Means be made to recede from its Constancy, except by an artificial infernal Fire, in which artificial Fire, Sand becomes Salt.' If Helmont, therefore, in this Appellation has followed Paracelsus, by this we may know what the *Alcabeft* was, because Paracelsus himself has wrote of this infernal Fire.

Afterwards, Helmont says, 'This is a most excellent and happy Salt, which has arrived to the utmost Degree of Purity and Subtlety that Nature will admit of.' And, for this Reason, he seems to call it, the '*Ens primum Salium*, the '*Sal Circulatus*,' and the '*Sal Circulatus Paracelsi*;' of which he made Mention in his Book, *de Renovatione & Restauratione*. If, therefore, Van Helmont has acted candidly and honestly in this Affair, we may from these synonymous Terms, and the Writings of Paracelsus, make an Attempt towards a Discovery of this wonderful Menstruum. But before we proceed to this, we must consider its Origin. First, then, 'It is never found spontaneously in Nature, for here Nature is deficient;' in the same Place he asserts, 'That a Part of Earth may be homogeneously reduced into Water by Art;' but strenuously denies at the same Time, that 'This can ever be effected by Nature alone, because by Nature alone no Agent is produced, by which true Earth may be reduced into Salt and Water. Nor is this Agent produced without the Assistance of Chymistry, which alone discovers a Liquor that cannot be altered, being reduced to the smallest Atoms that are possible in Nature. Not that this is to be effected by vulgar Chymistry, but by the Labour of Wisdom.' And this Agent, as he expressly asserts, 'Is the ultimate, and most perfect Production of this sublime Chymistry.' And lastly, he says, 'Chymistry, as its most excellent Effect, prepares an universal Solvent. Moreover, in the whole Art there is not any Operation more difficult than the Preparation of the *Alcabeft*; nor is there in the whole Art any Thing more laborious. Nor can the Knowledge of this Operation be acquired either by Reading, or Speculation, but by a Fulness of Science, and that too doubly confirmed; and hence very few are qualified to arrive at a Knowledge of it. Hence this Liquor, whose Preparation is so excessively tedious, and difficult, cannot be obtained by human Understanding; for though a Person should have so much Skill in the Art, as to be properly qualified to come to the Knowledge of it; yet

'unless the Most High, by a special Favour, conducts him to it, he will never arrive at it; for whoever enjoys it, must be chosen by a particular Privilege: For God alone is the Dispenser of it, for Reasons that are known to the Adepts.'

From this Origin of the *Alcabeft*, thus delivered by Helmont, we may see how much they are mistaken, who idly imagine, they shall be able to prepare it with very little Trouble. These vain Boasters certainly thus discover both their Ignorance and their Dishonesty. Nor let them impose upon you, by pretending to more Things of the same Nature; for Helmont absolutely refutes every Thing of this Kind, by plainly asserting, that 'As in the whole Compass of Nature there is but one Fire (*Vulcanus Ardens*) a burning Fire, so there can be but one Liquor, which will dissolve all Bodies into their first Matter, without any Alteration in itself, or Diminution of its Strength; as the Adepts know and testify.' Being secured, therefore, by this Doctrine, I have been able to silence many ignorant People, rich in Promises and Expectation, and sometimes exceedingly artful, for upon asking them a few Questions, by their Answers their profound Ignorance, with Respect to the Knowledge they boasted of, soon appeared.

Let us now proceed to examine into the stupendous Virtues, which are ascribed to this wonderful and almost tremendous Arcanum. This Menstruum then can efficaciously exert its dissolving Power upon all sensible Bodies whatever, whether Simple or Compound, Volatile or Fixed, Solid or Liquid, Animal, Vegetable, or Fossil; even upon Gold and Mercury themselves, upon which nothing else can act, so as to affect their intimate Parts.' Thus in his own Way of Speaking, 'Our Mechanics have discovered to me, that all Bodies, whether rocky, stony Substances, or Gems, Flints, Sand, Marcasites, Clay, Earth, Bricks, Lime, Sulphur, &c. may be transmuted into an actual Salt, equiponderant to the Body from whence it is produced: And Vegetables, Flesh, Bones, Fish, and every Thing like them, I have known to be reduced by it into their three mere Principles: Metals, however, on Account of an Atactic Commixture of their Seed and Sand, are reduced to a Salt with Difficulty. For Sand, or original Earth, resists both Art and Nature, nor will by any Help of Art or Nature be made to recede from its primitive Constancy: But under the Power of the artificial infernal Fire alone, Sand becomes Salt; and at last Water. Again, the *Alcabeft* of Paracelsus, by subtilising them, transmutes all natural Bodies.' And in another Place, 'All Bodies are easily reduced to Water by the Application of the Liquor *Alcabeft* of Paracelsus; even those that otherwise refuse to be resolved into their three Elements. By the Help of this likewise all Vegetables are commutable into a Liquor, which may be distilled without any Fæces remaining at the Bottom of the Glass, even coken Coal itself. For one and the same Liquor, *Alcabeft*, perfectly reduces all tangible Bodies in the Universe to their first Life, even all Poisons themselves, and dissolves every Thing besides itself, as warm Water dissolves Snow. Oil itself, and Spirit of Wine, Cedar-wood; all Kinds of Elixirs Proprietary; the *Ludus* also of Paracelsus, Mercury, Gold itself, which cannot by any other Solvent whatever be radically destroyed as far as its constituent Principles, as it is much easier to make Gold out of what was not Gold before, than to produce any Thing from Gold which shall not be Gold.' And indeed in this the whole Fraternity of Adepts unanimously agree.

Now let us consider the Manner in which the *Alcabeft* exerts its Power upon these its Objects, and here we find its Efficacy is always excited by Fire, and this applied only in a gentle Degree, whether it acts in Digestion, Distillation, or Cohobation. For he mixed the *Alcabeft* with 'Coal, made from Oak, in equal Parts, and digested them for three Days in a Bath-heat, in a Glass hermetically closed, and the Solution was then completed.' The '*Sal Circulatus*, by Digestion only, reduces every Sort of Oil, and Spirit of Wine, into a prodigious different Form, from what they were in before.' If the '*Alcabeft*' is mixed with an equal Weight of Cedar, reduced to small Pieces, and is exposed to a kindly Warmth in a sealed Glass, the whole Wood will, in a Week's Time, be reduced to a milky Liquor. Sometimes too, the Work is done by one simple Distillation: 'For if the Liquor *Alcabeft* is distilled once only from common Mercury, it leaves it at the Bottom coagulated, and pulverizable, and neither increased nor diminished in its Weight, which is effected in a Quarter of an Hour.' But sometimes a Cohobation is necessary, in order to accomplish your Design; 'for frequently, when Bodies are converted into a Salt of the same Weight they were of before, they must be cohobated some Number of Times with the *Sal Circulatus* of Paracelsus, before they will intirely lose their Fixity, which happens principally in Metals, Gold in particular, on Account of the perfectly equable Commixture of its Seed. On the other Hand, if by one Distillation only it is drawn off from the *Ludus*, or *Cevilla* of Paracelsus, this Distillation in so small a Space of Time as that of two Hours, it converts the whole Stone into a Salt of the same Weight. As for any other Manner of applying this universal Solvent, I can discover none, nor does it appear by any

any Argument, that a greater Degree of Fire is necessary for the Operation. By a gentle Agitation of its Parts therefore, excited by the Fire, it is capable of dissolving all Bodies. For the *Alcabeft* itself rises in Distillation with the second Degree of a Sand-heat. But it does not ascend with a Bath-heat.

But farther, there was Nothing ever observed in all Nature, or even related, that is more surprising than the physical Effects which these Authors ascribe to the Action of this Menstruum: For it intirely converts the whole Body of its Solvend, into a Matter which has neither gained nor lost the least Weight during the Operation, and this transmuted Matter seems always to be liquid or saline. In this, however, there is some Diversity; for, Mercury, by the Action of the *Alcabeft*, is reduced to a fixed Powder, which is pulverizable, resists a Wind-fire, and remains fixed if mixed with Lead. Almost all other Bodies are converted into a Salt æquiponderant to their former Mass. An oaken Coal is soon changed into two diaphanous Liquors, which differ in Situation and Colour. Cedar-wood is converted into a milky Liquor of equal Weight with it, and then farther into a two-fold Oil, which afterwards, by simple Digestion, are changed into a pure Salt, so that it may be mixed with Water. But the Ludus, or Cevilla of Paracelsus, which is a Stone found at the Bottom of the Schelde, near Antwerp, is within the Space of two Hours only, converted by a gentle Distillation into a Salt equiponderant to the Concrete, which being exposed to the Air, dissolves, and runs into a Liquid without leaving any Fæces at all. From this whole Account then, it is evident, that this Solution at the Beginning is performed after different Manners, but that at last, however, it reduces all Bodies into a Kind of Salt that may be dissolved in Water, Mercury alone excepted, which on Account of its perfect Simplicity, which renders it more pure than Gold, and exceedingly like pure Water, refuses to be converted into a Salt; and hence it radically resists all Division possible to be effected, either by Art or Nature, and for this Reason is perfectly indestructible. These Bodies, however, after they are by the Help of the *Alcabeft* reduced to an æquiponderating Salt, still retain their proper Virtues, which depend upon the seminal Property of them, and which therefore are peculiar to them, and not common to others. This very remarkable Circumstance is described, when he says: 'The *Alcabeft* of Paracelsus, by subtilising them, transmutes all Bodies in Nature; for Bodies, when they are reduced to their utmost possible Subtility, at last pass into another Substance, with a Retention of their seminal Properties. By the universal Solvend, all Things return back to their *Ens primum*, and exhibit their native Qualities, whence they have an Opportunity of acquiring great and unlimited Powers.' But more plainly still, while he asserts, 'that this Liquor alone dissolves all Solids into their first Matter, without any Diminution, or Alteration of itself.' And therefore, he cries out, 'Get but acquainted with this homogeneous, immutable Solvent, which resolves all its Objects into their first liquid Matter, and then you will be able to look into the intimate Essences of Things, and examine their Qualities. By this Means, therefore, all these Bodies are converted into a saline volatile Matter, which still retains their particular spirituous Rector. Hence it may be intimately mixed with any Humour of the human Body, and with it circulate through all its Vessels, and in its whole Passage, every where, exert those Powers which are proper to it, with Regard to our Bodies. These, therefore, they called Potables.' Hence, then, we learn, what the Adepts meant by potable Gold, and how vain and deceitful the Boast of those is, who pretend to be Masters of it. Gold, when it is corroded by Acids, will still give you again its actual Particles of Gold, though they then lie concealed in the Acid: But the philosophical potable Gold is a saline Liquor, æquiponderant to the Gold, without any Menstruum whatever united with it, being only the pure, simple, first Matter of the Gold, or its *Ens primum*. Here therefore, above all, it is particularly remarkable, that the *Alcabeft*, whilst it thus dissolves, never mixes itself at all with its Solvend, but remains perfectly separate from it. Hence therefore, it neither increases nor diminishes the Substance of the Body dissolved, but leaves it exactly the same as it found it. This evidently appears, when he says, 'that the two Liquors of the dissolved oaken Coal, which were different in Situation and Colour, rose with the Warmth of the Bath, whilst the solvent Liquor remained at the Bottom, of the same Weight as before. For it finds no Body with which it can be joined, itself being too pure and subtle, and reduced to its least Atoms, and hence disdaining all Ferments, and always remaining single. Hence it acts only by an external Action, not concurring with its transmuted Object, as the purest Fire uses to act upon its Object, as warm Water melts Snow. For this Liquor leaves nothing of itself mixed with its Solvend.' Hence, therefore, besides others, this Menstruum seems to have two great Advantages above all others: In the first Place, that it does not act by Attraction, or Repulsion,

but only by a mechanical dissolving Power, contrary to all others that we are acquainted with, Fire, perhaps, alone excepted. And then, Secondly, that it always preserves intire the native Powers of its Solvends, and yet, whilst it resolves Poisons, it deprives them of their violent and deadly Quality, and gives them the most excellent medicinal Virtues, by reducing them to their *Ens primum*, which, however, it must be allowed, is very difficult to comprehend. When Bodies, now, are by the Help of the *Alcabeft* reduced into their saline volatile *Ens primum*, retaining at the same Time all their seminal Qualities, if they are then urged any farther by the Action of this Solvend, they are perfectly deprived of their proper seminal Virtue, and from every one, how different soever, there is produced the same unactive, inodorous, insipid, simple, elementary Water, so that by too great an Application of the very same Menstruum, whatever Excellence was produced before, is now destroyed. It appears, therefore, that the ultimate Matter of all tangible Substances is Water, upon which the *Alcabeft* itself can act no farther, but which being again impregnated with the seminal Fecundity of any Seed, may be converted again into any new Bodies whatever. Hear what he says himself: 'Every Body is transmuted into an actual Salt equiponderant to the Body from whence it is made; and this Salt being cohobated some Number of Times, with the Salt Circulatum of Paracelsus, loses intirely all its Fixity, and is transmuted into a Liquor which itself likewise at last becomes an insipid Water, of the same Weight with the Salt from which it proceeded. Original Sand, by the artificial infernal Fire alone, is changed into a Salt, and then a Water.' And, 'I know a Water, by the Mediation of which, all Vegetables are converted into a distillable Juice, which rises without leaving any Fæces at the Bottom of the Glass, and which Juice being distilled with Alcalis, is totally reduced into an insipid elementary Water. An oaken Coal, turned into two Liquors by the *Alcabeft*, and then mixed with a little Chalk and distilled, rises with almost its former Weight, and has all the Qualities of Rain-water. And then they all become so volatile, that they rise with a Bath-heat, and fly off from the *Alcabeft*, which remains at the Bottom.'

But what is much more surprising than all the rest, is, that this Menstruum, whilst it operates so surprisingly upon all other Bodies, is not in the least lessened, altered, or weakened in its Efficacy by any of them: So that in this Respect again it resembles Fire, and is with a great deal of Reason compared to it. By a very expressive Phrase, therefore, it is said 'To act by its Power of acting upon all sublunary Bodies, without Reaction. And after it had dissolved the oaken Coal in so extraordinary a Manner, the solvent Liquor remained at the Bottom of its former Weight and Strength. For its Transmutation is despaired of, as it cannot find any Body worthy to be wedded to, and is single with Regard to every commiscible Ferment, to which it might be in Subjection, and hence it cannot die. In its most perfect Action, therefore, it reduces every tangible Substance to its middle Life, without any Change in itself, or Diminution of its Strength. It is immutable therefore, and immortal. This alone, by operating, is not altered: It acts, therefore, without any Reaction of the Patient, or Depauperation of the Agent; for this Dissolvent is homogeneous and immutable, and being the same, both in Number, Weight, and Activity, it is as efficacious, the thousandth Operation, as it was at first.'

But among other Things remarkable in this Menstruum, is, its Degree of Fixity or Volatility in the Fire; and this again is exceedingly surprising. For after it has rendered all Bodies, the most fixed not excepted, so volatile, that they will rise with the gentle Heat of a Bath, yet itself remains fixed at the Bottom, nor ascends with them. In the mean Time, however, the *Alcabeft* itself is so volatile, that it rises in Distillation, together with the Bodies it has dissolved in the second Degree of a Sand-heat. And hence it may, by Distillation be drawn off from common Mercury, which it fixes and coagulates. Hence, therefore, the small Compass of Heat is exactly determined within which the whole Power of this *Alcabeft* exerts itself upon all Bodies in Nature.

Lastly, before we quit this Subject, we must observe, that this Solvend, which thus remains intire in all its Operations, nor is ever overcome, or fatigued by the Resistance it meets with from any Thing, does yet acknowledge one Body in Nature with which it may be so united, as to be brought into Wedlock with it. This appears evident, by considering the Text of the Author, 'Chymistry was solicitous about finding out a Body, which should have so great a Sympathy of Purity that it should not be dissipated by any Corruptent. And at last, Religion was astonished to see a Liquor discovered, which being reduced to the least possible Atoms in Nature, remained single, and disdained to be wedded to any Ferment. Its Transmutation therefore was despaired of, as it could not find any worthier Body with which it might be united. But the Labour of Wisdom found out an anomalous Body in Nature; which rose without any commisc-

cible Ferment different from itself. This Serpent bit itself, revived from its Poison, and afterwards knew no Death.' So that we see here the Conjunction of two Things which were in some Measure different. But he intimates this still more plainly and distinctly. He says, 'That one and the same Liquor, *Alcabeft*, reduces all the tangible Bodies in the Universe to their first Life, without any Alteration in itself, or Diminution of its Strength, but is brought under the Yoke, and altered by its equal alone.' But he comes still nearer the Affair when he tells us, 'That when Mercury is perfectly freed from the original Sulphur, which intimately adheres to it, it is not afterwards mutable by any Fire, but immediately destroys all other Seeds, except its Equal.'

This is the Sum of what Helmont has said on the Subject of the *Alcabeft*, and the Whole must rest upon his Authority, because no other Author, I have met with, speaks of it in such Terms. The antient Philosophers and Chymists seem to have been utterly unacquainted with it, at least they nowhere mention it, though, of all the Desiderata in Physic, this is of the greatest Importance.

What has been said on this Subject, will undoubtedly raise a Curiosity of knowing, in what Kind of Matter the *Alcabeft* ought to be looked for. It is for this Reason I will expatiate a little upon this Subject, having made an incredible Variety of Experiments, many of which I have had Reason to regret, and heartily repent of.

Paracelsus had a Liquor, which he prepared, by an infinitely tedious Circulation, from Sea Salt, in which Nature has placed the greatest Degree of Perfection. This, by an indefatigable Industry, he reduced to a perpetual Oil, and then he called it the *Ens primum Salium*, *Oleum Salis*, *Liquor Salis*, *Aqua Salis*, *Circulatus Sal minor*, *Circulatum minus*. And the troublesome Preparation of this *Sal Circulatus* is described without any Thing obscure in it, unless that he does not explain what the Spirit of Wine is, which is required to separate the impure from the pure. This agrees exactly with the Opinion of Van Helmont; for he says, that 'The Salt of Bodies, being some Number of Times cohobated with the *Sal Circulatus* of Paracelsus, is converted into Water.' And hence he ascribes the Virtues of the *Alcabeft* to the *Ens primum Salium*; and says, that 'By the *Sal Circulatus* all Poisons die. Hence he calls it 'The most supreme and happy Salt, which is reduced to the ultimate Degree both of Purity and Subtlety, and hence pervades every Thing, that alone remaining immutable during its Operation, whilst it readily dissolves every Thing else. This *Sal Circulatus* acts wonderfully upon Oil and Spirit of Wine. This *Sal Circulatus* reduces Bodies into the Liquor of their Concrete; and with that may be prepared the *Ludus*.'

But Paracelsus had another SOLVENT much more powerful than the former *Circulatum minus*, and much more difficult to arrive at the Knowledge of, which therefore he called his *Circulatum majus*, *Archidox*. 10. C. 4. And hence, in the same Place, he calls it *Materies Mercurii Salis*; and afterwards, *Living Fire*, *Archid.* 10. C. 4. In common Mercury he acknowledges a most perfect Fire, and a latent, celestial Life, and that the Quintessence of Mercury is celestial Fire, if it is dissolved with its Mother, viz. an *Arcanum* of Salt, *Archidox*. 10. C. 6. When these two, therefore, are intimately united by a true Union, and together rendered pure, subtle, and volatile, then seems to arise that wonderful mercurial Water, which he describes in the Chapter *de Corrodente specifico*, where he says, 'That Gold so dies there, that it continues to be Gold no longer; whereas, in all other Corrosions of Gold, the Gold is only divided into very small Particles, but still remains the same true Gold, and, by an artificial Reduction, may be always recovered again. By this Art, therefore, there is a perfect Marriage of Water with Water: For Water is twofold, viz. a common Water, which resides in Salt; and a metallic Water, which is found in Mercury, both which however have the same Root.' All this seems to have been understood by Van Helmont exactly in the same Manner, and therefore I shall just add what he has said upon it, as follows: 'The internal Mercury of Metals, perfectly freed from every Taint of a metallic Sulphur, coheres together with an indissoluble Union, so that it radically resists all possible Division, either by Nature or Art. Nor could I learn the Nature of Water, except under the Rod prepared from Mercury's Wand. And I found the Nature of Mercury adequate to Water; for it does not contain the least Earth in it, but is always the Son of Water alone.' And he says, with all the antient Alchemists, 'If I had not seen, that Mercury eludes all the Labour of the Artists so, that it either flies all off from the Fire still intire, or else all remains in it, and in both Cases retains its immutable and primitive Identity, and the anatic Homogeneity of its Identity, I should say that that Art was not true, which is true without any Falsity, and by far the most true of all others. So that what is above is like that which is beneath, and the contrary. And hence it is absolutely impossible either for Art or Nature to find any different Parts in the Homogeneity of Mercury, not even by the *Alcabeft* itself, as Mercury is more simple than even Gold, and formed with a greater anatic Identity: and

hence therefore Mercury is as indestructible as the Elements themselves. Hence all sublunary Things are too weak to subdue pure Mercury, or to penetrate, alter, or defile it. It remains secure in Air, Fire, and the acrid Liquor. It is not affected by any Solvent, much less penetrated by Air; and therefore there is nothing in Nature like this pure Mercury, no not at a Distance. It resembles the *Ens primum* of Metals, and comes very near it, and at last, existing actually simple, is not as a constitutive Part of Things. From these Principles we know that it is brought under the Yoke, and changed by its Equal alone: For this anomalous Body in Nature rose without any commiscible Ferment different from itself; but it bit itself, revived from the Poison, and afterwards knows no Death.'

Thus we have the History of the *Alcabeft* of Paracelsus, and Van Helmont, extracted from their own Writings with the utmost Accuracy. Hence it evidently appears that it is in vain to seek for this universal Menstruum in human Urine, or any of its Productions. Nor can it ever be found in Tartar, or any of its Preparations, though this may be substituted as *Vice-Roy to the Prince*. Nor can Phosphorus ever be reduced to it; because its Properties that have been specified, will not allow of it. Hence also it appears that Glauber is mistaken, when he searches for it in the fixed Alkali of Nitre; as is Zwelfer in expecting to find it in the extremely acid Spirit of Vinegar, distilled from Verdigrease. Nor does the celebrated Guernerus Rolincius seem to have had a better Idea of it, when he supposed it to be procurable from a fixed Alkali as its Basis, and a mineral, vegetable, or animal Acid; for from Salt of Tartar, and Vinegar of Antimony, a meer vitriolated Tartar is produced; from Salt of Tartar, and Vinegar, a Tartarus Tartarificatus; and from Salt of Tartar saturated with acid Whey, only a more precious Tartarus Tartarificatus. Nor does the Addition of Sal Ammoniac much alter the Case. See *Eph. Germ. D. 1. Az. 6, 7. p. 193--196. App.* And indeed, Nobody in the Description of the *Alcabeft* has come nearer to the Sentiments of Paracelsus and Van Helmont, than Petrus Johannes Taber, in his Manuscript upon the Subject of Alchemy, wrote to the most serene Duke of Holstein, which is printed in *Eph. Germ. D. 2. An. 8. App. p. 111. 117.* in which are these remarkable Words, which confirm my Opinion. 'The Liquor *Alcabeft* is a mercurial, pure, metallic Spirit, so united to its own proper natural Body, that these two become one inseparable indestructible Being, destroying every Thing else, and converting them into their first Matter. It is the true *Mercurius Philosophorum*, prepared from the mineral Kingdom, joined to its own Body, inseparable from it, being a milky, buttery Liquor, penetrating, and dissolving every Thing. This is of two Sorts, simple and compound. The Simple is made from a pure metallic Acid, and a pure metallic Salt, rendered volatile with its Spirit; and the Preparation of this is extremely difficult. But that of the Compound, is still far more so; for this is prepared from a mineral Acid, and a pure animal and vegetable Salt. The Liquor *Alcabeft*, or the perfect pure *Mercurius Philosophorum*, is like Fire, of an incorruptible, unalterable Nature, reducing every Thing to its first Matter.' And the ingenious Joachim Becherus, in his *Physica Subterranea*, is almost of the same Opinion; for he asserts, that he has discovered in Sea-salt, a certain arsenical and mercurificating Power, which was it but separated, and pure, would be the *Alcabeft* itself, which nevertheless would be very different from the *Mercurius Philosophorum*. Hence Mercury itself, he looks upon as a sulphureo-metalline Substance, which of itself would be solid, and which receives all its Fluidity from an arsenical Sulphur of common Salt. This very subtle Conjecture, I wish he had more clearly demonstrated. The Sum of his Argument amounts to this: 'The purest Silver, corroded by Spirit of Nitre, and precipitated by Spirit of Sea-salt, becomes volatile, and then easily disposed to part with its Mercury; and therefore Sea-salt can change the purest Metals from their fixed Nature, into true Mercury.' If I should be asked, if I believe that any of the Chymists were ever possessed of this grand Arcanum? I should answer thus: Van Helmont complains, that the Bottle was once given him, but that it was taken away again, and therefore he could not make many Experiments with that Liquor: And Paracelsus does not say so many and so great Things of his Solvent, and therefore it is difficult to determine any Thing about it with any Degree of Certainty. This, however, I will venture to assert, that if you examine Sea-salt and Mercury, by every chymical Method possible, you will never repent of your Trouble. *Boerhaave's Chymistry.*

Boerhaave has said so much on the Subject of the *Alcabeft*, that I have only to add, that Van Helmont's *Circulatum Minus* is said to be prepared by a Circulation of nine Weeks, from equal Parts of Spirit of Urine rectified three Times, Alcohol, or highly rectified Spirit of Wine, and Vinegar twice rectified.

Those who are acquainted with the great Effects which may be produced by these separately, will readily believe that these by an intimate Union may be converted into a Menstruum capable of doing surprising Things; especially as we know, that

that neutral Menstrua, as this must be, will act upon some very hard Bodies, which are not otherwise dissoluble by acid, alkaline, watery, or spirituous Menstrua.

This I insert on the Authority of a Gentleman who had it from a Son of Helmont's, who lived for some Years at the Court of Hanover, under the Favour and Protection of the Princess Sophia, Grandmother to the present King of Great Britain.

ALCALI, or ALKALI, a Word much used by the Chymists to express a Body which is esteemed the Reverse of an Acid. Many whimsical Theories have been spun out by Chymists of warm Imaginations, upon a Supposition of a certain Enmity subsisting betwixt these two. This is therefore an Article of Importance enough to deserve a strict Examination, which I shall therefore bestow upon it, in Hopes of giving a just Idea of some Things not commonly known, unless to Chymists of a philosophical Turn, and those perhaps of the first Rank.

KALI, a Word well known upon the Eastern Coasts, and in Egypt, signifies a certain Herb, replete with Salt, which grows about the Sea-shore, and the Banks of the Nile, and also those of the celebrated River Belus in Syria; as Pliny assures us from the Testimony of antient Authors. This Plant, if burnt, when it arrives to its full Growth, produces Ashes remarkable for their salt, acrid Taste, an Evidence of its abounding with Salt. When these Ashes are boiled in Water, they yield a strong, acrid, salt Lixivium, or Lye, consisting of the Salt communicated by them to the Water, which being properly separated, there remains a greyish Part, which will neither dissolve in Water, nor burn in the Fire, but is perfectly insipid, and of the Nature of Earth. If this Lixivium, or Lye, is evaporated to a Dryness in an iron Vessel, a white solid Mass, of a most acrid caustic Taste, and perfectly soluble in Water, is left behind. Since, therefore, *Lix* in the Latin Tongue signifies *Ashes*, and *Lixa*, a *Maker of Ashes*, hence Pliny very properly says, *Cinerum Lixivium*. L. 39. C. 99. and *Lixivium Cinis*, L. 14. C. 2. 25. L. 15. C. 18. And Columella calls Water when it is impregnated with this Salt, and filtered, *Lixivium*, L. 12. C. 41. All these Salts, therefore, are properly enough called *Lixivious Salts*. By Terms, however, already received, they are called *Alcalies*, or *Alcaline Salts*. They are also called by some *Rochetta*, *Soda*, or *Zeda*. From this Salt, and the Calx of all Stones that strike Fire with Steel, may be prepared *Frit* for the making of Glass. These also quickened with Lime, and mixed with any oily Substances whatever, are convertible into Soap. The best of this Sort of Salt is brought from Alexandria in Egypt and Tripoli.

As all our physical Knowledge of Things depends upon the Discoveries which our Senses make in natural Bodies; hence all their Characteristics must be taken only from such sensible Signs thus discovered. Nor are we able to distinguish Bodies in any other Manner. The following Characters therefore of an *Alkali*, may be laid down as genuine, and sufficient for the Purposes both of the Chymist, the Philosopher, and Physician.

1. A fixed *Alcaline Salt* is produced from a vegetable Substance.

2. It is only prepared from a Vegetable by the Action of Fire, which converts it into Ashes.

3. When it is thus prepared, it will remain a considerable Time in the Fire, thus demonstrating its Fixity.

4. In a moist Air, it perfectly dissolves and deposits some Faeces, being impatient of a continued Dryness, if any Part of the Air has Access to it.

5. It impresses an acrimonious Taste upon the Tongue, somewhat caustic, and it excites a Taste of Urine, on which Account these Salts have, though not very properly, been called *Urinous Salts*. For the Taste of this Salt does not resemble that of Urine, at the first Application. But when this has been in the Mouth some Time, and by its Stimulation caused a Discharge of the Saliva, then the neutral animal Salts which are in the Saliva, deposit all their Acid on the fixed *Alkali*, and thus become volatile and *alkaline*, and then impress upon the Tongue a disagreeable urinous Taste, of which this is the true Origin.

6. This Salt, when it is perfectly pure and without Mixture, has not the least Smell, being extremely fixed, even in the Fire. But as it attracts every Acid, if it meets with any Body, which contains a volatile *alkaline Salt*, fixed by an Acid, and therefore without any Smell, it then immediately absorbs the Acid, and the *Alkali* being by this Means disengaged, and rendered volatile, affects the Organs with an *alkaline* Smell, which is falsely ascribed to the fixed Salt. This appears evidently upon mixing a fixed *alkaline Salt* with warm fresh Urine, upon which the Liquor that was inodorous before, instantly emits a disagreeable *alkaline* Smell.

7. Another Property of this Salt is, that when mixed with any Acid whatever, it immediately produces an Ebullition and Effervescence; and afterwards is so intimately united with it into one Mass, that if the Saturation is compleat, the Compound discovers no Sign, either of an *Alkali* or an Acid, but there

is always by this Means produced a Salt of another Nature, which is usually called *Neutral*.

8. If a pure fixed *Alkali* is mixed with the Juice of the Turnsole, Roses, or Violets, it presently changes their natural Colour, which is a Kind of Purple, into a Green.

9. When this *Alcaline Salt* is applied for some Time to a human Body that is warm, and consequently exhales some Moisture, it excites an acute Inflammation, attended with all its Symptoms, which soon becomes a grey, hard, dead, and often black Escar, it is therefore capable of producing a true Sphacelus, or Mortification.

10. All these Salts have the Faculty of deterging, and cleansing, which is not the Case with Respect to those called *Neutral*. These then are the Marks by which fixed *Alcaline Salts* may be known and distinguished from all others; and by these we shall be enabled to avoid Confusion.

Such *alkaline* fixed Salts may be also procured from any crude, fresh Vegetable, burnt to Ashes, and treated in the Manner above mentioned. But some Plants, by this Management, yield a very small Quantity. Such are those, which, when crude, have a pungent Smell, which strikes the Nose, and makes the Eyes water; for almost all the Salt of the Plants is volatile, and is dissipated by the Heat of the Fire. Garlic, the bulbous vomiting Roots, Onions, Scurvygrasses, Ladies-smock, Rockets, Hedge-mustard, Cresses, Radishes, Rapes, Squills, Leeks, Mustard, and the like, are of this Class, in which Nature has so far perfected their *Alcaline Salts*, as to render them volatile, as in Animals.

These lixivious acrid Salts, have been known to the Antients, in almost all Ages of which we have any Account. Aristotle tells us, that the Ashes of burnt Reeds and Bulrushes, boiled in Water, yield a plentiful Salt. And Varro, *de Re Rustica*, informs us, that some People about the Rhine, having neither Fossil, nor Sea-salt, instead of those, made Use of a salt Coal, which they prepared from some Sorts of Wood, burnt: From which it is plain; that they knew a Method of preparing these Salts, not unlike that of Trachenius, so as to make them less acrid, and to come nearer to the Nature of the native neutral Salts. Hence Pliny asserts, that Ashes have the Quality of Salt, but are milder. And that the burnt Faeces of Wine have the Virtues of Nitre (the antient Nitre). And in another Place he speaks of the Nitre produced from burnt Oak, which, he says, yields but a small Quantity, L. 31. C. 10. We farther learn from Pliny, that Ashes were in his Time used medicinally, and the Lixivium made of them drank as a Remedy. All these Authorities, to which more might be added, sufficiently evince, that the Discovery of *Alcalies* is not so modern as some imagine.

No Native Salts have yet been discovered, with which the preceding Characteristics agree; *Alcaline Salts* being procured from vegetable Substances only, by the Action of Fire. But since the first Calcination of Vegetables that ever happened in the World; these Salts have been produced. Hence therefore, in all Ages and Places where this has happened, there must have been a prodigious Quantity of this Salt generated, which always is at last together with the Ashes returned to the Earth. In the Revolution, therefore, of such a Number of Years, the whole Earth must have been converted into this Salt, provided it was immutable. But this is not the Case, for these Salts, when committed to the Earth, render it indeed fruitful, but then they lose their *alkaline* Nature, and, imbibing the Acid of the Air, become neutral Salts, and act as such.

It is farther remarkable, that no Plant which ever grows upon the Surface of the Earth, if it was suffered to grow dry, carious, and rotten, would ever yield a single Grain of a fixed *Alkali*; but on the Contrary, they are always either dissipated into such minute volatile Particles, as escape the Notice of our Senses, or leave behind them a Substance, which upon Examination appears to be simple Earth. This Experiment, therefore, confirmed universally in all Ages, evidently demonstrates, that Nature never produces a fixed *Alcaline Salt*, either in the Solids or Fluids of Vegetables.

Hence it is certain, that fixed *Alcaline Salts* have their specific Nature imparted to them by Fire, and not by any natural vegetable Operation. But this is still farther evinced by the following Experiment, which never fails to succeed in the same Manner: Take any Vegetables, which, if burnt, would yield a large Quantity of a fixed *Alcaline Salt*, let them be reduced to Putrefaction by Art, so that their whole Substance shall be perfectly putrefied, they will then be rendered exceedingly foetid, and a great Part of them volatile, and, if they are burnt in an open Fire, will not yield the least Portion of a fixed Salt, but what remains will be a perfectly insipid Earth. If therefore we view this Experiment in a just Light, we must be of Opinion, that fixed *Alcaline Salts* are as much the Creature of Fire as Glass, which Nobody ever suspected to be a vegetable Production, though vegetable *Alcaline Salts* enter its Composition, and are necessary to its Existence.

It must also be remembered, that these *Alcaline Salts* are capable of being resolved into a considerable Part that is saline, H h h hard,

hard, bitter, and almost vitrescent; into a simple Earth; and into an *Alcaline Salt*, that is stronger and more pure: And thus we may observe that these *Alcaline Salts* are no simple Bodies; but that they are compounded of different Parts united together, and that the Conjunction of their Principles into one Mass, which has the Appearance of being homogeneous is effected by the Strength of the Fire. Hence it will follow, that Nature never acts by fixed *Alcaline Salts*, as by her proper Instruments, unless when they are received first prepared by the Fire. And that even then, when she makes Use of them; thus prepared, in bringing about her Purposes, she only operates by them, as they are compounded of the three above-mentioned Principles; to which, however, as a fourth Part, there still seems to remain a Portion of Oil, as many Arguments evince.

Hence it appears, that as these fixed *Alcaline Salts* are rendered more and more simple by a Separation of their constituent Parts, the Salt that thus arises will be continually different; for that which remains after a Separation of some of its Principles, will always be of another, and more simple Nature, and consequently will have a different Power of acting. Thus, in Pot-ash, which yields the best *Alkali*, a considerable Part of it is a bitter, hard, pellucid Salt, which does not very readily dissolve in Water. If this is carefully separated from the rest, a purer *Alkali* is obtained, fitter than the former, before this Separation, for many Operations that are performed by *Alkalies*.

It is farther to be observed, that these *Alcaline Salts* may be greatly altered by the casual Admixture of some other Body, whilst the Vegetables are burning, which being also of a fixed Nature, may be united with them, and remain in the Ashes. Suppose, for Instance, that Nitre should happen to come among them; then this being fixed with the other vegetable Salt, would produce an *Alkali*, to which, if Oil of Vitriol was added, it would emit a fetid Fume, that would in Smell resemble Spirit of Nitre, which never is the Case, if the *Alkali* is pure. The same is true with Respect to Sea-salt, and many others. And lastly, we must take Notice, that the very Burning of Vegetables, as it is performed in a different Manner, will produce different Salts; for it is a known Truth, that if the same Vegetable is burnt suddenly in a brisk strong Fire, it will yield a Salt different from what is produced by burning it in a slow smothering Fire.

Amongst *Alcaline Salts*, the most common is that which is usually called *Pot-ash*. This is imported in great Quantities from Courland, Russia, Poland, and other Parts of the North, where it is prepared from the Wood of green Firs, Pines, Oaks, and others of a like Nature, of which they make large Piles in proper Trenches, and burn them till they are reduced to Ashes. These are immediately sifted, and were by the Antients called *Lix*, by the Moderns *Cineres Clavellati*, a Name taken from the *Clavae*, or *Clavi*, Billets, into which the Wood is cleft, to make it burn more readily. These Ashes are then dissolved in boiling Water, and when the Liquor, which contains the Salt, is depurated by Subsiding, it is poured off clear, and makes a Lixivium. This is immediately put into large Copper Vessels, and is there boiled for the Space of three Days and Nights, till at last a Salt is left, which takes the Name of *Pot-ash*, from the Pots the Lixivium is boiled in. This Salt, whilst it is hot and dry, must be put up in Casks, made of dry Wood, and which is not impregnated with Oil of any Kind, and by this Means it may be preserved dry; otherwise, if it is exposed to the Air, especially one that is moist, it will run into a pinguous *alcaline Fluid*, exactly like Oil of Tartar *per Deliquium*.

By the Manner in which these fixed *alcaline Salts* are produced, one would not suspect them to contain any considerable Quantity of Earth, and yet upon Examination, we find they yield a great deal, even after they have been rendered as pure as it is possible to make them. The Truth of this will be evinced by the following Process:

Take a strong Lixivium of vegetable Ashes, and by suffering it to stand quiet for a long Time, let all the terrestrial Fæces subside to the Bottom; and by this Means, it will be so depurated, as to become as limpid as Water: Let it then be depurated by repeated Filtrations till it become as clear as Crystal. This Liquor then, if examined with a Microscope ever so nicely, will not discover the least Sign of any terrestrial Substance. Then take this pure Lixivium, and put it into a clean Vessel, and in a quiet Place, as free as possible from Dust, reduce it to the Consistence of a thick Oil; and then in a clean iron Pot evaporate this thick Liquor to a Dryness, keeping it continually stirring with an iron Spatula; and by this Means, you will procure an exceeding *Alcaline Salt*. When this is done, put this Salt into a clean Crucible, and with a Tile cover it over as close as possible, and in this Condition commit it to a very strong Fire till it is melted: Then pour it out into a warm brass Mortar, and with a hot Pestil rub it immediately into a Powder. Let this Powder then be put into a large glass Basin, and be thus exposed to the Air in a Place free from Dust, and the Salt in a very short Time will be intirely dissolved into a Liquor perfectly fluid, whilst to the Bottom there will fall a

white terreftrial Powder, which being thoroughly washed from the Salt that adheres to it, will appear to be nothing but mere Earth, such exactly as that, which remained, of the vegetable Ashes after the Salt was all extracted. If you take this Oil of Tartar *per Deliquium* and dry it, calcine it, and expose it to the Air as before, it will dissolve again, and you will have a new Oil *per Deliquium*, and always some Earth remaining; and if this Operation is repeated a sufficient Number of Times, at last the greatest Part of the fixed *Alcaline Salt* will be reduced to a mere simple Earth, which in burning was united with that other Principle, both which, joined together, formed the *Alcaline Salt*; which saline Principle being now by many Calcinations and Solutions separated from its Earth, and set at Liberty, flies off, and is dissipated into the Air, and leaves the Earth alone. If all this, Earth, however, is collected together, and weighed, it will be found a good deal lighter than the Salt at first made Use of; this Decrease in its Weight evidently evincing, that a great Part of the Salt was rendered volatile, and thus carried away. As this Experiment, therefore, constantly succeeds in this Manner, we cannot but conclude, that this Earth, thus discovered, did really exist before in the fixed *Alcaline Salt*, from which it is by this Means procured, and that in so latent a Form, that it suffered itself, during that Time, to be perfectly dissolved in Water, which otherwise is so repugnant to the Nature of Earth. And hence, therefore, it farther appears, that the purest Earth, when it is united with some other Principle, is totally dissoluble in Water, though it is in no Degree soluble in Water when alone.

But it often happens during the Repetition of this Operation, that the *Alkali* changes its first Nature, and is converted into a neutral Salt, which easily melts in the Fire like Wax: And hence some Chymists have vainly thought, that they were Masters of that great Secret, *an incrated, fixed, Alcaline Salt*, which the antient Chymists so highly extolled. But this only happens from the volatile Acid in the Air, applying itself to this Salt, and being united with it, by which Means a new Kind of Salt is produced, compounded of the *Alkali*, and this Acid, and hence easily melting in the Fire, but deprived of all its *Alcaline Virtue*.

A fixed *Alkali*, procured in the Manner above described, has, above all others, every Mark of an *Alkali*. This Salt, therefore, we may fix as a Standard for all of this Kind, by the Character of which we may examine any Salts that we are in Doubt about, whether they belong to this Class, or not. And thus we learn, that *Alcaline Salts*, procured by burning, are by no Means homogeneous, but composed of different Principles. Amongst these, the true saline Part is greatly less, than might be imagined, and when it is alone it is volatile, and escapes the Notice of our Senses, inasmuch that as yet we are not come to a Knowledge of its proper Nature.

The Juice pressed from ripe Grapes, spontaneously ferments; and during this Operation, it is called Must. After this Fermentation is over, and the thicker Fæces subside, and it has stood a sufficient Time quiet in the Cask, it becomes limpid, fine, and, in Appearance, homogeneous. This is called new Wine, after having deposited these Fæces, which are named the *Lees*, or *Mother*, of Wine, and which were first dispersed in the Must, then elevated into Flowers, or Yeast, and afterwards subsiding, are collected at the Bottom of the Vessel. The Wine, when it is thus become fine, if it is drawn off from the Lees into a clean Vessel, leaves all these thick Fæces behind it; from which, by pressing them strongly through thick Canvas Bags, a turbid Wine is procured, which is used for making the strongest Vinegar. If the dry Fæces that still remain in the Bags, and are formed into Cakes, are burnt to Ashes, these, if they are sifted, dissolved in Water, and depurated from the subsiding Earth, yield a clear Lixivium. And this, by Evaporation, in large Vessels produces a Salt, very like the former, but more pure, and more acrid. This, then, is a second Species of fixed *Alcaline Salts*, which by the preceding Fermentation seem to be rendered more subtle than the former.

If Wine, thus fermented, defecated, and rendered fine, is drawn off into a clean Cask, and stands for some Time, there will then begin to appear small shining Bodies in it, like Particles of Glass, which gradually uniting together, form larger Globules, which fix upon every Part of the Vessel that the Wine reaches, and thus, by Degrees, incrustate over its whole Surface with a Kind of stony Matter, called, for this Reason, very properly, by the Germans, *Wine-Stone*; by the Chymists, *Tartar*. This is always of an acid Taste, and produced from Wine only which has been fermented, and depurated in the Manner above-mentioned.

When Tartar is distilled, a very black Mass remains at the Bottom of the Retort, which is perfectly *Alcaline*, and exceedingly acrid; and this is the only Method known of producing a fixed, alkaline, acrid, vegetable *Alkali* in a close Vessel; for all other vegetable Substances whatever, when exposed to the strongest Fire in a Retort, produce a black Coal, but never afford any *Alcaline Salt*, till this Coal is afterwards burnt in an open Fire. But if this black *Alcaline Coal* of Tartar is taken out

out of the Retort, and burnt in an open Fire, it yields a white *Alcaline Salt*, of all fixed *Alcalies*, the most acrid and pure. By this surprising Experiment, we learn, how much Fermentation promotes the Production of an *Alkali*, though at the same Time it always heightens, and even generates an Acid. Both *Alcalies* and Acids, therefore, are more readily produced, by the Assistance of Fermentation, than without it; which Observation, certainly, is of great Importance, though very little taken Notice of.

But all *Alcalies*, from whatever Vegetable produced, when by the strongest Fire they are at last brought to their greatest *alkaline* Perfection, become so perfectly alike, that they can scarcely be distinguished from each other. There is, however, one trifling Circumstance, wherein they differ, which is, that Glass made with the very same Flints, but different fixed Salts, will differ a little with Respect to Colour, so that what is prepared with the *Alcaline Salt* of Fern, shall be different from that made with any other Salt. But Chymists are very sensible, that a very small Matter will make a considerable Alteration in the Colour of Glass; thus, Pounding the Salt in a metal or marble Mortar, will produce a Difference. Hence it seems possible, that something metalline may insinuate itself into Vegetables, which being naturally fixed in the Fire, may impart Properties to the Salts which escape the Notice of our Senses, till they discover themselves in the Colour of the Glass produced from them. It is certain, that Particles of Iron lie concealed in many Bodies; and perhaps Copper may do the same.

Another Sort of fixed *Alcaline Salt*, which has been discovered by the Chymists, and accurately described by Glauber, is prepared in the following Manner:

Put some pure Nitre in a clean Vessel, let it melt over the Fire, and it will then scarcely have any visible Motion. Whilst it is in this State, throw a Piece of burning Coal into it, and in an Instant it will produce a great Noise, the Coal will be agitated upon the Surface of the Nitre, till it is consumed, and then the Nitre will flow quietly again, as before; then throw in another Piece of Coal as before, and the same Appearances will be renewed. Repeat this till the Nitre is no longer moved by the Application of the Coal, and then what remains, will in every Respect answer the Character of an *Alcaline* fixed Salt: Thus, for Example, it betrays a caustic Acrimony, and an urinous Taste in the Mouth; it raises an Ebullition with all known Acids; if saturated with an Acid, it is converted into a compound Salt, whose Nature is determined by that of the Acid; and it has the very same Effect as the *Alcaline Salt* described above, with Respect to the Production of Colours, Precipitations, and Solutions of Bodies. This Salt, however, differs in some Respects from the former, as it always retains something of Nitre, which is not utterly destroyed by the Process. This does not discover itself, till some of the best Oil of Vitriol is poured upon it; but then a Vapour instantly arises, which by its Smell, like that of Spirit of Nitre, or Aqua Fortis, discovers its nitrous Nature. In this Experiment, the Oil of Vitriol generally grows black, when it is mixed with the *Alkali*, whence it appears, that something of the Charcoal is united with the *Alcaline Salt*. Glauber, therefore, was certainly in the right, in believing this *Alkali* of Nitre, to be in some Measure different from vegetable *Alcalies*; but when he extols its Virtues above all others, it is possible his own Discovery might betray him into a little Exaggeration. For he boasts of the Oil *per Deliquium* of this fixed *Alcaline Salt*, as if it was the *Alcahest*, or universal Solvent.

But a third, and the most expeditious Way of producing a fixed *Alcaline Salt*, and that in great Quantity, is as follows: Take of the best and driest Tartar, and Nitre reduced to a fine Powder, an equal Quantity; mix them together, and throw them by a little at a Time, into a clean iron Vessel, made almost red hot, and an instantaneous Deflagration will ensue, and a white, *alkaline*, fixed Salt will be produced. This, too, is like a vegetable *Alkali* in every Characteristic, except that upon being mixed with Oil of Vitriol, it betrays by the Smell its original Nitre.

There is another singular Method of preparing a fixed, fiery, *Alcaline Salt* from Nitre, and that in a very little Time, as follows: After Antimony is as much as is possible deprived of its Sulphur, the pure metalline Part, which remains, is called its *Regulus*. Take this *Regulus*, put it into a clean Crucible, melt it in the Fire, and when it is in Fusion, add an eighth Part of the purest, and driest Nitre. It is something surprising to find that this Nitre, which generally flows easily in a strong Fire, cannot now be melted, without the Application of a Heat, intense enough to fuse Copper. And when it is urged with a Degree of Fire sufficient to melt it, it immediately acquires a golden Colour; and when the Whole is poured out into a Cone, the Nitre rises to the Top, in the Form of a golden Cake. This, when separated by striking the Cone, is impatient of Dryness, and is of so acrid, *alkaline* a Nature, that it is perfectly fiery in almost all its Effects: Nor have the greatest Masters in Chymistry ever found any Method of communicating to Salt an equal Degree of Acrimony. And here it is observable that Nitre, which is the coldest of all Salts, and has not the least Mark

of any *Alkali* in it, when it is thus fused with the metalline Part of Antimony, acquires this Acrimony, as it were, by Contact. It is probable, in this Case, that the Sulphur of Antimony is very intimately united with the Nitre; for the Salt thus produced, whilst it is exceeding dry, and hot, makes a red Tincture with pure Spirit of Wine, and that immediately, of an exceeding caustic Nature. This Experiment succeeds, whether the *Regulus* is made with Iron, according to Suchten's Method, or with Tartar and Nitre, in the common Way. But this Effect will not be produced, so long as the external Sulphur adheres to the Antimony, the Experiment then only answering, when this Part being separated, the remaining reguline Part is fused with the Nitre. The sudden Change that is in this Case effected, is so much the more surprising, as Nitre with Sulphur never becomes *alkaline*, but is converted into a bitterish Sal Polychreston. And what still makes it more extraordinary is, that Nitre, if it is kept for a considerable Time in Fusion by itself, will undergo no Alteration, but remain the same. Hence, then, we learn, what sudden and unsuspected Effects are produced by the Combination of Bodies, which it was not possible to foresee; and that general Conclusions in Physics, are liable to a great deal of Error. From this Experiment, also, we may observe, how easily the whole Substance of Nitre grows *alkaline*, as it were, by mere Contact; for in this Instance, it is not mixed with the melted Antimony, but only flows at the Top of it.

The Properties of fixed *Alcaline Salts* are as follows:

They attract Water very powerfully and at a great Distance, and from every known Body in which it resides. This is plain to the Eye, for when such an *Alkali* is taken out of a strong Fire, if it is suffered to remain in a very hot Air, close by the Fire, where Water can by no other Art be discovered, it will even there grow moist, and dissolve: And if it is then put into a clean, dry, glass Vessel, and dried over the Fire, and the Vapour that exhales, is received, and condensed in an Alembic, it will yield again the pure Water which the *Alkali* had attracted. Other Salts, if moist before, would have been deprived of their Water in the very same Degree of Heat, and the same Place where the dry *Alkali* attracted Moisture. These *Alcaline Salts* therefore, are true Magnets to Water; by this they are dissolved, and are strongly united with it; and hence, when they are once dissolved in Water, a Heat equal to that of boiling Water will not perfectly dry them again.

Thus, for Instance, Oil of Tartar *per Deliquium*, will not be dried in a Heat of two hundred and fourteen Degrees of the common mercurial Thermometer, which is sufficient to make Water boil; but it must be put into a metal Vessel, and kept continually stirring in a Heat of more than six hundred Degrees, in order to separate all the Water from it: Hence, we scarcely know any Body that parts with its Water with more Difficulty.

The following Experiments were made with a View of discovering the Force with which fixed *Alcaline Salts* attract Water, the Quantity they imbibe, and the Spaces through which their attractive Virtue is diffused.

An Ounce of a fixed *Alcaline Salt*, exceedingly pure and dry, was put into a clean glass Basin, and exposed to a dry Air, in a subterraneous Place, that was every way inclosed, and not in the least disturbed by any Wind; and in a little Time, the Water was attracted out of this still Air to the Surface of the Salt, and the Water was thus attracted by the Salt, till the Salt was impregnated with near three Ounces of Water, but being then thoroughly saturated, it did not imbibe any more. Hence it appears, that six cubic Feet of Air at least, was required to supply this Salt with such a Quantity of Water: For if we suppose the Weight of Air to that of Water, as one to a thousand, and a cubic Foot of Water to weigh sixty-four Pounds, then all the heavy Bodies in a cubic Foot of Air, will weigh $\frac{1}{16}$ of a Pound. Let us imagine only half of these heavy Corpuscles to be pure Water, the other half, all the rest of the ponderous Bodies contained in the Air, and then it appears that in a cubic Foot of Air, there will be about half an Ounce of Water: As this Salt, therefore, is capable of attracting Water out of so large a Space, we hence discover a very surprising Power in Nature. Sendivogius, therefore, well observed, that the more *Alcalies* are burnt, the more Water these calcined Bodies attract out of the Air. It is possible, however, that the Water in the Air, at a Distance from that which surrounds the *Alcaline Salt*, may be drawn into this Air, and supply the Place of that Water which is attracted by the Salt.

But to come at a more accurate Knowledge of this Attraction of Water by *Alcaline Salts*, Boerhaave took a large glass Bottle, very clean, and dry, and hot, as if it had just been taken out of the Glass-House Oven. Into this he put some pure Salt of Tartar, very hot and dry also, and reduced to Powder, in the Manner above described. He then immediately stopped the Mouth of the Bottle with a dry Cork, and tied over it a Hog's Bladder softened with Oil, and made very supple: The Effect of this Experiment was, that the Salt which adhered to the Side of the Glass, was grown moist with the Water contained in that small Quantity of Air included in the glass Bottle, though the Air was extremely hot and dry, at the Time that the Bottle was closed.

2. It has not yet been determined with any Degree of Certainty, whether fixed *Alcaline Salts* repel Air, or attract it so strongly, as not to part with it again readily. Experiments that have been made with this View leave the Thing dubious. It is very certain that Oil of *Alcaline Salts per Deliquium*, examined by the Air-Pump, gives not the least Indications of containing Air, since none is to be separated from it, when the Pressure of the Atmosphere is taken away, even though the Oil is made very hot in order to expel the Air. On the contrary it is equally certain, that when *Alcaline Oils per Deliquium* are mixed with Oil of Vitriol, from which the Air has been extracted by the Air-Pump, a surprising Quantity of elastic Air is produced, or, as it is called, generated. Upon considering these Circumstances, it appears most probable that fixed *Alcaline Salts* actually attract Air, and unite it with themselves so strongly, that it is not to be dislodged, till the Texture of the Salt is destroyed by the Effervescence upon mixing it with an Acid.

These pure, acrid, fixed, *Alcaline Salts*, if they are mixed with the purest Alcohol, when they come very hot out of the Fire, attract it, and unite with it; but if there is the least Mixture of Water, either in the Salts or the Alcohol, then the Salts repel the Alcohol, nor can they be united by any Art whatever. In this Manner, therefore, pure, fixed *Alcaline Salts* divide strong Spirit of Wine into two Parts, that are not afterwards miscible with each other, that is, into a Water saturated with the *Alcaline Salt*, and into a pure Alcohol, which swims at the Top. And thus, again, plainly appears the reciprocal Attraction between Water and fixed *Alcaline Salts*: Take a Pint of the purest Alcohol, mix with it a small Quantity of Water, and then add a dry *Alcaline Salt*, and the *Alkali* will in an Instant draw into it that little Portion of Water, and will appear in the Form of a thick Oil about the Sides of the Glass; and, at the same Time, the Combination of the Alcohol and Water will be utterly prevented.

These *Alcaline Salts* act also upon vinous Spirits in another Manner: For, as every Spirit drawn by Fire, from Wine of any Sort, has always a volatile Acid intermixed with it, the Acid being greedily attracted by the *Alcaline Salt*, the Spirit by this Means becomes much more pure, when freed from the Acid which adhered to it, and consequently will be very different, both in its Nature and Virtues, from what it was before this Operation. And the *Alkali* itself will also, at the same Time, be intirely altered, and become a Salt compounded of an Acid and *Alkali*, inasmuch that, if it is perfectly saturated in this Manner, a Salt perfectly neutral will be produced.

These Observations direct us to a Method of preparing a pure Alcohol, without Distillation, or any Assistance from Fire; for add a sufficient Quantity of Pot-ash to common Spirit of Wine, and stir them about till they are thoroughly mixed together, the Water will be attracted by the *Alcaline Salt*, and the Alcohol will swim at the Top, which, by a gentle Decantation, will come off good the first Time. If any Doubt remains, whether it is quite pure, or not, put some more Pot-ash into the Alcohol thus prepared, and by stirring them about, and then pouring the Liquor off, as before, it may be rendered so. In this Operation, however, the Spirit of Wine always discovers an Oil, which before appeared neither in the Spirit of Wine, nor the *Alcaline Salt*, but is generated when they are thus mixed together.

Another Property of *Alcaline Salts* is to unite intimately with distilled vegetable Oils: For if the most acrid, pure, dry *Alcaline Salt* is thrown very hot into a distilled Oil, it attracts the Oil greedily, with a considerable hissing Noise, and unites it so with its own Substance, that there is immediately formed a Kind of Soap, and the Oil is more firmly united to the *Alcaline Salt*, and the Soap is rendered more perfect, if the Mixture is set in a subterraneous Place; for by this Means both of them become semi-volatile, and form a Mass dissolvable in Water, which is endued with excellent medicinal Virtues. This is the *Ens parvum Sapientum*, the *Sapo Helmontianus*, the *Salt-Volatile Tartari* of Starkey, and the *Corrector* of Matthews. It was formerly in great Reputation, first in England, and afterwards all over Europe; for it powerfully resolves almost every Kind of viscid Concretion that is generated from the Humours of the human Body: Hence it incises and attenuates the tenacious Concretions that obstruct the Vessels, and at the same Time it gently stimulates the Vessels themselves; and thus, by acting both upon the Solids and Fluids, it promotes the Secretions by Sweat and Urine, and by these Evacuations carries off the Cause of many chronical Distempers. This Soap also intirely alters the Nature of many Simples, when digested with them, and hence, depriving some of their Virulence, imparts to them Virtues very different from what they naturally possessed. The Chymists, however, as is usual with them, have been too lavish in the Praise of this Medicine, which they have extolled as an universal Remedy. But it must be observed, that this Combination of a fixed *Alcaline Salt* and distilled Oil can never be brought about, if the least Portion of Water adheres either to the Salt or Oil; and for this Reason it is necessary the Salts should be hot when mixed with the Oil. It will even hinder

the Success of the Operation, if a small Portion of the *Alcaline Salt* stands above the Oil in the Vessel, and thus, by being exposed to the Air, grows ever so little moist.

Fixed *Alcaline Salts* are easily united also with the expressed Oils of Vegetables, or Animals, as is daily seen in their Combination into artificial Soap by the Assistance of quick Lime, Water and Fire.

But *Alcaline Salts* remarkably attract all Kind of Acids whatever, whether animal, vegetable, or mineral, and that whether dry or moist, pure or diluted. And this Force, with which *Alcalies* thus attract Acids, is incomparably greater than that with which they attract Water: For in this Action, by which they unite these Acids with themselves, they violently expel the Air that resides both in the Salt and Acid, whence arise such Numbers of Air-bubbles, which suddenly appear, and burst. This Union also makes them repel even Water, and when they are thus saturated, they will easily suffer themselves to be dried, or deprived of their Water, which before, when they were separated, they retained most tenaciously. Pure Oil of Vitriol, for Instance, when it is alone, can scarcely by any Art be utterly deprived of its Water; Oil of Tartar not without a great deal of Difficulty: And yet, when you mix them together, the Water is expelled in such a Manner, that a Salt almost dry appears in the Vessel under it, as is evident in the Preparation of Tartarus Vitriolatus. The same is true also of other Acids, when they are combined with an *Alkali*. This Power however, by which *Alcalies* attract Acids, is limited to certain Bounds; hence there appears a great Diversity among them, though this, indeed, seems more owing to a Difference in the Acids, than in the *Alcalies*. Upon this Subject the illustrious Homberg has communicated to the World many useful Observations, some of which are of Importance enough to deserve inserting:

One Ounce of Salt of Tartar absorbed all the Acid from fourteen Ounces of the best distilled Vinegar; and hence, after it was dried, it was increased in Weight three Drams thirty-six Grains; the remaining Part of the Vinegar was mere insipid Water. By this Means, then, we discover the Proportion there is between the Acid, and the Water of the Vinegar.

The same Quantity of Salt of Tartar absorbed all the Acid from two Ounces five Drams of Spirit of Salt; the Increase of Weight, when dried, was three Drams fourteen Grains.

An Ounce of Salt of Tartar absorbed all the Acid from one Ounce, two Drams, thirty-six Grains of Spirit of Nitre; the Increase of Weight was three Drams ten Grains.

The same Quantity of Salt absorbed all the Acid from one Ounce, two Drams, thirty Grains of Aqua Fortis; the increased Weight was three Drams six Grains.

From five Drams of Oil of Vitriol an Ounce of Salt of Tartar absorbed all the Acid; the Increase of Weight in the dried Salt was three Drams five Grains.

As these are the principal Acids, we may infer, First, that in acid Liquors, though various with Respect to their Bulk, whilst united with their Water, yet the acid Principle has nearly the same Weight in all. Thus Vinegar, which is the lightest of all these Acids, increased the Weight of the same Salt of Tartar, as much as the Oil of Vitriol, which is the heaviest and strongest. The same too is true with Respect to the other Acids, the Difference between the greatest and least Increase of Weight being no more than thirty-one Grains, and that only in the Vinegar, and this because the Tartarus Regeneratus, that is, the compound Salt formed by the Union of the Salt of Tartar and Acid of the Vinegar, is not dried without a vast deal of Difficulty.

Secondly, Acids seem to differ principally as to the Quantity of Water they are diluted with, since the pure Acid, when it is extracted, discovers always the same Weight. If fourteen Ounces, therefore, of the strongest Vinegar could by any Contrivance be reduced to five Drams, by separating the Water from it only, and collecting the Acid into a smaller Compass without altering it, it is possible that the Vinegar thus reduced in Bulk would be as strong as Oil of Vitriol. It is however certain, that it would be then capable of saturating the same Quantity of *Alcaline Salt*.

Thirdly, We hence perceive, how great a Part of these acid Liquors is Water.

Fourthly, It is probable, that if these acid Salts could be obtained pure without any Water at all, they would then appear in a solid Form. This, however, has never yet been accomplished: Very intense Cold has come nearest it of any Thing, but not quite compleated it. Hence also we may conceive what surprising Effects *Alcaline Menstruums* may produce, when they act upon Substances that have any latent Acid in them, or upon those that are actually consolidated, and held together by an Acid; and hence, when this Acid is absorbed, they fall again into their constituent Elements.

When this Affusion of an Acid to an *Alkali* is performed gradually and cautiously in warm Liquors, and in a large Vessel, if at the same Time the Vessel is shaken after every Instillation of the Acid, the Mixture at last arrives to such a Temperament, that there will be no farther Ebullition: And this is called the *Point of Saturation*. If Acids are after this added, no more Agitation

tation will be excited, than there is upon mixing Water with Water: And then the Compound thus produced is neither *Alcaline* nor *Acid*, but *neutral*, formed by the Union of both. Hence *Acids* have been called Males, and *Alcalies* Females, and the Compound of them both Hermaphrodites: The *Alkali*, the Vacuum; the *Acid*, the Implet: The *Alkali*, the Chaos, and the *Acid* the impregnating Spirit.

The violent Ebullition and Effervescence, that appear upon the Mixture of an *Alkali* and an *Acid*, whilst the Air and Water are forcibly expelled, may possibly arise, because these Bodies impetuously drive out whatever lies betwixt them, when they rush strongly into mutual Contact: And if so, this Ebullition and Effervescence do not arise from any Disagreement, but from an Association of Principles. Hence the following Queries will naturally arise: 1. Whether *Acids* abound plentifully with Air, whilst *Alcalies* contain none at all? So far is certain, that the strongest *Alkali*, taken very hot out of the Fire, and so probably deprived of all its Air, will, if it is thrown into an acid Liquor, produce a prodigious Effervescence, and a great Quantity of Air will be generated. Hence may we not arrive at the true Reason, why *Acids*, when they are predominant in animal Bodies, are productive of so much Flatulency? Do not neutral Salts, produced from a Combination of *Alcalies* and *Acids*, lose the greatest Part of their Air; and are they not for this Reason found to be very little flatulent in the human Body? Are not acid, or at least ascendent Bodies, the only Substances which are disposed to ferment, because of the latent Air they contain? And is not this latent Air the Source of that prodigious Quantity of Air, which is generated by Fermentation? Does Fermentation therefore naturally tend to the Generation of *Acids*, whilst an intense Fire produces *Alcalies*?

From what has been said it appears, that amongst natural Causes, by which Motion is excited in the Universe, we must reckon *Alcalies* and *Acids*, at the Time when these are mixed together, which Motion ceases, as soon as ever this Combination is compleated.

The Motion thus excited seems of considerable Importance in Vegetation, or rather in preparing the Earth for it. People concerned in Husbandry are sensible, that frequent Ploughing or Digging the Earth mellow it, as they call it, and renders it fertile; or, to speak more philosophically, disunites the Parts of the Earth, which otherwise cohere together, and form large Glebes, and reduces them into small Particles, better suited to the subsequent Solution they are to undergo, in order to the Production of a Plant. Now when the Earth is once furnished with an Alkaline Salt, and that is intimately united with the earthy Particles, which soon happens, because these Salts, attracting the Water floating in the Air, run into an Oil per Deliquium, and sink into the Ground; the same Salts attract also the Acid of the Air, till they are saturated, and both together rendered neutral. Whilst therefore this Neutralization is effecting, an Effervescence is made leisurely and by Degrees, as the Alkaline Salt imbibes the Acid. Hence Motion is excited in the Parts of the Soil which were impregnated with the Alkali, and by this Motion the Particles of the Earth are separated from each other, more effectually than either by Ploughing or Digging. This Separation is an excellent Preparative for a future Solution, and indeed is one Step towards it, since the Solution of a Body is only the Reducing it into Particles fine enough to float in the Menstruum that dissolves it, and small enough to be transparent, and consequently not visible.

There can be no Doubt, but that in the Action of these Alkaline Menstrua upon *Acids*, the Water is expelled out of them, as well as the Air, when they thus unite together; for though they are perfectly fluid, when they are mixed, yet they harden in the very Act of Combination, into little saline Glebules, and appear in the Water in the Form of pellucid Crystals, the watery Liquid being driven out, and swimming at the Top. And when the Saturation is compleat, the Water may be separated pure, and without any saline Taste, and then the Remainder is easily dried into the Form of a white, farinaceous, opaque Powder, and that too by a gentle Heat, whereas the Parent *Alkali* and *Acid*, by whose Combination they are produced, either cannot be dried at all, or not without the greatest Difficulty.

It is farther remarkable, with respect to these compound Salts thus prepared, that it is extremely difficult to separate again the *Alkali* from the *Acid*, so as to procure either of them pure, by the Assistance of Fire only. Sal Ammoniac, for instance, made by a Combination of Alkaline Spirit of Sal Ammoniac, and Spirit of Sea-Salt, may be sublimed, by exposing it to a sufficient Degree of Fire; but it will not be thus possible to separate it into the saline Principles of which it was compounded. The same is true with Regard to Tartarus Vitriolatus, Sal Marinus Regeneratus, Nitrum Resuscitatum, Tartarus Regeneratus, and others. There are, however, some Methods discovered, by which this Resolution of compound Salts, into their constituent Alkaline, and Acid saline Principles, may be accomplished, and the Knowledge of these will make us acquainted with some of the most secret Mysteries of Chymistry. In order, therefore, to arrive at the Knowledge of these, it is necessary to examine some farther Properties of *Alcalies*.

Alcalies, therefore, though they attract all known *Acids*, at the same Time it is remarkable, that they attract some, much more powerfully than others. This Assertion is abundantly confirmed by Experiments. Thus, if upon an *Alkali* perfectly saturated with Vinegar, or upon Tartarus Regeneratus, Spirit of Salt, or Nitre, or Sulphur, or Vitriol is poured, then the latent *Alkali* will attract into it that Acid, and repel from it the Acid of the Vinegar with which it was before saturated; and hence a Liquor, nearly of the Nature of Spirit of Vinegar, may be afterwards drawn from this Compound with a moderate Heat, there remaining a considerably fixed, regenerated, nitrous Salt at the Bottom of the Vessel: Again, if Spirit of Nitre is poured upon an *Alkali*, saturated with Spirit of Salt, an Aqua Regia will arise in Distillation; and a nitrous Salt will be left at the Bottom; but much changed from its former Nature. On the contrary, if Spirit of Salt is poured upon an *Alkali*, saturated with Spirit of Nitre, the Mixture will in Distillation also yield an Aqua Regia; and the Salt that remains will be of a nitrous Nature, and somewhat inflammable; however of a Nature very different, both from Sea-Salt, and Nitre. In both these Cases, as there is no considerable Difference betwixt the Acid of Nitre, and that of the Salt, with respect to their Strength, each of these *Acids*, in some Degree, dislodges, and expels the other, by which means they rise mixed together, and both of them also remain united with the *Alkali* in the Residuum.

Pour Oil of Vitriol upon an *Alkali*, saturated with Spirit of Nitre; a pure Spirit of Nitre is immediately expelled, and the Acid of the Vitriol unites with the Alkaline Part of the Nitre, and forms a Salt at the Bottom, somewhat of the Nature of Tartarus Vitriolatus, though different from it in some of its Properties; it has, however, scarcely any Thing in common with Nitre. And, lastly, if Oil of Vitriol is poured upon facitious, or natural Sea-Salt, a very volatile Acid, fuming Spirit of Sea-Salt, will instantly arise, endowed with almost all the known Virtues of Spirit of Salt, except that it fumes more, is more volatile, and its Vapour is noxious and suffocating, till it is corrected by repeated Depurations. All these Experiments, therefore, certainly prove that those *Acids*, which are naturally diluted with a less Quantity of Water, have a greater Power of uniting themselves with *Alcalies*, than those, which are naturally diluted with a greater. And this Rule, so far as has yet appeared by Experiment, may be laid down as general, that the stronger *Acid* always expels from the *Alkali* that which is weaker and which is the least powerfully attracted by the *Alkali*. And then the stronger *Acid* always unites with that *Alkali* from which the weaker was expelled, and takes Possession of the Place in which that resided.

Again, the Salt thus generated, losing the Disposition it had acquired from the first and weaker Acid, which is now removed, puts on very nearly the Nature of that Salt, from which the last and stronger Acid, which is now united with the Alkaline Part, was drawn. It must, however, be confessed, that there is always some remarkable Difference betwixt the Salts thus produced, and the native Salts from which those stronger *Acids* were procured. Thus, for Instance, the Sal Mirabilis Glauberi, which is prepared by a Distillation of Sea Salt, with the best Oil of Vitriol, is of a very different Nature from that Tartarus Vitriolatus, which is obtained by a Saturation of Oil of Tartar with Oil of Vitriol: This is also true, with respect to other compound Salts. Thus the Salt which is procured by distilling Glauber's Spirit of Nitre, is intirely different from the Sal Mirabilis of the same Author, though both these are supposed to be produced from the same *Acid*, and the same *Alkali*. This Rule therefore, which has been laid down by the most eminent Chymists, That *Acids* always convert *Alcalies* into their Nature in such a Manner, that from these Compounds, may be constantly regenerated those Salts, which before yielded those *Acids*, is too general, and must be understood with some Restriction.

It is farther remarkable, that when these stronger *Acids* thus poured upon compound Salts, expel thence the weaker *Acids* which were united with them before, and join with the remaining *Alcalies*, this new Combination is effected without any considerable Effervescence or Conflict: For the first and weaker *Acid* quits the *Alkali*, and the last and stronger takes its Place, without any great Ebullition, notwithstanding there arises such a prodigious Emotion, when a pure *Alkali* is mixed with a pure *Acid*. Nor does it appear, that any Air is generated by this Union, though in the other Case it was expelled in so large a Quantity. It is probable, therefore, that the Effervescence which was excited in the first Saturation of the *Alkali*, had expelled all the Air, so that now the new *Acid* does nothing more than enter into the saturated *Alkali* thus deprived of its Air, and remains there, without either expelling or attracting any Air; and it seems a farther Confirmation of this, that if the *Acid* which is expelled by a stronger *Acid*, is mixed with another *Alkali*, it will with that raise a violent Effervescence, so that a great Heat, Noise, and Generation of Air will be produced, whilst in the compound Salt, there was very little of any such Appearances.

What has been said above, with respect to fixed *Alcaline Salts*, will be sufficient to give a general Idea of their Nature and Properties. It remains, that I give the different Methods of preparing fixed *Alcaline Salts* for medicinal Uses, and specify the Virtues they are supposed to exert in and upon the human Body. This I shall do principally from Boerhaave, because he has given the particular Processes with more Exactness, and been more just in his Reflections upon them, than any preceding Writer upon these Subjects.

I must, however, take Notice of two Mistakes which the above-mentioned Author seems to have made, in regard to the Theory of these Salts, and which he is so solicitous of propagating, that he takes all Opportunities of repeating them.

The first is, when he tells us, that fixed *Alcaline Salts* are never produced naturally, but are only generated by Fire from Vegetables. This is evidently an Error, because, according to the best Accounts we have of the Egyptian Natron, it agrees with fixed *Alcaline Salts* in most, or perhaps all its Properties. Now this is a native Salt, procured either from the Earth by boiling it in Water, or else by evaporating the Water of certain Ponds, or Lakes, to Dryness. And we have an Account of an Earth which is got near Smyrna, which, by boiling in Water, and a subsequent Evaporation, yields a Salt very little, if at all, different from Pot-Ash, and which may for all Purposes be used in its Stead. And the Heat of boiling Water is in no Instance sufficient to generate an *Alcaline Salt*.

The second Mistake is, when he inculcates, that the fixed *Alcaline Salts* of Vegetables of all Kinds are exactly alike, and nothing different, either in their physical Properties, or medicinal Virtues; though he confesses, that the Salts of different Plants, impart a different Colour to the Glass which is made from them, which proves, at least, some Variety. He farther says, that a Portion of the vegetable Oil always adheres to the Salt, notwithstanding the excessive Fire they have endured; as therefore the Oil of every Vegetable differs from that of every other Vegetable, this Circumstance must make some Difference in the fixed Salt. And in this I have the illustrious Hoffman's Opinion in my Favour.

If this Controversy is brought to the Test of Experience, I am certain it will be determined against the above-mentioned illustrious Boerhaave. For the Salts procured from some Plants will, even when mixed with an Acid, and saturated, cause a great Heat and Sensation of Burning at the Stomach, whilst Salt of Wormwood saturated with the same Acid, and given a few Hours after, will cause no such Uneasiness, but have a much better medicinal Effect. And this is so remarkable, that I have frequently discovered by the Effect, that other Salts have been substituted in the Room of Salt of Wormwood. And from the various Effects I have seen produced from the fixed Salts of different Plants, I am convinced that it is as much impossible to procure a Salt endued with exactly the same Virtues as Salt of Wormwood from any other Plant, as it is to produce a Plant of Wormwood from the Seed of any other Vegetable. And I believe the same may be said with respect to the fixed Salts of Broom, Bean-stalks, Mint, Fern, and most other Plants. Though at the same Time it must be confessed, that the fixed *Alcaline Salts* of all Vegetables agree very much in all their sensible Qualities; but as Nature has Ways of acting, to which we are Strangers, and draws mechanical Properties from Sources to us unknown, it is dangerous, as well as imprudent, to determine any Thing from Theory, before it is confirmed by a Multitude of Experiments.

As *Alcaline Salts* made after the Manner of Tachenius should, by the Character Boerhaave gives of them, be of great Importance in Physic, I shall begin with those.

THE METHOD of preparing a fixed ALKALINE SALT from BURN'T VEGETABLES, after the MANNER of TACHENIUS.

1. Put into a large and deep iron Frying-pan, a Quantity of the Leaves and Stalks of clean, dry, fresh, green Rosemary; upon this lay an iron Plate, in such a Manner, that it may compress the Rosemary, and perfectly cover it all over. Then place the Pan upon a gentle Fire, which increase gradually, till the Vessel grows red hot. The Plant will then smoke, diffuse a Smell, and be converted into a Coal. Then add more fresh Rosemary, cover it, compress it down, and proceed as before, till this is also turned into a Coal. Repeat this till a Quantity is procured, sufficient for the Purpose intended. During this Operation, take all possible Care that the Herb does not flame, which is best prevented, by covering it in such a Manner, that it has no Communication with the Air, for if that comes to it, it bursts out into a Flame, which in this Case does Harm. This is called the Ustulation of a Plant, and the flower and more gradually it is performed, the Operation will be proportionably more perfect. The burnt Herb will be very black, brittle, and bitter; and boiled in Water, the Decoction scarcely discovers any Salt in it, but tastes burnt and bitter, and is sudorific; so that in the Ustulation of a Plant into a black

Coal, scarcely any Salt is discoverable, either by the Lixivium made from it, or by the Taste of the Coal.

2. When this first Part of the Process is rightly performed, take away the iron Plate which covered the Rosemary, and let the Frying-pan, with the ustulated Herb, remain on the same Fire; upon which, as soon as ever the Air comes to it, the Herb, which is now become black, will take Fire, and would very easily rise into a Flame; but this must here be carefully prevented, and the Ignition must be sustained by a Fire accommodated to the Purpose. When the upper Part, which is contiguous to the Air, has for some Time sparkled, its Fire goes out, and then it immediately grows white. But the Parts of the ustulated Vegetable which are covered with these white Ashes, will still remain black, and on Fire, and therefore all the Herb must be gently stirred about with an iron Rod, till the whole Mass has in every Part been successively on Fire, and, by this continual Agitation, been for a sufficient Time exposed both to the Air and Fire together, so as to be converted into one homogeneous white Mass, which is then but in small Quantity, ponderous, and equally white. And when this is done, it is impossible to raise a single Spark in the Mass by the strongest Fire: Though if there is but one black Leaf in it, that, as soon as ever it comes into Contact with the Air, will take Fire in the same Manner as the rest did. When the whole Herb is thus reduced to a Whiteness, it has then an acrid, and somewhat urinous, saline Taste, which never appears in the Herb, as long as that black Part, which is a pure inflammable Oil, continues to adhere to it; but as soon as ever this is intirely consumed by the Fire, then the Salt, which is not wasted by the Fire, begins to discover itself. Hence it appears, that the Consumption of the Oil is necessary, before the Salt can be procured.

3. Let the Ashes thus prepared, be left an Hour or two upon the Fire, so as to be kept constantly red hot, and let them be continually stirred with an iron Rod; and this completes the Calcination of Herbs for Tachenius's Salt. In the first Part of this Operation, the suffocated Action of the Fire, after it has expelled the Water, intimately unites the saline and oily Principles, into a sulphureous saline Concrete, to speak in the Language of the Chymists, which is in some Measure of a saponaceous Nature; but which, at the same Time, has a large Admixture of a very subtle Earth.

4. Put the Ashes thus procured into a clean iron Vessel, with six Times their Weight of pure Rain-water, and boil them, stirring them often with an iron Ladle, then the Liquor that swims at the Top will be acrid, lixivious, and saline, and will have drawn a great Part of the Salt out of the Ashes, leaving the Earth at the Bottom. Let this be poured off, and filtered boiling hot, till it becomes perfectly limpid, and then let it be set by, under the Title of a *Lixivium* for Tachenius's Salt. If the Earth that remains at the Bottom of the Vessel, or in the Filter, is boiled again, with fresh Water, it will still yield a farther *Lixivium*; but the Taste of this will more resemble the Acrimony of Lime, and will contain less Salt: This may be filtered too, and mixed with the former. Let the Earth that is left behind be boiled with more Water, and the Liquor poured off as before, and this be repeated, till the last Water comes off as insipid as it was put on. These last *Lixiviums* may be thrown away as of little Use. Let the Earth that remains be shook about with Rain-water, let this, when it is become turbid, be poured off, and proceed in this Manner, till the Sand, which alone will sink to the Bottom, is perfectly separated from the true Ashes, which last will be mixed with the Water. Let these turbid Waters be mixed together, and suffered to settle, and there will fall an Earth to the Bottom, which being dried, is a pure vegetable, elementary, almost virgin Earth, very proper for making Cupels.

5. Let the pure *Lixivium*, above-mentioned, be evaporated in a clean iron Vessel, till it is become quite dry, keeping it continually stirring towards the End of the Process to prevent the Salt from adhering too much to the Vessel, and by these Means, is procured a brownish Salt, that will be acrid, and somewhat *Alcaline*, and which will gradually dissolve in the Air; but yet not so readily, as a perfect *Alkali*: The browner this Salt is, the more rightly will it be prepared; for it will have so much the more of the Oil in it.

6. If this Salt is put into a clean Crucible, and set in a Fire every Way surrounding it, till the Crucible is red hot, it will easily flow like Water, much sooner than a true fixed *Alcaline Salt*; and then it must be poured out upon a clean brass Plate in Form of little Cakes. And thus you have the pure fixed vegetable Salt of Tachenius; which may be rendered still purer, by exposing it to the Moisture of the Air, or dissolving it in Rain-water, and then filtering the Liquor, and letting it stand quiet, for a sufficient Time, let it be inspissated till a Pellicle appears on the Surface; and then, by setting it by in a still Place, it will shoot into saline Globules, which are Crystals, of all others, the most pure. In these there is not contained an acrid *Alkali*, but the Oil of the Plant, being united with the *Alcaline Salt*, renders it more mild. It is observable, that the Colour

four of this Salt will be very easily altered, if a Coal happens to fall into it whilst it is melting, for then it immediately acquires a leaden Colour, which will vary, according to the Quantity of the Coal that gets amongst it.

OBSERVATIONS on the preceding PROCESS.

1. These Salts are neither acrid, nor igneous, but are a saline Compound of an Oil closely united by the Fire with an acrid *Alkali*; and they differ from an acrid, *alkaline*, caustic Salt, in Proportion, as the Herb undergoes a longer Ustulation, and as the Air is kept from them during the Operation. And by these Means their medicinal Virtues too, are increased in Proportion.

2. They are not, therefore, in their Nature so contrary to an Acid, as to destroy so great a Quantity of it, as pure *Alkalies*. If they are properly prepared, they may in some Measure supply the Want of sea and fossile Salt for the common Uses of Life, as has been observed before from Varro.

3. If these Salts are put into open Vessels, and are exposed to the external Air for a considerable Time, they will attract the Water from the Air and liquefy; but slower, and with more Difficulty, than a pure *Alkali*; but in Water they dissolve immediately.

4. They will readily mix with all the Humours of the human Body, even with the oily Parts and the inspissated Bile by the Assistance of the vital Heat, and the Action of the circulating Fluids.

5. Hence they are capable of penetrating into the sanguiferous, serous, lactiferous, lymphatic, urinary, sudoriferous, and bilious Vessels; but they cannot penetrate into the Nerves.

6. When they are mixed, and diluted with the animal Fluids, they are able, by the Concurrence of the natural Heat, and vital Actions, to resolve the principal Concretions that are formed in our Humours; especially, if they are assisted by Friction, Riding, or other suitable Exercise. They will not however dissolve Stones in the Body, as a Menstruum, but will wear them away, by the mechanical Motion, and Attrition, which they increase in the Body, and determine particularly to the urinary Passages. Disorders in the Juices of the Nerves, however, they cannot reach, and therefore are not capable of curing a genuine Gout; otherwise, when they are diluted with warm Water, and assisted with Motion, they become considerably penetrating, even into the most intimate Parts of the Body.

7. When these Salts are received amongst, and mixed with our Humours, they there act with an Acrimony which is not destructive, but which however renders the Juices more stimulating than they are in their natural soft and mild State, and hence they irritate the sensible Parts of the Nerves, and stimulate them to the Performance of their Vibrations with a greater Force than usual; and on this Account, they are of great Importance where a Stimulus is wanting in a languid Habit of Body, in slow, hypochondriacal, and hysterical Disorders, and others that arise merely from Inactivity.

8. They therefore produce very considerable Effects, by opening the obstructed Vessels of the Body, both as they agitate the whole nervous System, and, at the same Time, dissolve the concremented Fluids, and by their Weight also, which is greater than that of our native Salts, urge all the animal Functions with a Force greater than that which is usual, without their Assistance.

9. They act therefore by promoting all the Secretions, and Excretions, for at the same Time that they render the Humours sufficiently fluid, and free the Vessels from Obstructions, they exercise a Stimulus both upon the Humours and Vessels at the same Time; and thus they equally excite the true Causes of the Motion of our Fluids through their Vessels, on which depend all the Secretions and Excretions in every particular Part of the Body.

10. Hence it appears, why these Salts are a Sudorific; for since it is certain, that the Sweat naturally contains in it the native Salts of the Body, and deposits them on the external Surface of the Skin, by Means of small Arteries which open there, these Salts, when mixed with the circulating Juices, will readily find a Way to the same excretory Arteries, and bring with them their Power of increasing the Secretions; and this is confirmed by Experiment. These Salts in a particular Manner augment the Discharge of Urine; for the Author of Nature has formed the Kidnies principally to carry off the Salts abounding in the Humours, that it may be evacuated out of the Body, to which otherwise it would prove pernicious. This the Urine, of all our Humours much the saltiest, sufficiently evinces. And hence the Efficacy of these Salts is never more manifest than in their Operation by Urine, and at the same Time purging the Humours from any noxious Impurities with which they are loaded. They help also to forward the Discharge of the harder Excrements by Stool, whilst they resolve them, open the Passages, and stimulate the too tardy Intestines to a quicker Performance of their Offices. In melancholic Cases, attended with considerable Costiveness, we find no Medicines more effectual than these Salts, if directed in a proper Manner, and Quantity, and continued for a sufficient Time. And in this Case, they have this particular Excellence, that when they

are left off, the Intestines continue regularly to discharge their Contents without any remaining Costiveness, which is not the Case with Respect to any other Cathartic whatever. The Liver, Spleen, Gall-bladder, biliary Ducts, and Vena Porta, which together constitute the Laboratory of the bilious System, cannot be more effectually purged and freed from Obstructions, or noxious Humours, than by these Salts. And by this lixivious Soap, the viscid and tenacious Obstructions in the Primæ Viæ, that is, in the Stomach and Intestines, are dissolved, and properly prepared for Excretion, without Danger or Violence; so that upon the Whole by this Means we arrive at that Coction or Preparation of the Humours, recommended by Hippocrates, as necessary to their successful Evacuation.

11. From what has been said upon the Subject of these Salts, it appears, that they are excellent in all chronical Distempers, where there is a mere Torpor, or Inactivity of the Spirits, too great Laxity of the Fibres, and a sluggish Viscidity of the Juices without any Tendency to a putrid Acrimony, an Acidity from a Weakness of the vital Powers, or a Coagulation from a prevailing austere or acid Acrimony. If, therefore, we consider, what a great Number of Diseases depend upon these Causes, we shall be convinced, that many chronical Distempers may be cured by Salts prepared in this Manner, which destroy Acids, and convert them into neutral Salts, which last stimulate the Solids, and dissolve Concretions in the Fluids, by new Properties they acquire the Moment they are rendered neutral. We must not, however, conclude from hence, that these Salts are always salutary, and never noxious; for in Cases where the Humours are putrid, bilious, alcalescent, or are moved with too great Velocity, and hence acquire too much Heat, these Salts only add Oil to the Fire; Nor are they less hurtful to Persons whose Constitutions are so tender, that they are not able to bear the Effect of them; for then the Motion they excite proves destructive. They are also noxious where Salts already abound too much in the Body.

THE METHOD of using these SALTS in MEDICINE.

1. They ought to be exhibited when the Stomach is empty, and has completed the Digestion of the Aliment last taken, and consequently about ten Hours from the last Meal. The Dose ought to be varied, according as the Circumstances of the Patient determine it; but in general they may be taken from four Grains to two Drams, or more, which must be left to the Judgment of the Physician.

2. They should be diluted with a large Quantity of Water, lest, if they should be taken too naked, they should injure the Fauces, Oesophagus, and Stomach. Let a Dram therefore of this Salt be dissolved in nine Ounces of common Water, and then it will in some Measure operate like mineral Waters, which act by a small Quantity of fossile Salt dissolved in a great Deal of pure Water.

3. If the Physician's Intention is to purge, let the Patient take, going to Bed, nine Grains of purified succotrine Aloes made into three Pills; or half a Dram of Pil. Ruf. and the next Morning let him rise early, and walk a little in a coolish Air; taking particular Care not to raise a Sweat, and whilst he is walking, let him take a proper Quantity of these Salts, divided into five or six Doses. The Effect of this will be excellent; for it will purge and take away all Heaviness, without any Diminution of Strength; thus becoming an exceeding proper Remedy for the Costiveness of sedentary learned Men, and extirpating Disorders so deeply rooted, that no other Purges whatever will have any Effect upon them.

4. But if the Intention is to purge the urinary Passages, and sanguiferous Vessels, proceed as is above directed, but omit the Aloes in the Evening; mean Time let the Region of the Loins, and Hypogastrium be kept warmer than the other Parts of the Body, and let the Patient now and then drink a Draught of warm Tea or Coffee.

5. If the Design is to raise a Sweat, let the Patient take these Salts in Bed in a Morning, in the same Manner as before directed, and, after each Dose, let him drink some mild Sudorific, as a Decoction of Burdock-Roots, of the five opening Roots, of Sanders, or Sassafras-wood, Tea, or Coffee; and, being covered with a sufficient Quantity of Clothes, let him promote Sweat according to the Nature of his Distemper.

6. For the Cure of Autumnal Tertians, or Quartans, purge two or three Days successively, according to the Rules laid down above. Then about four Hours before the Fit is expected, let a gentle Sweat be raised in the Manner just now directed, taking Care that the Sweat may be the greatest about the Time of the Access of the Fit. In this Manner very obstinate Intermittents are happily cured. And, in this Respect, a Lixivium of these Salts excels even the Acidulæ, and Spaw Waters.

These Salts may as easily be procured from a dry Vegetable, and indeed, with something less Trouble; if, however, the Plant is so old and dry, as to be carious, it will yield little or no Salt.

Boerhaave is of Opinion, as I observed before, that it is of no Importance from what Plant this Salt is prepared, because, according to his Sentiments, Plants thus treated lose their proper Nature, and do not in the least preserve their specific Properties. But as so large a Portion of the vegetable Oil adheres to Salts prepared in this Manner, these above all the *alkaline* Tribe should seem to be in some Degree impregnated with the Virtues of the Parent-Plant. I will not however be positive, that they actually do retain the medicinal Qualities of the Vegetable they are prepared from; but I will venture to affirm that the fixed *Alkaline Salts* of different Plants vary both in Respect to their Effects as Remedies, and their Action upon other Bodies in chymical Operations, that require great Accuracy.

Rosemary is in the preceding Process given for an Example, but a Salt may by the same Management be procured from most Vegetables. There are, however, some preferable to others. Those which I should make Choice of, for medicinal Purposes, are Wormwood, Broom, Bean stalks, Mint, Carduus Benedictus, and all of the Thistle Kind.

The above-described Method of making fixed Salts from Vegetables with a View to Medicine, is much preferable to that commonly pursued, on many Accounts, for as the Oil is preserved in some Measure, they must necessarily be more saponaceous, and consequently more resolvent; they are also less acrid.

The common Way of making fixed Salts is by burning the Vegetable freed from the Dirt that adheres to it, in an open Fire, to white Ashes; these are then boiled in Water, till all their Salts are dissolved; this Water is filtered, and after that evaporated to Dryness, taking Care, especially at the latter Part of the Process, to keep the Lixivium continually stirring; what remains in the Vessel after Evaporation, is the fixed *Alkaline Salt* of the Plant, which may be again dissolved, filtered, and then evaporated to Dryness; and by this Means the Salt may be rendered more white and beautiful, but at the same Time much worse for medicinal Uses, because by every Solution, and Filtration, it loses some of its adhering Oil, which gives it a brown Colour. Those therefore who boast of the Whiteness and Beauty of these Salts, either intend a Fraud, or are ignorant of their real Virtues.

The SEPARATION of a BITTER, CRYSTALLINE, HARD, FIXED SALT; that is SUBVITRESCENT, and not ALKALINE, from a FIXED ALKALINE SALT.

Take six Pounds of the best Pot-ash, and dissolve it in twenty Pints of cold Rain-water in a glass Vessel, stir them well with a Stick, and then let them stand quiet. When the Parts not dissoluble have sufficiently subsided, pour off gently the clear Lixivium, and there will be found at the Bottom with the Fæces a great Number of very small Grains, of an Ash-colour, and bitter Taste, which have almost the Hardness and Brittleness of Glass, and in which nothing of an *Alkali* can be discovered. There is another Method of separating these crystalline Globules, as follows: Take six Pounds of the best Pot-ash, and dissolve them in a brass Kettle, by boiling them with four Times their Weight of Water. Strain this Lixivium, whilst boiling hot, through a linnen Bag, that it may be perfectly pure whilst it continues very hot. Put it then into a hot, moist, clean, glass Vessel, and so leave it. Immediately a Crust somewhat opaque, of a brownish-ash Colour, begins to fix to the Bottom and Sides of the Vessel, which increases, and grows thicker continually. When the Lixivium has stood thus for some Time, and ceases to deposit any more of this Salt, pour off accurately all the pure Lixivium, and at the Bottom there remains a Salt, like that procured by the former Method, but purer, and in a larger Quantity. Take the Lixivium thus freed from this Salt, and inspissate a little; and set it by, it will then yield perhaps a small Quantity of the same Kind of Salt, but it will afterwards produce no more, so that the *Alkaline Salt* contains but a certain limited Quantity of this Salt.

If the Salt separated in this Manner, is agitated with cold Rain-water, it will not be dissolved by it, but the *Alkali* that adheres to it, will be thoroughly washed away, so that by this Means it will become perfectly pure; and if then gently dried, it will be simple, and may be preserved so.

REMARKS.

1. Many skilful Chymists have formerly asserted, that true fixed *Alkaline Salts*, can scarcely be reduced to crystalline Globes; and this is in a great Measure true. When the more modern Chymists, therefore, have produced the Salt thus separated from an *Alkali*, as an *Alkaline Salt* crystallized, they have not distinguished so accurately as they should have done; and in Fact when an *Alkali* is well freed from this Salt, it is not easy to reduce it into Crystals, though even that is possible.

THE NATURE and QUALITIES of this SALT.

This Salt never spontaneously liquefies in the Air. In cold Water it does not dissolve readily. But in a large Quantity of boiling Water it will at last be dissolved; but as soon as ever the

Water grows cold, it concretes again into Globules. It is hard, and brittle, and may be reduced to a fine Kind of mealy Powder, which will remain dry, and will not in the least attract the Moisture of the Air. It has an exceeding bitter Taste, which continues long in the Mouth. In the Fire it crackles, and flies about with some Violence. It is neither Acid, nor *Alkaline*, neither is it like any other Salt that we are hitherto acquainted with, but a perfect new Kind of Salt. It seems, however, to approach nearest the Nature of that Salt which is thrown up in making of Glass; and, being collected at the Top, goes by the Name of the *Gall of Glass*. It is possible that the Fire, whilst it produces the *Alkali* from Vegetables, generates this Salt at the same Time; and that the Fire, when it combines the *Alkali* with the Calx of Flints, for the Production of Glass, separates again this Salt, and casts it on the Surface of the Metal. It is very probable, that this may be the Case. And hence we may in some Measure understand why no such Salts can be procured from the *Alkaline Salt* of Tartar; for Tartar is generated in exceeding fine Particles from a subtilly fermented Liquor.

3. A fixed *Alkaline Salt*, when it is perfectly freed from this brittle, bitter Salt, differs entirely from the same when united with it. Whenever, therefore, any Experiment is to be made with a pure *Alkaline Salt*, Care must be taken always first to separate this from it; otherwise it often impairs, or interferes, with the true *Alkaline* Virtue of Salt. *Boerhaave's Chymistry*.

SOME OBSERVATIONS ON fixed ALKALINE SALTS.

1. Fixed vegetable Salts are procured only by Fire, from Vegetables that are naturally fitted for their Production. Some Plants, when they are burnt, scarcely yield any of this Salt: And even those that are naturally disposed to do it, if they are exposed for a considerable Time to the Air, and undergo alternately repeated Vicissitudes of Moistness, and Dryness, lose at last all that Matter, which, by burning, would have produced an *Alkaline Salt*, and therefore, if they are then burnt, they yield none at all: For the Air perpetually changing, with respect to Moisture and Heat, acts upon Vegetables, and deprives them of that Matter which they otherwise yield by Decoction and Infusion, and disperses it in the Atmosphere, and by this teaches us, that the Part, which the Fire fixes into an *Alkaline Salt*, was spontaneously volatile in its own Nature.

2. Again, fixed, *alkaline*, vegetable Salts, are generated only by Fire, whilst it actually consumes Plants that are disposed for this Operation: For in the Matter which Vegetables yield by Infusion, and Decoction, and native vegetable Salts, no such Thing appears: But they are only generated by a burning Fire. And here also it is observable, that according to the different Degrees of Fire, and Duration of its Action, the Salt is rendered proportionably more or less strong, fixed, and *Alkaline*. It must, however, be confessed, that in Mustard-Seed, there naturally exists somewhat *alkaline*, as appears by its Effervescence with Acids; but this is volatile, and disappears when the Mustard-Seed comes to be burnt.

3. A fixed *Alkaline Salt*, therefore, is not a native, vegetable Salt, that is, a Salt-generated by the specific Nature of a Vegetable, from the common nutritious Juices it receives from the Earth, and which of consequence will always remain in it, so long as it is left to itself, and suffers no Violence sufficient to alter its natural Disposition. But this is destroyed by the Fire, and is converted into something of a quite different Nature. The larger Garden-sorrel abounds with a native, acid Salt; and yet, if this is burnt in an open Fire, it yields a fixed *Alkaline Salt*, though before it evidently contained an Acid. This *Alkali*, therefore, is not native to Plants, but is changed by the Fire, from one that was not an *Alkali*, to an *Alkali*.

4. From what has been said, the Nature of an *alkalescent* Vegetable may be understood: For by this Name are meant, first, such as abound with an acrid, and almost *Alkaline* Juice, affording a volatile, odorous Exhalation, for which Garlic, Onions, and others of the like Kind, are remarkable. Secondly, those that, by their acrimonious Stimulus, increase the Velocity of our Humours, as they circulate through the Vessels, and by this Means cause our native Salts to verge towards an *Alkaline* Putrefaction. Hence the most acrid Aromatics, though not in themselves really *alkaline*, dispose, however, our native Salts to an *Alkaline* Putrefaction. And, thirdly, those which by Fire yield a large Quantity of a fixed, *Alkaline Salt*.

5. Betwixt a native, vegetable Salt, therefore, and the most acrid, *alkaline*, fixed Salt, there are a great many Degrees of fixed Salts, all which differ in their physical Actions, and consequently in their Natures, these ought then to be carefully distinguished from each other. An Example will make the Meaning of this more obvious. Take the best Rhenish Tartar: This is the native Salt of the Wine, perfectly acid, and in some Measure sharp, and hence of infinite Use in *alkalescent*, bilious, putrid Distempers; if this is distilled in a glass Retort, with a gentle Fire, it yields a small Quantity of an aqueous, acidish, light Liquor, which allays Thirst. When this is drawn off, the Substance that remains in the Retort begins to be *alkaline*, and will make a Man hot and thirsty. Urge the Remainder

with

with a Fire somewhat stronger, there will then arise a fragrant, penetrating, bitter, heating Oil, of a golden Colour. This being separated, the remaining Mass will appear black, will be more *Alcaline*, will heat the Body more, create a greater Thirst, and, being boiled with Spirit of Wine, will yield a noble, aperient, detergent, diuretic, anti-hydriopical Medicine. If the Fire is farther increased, a thicker, tenacious, foetid, bitter Oil comes over, and at the Bottom of the Retort, there will be left a very black Coal, which will be much more *Alcaline* than the former. If this is then taken out of the Retort, put into a Crucible, and exposed to an intense naked Fire, a fixed *Alcaline Salt* will at last be produced, which, according to the Strength and Duration of the applied Heat, will be continually changed in all its Properties, becoming constantly more and more acrid, as the Action of the Fire upon it is more intense, and longer continued. In this Case we see a native, acid Salt, rendered at last extremely *Alcaline*, by the Action of Fire only.

6. Three Causes are observed to impart these Differences to *Alcaline Salts*. First, the Proportion of combustible Oil that adheres to the saline Matter; for the greater this is, the less acrid will the *Alkali* be; and if the Quantity of this Oil is less, the Salt will be more acrid. Secondly, the artificial Combination of this Oil with the *Alkali* makes a Difference; for if the Plant is ustulated with such a slow suffocated Fire, as is used in the Preparation of Tachenius's Salt, it will yield a greater Quantity of Salt, but less acrid, and *alcaline*; but if it is burnt hastily in a strong, open Fire, it will produce less Salt, but of a more acrimonious Nature. Thirdly, the proper Action of the Fire itself, seems to add something igneous to the *Alcaline Salt*, whether this arises from the Fixation and Accretion of the very Substance of the Fire to the Salt, or only from a Power which it is endued with of altering the Salt in this Manner. This is beyond Dispute, that the longer Lime is burnt, and the intenser the Fire is that is made use of in the Operation, the more Heat, or the more true Fire it will excite in cold Water. And fixed *Alcaline Salts* also, will generate more Heat in cold Water, as they have been exposed to a greater Torture of Fire during their Preparation. To these Causes, perhaps, a fourth may properly be added, and that is, the original seminal Property of Plants, which is not easily destroyed. One Plant shall yield a great deal of fixed Salt; another, none at all; not that this last naturally contained less Salt than the former, but because it was of such a Nature, that it would not suffer the Matter which constitutes the *Alkali* to be fixed, by the Salt, or the Oil, or Earth, or all together.

7. From what has been said above, we arrive at the Knowledge of the Origin of *Alcaline Salts* in Animals, so far as they regard the Matter of their Food, Drink, and the Air they respire. For Animals that live solely upon pure Water, and Vegetables, take into their Bodies the very Matter, from which *Alcaline Salts* are generated. No-body could naturally suspect, that such an insipid Body, as soft, moist Grass, should, by being burnt, yield an acrid, igneous *Alcaline Salt*. Or who can possibly discover any Thing of this Kind in Ale or Wine? and yet Experience proves that an *Alkali* may be produced from all these. But the Action of the Animal Body brings this latent Matter to Light, and manifests it. A Child that is fed with nothing but sweet, mild, fresh Milk, which does not discover the least Degree of Saltiness, makes constantly a salt, acrid Water, not by actually generating any Salt, but by setting that at Liberty, which before lay concealed. The Urine also of a Bullock, which lives on Vegetables only, is found to be exceeding salt, for the very same Reason. But in Animal Bodies, this Salt is rendered volatile, because it is freed from its fixing Earth, by the Digestion it undergoes in the Stomach, which resembles a sudden Putrefaction. And Putrefaction is known to render the Salts of Plants volatile.

A compendious VIEW of the EFFECTS of fixed ALKALINE SALTS upon the BODY.

1. They soon destroy all the Acid in the Body; for there it meets with but a small Quantity, and that too, a mild, vegetable Acid, only residing in the *Primæ Viæ*, that is, in the Stomach and Intestines.

2. If they meet with an Acid there, they cause an Effervescence, generate Wind, and cause Eructations, stimulate by their Activity, and are converted together with the Acid into a neutral Salt, which then becomes harmless, penetrating, aperient, diaphoretic, diuretic, and antiseptic, and productive of new Effects by Virtue of their Neutralization, which are sometimes attributed improperly to the *Alcaline Salts*, because subsequent to their Exhibition.

3. By Means of this Effervescence they stimulate the Nerves, move the Spirits, and incline both to Motions, different from what they had before. Hence, they often cure the Spasms of hypochondriacal Men, and hysterical Women, and the Distempers depending on them; an Instance of which we see in the celebrated Anti-emetic of Riverius, consisting of an *Alcaline*

Salt mixed with Juice of Lemons, which, if drank in the Act of Effervescence, cures the Cholera Morbus, and stops obstinate Vomiting, which resist all other Methods.

4. They attenuate and resolve whatever is coagulated by an Acid; and hence, when Milk is curdled in the Stomach, they have very good Effects, if prudently administered. They are also capable of resolving other tenacious Concretions.

5. They attenuate glutinous, oily, and fat Concretions, and render them more easily miscible with Water, and hence become Detergents. Fullers, Laundresses, and Dyers, are sensible of this Property in a Lye of these Salts, and therefore they use them to remove viscid, greasy Concretions from Cloths. If moderately used, therefore, they free the chylo-poietic Organs from all glutinous Impurities.

6. They resolve Coagulations of the Bile, Lymph, Blood, and Serum, when admitted into the internal Parts of the Body, and there agitated by the vital Powers.

7. By their acrid Stimulus, they put in Motion Bodies that were before unactive, and hence they provoke Urine, Sweat, and Perspiration, and for this Reason are numbered amongst Diuretics, Diaphoretics, and Sudorifics: The Intestines also they stimulate to a Discharge of their Contents.

8. In Diseases, therefore, attended with unactive, mucous Viscidities; where an Acidity prevails in the Stomach and Intestines from acceft Aliment; where there is a Load of acceft, austere Crudities, manifest by the Coagulations it produces; where a watery Serum, or fat, tenacious Concretions abound; or where Distempers have been generated by these Causes, as the Dropsy, Jaundice, Leucophlegmatia, Gout, Rheumatism, and Scurvy: In these Cases, this Salt is of great Use, if prudently given, that is, well diluted, in small Doses, and those administered at a proper Time, and properly repeated. That Species of Gout which is caused by an abundant Acid, scarcely admits of a more successful Method of Cure, than that which may be performed by a continued Use of these Salts, taken in small Doses. But it does not follow from their Effects in this Case, that they are to be extolled as universal Remedies for the Gout; for they will do a great deal of Prejudice to gouty Patients, whose Bile is exalted into an acrid *Alcalescence*, and whose Humours tend spontaneously to an *Alcaline* Putrefaction.

9. These Salts also are of considerable Use to the Surgeons; for as Caustics they are employed to raise Escars, in order to make Issues; by a temperate Lixivium of these, fordid, putrid Ulcers are successfully mundified; Parts that are corrupted by a Gangrene, if scarified almost to the Quick, and then fomented with a Lixivium of these Salts, contract into a Crust, and then admit of a Separation from the living Part, and by these Means the Mortification is prevented from spreading farther, and a Cure is happily effected; they extirpate Warts also, and eat away small Cancers with Safety; and if sufficiently diluted, they will effectually take away Discolorations or Spots of the Skin.

10. It is however necessary to remark, that the Use of these Salts is highly pernicious in every Disease, where the native animal Salts begin to degenerate into an acrid, *alcalescent*, putrid, volatile Nature; or where the natural Oils of our Bodies are disposed to turn acrid, foetid, putrid, rancid, and volatile, which is manifested by a disagreeable Smell, peculiar to this Kind of Putrefaction, and a Redness of the Urine. But these Salts are particularly destructive, when the Bile is thus degenerated into an acrid *alcaline* Nature, and when the Humours of the Patient are too much dissolved, fluid, and putrid; hence in the Plague they are almost an immediate Poison, and this pernicious Quality is even communicated to the Soap, in which they are an Ingredient. Hence, therefore, in Inflammations, Suppurations, Gangrenes, a Sphacelus, continued putrid Fevers, and Diseases arising from too great a Velocity of the Blood, the internal Use of these Salts must be absolutely forbid.

11. And, indeed, in all Cases they should be used with Caution. Let a Dram of them be dissolved in twenty Times its Weight of Water, and this is the largest Dose that ought ever to be given. Let them be repeated with Circumspection, and let it be carefully observed when the Necessity for their Exhibition ceases. And with these Cautions they may be used successfully, and without Danger. Lastly, let the Effects be determined to particular Parts of the Body, in the Manner specified in the Remarks upon Tachenius's Salt.

Besides the *Alcaline Salts* already taken Notice of, there are others which are volatile, that is, which are capable of being forced by a considerable Heat from the Body which contains them, and which afterwards rise with a very small Degree of Heat. The most remarkable amongst these are animal Salts, which may be procured by Distillation from every animal Substance we are acquainted with. Thus Hartshorn, Bones, Blood, Silk, and Cobwebs yield it in great Plenty. The Analysis of Blood given below under the present Article, may serve for an Example of the Method by which they are separated from the respective Bodies wherein they reside; and the Process with the whole Apparatus is specified under the Article CORNU

CERVI, together with their medicinal Virtues, with Respect to which, let it suffice to say in this Place, that they agree pretty much with fixed *Alcaline Salts*, with a Reserve to the Difference which depends on their Volatility.

But there are besides these two Substances which yield a volatile *Alcaline Salt*, very like those which are prepared from animal Bodies. These are almost all those warm pungent Plants, which, if bruised, send forth a Vapour so acrid, that it makes the Eyes water, and will cause Sneezing, if it gets into the Nose. Many of the bulbous Roots possess this Acrimony in a great Degree; as Onions, Garlick, Leeks, Squills, Hyacinths, and the Narcissus; and the Seeds of a great many of the *alcalescent* Plants, a Catalogue of which will be given in this Article, abound with it.

The other Body which yields a volatile *alcaline Salt*, is almost any soft, juicy, vegetable Substance, which has undergone Putrefaction.

The following Process may serve for an Example of the Method by which volatile *Alcaline Salts* are procured from acrid Vegetables:

Fill a glass Retort almost to the Neck with ripe Mustard-seed, lute on a large clean glass Receiver, and distil gradually with a Sand-heat. The first Fluid that comes over, is oily, and yellowish, and, when collected by itself, is limpid and acrid. Increase the Fire, and there arises another Spirit like the former, but more yellow, and with a light and a very pinguious Oil. These also, if saved by themselves, are very acrid. Lute on the Receiver again, after it has been cleared of the last-mentioned Liquor, increase the Fire underneath, and at the same Time lay live Coals upon the Sand above, and by this Degree of Heat there will ascend from the remaining Mass a light black Oil in a large Quantity, and, at the same Time, an oily, *alcaline*, volatile Salt will stick upon the Sides of the Receiver, collected into little Spots, as it happens in the Distillation of Hartshorn. If this Degree of Heat is sustained for a considerable Time, white Fumes will continue to come over perpetually. A very black Mass will remain at the Bottom of the Retort, which is light and bitter, but not in the least salt.

Distil again in a clean Vessel, by a gentle Heat, the first and second Spirit which came over, and you will have in the Receiver a limpid acrid Liquor, not unlike Spirit of Hartshorn, and of much the same Virtues. A foetid oily Water will remain in the Retort.

Separate the Oil from the Liquor which ascended last, and from the Salt, and wash off the Salt which adhered to the Sides of the Glass with the last-mentioned rectified Spirit, and a Liquor will be obtained abounding with a volatile *Alcaline Salt*, which makes a considerable Effervescence with *Acids*, and which by Distillation with a gentle Heat, out of a tall Vessel, yields a pure volatile Salt, little different from Salt of Hartshorn, after Rectification.

Dr. Daniel Cox gives the following Account of the volatile *Alcaline Salts*, procured from putrefied Vegetables:

Take in warm Weather a considerable Quantity of the Leaves of any Vegetable, stripped or pulled from the greater Stalks, lay it on a Heap pressing it pretty close together; they will soon become very hot, especially in the Middle, and in a few Days resolve into a pappy Substance (excepting the outward Leaves) which being made into Pellets, and put into a glass Retort, and distilled, will yield, besides a great Quantity of Liquor, much thick black Oil, of a balsamic Consistence. The Liquor being separated from the Oil, and distilled in a tall glass Body, a volatile Spirit sublimes, which, after one, two, or three Rectifications, becomes perfectly urinous, not to be distinguished by Smell, or Taste, from well-rectified Spirit of Hartshorn, Blood, Urine, or Sal Ammoniac.

I never made Trial of any Herb, which, thus ordered, did not yield the mentioned Substances; although I have examined many, by this Method of Procedure, which seemed very different from each other, as well in sensible Qualities, as those vulgarly called *Occult*; such as Rue, Sage, both Celandines, Carduus Benedictus, Tobacco, stinking Orach, Garden Scurvy-grass, the lesser Spurge, Baum, Mint, Tanfy, Camomil, Monk's Rhubarb, several Docks and even common Grass, with many others, which it were altogether unnecessary to enumerate; besides Flowers of Elder, Pæony, Cowslips, Clove Gilliflowers, &c. with several Sorts of Mosses, and Rudiments of Vegetation; which last is a green Substance on the Surface of the Earth, in Rivers, Cisterns where Rain often falls, and on Ships between Wind and Water, very apt to run into Moss and Fibres.

1. The Vessels wherein these Distillations were performed, though exceedingly well washed with Water, scoured with common Salt, Sand, Ashes, Soap, fixed Salt, &c. and afterwards exposed many Years to the Air, Wind, Rain, Dews, and Frosts, yet nevertheless retained a very strong Smell, not much unlike that of Musk.

2. The Water left at the Bottom of the Glass, after the first

Rectification, was somewhat acetous; especially when the Herbs were not sufficiently putrefied.

3. If the Herbs are duly putrefied, they leave little Caput Mortuum, sometimes not a twentieth, and never, by my Trials, above a tenth Part; whereas distilled before Putrefaction, they leave much more; and this remaining Coal, burnt to Ashes, yields scarce any *Alkali* or fixed Salt.

4. The volatile Salt is much more than the fixed Salt would have been, afforded by the Herb incinerated the ordinary Way.

5. All those Herbs which yield Store of fixed Salt, such as Wormwood, Carduus, Mugwort, Sage, &c. do likewise, being thus managed, afford plentifully a volatile Salt.

6. These volatile Salts being highly rectified, did not, that I could perceive, differ from each other; as neither do vinous Spirits of putrefied Vegetables, or their fixed Salts highly purified and rectified.

7. During the Putrefaction, the Room would be strongly perfumed, at the Beginning, with the natural Scent of the Herb, if it had any eminently peculiar Smell, in the Middle of the Putrefaction with the Scent of a Mixt between that and the urinous; but, being well putrefied, became sensibly urinous.

8. The distilled Liquor of some Herbs, at the first Rectification, yielded a Spirit very hot; but the last inclined rather to that of pungent vinous Spirit of Scurvy-grass, Horfe-radish, &c. being, if I may so speak, Piperaceous, and biting, rather than like volatile Salts; but, after repeated Rectifications, one, two, or more, according to the Nature of the Plant, or Time it had putrefied, became perfectly urinous. This was usually when the Herbs had not duly putrefied, which proceeded, in my Apprehension, from some Commixture of essential Oil, which, by reiterated Rectifications, is either separated or transmuted. The same happens in the vinous Spirits of putrefied Vegetables, and in their fixed Salts.

9. In the Distillation of the putrefied Herbs, the urinous Spirits and Salts came chiefly at the latter End with the Oil, in the Form of a thick white Cloud, or Fumes, and, condensing in the Recipient, formed an innumerable Company of very irregular crooked Rivulets, exactly after the Manner of Hartshorn, Blood, &c. and at the Beginning came the Phlegm, with most of the Acetum, in great Drops with little Fume, and the Rivulets strait, and without Striae and Wanderings.

10. Some Herbs, as Winter-favory, Sage, &c. in the first Distillation, yielded copiously a volatile Salt in a dry Form, which coated the Receiver, and sublimed into the Neck of the Retort; so doth Tobacco, and once Saffron did so, in Digestion with Spirit of Wine.

11. All Plants, thus putrefied, yielded plentifully (especially towards the latter End of the Distillation) a foetid gross Oil, which, if the Herb was well putrefied, did not in the least resemble the Plant which produced it. I could hardly perceive that they differed from each other in either Taste or Smell, only, if the Plant was not thoroughly putrefied, an Oil would come over at the Beginning of the Distillation, which, as also the Water, would retain exactly the Taste and Smell of the Vegetable which afforded it, and it would be fluid and transparent like other essential Oils. The Oil of Herbs very well putrefied came over chiefly at last, and did require a very strong Fire to extricate it out of the Herb; was mostly (especially that which comes last of all) of the Colour and Consistence of Tar, very tenacious, and did far and wide emit a very odd, faint, foetid, offensive Odour. If any Thing became infected by this Oil, it was not to be freed from it in a long Time.

12. Herbs, which are distilled in an Alembic with Water, yield little essential Oil, as Baum, Mint, Camomil, &c. afford much of it thus putrefied; and those that give much essential Oil, as Wormwood, with many others, being putrefied, yield abundantly more.

13. During Putrefaction, the Herbs became exceedingly hot, especially those that were closely compressed, and had Store of Moisture in them; so that I could as well detain my Hand in the Flame of an ordinary Fire, as in the Midst of them.

14. Fatty, moist, and insipid Herbs putrefy much sooner, and with greater Heat, as Grass, Docks, Garden Scurvy-grass, Celandine, &c. Drier, and much more sapid Plants, more leisurely, and with less Heat, as Winter-favory, Rosemary, Sage, Rue, Mint. The Stalks of no Herb putrefy so soon as the Leaves freed from them. This is most evident in Docks, whose tender Parts are pappy and mucilaginous, when the Stalks are intire.

15. Herbs seem by this Putrefaction to be deprived of all their specifical or peculiar Properties. Celandine loses its tingeing Quality; Spurge, its Milk, vesicating and poisonous Nature, &c.

16. Herbs, which before Putrefaction were extremely foetid, as Atriplex Olida, &c. become afterwards either inodorous, or not ill-scented. And, on the Contrary, Monk's Rhubarb, Garden Scurvy-grass, with many other inodorous Vegetables, during

ing Putrefaction, become abominably, and almost insupportably foetid, like the worst of Excrements, all which yet they lost immediately upon Distillation.

17. None of those Flowers, I have hitherto used, do stink in Putrefaction.

18. Many of the Herbs, thus putrefied, swarm with Maggots (an Argument of the close and stedfast Contexture of the seminal Principles in Insects) especially at the Bottom, and in the Middle, whither Flies and other Insects can have no Access, to deposite their Eggs, and where the Heat is so violent, that they could not possibly subsist.

19. Yet the volatile Spirit and Salt is not afforded by these Insects; for, having distilled separately a great Quantity of them, they yielded no volatile Salt or Spirit, but a Liquor of a very different Nature.

20. Herbs, putrefied in a great Glass with a narrow Neck, the Mouth left open; in a few Weeks became, for the greater Part, a Mucilage; and, distilled a Year after they had stood so open, yielded a little urinous Spirit, but not a Drop of Oil.

21. Vegetables, if the external Air be excluded from them, will not putrefy or ferment.

22. Some Herbs, Mosses, and Rudiments of Vegetation, yield a volatile Salt, distilled without previous Putrefaction; as do also many Seeds, and several of them sufficiently insipid.

23. These volatile Spirits and Salts have not only the same sensible Properties, but also agree in all known Effects, and Operations, with common urinous Spirits, and Salts; as, in the changing Syrup of Violets, and many other vegetable Tinctures, green, in being diaphoretic, diuretic, and deobstruent, contrary to Acids, which they do mortify, precipitate all Metals and Minerals dissolved in acid Menstruums; being highly rectified, and mixed with perfectly dephlegmated Spirit of Wine, strike the *Offa alba*, as Chymists speak. They unite with Acids, and thereby become Ammoniac or neutral Salts; and, indeed, perform whatsoever can be expected, or desired, from the common urinous Spirits of Salts: *Phil. Trans. Abr. Vol. 3.*

DISEASES generated by an ALCALI abounding in the HUMOURS.

What has been specified above with Respect to *Alcalies*, will lead us to a Knowledge of the Nature of *alcalescent* Aliments, and their Effects upon the Body in altering the Juices so as to be productive of Distempers. A Knowledge of infinite Importance to every Body concerned in the Practice of any Branch of Physic, because every Fever, or febrile Disease, is either caused by, or accompanied with a Tendency to an *alcaline* Putrefaction. And many chronical Disorders, which depend upon the Vitiations of particular Parts, owe many of their Symptoms to this *Alcalescence*.

Aliments are taken either from the animal or vegetable Kingdom. Of vegetable Aliments, the Juices of some, if exposed for a Time to a Heat sufficient, will turn sour, and these have been called *acescent Vegetables*.

But there is a considerable Class of Plants, which do not become acid by Putrefaction, but are resolved into a foetid oily *Alcali*. And from these, it is remarkable, that no vinous Spirit can be produced by Fermentation; for Fermentation is only an Effort to render vegetable Juices acid, or rather to disentangle the latent Acid, and separate it from the Oil and Earth, that confine and disguise it.

To this Class belong almost all the very acrid Aromatics, which by the Pungency of their Taste betray their Family. These are seldom taken in Quantities sufficient to produce a Disease by their own Power, but are however capable of promoting any preceding Tendency in the Juices to an *Alcalescence*, and heightening it into a Distemper. Physicians should therefore be careful how they prescribe the warm Antiscorbutics, because when any Degree of the above-mentioned *Alcalescence* prevails in the Juices, these will not fail to increase it by their Use, and if long continued, the Patient will run a great Hazard of incurring a Putrefaction of the Lungs, Liver, or some of the principal Viscera, which according to the Part thus affected will be attended with a foetid Breath, Spitting of Blood, a putrid Diarrhoea, Dropsy, or hepatic Flux.

Amongst *alcalescent* Vegetables, Boerhaave enumerates the following:

<i>Abstinium</i>	Wormwood
<i>Alliaria</i>	Sawce all alone, or Jack by the Hedge.
<i>Allium</i>	Garlick.
<i>Alyssum</i>	Mad-Wort.
<i>Armoracia</i>	Wild Radish.
<i>Arum</i>	Cuckow-Pint.
<i>Atriplex Olida</i>	Sinking Orache.
<i>Asparagus</i>	Sparrow Grass.

Barbarea
Brassica
Bryonia Alba
Nigra
Bunium
Camelina
Capficum
Cardiaca
Cardamine
Cataputia
Centaurium minus
Chamaedrus
Chelidonium majus
minus
Cochlearia
Cepae
Dentillaria
Digitalis
Eruca
Erysimum
Esula
Eupatorium Canabinum
Gratiola
Iberis
Laureola
Lepidium
Napus
Nasturtium Aquaticum
Hortense
Nerion
Perficaria acris
Porrum
Raphanus
Ruta
Sabina
Satureia
Sedum minus acre
Sinapi
Squilla
Thlaspi
Victorialis

Winter Cresses.
 Cabbage.
 White Bryony.
 Black Bryony.
 Wild Parsley.
 Treacle Wormseed.
 Guinea Pepper.
 Motherwort.
 Meadow Cresses.
 Garden Spurge.
 Lesser Centaury.
 Germander.
 Greater Celandine.
 Lesser Celandine.
 Scurvy-Grass.
 Onions.
 Lead Wort.
 Foxglove.
 Rocket.
 Hedge-Mustard.
 Spurge.
 Hemp Agrimony.
 Hedge-Hyffop.
 Sciatica-Cresses.
 Spurge Laurel.
 Dittander.
 Navew Gentle.
 Water Cresses.
 Garden Cresses.
 Oleander, or Rose Bay.
 Water Pepper, or Arsmart.
 Leek.
 Radish.
 Rue.
 Savin.
 Savory.
 Wall Pepper, or Stonecrop.
 Mustard.
 Squill.
 Treacle Mustard.
 Spotted Ramsons.

Many of these are not proper for Aliment, as abounding so much with an *alcalescent* Acrimony, that it renders them poisonous. Besides the Vegetables above-mentioned, there are many others which properly belong to this Class.

All animal Foods have a spontaneous Tendency to an *alcaline* Putrefaction; the Milk of some Animals only excepted. This is obvious to every one who has observed Flesh, when exposed to a certain Degree of Heat, to putrefy and become foetid. But animal Foods differ very much:

- First, With Respect to the Parts of the same Animal.
- Secondly, With Respect to the Food of the Animal.
- Thirdly, With Respect to the habitual Exercise of the Animal.
- Fourthly, With Respect to the Manner of its being killed.
- Fifthly, With Respect to the Season of the Year, or Climate in which it is eaten.

I. With Respect to the different Parts of the same Animal, Milk differs very much from all the other Parts, especially that of such Animals as live on Vegetables only, and Water; thus the Milk of the Ass, Goat, Cow, Mare, and Sheep, are *acescent*, that is, turn sour upon Putrefaction, like *acescent* vegetable Juices, from whence it is prepared, and not yet perfectly converted into an animal Substance, by the Powers of Digestion. And this Milk will acquire a Difference from the Sort of Vegetable, which the Animal that affords it principally feeds on.

The Entrails of Animals also differ from the muscular Parts, and have a greater Tendency to Putrefaction, as being more full of Juices, and of these Juices some incline more to Putrefaction than others. Thus we find, when an Animal dies, the Abdomen and its Contents putrefy first.

The Blood also is more subject to Putrefaction than the solid Parts, and promotes Putrefaction in the Solids where it abounds. Hence, the more animal Aliment is cleared of Blood, the lesser subject will it be to produce an *Alcaline Acrimony* in the Stomach and Intestines, and an *Alcalescence* in the Juices of another Animal that eats it.

II. With Respect to the Food of Animals, those which live on Grass, or other *acescent* Vegetables, on ripe Fruits, or Corn, are furnished with Juices less inclinable to Putrefaction than other Animals, abound less with volatile *Alcaline Salts*, and these Salts are less volatilised, and exalted. Hence upon Putrefaction they are less foetid, and offensive. Of this Sort are the following Animals:

The Lamb, and Sheep,
 The Calf, Cow, and Ox.

The Kid, and Goat, especially when young.

The Rabbit.

Swine, provided they are fed with Vegetables only. See the Article PORCUS.

The tame Duck, if fed with Corn only.

The tame Goose, if fed with the same.

Hens of all Sorts.

Turkeys.

Tame Partridges.

Tame Pheasants.

The Quail.

But all Animals which feed principally on other Animals, or Insects, have Juices which abound with a highly exalted volatile *Alkali*, having undergone a Sort of double, and sometimes triple Sublimation, or Rectification, first in the Organs of the Animal which serves for Food, and secondly in those of the Animal which feeds on it.

III. Animal Foods differ with Respect to their habitual Exercise, for strong Exercise, long continued, exalts the volatile Salts of Animals, and makes them approach to a State of Putrefaction.

The following Animals, used commonly for Food, abound with a volatile Salt, exalted either by their Food, Exercise, or both.

Deer, both red and fallow, by Reason of their habitual Exercise, though they feed on Vegetables.

The Hare, for the same Reason.

The wild Boar, for the same Reason.

Pigeons in some Degree, because of their habitual Exercise.

The Lark, both because of its Exercise, and Food, which is principally of Insects.

The wild Duck, both because of its Exercise, and Food, which consists much of small Fish, Frogs, and aquatic Insects. This is also true of all the Duck Species.

The wild Goose, Solan Goose, and all of the Goose Species, for the same Reason.

The wild Swan, or Elk, for the same Reason.

The Bittern, because of its Food, consisting principally of Fish, and Frogs.

The Woodcock, because of the great Exercise it is used to.

The Snipe, for the same Reason; and in general all Birds of Passage, very few excepted.

The Plover, and Lapwing, both because of their Food, which is principally of Insects, and their Exercise.

The wild Pheasant, because of its Food, which consists principally of Ants.

The Sparrow, and all small Birds which feed partly on Insects, partly on Vegetables, and use much Exercise, have Juices proportionably *alkalescent*.

IV. Animal Food is more or less *alkalescent*, with Respect to the Manner in which it is killed. Thus if an Animal is killed whilst very hot with strong Exercise, or soon after, the Tendency to Putrefaction in the Juices will be very much increased; inasmuch that an Ox, or Sheep, killed in such a Manner, will be as subject to Putrefaction as an Animal whose Juices are naturally more *alkalescent*, but killed whilst perfectly cool. Hence Deer, and Hares that are hunted, and Birds killed by hawking after a long Flight, contract an immediate Tenderness, which is the first Stage of Putrefaction.

Animals also which are shot, strangled, or killed in any Manner which prevents their Bleeding, are more subject to an *alkaline* Putrefaction, than those which are suffered to bleed freely. Of this the nice Judges of culinary Arts are so sensible, that they frequently kill Fowl by strangling them, in order to exalt their Taste, or, which is the same Thing, increase their Tendency to Putrefaction.

V. The Climate, or Season, makes a Difference in animal Food, because Putrefaction is always in Proportion to Heat, and consequently the Juices of the same Animal will be more disposed to an *alkaline* Putrefaction in warm Climates and Seasons, than in those which are cold.

Hence the Inhabitants of very hot Climates are obliged to use animal Food sparingly; and through a Neglect of this Consideration it is, perhaps, that many of the Northern Europeans, who travel far to the South, contract Calentures, and putrid Fevers. I am also persuaded, that the indiscriminate Use of animal Food in the hottest Summers, and coldest Winters, is productive of many acute Distempers and Deaths in England.

Most Sorts of Insects are highly *alkalescent*.

Fish of all Kinds are *alkalescent*, and that in a very high Degree. Those of fresh Lakes and Rivers, however, are less so, than Sea Fish; and again, the softer Sort of Fish without Scales are observed to incline sooner, and more, than those furnished with Scales, to an *alkaline* Putrefaction; and Shell-Fish most of all.

And it may be laid down as a certain Rule, that of all Sorts of Animals, whether terrestrial, or aquatic, those which putrefy soonest, and become most offensive when putrid, incline

the Juices of our Bodies most to an *alkaline* Putrefaction, when used as Food. And indeed some of them are not to be eaten safely for this Reason, without Vinegar, Salt, or *acescent* vegetable Liquors.

From what has been said under the preceding Articles in Relation to the *Alcalescence* of animal Aliments, and what is specified under the Article PORCUS, one Reason at least will appear, why it pleased the Supreme Being to forbid the Jews, a People that inhabited a very warm Climate, the Use of many Sorts of Animals as Food; and why they were enjoined to take away a great deal of Blood from those they were allowed to eat.

It would be prudent if we, though Inhabitants of a colder Climate, would however believe, that he who cannot err has consulted our temporal Welfare in every positive Injunction he has laid upon us, though the Reasons for it may not always be very obvious; for this would surely incline us by Acts of implicit Obedience to secure to ourselves Happiness and Health.

But that I may set the Advantages, accruing to the Children of Israel from these Prohibitions, in a stronger Light, I shall make the following Observations on the Foods they were forbid to use, with this further Remark, that if we, even in our cold Climate, would conform to the Rules laid down by the wise Legislator of the Jews, Longevity would be more frequent amongst us, as we should be much less subject to be affected by epidemical Distempers, and acute Diseases of all Sorts, which carry off at least two Thirds of Mankind. Nor would chronic Affections perhaps be so terrible, and difficult to conquer, as they are found to be at present.

It must be remembered, that the Climate, in which the Children of Israel lived, was very hot; and that therefore every Species of Aliment which is improper to be eaten in our Climate, on Account of its Tendency to an *Alkaline* Putrefaction, was much more pernicious in the warm Country inhabited by the Jews.

The Aliments forbidden the Jews were:

Blood. This is extremely subject to an *alkaline* Putrefaction, and the Juices formed from it are highly *alkalescent*, and subject to putrefy. For the same Reason all Animals whatever killed, without being suffered to bleed sufficiently, are improper Food. It is well known to common Observers, that the more succulent, and juicy the Flesh of Animals is, the more subject it is to Putrefaction.

If an Animal has been heated by Hunting, there seems a farther Reason to let it bleed, in order to lessen the Tendency to Putrefaction it acquires by Exercise, and Heat. And thus we find it directed, *Leviticus, Chap. xvii. V. 13.*

And whatsoever Man there be of the Children of Israel, or of the Strangers that sojourn among you, which hunteth or catcheth any Beast, or Fowl which may be eaten; he shall even pour out the Blood thereof, and cover it with Dust.

Animals which die of themselves are unwholesome, both as they do not bleed, and as their Juices are generally in an actual State of Putrefaction, or near it, before they die. And we find the Flesh of such Animals forbid in the above quoted Chapter, Verse the 15th.

גמל Gamal. — The Camel. Though the Food of this Animal is only Vegetables, and Water, yet the Fibres are hardened, and rendered in a great Measure indigestible, and the Salts are highly exalted by its habitual Exercise.

שפן Shaphan. — The Coney, as we translate it, but Bochart in his *Hierozoicon* says, it is a large Species of Rat, and others call it a Mountain Rat. Thus, *Proverbs, C. xxx. V. 26.* *שפנים* are said to make their Houses in the Rocks.

As the general Food of all Creatures of the Rat Species is Animal, their Juices must be consequently much inclined to an *alkaline* Putrefaction, and therefore their Flesh must be unwholesome.

ארנבת Arnebeth. — The Hare. The Animal we call thus is certainly meant in this Place; the Septuagint translates it by *daurates*, and with this the Syriac and Arabic Versions agree; and thus the Jews understood it, who abstained from eating it, as we learn from Plutarch, *Symposiac. 4. Quest. 5.* and Clemens Alexandrinus, *Pedag. 2. 10.*

The Hare is remarkable for being extremely timorous, and this makes it use a great deal of Exercise by way of Precaution, when he goes to seek his Food, and at the Approach of any Danger, either real, or imaginary; this habitual Exercise probably contributes to the Exaltation of the Salts. We find in Effect that the Hare has a very high Taste, even in our cold Climate; and this high Taste universally is an Evidence, that the animal Flesh which gives it is strongly inclined to an *alkaline* Putrefaction. It is remarkable that the old Britons abstained religiously from eating Hare, as we learn from Cæsar, *de Bello Gallico, L. 5.*

חזיר Haxir. — The Swine. This Animal is remarkable for Filthiness, and feeding on all Manner of Ordure, even Carrion if it falls in his Way. It is the only Animal in the Brute-
Creation

Creation subject to the Leprosy; and also something very like what we call the King's-Evil, called in Latin *Scrofula*, from *Scrofa*, a Sow; as this Disease is in Greek called *Σκροfula*, from *Σκροfula*, a Swine. The Measles is another filthy and contagious Disease which this Brute is frequently infected with, inasmuch that it has passed into a Proverb, as we learn from Juvenal, who calls it *Porrigio*. In this Distemper, all the fleshy Parts are full of innumerable small, round, white, and hard Substances somewhat like Hail Stones.

Hence it must appear to every reasonable Observer, that the Flesh of this Beast, as an Aliment, must be highly improper for a People so subject to Leprosies, as the Jews appear to have been, and who were Inhabitants of a warm Climate, which renders every Thing more inclinable to Putrefaction.

All BEASTS which do not both divide the Hoof, and chew the Cud.

Under this Prohibition are included all Beasts of Prey, and those which eat Flesh, whose Juices are highly *alcalescent* for Reasons before given. All Animals of the Horse, and Ass Kind, are likewise here prohibited. And we find that the Flesh of all these is difficult to be digested, and assimilated by the vital Powers, and that the Juices are rank and *alcalescent*; perhaps because they are frequently heated by the habitual Exercise they are obliged to use for the Service of Man.

I cannot explain scientifically all the Effects which Chewing the Cud may have upon the Flesh and Juices of the Animal that does it. But it is worthy of Observation, that all Creatures which chew the Cud live on Vegetables and Water only; have a very slow Digestion, spend a great Part of their Time in getting their Food, and the rest either in chewing the Cud, or sleeping; so that it is accidental if they ever use Exercise sufficient to heat themselves, harden their Flesh, and exalt their Salts to any considerable Degree of *Alcalescence*. Of this the Cow, and Sheep are obvious Examples. Deer both chew the Cud, and divide the Hoof; and their Juices are notwithstanding somewhat *alcalescent*, as they are usually killed amongst us. The Flesh is however tender, and easy of Digestion; and if they are killed according to the Directions of the Levitical Law, that is, if they are suffered to bleed plentifully, this Tendency to an *alkaline* Putrefaction is in a great Measure removed.

All FISH which have not FINS and SCALES.

These are what medicinal Writers call *Pisces molles*. It has been observed above, that all Sorts of Fish are very subject to Putrefaction; but those without Scales more than others, and Shell-fish most of all.

נשר *Nesher* — The Eagle.

פרס *Peres* — The Osprey.

עיונה *Iznijah* — The Osprey, so called from חיונה with a *;* *Epenthetic*. It is an Eagle, so called from his Strength, which we may imagine to be the little Black Eagle, which is therefore called *Valeria*. The Syriac renders it a Crow.

דאה *Daah* — The Kite, so called from his Flight, which is very strong, especially when he hangs in the Air, without moving his Wings.

איה *Ajjah* — The Merlin, a Kind of small Hawk.

ערב *Oreb* — The Raven, or perhaps the *Nycticorax*.

בת העונה *Bath Hajjaanah* — The common Owl.

תחמס *Tahmas* — The Noctua, a Species of Owl.

שחפ *Shabbaph* — The Cuckoo.

נץ *Natz* — A Hawk. It is explained a Bird with which other Birds are taken, and which Fowlers carry on their Fists.

קוס *Cos* — The Goshawk. Some translate it an Owl; others *Onocrotatos*, a Bird which makes a Noise like an Ass.

שלך *Shalach* — The Cormorant.

ישופ *Yanbuph* — The great Owl.

The Juices of all these are highly *Alcalescent*, both as they are Birds of Prey, and as their habitual Exercise is great.

תושמת *Tinshemeth* — The Swan, or Chough Daw. It is of no great Importance which is here meant, for the Juices of both are much *Alcalescent*, and their Flesh rank, and scarcely digestible.

קאה *Kaah* — The Bittern. This Fowl feeds on Fish; the Flesh is very rank, and subject to Putrefaction.

רחם *Rahham* — The Gier Eagle. It feeds on Flesh.

חסידה *Hafsidah* — The Stork, so called from חסיד, because its Piety to its Parents is said to be remarkable. Hence Petronius calls it *Pietatis Cultrix*. The Stork feeds on Frogs, Serpents, and other Reptiles, which are in general extremely *Alcalescent*, and therefore it must afford Juices in a State very near to Putrefaction.

אנפה *Anaphah* — The Heron. It feeds on Fish, and uses a great deal of Exercise, and for both these Reasons has Juices highly *Alcalescent*.

דוכיפת *Duchiphath* — The Lapwing, a Bird almost perpetually on the Wing, and which feeds on Insects. The Flesh is of a very high Taste, and near to a State of Putrefaction.

עטלפ *Atallaph* — The Bat. It feeds on Insects.

חלד *Chloed* — The Weasel, a Beast of Prey.

עכבר *Achbar* — The Mouse. It feeds on Flesh.

צב *Tzab* — Properly the Toad from its Swelling, derived from צבה, *intumuit*.

אנקה *Anakah* — This is sometimes translated the Ferret, and by some it is called a Species of Locust. But, as in the Prohibition it immediately follows after the Toad, and is derived from אנק, which signifies *clamavit*; there is great Reason to believe it should be understood the Frog, literally the Cryer, or, the Beast that cries, alluding to the Croaking of this Reptile.

כוז *Coabb* — The Lizard.

לשאה *Letaah* — Bochart calls it the Salamander, a Sort of Lizard.

חמט *Homet* — The Snail.

תושמת *Tinshemeth* — Bochart calls it here the Ghamaelion; in another Place quoted above, the same Word signifies a Swan, or Jack-Daw.

All these Reptiles are extremely subject to Putrefaction, as are Reptiles of almost every Kind; the Smell of these, when putrefied, is extremely offensive; and hence we must conclude their Salts to be highly exalted, and their Juices *Alcalescent* to a great Degree.

Before I proceed farther in the Account of an *Alkaline* Putrefaction in the Juices, and its Consequences, it is necessary, that I specify the Parts into which the Blood is separable by Chymical Analysis.

First then, if the Blood of a Person in Health, fresh taken away, is put into a Retort, with a Receiver accurately luted to it, and is then committed to a Heat much less than is sufficient to make Water boil, a Vapour comes over, which condenses into a Liquor very little, if at all, different from Water, and which does not appear to be either *alkaline* or acid, saline, pinguious, or in any Degree acrimonious. And if the Fire is increased to the Degree of boiling Water, the same Vapour still continues to come over, forming exactly the same Kind of Water, till the Blood put into the Retort loses much about seven Eighths of the original Weight.

If the remaining dry Mass is taken out of the Retort and examined, it affords no Signs of containing any Thing the least *alkaline*, acid, or acrid; but is utterly insipid, except that it tastes and smells of Burning, and that not much. This inclosed in a wooden Box, will keep for Ages without Putrefaction. But by a Sand-heat, gradually increased, it yields, first a fattish, oily, bitter Liquor, somewhat inclining to be *Alkaline*; then a white volatile Salt; and, as the Fire increases, a yellow Oil, and with it the same Kind of Salt. Take the Receiver away that contains what is come over, and lute on another; urge the Remainder with the most extreme Degree of Fire that the Glass will bear without melting, and white Fumes will arise without ceasing, if the Operation be continued ever so long, and with these a black, thick Oil.

The Mass remaining in the Retort is very black, and shining, brittle; extremely light and spongy, of a disagreeable Smell, empyreumatic, bitter, and scarcely at all salt; this, when urged with a Heat almost sufficient to melt the Retort, continues perpetually to emit Fumes, and preserves its black Colour so long as it remains in a closed Vessel; but when exposed to a naked Fire, it flames, and, losing this Blackness, becomes white, and is then found to be an insipid Earth, containing not the least Portion of an *Alkaline Salt*; but a small Quantity of an Acid may be got from it by an extreme Degree of Fire, which Boerhaave imagines to be the Offspring of the Sea-Salt which had been used in Food, and remains in the Blood unaltered; but in his Observations on this Process, he tells us, that he had observed the same Appearances in the Distillation of the Blood of many Brutes, and therefore this Acid cannot be owing to Sea-Salt, because no Animal, that I know of, eats Salt, except Man and Pigeons, unless domestic ones, as Dogs, and Cats, sometimes by Accident, not by Choice. I am sensible it may be answered, that there is Salt, more or less, in all Water that Animals drink; and I know a Salt may be procured from the Urine of Animals, much resembling Sea-Salt in the Figure of the Crystals, and some other Properties. But if the Source of this Salt was the Sea-Salt taken into the Stomach with the Aliment, human Urine would probably yield more of this Salt, than that of gaminivorous Animals, because the Salt taken in the Water of these Animals, bears no Proportion to that which is eaten by a Man; however it appears, that the Urine of a Cow, or a Horse, yields a much larger Proportion of this Salt than that of a Man.

Here then we find in the Blood a Water, an Oil, a volatile *Alkaline Salt*, a fixed Earth, and a Portion of Acid. And now, if we consider attentively the Progress of animal Putrefaction, we shall find it has exactly the same Effects, as the Distillation described above, and that it only differs from it in taking up a somewhat longer Time. For first the watery Particles exhale; next the saline Part is attenuated, and disengaged from the Earth and Acid, and thus being rendered acrid, *alkaline*, and volatile, rises together with a Part of the Oil also attenuated, and separated from the Earth, and affects the Organs of Smell

with a Nidor, or Stink peculiar to animal Substances in a State of Putrefaction.

The rest of the oily Particles unite with the Earth thus deprived of the finer Part of the Oil, Water, and Salt, and both together form a black, tenacious, viscid Substance, which, however, at last is resolved, and leaves nothing behind but a pure virgin Earth, the Acid also exhaling. Thus the animal Juices, by Putrefaction, undergo a thorough Alteration, and Separation, after which it is impossible to unite the separated Particles again, so as to make an uniform homogeneous Fluid, like what it was before.

It is impossible this Putrefaction should prevail universally in the Juices whilst the Animal is alive, for Reasons which will be given hereafter; but particular Parts of the Body may putrefy, without causing immediate Death. — *Alcalescent* Food also may putrefy in the Stomach and Intestines, and cause great Disorders in the animal OEconomy, when taken in Quantities disproportioned to the Powers of Digestion. And the Juices in general may have a strong Tendency to Putrefaction, and of this several Birds that feed on Carrion are sensible, much sooner than Mankind, for as soon as the volatile Salts, and rancid Oils, begin to exhale, the Organs of Smell, in these Birds, are sooner affected than ours, inasmuch that they are frequently allured from considerable Distances, to the Neighbourhood of Houses inhabited by People in Fevers.

The antecedent Causes therefore of an *Alcalescence* in the Body, and the Diseases depending thereon, may be reduced to the following:

1. *Alcalescent* Aliment, that is, Aliment of *alcalescent* Vegetables, or of Animals, the Milk of graminivorous Animals only excepted. And amongst these Fish, particularly their Livers, and Skins: Fowls that live on Fish; all Birds which prey on other Animals, or Insects, or which are used to a great deal of habitual Exercise; also Animals killed whilst heated with strong Exercise, incline more to an *Alcaline* Putrefaction than others.

2. A Weakness of the Organs of Digestion.

When this is the Case, the Aliment, following its natural Tendency, putrefies in the Stomach, and causes what is usually called a Surfeit. And the Chyle enters into the Blood in a State near to Putrefaction, or in Part putrefied.

3. A great Strength of the digestive and assimilating Organs, for this produces

4. A great Quantity of Blood highly exalted, and in a State very near to Putrefaction, and a Bile in a State near to Putrefaction.

It must be remembered, that *Acescent* Aliments are by the Actions of the above-mentioned Organs converted into *Alcalescent* Juices. When therefore these Organs act strongly on Food already *alcalescent*, it must be rendered more so, and brought nearer to a State of Putrefaction.

It is upon this Account that Plethoric People are more subject to epidemical Disorders than others; that People in a full State of Health, are more in danger of falling into Fevers, and those of a bad Kind, than others whose general State of Health is not so good; and that such who have very strong Constitutions, are more liable to pestilential Disorders, and putrid Fevers, than Valetudinarians.

Hence Hippocrates, *L. 1. Aphorism. 3.*, advises to beware of an Excess of Health, for the same Strength of Constitution which was sufficient to bring the Blood and Juices to such a Degree of Perfection, will at last exalt them into a Disease. And Celsus tells us, that a full State of Health is to be suspected: *Ergo si plenior aliquis, & speciosior, & coloratior factus est, suspecta habere sua bona debet. Quæ quia neque in eodem habitu subsistere, neque ultra progredi possunt, fere retro, quasi Ruina quadam, revolvuntur.*

Hippocrates thinks it prudent to subtract something from a State of Health arrived at the utmost Perfection, because, as it is not possible it should remain long without Alteration, and cannot mend, it must necessarily grow worse. But with all Deference to so great an Authority, I must remark, that Nature has Resources of more Importance for the Preservation of Life, and Health, than any Assurances which Art can afford her, and from which she draws Help upon these Occasions. Thus in Case of too much Fulness of Blood, an *Hæmorrhage* lowers the Habit to such a State, as Hippocrates advises us to reduce it to by Art. If the Juices are so much exalted, as to tend too much to an *Alcalescence*, the Acrimony attending this State, before it becomes sensible by any ill Consequences frequently stimulates the Glands of the Skin, and thus causes its own Evacuation by an increased Perspiration; or else, if it happens to affect the Glands of the Kidnies, it is carried off by Urine; but if it falls upon the Liver, the most likely Part to receive it first, or the Pancreas, or the Glands of the Stomach, and Intestines, the Danger is prevented by Vomiting, or a *Diarrhoea*, or both, sufficient for the salutary Purposes above-mentioned; and hence the popular Opinion, founded on the Experience of all Ages, that a Looseness in the Spring and Summer is salutary. Thus we see this Acrimony so much to be dreaded, is frequently under the Conduct of a well regulated animal OEconomy, its own

Antidote, and the Means of preserving, instead of interrupting Health. But here we must suppose no Excesses are committed, and regular Exercise is used.

5. Long Fasting. For, if the Blood is not perpetually diluted with fresh Chyle, it will contract an *Alcaline* Acrimony, and the Breath will become foetid, till in the end a Fever and Death ensue from this Putrefaction.

6. A Stagnation of any Part of the Blood or Juices.

Because all Animal Juices, which stagnate, follow their natural Tendency, and putrefy.

7. Great Heat, whether of the Season, or Climate; external, or internal; natural, or artificial.

8. Violent Agitation of the Blood. Because it produces Heat.

9. Excessive Exercise, especially if long continued.

When any of these Causes, or many of them conjointly, have produced an *Alcaline* Putrefaction, it is manifested by the following Signs, in the *Primæ Viæ*.

1. Thirst.

It is observable that Nature, or rather the Author of Nature, has given to all Animals a certain Sagacity, to enable them to distinguish Aliments which would be noxious to them, from those which are salutary; and to direct them to the Means of curing the Disorders they labour under. This, in Brutes, is called *Instinct*; and as we find the same Propensions calculated for the same good Purposes in Mankind, I think we may properly enough call them by the same Name.

In the present Instance, Thirst is raised, that is an Inclination to drink large Quantities of small diluting Liquors. Now these Liquors dilute the *alcaline*, putrid, acrimonious Salts, relieve the present uneasy Sensation, and dispose the putrefying of putrefied Matter to be discharged out of the Stomach and Intestines, either by Vomit, or Stool. But if the Propensity is to acid Liquors, which is generally the Case, these Acids, when mixed with the putrid Salts, destroy them, and are both together converted into a neutral Salt.

It is remarkable, that taking internally volatile, *alcaline*, animal Salts, as Salt or Spirit of Hartshorn, raises a Thirst, in the same Manner, and for the same Reasons.

2. An utter Loss of Appetite, and an Aversion for *Alcalescent* Aliment, particularly of that Sort of Aliment, which originally caused the Disorder.

This is another Instance of the Instinct above-mentioned; or rather, of the Protection of Providence, which watches over us in Sickness as well as Health. An Appetite would be prejudicial, when the Stomach is in such a Condition, as not to be able to digest the Aliment taken into it; and *Alcalescent* Aliment would increase the Disorder.

3. Nidorous Eructations, or Belches which affect the Mouth with the Taste of putrefied Eggs.

Because a Portion of the putrid Salts, and rancid Oil, is excluded together with the rarefied Air.

4. Putrid Sordes upon the Lips, Teeth, Tongue, Palate, and Fauces, which affect the Organs of Taste with a Sensation of Bitterness, because animal Oils, when they grow rancid, become bitter; or perhaps this Taste may be caused by the Bile too much exalted, and tending to Putrefaction.

5. A Sickness at the Stomach, from the Stimulation of the acrimonious Salts, especially at the Sight, or even Idea of *Alcalescent* Aliment near to a State of Putrefaction. This Stimulation increased, causes a Discharge of the putrefied Matter by Vomit, which is salutary, when the Disorder proceeds only from a Putrefaction of the Aliment in the first Passages; but if from a Putrefaction of the Liver, Pancreas, or any other of the Contents of the Abdomen, it is sometimes a very bad Symptom. When this *Alcaline* Acrimony affects the Intestines, it stimulates them to a Discharge of their Contents by a *Diarrhoea*, which is also the Means of Cure, when the Putrefaction is confined to the Aliment contained in the Stomach and Intestines; but is often fatal, when caused by large Putrefactions in any of the Viscera.

Fish that has been kept too long before it is eaten will cause a plentiful *Diarrhoea*; and a very small Quantity of putrefied Egg will have the same Effect, by stimulating the Intestines.

6. This *Alcaline* Acrimony produces a spontaneous Lassitude, and universal Uneasiness; a troublesome Sense of Heat, and inflammatory Iliac Pains.

The Effect of an *Alcaline* Putrefaction in the Blood is its Dissolution into an *Alcaline* acrimonious Fluid; the watery Particles separate from the other Principles and exhale; the finest Part of the Oil grows rancid; the rest of the Oil joining with the Earth, they form together tenacious Obstructions in the Vessels to which they adhere; and the Salts no longer uniformly mixed with the diluting Water, softening Oil, and neutral Earth, become acrid and corrosive. Hence the Fluid circulating in the Vessels, which in order to be fit for Nutrition, and the Exigencies of the animal OEconomy, must be mild, and destitute of all Acrimony, is, in the present State, very far from being accommodated to these salutary Purposes; but, instead of that, stimulates, abrades, and carries away a Part of the Solids; and corrodes and destroys the extremely minute Vessels,

Vessels, to which those of the Brain are above all others subject, whence a Train of Symptoms which are usually called nervous, as Deliriousness, Convulsions, Comas, or Want of Sleep.

This Corrosion and Destruction of the internal Parts is nothing more than what may at any Time be produced on the external Skin, by confining a small Quantity of animal, *Alcaline Salts*, for a short Time, to any Part of it, for it will then act as a Caustic, and raise an Eschar. This may serve as a seasonable Caution to those who wantonly accustom themselves to smell to volatile Salts, especially those which have their caustic Acrimony exalted by Lime in their Distillation; for when a Part of these is drawn into the Lungs, it may, and without Dispute has, very bad Effects on the tender Membrane which lines the Lungs.

In the State of the Blood mentioned above, the Liquors secreted from it are fetid; and the Urine is high coloured, approaching to Redness, in Proportion to the Degree of Putrefaction prevailing, and the Patient necessarily labours under a continual burning Fever.

From this Account of an *Alcaline* Putrefaction in the Blood, it is easy to perceive, that the Consequences must be a Disturbance, Depravation, or utter Destruction of all the Actions, whether natural, animal, or rational; an intire Alteration in the Circulation, and consequently in the Secretions, and Excretions which depend thereon, with general, or local Inflammations, which, if the Putrefaction is considerable, must terminate in Suppurations, or Gangrenes, Sphacelations, and Death.

The different Parts of the Body which are affected by this *alcaline* Putrefaction, make some Difference in the Cure. Thus, if the *Alcaline* Aliments, taken in Quantities too large for the digestive Powers, putrefy in the Stomach and Intestines, and produce the Effects mentioned above, the most rational Method of Cure is to procure their Discharge, either by a Vomit or Purge, or both; and in this the principal Symptoms must be our Guide; for if from these we learn the Stomach is affected, a Vomit is to be given; but if the putrefied, or putrefying Aliment, is protruded into the Intestines, a Purge will sometimes be sufficient to promote their Exclusion. Proper Vomits, in this Case, are warm Water, green Tea, Infusions of Carduus, or Ipecacuanha, in the Quantity of half a Dram; and Purges of the saline Kind seem best adapted for this Purpose; because as they increase the natural Tendency to a Diarrhoea, and thereby carry off the offending Matter, they at the same Time relieve the Symptoms, by destroying a Part of the Acrimony. Both Vomits and Purges must be repeated, according as the Continuance of the Disorder shall make them appear necessary. In general one Vomit, but repeated Purges are required.

I have met with a popular Remedy for an Over-charge of the Stomach by *alcalescent* Aliment, of too much Efficacy to be omitted; it is the Runnet with which Milk is curdled, in order to make Cheese. Runnet is thus made; the first Stomach of a Calf is salted and dried, or else preserved in Brine; this Brine, or an Infusion of the dried Stomach in cold Water, is the Runnet. One or two Spoonfuls of this Brine in half a Pint of cold Water, or an Infusion of a Piece of the dried Stomach about two Inches square for a few Hours in the same Quantity of Water, if drank, is said to take away all the uneasy Sensation caused by the stimulating Acrimony, and to promote the Expulsion of the offending Matter, either by Vomit, or Stool. It would perhaps be somewhat difficult to demonstrate the specific Action of the Juices in the Stomach of a Calf, by which Milk is curdled; but we find in Fact, that this Effect is produced; both in the Stomach of a Calf whilst it is alive, where all the the Milk it takes is found curdled, and in Milk wherewith the Infusion of the same Stomach is mixed, even after the Death of the Calf. I am equally at a Loss to account for the salutary Effect of Runnet, considered as such, upon a human Stomach under the ill Impressions of *alcalescent* Aliments putrefying therein. But I am sensible that the Salt, which preserves the Calf's Stomach from Putrefaction, will also have a very good Effect upon the Aliment putrefying in the Stomach, destroy totally or in Part the *alcaline Acrimony*, and consequently relieve the Symptoms caused thereby; but whether all the good Effects of Runnet as a Medicine depend on the Salt, I will not take upon me to determine; I am, however, certain upon my own Knowledge, that it is an excellent Medicine in the Case above-mentioned.

When a Tendency to this Putrefaction is got into the whole Habit, and prevails in the Blood and Juices, the Cure is much more difficult and tedious, and the Disorder is attended with a much greater Degree of Danger. And as almost all acute Distempers whatever are either raised originally by, or else accompanied with a greater or less Tendency to an *alcaline* Putrefaction, the Regimen and Medicines proper to destroy or curb this *Alcalescence*, are of the utmost Importance to the Art of Healing. The Regimen, however, is most to be regarded, for upon this the Cure principally depends.

With Respect then to the Cure, Bleeding seems proper, as it relaxes and diminishes the Action of the Solids upon the remaining Mass of Fluids, which lessens the Attrition betwixt the

Solids and Fluids, and betwixt the Particles of the Fluids with each other; now, as Attrition is one great Cause of Heat, and Heat a great Promoter of Putrefaction, Bleeding promises fair to remove at least one principal Cause thereof.

In such Cases also Rest must be strictly enjoined, and an Abstinence from all Sorts of Motion rigorously persisted in. Because every Degree of Motion proportionally hardens the Fibres, and accelerates the Circulation of the Blood; this increases the Attrition betwixt the Solids and Fluids, and betwixt the Particles of the Fluids with each other, and consequently promotes Heat, the Parent of an *alcaline* Putrefaction, and all its Consequences.

Warm emollient Baths, Fomentations, and Clysters, are also of Service, as they relax the Fibres, and thereby help to remove one considerable Cause of Heat; and as the absorbent Vessels take up a Portion of them, they become farther serviceable by diluting the Blood.

With Respect to the Air which the Patient respires, it should be temperate and refreshing; if too hot, it increases the Tendency to Putrefaction; if too cold, by contracting the animal Fibres, it is consequentially productive of internal Heat.

Hence the Reasons are very plain, why all Heat beyond Temperateness, whether natural, and produced by the Climate, or Season; or artificial, and generated either by Fires, too many Bed-cloaths, or hot Medicines, must necessarily be pernicious in all Distempers, where there is a Tendency to an *alcaline* Putrefaction.

Our next Care must be to saturate the Blood and Juices with Aliments which are acescent; which have a strong Tendency to become acid when taken into the Stomach, or which are actually acid. Such are Milk either alone, or diluted with Water; Whey, and Buttermilk.

Bread, which has been fermented, is another Aliment of the acescent Kind, but if it has been much fermented, it is actually acid. Of this great Varieties of Foods may be prepared, by boiling it with Water, till it is of such a Consistence, as answers the End proposed, and afterwards adding to it other acescent Ingredients, as Wine, or the crude, or prepared Juices of Fruits. The most common of these is called *Panada*.

Many Sorts of Aliments, exceedingly proper when there is an *Alcalescence* of the Juices, are also prepared from farinaceous Vegetables, particularly Barley and Oats. The Pisman of the Antients, so famous in all Ages, was made of Barley husked, and boiled in Water, and seems to have been a Kind of Gruel, which obtained different Names, according to some Circumstances to be taken Notice of hereafter. The Word is derived from *πρίσσω*, which signifies to peel, or take off the Husks, this being the first Part of the Process for its Preparation, but the French have, through an unpardonable Error, applied the Name of *Pisman* to any Sort of medicinal Decoction.

Amongst farinaceous Vegetables Boerhaave enumerates the following:

Wheat.
Barley.
Oats.
Rye.
Rice.
Buck Wheat, or *Frumentum Saracenicum*.
Millet.
Mays, or Indian Wheat.
Panick.
Spelt Wheat.
Pistachio Nuts.

Of these boiled in Water, and digested for a considerable Time, till they acquire a Tendency to Acidity, many Sorts of Food may be contrived, very proper in an *alcaline* State of the Juices. Decoctions and Emulsions of these, drank in large Quantities, are of considerable Service; first, as they are in some Degree saponaceous, and dissolve Obstructions in the Vessels, which Water alone cannot act upon. Secondly, as they dilute the Juices inclinable to an *Alcalescence* with an acescent Fluid. Thirdly, as they relax the Solids. And, Fourthly, as by their oily Softness they envelope, and obtund the *alcaline* Acrimony, and, thereby rendering it mild, prevent its Effects in the Body.

I must not omit observing, that acescent Aliments in general seem more healthful than those which are *alcalescent*, and are less subject to form Obstructions, provided they are taken in Quantities proportioned to the Strength of the digesting and assimilating Organs, and by People inured to habitual Labour and Exercise.

Thus Homer celebrates the Hippimolgi, a Northern Nation, whose usual Food was Milk, for Longevity. And the Mountaineers of Great Britain, who generally live on Milk, and Cakes made of Oatmeal, fermented till they grow quite sour, are remarkable for Health, Strength, Activity, and living to a very great Age, and are seldom or never visited by epidemical Distempers, in any considerable Degree. And what Virgil says of a Northern Nation is something to our present Purpose:

Pocula lati
Fermento atque Acidis imitantur Vitea sorbis.
Talis Hyperboreo septem subjecta Trioni
Gens Effrena Virum Rhiphae tunditur Euro.

There is another Class of Vegetables of excellent Service, when the Juices tend to an *alkaline* Putrefaction. I mean the Summer or Autumnal Fruits, when perfectly ripe.

Boerhaave mentions the following:

Oranges.
 Lemons.
 Elder-Berries.
 Cherries of all Sorts.
 Citrons.
 Garden Cucumbers.
 Garden Gourds.
 Figs.
 Strawberries.
 Pomegranates.
 Jujubs.
 Apricocks.
 Peaches.
 Melons.
 Mulberries.
 Apples.
 Sweet Plums of all Sorts.
 Currants of all Sorts.
 Raspberries.

I do not know why the illustrious Author has omitted Grapes, Tamarinds, and some others of the like Kind.

Of these considerable Uses may be made. For they may be boiled, or roasted, and eaten occasionally; or their Pulp, or crude Juices, may be mixed with Panadas, Gruels, or other acefcent Aliments. Or else the Juices, expressed after baking, or boiling them with a very small Quantity of Water, may be mixed with Food, or given as a Medicine, first adding to them the Quantity of Sugar which shall be judged sufficient. And it must be observed, that boiling, or baking Fruits, destroys a great Quantity of the elastic Air which they contain when crude, makes them fit more easy upon the Stomach, and thereby renders them more fit for medicinal Purposes.

With Respect to Fruits, it is a very great Error to condemn them in general as unwholesome; for, on the contrary, when thoroughly ripe, they are the most admirable Remedies that perhaps Nature has furnished us with, and never pernicious unless taken in Quantities too excessive, and disproportioned to the Powers of Digestion. Nothing can be better adapted to check that Tendency to an *alkaline* Putrefaction, which the Juices are subject to contract during the Summer's Heat. We scarcely meet with a more powerful Remover of Obstructions, than the Juices of ripe Fruits, if taken in Quantities sufficient, frequently repeated, and these continued for a considerable Time. For the Juices of Fruits, when neutralised by the Heat of the Sun, that is, when perfectly ripe, are saponaceous, and capable of dissolving Obstructions in the Vessels which no other known Fluid is able to act upon effectually. Every common Observer can judge, that Eruptions on the Surface of the Body are salutary, and promise a future State of Health. The Reason of this is, that when the obstructing Matter, which forms Concretions in the small Vessels, is dissolved, and reduced to Particles small enough to circulate with the Blood, the vital Powers find Means of discharging them by the intestinal, or urinary Glands, or else dispose of them by the Pores of the Skin; now when it happens that the Particles of Matter to be discharged are somewhat too large to perspire, they stick in the perspiratory Vessels of the Skin, and there suppurate, for Suppuration is one Way which Nature takes to disburthen herself of what is useless or offensive. Hence those salutary Eruptions, which frequently appear on the Skin in various Parts of the Body, after a plentiful Use of Summer-fruits, have been erroneously deemed, by many, the pernicious Effects of those Fruits, which in Reality acted the Part of a Medicine, and removed Obstructions, which otherwise might have produced a Disease. It is farther to be remarked, that a Diarrhoea, or Looseness, after the Use of the above-mentioned Fruits, is so far from being dreadful, provided it keeps within due Bounds, that it does good Service to the animal Economy, by carrying away the Matter of Obstructions previously dissolved by the saponaceous Juices of the said Fruits. But it is prudent to bake, or boil these Fruits, both for the Reasons given before, as also, because the Fire destroys the Eggs of Insects, which are sometimes deposited in them, and because it brings them to a more exact Neutrality, the Sun being scarcely sufficient in our Climate to render them perfectly ripe.

In an *Alcalescence* of the Juices, watery Liquids, drank warm especially, are also of Service, though endued with no saponaceous Quality, as they relax the Solids, dissolve the Salts, and carry them out of the Body, and contribute to preserve the Blood in a State of Fluidity.

As to Medicines, they may be contrived in various Forms, either from native vegetable Acids, as the Juices of Oranges,

Lemons, Crabs, and many other acid Fruits, or the Essential Salts of acid Plants, as of the Sorrels.

Fermentation also furnishes us with many valuable Medicines in this Intention. Thus Moselle, or Rhenish Wines, which incline to Acidity, are admirable, when diluted with a sufficient Quantity of any saponaceous Fluid. Thus also Vinegars of all Kinds, are of considerable Use, properly diluted; and of these Medicines may be made extremely resolvent, and absterfiv, by mixing them with Water, or Honey, or both, or infusing in them Vegetables suited to answer particular Intentions, as Squills, in making Oxy-mel of Squills.

Many Medicines also of excellent Virtues are, and more might be, prepared by inspissating the Juices of Fruits perfectly ripe to a Jelly or Rob, and amongst these none excels Rob of Elder, a Medicine which deserves the highest Encomiums.

By Distillation we procure another Class of Medicines which powerfully destroy a Tendency in the Juices to an *alkaline* Putrefaction. These are the acid Spirits of Sal Gemmae, Sea-salt, Nitre, Vitriol, and Sulphur, commonly called *Oil of Sulphur by the Bell*. But these must be taken diluted in a great Quantity of Fluid, and they are never proper, unless in Cases where a great Tendency to Putrefaction renders the milder vegetable Acids ineffectual, as in the Plague, and some very bad Kinds of the Small-pox.

There is another Class of Medicines of very great Importance in the Case before us; I mean, the natural; or artificial neutral Salts. The natural neutral Salts are Nitre, Sea-salt, and Sal Gemmae. The two last are seldom used, except in Clysters; but Nitre is, or at least ought to be, an Ingredient in almost every Medicine, given with a View of checking the Progress of an *alkaline* Putrefaction. It is well known, that these Salts preserve all animal Substances from Putrefaction; and Nitre has a remarkable Property of preserving the Fluidity of the Blood, either in, or out of the Blood-vessels. Nitre has also a Power of resolving Concretions already formed, and of expelling the obstructing Matter thus resolved by the proper Emunctories, as by the Glands of the Intestines, Kidnies, or Skin; it is also extremely penetrating, and thus it appears possessed of every good Property, that can render it an eligible Remedy in all Disorders where Danger is to be apprehended from an *alkaline* Putrefaction, that is, in most acute Distempers. It is usually given in a Powder or Bolus, or dissolved in some proper Fluid.

Artificial neutral Salts may be made from almost every different Sort of Acid, impregnated or saturated with any Sort of *Alkali*, either fixed, or volatile. The *Acid* and the *Alkali* must be joined in such a Manner that neither may prevail over the other. Whilst they are mixing together, a considerable Effervescence arises, and the Acid is destroyed by, and destroys the *Alkali*, and then both, thus united, form a Body very different in every Property, Characteristic, and medicinal Effect from the Parent Salts.

Neutral Salts the most generally used in Practice, are the *Tartarus Vitriolatus*, made as directed by Boerhaave (See *TARTARUS VITRIOLATUS*) a Medicine very different from that directed under the same Name in our Dispensatory, though made of the very same Ingredients. The *Tartarus Regeneratus*, and *Tartarus Tartarizatus* of the same Author.

Many extemporaneous Prescriptions of a neutral Fluid may easily be contrived to very good Purposes. Thus, a Scruple of Salt of Wormwood will saturate about half an Ounce of Juice of Lemons; or about ten or twelve Grains of volatile Sal Ammoniac will saturate half an Ounce of distilled Vinegar; either of these mixed with an Ounce of some simple Water, and rendered agreeable by a few Drams of a proper Syrup, and the same Quantity of some compound Water, makes a very pretty Draught of considerable Efficacy, which may be repeated as Occasion requires, for Example every four Hours.

These neutral Medicines deserve the same Encomiums which I have given above to Nitre, and for the same Reasons.

From what has been said above with Respect to the Causes, and Cure of Diseases from a Tendency in the Juices, or any of them, to an *alkaline* Putrefaction, it appears, that in all Diseases where Danger is to be apprehended from the aforesaid Putrefaction, any acid Excretions are to be esteemed good Symptoms, as they are certain Evidences that the *alkaline* Acrimony is destroyed. Thus in Disorders of the Stomach from such a Cause, acid Eructations of Wind witness, that the Cause of the Distemper is almost, if not intirely removed. And thus in acute Distempers, Sweats which have an acid Smell, have been remarked to be of good Presage.

It has been observed, that many who have recovered of the Plague, and pestilential Fevers, have been affected as their Health returned, with a saltish Taste in their Mouths, somewhat like that of Sal Ammoniac; the Reason of this appears to be thus: It is well known in Chymistry, that a putrid *alkaline* Salt, when united with an *Acid*, forms a neutral Salt somewhat resembling Sal Ammoniac. Now when the Juices have been loaded with such a putrid Salt, as it happens in the Plague and pestilential Fevers, when this Salt is saturated with

an Acid, the *alkaline* Acrimony is destroyed, and the Patient by Degrees recovers; and then all the Excretions are infected with the muriatic Salt above-mentioned, like Sal Ammoniac, and amongst the rest the Saliva; hence a perpetual Taste, like that of Sal Ammoniac, in the Patient's Mouth; and hence he fancies all Sorts of Aliments salted.

The Forms of Medicines calculated to destroy an *alkaline* Acrimony are infinite. I shall therefore only give a few by Way of Example:

Take of Oats, bruised with the Husks, two Ounces,

Boil these in three Pints of Water to two, and add to it when strained,

Of fresh Citron, or Lemon Juice, an Ounce.

Of Cinnamon-water, two Drams.

Of Syrup of Mulberries, an Ounce.

Let the Patient use this for his constant Aliment. *Boerhaav. Mat. Med.*

Take of Oats peeled, two Ounces.

Boil them in three Pints of Water to two, strain it, and let the Liquor stand in a gentle Heat for twelve Hours, or till it grows somewhat acid; then add,

Of Syrup of Violets, an Ounce and half.

Rhenish Wine, half a Pint.

Simple distilled Water of Citron-peel, an Ounce and half.

To be used like the preceding Decoction. *Boerhaav. Mat. Med.*

Take of peeled Oats, three Ounces.

With a sufficient Quantity of Water make an Emulsion; to a Pint and half of which add,

Of purified Nitre, half a Dram.

Syrup of Violets, an Ounce.

Vinegar of Squills, two Drams.

An Ounce or two of this may be taken frequently. *Boerhaav. Mat. Med.*

Take of Oxymel of Squills, three Ounces.

Vinegar of Squills, two Drams.

Tincture of Myrrh extracted with Vinegar, a Dram.

Simple Succory-water, six Ounces.

Half an Ounce of this may be taken every Hour. *Boerhaav. Mat. Med.*

Take of Vinegar boiled to the Consistence of Honey, half an Ounce.

Fine Honey, an Ounce.

Syrup of Succory, an Ounce and half.

Simple Fumitory-water, six Ounces.

To be used as the preceding. *Boerhaav. Mat. Med.*

Take of Rob of Currants and Elder, each two Ounces.

Simple Oxymel, an Ounce.

Spirit of Salt, twenty Drops.

Barley-water, two Quarts.

Let the Patient use this at Pleasure for his constant Drink: *Boerhaav. Mat. Med.*

Take of clear Barley-water, twenty-six Ounces.

Rhenish Wine three Ounces.

Syrup of the five opening Roots, two Ounces.

Rob of Elder, six Drams. Make a Decoction.

Let the Patient take three or four Quinces of this every three or four Hours.

Take of Crystals of Tartar,

Pure Nitre,

Vitriolated Tartar perfectly neutralised, according to Boerhaave's Method, of each ten Grains mix into a Powder.

Let one of these be taken every four, or six, or eight Hours, with a Dose of the preceding Decoction, or some other acrescent Liquor.

As what has been said in the preceding Pages will explain; and abundantly confirm many important Points of Doctrine relative to the Cure of acute Diseases, which are delivered by Hippocrates, in his Treatise *Περὶ διαφόρων ὁρίων*, I shall finish this Article with that incomparable Piece, which Dr. Friend, a very good Judge of these Subjects, calls *One of the most valuable Remains of Antiquity*. And indeed, he might have given it much greater Encomiums.

I believe it impossible to do the excellent Author of this Piece Justice in our Language, or any other, at least I am willing to think so, because I am sensible of the Defects of

my own Translation. If, however, I have rendered this most valuable Piece intelligible to those who cannot understand it in the Original, I am certain it will be of no inconsiderable Benefit to Mankind.

I must remark, that the latter End of this Treatise does not seem to have arrived to us as Hippocrates left it; for it is probably either mutilated, or has had something added to it by an Interpolator, much less judicious than the Author of the rest, at least it wants the finishing Stroke of that masterly Hand which completed the other Parts of this incomparable Piece.

Hippocrates begins this important Treatise with blaming the Method of the Physicians of the Cnidian School, who seem to have been the Rivals of those of Cos. This Introduction is somewhat obscure, and the more so, because we have not the Cnidian Sentences, which he finds Fault with.

It should seem that the Cnicians had described Distempers very accurately, but omitted taking proper Notice of many Circumstances which occur in every Disease, which are worthy of Remark, because they inform the Judgment of the Physician, and point out the Indications, or the Method to be pursued in order to cure the Disease. Amongst these are the Age, Strength, and Constitution of the Patient; his Manner of living; the natural Evacuations which promote, or retard the Cure; the Concoction of the morbid Matter; and, in short, every other Circumstance, which can assist us in foreseeing the Event of a Disease, and directing a proper Regimen.

HIPPOCRATES ON REGIMEN IN ACUTE DISTEMPERS.

The Authors of the *Cnidian Sentences*, as they call their Work, have indeed given us an accurate Account of what Patients suffer in every Disease, and of the Events of some Distempers. And so far any Man, however ignorant of the Art of Medicine, might write, and not be mistaken, provided he perfectly understood each Patient's Representation of his own Case. But as to the Prognostics which cannot be learned from the Sick, though it is the Business, and Accomplishment of a Physician to be well versed in them, they are in a great Measure neglected; as are also many Circumstances highly necessary in order to enable us to form a right Judgment of any Case before us.

Now since the Management of each Patient is to be regulated by a perfect Knowledge of every Circumstance relative to every particular Case, I am of a quite different Opinion, in this Respect, from what they have declared themselves to be. And I am not only dissatisfied with them on this Account, but also because they made Use of but few Remedies. They have indeed offered us Plenty of Medicines (except in acute Diseases) that purge downwards, and talked of the seasonable Use of Whey and Milk. If these Remedies were good, and proper for the Distempers in which they prescribe them, the fewer they were in Number, if sufficient for the Purpose, the higher would be their Value. But the Case is otherwise.

But in what they published afterwards, the Character of Physicians was better supported, with Respect to what ought to be exhibited in each Case. But indeed the Antients never left any Thing worth Notice in Writing concerning a Method of Diet, but were wholly silent as to that important Point. Some of them, it is true, were not ignorant of the various Forms and Divisions of Distempers, but, while they endeavour to give us the Names of Distempers, they shew themselves mistaken. For it will be no easy Matter to number them, if we reckon, on one Hand, every Disease a Person labours under a distinct Species from another, because it differs from it in some Respect; or, on the other Hand, suppose it cannot be the same Disease, unless it passes under the same Denomination.

My Opinion is, that, in all Respects, we ought to have a strict Regard to the Rules of Art. For, if we desire that any Work should prosper and be promoted, we must proceed in every Thing relating to it with Exactness. In Things that require Dispatch, and where Delays are dangerous, our Assistance ought to be speedy in Proportion. Where Things ought to be performed after a neat and decent Manner, we are to observe Neatness and Decency. If a Case admits of an easy and gentle Treatment; we are by all Means to avoid putting the Patient to any unnecessary Pain or Torment. In short, we ought to endeavour at Improvements in every Branch of Medicine, without confining ourselves to the vulgar Modes of Practice.

I praise that Physician most, who knows how to distinguish himself, above others of his Profession, by his Skill in improving the ordinary Methods of Practice in acute Diseases, which make the greatest Havock amongst Mankind: Such are those to which our Ancestors gave the Names of Pleurisy, Peripneumony, Lethargy, Burning Fever, and other Disorders which have an Affinity with them, for these destroy the Patient, by a Fever altogether continual, which accompanies them.

M m m

For,

^a I have given *ἑκαστὴν ὁρίων* a Turn somewhat different from the Latin Translations, for Reasons which the learned Reader will easily apprehend. But, as my present Business is rather to explain Things than Words, I shall attach myself very little to Criticisms of this Sort.

^b For, when there is no pestilential Distemper that rages epidemically, but only sporadical Fevers of various Kinds, more die of these Fevers than all other Diseases. The Generality, indeed, are not capable of distinguishing such as excel their Neighbours in medicinal Knowledge, and therefore they only praise, or condemn, capriciously the Cures which they see performed. And it is strongly to be presumed, that common Observers cannot understand these Fevers, because their Nature is not to be comprehended without Study. But even those who are no Physicians may easily appear to be such, particularly in the Distempers above-mentioned. For it is not difficult to learn the Names of Things usually employed about the Sick: Suppose, for Instance, any one should name the Cremor [*χρως*] of Ptisan, or this or that Sort of Wine, or Hydromel, the Sounds are the same to vulgar Apprehensions, whether they proceed from a better or a worse Physician. But these Things are to be considered in a very different Light, and a Man of Skill is more especially distinguished in such Cases.

Now it is my Opinion, that such Things as are advantageous to be known, and yet have escaped the Notice of Physicians, or which are the Occasion of much Good, or Hurt, to the Persons concerned, highly deserve to be communicated to the Public. The Things unknown are as follow:

What should determine some Physicians, in acute Distempers, to persevere for ever in giving their Patients Ptisan not strained, and yet think their Method right.

Some dispute, with all the Reason they are Masters of, against allowing the Patient boiled Barley, because they apprehend it to be of very pernicious Consequence, but however strain it through a linnen Cloth, and exhibit its Juice [*χυρος*].

Others, again, will neither suffer the thick Ptisan, nor its Juice, to be given, some of these extending the Prohibition to the seventh Day of the Patient's Illness, others of them to the full Determination of the Crisis.

Our Physicians are not very fond of proposing such Questions as these, or if they were so ingenuous as to propose their Doubts, the Answers, perhaps, are not at Hand.

Mean while, the Art itself falls under Reproach and Disregard, among the Vulgar, always too subject to conclude from Difficulties, and contrary Practices, that there is no such Thing as *real Medicine*. For in acute Distempers, for Example, our Artists differ among themselves to such a Degree, that those very Remedies which one of them shall prescribe as the best, another shall think improper to be used. It is upon this Account, that the Art of Medicine, seems very like Divination. For Augurs [*μάντις*] look upon the same Bird which appearing on the right Hand, they embrace as a good Omen, to be a bad one, if it appears on their left; not to mention many other Singularities belonging to the Art of Augury; mean Time there are others of the same Profession, who interpret the very same Omens in a Manner directly contrary to the former.

I however affirm, that the Regimen, in acute Diseases, is a Speculation extremely noble and excellent, [*πράξις*] and that it bears a near Relation to many of the most important Points in the Art of Medicine. For Regimen is capable of doing great Things for those that are sick; of preserving Health to those, who already enjoy it; of procuring a good Habit to those who exercise themselves; and of contributing, much to the Attainment of that desirable State, to which the Wishes of every wise Man tend.

Ptisan seems to me; preferable to all Aliment of the frumentaceous Kind, in these acute Distempers, and I commend their Judgment who have given it this Preference. For it has a Kind of Viscosity, which is smooth and equal, soft, and slippery, moistening, causing no Thirst, but conveniently washing whatever wants Elution. It is no Astringent, raises no Disturbance in the Stomach during Digestion, nor Inflation in the Belly, having lost that Property in the Boiling, where it swelled as much as its Nature would permit.

^b This Passage Sydenham seems to have had in View, when he says nearly the same Thing.

^c Aretæus speaking of a Pleurisy, says, Ptisan is to be preferred before all Foods. The best Way, in the Beginning of the Disorder, is to use the Cremor of it, strained from the solid Part, and seasoned only with Honey, without those Drugs which are commonly used to give Relish and Variety to the Ptisan, for at this Time the Cremor alone is sufficient. It serves for the Purposes of moistening and warming, and is effectual in dissolving and detaching Phlegm, and expels upwards, by Spitting, what ought to be expelled that Way, at the same Time gently loosening the Belly. Its Smoothness is both grateful to the Palate, and makes it easily swallowed; and its Viscidity allays Heat, purges the Membranes, digests Coughs, and mollifies all the Parts. Such are the Virtues of Barley. *Aretæus empir. Syden. c. 2. lib. 1. Cap. 10.*

It appears that Hippocrates was convinced by Experience, that the Ptisan was an admirable Aliment in acute Diseases; but he does not seem to have been acquainted with all the Reasons why it was so. As it relaxes, it removes one great Cause of Heat, the grand Promoter of an *Alcaline* Putrefaction. During the Time it boils, and digests, it acquires a Tendency to Acidity, and is, on this Account, a proper Aliment in acute Diseases, where the Juices tend to an *Alcaline* Putrefaction. And again, as it is in some Degree saponaceous, it will dissolve Obstructions, which Water alone will not act upon.

^d The Inanition here hinted at, is that which is brought about by long Abstinence from all Sorts of Aliment; a Practice which some of the Antients gave into, however contrary to Reason, and unsuccessful in Practice.

^e In the Course of this Treatise, Hippocrates explains himself more at large, with respect to Honey, and Wine, which are both Astringent. Mean Time it must not be imagined, that he advises Wine unmixed, for the Antients seldom drank it without fix, or at least four Times as much Water, even in Health. This will be explained more amply in the Sequel.

^f The Sense of the Author is, that if the Tongue and Mouth appear moist, and the Patient begins to expectorate laudably very soon in the Disease, the Crisis will be speedy in Proportion: But on the contrary, if these Evidences of Humectation appear late, the Crisis will be slow.

^g The whole Ptisan seems to be the Ptisan not strained.

^h The great Advantages of Relaxation in inflammatory Disorders, are specified under the Article INFLAMMATIO, which see.

Death.

A Physician, then, who allows his Patients the Use of Ptisan in these Distempers, need not enjoin Inanition, or Emptying of the Vessels, as it is called, though but for one Day, unless he finds himself obliged to intermit it for the sake of a Purge or a Clyster.

Those who are accustomed to two Meals in a Day, may have their Ptisan twice in like Manner; but such as usually make but one Meal, are to eat their Ptisan once the first Day, but may, in Time, be brought by Degrees, to take it twice a Day, if it shall be thought convenient. But here you are to observe, that it is not to be given the Patient at first, in too great Quantities, nor too thick, but only enough to comply with Custom, which requires that something should be taken, and to prevent the too great Inanition of the Vessels. As to the Increase of the Ptisan, with respect to Quantity, in the Progress of the Disease, if it is attended with any uncommon Degree of Dryness, too much must not be given; but Honey and Water, or Wine, or any Thing else that shall be judged proper, must be drank, before the Ptisan is exhibited. What is most proper in each particular Case, I shall specify hereafter.

If the Mouth be moist, and what is discharged from the Lungs laudable, and without any bad Quality, the Quantity of forcible Food (Ptisan) to be allowed the Patient is, in one Word, to be increased considerably. For a quick and plentiful Humectation indicates a speedy Crisis, but that which is slow, and sparing, the contrary.

And this is so far the true State of the Case. But we shall pass over many Things that may happen very seasonably to furnish us with Prognostics, and resume the Consideration of them hereafter. The more plentiful the Purgation, (of the Lungs) the more freely may the Patient take his Ptisan till the Crisis, and it will be proper to continue it for two Days after the Crisis, for Fear of Relapses in those Cases, particularly where there is an Appearance of a Crisis on the fifth, seventh or ninth Day; always having Regard to the equal or unequal Number of Days. After this (two Days from the Crisis) it will be prudent to give the Patient Ptisan in the Morning, and in the Evening to proceed to more solid Food.

The Advantages which the Patient reaps by the immediate Use of the whole Ptisan are principally these: The pleuritic Pains immediately cease spontaneously, so soon as the Patient begins to spit any Thing considerable, and to expectorate [*ἐκπύσσει*]. Besides, the Purgations (of the Lungs) are far more perfect, and the Patients escape with less Putrefaction (of the Lungs) than if they had made Use of any other Regimen. The Crises are also more genuine, are performed with less Difficulty, and are less subject to Relapses.

Ptisan ought to be made of the finest Barley, and to be very well boiled especially if any Thing, unless the strained Juice, is to be used. Besides the other Virtues of Ptisan, the Lubricity which this Manner of preparing it gives the Barley, renders it innocent, when eaten. For Ptisan never causes Obstructions, nor oppresses the Thorax; it is very lubricous, excites no Thirst, is very easy of Digestion, and is extremely relaxing, provided it be well boiled; all which Properties render it beneficial in acute Diseases; inasmuch that a Patient will frequently be injured by too scanty an Allowance of this forcible Aliment.

But in Case the Patient is costive, and takes Ptisan without previous Evacuation of the Excrement, if he was before in Pain, it will be increased; if easy, a Pain will immediately succeed, with a Shortness of Breath, which must have bad Effects, as it dries the Lungs, and creates a deal of Fatigue and Uneasiness in the Hypochondria, lower Belly, and Diaphragm. Moreover, in a continual Pain of the Side, that will not yield to hot Fomentations, and where nothing is expectorated but a viscous uncooked Matter, if, instead of attempting to remove the Pain, either by Bleeding or Purging, as shall seem most convenient, we should give them Ptisan, we by this Conduct hasten

Death. For these, and such like Reasons, those who make Use of the whole Ptisan, die on the seventh Day, or perhaps sooner, some delirious, and some suffocated with an Orthopnoea, and Stertor (*Rattling in the Throat*).

The Antients believed such Patients blasted [*ῥαγισ*] on Account of these Symptoms, and were confirmed in their Opinion by observing the Sides of the deceased to be livid, as they would have been from a Blow received. But the true Cause of this Lividness was, the Patient's dying before the Inflammation of the Pleura and Lungs was resolved¹. These immediately become asthmatic [*ἄσθμα*]; for by much and frequent Respiration, the Matter to be discharged from the Lungs being rendered highly viscous without Concoction, as was observed before, prevents Expectoration, and, sticking to the Aspera Arteria, causes a Stertor; and when the Distemper arrives at this State, it is generally fatal². For the viscid Matter obstructs the Passage of the Air into the Lungs, and makes immediate Expiration necessary. And thus both conspire to hasten the Fate of the Patient; for the viscid Matter, by Adhesion, causes a short Respiration, and this Shortness of Respiration renders the viscid Matter (*ῥαγισ*) more and more glutinous, and prevents it from growing slippery, and moveable.

Nor is the unseasonable Use of Ptisan alone, thus pernicious; but the Eating or Drinking of any Thing that is less proper than Ptisan, is attended with still greater Inconveniencies. Whether a Person be injured by the Use of the whole Ptisan, or its strained Juice (*χυρῶς*), the Remedies are much the same, as also if the Injury is received from neither of these, but from an improper Use of Liquids; some Circumstances may however occur, which may induce a Necessity of varying the Means of Relief. The Methods to be pursued are as follow:

If a Man finds himself seized with a Fever soon after a Meal, and before he has had a Stool, whether his Indisposition be attended with Pain, or not, let him abstain from Ptisan, till he has Reason to think that there is a due Seceffion made of the Aliment into the lower Intestines. If he has any Pain, let his Drink be Oxymel, warm if it be Winter, but cold in the Summer; or if his Thirst be considerable, Hydromel (*ὑδρομέλι*) much diluted with Water. After this, if the Pain continues, and there is any Appearance of Danger, let him not proceed to the Use of Ptisan, till after the seventh or ninth Day, provided his Constitution be strong; and even then, let him not take it too thick, or in too large Quantities. If the Food of his former Meal does not secede, to make Room for what he has just now eaten; if he be robust, and in the Vigour of his Age, give a Clyster; but if his Constitution be weak, a Suppository is preferable, unless he has Stools spontaneously. As to the proper Times for giving the Ptisan, this Maxim ought to be observed, both in the Beginning, and throughout the whole Progress of the Disease; that whenever the Feet are cold, we abstain from giving any Ptisan, but especially from the Use of Liquids; but when the Heat descends to the Feet, then is the Time for the Patient to take them. And it will always be prudent to consider the Observation of this Point of Time, as a Thing of the greatest Importance, in all Diseases, but principally in those which are acute; and more especially in such as are attended with a high Fever, and great Danger of Life.

To proceed, the strained Juice of the Ptisan (*χυρῶς*) is generally to be made Use of first, and after that the Ptisan itself, always having a strict Regard to the Rules laid down above. And it will not be amiss to attempt the Resolution of the Pain in the Side, whether it happen in the Beginning, or in the Progress of the Disease, by hot Fomentations³: The best of this Kind, is warm Water in a leather Vessel (*ἀνθή*)⁴, or in a Bladder, or in a copper or earthen Vessel, first applying something soft to the Side, in order to protect the Part which is in Pain from being hurt. The Application also of a large, soft

Sponge, squeezed out of warm Water, is of good Service; but whatever is made Use of as a Fomentation, must be covered with a Cloth, both to preserve its Efficacy the longer, and to keep the Vapour from being drawn into the Lungs, unless, as it may sometimes happen, we have some End to answer by doing the contrary. It will be useful also to apply Barley and bitter Vetches [*ῥαγισ*] macerated in Vinegar, which is so tempered, as to be a little too sour for Drinking, sewed up in Bags; or Bran may be used after the same Manner. For a dry Fomentation, Salt, and torrifed Millet in woollen Bags, are very proper; for Millet is lenient and relaxing; and such emollient Fomentations as these resolve, and relieve Pains that reach even to the Clavicle⁵. If the Pain is not eased by hot Fomentations, they are not to be long continued, for that dries the Lungs, and promotes Suppuration. But if the Pain at the Clavicle gives a sufficient Indication, or if there is a Sense of Weight at the Arm, about the Breasts, or above the Region of the Midriff, we are, without Delay, to open a Vein on the Inside of the Bending of the Elbow, and, as expeditiously as may be, to bleed without sparing, till the Blood runs of a much redder Colour, or, instead of pure and red, runs livid; for either of these Alterations is usual⁶. But if the Pain is situated below the Midriff, and there be no Indication at the Clavicle, the Belly must be loosened with Black Hellebore [*ῥαγισ* *ἡνδρόβω*] or purple Sea Spurge [*πυρρῶς*] mixing with the Hellebore wild Carrot [*δαυρῶς*] or Hartwort [*σισυρῶς*] or Cummin, or Anise, or some other of the fragrant Herbs; but with the Spurge the Juice of Silphium [*σισυρῶς*] for though here be a Mixture of Simples, they are of a like Quality, and produce one uniform Effect. But black Hellebore works better than Spurge, and is more effectual in promoting a Crisis, but Spurge more powerfully dispels Wind; both are Anodynes, and so are many other Cathartics, but these are the best that I am acquainted with: But whereas we find those Purges which are not nauseous on Account of their Bitterness, or any other disagreeable Taste, the Quantity necessary for a Dose, the Colour, or some particular Aversion of the Patient, are with good Success given in Ptisan, it will be proper to give the Patient Ptisan, and that not in a much less Quantity than usual immediately after taking a Dose of the Cathartics above-mentioned, but it is inconsistent with Reason to give forbile Aliment, during the Operation of the Purge; when that ceases, it may be taken in a less Quantity than usual, which afterwards may be increased by Degrees, if the Pain be removed, and no other Circumstance forbids it.

The same Rules will hold good with respect to the Cremor of Ptisan [*χυρῶς*]. For I assert, that it is much better to begin with it at first, than, after Inanition of the Vessels by Fasting; on the third, fourth, fifth, sixth, or seventh Days, except the Disease come to a Crisis within that Time; and the necessary Preparations previous to its Use, are nearly the same as those already mentioned. And these are my Sentiments, in regard to the Exhibition of Ptisan. And with respect to the Drinking any of those Liquids to be mentioned, this is my Opinion. But I know some Physicians, who act quite contrary; to what they ought, in this Affair. For their Method is, after they have first exhausted their Patient, in the Beginning of the Disease, by an Abstinence of two, three, or even more Days, then to allow them forbile Aliment, and Liquors upon this Principle, perhaps, that it seems reasonable to compensate for one great Change in the Body, by introducing another as great, and contrary. A Change, indeed, would be very advantageous, could it be brought about in a regular Manner, or the Transition made by just, and easy Stops. But as this Change consists principally in the Allowance of Food, if this be not regulated, the Sick will be greatly injured, and those, most of all, who are indulged the Use of the whole Ptisan. Those also who

¹ A Mortification is the true Cause of this Lividness, and this frequently happens, when the Inflammation is not resolved early enough to prevent it.

² This Passage, and the Prognostic upon it, is extremely just, though the Way of accounting for the Danger of such Cases is none of the best. I have more than once known Prognostics made in inflammatory Cases of the Breast, where the Event has not much promoted the Reputation of the Prognosticator. Thus a Patient has had a violent Pain arising from an Inflammation of the Pleura, and has, on a sudden, become entirely easy, and upon this the Person who had the Conduct of the Case, has rashly given Assurances, that the Case was no longer dangerous, which the Event has in a very few Hours contradicted; the Patient being seized with a Shortness of Breath, which Hippocrates expresses by *ἄσθμα*, and this has, to the Confusion of the unwary Practitioner, terminated in Death. In such Cases, when the Mortification is once begun, the Patient is no longer in Pain, as it frequently happens in external Inflammations. Hence we may learn to beware of sudden Changes in acute Cases, particularly Inflammations.

³ I believe every Physician is sensible of the great Importance of Fomentations applied to the Part in Pain, in all inflammatory Diseases, and perhaps nothing has been invented, since the Time of Hippocrates, equally capable of assisting Evacuations, and internal Remedies, in the Resolution of the Inflammation.

⁴ The *ἀνθή* here mentioned, was the Hide of some Beast, sewed up in a Manner to make it hold Water, or any other Liquor.

⁵ *V. Cal. Aurel. Acut. L. 2. C. 19.*

⁶ Whatever has been said by Sydenham, Hoffman, and almost every other modern Author, has been founded upon what Hippocrates says on this Subject.

Sydenham lays the whole Stress upon Bleeding, and an acescent Diet, much the same as Hippocrates recommends.

As to Diet, I forbid all Flesh-meats, and the smallest Flesh-broths, and advise the Patient to sup Barley-broth, Water-gruel, and Panada; and to drink a Ptisan, made of Pearl-barley, Sorrel, and Liquorice Roots, &c. boiled in Water, and sometimes small Beer. Sydenham de Pleuritide.

⁷ Hippocrates was not acquainted with some lenient and gentle Cathartics, which we now make Use of with great Success in acute Cases. He therefore recommends giving the brisk and stimulating Purges which he knew, in such a Manner, as to take off a Part of their Stimulation, which should seem to be in some Degree effected, by the soft and lubricous Particles of the Ptisan, given immediately after a Dose.

take the Cremor will be injured, as will those who drink only Fluids; these last, however, will be the least Sufferers. We may furnish ourselves with Reasons, in this Case, from the Consideration of the Diet of Persons in Health. For if there appear great Differences in Foods, as in other Things, particularly in their Changes, with respect to Persons in a State of Health, may we not very well suppose them to differ not a little, in regard to the diseased, and especially such as labour under acute Distempers? Now it is obvious to be understood, that a bad, but constant and uniform Course of Diet, both with respect to Meat and Drink is, upon all Accounts, a safer Way to preserve Health, than a great and sudden Change, from a bad to a more wholesome Regimen. So they who are used to eat twice, or but once, in a Day, find themselves injured, and disordered, by altering their old Custom. Let one who is not used to dine make a Dinner, he immediately finds himself not well, and feels a Heaviness over all his Body, with a Weakness, and Inactivity; and if he takes besides his usual Supper, he is molested with sour Eructations, and sometimes loose Stools, when the Stomach is burdened beyond its usual Custom, having been usually suffered to dry, and clear itself, and not obliged to the Fatigue of two Intumescences, and two Concoctions. In this Case therefore the Change is to be compensated by another, that is, by Sleep after Dinner, as in the Night after Supper, taking Care to avoid the Inconveniencies of Cold in the Winter, and Heat in the Summer. If a Person cannot sleep, let him walk about gently for a considerable Time without standing still; and let him make little or no Supper, drinking sparingly, and nothing aqueous. The same Person would be more affected, if he was to make three Meals in a Day to Satiety, and the oftener he eat, the more Inconvenience would he find from it. And yet there are some who eat plentifully three Times a Day, and bear it very well, because they are accustomed to it. And others who eat but twice, if they should miss their Dinner, find themselves weak and feeble, and too much dispirited for any Business, and are besides affected with a Pain at the left Orifice of their Stomach [*καρδιαγῆς*] their Viscera seem in a Manner suspended, they make hot Urine of a pale Colour, and their Excrements are baked within. Some taste a Bitterness in their Mouth, their Eyes grow hollow, and they feel a Pulsation at their Temples, and a Coldness in their Extremities. Again, there are many, who, unless they have had a Dinner, dare not venture on a Supper, because a Supper would oppress their Stomach, and create a greater Degree of Restlessness, during the succeeding Night, than if they had also made a Dinner. Since, therefore, a Change in Diet from the usual Custom, though but for half a Day, produces such Effects in healthy Persons, it seems the safest Way, neither to add to, nor retrench from, our usual Fare. If any one therefore, contrary to his usual Way of Life, eats but once a Day, and, after causing an Inanition of the Vessels by fasting all Day, takes his usual Quantity of Food for Supper, he will probably find himself ill, and disordered, on Account of missing his Dinner; and after Supper he will feel a Heaviness, which, however, will be much greater, if he eats more than his usual Quantity for Supper. But if after Inanition of the Vessels, by a longer Fast, he should then suddenly make a hearty Supper, he will find himself yet much more oppressed by it. Whoever, therefore, has exhausted himself by Fasting, cannot take a better Method to compensate for his Day's Abstinence, and recruit his Strength, than in the first Place to guard against Cold or Heat, and not fatigue himself with Labour, because he is in no Condition to bear any of them. Then at Supper, let him eat much less than usual, and no dry Food, but Aliment of the more moist Kinds. Again, let his Drink be by no Means aqueous, nor less in Proportion to his Food. The next Day let him make a slender Dinner, and so, by gentle Degrees, return to his customary Way of Living. Some are, more than others, affected by these Irregularities, particularly those who abound with Bile in their superior Parts; for those who are phlegmatic are, on all Accounts, better qualified to sustain unusual Abstinence; and for this Reason, if they make but one Meal a Day, they are better able to bear it.

We have said enough to prove that great and extraordinary Changes in Things which relate to Nature, and Habits, are the principal Springs of Diseases. It is utterly unsafe, therefore, to attempt unseasonable and extravagant Inanition of the Vessels, or to offer Food in the Height of a Disease, attended with Inflammation, or, in short, to make any sudden Alteration, in any Respect, during the whole Course of the Distemper.

Relative to what has been explained, much might here be said in regard to the Stomach, and Things of the like Kind. As that we bear with Ease what we are accustomed to, whether Meats or Drinks, though bad in their own Nature; and, on the contrary, are incommode with the best of Foods to which we have never been used. The Effects also of eating much Flesh, contrary to Custom, or of Garlick, or Silphium, or its Juice, or Cabbage, or any others of that Kind, which are endued with some remarkable Virtue, might be taken Notice of; but it is no Wonder, that these should, more

than other Things, disturb, and incommode, the Stomach; especially if we have observed, what Disturbances, Intumescences, Inflation, and Gripings, are excited only by Maza, in a Stomach never used to it; what a Thirst, and sudden Repletion, are caused by hot Bread, by Reason of its drying Quality, and slow Digestion; also what various Effects are produced by the finest Bread; as well as the coarser Sort [*ἐσπίμυρον*], when eaten contrary to Custom; and by Maza; when dryer, moister, or more viscous than ordinary; what are the Effects of new Polenta [*ἀλφίτα*] on those who are unused to it; and how it operates, when stale, with such as are accustomed to eat new; what are the Consequences of Wine and Water, being contrary to Custom, on a sudden, exchanged one for another; or of the sudden abandoning a Custom of drinking our Wine pure, or diluted, with Water, for the contrary; for one will be sure to produce a Redundance of Humidities in the Stomach; and Flatulencies in the lower Intestines; and the other a Palpitation of the Heart, Heaviness of the Head, and Thirst. White and black Wines, exchanged one for another, in Violation of Custom, will cause many Alterations in the Body, though both are equally spirituous; so that we have little Reason to wonder, that sweet, and generous Wines [*γλυκὺς καὶ ἐννύδιος ἄριστος*] when exchanged on a sudden, are not capable of producing the same uniform Effects.

On the contrary it must be confessed, that in acute Diseases some Instances occur, where a Change with Respect to Diet may be induced, without any Alteration in the Body as to Strength or Weakness, considerable enough to render an Addition to, or Subtraction from the Aliment necessary. In these Cases, however, Regard must be had to the Strength of the Patient, the Nature of the Disease, the particular Constitution, Way of living, and usual Diet of the Sick, both as to Meat and Drink. The Addition of Food is much less to be regarded, but an intire Subtraction of it is frequently of Use, provided the Patient has Strength sufficient to support him under such an Abstinence, till the Distemper arrives at its utmost Height, and is ripe for a Crisis: And in what Cases this is to be put in Practice I shall specify hereafter. Much might be added, relative to what has been already said, in Confirmation of these Sentiments; but, as no Illustration is of equal Force with the Thing itself, I have been endeavouring to set in a just Light by similar Instances, I shall proceed to the direct Doctrine, I would inculcate, as of more Importance with Respect to Instruction.

In the very Beginning of acute Diseases, some have been indulged in eating the first Day of the Distemper, others the second Day; some have taken any forbile Aliment, Cyceon not excepted [*κυκεων*]. Now this Method of Diet was far from being the best that might have been contrived. Errors, however, of this Kind are less pernicious, than if, after two or three Days Abstinence enjoined, and a consequent Inanition of the Vessels, the Patient had entered on such a Regimen the fourth or fifth Day: Much more unsafe is it, after all these Days Abstinence, and Inanition, to allow such a Regimen on the succeeding Days, before the Disease is prepared for a Crisis. Such a Method would manifestly prove fatal to most, unless the Distemper were very favourable. But Errors in the Beginning are not so destructive, but more easy to be retrieved than those which are committed in the farther Progress of the Distemper. This, therefore, seems to me a very good Argument why we should not, during the first Days, injoin an Abstinence from this or that Sort of forbile Aliment to those who will be under a Necessity of taking some Sort or other on the succeeding Days. Wretchedly ignorant, and ill-advised, then are those Patients, who enter upon the Use of Barley-Ptisan after two, three, or more Days Abstinence, because it is in such Case prejudicial to them. Nor do they who use only the Cremor [*κρεμώ*] understand that it does them a Mischief, when they begin to make Use of it at an improper Time. However, they are wise enough to know that the Use of Barley-Ptisan, before the Disease is prepared for a Crisis, is very hurtful to those who were accustomed only to the Cremor; and they have Caution enough to avoid it. All these Things are strong Evidences that Physicians use a preposterous Method with their Patients, with Regard to their Aliment, and injoin Abstinence, and consequently Inanition, where there ought to be none; and from these make a Transition to forbile Liquors, by equally wrong Steps, and, for the most Part, exactly counter to the Method required: Sometimes they pass from Inanition of the Vessels to Sorbition, when on the contrary they ought to have proceeded from Sorbition to Inanition, if the Exacerbation of the Disease required such an Alteration. On Account of such Errors it sometimes happens that bilious Crudities are drawn from the Head, and Region of the Thorax; these are succeeded by Want of Sleep, which prevents the Concoction of the morbid Matter; the Patients grow dejected, morose, and delirious; their Eyes sparkle, and look wild; their Ears ring; their Extremities become cold; their Urine is unconcocted; what they spit grows thin, salt, and sincere (*ἀκρίτου*) as to Colour, and little in Quantity; Sweats break out about the Neck, accompanied with Anxieties, and Restlessness; their Inspiration is, as it were, interrupted, quick, and

and very large. Their Eye-brows are in some Measure enlarged, they fall into troublesome, fainting Fits, toss off the Bed-Cloaths from their Breasts, and are seized with Tremors of the Hands, and sometimes of the under Hip; and, if these Symptoms appear early, they portend a high Delirium, and generally Death. They, who escape, come off with an Abscess, an Hæmorrhage at the Nose, or a Discharge of thick Pus by Expectoration, and no other Way.

And indeed I do not find Physicians so sagacious, as to distinguish in Diseases betwixt a Weakness caused by an Inanition of the Vessels, or some other Incentive, and one that is owing to the Pain, and Violence of the Distemper; nor do they discern the various Impressions and Affections of every Kind, which have their Spring in the Nature, and Habit of Individuals, though on the Knowledge or Ignorance of these Things Health or Death depend. Now that Physician does the greatest Mischief, who, mistaking his Patient to be weakened with Inanition, orders him Drink, or increases his Allowance of forbile Aliment, or other Food, when the unhappy Person is exhausted, and debilitated by the Anguish, and Fury, of the Disease. It is an unpardonable Error not to distinguish when a Disorder proceeds from Inanition, and, in Consequence of that Ignorance, to restrain the Patient from Food. Such a Blunder indeed carries Danger with it, but much less than that before-mentioned, but is however much more ridiculous: For, if another Physician, or one utterly ignorant of Medicine, should come, and be informed of what had happened, and should administer Meat and Drink, which the other had forbid, he would, no Doubt, be thought to have relieved the Patient. Such Events bring public Disgrace upon an Artist, in the Opinion of Men; for, in this Case, the before-mentioned Physicians, or the illiterate Person, seem in a Manner to have raised a dead Person to Life.

For these Reasons we shall describe the proper Signs of these Affections by which they may be distinguished; and indeed they have some Affinity with what happens in regard to the Stomach. If the whole Body has rested a long Time, contrary to Custom, it will not immediately increase in Strength; and if it be suddenly put to Labour, after a long Course of Inactivity, it is plain, that this sudden Change must be attended with some Inconvenience. The same Opinion are we to form of each Part of the Body. For the Feet will be in like Manner affected, and likewise the other Limbs, if they should suddenly be put upon strong Exercise, after a long Series of Rest. After the same Manner will the Teeth, the Eyes, or any other Part of the Body, suffer in the like Case; and even a soft Bed, as well as one that is hard, will give Uneasinesses to those who are not used to them; and a Bed, contrary to Custom, made in the open Air, hardens the Body. But it may be useful to illustrate this Doctrine by Instances: Suppose then a Man contracts an Ulcer in his Leg, not bad enough to give him much Concern, yet too considerable to be slighted; and that his Flesh is not very difficult, nor yet remarkably easy to heal. Suppose also, that he is immediately laid up for it the first Day, and never moves his Leg, he will by this Method, indeed, avoid an Inflammation, and it will be much sooner healed, than if he gently walked about during the Cure. But if he has a Mind to rise, and try to walk on the fifth, sixth, or any farther Day, he will find himself worse afflicted, than if he had kept himself upon his Legs, and walked gently about from the Beginning. And if he should on a sudden put himself upon hard Labour he will suffer vastly more, than if he had laboured in that Manner all those Days, while he was under Cure. So that all these Things, taken one with another, will still concur to prove abundantly, that every great, and beyond all Measure, sudden Change, either one Way or another is pernicious.

The Stomach suffers various Ways, from the sudden Reception of too much Food, after a great Inanition of the Vessels by Abstinence; and all the other Parts of the Body will receive much more Damage, if set to Labour after a long State of Rest, than by a Change from a plentiful Diet to Inanition, provided, however, the Body is indulged with Rest upon this Change.

If therefore a sudden Transition is made from Exercise, and Labour, to Indolence and Inactivity, the Stomach must be suffered to rest in Proportion from the Fatigue of Digestion; otherwise, for Want of this Precaution, the Body will

not fail to suffer, either by an universal Heaviness, or some other Disorder.

I have been very copious on this Subject of Alteration in Diet, either one Way or another, because of its great Importance, not only in general, but with Respect to the particular Subject we are upon, that is, a Mutation from an Inanition of the Vessels to Sorbitions in acute Diseases. A Change there must be, according to my Opinion, but by no Means to Sorbitions, before the morbid Matter is concocted; or some Sign, either evaculatory or stimulating, appears about the Intestines, or about the Hypochondria, which shall presently be described.

Obstinate and continual Want of Sleep is the Cause of Cruelties, and Indigestion, both as to Meat and Drink; but a Change to the Contrary, dissolves the Body, and induces Debility, and Heaviness of the Head.

RULES for the USE of WINE, WINE and WATER, WATER, OXYMEL, and BATHS.

The several Sorts of Wines, as the Sweet, Generous, White, and Black, as also Honey and Water, Wine, and Oxymel, are distinguished with regard to acute Diseases, in the Manner following: Sweet Wines are not so subject to make the Head heavy and intoxicate, as the more generous, but are more productive of Stools. Yet they augment Tumors of the Viscera, as of the Liver, and Spleen, more than the other, and are not proper for bilious Constitutions, because in these they increase Thirst. They also generate Flatulencies in the superior Intestines, which do not affect the lower, as they might be supposed to do, for Flatulencies caused by sweet Wines are not of a penetrating Quality, but remain about the Hypochondria; sweet Wines do not, however, provoke Urine as the generous White Wines; but more powerfully promote Expectoration; but it is to be remarked, that if sweet Wine causes Thirst when drank, it increases Expectoration less than the other, but if it causes no Thirst, more.

Generous White Wine has received the greatest Part of its Praise and Censure in the Account of Sweet Wine. It better penetrates to the Bladder than the other, is a Diuretic and powerfully breaks through Obstructions [αποκαθαρτικόν] and must therefore be very good in acute Diseases. For though it be less fit for other Purposes than the former, yet its Faculty of purging by Urine frees the Body from Diseases, if it be managed properly. These Rules will hold good in regard to the Advantages and Prejudices attending the Use of Wine; though they were unknown to former Physicians.

Deep-coloured and black austere Wines may be used in these Distempers under the following Limitations, that is, if the Head is not affected with a Heaviness, there is no Delirium, if Expectoration is free, if there is no Stoppage of Urine, and the Excrements be somewhat moist, and like Abrasions [ἐξουμανθήρεα]. Under these and the like Circumstances especially, we may venture to change White Wine for these.

We are also to take Notice, that Wine, well diluted with Water, is less hurtful to the superior Parts, and those near the Bladder; but Wine, less diluted, is best for the Parts about the Intestines.

OF HYDROMEL, or HONEY and WATER.

But Hydromel [μελιζεννα] drank throughout the Course of the Disease, in acute Distempers, is less proper for such as abound with Bile, or have an Intumescence of the Viscera [αποεργασίαν καὶ μεγαλύναντον τῶν ὀργάνων] than for others. However it does not excite Thirst so much as sweet Wine, but mollifies the Lungs, and promotes Expectoration moderately [αἰσίου ἀναγωγῆς] and mitigates a Cough. It has also somewhat of a saponaceous Quality, which is subject to render the Spit more viscid than it ought to be. Hydromel is also a good Diuretic, provided there be no Impediment in the Viscera. It promotes also the Discharge of bilious Excrements by Stools; which are sometimes laudable, at other Times too much saturated with pure Bile, and frothy, particularly in bilious Constitutions, and those who labour under Obstructions in the Viscera [μεγαλύναντον τῶν ὀργάνων].

Hydromel then, much diluted, is better adapted to promote Expectoration, and to mollify the Lungs; but the least diluted is most effectual in purging downward frothy Excrements, and such as are too hot, and too much saturated with pure Bile.

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In this Manner great Numbers of People of Distinction, whose Affluence enables them to live without Labour, and Exercise, contract Distempers, both acute and chronic, which destroy them before the Period which their Constitutions would, with good Management, permit them to arrive at. For having spent their Youth in a Series of Rural Sports, which require strong Exercise, when fatiated with these, they on a sudden become indolent, and make an imprudent Transition from strong Exercise to Inactivity; mean Time, however, they preserve that Appetite which they had before acquired by Labour and Exercise, and which was an Happiness to the animal System, and produces Obstructions, the Causes of all Distempers whatever.

These Gentlemen would find their Account in continuing a Degree of Exercise sufficient to digest, perfectly assimilate, and at last tribute an Abstinence in Proportion to the Diminution of Exercise.

This Sentence seems misplaced, as it has no Relation to what immediately precedes it. In all Probability it should come in amongst the Examples of the Inconvenience of sudden Changes.

Bile. But it must be confessed, that such Sorts of Stools are attended with some Inconveniences, for they do not allay the burning Heat of the Hypochondria, but rather increase it, and cause a Restlessness, and continual Tossings of the Limbs, as also an Exulceration of the Intestines and Anus, for which Remedies will hereafter be specified.

In these Distempers, therefore, discarding forbile Aliments, if we make Use of Hydromel instead of all other Drink, you may practise with Success, and seldom have the Mortification of miscarrying. In what Cases it is proper, and where not, and for what Reasons, has, in a great Measure, been explained already.

But Hydromel is condemned for reducing those who drink it to an extreme Weakness, the Consequence of which is thought to be Death, in a very short Time. Now this Censure was passed upon it, on Account of those who starved themselves to Death; for some there are, who make it their only Drink, as if this was the proper Use of it. This is not, however, the true State of the Case, for Hydromel drank even alone, is much stronger than Water, unless it happens to purge. And it is, in some Respects, stronger than white, thin, small, and unfragrant [αἰσίου] Wines, and, in some Respects, weaker. For there is a great Difference betwixt the Meracidity [ἀξεντορία] of Wine, and that of Honey, if you compare them with regard to Strength. Let a Person drink double the Quantity of Wine that he takes of Honey, he will certainly find himself much stronger from the Honey than from the Wine, unless the former purges him, and incomparably more Excrements will be produced from the Honey, than from the Wine. Yet if any one should drink Hydromel after Ptisan, it would produce in him an extraordinary Repletion and Inflation, which would have no friendly Influence upon the Viscera about the Hypochondria; whereas, if it were drank before the Ptisan, it would have no such bad Effects, but would in some Measure be of Service.

Hydromel boiled has a much finer Aspect than when crude; for it becomes bright, fine, white, and pellucid; and yet I do not know, that it acquires any new Virtue; for it is no sweeter than the crude, if the Honey was good; but it is weaker, and produces fewer Excrements, which are Properties no way necessary to Hydromel, in order to its Usefulness. Boiled Hydromel is fittest for Use, if the Honey is bad, impure, black, and ill-scented, for the Boiling, in a great Measure, corrects these ill Qualities.

Of OXYMEL.

The Drink, called *Oxymel*, you will find to be beneficial in these Distempers on several Accounts; for it promotes free Expectoration, and renders Respiration easy. We must however have Regard to the following Considerations in giving it: That which is extremely acid, must have some very considerable Effect upon the Spit which is not brought up without Difficulty; now if it dislodges and renders lubricous that, which adhering to the Bronchia causes a Wheezing, and Alteration of Voice, and if it dilates the Bronchia, it must considerably ease the Lungs, because it relaxes them. If, I say, it is capable of these good Effects, it must necessarily be exceedingly beneficial. But sometimes the Contrary happens, and what is highly acid, is so far from promoting Expectoration, that it renders the Spit more glutinous, and so does Mischief. And those are worst affected by it in this Manner, who, besides other bad Symptoms, can neither cough nor spit out what is contained in the Bronchia. In this Case then we are to consider the Strength of the Patient, and, if Things are in a promising Situation, to give a little of it very warm, beginning with a small Quantity, and proceeding gently, never exhibiting too much at one Time. What is but a little acid moistens the Mouth and Throat, brings up Spit, allays Thirst, and is beneficial to the Hypochondria, and the subjacent Viscera. For it prevents any Mischief from the Honey, by correcting what is bilious in it; it discusses Flatulencies [φούλους καταρρέοντων] and provokes Urine; yet it fills the lower Part of the Intestine with too much Moisture, and causes Abrasions. Sometimes, however, it is prejudicial in acute Disorders, especially as it prevents a Flatus from making its Way through the Body, [φύσαν κινῶν ἀγανισθῆναι] and forces it to recur upwards [παλινδρομῆναι πάλιν] besides it weakens the Body, and refrigerates the extreme Parts. And these are all the ill Effects of Oxymel that are worth Notice. It is convenient to be given, a little of it to drink at Night, upon an empty Stomach, before the Sorbition [σὺρβιον] though there is no Reason why it may not be given, at a considerable Distance of Time after Supper. As to those, whose Regimen consists of Fluids only, without forbile Food, I esteem it not proper for them to be perpetually taking Oxymel, especially because of the Abrasion and Exasperation of the Intestines, to which they are the more subject for their being void of Excrements, and still more on Account of the Inanition of the Vessels. Add to this, that it may subtract something from the strengthening Properties of Hydromel.

But if any one should fancy, that the frequent Use of Oxymel might be of Service in all Distempers, let him make it with a very little Vinegar, just enough to give it a Taste, for then what might be hurtful in it, will be rendered innocent, and its beneficial Qualities will be preserved intire.

In short, the acid Quality of Vinegar renders it more proper for bilious than melancholy Constitutions. For the Bile, as being bitter, is dissolved, and converted into Phlegm when exalted by Vinegar; but Melancholy is fermented, elevated, and multiplied by it, [αὐξανθαι] for Vinegar increases Melancholy. But Vinegar is far more prejudicial to Women than to Men, for it is productive of Pains in the Uterus.

Of WATER.

As to drinking of Water in acute Diseases, I know not to what Purpose it can serve; for it neither mitigates the Cough in a Peripneumony, nor is it an Expectorant [ἐκσπυρῶν] but is worse, in these Respects, than other Liquors for constant Use. But a little Water drank betwixt the Doses of Oxymel and Hydromel may promote Expectoration, as it induces an Alteration in these Liquors, and promotes their good Effects, for it dilutes them in the Stomach. In other Respects, Water is not good to quench the Thirst, but increases it; and in a bilious Constitution, it turns to Bile, it is bad for the Hypochondria, and more than usually mischievous, bilious, and weakening, when it arrives at the inferior Intestines; it increases the Heat of the Liver and Spleen, when they are inflamed, and fluctuating causes an uneasy Sensation in the Stomach and Intestines. For, by Reason of its Coldness and Indigestibility, it passes slowly, and neither produces Stools, nor provokes Urine. It is somewhat hurtful also, because it is by Nature void of Excrements. But if it be drank when the Feet are cold, it causes these Inconveniencies in a greater Degree, as Circumstances incline it to this or that bad Effect.

However in Disorders which threaten a vehement Oppression of the Head, or a Delirium, we are totally to abstain from Wine, and in such Cases it will be best to give Water, or, if any Wine is allowed, it must be very small white Wines, that have not the least Flavour, and a small Quantity of Water must be drank after it, by which Means the Strength of the Wine will have the less Effect upon the Brain and Senses. But the proper Subjects for drinking Water, with the right Seasons for indulging them in, or restraining them from the free Use of it, and when it is to be drank cold, and when warm, has been in Part declared before, and shall be more fully specified in its Place.

As to other Kinds of Liquors such as that made of Barley [καριθῶν] or those which are made from green Herbs, Raisins, or Husks of Grapes, or are prepared from Wheat, Cnicus [κνίκου], Holy Thistle [ἁγίου θύσου] Myrtle-berries, Pomegranates, and other Things, the proper Seasons of using these shall be assigned them under the Disease itself in which they may be serviceable, and we shall take the same Method with regard to other compound Medicines.

Of BATHING.

Bathing might be useful in many Distempers, in some by frequent Use, in some otherwise; and sometimes it cannot be used so frequently as it ought, for Want of Conveniences; for we shall find in few Houses the necessary Preparations with suitable Attendance; and, unless a Man be well and thoroughly washed, he may receive considerable Injury. The Bathing-room should be without Smoak; there should be great Plenty of Water, and the Ablutions should be frequent, but not over copious unless the Case requires it. Deterfion, I think, may very well be omitted; but if it must be used, it ought to be done hot, and the Patient must be well rubbed with a deterfory Medicine [σμήγμα] in a much more copious Manner than is generally thought necessary, and must have Plenty of Water poured upon him, and that Water expeditiously changed for fresh. The Way to the Solium should be short, and made easy both for going in, and coming out. The Person who bathes, ought to be composed and silent, and do nothing himself, but suffer others to wash and rub him. Water also of different Degrees of Heat must be in Readiness [μετακείμενα] the Perfusions are to be quick, and the Sponge is to be used instead of the Strigil, and the Body is not to be quite dry, before it is anointed. But the Head ought to be dried, as much as is possible, by rubbing it with a Sponge; and neither the Extremities, nor the Head, nor any Part of the Body ought to be refrigerated. The Bath is not to be used just after a Sorbition or Drinking, nor are Aliments or Drink to be taken just after Bathing. Great Consideration is here to be taken of the Patient, as whether he was a great Lover of Bathing, or accustomed to it while in Health; for such are the more desirous of the Bath, and find themselves the better for Bathing, and are not so well without it.

The Bath, generally speaking, is more proper in a Peripneumony, than a burning Fever, for it mitigates the Pain of the Side, Breast, and Back, maturates and brings up the Spit, facilitates,

itates Respiration, and relieves Lassitudes, being a Mollifier of the Limbs, and outer Skin, provoking Urine, resolving Heaviness of the Head, and moistening the Nostrils.

These are the Advantages to be reaped from Bathing, where all necessary Accommodations are in Readiness; but when one or more of the Requisites are wanting, it is to be apprehended that this Kind of Remedy may do more Hurt than Good; for a Negligence of the Attendants in any one Circumstance is capable of considerable Mischief.

In Distempers where the Belly is unseasonably loose, Bathing is not at all proper, nor where it is unseasonably costive, without previously relaxing it. Persons much enfeebled are not to bathe, nor those who are affected with a Nausea, Vomiting, or bilious Eructations; or who have an Hæmorrhage at the Nose, except it was in less Quantity than the Occasion required; and you know the Occasions. But if the Hæmorrhage was too little, it will be convenient to bathe, whether it be for the Benefit of the whole Body, in other Respects, or only for the Sake of the Head.

When there is, therefore, a convenient Apparatus, and the Patient seems well able to bear it, Bathing may be used every Day, and it will not be amiss if those who are fond of Bathing, use it twice a Day. Those who feed on whole Ptisan, can with more Safety venture upon the Bath, than such as make Use of the Cremor only, though it may on some Occasions be allowed to the last. But Bathing is least proper for such as take only Fluids, though there are Occasions when even these may be permitted to bathe.

From what has been wrote upon this Subject, it may be readily understood under what Kind of Regimen Bathing may be beneficial, and with what it will not agree. Bathing can never be proper for such as are in Want of Necessaries, or Conveniences, to render it of Service to them; but such as are plentifully furnished with whatever may be commodious for this Purpose, may bathe, provided the Symptoms of the present Disorder render it proper, and likely to be of Service.

OF FEVERS, and FEBRILE DISEASES.

The Summer produces a Burning Fever [*καυσός*] when the Veins, being parched and dried by the Fervor of the Season, attract to themselves an acrid and bilious Ichor [*ιχὼρ*]. A violent Fever attends with great Pain, and a Sense of Lassitude in the Bones. It generally happens after a long Journey, and long Thirst, when the dried Veins attract to themselves hot and acrimonious Rheums.

Under this Disorder the Tongue becomes rough and dry, and very black; the Parts about the Belly are affected with a biting Pain; the Excrements are very liquid, and of a pale Colour; there is a vehement Thirst, and Want of Sleep, and sometimes a Delirium.

Let the Patient have as much Water, and boiled Hydromel, much diluted, as he will drink; if there be a Bitterness in the Mouth, it will be proper to give an Emetic and Clyster; if these do not procure Stools, purge him with Asses Milk boiled. Give nothing salt or acrimonious, for the Case will not bear it, nor any forbile Liquor, till the critical Day be past. If there happens a considerable Hæmorrhage from the Nose, or genuine critical Sweats; with white and thick Urine, and a

light Sediment; or if an Abscess be formed, there is a Solution of the Disease. If there be a Solution without these Symptoms, the Patient will relapse, or be seized with a Pain in the Hips or Legs, and will spit a gross Matter, if he recovers.

There is another Kind of Burning Fever, which is attended with a Looseness, an intense Thirst, a rough, dry, and saltish Tongue, a Suppression [*ἀποκρίσις*] of Urine, Want of Sleep, and Coldness of the Extremities.

This Disease is never critically determined without an Hæmorrhage from the Nose, or an Abscess about the Neck, or a Pain of the Legs, with a Spitting of gross Matter after the Looseness stops, or a Pain at the Ischium, or a Lividness of the Pudendum. The Tension of a Testicle also is a Symptom of an approaching Crisis. Give the Patient attractive, forbile Aliment.

In acute Diseases, if the Distemper be violent, and the Patients strong; and in the Flower of their Age, bleed. In a Quinsy [*σώριον*] or any pleuritic Disorder, promote Expectoration with soft Linctuses. If the Patient appears weakened by too plentiful Bleeding, instead of repeating it, administer a Clyster every third Day, till he is out of Danger, and wants no farther Remedy but Abstinence.

Tumors of the Hypochondria not caused by an Interception of the Spirits, (*perhaps Hysterics*) Distentions of the Diaphragm, a laborious Respiration, with a dry Orthopnea, and without any internal Suppuration, but proceeding from an Interception of the Breath (*a Straitness of the Ramifications of the Aspera Arteria, preventing the Ingress of the Air*) but particularly violent Pains of the Liver, Oppressions of the Spleen, other Inflammations, and Disorders that are caused by painful Tumors in the Parts above the Diaphragm; all these cannot be resolved by Purging at first, but are more tractable, if the Cure is began by Bleeding. After this proceed to Clysters, unless the Distemper be very violent; but Regard must be had to the Safety and moderate Operation of Cathartics, which are made Choice of after Bleeding.

Whoever, in the Beginning of an inflammatory Disease, attempts the Cure by Cathartics, does not in the least diminish the Tension, and Inflammation of the Part affected; for the Distemper, in this State of Crudity, will not yield to such Medicines; on the contrary, this Method of Treatment liquefies and wastes the sound Parts, which would otherwise resist the Distemper; and when the Body is in this Manner weakened, the Disease gets Ground, till at last it becomes incurable.

OF THE CATALEPSIS.

When a Person is suddenly taken speechless, without manifest Cause, or any evident great Disorder, it proceeds from a Stagnation of the Blood in the Veins [*στάσις αἱμορροίας*]. In this Case open the internal Vein of the right Arm, and take away more or less Blood, according to the Age and Habit of Body. This Disorder is generally accompanied with a Redness of the Face, fixed Eyes, distended Hands, Grinding of the Teeth, Palpitations, Contraction of the Jaws, Coldness of the Extremities, and an Interception of the Pulse. When a Pain comes on, there is an Afflux of black Bile, and acrimonious Humours to the Part. The internal Parts are affected with a biting Pain, as well as the Blood-vessels, which are also extremely

* There is a remarkable Blunder at this Place in the Edition of *Foetus* of 1657.

* This Sentence admirably expresses the Consequences of an alkaline Putrefaction; and the subsequent Account of a *Burning Fever*, as he calls it, is inferior to none given by later Authors.

* Galen could not understand what is here meant by *Attractive*; and indeed it is not very easy to find the true Sense of it.

* Sydenham has the following Passages, the Hints of which were, probably, taken from the great Author before us, and, no Doubt, Experience made him afterwards sensible of the Truth and Importance of the Doctrine here delivered.

We should not omit, that if the State of the Patient requires both Bleeding and Vomiting, it is safest to bleed first, and give the Vomit afterwards; otherwise there would be Danger, that whilst the Blood-vessels are greatly distended, the violent Motion in Vomiting might burst the Vessels of the Lungs, or hurt the Brain, and occasion a Vomiting of Blood, or a mortal Apoplexy; of which I could give some Instances, if it were proper; but my Design is only to caution. *Sydenham, de Morbis Acutis.*

But in the first Stage of epidemic Diseases, of whatsoever Kind they be, great Care must be had not to purge before Bleeding. For the Diseases, which arise from an epidemic Constitution of the Air, are either actually Fevers, or upon the least Occasion degenerate into Fevers; so that a Fever may easily be caused by the Disturbance raised in the Blood and Juices by the mildest Purgative; and the Heat succeeding it, which Nature had otherwise expelled by the usual Evacuations of the morbid Matter; as, for Instance, by a Catarrh, or an epidemic Cough, or by a Diarrhoea, when the epidemic Fever has a Tendency to that Discharge. The same may be said of any other Constitution of the Air, that disposes the Body to some peculiar Fever; which does not always actually happen, because Nature expels the morbid Matter from the Blood by some suitable Evacuation. This I affirm to be Fact, though the present Practice is to exhibit Cathartics before Bleeding, or, which is still more dangerous, without Bleeding at all.

For, though it may be objected, that, by Bleeding before Purging, the foul Humours contained in the first Passages are propelled into the empty Veins, yet it is most certain, that the Evacuation which precedes Bleeding cannot make Amends for the Injury, which the Blood receives from the Tumult raised therein by the Cathartic. And it must be owned, that a Purge, taken immediately after Bleeding, works much more gently, and heats and agitates the Blood less, than it usually does when exhibited before Bleeding: And I am apt to think that Numbers, and Children especially, have perished for Want of knowing this, or through Neglect of it.

And this I have learned from a long Course of Experience, which is the surest Guide in these Cases; and, unless Practice be regulated thereby, it were better to discard the Art: For the Lives of Men are but too much trifled with, on the one Hand, by Empirics, who are ignorant of the History of Diseases, and the Method of Cure, and only provided with Receipts; and, on the other Hand, by such idle Pretenders, as rely wholly upon Theory; whence both together destroy greater Numbers, than the Diseases would without their Assistance.

But that Method of Practice, and that only, will relieve the Patient, which deduces the Indications of Cure from the Phenomena of Diseases, and afterwards confirms them by Experience; and by this Means the great HIPPOCRATES merited the highest Reputation. *Sydenham Epistola Prima Responsoria.*

These Rules with Respect to Bleeding in acute Disorders, before Cathartics are exhibited, are of infinite Importance in the Practice of Physic; and it is much to be lamented, that they are not more regarded; for I am satisfied that Thousands are destroyed by an Ignorance, or Neglect of these salutary Cautions. I should therefore recommend it to Practitioners of every Class to have some Regard to the Authority of Hippocrates, the first and best medicinal Author, the greatest and most solid Genius that, perhaps, any Age has produced, the Preserver of Thousands yet unborn; and let them remember, that his Precepts have in this Instance, as well as many others, received the Sanction of Sydenham, the best practical Writer since his Time.

ly dried, and contracted, and being moreover inflamed, they attract the Humours to them which are set a float. Hence the Blood being corrupted, and the Circulation obstructed and prevented from being carried on in the natural Conduits, Stagnations are caused, of which Refrigerations, Vertigoes, Loss of Voice, Oppression of the Head [*καρφαλα*] and Convulsions, are the Consequences, when they affect the Heart, Liver, or Vena Cava [*τὴν φλέβα*]. Hence proceed Epilepsies, and Palsies, when the noble Parts above-mentioned are thus disordered by a Flow of Humours, and dried for Want of a proper Circulation.

For such Patients, certainly the best Thing we can do is, immediately after Fomentation, to open a Vein, while the affected Spirits, and Humours are a float, for then are Remedies of the greatest Efficacy. When the Patient is a little recruited after Bleeding, a Vomit will be proper, unless he is before much relieved, always having Regard to a Crisis. And if Stools are not procured by a Clyster, purge with Asses Milk boiled, in a Quantity not less than six Pints, or, if the Constitution is robust, more than eight may be given.

Of a QUINCY.

The Quinzy happens frequently in Winter or Spring, by the Defluxion of a Multitude of viscous Humours upon the Jugular Veins, which attract the more, on Account of their extraordinary Size. This cold and viscid Humour obstructs, and renders impervious all the Passages of the Blood, and Spirits, condenses the Blood near it on every Side, coagulates it, and causes it to stagnate, being by Nature cold, and inclined to generate Obstructions.

Hence the Patients are suffocated, their Tongues are livid, round, and bent back in their Mouths, because of the Tumesfaction of the Veins underneath; an Incision being made in the Uvula, which is also called *uvula*, a large Vein, appears on each Side. These Veins, when thus turgid with Humours, press upon the Tongue, which, on Account of its Dryness, Rarity, and Sponginess, is susceptible of Impressions from the adjacent Veins, and readily imbibes the Humours with which they abound; and hence it is changed from flat to round, from well coloured, to livid, from moist, to dry, and from flexible, to stiff, inasmuch that the Patient is in Danger of Suffocation, without immediate Relief, which is to be given by Bleeding in both Arms, and opening the Veins under the Tongue, by Lambdatives capable of incising the Humours, by hot Gargarisms, and evacuating a Part of the Humours by an increased Discharge of Saliva⁷; and by shaving the Head. A Cerate should also be applied to the Head and Neck, and over this Wool, and the external Parts must be fomented with soft Sponges, wrung out of warm Water. The Drink ought to be Water and Hydromel, but by no Means cold; or Cremor of Ptilan, when the Danger is judged from the Crisis, to be over.

In Summer, or Autumn, when Humours descend from the Head, which are hot and acrimonious, as participating of the Heat and Acrimony of the Season; they corrode, exulcerate, and fill with Spirits, and an Orthopnoea, with a great Dryness, succeeds. In this Case, the Fauces, if inspected, manifest no Tumor, the Muscles on the back Part of the Neck are fixed, as in a Tetanus; the Voice is broken, Respiration small, frequent, and not performed without Difficulty; there is an Exulceration of the Aspera Arteria, with an Inflammation of the Lungs, inasmuch that they cannot readily admit the external Air; and if the Disease do not spontaneously tend to the external Parts of the Neck, it is the more terrible, and fatal, on Account of the Season of the Year, and because it owes its Origin to hot and acrid Humours.²

MISCELLANEOUS OBSERVATIONS WITH REGARD TO FEVERS.

If a Fever seizes a Person whilst the old Excrements are retained, or immediately after new Food is received, whether accompanied with a Pain of the Side, or not, the Patient is to rest, till the Food is descended into the lower Intestines; mean Time, let his Drink be Oxymel. When a Heaviness is perceived at his Loins, purge the Belly with a Clyster, or a Cathartic. After Purging, let him take first forbile Aliment, and drink Hydromel; after this, he may proceed to vegetable Food, and boiled Fish, with a little diluted Wine at Night, and diluted Hydromel in the Day-time. If the Discharges of Wind are very foetid, a Suppository or Clyster will be of Service. If otherwise, he must continue the Use of Oxymel, till the Excrement descends into the inferior Intestines, and then let a Clyster be administered.

If a burning Fever seizes whilst the Belly is laxative, if Purging appears proper, defer it the three first Days, and give the Cathartic on the fourth. After Purging, give forbile Aliment, observing the Approach of the Fever Fits, so as never to give it when the Fit has actually seized, or is just coming on, but when it ceases, and is intirely gone off, and the Disorder is at the greatest Distance from the Access of the succeeding Pa-

roxysm. But give no Drink, nor forbile Aliment, nor any Thing of that Kind, whilst the Feet are cold; but esteem it as a Matter of the greatest Importance, to wait till they are thoroughly hot, and then give what you think most proper; for the Coldness of the Feet is universally a Sign of the Approach of the Paroxysm; at which Time, if you load the Stomach with any Thing, you will do Wrong upon all Accounts, for the Disorder will hereby be considerably increased. But when the Fit is over, the Feet, on the contrary, grow hotter than the rest of the Body; and as the Feet are refrigerated, the Fever increases, and a Fire is kindled in the Thorax, which imparts Flame to the Head. For all the Heat rushing together, and exhaling to the Head, it is not at all strange that the Feet, which are by Nature of a nervous, and not fleshy Substance, should be refrigerated. Besides, their great Distance from the hot Parts contributes to their Refrigeration, when the Heat is collected in the Thorax. Again, it is consonant to Reason, that the Feet should grow hot, when the febrile Paroxysm is resolved and utterly dispersed. At this Time, the Head and Thorax are refrigerated, and for that Reason Food is to be given. For, when the Feet are cold, the Stomach must necessarily suffer with too much Heat. Hence Sickness and Nausea, distended Hypochondria, and Restlessness, because of the internal Agitation, as also a Delirium, and Pain; add to this, that the Patient is affected with Vellications, and Inclinations to vomit, and if what is discharged by Vomit is bad, Pain succeeds. But when the Heat descends to the Feet, and the Urine is discharged freely, though no Sweat arises, all Things are composed, and then it is proper to give forbile Aliment, which at other Times is pernicious.

In such who have their Belly laxative during the whole Course of a Fever, take care to keep their Feet not less warm than the rest of the Body, by warming them, covering them with Cerates, and rolling them with Swaths. But if they are spontaneously hot, warming Applications are not necessary, unless so far as may preserve them from Refrigeration. In this Case, let the Patient drink cold Water, or Hydromel, in small Quantities.

As for such as have their Bellies laxative in Fevers, and are delirious, many of these pick the Bed-cloths, rub their Noses, return quick [*κατὰ βραχὺ*] Answers to what they are asked, and talk nothing that is rational, but utterly incoherent. These Symptoms I imagine arise from black Bile. In this Case, if the Stools be liquid and colliquative, cooler and thicker Sorbitions, in my Opinion, are proper to be given, and Drinks fit to stop a Looseness, but rather vinous than astringent.

As for those who, in Fevers, from the Beginning, are affected with a Vertigo, and Pulsation in the Head, and make a thin Urine, we are to expect a considerable Exacerbation of the Fever about the Crisis; nor is it a Wonder if they become delirious.

Those who in the Beginning make cloudy or thick Urine, are to be purged, provided nothing contradicts. But such as make thin Urine in the Beginning, are by no Means to be purged, but may, if it shall be thought fit, have a Clyster administered; these latter are to be treated in the following Manner:

Let the Patient be enjoined a strict Rest; let him be anointed, and equally covered with Cloths; let his Drink be diluted Hydromel, and let him sup the Cremor of Ptilan at Evening. Evacuate him with Clysters in the Beginning, but avoid Purging; for if you raise any Commotions about the Stomach, the Concoction of the Urine will be hindered, and the Fever considerably prolonged without Sweat or Crisis. Permit no forbile Aliment to be given at the Approach of the Crisis, when the Perturbation is at the Height, but defer it till the Patient grows easier, and mends. The Crises of all Fevers are to be observed, and forbile Aliments, at that Time, are to be strictly prohibited.

These Sorts of Fevers, generally continue a long Time, and, if attended with a Coldness of the Feet, usually terminate in Abscesses, about the Ears or Neck. If no such Coldness attends, other Alterations are more likely to happen, as an Hemorrhage from the Nose, and sometimes a Diarrhoea. Those who labour under Fevers attended with great Anxiety and Distention of the Hypochondria, with Restlessness, so as not to be able to lie a Moment in the same Place, and Coldness in all their Extremities, require the greatest Care and Watchfulness over them. The Method of treating them is to give them nothing but Oxymel diluted; and to keep them from all forbile Aliments, till the Fever is abated, and the Urine appears concocted. The Patient is to lie in a dark Chamber, on a very soft Bed, to endure for a long Time the same Posture of Decubiture, and to avoid as much as is possible all Jactation of the Body, for in so doing, he will find himself principally relieved. Moreover, mollify the Hypochondria with Linseed, applied to them, as hot as it can be endured, and boiled in Water and Oil, taking particular Care that it is not grown cold when laid on.

Probable

⁷ Thus Galen interprets *βραχὺ*. It is observable that Sydenham's Method of Practice is nearly the same as that here specified.
² This Account of a very dangerous Sort of Quinzy, has been adapted by most succeeding Authors on this Subject.

Probable Prognostics may be drawn from the Urine: Those which are turbid, and pale, are better, but the thin and black, are much worse: Their frequent Alteration indicates a long Duration of the Fever, which consequently must be irregular, and undergo many Changes, either for the better or the worse. These anomalous Fevers are to be let alone, till they come to some Confidence, and Regularity, and then they are to be opposed by a proper Regimen, and a convenient Method of Cure, always having a due Regard to whatever Nature produces. Even the Countenances of the Sick are various, and worthy of Notice; it is therefore the Duty of every Physician, to be watchful that no Circumstance escapes his Observation, whether it manifests itself by outward Appearances, or may be discovered by Reasoning; nor must any of those be neglected, which may be expected to happen at equal, or unequal Numbers of Days.

First, then, odd Days are to be suspected, because these produce Alterations in the Distemper, either for the better or for the worse. Observe, therefore, the first Day when the Patient was taken ill, and whence and when the Disease began, which is esteemed the first and principal Thing to be considered. After this, the Sick must be examined, and all Things duly weighed and considered; first, enquire how he finds his Head, whether it be free from Pain, and whether he has no Sense of Gravity in it. Then as to his Sides, and Hypochondria, ask him whether they are free from Pain; the Hypochondria, in particular, whether they are affected with any Uneasiness, or Intumescence, or Obliquity, (*that is, whether they are more swelled on one Side than the other*) or Fulness; whether there be a Pain of the Side, and that Pain be attended with a Cough, Gripes, or Uneasiness of the Belly.

If any of these Symptoms affect the Hypochondria, the most proper Remedy is a laxative Clyster, and let the Patient drink boiled Hydromel pretty hot; examine also whether the Patient be subject to faint when he rises up, and whether he respires without Difficulty. The Stools also are to be regarded; and Notice taken if they are remarkably tinged with a black Colour, or are sincere, as in a State of Health; observe also, whether there be an Exacerbation of the Fever on the third Day.

After considering whatever happens on the three first Days in these Distempers, there are other Things that must come under Examination. Thus, if the fourth Day produce any of the same Symptoms as the third, the Case is attended with Danger.

As to the Signs, black Stools prognosticate Death; but such as are like those of Persons in Health, if they appear every Day the same, are Signs of Recovery.

If a Stool cannot be procured by a Suppository, and nevertheless Respiration is easy, but the Patient faints when he sits up, or lies in Bed, and this happens at the Beginning of the Fever, a Delirium is to be expected, whether the Patient be a Man, or a Woman, that is thus affected.

The Hands also are to be observed; for if they tremble, an Hæmorrhage from the Nose may be expected.

Inspect likewise the Nostrils, and observe whether the Breath passes equally free through both; and if much of it passes through the Nose, Convulsions usually follow; in which Case Death is to be expected; and it is of Importance to a Physician to make sure Prognostics.

If a Fever happens in the Winter, attended with Roughness of the Tongue, and a Delirium, though there is a Remission of the Disease, the Patient is however to be kept extremely low, and to be just supported with Water, and Hydromel, and Cremor of Ptisan (*χυρός*); for there it is dangerous to rely on the Remission of such Fevers, because Signs of this Nature shew the Patient to be in a hazardous State. When you are well acquainted with these Things, make Predictions, if you please, always, however, with great Circumspection.

In Fevers, if there appears any formidable Symptom on the fifth Day, or there happens a sudden Diarrhoea, or Fainting, or Loss of Voice, or Convulsions, or Hiccups, which render the Patient extremely restless; if a Sweat breaks out about the upper Lip, the Forehead, and the Part of the Neck behind the Head; the Persons who labour under these Symptoms, die in a very short Time, as it were, asthmatic (*πνευμασθικός*).

Those who in Fevers are affected with Tubercles on their Legs (*οστά φυμαλιδία*) which continue a long Time without Maturation, the Fever still persevering; and who are moreover seized with a Suffocation in the Throat (*πνιγμός φάρυγγος*) no Tumor appearing about that Part, and the Tubercles still remaining crude (*καὶ μὴ σφιδά*) are usually seized with an Hæmorrhage from the Nose, which if it be copious prognosticates a Solution of the Disease; if not, that it will be of long Duration; and the less the Hæmorrhage, the Distemper will be worse, and longer in Proportion. If the Patient is tolerably easy, with respect to other Things, he may expect Pains about

his Feet. But if Pain seizes the Foot, and grows excessive, and is attended with Inflammation, which remains without Resolution, the Pain, by Degrees, will penetrate to the Neck, the Clavicle, the Shoulder, the Breast, and the Hip, (*ἀσθρα*) whence this last must necessarily be affected with Tubercles; if these disappear, and the Hands are contracted, or unsteady, the Patient soon grows convulsed and delirious; Pustules (*φουλάκια*) also, and red Spots (*ἰσχυματά*) appear upon his Eye-brows, the Eye-lids swell, and approach each other, a dry Inflammation succeeds, the Eye swells extremely, and now the Delirium increases exceedingly; the Night, however, produces an Exacerbation of the Delirium, more than the Day. An unequal Number of Days favours the Production of the Symptoms above-mentioned, more than one that is equal; but whenever they appear, they are alike of bad Presage.

If you intend to purge such Patients at the Beginning, it must be done before the fifth Day, provided a Murmuring is perceived in the Intestines; otherwise omit it. But if there is a Murmuring, and the Excrements are bilious, purge gently with Scammony; as to the rest of the Treatment, abstain, as much as the Case will permit, from Liquors, and Sorbitions, till after the fourteenth Day, and the Fever begins to remit; for this Method will promote the Cure.

In a Fever, if there be a Failure of the Voice about the fourteenth Day, it portends no quick Solution nor Deliverance to the Patient, but the long Continuance of the Disorder; if it happens precisely on the fourteenth Day, still the longer will the Disease prevail.

If the Patient in a Fever on the fourth Day, finds some Difficulty in speaking, and has thin bilious Stools, he usually falls into a Delirium.

It is also of Importance to consider the Consequences of many Things which occur.

In acute Diseases, which happen in Summer and Autumn, a sudden Discharge of a few Drops of Blood (from the Nose) indicates a great Resistance (*συνεία*) and Inflammation of the Vessels, and the Appearance of a thin Urine the next Day. And if the Patient be in the Vigour of his Age, inured to Exercise, carous, or of a Constitution inclined to Melancholy, or his Hands shake with Drinking, you may safely prognosticate a Delirium or Convulsions; which, if they happen on even Days, are the more favourable, but, on critical Days, are pernicious, unless the Patient is relieved by a copious Hæmorrhage from the Nose, or the hæmorrhoidal Veins; or by a Suppuration, Translocation of the morbid Matter, critical Tumor, or Pains about the Hypochondria, Testicles or Legs; for a Solution of these, paves the Way to Expectoration, and the Discharge of a thick, smooth, and white Urine.

In a Fever, attended with Hiccups, let the Patient take the Juice of Silphium, and wild Carrot, beat up with Oxymel; and give him Galbanum in Honey, with Cummin, by Way of Laxative; after these, he may be allowed strained Juice of Ptisan. In this Case, the Patient cannot escape, unless he is relieved by critical Sweats, regular Sleep, and the Discharge of a thick and acrid Urine, except the Disease terminates in an Abscess. An Eclegma may be prepared of Pine-nut Kernels, and Myrrh; and let the Sick drink very little Oxymel; but, if he be very thirsty, give him Barley-water.

In a Peripneumony, or Pleurisy, we are to consider whether they are attended with an acute Fever; whether the Pain lies in one or both Sides; whether the Patient labours for Breath; whether there be a Cough, and of what Kind the Spit, whether reddish, livid, thin, frothy, florid, or in any Respect different from what usually happens in such Cases. The Patients are to be treated after the following Method:

If the Pain verges towards the Clavicle, or the Breast, or Arm; open the inner Vein of the Arm, on the Side where the Pain lies, and take away as much Blood as the Habit of Body, the Season of the Year, together with the Age and Complexion of the Person will permit; and the more plentifully, and with the greater Confidence, if the Pain be acute, even to the Fainting of the Patient. After this, let a Clyster be given.

But if the Pain is situated under the Thorax, and is very intense, exhibit a Purge. Whilst it works, give nothing; but when the Medicine has finished its Operation, let the Patient take some Oxymel. Purge on the fourth Day; but the three first Days make Use of Clysters, and then, if these give no Relief, purge gently; after this, let due Care be taken of the Patient, till the Fever disappears, and the seventh Day is arrived. If then the Danger appears to be over, proceed thus: First, exhibit a little Juice of Ptisan, mixed with Honey. Afterwards, if the Spit comes up with Ease, Respiration is easy, and the Pain of the Side is no longer sensible, give a somewhat larger Quantity, made a little thicker, twice in a Day.

If the Disease be more obstinate, the Drink must be less in Quantity, with a little forbile Food; that is, the Juice of Ptisan prepared thin, and given but once in a Day, and that at

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the Time when it is at the best, which may be known by the Urine. But in these Distempers, forbile Food is not to be allowed till a Concoction is manifest in the Urine and Spit. And if the Patient has been purged much, his Diet must be the thinner, and the less in Quantity, for he will not be able to sleep, because of the Inanition of the Vessels, nor digest as he would otherwise, nor have Strength to sustain the Shock of the Crisis. But when Crudities are brought to a Colliquation, and what resists (*Nature*) is expelled, nothing will afterwards interfere with a more plentiful Use of these. Now the Spit is distinguished to be concocted, when it is like Pus, and the Urine, when it deposits a reddish Sediment like (*the Meal of*) Vetches.

In other Pains of the Sides, it is proper enough to apply warm Fomentations and Cerates, and to anoint the Legs and Loins with warm Oil or Fat; but on the Hypochondria lay a Cataplasim of Linseed, that may extend as far as the Breast.

A Peripneumony, in its Vigour, admits of no Relief, without a Discharge by Expectoration, and is dangerous, if accompanied with a Difficulty of Breathing, a Discharge of thin and acrid Urine, with Sweats about the Neck and Head; for these are fatal, as proceeding from a Suffocation, and the Strength and Fury of the prevailing Distemper, unless when there is a plentiful Discharge of thick Urine, or a concocted Matter is expectorated; for if any Thing of this Kind happens, there is a Solution of the Disease.

An Eclegma for the Peripneumony is prepared of Pine-nut Kernels, and Galbanum with Attic Honey: For a Pleurisy, in the Beginning, when the Pain is urgent, boil Southernwood, Pepper, and black Hellebore in Oxymel, and give the Patient. A Decoction of Panax (*ginseng*) in Oxymel, strained and drank, is good in Affections of the Liver, and Pains about the Diaphragm. Give what is intended to operate by Stool or Urine in Wine and Honey; but it may sometimes be adviseable to give Cathartics, with a plentiful Draught of diluted Hydromel.

When a Dyfentery ceases, it is succeeded by an Abscess, or some Sort of Tumor, unless it terminates in a Fever, or in Sweats, whilst the Urine is thick, white, and smooth; or it may end in a Tertian, or in a Varix, or fix upon the Testicle, or Legs, or the Hip.

In a bilious Fever the Accession of the Jaundice, with a Shivering before the seventh Day, gives a Solution to the Disease; but if it comes out of Season, and without a Rigour, it is fatal.

Convulsions about the Loins, and a Stagnation of the Blood on Account of a Redundance of melancholy Humours, whenever they happen, are solved by Phlebotomy. But when the Body is drawn vehemently forwards by convulsive Contractions of the Muscles, and Sweats are raised about the Neck and Face; the Violence of the Pain stimulating, and shrivelling the Psoas Muscles, which being considerably thick, sustain the Spine of the Back, in that Part where the largest Nerves take their Rise, and are extended to the Feet, unless the Patient be seized with a Fever, and a Sleep, and then makes a well concocted Urine, and falls into critical Sweats, let him drink generous Cretic Wines, and eat boiled Meal. Anoint him also with emollient Cerates, and bathe his Legs in a Tub of warm Water, and afterwards wrap them up in Cloths as far as the Feet, and in like Manner cover the Arms down to the Fingers. Lay also a warm Skin, spread with Fat and Cerate, over the Loins, large enough to reach from the Neck to the Haunches, and to come over before. Fomentations also with Bladders may be used at Intervals, with Affusions of warm Water, after which the Patient, being well wrapt up in Linnen, is to be laid to rest.

Beware of too much Purging; but if the Belly has been coftive for a considerable Time, use a Suppository; and if this answers the Purpose, it relieves the Patient; if not, let him drink fragrant Wine medicated with the bruised Root of Bryony and wild Carrot in the Morning fasting, before Affusions of Water; and after these, let him immediately eat heartily of boiled Meal warm, drinking afterwards at Pleasure Wine well tempered. If this Method answers the Intention, it is well; if not, Danger may be prognosticated.

All Diseases admit of a Solution, either by the Mouth, or the Belly, or the urinary Glands, or some other Emunctory; but all critical Discharges are accompanied with Sweats.

In Case a Rheum descends from the Head, Hellebore is the proper Remedy; but to such as labour under an Abscess, a Rupture of a Vessel, the ill Effects of Intemperance, or who, from some other powerful Cause, are affected with a Suppuration, Hellebore is by no Means to be given; for it can do no Good, and if the Patient be worse, is sure to bear the Blame. But if the Body be languishing, or there be a Pain in the Head, or a Stuffing of the Ears and Nostrils, or a Spitting, or a Heaviness of the Knees, or the Body smell more than

usual; you may prescribe it, provided that none of the aforementioned Symptoms proceeds from Excess of Drinking, or Venery, from Sorrow, Cares, or Want of Sleep; if any of these are in Fault, the Method of Cure must be suited to the Cause.

Pains in the Sides, Back, Loins, and Hips, and whatever manifestly cause a painful Respiration, are sometimes the Effects of Travelling; though sometimes also the Pains in the Loins and Hips proceed from a Crapula (*Overloading the Stomach*) or flatulent Food: To these may be added a Dysury; now all these together with a Stuffing of the Head, and a Hoarseness, are often caused by Fatigue in travelling.

Many Signs worthy of Notice arise from the Method of Diet, according as a Person deviates from that which has been habitual to him. If any one makes a Dinner, who never used to dine, his Belly swells considerably, and a Sleepiness, together with a Sense of Fulness, oppresses him; and if besides he sups as usual, he finds his Belly disordered. Such Persons would do well to sleep immediately after Bathing, and when they rise, to walk gently for a considerable Time; if by these Means Stools are procured, let him make a Supper, and drink a little Wine, but not much diluted. But if there are no Stools, the best Way is to anoint the Body with warm Oil; and in Case of Thirst, to drink a little white, or sweet Wine diluted, and immediately afterwards to betake themselves to Rest, where, if they cannot sleep, let them continue at Rest longer. In other Respects, let such a Diet be directed as is proper for a Crapula.

As to Drinks, those which are watery are flow of Passage, and gather round, and float about the Hypochondria, not readily passing off by Urine. Whoever fills himself with such Liquors cannot be quick at the Dispatch of any Work that requires great Efforts, Strength, or Agility of Body. In such a Case, the best Way in general is to be still, and rest, till such Fluids are concocted together with the Food. On the contrary, the stronger, or more austere Sorts of Drink cause Palpitations in the Body, and Pulsations in the Head. Those who are disordered by such an Excess are relieved by Sleep, and supping some such warm Liquor, as is most agreeable to the Palate.

Fasting is bad for the Head-ach and Crapula. Those who eat but once in a Day grow weak; their Urine is hot, from an unnatural Exinanition of the Vessels; there is a Saltiness and Bitterness in their Mouth; they tremble when they are about any Work, the temporal Arteries are distended; nor can they digest their Supper so well as if they had dined. It will be proper for such to drink less than usual, and to eat Maza made pretty liquid, instead of Bread, and among their Greens to use Docks, or Mallows, or Ptisan, hulled Barley, or Beet. At Table, let them after Eating drink a moderate Quantity of Wine well diluted, and after Supper take a gentle Walk, till a Secretion being made, they have Occasion to evacuate by Urine: Let them feed also on boiled Fish.

Foods also evidently manifest their Qualities by their Effects: Thus Garlick generates Flatulencies, and Heat in the Thorax, causes Heaviness of the Head, and Anxiety, and, if there happens to be any habitual Pain, it will not fail to increase it. But it provokes Urine, which is a good Quality; it is best eaten before a premeditated hard Drinking or Debauch.

Cheese breeds Flatulencies, and is astringent; it dries the Food, is a crude and undigestible Sort of Aliment, and very bad for such to eat who have filled themselves with Drink.

Pulse of all Sorts is flatulent, whether raw or boiled, or fried, whether macerated or green; and they ought not to be eaten without other Food. Every Kind has its peculiar Faults.

Chick-pease, whether raw, or baked, generate Flatulencies, and cause Pain.

Lentils unhusked are astringent, and cause violent and frequent Contractions of the Heart [*ἀνταρ*]. Lupines are the most harmless of this Class.

Silphium, both the Plant and Juice, is very quick in passing through the Body, with some, but very slow in others who are not used to it, and breeds what they call *Dry Choler*, especially if it be eaten with Cheese or Beef. For Beef exasperates melancholy Affections, because it is insuperable by the digestive Organs, and not easy to be dissolved by the Action of the Stomach. But these Inconveniencies are best avoided by thoroughly boiling it, and eating it stale.

Goats-flesh, besides that it has all the Faults of Beef, is more subject to breed Crudities, Flatulencies, Eructations, and Choler. That which is most fragrant, firm, and is grateful to the Palate, is the best, and ought to be thoroughly boiled, and eaten cold. On the Contrary, what is disagreeable, rank, and hard, is the worst, especially if fresh killed. It is best also in Summer, and worst in Autumn.

^a The Commentators and Interpreters have conjured up a Difficulty, where there appears to be none. They seem to think the Word *ἐξωδιν* should be wrote *ἐξωδιν*, which they derive from *ἐξω*. The Extremity of the Os Sacrum. In my Opinion, Hippocrates expresses very plainly the Psoas Muscles, for which *ἐξωδιν* seems a very proper Name, because of their Vicinity to the Kidnies, Ureters, and Bladder, the Organs employed about the Secretion, and Expulsion of the (*ἐξω*) Urine.

^b This is a very judicious Observation. It is certain that the Juices after Fasting contract an Alcalescence, for Want of being diluted with fresh Chyle; and hence the Symptoms mentioned by Hippocrates in this Place.

Swines-flesh is bad when eaten either too raw, or over done, for then it is subject to breed Cholera, and create Uneasiness. Sows-flesh is however the most excellent of all others, and of this the choicest is what is neither extremely fat nor lean, nor of the Age of an old Victim, and it is best when eaten without the Skin, and somewhat cold.

In a dry Cholera [*χολέρα ξηρή*] the Belly is inflated, and a Murmuring in the Intestines is perceived; the Sides and Loins are in Pain, and nothing passes by Stool, but the Patient is entirely costive.

In this Disorder beware of giving an Emetic, but let your Care be to discharge the Belly of its Contents downwards. For this End as speedily as may be, administer a warm Clyster, rendered as emollient as possible, by an Admixture of Fat, and, after well anointing the Patient, conduct him into a plentiful Bath of hot Water, and placing him in the Solium [*σολίον*] pour the Water on him by Degrees. During this Treatment in the Bath, if he can have the Benefit of a Stool, there is a Solution of the Disease. Sleep also will do him Good, and Drinking of thin old Wine, not mixed with Water. Give him also Oil that he may rest, have a Stool, and so get quit of his Distemper; but keep him from all Sorts of Food. If the Pain does not remit, let him drink Asses-Milk till it purge him. If the Excrements are liquid and bilious, and the Patient is afflicted with Gripes, Vomiting, and Fainting, the best Way is to enjoin a strict Rest, and to exhibit Hydromel, so as not to return it by Vomit.

Of Dropsies there are two Kinds; the first, which comes under the Flesh [*ὑποσφαιδίου*] when it once attacks, is incurable; the other is attended with Flatulencies, and the Patient is very fortunate if he gets a Cure, which must be attempted principally by hard Labour, Fomentations, and Temperance. Let him eat dry and acrid Food, which will not only cause him to make Plenty of Urine, but also strengthen him in a great Measure. If he is afflicted with a Difficulty of Breathing, and it be the Summer Season, and he in the Vigour of his Age, and in his full Strength, it will be proper to take some Blood from the Arm. Afterwards let him eat hot Bread dipt in Black Wine and Oil, and drink as little as possible, but use hard Labour and Exercise, and eat well fed Swines-flesh, boiled in Vinegar, that he might be the better able to support himself under his fatiguing Walks, which ought to be against Places of steep Ascent.

Such as have the lower Belly hot, are subject to sharp and irregular Stools, and to a Colliquation; if their Strength be firm, they ought to have a Dose of white Hellebore, in order to make a Revulsion; but if weak, the Juice of Sitanian [*σιτανίου*] Wheat is to be given, made thick and then cooled, or else Gruel of Lentils, or Bread baked in the Embers [*ἐν κάρφισι*] or Fish, which must be boiled for one that is feverish, but roasted for others. Black Wine also is to be given to one that has no Fever, otherwise Water in which have been macerated Medlars, or Myrtle-Berries, as Quinces, or Services, or Dates, or the Fruit of the Wild Vine. If the Patient be affected with Gripes, without a Fever, let him drink Cows-milk warm, a small Quantity at first, and increased every Time afterwards; or take Linfeed, and the Meal of roasted Wheat, and Egyptian Beans, first stripped of their bitter Husks, grind these, macerate them, and give the Mixture to drink; let him also eat Eggs half roasted, the finest Wheat-flour [*σικυδάρις*] Millet, and Alica [*χολύδα*] boiled in Milk. These are to be eaten cold, after they are boiled; and other Meats and Drinks of the same Nature with the above-mentioned are to be used.

With Respect to Regimen, it is a Point of the greatest Importance to watch and observe the proper Seasons for giving Aliment in acute and chronical Cases; and for this Purpose to remark the Intensions, and Remissions of Fevers, that you may find, and improve, the Opportunities when Food is by no Means proper, and when it may safely be offered, and to know at what Time the Disease is farthest from its greatest Degree of Exacerbation.

Have Regard also to Persons affected with an Head-ach, whether it proceeds from Exercise, as Running, Travelling, Hunting, or any other unseasonable Labour, or Venereal Commerce. Observe also the State of the Ill-coloured, the Hoarse, those who are affected with Disorders of the Spleen, those whose Blood is deficient, the Asthmatic, those who are afflicted with a dry Cough, or Thirst, or Flatulencies, or Stagnations of the Blood. Such as have their Hypochondria, Sides, or Back distended, or are benumbed or dim-sighted, those who are troubled with Noise in the Ears, or an Incontinence of Urine, or the Jaundice; those whose Stools are crude, who labour under copious Hæmorrhages from the Nose, or hæmorrhoidal Veins, or are molested with Inflations, or suffer vehement and intolerable Pains, from which they can by no Means free themselves. None of these above-mentioned Patients are to be purged; for Purging would be dangerous, and can do no Good; besides, it prevents a Crisis, and deprives Nature of the Means of assisting herself. But if it be proper to bleed in any of these Cases, first render the Belly firm,

and then proceed to take away Blood, to enjoin Abstinence, and to forbid Wine; the Cure is to be prosecuted afterwards by a convenient Regimen of Diet, and moist Fomentations. But if the Patient appears to be costive, relax the Belly with a gentle Clyster; or if you think Purging necessary, you may with Safety effect it upwards with Hellebore, but prescribe Purging downwards in none of these Cases.

But the best Way is to treat such Patients with Diuretics, and Diaphoretics, and to order them Walking, and Friction, though but gentle, lest the Habit should become more dense; and if they lie in Bed, let others rub them.

If the Distemper affects the Thorax above the Diaphragm, the most proper Posture for the Patient is to sit upright, and to recline as little as possible, till his Strength is increased; and while he sits, let him be well rubbed with Plenty of warm Oil for a considerable Time together.

But if the Pain lies in the Belly below the Diaphragm, the best Situation is Lying along, without moving the Body at all, except by Friction.

Diseases of the lower Belly which have their proper Solution by Urine and Sweat, if they are moderately moveable, are spontaneously solved when slight; but the more considerable are of pernicious Consequence; for the Patients either die, or fall into some other Distemper before they recover their Health. But Diseases of this Kind generally fix themselves upon some particular Part.

A POTION for a DROPSY.

Take three Cantharides, and pulling off their Heads, Feet, and Wings, bruise the Bodies in a Quarter of a Pint of Water, and give it the Patient to drink. When the Medicine begins to operate, let him use an Embrocation of warm Water. He is to drink it fasting, being first anointed, and let him eat hot Bread and Oil.

To stop an HÆMORRHAGE.

Wet some Wool with the Juice of the Fig, and apply it to the Artery on the Inside of the Nose, or put some Runnet intorted into the Nostrils, or thrust up Calcitis with your Finger, compressing the Cartilages of the Nose on the Outside. Loosen the Belly also with Asses Milk boiled, and let the Head be shaved, and Refrigerants afterwards be applied to it, if the Season be hot.

Sesamoides purgeth upwards, if the Weight of a Dram and half of it bruised be taken in Oxymel. It is also mixed with the Hellebores, so as to be a Third of the Composition, which by that Means is rendered less suffocating.

The SUTURE for a TRICHOSIS.

Take a Needle which hath an Eye, and thrust the Point through the upper acuminate and tense Part of the Eye-lid, downwards, and repass it from the inner Part upwards, then fastening the extended Thread upon the Place with a Knot, let it rest till it falls off. If this be sufficient, it is well; if not, the same Operation must be repeated.

In like Manner are the Hæmorrhoids be treated, that is, by passing through them a Needle with a very thick Thread made of greasy Wool, and fastening it with a Knot, the Largeness of which will contribute to the Cure; and when they are thus compressed, apply a Suppurative; but use no Embrocation till they fall off; however, let one remain always. When the Patient has recovered Strength, purge him with Hellebore, and let him use Exercise and Sweating. The first of these should be a great deal of Friction in the Morning; but let him avoid Running, Drunkenness, and all acrimonious Food, except Oroganum. Let him vomit once in seven Days, or three Times in a Month, for by these Means he will acquire an excellent Habit of Body. Let his Wine be yellow (deep-coloured) austere, diluted, and little in Quantity.

For Persons affected with INTERNAL SUPPURATIONS.

Cut the Bulb of Squills, and boil them in Water, and when they are very well done, throw away the Liquor, and add a second Water, in which boil them over again, till they appear thoroughly boiled, and are soft to the Touch. This done, bruise and mash them, and mix therewith Cummin, roasted white Sesamums, and new Almonds, reduce these to a proper Consistence with Honey, and give them as a Lambitive, and after this a Draught of sweet Wine. For forbile Food let them take the Measure of a small Acetabulum [$\frac{1}{8}$ of a Pint, *κελευστριον*] of white Poppy [*ρουν*] bruised, and macerate and boil it in Water wherein fetanious Meal has been washed, and then sweetening the same with Honey, let him take it warm, and so pass the Day; after which, with due Consideration of what may ensue, give him his Supper.

For a DYSENTERY.

Take a Quarter of a Pint of Beans cleansed, and twelve Sprigs of Maddar bruised, and boil them together, and with something oily make it into an Eclegma, and give it the Patient.

For the EYES.

Take Spodium [*oreum*] wash it, and afterwards work it well like a dry Mass of Meal; then levigate and moisten it with the austere Juice of bitter unripe Grapes; let it dry in the Sun, and as there is Occasion moisten it, so as to make it of the Consistence of an Ointment. When it is grown dry, levigate it, then apply it to the Eyes, and sprinkle it in their Corners.

For moist EYES.

Take of Ebony one Dram, of burnt Brass one Dram and half; levigate them on a Stone, and add half a Dram of Saffron; these being all reduced to a fine Powder, pour on it half a Pint of Attic sweet Wine, and after it has been exposed to the Sun, cover it, and when it is digested, use it.

For PAINS of the EYES.

Take of Calcitis one Dram, Grapes when a Third of the Juice is expressed, Myrrh and Saffron bruised, and mixing them with Must, digest them in the Sun, and therewith anoint the affected Parts. It ought to be kept in a Copper Vessel.

To know the STRANGULATION of the UTERUS (*Hysterics*).

Pinch the Patient with two Fingers, and if there is any Sign of Sensation, it is a Strangulation; if none, it is a Convulsion.

For the DROPSY.

Give the Quantity of a round Attic Acetabulum (*petasus*) of Meconium (*Petty Spurge*) for a Dose. Take of the Scoria of Brass as much as will cover the Breadth of three Probes, give it a Consistence with setanian Meal, and having levigated it, exhibit it in the Form of Pills. They purge Water by Stool, and clear the Belly of Excrements. Drop the Juice of Tithymallus upon dried Figs, seven Drops on a Fig, and set them aside in a new Vessel for the Use of the Patient, to the Purpose aforesaid, to whom they must be given just before his Meals. Bruise also petty Spurge (*anemone*) and put Water to it; then, after straining it, make it up with Meal, wet with Honey, into a Cake, which bake, and give your hydropical Patients to eat, who are to drink after it sweet Wine diluted, or Hydromel likewise diluted. But gather the Meconium that comes away with the Excrements, and lay it aside carefully.

ALCALISATIO. *Alcalisation*. It imports the Impregnating any Thing with an alkaline Salt, as Spirit of Wine.

ALCANALI. An *Antidote*, so called in Italian. It is of good Use in burning Fevers, simple and double Tertians, and in continued Fevers, the Lipyria, Semitertian, and, in a Word, every feverish Disorder, and is thus prepared:

Take of Citrine, Chebule, and Indian Myrabolans, each Sort seven Drams; of Purslane-seeds and purple Violets, each an Ounce and half; of Beleric and Emblic Myrobalans, each one Dram seven Grains; of Mastich, one Dram one Scruple; of Oxyphoenicum (interpreted by the Commentator *Tamarindi*) three Ounces; of wild Colocynthis, Hermodactyls, each two Drams four Grains; of Cassia Fistula cleaned, four Ounces. Then take of Violets, an Ounce and half, and two Pints of Water, and let them boil to a Third; strain it thro' a Bag, and put the Cassia Fistula and the Tamarinds into the Liquor, work them well with your Hands, and, after straining all the Juice through a Bag, let the Liquor stand. After this take another Portion of such Liquor, and put in it of Sugar one Pound and half, and let them boil to the Thickness of Honey; add to them the Liquor of the Cassia Fistula and the Tamarinds, and let all boil together to the Thickness of Honey. Lastly add to this all the above-mentioned Ingredients well bruised. The Dose is three Drams in warm Water; or you may give two or three Scruples in an Infusion of Rhubarb warm, or in Rose-water, fasting. *Myrsus, Sect. 1. Cap. 24.*

ALCANNA. A Plant thus distinguished:

Alcanna, Offic. *Ligustrum Indicum seu Alcanna Manihondi*, Herm. Mus. Zeyl. 6. 65. *Ligustri species 2. Alcanna dicta*, Bont. 143. *Ligustrum Orientale, sive Cyprus Dioscoridis & Plinii*, Park. Theat. 1447. Raii Hist. 2. 1603. *Ligustrum Egyptianum latifolium & angustifolium*, C. B. Pin. 476. *Ligustrum Egyptianum, Cyprus Græcorum, Elhamne Arabum*, J. B. 1. 541. Chab. 41. *Ligustri species*, Comm. Flor. Mal. 161. *Baccifera Indica baccis oblongis in umbellæ formam dispositis*, Raii Hist. 2. 1634. EASTERN PRIVET. Dale.

This is the *Kenna* of the Turks and Moors. The Leaf, when reduced to a yellow Powder, is used for a Cosmetic by the Natives; namely, by the Men to dye their Beards red, and by Women to dye their Nails of the same Colour; in order to which they make it into a Sort of PASTE, with Juice of Lemons. Its medicinal Virtues are Emmenagogue and Hysterical, and accordingly it is used in the Eastern Countries, to cause Abortion, and to bring away dead Children. *Geoffroy*.

The Account Dioscorides gives of this Plant, which he calls *Cyprus*, is as follows:

The *Cyprus* is a Tree, the Leaves on whose Branches are like those of the Olive, but broader, softer, and greener. The

Flowers are white, mossy, and scented; the Seed black like that of the Elder-tree. The fairest grows about Ascalon and Canopus.

The Leaves have an astringent Quality, by which they heal Ulcers in the Mouth, being chewed therein, and are good for Carbuncles, and other fiery Inflammations, if applied in a Cataplasm. The Decoction of them is used to wash Burns. The Leaves bruised, and moistened with the Juice of Dyers Weed (*reseda*) turn the Hair of a yellow Colour. The Flowers, bruised in Vinegar, and applied to the Forehead, ease the Pains of the Head.

The *Cyprine Ointment*, which is prepared of the Flowers, has the Virtue of warming and mollifying the Nerves, and is sweet-scented, being a Composition of Simples of a hot and fiery Quality. *Dioscorides, Lib. 1. C. 124.*

The *Cyprus* is a Tree in Egypt, that has Leaves like those of the Ziziphus, Seed like Coriander, and a white scented Flower. They boil this last in Oil, and express what they call the *Cyprus* (an Oil) which is sold in Quantities of five Pound (*Pretium ei in Libras quinque*). The best, in Point of Fragrance, comes from Canopica on the Banks of the Nile, the next in Goodness from Ascalon in Judea, and the third from the Isle of Cyprus. Some say it is the same Tree which they call in Italy *Ligustrum*. *Pliny, L. 12. C. 24.*

Pliny has the same Virtues of Dioscorides, and adds that the Leaves are applied to the Stomach when disordered, and their Juice to the Uterus in Hysterics; that the fresh Leaves chewed heal running Ulcers in the Head as well as in the Mouth, a Collection of Humours, and Condylomata. The Flowers burnt in a crude earthen Pot, cure Noma, and putrid Ulcers, either used alone, or with Honey. The Smell of the Flowers provokes Sleep. *Pliny, L. 23. C. 4.*

ALCANNA also signifies the same as *Ischyocolla*, *Isinglass*. *Johnson*.

ALCAOL. Rulandus, and from him Johnson, interpret this *Lac Acetosum sive Mercurius*. By *Lac Acetosum*, I suppose they mean the *Lac Philosophorum*, or Solvent for the Preparation of the Philosophers Stone.

ALCAR. *Admag*. Galen explains this by *Bolusma*, *Help*, *Assistance*. It signifies also a Remedy. *Foesius*.

ALCARA. *A Cucurbit*. Rulandus.

ALCE. *The Elk*.

This is a wild Beast, furnished with Horns, as big as a Horse, it is bearded and covered with long Hairs from the Top of the Head to the Shoulders; its Colour is commonly grey, or whitish; the Head is very large, its Eyes sparkling, its Lips are large and thick, its Teeth are moderate, its Ears are long and large, its Horns are branched like those of a Fallow Deer, weighing at least twelve Pounds the two, which Horns they lose yearly; the Female has none at all, its Belly is as large as that of a Cow, its Tail is very little, its Legs are long and slender, its Feet are black, its Hoofs divided like those of an Ox; the Flesh is very hard, the Back is covered with Hairs like the fine grey Hairs of a Mouse; this Animal is found in Poland, in Prussia, in Sweden, in Norway, and Canada; it is timorous and casts itself into the Water when they hunt it, but it is very strong, his Lust is like that of the Stag. It is subject to the Epilepsy, and they relate that, when it is in a Fit, it cures itself by rubbing its Ears with the Hoof of its hind left Leg: It is for this Reason they esteem the hind left Leg in Medicine much more than the right. Its Hoof is in Use, called *Ungula Alcis*, it should be chosen weighty, compact, smooth, bright, and black; it contains a great deal of volatile Salt and Oil.

They use the Hoof of an *Elk* as a Cure for the Epilepsy taken internally; they hang a little Piece at the Neck, and they make of it Rings to wear on the Finger for the same Distemper, but these Amulets produce no Effect.

The other Feet of *Elks* are as good as the left hind Foot, for the Effect proceeds only from the volatile Salt of which there is as much in one as the other. *Lemery de Drogues*.

Some People eat the Flesh as Venison. The Nerves are used against the Cramp, by binding the affected Part with them. *Pomet*.

ALCEA. A Plant of the Mallow Kind, thus called by Authors:

Adxia, Dioscoridis. *Alcea*, Offic. *Alcea vulgaris*, J. B. 2. 953. Raii Hist. 1. 604. Synop. 3. 252. Dill. Cat. Giss. 144. *Alcea vulgaris major*, C. B. Pin. 316. *Alcea vulgaris sive Malva verbenacea*, Park. Theat. 301. *Alcea vulgaris*, Mer. Pin. 3. Merc. Bot. 17. Phyt. Brit. 3. *Alcea vulgaris major flore ex rubro roseo*, Tourn. Inst. 97. Boerh. Ind. A. 270. Hist. Oxon. 2. 527. *Malva verbenacea*, Ger. 785. Emac. 931. VERVAIN-MALLOW. Dale.

Alcea is a Kind of Wild Mallows, with Leaves deeply cut like those of Vervain (*leg. Boragin*) and three or four Stalks covered with a Rind much like Hemp. It bears a small Flower like a Rose. The Roots are white, broad, five or six in Number, and near a Cubit in Length. *Dioscorides, Lib. 3. Cap. 164.*

This is a Species of Mallow, and differs from the Common, in having its Stalks more hairy, and growing more erect; the lower

lower Leaves are smaller and roundish, cut in about the Edges, and growing on long Foot-stalks; the higher they grow, the Foot-stalks are the shorter. The upper Leaves are cut into five deep Laciniae or Segments, the Flowers are larger, paler, and not striated like those of the common Mallow. The Cheese-like Seed-vessel is larger and blacker; the Root is hard and woody, spreading in the Ground.

It grows in the Hedges, and flowers in May and June, and through the greatest Part of Summer.

The Roots drank in Wine or Water cure the Dysentery and Ruptures. *Diosc. L. 3. C. 164.*

Alcea is a Species of Wild Mallows; drank in Wine, especially the Root, it cures the Dysentery, and Corrosions of the Intestines. *Paulus Aegineta, L. 7. C. 3.*

Alcea is a good Digestive, is emollient, and stops Bleeding. It is used in Clysters, and Fomentations, and is taken at the Mouth also to correct the Acrimony of Urine. *Lemery de Drogues.*

It is of the Number of Emollients, and is an Ingredient in Plaisters. It is in great Vogue among Empirics for Dimness of Sight, and a Decoction of it cures the Gripes. It is a very proper Remedy for all Pains attended with Heat. *Dale.*

Miller enumerates the eight following Species:

1. *Alcea vulgaris major, flore ex rubro-roseo*, C. B. P. 316. Greater Vervain-mallow, with a Rose-coloured Flower.

2. *Alcea vulgaris major, flore candidiore*, C. B. P. 316. Greater Vervain-mallow, with a white Flower.

3. *Alcea folio rotundo laciniato*, C. B. P. 316. Vervain-mallow, with a round cut Leaf.

4. *Alcea tenuifolia crispa*, J. B. II. 1067. Narrow-curved leaved Vervain-mallow.

5. *Alcea Cannabina*, C. B. P. 316. Hemp-leaved Mallow.

6. *Alcea Afra frutescens, grossulariae folio flore parvo rubro*, Boerh. Ind. Alt. African shrubby Vervain-mallow, with Gooseberry Leaves; and small red Flowers.

7. *Alcea Africana arborescens malvae folio hirsuto, flore parvo purpureo*, Till. African Tree-like Vervain-mallow, with hairy Mallow-leaves and small purple Flowers.

8. *Alcea Afra frutescens, grossulariae folio ampliore, unguibus florum atro-rubentibus*, Aët. Phil. African shrubby Vervain-mallow, with larger Gooseberry Leaves, and dark-red Spots at the Bottom of the Flowers.

ALCEA INDICA.

It has a large pentapetalous Flower, and a pretty big seminal Vessel, divided into five Cells containing Kidney-like Seeds.

Bamia Moschata, Offic. *Alcea sive Bamia Moschata Egyptiaca*, Breyn. Prod. I. 2. *Alcea Egyptiaca Moschata*, Park. Theat. 301. *Alcea Egyptiaca villosa*, C. B. Pin. 317. Raii Hist. 2. 1066. *Bamia*, *Belmuscus Honorio Bello*, Chab. 302. *Althea Egyptiaca Moschata Abel Mosch dicta*, Hist. Oxon. 2. 533. *Abel Mosch vulgò*, Herm. Hort. Lugd. Bat. 25. *Mosch, id est, Bamia Moschata*, Alp. Exot. 197. *Ketmia Egyptiaca semine Moschata*, Tourn. Inst. 100. Boerh. Ind. A. 272. MOSCH-SEED.

It grows in Egypt. The Seeds are used, which are of a smutty Colour, Kidney like, and of a very fragrant Smell, like Musk. The Egyptians dry them slightly, and mix the Powder in their Coffee, to make it more effectual for the strengthening of their Head, Stomach, and Heart. We use it in Fumigations. *Dale.*

ALCEBRIS VIVUM. The same as *Sulphur Vivum*. *Rulandus*, who also calls it *ALNERIC*, *ANERIT*, and *ANERIC*.

ALCEDO. The King's Fisher. A Bird thus distinguished by Authors:

Ispida, Offic. Aldr. Ornith. 3. 518. Gesn. de Avib. 513. *Jonf. de Avib. 107. Ispida, an veterum Halcyon?* Will. Ornith. 101. Raii Ornith. 146. *Ejusd. Synop. A. 48. Ispida, Alcyon fluviatilis, vulgò Piscator Regis*, Charlt. Exer. III. *Alcedo*, Schrod. 5. 314. *Halcedo muta*, Bellon. des Oyse, 219. *Dale.*

It is a little Sea-bird, somewhat like a Quail, of different Colours, as blue, purple, red, or yellow; its Beak is long and small, of a yellowish Colour; they build their Nests among Reeds, or upon Rocks on the Shore; it lives upon small Fish; it lays its Eggs in Winter when the Weather is serene. They pretend that it is a happy Omen of calm and fair Weather.

It contains a great deal of volatile Salt.

This Bird dried, and hanged to Childrens Necks, preserves them from the Epilepsy, but a more certain Effect is to be produced by giving a Scruple every Day in Powder at the Mouths, in Betony-water.

The white dried Nests of Birds which the People of Siam and other Travellers bring into France, are those of the Indian King's Fishers, and principally of those which breed on the Coasts of the Kingdom of Cambia. Their Nests are in the Shape of round Bowls, their Substance is of a white Froth which they discharge from their Bills when they are going to breed, and which hardens by the Heat of the Sun, the Taste of these Nests

is insipid, and glutinous. The Chinese look upon them as Dainties, and eat them boiled with Ginger.

They are esteemed Restoratives, and are said to strengthen the Stomach. *Lemery de Drogues.*

Pomet adds, that the Chinese are such Lovers of these Birds' nests, that it is almost incredible what Quantities are sent to Pequim, the Capital of China. They are usually valued at fifty Tabers the Hundred, which is about six hundred Livres, or fifty Pounds of our Money. These Nests were formerly little known, and it was believed that they were made of the Froth of the Sea; but since the People of Siam have introduced them they are become very common.

ALCHACHIL. A Name for *Rosemary*. *Dale.*

ALCHARITH, or ALECHARITH. *Quicksilver*. *Johnston. Castellus.*

ALCHEMIA, or ALCHYMIA. *Alchemy*. It imports that Branch of Chymistry, which relates particularly to the Transmutation of Metals. The Arabic Particle AL added to it by Way of Eminence, distinguishes it from vulgar Chymistry.

It was common for the Orientals to denote the Excellence of any Thing by representing it as more particularly belonging to the Supreme Being. Thus the *Mountains of God*, are only Mountains eminently high; and the *Rivers of God*, are Rivers of great Depth and Breadth. In like Manner I should suspect *Alchemy* to signify the Chymistry of God, as *Alla* is the Arabian Name for the Supreme Being. See CHYMIA. See AL.

ALCHIMELECH. The Egyptian *Melilot*.

Melilotus Egyptia Alchimelech vocata, J. B. *Melilotus Egyptiaca*, Park. *Melilotus Corniculis reflexis minor*, C. B.

The Plant spreads itself on the Ground, being small, and gently creeping, seldom or never raising itself in Height. Its Leaves are like those of Trefoil, only lesser. The Flowers are small, copious, long, growing in Clusters, of the Colour of Saffron, sweet-scented, from whence are produced small oblique Pods, containing a minute round Seed, of a blackish Colour, inclining to red, not quite void of Smell, and of a bitterish astringent Taste. *Raii Hist. Plant.*

ALCHIEN. In the *Theatrum Chymicum*, Vol. 5. we meet with this Word. It would be much more easy to transcribe the Explanation of it from the Book quoted above, as *Castellus* has done, than to understand what the Author means. If it has any real Meaning, it should seem to signify that Power in Nature by which all Corruption and Generation are effected.

ALCHIMILLA. A Plant thus called:

Alchimilla, Offic. Ger. 802. Emac. 949. Raii Hist. I. 208. Synop. 66. *Alchimilla vulgaris*, C. B. 319. Tourn. Inst. 508. Boerh. Ind. A. 2. 92. Dill. Cat. 67. *Alchimilla major vulgaris*, Park. 538. *Alchimilla perennis viridis major, foliis ex luteo virentibus*, Hist. Oxon. 2. 195. *Pes leonis sive Alchimilla*, J. B. 2. 3981. Chab. 172. LADY'S MANTLE. *Dale.*

The Leaves of Ladies Mantle, upon their first Springing up from the Root, are plaited or folded together, of a whitish green Colour, covered with a short fine Down, having eight Corners, and when spread open, in Shape something like Mallows, but much neater and more elegantly ferrated about the Edges; the Stalks are weak, seldom standing upright, somewhat hairy, and clothed with the like Leaves, but smaller, and having shorter Foot-stalks, bearing at the Tops Clusters of greenish Flowers, of eight Leaves a Piece, with yellow Stamina in the Middle, each Flower producing two small Seeds. The Root is pretty thick, of a black Colour on the Outside, with many Fibres. It grows in Meadow and Pasture Grounds, but rarely about London. It flowers in May.

It contains a great deal of Phlegm, and Oil, and a moderate Quantity of Salt. *Lemery de Drogues.*

The Leaves are chiefly used. This Plant is reckoned among the principal vulnerary ones, being drying and binding, incrustating and consolidating, and of great Force to stop inward Bleeding, the immoderate Flux of the Menfes, and the Fluor Albus, and is frequently prescribed in Wound-drinks, and Traumatic Apozems, and for Ruptures of all Kinds. The Leaves, outwardly applied, are commended for lank, flagging Breasts, to bring them to a greater Firmness, and a smaller Compass. *Miller, Bot. Off. Boerhaave.*

Lemery adds, that it is deterfive and astringent, it serves in a Decoction for Soreness of the Lungs. *Lemery de Drogues.*

The Species of this Herb are:

1. *Alchimilla vulgaris*. C. B. Common Ladies Mantle.

2. *Alchimilla Alpina, pubescens, minor*. H. R. Par. The lesser woolly Ladies Mantle.

3. *Alchimilla Alpina, quinquefolia folio subtus argenteo*. Tourn. The Alpine five-leaved Ladies Mantle, with the under Part of the Leaves white.

4. *Alchimilla minor*. Mor. Hort. Reg. Bles. The lesser Ladies Mantle.

5. *Alchimilla Alpina pentaphyllea minima, lobis fimbriatis*, Boet. Mus. Par. 2. 18. Least five-leaved Ladies Mantle of the Alps, with fringed Leaves.

6. *Alchimilla montana minima*, Col. Par. 1. 146. Least Mountain Ladies Mantle, commonly called Parsley Breakstone.

7. *Alchimilla supina, gramineo folio, minore flore*, Tourn. Low Grass-leaved Ladies Mantle, with a smaller Flower.

8. *Alchimilla erecta, gramineo folio, minore flore*, Tourn. Upright Grass-leaved Ladies Mantle, with a smaller Flower.

9. *Alchimilla gramineo folio, majori flore*, Tourn. Grass-leaved Ladies Mantle with a larger Flower.

10. *Alchimilla linariae folio, calyce florum albo*, Tourn. Ladies Mantle with a Toad-flax Leaf, and a white Flower-cup.

11. *Alchimilla linariae folio, calyce florum subluteo*, Tourn. Ladies Mantle with a Toad-flaxed Leaf, and a yellowish Flower-cup.

12. *Alchimilla orientalis, linariae folio brevissimo, calyce florum albo*, Tourn. Cor. Eastern Ladies Mantle, with a very short Toad-flaxed Leaf, and a white Flower-cup.

13. *Alchimilla Græca, kali folio, calyce florum albido*, Tourn. Cor. Greek Ladies Mantle, with a Glass-wort Leaf, and a whitish Flower-cup. *Miller's Dict. and Suppl.*

ALCHITRAM, or ALCHIERAM. It signifies Oil of Juniper; or Tar; or prepared Arsenic. *Rulandus.*

ALCHITRAN. This also is Oil of Juniper, according to *Rulandus*, who gives it another Signification, [*Fæx Destillationis*, I suppose he means the Fæces left after the Distillation of some Bodies. In this Sense, it seems to differ from Caput Mortuum, as this is dry, whereas *Alchitran* is moist, or fluid, in some Degree. *Castellus*, from *Libavius*, gives it another Signification, and says it signifies a Sort of Salt; he derives the Word from *χρησά, a Pot*, by which it should be Pot-ash.

The same Author says, *Alchytran* is the Name of a Medicine for the Teeth, taken Notice of by *Mesuae*.

ALCHITURA. *Tar. Johnson.*

ALCHOLLEA. A Sort of Food, common amongst the Western Moors: It is made of Beef, Mutton, or Camel's Flesh, but chiefly Beef, which they cut all in long Slices, salt it well, and let it lie twenty-four Hours in the Pickle. Then they remove it out of those Tubs, or Jars, into others, with Water, and when it has lain a Night, they take it out, and put it on Ropes in the Sun and Air to dry; when it is thoroughly dried and hard, they cut it into Pieces of two or three Inches long, and throw it into a Pan, or Cauldron, which is ready with boiling Oil and Suet, sufficient to hold it, where it boils till it be very clear and red, if one cuts it; which taken out, they set it to drain: When all is thus done, it stands till cool, and Jars are prepared to put it up in, pouring the Liquor they fried it in upon it; as soon as it is thoroughly cold, they stop it up close. It will keep two Years; it will be hard, and the hardest they look upon to be best done. This they dish up cold; sometimes fried with Eggs and Garlick; sometimes stewed, and Lemons squeezed on it. It is very good any Way, either hot or cold. *Philos. Transact.*

ALCHIMIA. See ALCHEMIA.

ALCIBIADIUM. It is a Name for the ECHIUM, which see. *Blancard.*

ALCIMAD. *Antimony. Rulandus.*

ALCIOT. The same as ACHIOTL, which see.

ALCOB. Sal Ammoniac. *Rulandus.*

ALCOCALUM. The *Cinara, Artichoke. Blancard.*

ALCOEL. *Rulandus* explains this by *Lac Acetosum*.

ALCOFOL. *Antimony. Castellus* from *Rulandus, Johnson, and Dorneus.*

ALCOHOL, or rather *Al-Ka-hol*, as it ought to be wrote, is an Arabian Word, which signifies a fine impalpable Powder which the Women of the East make use of as a Kind of Fucus.

Dr. Shaw, in his Travels, speaking of the Women of Barbary, says, that none of these Ladies take themselves to be completely dressed, till they have tinged the Hair, and Edges of their Eye-Lids, with [*Al-Ka-hol*] the Powder of Lead-Ore. Now as this Operation is performed by dipping first in the Powder a small wooden Bodkin of the Thickness of a Quill, and then drawing it afterwards, through the Eye-lids, over the Ball of the Eye, we shall have a lively Image of what the Prophet (*Jer. 4. 30.*) may be supposed to mean by *renting the Eyes with (שֹׁן Lead-Ore) painting*. The sooty Colour, which is in this Manner communicated to the Eyes, is thought to add a wonderful Gracefulness to Persons of all Complexions. The Practice of it, no Doubt, is of great Antiquity: For beside the Instance already taken Notice of, we find, that when *Jezebel* is said (*2 Kings 9. 30.*) to have painted her Face, the original Words are עֲיִנֶיהָ בַּשֹּׁן *she adjusted (or set off) her Eyes with the Powder of Lead-Ore*. The like Ornament was made Use of, not only by other Eastern Nations, but by the Greeks and Romans also, as appears from ancient Authors. Among other Things relating to the Egyptian Women, I have likewise seen taken out of the Catacombs at Sakara a Joint of a common Reed, which contained one of the Bodkins, and an Ounce, or more, of the Powder that I have described; both of them agreeable to the Fashion and Custom of this Time.

This ingenious Gentleman informs us, that this Word is rendered by *Golius* and others, *Stibium*, *Antimonii Species*; and sometimes *Collyrium*. The Hebrew כֹּחַל *Cabhal*, has the same Interpretation; and the Verb, כֹּחַלָה, joined with עֲיִנֶיהָ *Ezek.*

23. 40. is rendered, *thou paintedst thy Eyes*. שֹׁן (from whence probably the Latin *Fucus*) is taken in the like Signification, being rendered *Antimonium, Stibium*, quo ad tingenda nigrore cilia, seu ad venustandos oculos, peculiariter utebantur, color subniger ex pulveribus Stibii confectus. *Schindl. Lex. St. Jerom* likewise, upon these Words, בָּפֹהֶם אֲבִנֵּי. *Is. 54. 11.* which we render (*I will lay*) *thy Stones with fair Colours*, takes Notice, quod omnes præter LXX. similiter transtulerunt, viz. (*Sternam*) in *Stibio lapides tuos*, in similitudinem comptæ mulieris, quæ oculos pingit stibio, ut pulchritudinem significet civitatis. שֹׁן therefore, and כֹּחַל denoting the same mineral Substance, or *Collyrium*, it may be presumed, that what is called to this Day by the latter of these Names (which is a rich Lead-Ore, pounded into an impalpable Powder) was the Mineral which they always made Use of.

I cannot determine whether the learned Author is right or not, with Respect to the Powder called *Alcohol*, which he tells us is Black-Lead. Other Authors, however, inform us, that the Powder made Use of by the Women, to set off the Eyes, was prepared from *Antimony*.

But we may be pretty certain, that from this exceeding fine Powder, the Word *Alcohol* has been borrowed, and applied to any other Substance reduced to the utmost Degree of Purity, and from which all impure and heterogeneous Particles have been separated.

Hence Spirit of Wine, brought by Art to the highest Degree of Strength and Perfection, is also called *Alcohol*.

As *Alcohol* therefore is the most compleat, and perfect Offspring of vegetable Fermentation, I shall in this Place give the intire Process by which it is produced from *Boerhaave*.

There is scarcely any Thing of greater Antiquity in Natural History, more common in civil Life, or more frequent in Chymistry, than Fermentation; so that we may fairly say with the famous *Bellini*, all Things are full of Ferments, but especially among the Chymists. Nay, if you will believe *Van Helmont*, the Virtue of Ferments alone is the sole Cause of all real Transmutations. But such round and general Assertions confound the Ideas of Things; for if every Mutation be owing to Fermentation, then Fermentation will be as general a Word as Mutation, by which Means, the true Names of Things are lost. This Confusion has been complained of by Men of the best Sense, who have long desired a particular Dissertation on this Subject, which I shall now endeavour to give.

I. By the Word *Fermentation*, I mean that intestine Motion excited in Vegetables, by which they are changed in such a Manner, that the first Thing which arises from them in Distillation is an acrid Liquor, miscible with Water, of a warm aromatic Taste, inflammable like Oil, thin, and volatile; or else, acrid, acid, extinguishing Fire and Flame, thin, and less volatile.

By this Definition, the Word *Fermentation* is so limited, as to comprehend all that occurs in a true Fermentation, exclusively of every Thing to which it cannot be properly, though it is too often applied.

In every Fermentation, as long as it continues, there is an intestine Motion in the whole Mass, and every Part of it. I call it intestine, because it is excited chiefly by internal Principles, which are inherent in the Vegetable. Some Degree of Heat, I confess, is here necessary; but this would not excite a true Fermentation in the Matter, if it were not previously of itself disposed to ferment. For if you take Water, Spirits, Oil, or Salts, and give them the same Degree of Heat, yet you will never bring them to a Fermentation. I say farther, that this intestine Motion can only be excited in Vegetables, for hitherto we have met with no Instance of a Fermentation in Animals, except when they had received into their Bodies vegetable Matter, which they had not yet assimilated and transformed into their own Nature. As for Fossils, I do not remember that ever I observed in them any Motions tending to Fermentation, though Authors of very great Repute have made no Scruple to assert it. It is the Office of Reason rightly to distinguish between Things, and therefore I was obliged to take my Definition from the Effect, because every true and perfect Fermentation terminates in a Spirit, or an Acid. That we may put an End at last to this Confusion, I would ask the judicious Chymists, whether this Action of Vegetables, which I have thus described, is to be called Fermentation? Certainly, none disputes it. I insist then to know, whether, for Distinction sake, and to obey the Laws of Order, we ought not to call all those Actions, which do not produce the Effects assigned, by some other Names? I think Reason teaches us so to do. I shall then make a wide Distinction between Fermentation and Putrefaction, because this latter, though it be also an intestine Motion in Vegetables, yet for its ultimate Effect generates putrid Oils, and foetid, alkaline, volatile Salts. Putrefaction of the Humours of Animals is also a proper intestine Motion, but then it never produces an Acid, or an inflammable Spirit, but phosphorical Matter only, and consequently is quite different from every Kind of Fermentation; for I cannot allow any Thing to come under this Name, which does not generate either an inflammable Spirit, or an Acid, for Fear of Confusion.

In a Word, none of the various Kinds of Effervescences ought, under any Pretence, to pass for Fermentation, though they may come under the Title of intestine Motions, and may be often observed even in pure, vegetable Substances, as we see in very strong Vinegar, and a fixed alkaline Salt.

II. Every fermented vegetable Liquor, which in Distillation first yields a Spirit that is inflammable, and may be mixed with Water, I shall distinguish by the Name of *Wine*, from whatever vegetable Matter it is produced. The Word will bear this Signification; for Tacitus, with great Propriety of Speech in the Latin Tongue, says, that the Germans made Wine of corrupted Corn [Malt]. All such fermented Liquors therefore, from whatever Vegetables they are prepared, I shall call *Wine*, without any Distinction. And again, every vegetable Liquor, fermented in such a Manner as in the first Distillation to yield an acid Liquor extinguishing Fire, I shall call *Vinegar*; whencesoever derived. Hence the whole Effect of a perfect Fermentation, will be the Production either of Wine or Vinegar.

III. I call a fermentable Body such a one, as by the Action described, N^o 1. may be so changed, as to be capable of producing the Wine or Vinegar, described N^o 2. But as this was never observed but in the vegetable Kingdom, I am obliged to allow nothing but Vegetables to be fermentable, though it will hereafter appear that they are not all so.

IV. I call by the Name of *Ferment*, that Body, which being intimately mixed with the fermentable Vegetable, N^o 3. excites, increases, and promotes the Fermentation described, N^o 1. Hence it appears at first Sight, that all such Ferments belong to the Class of Vegetables.

V. The fermentable Vegetables, N^o 3. are in great Variety. These therefore are to be distributed into as many Classes, as they require different Methods of Fermentation; nor can we here, with any Propriety, admit of more or less. Thus, as we must treat Rye in one Manner to produce Wine from it, and the fresh expressed Juice of Grapes in another; so it is absolutely necessary to distribute these two Vegetables into different Classes: On the contrary, as Wheat, Barley, and Oats, require the very same Management as Rye, for this Purpose; hence, in this Respect, there must be no Distinction made betwixt these, but they must all be referred to the same Class. Mean Time, however, it is necessary to observe, that all Vegetables are not disposed to ferment; for such as abound with a native, alkaline Salt, or are easily changed into it, are unfit for Fermentation, but incline to Putrefaction. Of this I was convinced, when but a Novice in these Matters, by Experiments on Onions and Turneps, having in vain tried to extract such a Spirit as is produced by Fermentation as a Medicine for the Stone, for I obtained an alkaline, foetid, volatile Salt, with a Spirit of the same Kind, instead of a true fermented Spirit. Hence, though all Fermentables will undergo Putrefaction, yet all Putrescibles will not ferment. In Vegetables therefore, in this respect, there is a very great Difference.

VI. These Things being duly considered, we refer to the first Class of Fermentables all those Seeds of Vegetables, which when ripe and dry, are reducible by Trituration to a fine Powder, called Meal, and not to an oily Paste. Hither also I refer those Seeds, which though they abound with a pinguious Oil, yet may be so changed by Art, as to be converted into a Meal of a less oleous Quality. These farinaceous Fermentables require a threefold Subdivision.

1. The first comprehends ripe Seeds of culmiferous, graminifolious, spicated Plants, called Corn, as Oats, Indian Wheat, Grass, Barley, Lacrymæ Jobi, Millet, Rice, Canary-Grass, Wheat of all Sorts; and Rye. To these; as being much of the same Nature, may be added Buck-Wheat, and Flax, and on Account of their near Affinity, the Seeds of all the Cucumber Kind, as Citruls, Cucumbers, Gourds, the Counter-Poison; Musk-Melons, the male Balsam Apple, Pompions, and the like. Under this Head too we may rank the Seeds of Lettuce, or any other Plant of the same Nature.

2. The Seeds of almost all the leguminous, podded Plants, with the papilionaceous, or any other Flower, as Judas's Tree, Broom, Spanish Broom, Furz, Crotonaria, Dwarf-Broom, Crimson Grass Vetch, Shrub Trefoil, Stinking-Bean-Trefoil, Kidney-Beans, Melilot, Trefoil, Fenugreek, Rest-Harrow, Medich-Fodder, Medicago, the Nettle-Tree, Bastard Acacia, Bastard Sena, Coronilla, Barba Jovis, Pease, Everlasting Pease, Clymenum, Tares, Lentils, yellow Vetchlings, Beans, Goats-Rue, Bitter-Vetch, Liquorice, Saint-Foin, Chiches, Ladies-Fingers, Lupines, Emereus, (Scorpion Sena) Birds-Foot, French Honey-Suckle, Hatcher Vetch, Horse-shoe Vetch, Scorpionwort, Astragalus, Acacia, Cassia, Sena.

3. Nuts not too oily, as all Kinds of Almonds, Filberds, Chestnuts, Horse-Chestnuts, Walnuts, Cocoa-Nuts, and Pistach Nuts; which when they abound with too great a Quantity of Oil, must by some Method or other be drained of it, which is best done by letting them begin to shoot, and then scorching them.

VII. The second Class of Fermentables comprehends all the pulposus Fruits, as they are called, whose ripe Juice is of an acid Sweet: Of this Kind are all Cherries, both Sorts of Gooseberries, Mulberries, Raspberries, Elder-berries, and Grapes of all Kinds, all acidish Apples, all Pears, Oranges, Seville and China, Citrons, Lemons, Apricots, Peaches, Plums, Medlars, and the like, if they do not incline to a foetid alkaline Putrefaction.

VIII. In the third Class are contained particularly all succulent Herbs, and all their Parts, as Flowers, Leaves, Roots, and Stalks, if they are disposed to grow acid, rather than putrid.

IX. The fourth Class contains the fresh, native Juices expressed from Vegetables, and especially from their Fruits, N^o 7, 8. Hither also we must refer that thin Liquor which distills from Incisions made in some Trees, as the Birch, Walnut, and Vine, particularly in the Spring-Season: For all these Juices usually undergo a spontaneous Fermentation, and then have their Nature quite altered by exchanging their acidish, stimulating, refrigerating Quality for one which is heating, inebriating, and vinous. Helmont the elder, recommends the Water that distills from the wounded Birch in March, when new, or kept from corrupting, as a Secret for the Stone: And Mr. Boyle, from his own, and other People's Experience, assures us of its Efficacy in that Distemper; but he found, that though the fresh was of Service, yet it had quite altered its Nature by Fermentation.

X. To the fifth Class belong such vegetable Juices, as being generated, and inspissated by Nature, are changed into a saponaceous Sort of Substance in the Form of a saline and pinguious Coagulum: Of this Sort are Manna, Honey, Cassia, Sugar, and all other Things of this Kind, which are not balsamic, gummy, resinous, or oily.

XI. I am in Doubt, whether we should refer the Waters of Rivers to a sixth Class: These seem, indeed, to be common Lixiviums, impregnated with all Kinds of Vegetables which fall into them, are resolved in them, and at last intimately united with them. River-waters derived into the Ditches of populous Cities are mixed with the fresh, fermentative Liquors of Vegetables cast into them, and therefore, if they are put up in Casks, which were once used for Malt-Liquor, Wine, or Vinegar, may conceal a great Quantity of Spirits for a long Time. And hence, when they come under the Equator, or within the torrid Zones, by being exposed to so great a Degree of Heat, they may be exalted into a Kind of Fermentation. To the foregoing six Classes, I think, may be reduced all Bodies susceptible of Fermentation, if they are managed after various Manners suited to their different Natures.

XII. In the Bodies contained in the first five Classes, there are required some physical Conditions to render them the fittest for Fermentation; as,

1. The most perfect Maturity designed by Nature in their Kind: For all Seeds and Fruits, which are brought to such a Perfection, that if sown in a fertile Soil, and at the right Season, they will produce a Plant of their own Kind, are fit for this Operation. But when they are crude, harsh, and watery, they are certainly less disposed for it. The rough Juice of unripe Grapes, or Crabs, is but little disposed for Fermentation, though the expressed Juice of them, when they are ripe, ferments spontaneously; and the Case is commonly the same in others.

2. A moderate Degree of Oiliness is also necessary; for very oily Substances grow rancid, rather than ferment, and those without Oil are unfit for Fermentation. Hence very fat Almonds, if they are pounded, are less liable to be affected in this Manner; but when they are carefully beaten up to a Milk with a great deal of Water, they usually become disposed for it. And when they are macerated in Water, and are just ready to shoot, the great Diminution of their Oil renders them fit for Fermentation.

3. They must not be too rough and astringent; for such Substances are with Difficulty excited to this Action: Thus the Juice of Bistort, Tormentil, and the like, can scarcely be raised to a Fermentation.

4. It is one of the chief Properties of a fermentable Substance to be dissoluble in Water: Hence Barks, Woods, and Roots, so long as they exist in these Forms, will not be changed in this Manner, though their expressed Juice, being then miscible with Water, will ferment very readily.

XIII. Ferments are principally,

1. All such Substances as are spontaneously very prone to Fermentation themselves, and therefore are soon excited without any other Ferment: Of this Kind in particular are the Juices of ripe Summer-Fruits, which are so much disposed to Fermentation, that they can hardly be kept from it, but by the Help of such Substances as have the Power of restraining it. Dough also, made of Flour, and worked with Water, if it lies in a warm Place, cannot be prevented from fermenting. We need not therefore be solicitous about this first Sort of Ferment, since Nature every where supplies us with it abundantly.

2. Fresh

2. Fresh Yeast, or Flowers of Malt-Liquor, or Wine, which work up to the Top in the very Action of Fermentation; for if this light, frothy Matter be mixed with other fermentable Substances, it wonderfully promotes their Fermentation, provided it be fresh, and not fallen.

3. The same Matter, afterwards grown heavier, and subsided to the Bottom, if it is not too stale, still retains its former Virtue, though it is less active than before; for these Lees being mixed by stirring excite a new Fermentation in their own Liquor, and usually do the like in others.

4. Cassia, Manna, Honey, Sugar, and the like inspissated Juices.

5. The acid, mealy, fermented, Leaven of the Bakers. For if fresh, sweet, Wheaten Flour, be kept in a dry Place, and secured from Insects, it may be preserved for Years without Corruption; but if it be kneaded with Water into a soft, sweet Dough of a good Consistence, and set aside slightly covered in a warm Place, it begins, within the Space of an Hour, to open, and swell on all Sides, to be full of Bubbles, to lose its Smell, Taste, and Tenacity, and acquire an Acidity, in which State passing under the proper Appellation of *Syn, Ferment*, it gave the first Name to the whole Operation, because if this Leaven is mixed with fresh Dough not yet fermented, it will make it ferment much the sooner, and more effectually. Hence it appears, that a Ferment may be soon prepared, without the Help of one pre-existent.

6. The Residuum of former fermented Liquors, which stick to the Sides of the Casks. For the Vessels being thoroughly penetrated and seasoned by the Subtlety of the Liquors they formerly held, are extremely adapted to excite a speedy and brisk Fermentation in any fresh Liquors that are put into them.

7. Among Ferments, we may also, reckon, though with less Propriety, the beaten White of an Egg, for it performs the Office of a Ferment in the following Case:—When some fermentable Liquors are so diluted and thin, that they too easily discharge the Air and Spirits, which both excite and keep up a Fermentation, and consequently do not retain them long enough to change their fermentable into a fermented State, the White of an Egg, mixed with the Liquid, by its Tenacity, sufficiently inspissates it for the inviscating and detaining the active Spirits so long as it is requisite. Here indeed, it does not act properly as a Ferment, being itself not far from Putrefaction, but only assists the Causes of Fermentation, by preventing their too speedy Exhalation. The same Thing therefore may be easily effected by other viscid Substances; for which Reason,

8. Some have added Salts, as well acid and austere, as alkaline; but in this they have Respect only to particular Cases, as in the former. Thus, when fermentable Substances have so great a Quantity of Acid in them, as to impede their Fermentation, it is observed, that a prudent Addition of a small Quantity of an alkaline Salt, will promote the Operation. And again, when any Thing subputrid has happened to be generated in the fermentable Matter, a proper Addition of a little Acid, has restored a Disposition to Fermentation. Hence it appears, that these are not Ferments in themselves, nor so much as Fermentables, but in some certain Circumstances by removing the Impediment to it, they become Promoters of Fermentation. Tartar however, if it is good, may in some Respects be accounted a Ferment.

9. It is observed, that the most austere Bodies have sometimes, by their Admixture, procured a Fermentability, in some Subjects which they have been known to hinder in others. Hence Quinces, unripe Medlars, rough Cherries, and the like, have been referred to the Class of Ferments, though never properly and justly; but when the fermentable Liquor is of itself too thin, weak, and watery, and therefore wants an Addition of somewhat rough, to enable it the better to retain its volatile Spirits.

XIV. We are now to consider the Preparations which fermentable Substances require to make them ferment more successfully. Those which fall under the first Class require, for this Purpose, a very particular Management, for,

1. As for farinaceous Seeds, when they are ripe, and in their utmost Perfection, dry, and intire, if they are then, in a warm Season, first infused in Rain-Water, particularly what falls in the Spring, contained in large Vessels, and are there suffered to lie till they are swelled, and have imbibed as much Water as they can, this is called Maceration.

2. The Corn being thus soaked, is taken out of the Water, and laid in large Heaps in an open airy Place. In a short Time there spontaneously arises in these Heaps a genial Warmth, by the Assistance of which the vital Powers of the Seed are quickened and rendered active, and begin to shoot, by putting forth their seminal Leaves, and the Rudiments of Roots. In this State, there is a great deal of Caution necessary, that the Corn, by too great an *Æstuation*, may not begin to putrefy, and that by too much germinating and growing out into Leaves and

Roots it may not consume its mealy Substance; for the Fermentation that comes afterwards always succeeds, in Proportion to the right Management of the Germination, which must be carried on to a certain Point, and no farther.

3. As soon as the Germination is sufficiently advanced through the whole Heap, the Corn must be immediately spread abroad, that it may continue no longer in a State of *Æstuation*, but be ventilated, cooled, and dried in a Place pervious to the Winds, especially the North-Wind. By this Means, its farther Germination is immediately stopped, the farinaceous Part being attenuated by the Operation, but not consumed. The Corn thus prepared, is slowly conveyed down a Pipe very much heated, which expeditiously dries it to a very gentle Degree of Torrefaction. This is what Tacitus calls *Fruentum corruptum* [corrupted Corn] and what now goes by the Name of *Malt*. The principal Alteration which the Corn undergoes by this Operation is, that its Viscosity is wholly attenuated; so that though the native Corn will not dissolve in boiling Water, that which has undergone this Operation, is of so loose a Contexture, as most likely to be dissolved, and to have its Medulla quite exhausted by it: For crude Wheat, by chewing, will be reduced to a Glue, which can scarcely be attenuated, by long retaining it in the Mouth; but Wheat made into Malt, and broken under the Teeth, totally dissolves, and gently melts away in the Saliva. Besides, the Malt in making acquires a soft, sweet Taste, which was not in the Wheat before. When this Malt is to be used, they grind it into a Meal, which is then called *ground Malt*. What I have observed of Wheat, is found to be true of all the Seeds in the first Class of Fermentables. Thus if Beans, turgid with Maceration, are cast into a Heap, and suffered to heat till they germinate, and are afterwards dried expeditiously with a pretty strong Heat, and then ground, they will yield the same Phenomena.

XV. The Preparation of the second Class of Fermentables, is concerned about the soft pulpy Fruits, in treading, pressing, and pounding them, by which Means their Juice is separated from them with a considerable Froth. But if their Substance be of a harder Kind, they may be boiled in Water, and afterwards reduced to a soft Pulp, as is often practised with Apples and Pears. If they are pretty dry, they may be rasped to a Powder, and then pounded with Water to a Pulp, as in the tuberous Roots of the *Corona Solis*, Potatoes, and the like, in which there is not much Tendency to Putrefaction; for if that be the Case, then instead of fermenting, they will putrefy.

XVI. Such as belong to the third Class, are beat into a Pulp whilst they are fresh and juicy, adding only a small Quantity of Water, to make it of a thinner Consistence, and then they are sufficiently prepared.

XVII. As for Bodies of the fourth and fifth Class, if they are of themselves too thick, they must be diluted with such a Quantity of Water, as will produce a Liquor capable of supporting a new-laid Egg: Hence, if these native Juices are too thin and watry, and you want a well fermented Liquor, take your Juice when it is newest, and has had no Fermentation, and boil it over a gentle Fire, in a very wide and shallow Vessel, till it has acquired a proper Thickness. If it be not thus treated, it will hardly ferment, or generate many Spirits. But if it be naturally too thick, it is reduced by Water to a just Consistence, as aforesaid, for in its first State, it will hardly turn spirituous, but readily degenerate into an Acid. Sugar that is dry, will remain unchanged in warm Weather; but if it be reduced to the Consistence of Cream, it ferments violently, and is converted into a Liquor that plentifully abounds with Spirits. And the same Thing is true of Honey, &c.

XVIII. The next Thing to be considered, is the Quantity of the Ferment that is necessary to be mixed with fermentable Substances, after they are properly prepared, that the Fermentation may proceed the more successfully. Here observe, that

The Preparations of the first Class reduced to Malt, in the Summer, scarcely require the Assistance of any Ferment, but are of themselves sufficiently, and often too much, disposed to Fermentation. In Winter, however, the Addition of some Ferment is necessary, as well as an artificial Heat, without which they would not be put into Motion. Hence again, if you take Care to keep them in a very warm Place, they will require, though in Winter, but little Ferment, about an Ounce of Yeast, for Instance, to twenty Pounds; or Honey or Sugar in the same Proportion; or Baker's Leaven in double the Quantity.

The second Class of Fermentables scarce ever want the Assistance of a Ferment, unless the Weather happens to be too cold, on which Account, if the Fermentation proceeds too slowly, you may add a little Yeast.

The third Class, in Summer Time, especially if it be pretty warm, readily enough ferment of themselves: In Winter, if the Fermentation is checked, it may be promoted by the Addition of Sugar, or Honey.

Nor in the fourth Class, are Ferments often necessary, for these Bodies, if the Weather is favourable, ferment so violently, that they can scarcely be kept within Bounds; especially if the

the Weather be very hot, and the Fruits have had a fine Season for ripening.

The fifth Class very rarely want the Use of Ferments, they rather acting the Part of Ferments themselves. You need only raise an artificial Heat, and maintain it in one constant Degree. Hence therefore, we see, that upon the Whole, Ferments are not so necessary, as is generally imagined.

XIX. After Fermentables of what Kind soever have been prepared, and diluted with a sufficient Quantity of Water in the Manner explained, let them be poured into an oaken Cask, well seasoned with a Liquor of the same Kind fermented in it before. Let the Vessel stand in a Heat, between sixty and seventy Degrees, and let the Bung-hole be left open; that the Air may pass freely in and out, or only covered with a Bit of Flannel to prevent any Insects from falling into it.

XX. I took a glass Cucurbit, the biggest I could get, and placed it upright in a wooden Box in such a Manner, that by putting a small Quantity of Fire at the Bottom of the Chest, I could keep it in an equal Degree of Heat. I then filled it to three Quarters of its Capacity, with a crude fermentable Matter, properly prepared for Fermentation, covering its Orifice slightly with Flannel, and keeping up a Heat but of betwixt sixty and seventy Degrees, even in the Winter Season; and it was pleasant to observe the Phenomena that followed, which in this Way lie open to Observation, always happen in the same Manner, and make up the whole History of Fermentation.

1. The Mass, which at first is at Rest, and takes up a certain Space in the Vessel, begins insensibly to swell, rarefy, to be elevated, and conceive an intestine Motion through all its Parts, which discovers itself by the strange Whirling of the Liquor, upwards, downwards, and sideways, nor ceases though the Impetus changes every Moment. In the mean Time Bubbles appear to be generated in every Part of the Mass, which with a strong Tendency endeavour to ascend, sometimes bursting as they rise, or else at the Surface, with a hissing Noise. Hence the whole Matter grows frothy, but the Surface in particular, and with a Noise, like that of Ebullition, there is discharged an acrid Spirit, that affects the Nostrils with its Acrimony, is acidish, wonderfully elastic, incoercible, bursting by its immense Force almost all Vessels in which it is confined, nor in these Respects is it to be equalled by any Thing that I am acquainted with. Hence the great Helmont thought proper to distinguish it by a particular Name, and therefore called it *Gas Sylvestris*.

2. Whilst these Things proceed in this Manner, the thicker Part of the fermentable Mass begins to be separated from the thinner, and is thrown up to the Top, where it is collected in a thick, spongy Crust, which accurately covers the Liquid underneath, and confines and repels its more active Parts, so that they cannot easily exhale before they have performed their proper Office. And then it is very entertaining to see, how great and constant an Agitation there is through every the least Particle of the more liquid Part that lies under the incumbent tenacious Crust. Certainly, we can scarcely conceive a greater Attrition than arises from the rapid Agitation of these Corpuscles among one another. And hence it comes to pass, that the Crust being elevated and separated by the repeated Explosions, there frequently bursts out a Vapour through the Clefts with a considerable Noise; upon which the Crust presently falling down closes again; and confines, as before, the active Principles, so that they cannot too easily exhale and be dissipated. And indeed, the Formation, and Continuance of this Crust, tends above all Things, to bring about a perfect Fermentation.

3. In the Midst of these Observations one cannot but take Notice that whereas all the thick Part of the fermentable Matter was at first carried up, and collected at the Top, there are now some Parts at the Bottom of the Crust, which growing less rare, and being no longer supported by those rare Bubbles that rendered them light, begin to descend through the liquid Part, are agitated upwards and downwards, form Bubbles about them, by their Assistance rise, and then by their Disposition sink again, and when it has happened alternately in this Manner for a good While, at last subside to the Bottom, and remain at Rest. Then other Globules take their Turn, and play the same Part, and when it has thus proceeded for some Time, it often happens, that the whole upper Crust, now grown heavier, and less rare, on Account of the exploded Spirits, sinks down at once, and soon after rises again, almost intire, and that with such an Impetus, as is hardly credible to one who has not seen it. When the whole Crust is perfectly dissipated and sunk to the Bottom, the Fermentation ceases, though the same Degree of Heat is still continued; a clear, thin, light Liquor swims at Top, and the Fæces subside to the Bottom.

4. Hence in every true Fermentation, the fermentable Matter is at first of an unequal Consistence, but afterwards separated into two Parts, the more liquid, which is undermost, and the more solid Crust, which covers it. This Crust, so long as it keeps the upper Place, is called the *Flowers* of the fermentable Liquor, or *Yeast*, and is the most convenient and serviceable

of all Ferments. But, secondly, in the second Stage of Fermentation it is separated into three Parts, the Flowers at Top, the Liquid in the Middle, and a third Part, which begins to fall and be collected at the Bottom, under the Title of the *Fæces*, which are the thicker and heavier Part now quite exhausted of that Principle which caused the Fermentation. And, lastly, in the third Stage it is again divided into two Parts, the Upper, which is clear, fine, and thin, and called *Wine*; and the Lower, which is thick, and lies at the Bottom, named the *Lees* or *Mother of Wine*.

5. But there is nothing more surprising, or more carefully to be observed in this Affair of Fermentation, than that prodigious *Spiritus Sylvestris*, which rushes out with such an Impetus, when the Fermentation is at the Height; nor is there any Poison that I am acquainted with, that is so subtle, swift, and fatal; for if a very large Vessel full of the best fermentable Must, in the Height of Fermentation, should discharge this Spirit through a small Vent-hole in the upper Part, and the strongest Man should but once draw this Vapour into his Nostrils, he would drop down dead that very Moment; or if he drew in but a little, he would be taken with an Apoplexy; if still less, he would be deprived of his Understanding, and be a meer Idiot the rest of his Life, or else become paralytic. And hence the like Misfortune happens to those who are imprudently busy in close Wine-vaults, where the Wines are fermenting in the Time of Vintage. For this Reason, these Places ought to be purified by Fires, and aired by setting the Windows open. From Sugar dissolved in Water, and its Froth first fermented, we have an Account of a Spirit produced, which being drawn into the Lungs, in a very small Quantity, in an Instant stopped all Respiration, exciting an intolerable Asthma. *Phil. Trans. Ab. Vol. 2.* Let Physicians then consider the Force of Liquor drank in the very Act of Fermentation; and how violent that Spirit may be, which in Summer is generated in the human Body, from a too free Use of Summer-fruits, when very ripe, if by a convulsive Constriction of the Stomach they are prevented from passing any farther, and, by being kept in a warm Place, acquire and exert an extreme Elasticity and Acrimony. Hence in *Alcohol* there still remains a good deal of this Poison, and therefore if the Vapour of it be taken into the Nose in a great Quantity, and for a long Time, it causes the greatest Degree of Drunkenness, or a slight Apoplexy. If it be used too freely internally, it affects the Brain and Nerves particularly, and their Functions. In Chymistry we are still at a Loss from whence this Spirit arises. We know, indeed, it is the Production of an actual and present Fermentation; nor do we know that such a one is generated in any other Way; but we cannot conceive how it causes Death, without any Disease, or how it affects the Cerebrum, Cerebellum, or Nerves, without Matter, or without any visible Alteration, either in the Solids or Fluids.

As soon as the Fermentation is over, it is proper to close the Vessel, and let the fermented Liquor rest a While upon its Lees, for it will still consume much of them, and assimilate them to itself, and so be stronger, more spirituous, and much fitter for Distillation.

XXI. The Time necessary for completing a perfect Fermentation can scarce be determined exactly, as depending upon the Place where the Vessel stands, the Season of the Year, the Heat, and Wind it is exposed to, and the Nature of the fermentable Matter itself. In Africa, the Liquor of the Palm-tree passes through this Operation in the Space of a few Hours. In Asia too the Business is very soon over; but in the Northern Countries it proceeds but very slowly. The hot Summer Season quickens, the Winter checks it. The South-Wind promotes, the North-Wind retards it. The expressed Juice of Grapes and Sugar ferment suddenly and violently; other Fermentables more slowly. It is easy, however, to know when a perfect Fermentation is at an End, which is, when all the Phenomena mentioned have appeared in the Order described, and at last cease spontaneously; and then the Vessel must be immediately stopped, and the fermented Liquor kept upon its Lees; for otherwise the Spirit generated by the Fermentation, would in a short Time exhale, and leave the Liquor vapid, and good for nothing; whereas if the Liquor is kept quiet in a Vessel well stopped, it grows gradually finer, more subtle, and fuller of Spirit. Thus the fresh expressed Juice of Grapes may, by boiling, be inspissated without losing any of its Virtue; but after Fermentation, if it be only exposed to the cold Air, it is soon exhausted of all its Spirits.

XXII. The Liquor prepared by a complete Fermentation, has in all Ages, amongst all Nations, and in every Language, from whatever Matter it is produced, been called by the Name of *Wine*. Now the Nature of Wine is known by the following Marks which are common to every Sort of it:

1. It has a Faculty of producing a Temulency in the Functions of the animal Spirits and Actions. This is what it effects while it quickens, refreshes, exhilarates, disposes a Person to Mirth and Frolics, to be talkative, to rhyme and dance, then

proves an Incentive to the hidden and peculiar Passions of each Breast, reveals Secrets, and lays a Man open; and at last disorders, debilitates, takes away spontaneous Motion, so that neither Foot, Hand, Tongue, nor Reason can exercise their proper Offices; the Consequences of which are Sleepiness, Palsies, Apoplexies, and Death. This is a Property peculiar to Wine, nor is there any Thing like it in any other Body that I am acquainted with; for Henbane, Tobacco, Opium, and the Thorn-apple, whilst they affect the Brain, act in quite a different Manner. And this Faculty is much the same in every Sort of Wine; for Malt-liquor, Mead, Cyder, Perry, and Wine made with Gooseberries, Grapes, or any Sort of Berries, have constantly the same Effect; so that this surprising Power is solely the Effect of Fermentation.

2. But Fermentation likewise changes vegetable Juices from their relaxing, resolving, saponaceous, refrigerating, and for the most Part purging Quality, into one that corroborates, thickens the Humours, dries, and heats. Farinaceous Substances reduced with Water to a crude Pap, the inspissated fresh Infusion of Malt, before it is fermented into Beer, Mulsium, Syrups made with Sugar, Manna, or the Pulps of Cassia diluted with Water, the fresh expressed Juices of full-ripe Summer-fruits, and fresh fermentable Herbs at their Maturity; any of these too freely drank, produce windy Disorders in the Bowels, excite a Diarrhoea, and make a Person chilly. But when by proper Fermentation they are made into Beer, Mead, and Wine, how very different are their Powers and Effects! They retain nothing of their former Disposition, but all Things are become new. The fresh Juice of perfectly ripe Grapes is perhaps the most powerful Dissolvent of Humours we are acquainted with, and if used immoderately, often brings on a fatal Dysentery; and an Infusion of Malt inspissated by boiling (Sweet-wort) drank plentifully, has the same Effect. But strong, old Wine from the former, or generous old Beer from the latter, or the distilled Spirit from either of them, but especially *Alcohol*, is a good Antidote against the former.

3. Another perfectly singular Property of Fermentation is that from the fermented Matter it produces a Liquor, called a *fermented Spirit*, which has this particular Quality, that it is convertible into a lucid Flame, and at the same Time capable of being thoroughly mixed with Water, and yet quite of a different Nature from the Spiritus Sylvestris before described, which seems to be produced in the very Act of Fermentation, and lost at the same Time. This Liquor has scarce any Thing else like it. For the volatile inflammable Spirit, which I once saw in a very dangerous Manner burst out of the Retort in the Distillation of Phosphorus, would not be diluted and extinguished with Water. And what arises from large Quantities of human Excrements, thoroughly putrefied in a close Place, and takes Fire, and bursts into a violent and very dangerous Flame upon the Application of a Candle, seems to be of the same Nature, but horribly foetid. Oily Substances, when urged with the last Degree of Fire in Distillation, send forth white-bluish Fumes, which, upon holding a lighted Match to them, will also take Fire, but these return to an Oil, or a Phosphorus, that will not mix with Water. So that upon a careful and thorough Examination, I have not been able to discover any Liquor, which would absolutely, and spontaneously, as it were, mix with Water, and was at the same Time convertible into a pure Flame, except what is produced by the Fermentation above described.

4. Another Effect of Fermentation is the Generation of the Wine-stone, commonly called *Tartar*. I confess, that this is not produced from all Sorts of Wine; for it is neither generated from the best Malt-liquor, Mead, nor many other Sorts of fermented Liquors. From some Vegetables, indeed, this is formed good and pure, but then only when they have been converted into a Wine by a perfect Fermentation, and are intirely defecated. Hence, therefore, I always esteem Tartar as a peculiar Production of Fermentation, and think, it should be called the *Oily essential Salt of the Wine*, and be absolutely distinguished from the Mother or Lees.

5. Fermentation also induces a surprising Alteration in the Smell, Taste, native, and artificial Virtues of Things. The cohobated Water of fresh Rosemary, for Instance, differs in every Property from what is drawn from it after it is fermented with Honey. The Must fresh pressed from mature Rhenish Grapes, that grow exposed to the Sun upon the Sides of Mountains, is of an exceeding sweet Taste, but when perfectly fermented and grown fine in the Cask, it has a grateful and acrimonious Acidity. Other Wines which are not thoroughly fermented, but have their Fermentation checked, keep their Sweetness, but very easily relapse into a Fermentation, and when it is finished turn acid. That Aloes and Colocynth, by Fermentation, lose their Bitterness, is an Observation of Wedelius, *Art. Lips.* 1686.

6. Fermentation also produces a new Smell, Taste, and Virtue, which are properly called *Vinous*. Even Meal, Sugar, and Honey, produce something that is acid, warm, and rich.

7. Fermentation generates these Spirits either from a Matter which was before of a different Nature, or from the Oil of

the Plant. This last is indeed very probable. But then from which of the Oils have they their Origin? Almost all the Chymists say, from their essential Oil. But by what Experiment they are able to determine this, I own, I cannot comprehend; for the Spiritus Rector, which forms the essential Oil, is lost in the Fermenting. In fermented Matter, deprived of its Spirit by Distillation, there remains a considerable Quantity of Oil; and yet I could never excite a new Fermentation in the Residuum, nor by any Art extract more such Spirits from it. In every fermentable Substance, therefore, there is naturally only a certain Part which is disposed for the Generation of Spirits, in a determinate Quantity, by Fermentation. But there is yet another Thing which deserves Consideration, and that is, that the finest and most thoroughly fermented Wine generates white Tartar, which is full of a perfectly inflammable, and most penetrating Oil, and yet you can by no chymical Operation produce inflammable Spirits from this, as you can abundantly from the Wine. Hence it appears, that the Matter which is convertible into these Spirits by Fermentation, is of a singular Nature. But as Fermentation, thus productive of these Spirits, is every where at Work; there must of Consequence be vast Quantities of these Spirits generated, which are either consumed by Animals, or dissipated into the Air. The Saliva, Blood, and Urine of Animals, who constantly use these Spirits, hardly, indeed, afford any Spirits in Distillation; but then there is never wanting in Nature proper Matter for producing more, let but Fermentation come in to its Assistance. But Fermentation generates also something saline; since an Acid is here produced which is considerably volatile, though less so than the Spirit. Thus from Vinegar there rises a volatile Acid and somewhat pinguious Salt, which the unfermented Matter did not afford. The Spirits themselves which are generated by Fermentation, have somewhat in them of this volatile Acid. Hence the Oils, and acid Salts of fermentable Bodies, seem to be attenuated, rendered volatile, and united by Fermentation, and to be consumed in a certain Quantity. Thus if I distil unfermented Rosemary with Water, I obtain an Oil, which has the true Smell and Taste of the Rosemary, and a milky Water impregnated with the same Qualities. If I ferment it with Honey, and then distil it before the Fermentation is completed, it affords a white, thick, opaque, pinguious distilled Water, richly endued with the Virtues of the Rosemary, together with some Oil swimming at the Top, though in a smaller Quantity than before. But if it be first completely fermented, and afterwards distilled, you draw off an excellent pellucid Spirit of Rosemary, that will mix with Water, and is endued with great medicinal Virtues; but the former essential Oil appears no longer.

8. This Spirit produced by Fermentation, which partakes of the Oil, becomes by this Operation more volatile than Water itself; whereas the essential Oil, before the Operation, was not so volatile as Water; but the Vegetable might, by a gentle Heat, be deprived of all its Water, no Oil ascending with it.

XXIII. The Circumstances necessary to a successful Fermentation are principally these:

1. It is requisite that the fermenting Liquor should remain at Rest, that the Crust which forms itself at the Top may keep intire; for to be continually stirring, and mixing it with the Liquor underneath, prevents a perfect Fermentation.

2. There must be a free Ingress and Egress of the common Air, which must also be intimately mixed with the fermentable Matter, by treading, kneading, or pressing, otherwise the Fermentation will not proceed.

3. A Degree of Heat between forty, and at most eighty.

4. The Spring and Autumn in particular, are said to favour this Operation, when those Vegetables are in Flower, from which the Wine was made. Hence the Wine of Grapes is reputed to grow foul, and easily ferment again, when the Vine is in Blossom.

XXIV. The Checks to Fermentation, by which it is either impeded after it is began, or intirely stopped, are as follow:

1. The acid Vapour of burning Sulphur long included, and in a considerable Quantity, with that Air which is in the Cask above the fermenting Liquor. For if a Vessel first thoroughly penetrated and replete with this Vapour, receives the fermenting Liquor, and the upper empty Part be afterwards filled with the same Vapour, and carefully stopped, you will prevent any farther Fermentation, which, after some Time, may be revived by proper Means and restrained by the same Fumes. The same Effect follows from mixing a large Quantity of a strong Acid with the fermenting Matter. The Acids of Alum, Nitre, Salt, Sulphur, and Vitriol, prevent Fermentation, but at the same Time spoil the Liquors.

2. Alkaline Salts also, if they are mixed in great Quantities with fermenting Liquors, excite for the present a very consider-

considerable Effervescence, but that soon ceasing leaves the Liquor incapable of farther Agitation, its Nature being so utterly destroyed, that it can scarcely be afterwards raised to a Fermentation, but rather tends to Putrefaction. Hence it appears, that Alkalies are a greater Obstacle to Fermentation than Acids, the former destroying or suffocating all the Acid. Wherefore,

3. All Bodies intirely absorbent of Acids, if mixed with fermenting Liquors in a proper Quantity, after a short Struggle and Effervescence, put a Stop to this Operation; Chalk, Crabs-eyes, Coral, Pearls, Oyster-shells, Iron, Lead, and Tin, have this Effect.

4. Stopping the Vessel so closely, that nothing can pass in or out, provided the Vessel be so strong as not to be burst by the Force of the included Liquor. This is evident in new Ale put into very strong Bottles, where the Admission of Air converts the Fermentation, so long suffocated, and prevented, into the most violent Effervescence, and discovers a prodigious collected Force. The same Thing happens also in Casks, for there is a constant Struggle and Renitency between the fermenting Body and its containing Vessel.

5. A great Degree of Cold destroys all Fermentation, for under thirty-six Degrees of Heat it will hardly make any Progress.

6. Nor is too much Heat a less Obstacle to it, which, if it exceeds ninety Degrees, rather dissipates the active Principles of Fermentables, than assists and quickens them. Hence an Exhalation under a greater Degree of Heat insipifies Fluids to a Degree of Density, unfit for Fermentation. Boiling has a much quicker Effect, so that the richest Juice of Grapes, which can hardly be kept from fermenting, will by quick Boiling lose all its Disposition to ferment, and be converted into a Mass that will rest for Years without Alteration.

7. The Separation of the elastic Air, by Means of Boyle's Air-pump, during the Absence of which, this fermentative Motion intirely ceases.

8. Lastly, an extraordinary Condensation of the same Air with the fermentable Matter absolutely prevents both the Beginning, and Progress of Fermentation.

XXV. After Liquors thoroughly fermented have been kept some Time in a cool Place, together with their Flowers, and Fæces, and in Vessels very closely stopped, and pretty full, and by this Means having acquired more Spirits are proper for Distillation, it is advisable to sti them about, and mix them with their Lees, for they will then give out their Spirits in far greater Abundance. But then you ought to take Care that the Lees in Distillation do not subside to the Bottom of the Still, and being there condensed and burnt, affect the whole Liquor with an Empyreuma. For this Reason the Liquor must be kept stirring with a Stick, till it is ready to boil, by which Means the Lees being equally mixed, and afterwards kept in Motion by the Heat, there will be a perfect Mixture of the thicker Parts with the thinner. By this Method then you will obtain the Spirits, as well from the Fæces, as the Liquor itself, and will in the best Manner provide against an Empyreuma. But if the Liquors have rested some Time before the Distillation, there is less Danger of their ascending in Flatulencies, or rising out of the Still; whereas, if you go about to distil them when they are just fermented, the Impetus of Fermentation that still remains often carries them up when they come to boil violently, and so disturbs the whole Operation. At the Beginning, therefore, it is necessary to proceed with Caution.

XXVI. An Empyreuma is prevented:

1. By rubbing the Bottom and Sides of the Still with some pinguious oily Matter, before you pour in the Liquor.

2. By constantly stirring the Matter till the supervening Heat causes a thorough Mixture, and so prevents the thicker Parts from collecting and sticking to the Bottom.

3. Nothing more prevents an Ambustion or Empyreuma, than boiling Water briskly in the Still, and immediately after pouring in your Liquor at once; for then the hot Vapour filling the Cavity of the Still, will hinder the fermented Liquor from gathering and fixing to the Sides.

XXVII. If the whole fermented Matter consisting of the Flowers, the middle Liquor, and the Mother, which were first well kept and distinguished, are very carefully mixed before Distillation, you will extract good Spirits.

XXVIII. When your Liquor is heated to such a Degree, as to be just ready to boil, you must beware of the first Impetus. This is best guarded against, by leaving the Still one third empty, and covering the Aperture of the Still with a thin Cloth, before you fix on the Head, and then managing the Fire in such a Manner, that the Drops shall fall quick one after another. In this Manner your Distillation will go on safely, and after it is thus continued for some Time, it may with due Caution be somewhat increased, so as to obtain in the most commodious Manner all the Spirits. The thinner, and purer Liquors, indeed, as Mead, Wine, and old Beer, do not require so

much Caution; but in farinaceous Substances, distilled after a perfect Fermentation, you cannot be too careful. The former you may at once venture to distil in such a Manner, that the Spirits shall almost run through the Worm in a full Stream.

XXIX. In the Distillation of fermented Substances in the Manner described, there first comes over an acrid, heating, and pungent Liquor, of a very particular penetrating Taste, called *Spirituos*, and of an extremely active and volatile Nature, in which it is exceeded by very few Bodies; for a pure alkaline Spirit that flies off in Fumes from Tin, Glauber's Spirit of Nitre, and his Spirit of Sea-salt, and a pure volatile alkaline Salt, are all that are known to have a greater Degree of Volatility. This Liquor, when it is very much heated, readily takes Fire upon the Application of Flame to it, and will almost totally consume. Taken internally, it causes Drunkenness, Stupor, and Apoplexy. In a moderate Dose it wonderfully raises the Spirits. It very speedily heals Punctures, Dilacerations, and Pains of the Nerves. All animal and vegetable Substances put into it, are intirely preserved from Putrefaction, only somewhat altered in their Colour. If you dissolve a little of the finest Sugar in it, when it is not perfectly free from Water, the pellucid Liquor thus made, preserves the most tender Bodies. If it is diluted with Water, and then used warm as a Fomentation, with Sal Ammoniac and Vinegar, there is nothing, perhaps, that more effectually resolves Coagulations, dissolves inspissated Humours, prevents the Spreading of a Gangrene, and causes a Separation of the unsound Parts, or dries up a Defluxion of thin Humours more effectually. This Liquor is called *Spirit of Wine*, and that Part of it which comes over the very first, is called the *Præcursor*.

XXX. When this Spirit is all drawn off, if you urge the Residuum with the same Fire, in the same Vessels, you will obtain a Fluid which is less volatile, acetose, acid, astringent, cooling, nauseous, and foetid. At the Bottom will remain some thick Fæces, which by no Means nor Method can ever be brought to ferment again, and yield new Spirits, though from the Consistence of them one would expect it. But if you expose this Residuum to a very strong Fire, you may draw from it a foetid, empyreumatical Oil.

XXXI. If the Lees of any fermented Substance after Distillation are dried and burnt in an open Fire, they are converted into salt Ashes, from which may be obtained a sub-alkaline, or alkaline Salt. Hence it evidently appears, that the most perfect Fermentation is not able to render volatile that Matter of Vegetables, which is fixed by being burnt, and which is convertible into an essential Salt by proper Operations before Burning.

MEAL and MALT, worked together with a proper QUANTITY of WATER, ferment.

I. Having premised the general Doctrine of Fermentation, it will be proper to give some Examples of it, that the Manner in which both Art and Nature proceed may be understood. You are then to observe, that there are two different Ways of Operation; by the first of these Beer, or Wine of Corn, is prepared, and from thence Spirit of Wine; by the second, a Spirit is drawn immediately from fermented Corn, in the same Manner as it is from Beer. In the first Method, upon ground Malt you pour Water almost scalding hot, mix them well together, and let them infuse for three or four Hours; by which Infusion the Malt will impregnate the Water with its starchy Part, which would not have been effected by crude Meal. The Liquor then being drawn off from the Malt, must be boiled till it is reduced to a proper Thickness; and this Decoction, in this State, is emollient, loosens the Belly, purges, cools, and resists Inflammation. If, when this Liquor is cool, you mix with it some strong Ale-yeast, or Grounds, and let it stand in a warm Place, in a Vessel with the Bung-hole open, there will arise a violent Fermentation, which being quite compleated, the Liquor is immediately strained cold through a Cloth, and stopped up very close in its Cask, and becomes very good Beer. But in order to preserve it for a considerable Time, and prevent its growing sour, you must add a certain Quantity of some very bitter Herbs to it whilst it is boiling. If this Decoction of Malt then is made sufficiently bitter, boiled to a proper Thickness, perfectly fermented, stopped up very close, and put into a Cellar, and, after it has been kept a considerable Time, is distilled, it will the first Time yield as fine a Spirit of Wine as you can obtain from any Sort of Wine by any Art whatever; which will be exceedingly fragrant; nor have any the least disagreeable Smell. I learnt by Experience that there is scarce any Difference betwixt such Beer and the most generous Wine, and could not help wondering, that this Art should be very well known and practised in all Ages of which we have any Account. Thus Diodorus Siculus tells us, L. 1. That in those Countries, where there were no Vines, King Osiris taught the Inhabitants to make a Liquor from Barley, which in the Fragrance of its Smell, and Sweetness of its Taste, was not much inferior to Wine. Herodotus also in Euterpe mentions an Ale, or Wine, made from Barley, *Ζύθος* and *κρηνη* *πυρρα*. And Tacitus, de Mor. Germ. says, they had a Liquor prepared from corrupted Barley, or Wheat, which resembled Wine. And according-

ing to Aetius *Barley*, signifies Barley wetted, till it begins to germinate, and then dried together with the germinating Shoots.

II. The same Thing is performed in another and more common Way, as follows: They take of ground Malt fourteen Pounds, of Rye Meal seven, which are mixed and worked well together with hot Rain-water, till they are reduced to a Liquid of a moderate Thinness; this they put in an oaken Cask, which is placed in a wooden Chest, that it may keep in the Heat of Summer. It ferments briskly enough, and they leave it to itself till the Crust, which during the Fermentation is formed at the Top, disappears, and subsides to the Bottom. They then stop up the Cask, and let it stand for some Time, till the Liquor at the Top becomes clear, and acidish, and at the Bottom there is collected a large Quantity of a farinaceous Matter, not glutinous, but fit for Distillation.

MALT and MEAL fermented, and then distilled into INFLAMMABLE SPIRITS and VINEGAR.

I. Put a Pint of boiling Water into the Still, and make Fire enough to keep it in a State of Ebullition, and then pour in the Malt and Meal well fermented, taking Care first to shake and mix them very accurately, till the Still be two Thirds full. Then kindle a Fire, and at the same Time keep the Liquor continually stirring with a Stick, that the thicker Part may not gather at the Bottom, but the Whole continue as thoroughly mixed as possible. When it is grown so hot as to be just ready to boil, fix on the Head, and manage the Fire in such a Manner that the Head may be very hot, and the Spirit may distil pretty fast through the Worm. There comes out a clear, thin, spirituous Liquor. This must be watched carefully, to observe how long it continues to come off, and must be kept by itself.

II. This being quite drawn off, there rises an acidish, disagreeable, nauseous, white Liquor, in which there is nothing of the warm, spirituous Taste of the former, and which, if you draw it any farther, begins to grow foetid.

REMARK.

This first Liquor is that which in the History of Fermentation is described under the Character of a Spirit produced by Fermentation.

The DEPURATION of the SPIRITUOUS LIQUORS produced by FERMENTATION.

I. Take any fermented Spirits that have been once distilled, fill a Still two Thirds full with them, and distil them with a moderate Fire, so as to make them come over in a constant, little Stream, or just to make the Liquor boil. There will first come off a very clear, thin, fragrant Liquor, of a spirituous Flavour. Often remove your Receiver, to taste whether the same Liquor still continues to rise. When this ceases, change your Receiver, and keep this Spirit, which is called by the Chymists *Rectified Spirit of Wine*, by itself in Vessels very closely stopped. The Spirits which come over first are always the best.

II. When, therefore, in the Progress of the Distillation, there come off acidish, white, and watery Liquors, they must be taken and set apart, that they may not mix with the first. These rise in considerable Quantities, and go by the Name of a *Phlegm*, containing but very little Spirit.

III. There remains in the Bottom of the Still a Liquor that is somewhat thick, opaque, pinguious, acid, of a disagreeable Smell, and perfectly aqueous with Respect to Spirits. When pure Wine is distilled in this Manner, this Liquor thus remaining is always red, and of a roughish Taste, which Colour and Flavour are owing principally to the oaken Casks in which such Sorts of Liquors are kept, where they extract the oily and resinous Parts of the Wood; for when they are first distilled, they have neither that Colour, Smell, nor Taste, but acquire them by standing in these Vessels, and get rid of them again by Rectification.

REMARKS.

I. Hence we understand the Method by which these Spirits may be so depurated as to be obtained at last almost pure and alone; for the oftener they are rectified in this Manner, the more simple they are, depositing in every Distillation a watery, acidish Phlegm: By this Means, however, though you have them gradually purer and purer, yet they will always retain some Water.

II. Hence too we learn that the Spirit of Wine, sold commonly in the Shops, under the Name of *Brandy*, consists of four Parts, intirely distinct from one another: For it contains, First, the simple fermented Spirits; Secondly, a pure Water, which may be separated from it alone; Thirdly, a certain acetose, fermented Acid, which rises in the first Distillation of Spirit of Wine, and pretty tenaciously remains united with it, but may be accurately disengaged from it; and, Lastly, a small Quantity of a somewhat foetid Oil, which always discovers itself upon mixing Spirit of Wine, simple or rectified, with a dry, fixed Alkali, or upon drawing the Spirit from the same by Distillation. And hence it has happened, that the Chymists,

not sufficiently attending to this in their Use of common Spirit of Wine, have been surpris'd with Phenomena which they did not expect, and which were not so properly owing to the pure Spirit of Wine, as to other Bodies mixed with it. But these may be produced by other Causes, whereas this Spirit is the Effect of Fermentation alone.

III. There have been Authors of Note among the Chymists, who observing an Acid almost constantly intermixed with these Spirits, have hence asserted, that these Spirits are acid; and are generated from an Acid. But if we consult Reason in the Case, it will perhaps appear otherwise: And certainly those most pure and simple Spirits, when they are distilled from off a fixed alkaline Salt, are utterly void of all Acids that are known to us, and yet they are very good and genuine. I allow; then, that these Spirits are not produced, except from Vegetables, and not from these, but when they are grown somewhat acid by Fermentation; and yet so it is, that these Spirits are not acid, but generated from acescent Matter. We cannot, therefore, with Justice assert, that these Spirits are acid or alkaline, but that they are of a peculiar Nature, and like nothing else.

IV. This Spirit exalted to its ultimate Perfection, by this Method of Rectification, will still always continue compounded.

ALCOHOL prepared from FERMENTED SPIRITS, without any ADDITION.

I. Take any fermented Spirit, especially one that is rectified, and with a gentle Heat, not exceeding a hundred Degrees, draw it half off in a tall, narrow, glass Cucurbit; the Half that thus rises first, treat again in the same Manner with very clean Glasses, and repeat this, till the Residuum that is left in the Cucurbit appears as strong as that which is drawn off. This Spirit is what goes commonly by the Name of *Alcohol of Wine*, and is looked upon as a most pure and simple Spirit that has nothing heterogeneous, no not so much as any watery Phlegm mixed with it. This was the Method made Use of by the ancient Chymists: However, more exact Researches made by later Chymists have discovered, that some Water still remains concealed in these Spirits, and to this is owing the ill Success of those Experiments, where *Alcohol* unmixed with Water is necessary. Besides, this tedious Operation takes up a great deal of precious Time, for which Reason the industrious Chymists were not at Rest, till they had discovered some more expeditious Method of preparing pure *Alcohol*, which they found might be done in the following Manner:

II. They contrived a Furnace, wherein a pretty large Still might be set in a Bath of Water, which could receive no more than two hundred and fourteen Degrees of Heat. They filled two Thirds of the Still with common Spirit of Wine, and fitted it with an Alembic that had a long, small, upright Tube, which bent backwards, and had its Extremity inserted into the Mouth of a Worm. The Distillation then begins with making the Water in the Bath boil, which makes the Spirit in the Still boil more briskly; by which Means, the Spirit alone being able to rise to such a Height, and through so narrow a Tube, will distil by itself, so long as there remains any of it in the Liquor. But as soon as the pure Spirit ceases to come over, the watery Phlegm not being able to ascend, the Distillation will be finished: And thus you will have, the first Time, and in two or three Hours, as much *Alcohol* as you could obtain by the preceding Method in the Space of a Month. No-body, therefore, should be without this Apparatus, who has Occasion for a large Quantity of *Alcohol* in his chymical Operations. Upon a nice Examination, however, it is found, that even in this Way, there was still somewhat, though indeed a very small Quantity, of Water, intermixed with the *Alcohol*, which in Distillation, perhaps, might be carried up by the Spirits. For this Reason, I repeated the Distillation first with the *Alcohol* alone in the same Furnace, and I had then an *Alcohol*, which appeared with all the Marks of Purity, but yet was found to retain some Water. Hence, therefore, I am induced to believe, that the Spirit can never, by this Method, be absolutely separated from the Water, though it must be acknowledged, that the Quantity of Water that remains after this Operation is as little as possible.

III. For this Reason, I afterwards performed the Distillation in the following Manner: I took the *Alcohol* which rises the first Time in the Method described; with this I filled a Still half full, and added half a Pound of the purest, hottest, dryest, decrepitated Sea-salt; then putting on the Alembic, and making all very close, I let them continue thus for the Space of twelve Hours, in a gentle Heat, so as by no Means to make the *Alcohol* boil. I then began the Distillation, and the two first Ounces of *Alcohol* that came over I kept by themselves, lest there should be any watery Vapour in the Tube of the Alembic, or the Worm, which would be easily brought away by these first two Ounces. The first two Thirds of the following *Alcohol* I received into a very clean, dry, glass Vessel, and kept by themselves in Bottles very carefully stopped. Then I drew off the rest as before, and kept these last Spirits also by themselves. There remained in the Still a moist Salt, which attracted to itself the Water from the

the *Alcohol*, and retained it so tenaciously, that though acted upon by the Heat of boiling Water, it would not part with it; and suffer it to rise with the *Alcohol*. Nor does the Salt, prepared in this Manner, make any Alteration in the *Alcohol*, by mixing itself with it, because it is decrepitated, and put in hot. By this Method, in a very short Time, may be prepared the purest *Alcohol* for any chymical Purposes.

REMARKS.

I. *Alcohol*, brought to this Degree of Perfection, is the lightest Fluid next to Air, perfectly transparent, very thin, most simple, totally inflammable, without producing any Smoke, or diffusing any disagreeable Smell whilst it is burning; is exceedingly volatile, without leaving any Fæces; absolutely immutable in Distillation; extremely expandible by Heat; very easily disposed to Ebullition by Fire; of a very pleasant Smell, and of a particular grateful Taste. All the Humours of the human Body, that we are acquainted with, it coagulates in an Instant, except the pure Water, and Urine, whilst it hardens all the solid Parts, and thus preserves both from Putrefaction, or spontaneous Colliquation: It preserves the Bodies of Insects, Fish, Birds, and other Animals that are put into it, from Corruption, or Alteration, for Ages, if closely stopped: With Water, Vinegar, any acid Liquors, Oils, and pure, volatile, alkaline Salts, it suffers itself to be mixed, and that nearly with an equable Mixture; and gummy and resinous Substances it dissolves. So that we are acquainted with no Liquid, produced either by Nature or the Art of Chymistry, that is capable of being united with more Bodies than is *Alcohol*. But in a particular Manner it proves an excellent Vehicle for the Spiritus Rector of Vegetables, which by uniting with it may be extracted from its proper Body, retained, and applied to medicinal, and other Uses. The great Masters of Chymistry, distinguished by the Title of *Adepts*, are supposed, in their Description of the artificial Preparation of this perfect *Alcohol*, to have shadowed out the Preparation of the Philosophers Stone: But it is certain, that this *Alcohol* owes its Origin to Fermentation alone, nor can be prepared in any other Manner whatever.

II. In the human Body, by its Smell, Taste, and Vapour, it wonderfully quickens, gratefully affects, and invigorates the animal, natural, and vital Spirits, Nerves and Brain: Hence it exhilarates the Mind and Senses, makes a Person brisk and agile, and proceeding through various Degrees, at last causes Drunkenness, which, as it here comes on very suddenly, so likewise it goes off in the same Manner. The Blood, its Serum, and other thin Juices it coagulates in an Instant, and hence being drank imprudently, it is said to have killed Persons on the Spot. Applied externally, it dries, and corroborates the Vessels, and coagulates the Fluids contained in them, wherever it can penetrate. The Extremities of the Nerves where it can reach it instantly dries, contracts, and deprives of all Sense and Motion. Hence it appears, how imprudently, and often, how unhappily, *Alcohol*, either pure or impregnated with aromatic Spirits, Camphire, or the like, dissolved in it, and ordered to be applied hot, and enforced with Friction, is made use of as a Fomentation in chirurgical Cases. I would advise, therefore, to be cautious upon these Occasions, lest under a specious Pretence of Vivification, Calcification, Resolution, Diffipation, and Restoration of Agility, you obtain no other Effects than what I just now ascribed to these Spirits. In Wounds, Ulcers, and other visible Disorders, pure *Alcohol* performs the very same Thing, viz. coagulates, dries, and burns the Nerves. It is true indeed, it takes from the Nerves all Sense of Pain; but then at the same Time it destroys all their Use. And it has the same Effect, in mitigating Punctures or Dilacerations of the same Parts. It stops Bleeding at once by contracting the Vessels; and coagulating the Blood, where it is applied, but with the concomitant Circumstances just mentioned. Hence, therefore, it is a very speedy, and often an excellent Remedy in these Cases, though always attended with some Inconveniences.

III. From what has been said then, we learn what Effect pure *Alcohol* has upon animal or vegetable Substances immersed in it. For it dissolves into itself, and extracts whatever is oily in them; whence they become attenuated, contracted, and often corrugated. In this Manner the Preparations of the Parts of Animals have often been observed to be changed: And aromatic Flowers, Leaves, and Fruits are thus affected from the same Cause. Small Birds in their Feathers, and other little Animals covered with hard Scales, immersed in hot *Alcohol*, are preserved in their full Beauty, because this Attenuation, though it really happens, is concealed under their Feathers and Scales. These Animals being macerated for some Time in the purest *Alcohol*, till they are thoroughly penetrated by it, and then taken out, and dried in a hot, but not fervid, Oven, and afterwards put into glass Vessels, and intirely debarred from any Communication with the external Air, may be kept in their proper Form for Ages, to the very great Advantage both of Natural and Medicinal History, because they afford lively and certain Characters by which they may be known.

IV. Since there are infinite, and oftentimes very inviting, Occasions in which Chymists and other Artificers stand in need

of the true and purest *Alcohol*, the least Remainder of Water rendering the Operation unsuccessful, it is absolutely necessary we should have some Marks by which we may be able to distinguish, whether our *Alcohol* be pure or not: The principal of these are,

1. If the supposed *Alcohol* contains any Oil dissolved in it, and so equably distributed through it, that it is no Ways perceptible, then upon the Pouring of Water into it the Mixture will grow white, and the Oil will separate from the *Alcohol*.

2. If any Thing of an Acid lies concealed in *Alcohol*, a little of it mixed with the alkaline Spirit of Sal Ammoniac will discover the Acid by an Effervescence, for otherwise there would be only a simple Coagulation.

3. If there be any Thing of an Alkali intermixed, it will appear by the Effervescence excited by the Affusion of an Acid: And as for other Salts, they are seldom found in it.

4. But it is a Matter of greater Difficulty to discover whether there be any Water intermixed with it; and therefore Chymists have contrived certain Methods, by which this may be also determined. The first was the repeated Labour of so many Distillations, which they thought sufficient Grounds for them to presume that they were in Possession of pure simple Spirits, without the Admixture of any Phlegm; but, as I took Notice before, I could never by this Method obtain pure *Alcohol*; but it would to the last retain something of Phlegm. Secondly, they put some *Alcohol* into a very clean, dry Spoon, and, heating it, set it on Fire in a Place where there was not the least Wind, and if after the *Alcohol* was burnt out, there was no Moisture left in the Spoon, they pronounced it pure *Alcohol*. Some more curious Persons, however, by other Experiments, discovered, that by the Action of the Flame, the Water that lay concealed in the *Alcohol*, might be dispersed into the Air, and consequently that the Absence of Water in the Spoon, after the Consumption of the *Alcohol*, was no certain Proof, that there was none contained in it; before it was set on Fire. In the third Place, therefore, they took some of the best Gun-powder, and, drying it very carefully put a little of it into a clean and very dry Spoon, and poured some *Alcohol* upon it, which being heated, they just stirred it in the very Surface, and letting it burn down in a very quiet Place, if the Powder continued dry enough to take Fire by the Flame when just spent, they concluded that the *Alcohol* was pure: But against this Experiment there lies the very same Objection as against the former. These two last Methods, therefore, when they succeed, demonstrate, that the *Alcohol* is in a very great Degree, but not absolutely free from Water. In the fourth and last Place, therefore, there has been another Way discovered, by which it may be certainly known whether *Alcohol* contains any Water or not, which is this: Take a chymical Vial, with a long narrow Neck, the Bulb of which will hold four, or six Ounces of *Alcohol*. Fill this Two-thirds full with the *Alcohol* you intend to examine, into which throw a Dram of the purest and driest Salt of Tartar, coming very hot out of the Fire; then mix them by shaking them together, and set them over the Fire till the *Alcohol* is just ready to boil. Being thus shaken and heated, if the Salt of Tartar remains perfectly dry, without the least Sign of Moisture, we are sure that there is no Water in this *Alcohol*. By intermixing this Salt of Tartar, I have been enabled to discover Water in what has been taken for the best of *Alcohol*: For I took some *Alcohol*, which had burnt intirely away, and had set Fire to Gun-powder, and upon putting such an alkaline Salt into it, I perceived by the Moisture it acquired, that there was still some Water in it: And again, I took some *Alcohol*, in which there was a fixed Alkali that had remained dry for a long Time, and was still so, when I just put a Drop or two of Water to it, and though the Salt had continued very dry so long, it soon after grew moist from so small a Quantity of Water, and appeared in oily Streaks running down the Sides of the Glass.

Hence the singular Nature of *Alcohol* is abundantly determined by its individual Properties; especially if to what has been said you add this Observation, that such an *Alcohol* is not visible whilst it distils through the Alembic: For it neither forms dewy Drops like Water, nor runs down in Striae like strong Spirit of Wine, but it is quite invisible; which Property was not unknown to the ancient Chymists as evidently appears by their Writings. This, then, is the ultimate Effect of Fermentation, for it is scarce possible to carry this *Alcohol* to any greater Perfection, or, indeed, to make any Alteration in it.

THE PRODUCTION OF ALCOHOL BY ALKALIES.

I. Because a good Quantity of pure *Alcohol* is often wanted on a sudden, when there is no chymical Apparatus ready for preparing it, and the Purpose may well enough be answered, though there should, by Chance, some fixed *Alkali* be mixed with the Liquor, the Industry of the Chymists has found out the following Method of preparing it: To common Spirit of Wine they pour a third Part of its Weight of the purest and driest Pot-ash, which presently sinks to the Bottom. Upon shaking the Vessel, the Salt immediately grows moist, and begins

to dissolve at the Bottom, whilst a thin red Liquor swims at the Top; and the more they are shaken, the greater is the Dissolution underneath, and the Separation upwards; nor is it ever possible to make them mix, but as soon as ever they come to rest, they immediately collect themselves into two perfectly distinct Strata. And here the stronger the Spirit of Wine is, the greater will be the Quantity of the upper Liquor; and so on the contrary.

II. Let the Vessel rest for some Time, that the Liquors may become intirely separated, and then by a gentle Inclination of the Vessel pour off the upper Liquor into another clean, dry Cucurbit, taking as much Care as you can, that none of the lower runs in with it. At the same Time let there be ready a fixed, *alkaline* Salt, very well dried by the Fire, and let it be put, while it is yet hot, into the Cucurbit, which contains the first Spirit that has been once already drained of its Water. Let them be shaken together, the Cucurbit being stopped, for a considerable Time, and you will perceive the dry Salt to contract a little Moisture; you are then to persist in shaking them together, till you observe that no more of the Salt will be dissolved, but that there swims at the Top a red limpid Liquor, which will be so much the purer, as the *alkaline* Salt was drier and hotter, and the longer it was shaken with the Liquor. This done, pour off the Liquor into a tall dry Bolt-head, and cast therein a little more of the driest and purest *alkaline* Salt, as hot as may be, and set them in an hundred Degrees of Heat, shaking them about very frequently; and if the Salt does not then grow at all moist, the *Alcohol* will be perfectly freed from its Water; but then it will have a red Colour, a Taste not simple, and a somewhat disagreeable Smell, and by its Effervescence with Acids, and its lixivious Taste, will evidently discover the Presence of a latent *Alkali*.

In this Operation there always appears a pinguious Oil, which separates itself from the Spirit of Wine, or the Pot-ash, or perhaps from both, and has a foetid Smell. Besides, the fixed *Alkali* here used, by absorbing and uniting with itself the Acid which was in the Spirit of Wine, is altered in its Nature, and at last becomes a compound and pretty volatile Salt. Here I found, that when this Salt had been frequently used, and still dried after every Operation, it became at last almost of the Nature of the Terra Foliata Tartari, and intirely unfit for any Purpose, where there was required a fixed *Alkali*.

III. *Alcohol*, thus prepared, and distilled in a Cucurbit, over a gentle Fire, becomes sufficiently pure, and fit for almost all Purposes that require a simple *Alcohol*. It is true indeed, there will be somewhat *subcalescent* still united with it, though this too may be removed, by cautiously adding a few Drops of Oil of Vitriol before the Distillation, and proceeding so long as there is any Effervescence excited, and no longer; for if you then distil it, your *Alcohol* is reckoned to be pure.

IV. Hence also it appears, that the Separation of pure *Alcohol* is not so easy as some People pretend: For in Distillation there is a somewhat acid, and a watery Liquid, which intimately adheres to the Spirit, and which closely unites itself with the *Alkali* that is added to it. Therefore, we need not be surprised, that some very curious Experiments, which require the purest *Alcohol*, do so seldom succeed. And hence it is plain, that an *alkaline* Salt will often properly dispose *Alcohol* for particular Operations, either as it frees it from its Water, Acid, and Oil, or as it impregnates it with an *alkaline* Quality, and thus improves its dissolving Power. We must have a due Regard, therefore, to all these Considerations, before we can determine its Effects. *Boerhaav. Chym.*

Thus I have traced the Preparation of *Alcohol* from the Vegetable from which it is generated, through all the succeeding Processes necessary for its Production. And because all vinous Liquors borrow their intoxicating Qualities, and all their Properties wherein they differ from other Fluids, from the *Alcohol* which resides in them, I shall make some Remarks, with Respect to the Uses generally made of them in common Life.

First, then, as vinous Liquors have Effects upon animal Bodies, nearly allied to those of the Gas Sylvestre, or incoercible Spirit which flies off from fermenting Liquors, it seems near a Certainty, that fermented Liquors inebriate, and produce all their deleterious Effects by a Portion of this Gas Sylvestre residing in them.

Hence appears the Imprudence, I should rather say Madness, of those who take into their Stomachs large Quantities of a Fluid strongly impregnated with the most subtle and penetrating Poison known in Nature, and which we find by daily Experience never fails to disorder, and if persisted in, to destroy the animal Machine. The Frequency of this Practice is amazing, and would scarcely be credible, if it was not common. I should think myself happy, if any Thing I could say would put the least Check to this bestial Crime, to which it is astonishing there should be any Temptation, for I am satisfied, that this alone destroys more Lives than the Accidents of War, added to all the Distempers with which Providence has thought proper to afflict Mankind; and it is very remarkable, that besides the

Distempers produced by drinking spirituous Liquors, an habitual Use of these renders all Diseases from other Causes more difficult to cure.

It is certain, that fermented Liquors are deleterious, in Proportion to their Strength, that is, in Proportion to the poisonous Spirit or Gas they contain. However, though small fermented Liquors do not immediately manifest their Effects, yet I think it is not to be doubted, but that an habitual Use of even these must in the End induce an Alteration in the Constitution to its Disadvantage. I am sensible, a Habit of drinking these Liquors renders them somewhat necessary, and makes it difficult to leave them off, and sometimes even dangerous. It is therefore a great Imprudence in People of Condition, to inure their Children to the Use of Wine, and other fermented Liquors, from their most tender Years.

If we consider *Alcohol* as acting upon the Stomach only, and at the same Time reflect upon what is observed above with Respect to its Operation on the Nerves, which is, that it dries and contracts them, and deprives them of all Sensation and Motion, we shall readily perceive, that if taken in the Stomach, when it is empty especially, they must necessarily, by their proper Action, take away that Sensation which we call Hunger, and destroy that Elasticity of the Fibres of the Stomach, which is absolutely necessary to the Digestion of the Aliment. To these Inconveniencies arising from the internal Use of *Alcohol* it may be added, that it coagulates animal Juices, and consequently all the Fluids it finds in the Stomach, I mean, those Fluids which are separated in the Glands of the Mouth, Fauces, and Stomach, and which are designed by Nature to promote the Solution of the Aliment; now when these are coagulated, and rendered viscid, they are utterly unfit to promote the above-mentioned Solution, but rather prevent it. Every one that has seen a Person, much habituated to drinking Drams, take a Vomit, must have observed him to discharge from his Stomach great Quantities of a viscid roapy Jelly.

If we consider spirituous Liquors as a Solvent of the Aliment, we shall find it so far from being fit to promote this Solution, that it greatly contributes to prevent it, for it hardens animal and vegetable Substances, and hinders their Solution in the Stomach, for the very same Reasons, that it prevents their Putrefaction out of it.

It would be well if spirituous Liquors had any Virtues to make Amends for the Havock and Destruction they make in the World. And, to do them Justice, I believe, that rough austere red Wines may be of Service for bracing up a relaxed Habit, and promoting Digestion vitiated by an accidental Laxity of the Organs subservient thereto; and that the more penetrating white Wines, well diluted, may be of Service as Medicines. The particular Cases are taken Notice of under the Article *ALCALI* from Hippocrates, and are also mentioned under the several Disorders wherein they are useful.

But with Respect to any Thing more spirituous than Wine, there is scarcely any Case wherein they can be of sufficient Service to compensate for the great Mischiefs they produce; inasmuch that every Person who drinks a Dram, seems to me guilty of a greater Indiscretion, than if he set Fire to his House; and for the same Reasons, Cordial-waters are the most dangerous Furniture for a Closet, particularly as there is something like Fascination in them, which obliges the Possessor to make Use of them, to the Destruction both of Health and Intellects.

On this Account, I cannot forbear admiring the great Wisdom of Mahomet, who has strictly forbid his Followers the Use of fermented Liquors, for better Reasons than are generally apprehended.

However *Alcohol*, and fermented Spirits in general, are of good Service externally applied in many Cases. Thus Spirit of Wine, especially camphorated, is a very good Addition to Fomentations designed to resolve Inflammations, whether external or internal.

Wine used as a Fetus, or applied externally, cools, and allays the Heat of the Parts, notwithstanding it warms taken internally. Spirit of Wine does the same. Pliny says, it is the Nature of Wine to warm the Viscera taken internally, but to cool externally applied. *Harris Dissert. Chyrurg.*

Hippocrates says, that Ulcers should be washed with nothing but Wine. *Galen, L. 3. Methodi, Cap. 4.* says, Wine is the best Medicament for Ulcers. Dioscorides says, that Wine in Lana succida, is a good Application for Wounds and Inflammations. Dr. Harris from his own Experience affirms, that linnen Cloths dipped in warm Spirit of Wine, often cure Burns from scalding Water, melted Pitch, Fire, and Gunpowder, better and sooner than all other Applications. He gives an Instance of a Boy that was blinded by a Drop of Pitch falling into his Eye, and of another blinded by Gunpowder, who both recovered their Sight the very next Day, by a Fetus of warm Spirit of Wine. *Harris Dissert. Chyrurg.*

Dr. Harris also affirms, that warm Wine is the best Application for Wounds, Ulcers, and Inflammations, especially those of the most sensible Parts, that are full of Nerves, Tendons, and Blood.

Blood-vessels, as the Fingers and Toes, where Incisions and Punctures often cause great Pain, and endanger a Mortification.

The Turks, who are ignorant generally of Surgery, unless perhaps some wandering Jew practises it amongst them, foment their Wounds, and wash them with Wine successfully.

Gangrenes will sometimes happen from unskilful Cutting Corns, or the Nails of the Toes; especially if they are exasperated with Unguents and Plaisters. Spirit of Wine and Theriaca are the best Topics in such Cases. *Harris Dissert. Chyrurg.*

Spirit of Wine used as a Fetus for a sufficient Time, and upon some Occasions repeated, extinguishes the Heat of an Erysipelas, sooner than any other Fetus whatever, whether the Erysipelas is cutaneous, true, and genuine, or spurious, more profound, and deeper in the Flesh. *Harris Dissert. Chyrurg.*

Erysipelatous Pains in Wounds and Ulcers are cured by a Fetus of Spirit of Wine. *Harris Dissert. Chyrurg.*

If Vesicatories cause great Pains, and endanger a Mortification, a Fetus of Spirit of Wine will cure them. *Harris Dissert. Chyrurg.*

Inflammations caused by Vesicatories, which are attended with violent Pains, and a blackish Colour, and which tend to a Gangrene, are easily cured by fomenting them with a linnen Cloth doubled, and dipped in hot Wine, or Spirits of Wine, and afterward applying such a Cloth wetted with Wine, or Spirit of Wine upon the Part, without Plaisters, or unctuous Medicines. *Harris Dissert. Chyrurg.*

There is a Species of Colic, which Women are subject to, which is extremely painful, and is sometimes fixed on the right Side, sometimes on the left, below the Navel, without Vomittings. Dr. Harris says this is cured in a Day's Time, or on the same Day, by an Application of doubled linnen Cloth dipped in very hot Spirits of Wine, and continued a long Time, even where Narcotics are useless, or sometimes noxious. *Harris Dissert. Chyrurg.*

This I have frequently found of great Efficacy, in the Case the Doctor mentions. As this Author was a Man of undoubted Integrity, his Authority has the greater Weight.

Pure Alcohol is the best of Stiptics, for being received upon linnen Tents, whilst it is almost hot, and is pressed upon a bleeding Wound, and covered over with a Hogs-Bladder oiled, the Hæmorrhage will presently be stopped; and the Dressings may be kept on three Days, in which Time the bleeding Vessels usually concreate together. *Boerhaave.*

As to the Antiquity of Alcohol, those who are solicitous about raising the Character of Homer, by attributing to him all Sorts of Knowledge, are furnished with a very good Opportunity of making him a most excellent Chymist. This great Author, speaking of the Wine with which Ulysses made Polyphemus drunk, says it was given him by Maron, and that it was so strong, that though mixed with forty Times the Quantity of Water, yet retained a great Fragrance. If this was not a poetical Exaggeration, Wine like this must be stronger than any Alcohol known at this Day. But, in reality, we meet with nothing like Spirit of Wine before the thirteenth Century, when Thaddæus takes Notice of it. And some little Time after, Arnaldus de Villa Nova mentions it in very high Terms, under the Title of *Aqua Vini*. It is certain, that the thirteenth and fourteenth Centuries were remarkable for many considerable Discoveries; but as the Tree of Knowledge brought Death originally into the World, so the Period above-mentioned, together with an Increase of Knowledge, introduced Gun-powder, the Pox, and Brandy, the most pernicious of the three by many Degrees.

All that Set of Alchymists in general, who acquired the Name of *Adepti*, speak much of Spirits of Wine, as a Thing used in the Preparation of their secret Menstruums; and hence Weidenfeld was of Opinion, that we only wanted the Preparation of their true philosophical Spirit of Wine, in order to be let into all their Secrets. But Boerhaave seems inclined to think, the Spirit which we are acquainted with answers the Characters of that used by the old Chymists in every Respect, except that theirs is said to dissolve Salts, which ours will not do. But he makes a Doubt, whether this depends upon our Ignorance of their true Spirit, or our Want of knowing their Method of preparing Salts, in order to render them thus soluble.

ALCOHOL, considered as a MENSTRUUM, dissolves

1. All true vegetable Refins.
2. Most Sorts of Gum Refins.
3. Pure, volatile, Alkaline Salts.
4. Pure, fixed, Alkaline Salts, when rendered extremely dry.
5. Most saponaceous Substances.
6. Sulphurs, when opened by Alkaline Salts.

But ALCOHOL will not act upon

1. Native compound Salts, as Sea-Salt, Nitre, and Sal Ammoniac.
2. Nor Sulphur, unless opened by Alkaline Salts.

3. Nor Earth, Mercury, Metals, Semimetals, Stones, nor Gems.

ALCOL. Vinegar. *Rulandus.*

ALCOLA. The same as Aphtha, in the Phrase of Avicenna. See APHTHA.

In the Language of Paracelsus, *Alcola* is the Tartar, or Excrement of Urine, whether it appears in the Form of Sediment, Sand, or viscous Mucilage. Hence

ALCOLITA, is by this Author applied to signify Urine. *Castellus.*

ALCOLISMUS. The Reducing any Substance to fine Particles by Corrosion, or otherwise. *Rulandus.*

ALCONE. Brass. *Rulandus.*

ACOR. Burnt Copper. *Rulandus.*

ALCORE. A Sort of Stone, having Spots in it resembling Silver. *Rulandus.*

ALCTE. *Aster.* Erotian says this is the Name of a Plant mentioned by Hippocrates. Foësius thinks he means *aster*, The Elder.

ALCUBD, or ALUMBATR. *Rulandus* explains this Butyrum crudum, crude Butter, which Johnson, and Castellus transcribe, without any farther Explanation.

ALCUBRITH, ALCUR, or ALUZAR. Sulphur. *Rulandus.*

ALCYONIUM, *Bastard Sponge.* Is a Sort of spongy Plant which is found in the Sea, or upon the Shore, or rather a Froth of the Sea, which is hardened by the Heat of the Sun, and of different Shapes and Colours.

What those Bodies are, which the Greeks call *Alcyonia*, and whence they have their Original, has been a controverted Point among the Botanists, and is not yet decided. Pliny writes that they are the Nests of some Sort of Birds, that build in the Sea. Imperatus would have them to be nothing but Bits of Straws and Hair conglobated into a Mass by the Agitation of the Waters. Schrochius affirms they are produced of Reeds, and their Leaves, and that in several which he cut open, he found the very Plant, the Reed, rolled up and inclosed in the Middle. Dioscorides reckons five Species. The first is called

Alcyonium durum, Offic. *Alcyonium durum* sive primum *Dioscoridis Imperato*, C. B. 368. Tourn. Inst. 576. *Alcyonium spongiosum Officinarum*, J. B. 3. 816. Chab. 579. Raii Hist. i. 82. Hist. Oxon. 3. 654. *Alcyonium spongiosum Dioscoridis, flavum marinum quorundam*, Donat. ii. *Alcyonium primum Dioscoridis*, Calc. Mus. 21. *Alcyonium, seu eorum ruscum*, Worm. 48. HARD BASTARD SPONGE. Dale.

It resembles in some Measure a Sponge; but it is hard, leavy, and of a sour Taste, and disagreeable Smell, like a Fish. It is commonly found on the Sea Shore. *Lemery des Drogues.*

The second is called

Farrago, Offic. *Aristot. Farrago australis, Alcyonium secundum Dioscoridis*, C. B. Pin. 368. *Vescaria marina nigra, Farrago Aristotelis quorundam*, J. B. 3. 818. Chab. 580. Dale.

It is called by Lemery (*Farrago australis*, C. B.) It is light, porous as a Sponge, and smells like the Alga. *Lemery des Drogues.*

The third is called

Alcyonium vermiculatum, Offic. *Alcyonium vermiculare Imperatorum*, C. B. 368. *Alcyonium vermiculare*, Imperat. 639. Hist. Oxon. 3. 654. *Alcyonium tertium Dioscoridis*, Cæsalpin. 608. *Alcyonium vermiculatum purpureum candidum, & flavescens*, Tourn. Inst. 576. VERMICULATE BASTARD SPONGE. Dale.

It is called by Lemery *Milesum*.

It is in the Form of little Worms, of a purple Colour, sometimes white, and other Times yellow, and they give it the Name of *Alcyonium vermiculare*. *Lemery des Drogues.*

The fourth is called

Alcyonium stuposum, Offic. *Alcyonium stuposum Imperatorum*, J. B. 3. 817. Raii Hist. i. 82. *Alcyonium stuposum*, Imp. 640. Tourn. Inst. 576. *Alcyonium stuposum dictum*, Chab. 579. *Alcyonium stuposum vel quartum Dioscoridis & Imperatorum*, C. B. 368. Hist. Oxon. 3. 654. THREADY BASTARD SPONGE. Dale.

Called by Lemery *Alcyonium molle*. It is light and soft, resembling greasy Wool [*laine grasse*]. *Lemery des Drogues.*

The fifth is called

Alcyonium tuberosum, Offic. J. B. 3. 817. Raii Hist. i. 82. Hist. Oxon. 3. 654. *Alcyonium tuberosum fœcis formâ*, Imp. 641. Tourn. Inst. 576. *Alcyonium formâ fructus alicujus fœcis*, C. B. 368. TUBEROSE BASTARD SPONGE. Dale.

It is called by Lemery, *Alcyonium foraminosum*. It is somewhat like a Mushroom, soft to the Touch without Side, of a sharp Taste, but rough within, and porous like the Pumice-stone, without Smell.

There are, besides these, a great many other Kinds.

They contain a great deal of Oil and Salt; some more than others. *Lemery des Drogues.*

PREPARATION OF ALCYONIUM.

To calcine any Species of these *Alcyonia*, put them in an earthen Pot never burnt, with a little Salt, and having well luted the Mouth, set it in the Furnace, and when the Pot is thoroughly baked, take it out, and lay it up for Use; it is washed like the *Cadmia*. *Diösc. Lib. 5. Cap. 136.*

All the *Alcyonia* are deterfive and discussive, and of an acrid Quality; but the Milesian, or Vermiform, is the best; wherefore, when it is burnt, it cures the Alopecia, and cleanses the Skin from the Impetigo and Vitiligo. That with a smooth Superficies is the strongest, as not only deterging, but excoriating; but that which is like greasy Wool, is the weakest of all. *Æginet. Lib. 7. Cap. 3.*

The first and second Sort are proper for the Erysipelas, the Ring-Worms, the Itch, the Leprosy, and all other Disorders of the Skin, to take away Freckles from the Face, being externally applied in Powder, or in Decoction.

The third is esteemed good to excite Urine; to expel the Stone of the Kidnies and Bladder; to remove Obstructions of the Spleen, and for the Dropsy; it may be taken in Powder, or in Decoction. Being burnt, it makes the Hair grow, if applied to the Part, mixed with a little Wine.

The fourth is resolvent.

The fifth is proper to clean the Teeth, and if it is calcined with Salt, it makes a Depilatory, or Remedy to destroy Hair. *Lemery des Drogues.*

ALDABARAM. A Name for the Sesamoid Bones of the Great Toe. See **ALBADARA**. See **SESAMOIDÆA**.

ALEC, or **ALECH**. *Vitriol. Rulandus. Johnson.*

ALECHARITH. *Mercury. Johnson.*

ALECTORIA, or **LAPIS ALECTORIUS**. From *ἄλεκτος*, a Cock. A Gem fabled to be found in the Stomach of a Cock, some say of a Capon, after it is four Years old. It is said to be as clear as Crystal, or Rock-water, and about the Size of a Bean. Many chimerical Virtues are attributed to this Stone, as that it renders the Possessor rich, eloquent, and courageous, that it increases venereal Vigour, and procures Friends. If a Woman possesses it, some Authors assure us, that she must of Necessity be very beautiful and charming in the Eyes of the Men. Pliny says, Milo of Crotona was invincible only because he had this Gem in his Possession, and carried it about him in his Combats. It has also, as it is reported, the Power of quenching Thirst, and mitigating Heat, if held in the Mouth. *Rulandus. Pliny. Gul. Menens.*

ALECTOROLOPHUS. A Plant thus distinguished:

Alectorolophos, Offic. *Crista galli*, Ger. 912. Emac. 1071. Chab. 467. Mer. Pin. 31. Rivin. Irr. M. 92. Dill. Cat. Giff. 80. *Crista galli fœmina*, J. B. 3. 436. Buxb. 88. *Crista galli pratensis humilior, comâ fuscâ*, Rupp. Flor. Jen. 194. *Pedicularis sive Crista galli lutea*, Park. Theat. 719. Raii Hist. 1. 769. Synop. 3. 284. *Pedicularis pratensis lutea, vel Crista galli*, C. B. Pin. 163. Tourn. Inst. 172. Elem. Bot. 141. Boerh. Ind. A. 235. Hist. Oxon. 3. 426. *Pedicularis pratensis lutea, sive Crista galli, Herbariorum*, Merc. Bot. 1. 57. Phyt. Brit. 89. **YELLOW RATTLE**. Dale.

Alectorolophos, which among us goes by the Name of *Crest* (*Crista*) has Leaves like a Cock's Comb, or Crest, many in Number, a slender Stalk, and black Seed. *Pliny, Lib. 21. Cap. 5.*

Obel writes, that this Herb is called *Pedicularis* for its poisonous Qualities, and because it infests the Meadows, and is an Enemy to Lice. On the Contrary, Dodonæus calls it *Pedicularis* from its Effect, which is to breed Plenty of Lice upon the Cattle which feed in the Pastures where it grows. But to me the Leaves of this Plant seem, by their Furrows, to be very like the Back of a Louse, and thence perhaps it took its Name.

From a small, white, single Root, that sends forth some collateral Sprays, and is not deep in the Ground, there shoots up a Stalk, for the most Part single, a Foot high, stiff, smooth, square, strait, slender, light, oftentimes variegated with black Spots and Streaks, and towards the Top of a purplish Colour. It is divided into several Branches, which stand opposite, and are encompassed by two Leaves, without Pedicles, wide at the Base, and growing narrower by Degrees, to the very Top, of a Finger's Length, sharp-pointed, indented at the Edges, resembling a Cock's Comb, a remarkable Vein running on the Right and Left to each Indenture. From the Midst of the Leaves proceed small Branches by Pairs, or two standing opposite. On the Tops of the Stalk and the Branches grow small Flowers close set, in the Form of an Ear, or Spike, and proceeding in like Manner from the Leaves, a single one from each Sinus; with very short Pedicles. The Flower-cup is turgid, compressed, and cut just within the Edge into four acute Segments. The Flowers are monopetalous, yellow, in Shape resembling a Hood, which incloses and hides from View a slender Style, with four Chives, and their Apices. The Flower falling off, the Cup swells into a vastly larger Vesicle, which contains within itself and compresses a large Seed-vessel, divided in the Middle into two Cells, which hold several Seeds closely compressed, and surrounded with a membranaceous Border of a dusky Colour. When the Seed is ripe, the membranous

Cells on a sudden fall asunder and gape wide, and shine when they are dry.

It flowers in June, and the Seed is ripe in a short Time, and then immediately falls off, and the Plant soon after withers away to the very Root.

It grows chiefly in the barren Sort of Pastures, and oftentimes in Plowed Fields, being of no Use, but hurtful in both Situations. *Raii Hist.*

Boiled with husked Beans, and sweetened with Honey, it is good for a Cough. It also cures Dimness of Sight, for which Purpose they cast a whole Seed into the Eye, where it causes no Disorder, but takes off the Mist or Cloud upon itself. It changes Colour, and from Black begins to turn white, then swells, and comes out of itself. *Plin. Lib. 21. Cap. 5.*

Besides the Fore-mentioned, Ray enumerates,

1. *Crista Galli Mas*. J. B. The Male *Crista Galli* of John Bauhin. It differs from the Female in Tallness, growing sometimes to the Height of a Foot and half, has a stronger Stalk, broader Leaves, and much larger Flowers, is whiter at the Tops, and has hairy Vesicles. It grows together with the Female in the Meadows about Geneva.

2. *Crista Galli spicata flore luteo magno Messanensis*. The spiked *Crista Galli* of Messina, with a large yellow Flower.

3. *Trizago Apula Unicaulis, variegata (Tetrastachys)* Col. *Crista Galli spicata Flore vario ex albo & purpureo*. An *Antirrhinum Folio serrato*, J. B. The *Apulian Trizago* with a single Stalk, the *Tetrastachys* of Columna; the spiked *Crista Galli* with the white and purple Flower. Qu. Whether the *Antirrhenum*, with a serrated Leaf, of John Bauhine?

4. *Pedicularis pratensis rubra vulgaris*, Park. *Pratensis purpurea*, C. B. *Pedicularis*, Ger. *Pedicularis, quibusdam Crista Galli Flore rubro*, J. B. **RED RATTLE**.

The Flowers, as in the common *Crista Galli*, spring forth from lax, smooth Vesicles, but not so much compressed, furrowed, and of a deep Green, a little inclining to Red, and are of a red Colour, seldom of a Carnation or White. The upper Lip has a Beak, and conceals within its two Cells four yellow Apices, deeply set with a purplish Style; the lower is deeply cut or jagged into three exactly round Lobes. The Leaves have something resembling *Filipendula*, but are much smaller, and more nicely cut at the Edges, are of a green or light red Colour, and stand on weak, hollow, angulous Stalks, eight or nine Inches high. The Root is somewhat bitterish, white, furrowed, shaped like that of Parsley, scarce as big as one's little Finger, but runs out in small Fibres. From the Top of the Root spring forth broad, thick, sharp-pointed Leaves, serrated round the Edges, from the Middle of which the other Leaves together with the Stalk arise. The first Leaves of the new-sprung Plant are so like the Oak-fern, both in Shape and Incisions, that some would take them for the same. The Seed is of a sooty Colour, and round, contained in large, falcated Vesicles, which run out with a Sort of Beak.

It grows in Meadows, Pastures, and on Heaths, wherever the Ground is moist and boggy, in great Plenty, all over England.

5. *Pedicularis palustris rubra elatior*. An *Pedicularis Campestri prior species Tragæ*. The red, tall *Pedicularis* of the Marshes. Qu. Whether it be the first Species of the Field *Pedicularis* of Tragus?

This Herb, if we may believe Tragus, eaten by the Cattle, breeds such Swarms of Lice about them, that they are not to be cured without great Trouble and Danger.

6. *Crista Galli montana, Floribus pallidis in spicam congestis*. The *Crista Galli* of the Mountains, with a Spike of pale Flowers.

7. *Pedicularis major Dalechampii*, J. B. *Alpina Filicis Folio major*, C. B. *Major Alpina*. The larger *Pedicularis* of Dalechampius, John Bauhine. The greater Alpine Sort, with the Fern-leaf, Gaspar Bauhine. The greater Alpine Sort of Parkinson.

8. *Filipendula montana altera*, C. B. *Montana mollior altera*, Park. *Alectorolophus II*. Clus. Hist. One of the two Mountain *Filipendulas* of C. B. The softer of the two Mountain Species of Parkinson. The eleventh Species of *Alectorolophus* in Clusius.

9. *Pedicularis Bulbosa*, J. B. *Filipendula montana Flore Pediculariæ*, C. B. *Filipendula montana major albida*, Park. *Alectorolophus Alpinus major*. I. Clus. *Filipendula montana*, Ger. The bulbous *Pedicularis* of J. B. The Mountain *Filipendula*, with the Flower of *Pedicularia*, C. B. The greater white Mountain *Filipendula* of Park. The first Species of the greater Alpine *Alectorolophus* of Clusius. The Mountain *Filipendula* of Gerard.

10. *Pedicularis Alpina lutea*, C. B. Park. *Alpina Flore luteo, Radice nigra*, J. B. The yellow Alpine *Pedicularis* of C. B. and Parkinson. The Alpine *Pedicularis*, with a yellow Flower, and a black Root, of J. B.

11. *Crista Galli umbellata*, C. B. Prod. *Galli lutea umbellata*, Park. The umbelliferous *Crista Galli*, in Gaspar Bauhine's Prodromus. The yellow umbelliferous *Crista Galli* of Parkinson.

12. *Crista Galli angustifolia montana*, C. B. Park. The narrow-leaved Mountain *Crista Galli* of C. Bauhin and Parkinson. *Raii Hist.*

ALEFANTES. Rulandus explains this by *Flos Salis*.

ALEIMMA. *Ἀλειμμα*. An Ointment or Liniment, any unctuous or greasy Topic, that has no Wax in the Composition, to give it a greater Consistence.

ALEION. *Ἀλειον*. An Epithet applied by Hippocrates to Water. It signifies *copious*. *Gorræus*.

ALEIPHA. *Ἀλειφα*. It signifies the Oil of Vegetables, and Fat of Animals. It farther signifies any Sort of medicated Oil, that is, Oil impregnated with aromatic, or fragrant Vegetables, prepared for anointing the Body, and therefore of such a Consistence as is proper for this Purpose; consequently no Wax enters the Composition of an *Aleipha*, nor Powders in Quantities sufficient to render it too thick.

Hippocrates, and all the Antients, abound with Ointments, which they applied not only as Topics to particular Parts, but with a Design of inducing some Alteration in the general Habit, as we may learn from their almost universal Use of them in all Distempers, both acute and chronic. And it is remarkable, that they frequently relaxed the Skin by warm Baths before the Application of their Oils, with a View of gaining a more easy Admission to the Particles of Oil into the Habit.

It is amazing that this Practice which the Antients recommend so strongly, and from which it is evident they found great Advantages, should so far have grown into Disuse, as to be seldom or never taken any Notice of by the Moderns in the Cure of Distempers, though it seems to be of Importance enough to deserve the Regard of every Practitioner. I am afraid this is not the only Instance of a Disadvantage arising from a Dependence on Theory, so far as to proscribe from Practice whatever has not suited with the crude and imperfect Ideas we conceive of the Operation of natural or artificial Bodies, without consulting Experience, the only Thing which should guide us, and which is capable of determining, whether the Theories we form are just, or otherwise.

I think the following Fact will make it highly probable, that Physicians have done extremely wrong, to neglect so much as they have, the general or particular Use of Oils.

The Year before the Viper-catchers discovered that the common Salad Oil was their grand Secret for curing the Bite of a Viper, I employed these People to get a considerable Number of Vipers, in order to make some Experiments. Accordingly a great many Chickens, and some Cats were bitten, some of which were cured, and others suffered to die of their Wounds. Upon dissecting those which died I observed, that the Blood all along the Course of the Vessel which was wounded by the Viper, was coagulated like Jelly, looked black, and stagnated, and the nearer it approached the Heart, the wider was the Coagulation, Lividness, and Stagnation, spread. If then the Poison of a Viper produces deleterious Effects by causing a Stagnation of the Blood, it seems plain, that Oil must cure the Disorders depending upon such a venomous Bite, by resolving the Coagulations already made, and preventing more from being formed.

It is, I confess, a Secret to me, how Oil performs these salutary Resolutions of coagulated Blood, for I can form no satisfactory Idea of its mechanical Way of acting, in order to produce such an Effect. I am sensible it has been said, that the *Saline Spiculæ of the Viperine Poison are enveloped and blunted by the viscid Particles of Oil*; but this gives me no Satisfaction, for by any Thing which appears, it may or may not be so. But let this Resolution be brought about by any mechanical Means whatever, if Oil applied externally is capable of resolving coagulated Blood, and of hindering the Blood from running into Concretions, in one Instance, it occurs to me, that it may probably have the same Effect in other Cases, where the Blood has a Tendency to stagnate and coagulate. And if so, universal Unctions may, in an inflammatory State of the whole Blood, be of great Use; as particular Unctions may be, when particular Parts are inflamed, that is, where the Blood stagnates, and coagulates. In Confirmation of this, it must be remembered, that Relaxing the Solids is the most effectual Method of removing Inflammations, and that Oil is known to relax in a great Degree.

Hence we may form a Judgment of their Opinions who forbid the Application of Oils to inflammatory Tumors, where the Intention is to discuss, for Fear it should obstruct the Pores; for though the Pores should be obstructed by the Application of Oils, if these Oils resolve and prevent Coagulations, their good Effects will more than over-balance the Mischief which may arise from their Obstructing the Pores.

ALELAION. *Ἀλλαιον*. An Application made Use of by Galen in lax Tumors. It consists of Oil beat up with Salt. *Foefius*.

ALEMA. *Ἀλειμμα*. Boiled Meal.

ALEMBACI. *Ἀλειμμα*. Burnt Lead. *Rulandus*.

ALEMBIC. Rulandus explains this *Mercury*.

ALEMBICUS. The Derivation of this Word is half Arabic, half Greek. It comes from the Word *Ἀμβίς*, which is

again derived from *Ἀνάλω* for *Ἀναλίσσω*, to ascend, the Arabic Particle *Al* being added to it. In Latin Seneca calls it, *Miliarium*. In English an *Alembic*, or *Lembic*.

Before the Use of Retorts became so common as they have been for some Years, the most general Way of distilling was to put the Matter to be distilled into a Vessel, called a *Body*, and to fit a Head to it, in order to receive the Vapour, which there condensing into a Liqueur, is conveyed by a Canal, called the *Rostrum*, or *Beak*, from the Head into the Receiver. This Head is properly the *Alembic*, and is called *Alembicus Rostratus*, to distinguish it from another Sort of *Alembic*, called *Alembicus Cæcus*, a blind *Alembic*, which is without a Pipe, or Canal, and is destined to receive Substances of a dryer Nature, which are sublimed into it out of the Body. Sometimes also the *Alembic* is perforated at the Top, in order to permit a Part of the Vapour to escape. Thus is *Alembic* properly the Head of a Distilling-vessel, but it is now frequently used to signify the whole Apparatus.

ALEMBROTH. In a Treatise printed in the *Theatrum Chymicum*, Vol. 4. called *Super Tractatum, Mer Fugi dum bibit*, *Alembroth* is said to be a Chaldee Word, importing *Clavis Artis*, the Key of Art. Rulandus explains this by *Sal Mercurii*, or *Sal Philosophorum & Artis*. Castellus says it is called also *Elembrot*, and *Sal Fusoris*, or *Sal Fixionis*. Some Sorts of this are prepared artificially, but that from which the others seem to have taken their Name is said to be produced naturally in Cyprus, and to be got in the Form and Colour of concremented Blood. *Alembroth desiccatum* is explained by Rulandus, *Salt of Tartar*. Hence *Alembroth* should seem to signify a fixed Alkaline Salt, either natural, or artificial, which are all very useful in opening the Bodies of Metals, destroying their Sulphurs, and promoting their Separation from the Ore.

ALEMZADAT. *Sal Ammoniac*. *Rulandus*.

ALENON. *Ἀλενον*. *Gorræus* says Aetius calls Oil of Almonds *Ἀλενον ἔλαιον*.

ALEOPHANGINÆ PILULÆ. A Pill directed by the College, thus prepared:

Take of Cinnamon, Cloves, the lesser Cardamoms, Nutmegs, Mace, Calamus Aromaticus, Carpopalsam, or in its Defect Juniper Berries, Schoenanth, yellow Sanders, Galangals, and red Rose-Leaves, each half an Ounce: Let these be grossly powdered, and a Tincture be drawn from them with Spirit of Wine, in a glass Vessel close stopped, enough to strain off three Pints, in which dissolve one Pound of the finest Aloes, and to it add of Mastich and Myrrh in Powder, each half an Ounce; of Saffron, two Drams; of Peruvian Balsam, half a Dram; and reduce the Whole into a due Consistence for Pills, by Evaporation of the superfluous Moisture over an Heat of warm Ashes. *London Dispensatory*.

"The Quantities of some of the Ingredients are somewhat diminished to what they were before. These are the *Pilule Aromaticæ* of Mesue. Zwelfer is very large in his Animadversions upon this Composition, which in the *Augustan Dispensatory* a little differs from this, and he is very elaborate in its Correction. He directs to draw the aromatic Part of the Ingredients off by two or three Cohobations with five or six Ounces of Spirit of Wine by a Retort, which is to be saved, and a Decoction made of the Residuum in plain Water, in which the Aloes is to be dissolved and evaporated, and then the Myrrh, Mastich, and Saffron to be put to it, with the aromatic Spirit before drawn; or else to take such Aromatics as have not their essential Oils in the Shops, and manage thus; and put a due Proportion of those essential Oils, which are drawn, to the Whole at last, which seems to be the better Way. This is directed in the *Pharmacopœia Regia* with Hellebore, and intitled, *Pilule Aleophanginæ Capitales & Stomachicæ*, but they are now out of Use." *Quincy's Note*.

This Medicine is imitated from Lampon's Hiera, described by Galen, L. 8. *de Compositione Medicamentorum*, C. 2.

ALEORE. *Ἀλεωρη*. From *ἀλῶ*, to avoid or escape, is used by Hippocrates to signify that Ease which a Person finds from the Abatement or Intermision of any Distemper; *Ἄνεσις γὰρ ἰσχυρὴ καὶ μὴ παύσασθαι μετὰ τὴν ἀλῶρη*, "The Remission of any Disorder administers great Ease or Relief to the Patient." *Prognostics*, Sect. 1.

ALEOS. *Ἀλεός*. Taken as an Adjective, signifies *heaped, crowded, condensed, or continued*, and in this Sense is used by Hippocrates, who, speaking of the Epimenia; says, *Ἄλλ' αὖτις παύσασθαι ἐν ἀλεός*. "But if they flow in great Quantities and without Intermision." And a Line or two after, *καὶ ἄλλα ἐπιπίπτει, ἄρχεται τε ἵσται μετὰ τὴν ἀλῶρη*. "If they come down very fast, the Party will be of a pallid Countenance; so long as she is thus affected." *De Morb. Mulier*, L. 1.

Taken as a Substantive, it is interpreted by Hesychius and others, by the Words *Θέρμη*, *Ἑσθέρμη*, Heat, Warmth; and is derived by them from *Ἀλῶ*, Heat.

ALES. "Αλός. An Adjective, which like *ἀλός*, signifies *beaped, condensed, crowded*. In this Sense it is applied by Hippocrates to the Excrements in the Case of Polemarchus's Wife, in the seventh Book of his *Epidemics*.

It also sometimes signifies *contracted*, as, *τὸν μήτραν ἀλὸν ἰστίαν*. "The Womb being contracted." *De Morb. Mulier. L. 1.*

The Chymists likewise give this Name to a compound Salt.

ALES CRUDUM, *Crude Ales*, is those Drops which often fall in the Night Time in the Month of June. *Johnson*.

ALESCH. *Alumen plumosum. Plumose Alum.* See **ALUMEN**.

ALETON. "Ἀλέτων. Meal, as Erotian and Hesychius explain it. It seems derived from *ἀλέω*, to grind, and to import the Meal of any Sort of Corn. This Word is frequently made Use of by Hippocrates. Thus *de Virtus Ratione, Lib. 2.* he says, "Ἀλέτων καθαρίων συνόμενα ἐν ὕδατι ψύχει. Pure Meal drank in Water refrigerates. And a little after he informs us that Meal, *ἄλλω*, drank in Milk is more subject to purge than when taken in Water. In the second Book of *Epidemics* the same Author, speaking of the *Cefophagus* a little obscurely, says, "Ἀλέτων ὡς βεγ-
πύσαντος διδύμου, καὶ ὅτιον ἀγένητον, give very hot Meal, and unmixed Wine. The Interpreters translate *διδύμου* by *apponito*, as if Hippocrates directed a Cataplasm of Meal and Wine, which seems a Mistake in this Place, though in others he orders Cataplasms of Meal (*ἄλετων*) for particular Purposes.

ALEURON, "Ἀλεύρον, Meal. From *ἀλέω*, to grind. It strictly signifies the Meal of Wheat, but is applied by Hippocrates to the Meal of Lentils, or of the Seeds of Darnel.

ALEXANDER. A Physician of the sixth Century was named *Trallianus*, from *Tralles*, a City of Lydia where he was born. He was equally happy in all the Circumstances of his Birth, for *Tralles* was famous for the Purity of its Dialect, and his Father *Stephanus* was by Profession a Physician, whose Tenderness probably enforced his Instructions, and contributed much to the Advancement of his Son's Studies.

Alexander having been some Time taught by his Father, either after his Death, or in Hopes that as every Man of Eminence has some Excellencies peculiar to himself, the Precepts of another Master might afford him new Light, became the Disciple of another Physician, the Father of that *Cosmas* at whose Request he compiled his Book, and made such Advances in Physic, as procured him when he engaged in Practice the highest Reputation; a Reputation so extensive that not only at Rome, but wherever he travelled, he was consulted and applied to as the greatest Master of his Art, and became known by the Title of **ALEXANDER THE PHYSICIAN**.

His Claim to this honorary Appellation appears to have been founded not upon popular Caprice, or some single Instances of accidental Success, to one or other of which many have been indebted both for their Honours and their Riches, but to extensive Knowledge, and judicious Practice. He is the only Writer of the later Ages who has ventured to form his own Plan, or who can claim the Character of an original Author.

His Method is accurate and perspicuous; he begins with the Distempers of the Head, and descends to all the Parts of the Body in their natural Order. His Account of the Diagnostics is remarkably exact, and his Method of Cure for the most Part rational and salutary.

Without engaging in Disquisitions relating to the *Materia Medica*, Anatomy, or Surgery, he confines himself to the Description of Diseases, which seems to be his peculiar Excellency, and the Method of Cure, which the Multiplicity of his Practice enabled him to lay down with more Accuracy and Certainty, than those whose Learning was less assisted by Experience. Of many Cases he has left exact Histories, with a regular Detail of the Succession of the Symptoms, and the Application of his Medicines.

It is to be observed to his Honour that his Omission of Surgery was not the Effect of his Ignorance of that Science, but of his Knowledge of the Art of Writing, and his Conviction of the Necessity of one simple uniform Plan. He had observed how much Digressions into remote Enquiries, and a Mixture of different Subjects, had contributed to the Obscurity of Writings intended to promote Science, and therefore proposed, as he informs us, to treat of Fractures and the Diseases of Eyes in separate Books.

His intire Omission of the Distempers of Women, is another Instance of the Accuracy of his Method. As those Disorders proceed from the peculiar Structure and Functions of the Parts, he probably imagined, that they had no Place in a general Treatise of Physic, and that by enlarging his Scheme he should only perplex it.

Whether he intended another Treatise on Female Diseases, or whether he lived to execute his other Designs, it is now impossible to discover; but as he wrote the Books which now remain in his old Age, when he could no longer support the Fatigue of Practice, it is more probable that he did not live to finish his Designs than that any of his Works could perish.

He appears through his whole Works to have attended diligently not only the Instructions of his Predecessors, but to the Precepts of far greater Certainty, the Dictates of Reason,

and the Evidence of Experience. He seems to have adventured to use violent Methods in Extremities, yet not wantonly to have sported with Life. He frequently deviates from the received Practice, and perhaps the Introduction of *Steel in Substance* may be justly ascribed to him, since it is mentioned by no earlier Author.

Alexander's Learning and Judgment did not exempt him from some Weaknesses, from which it might be justly expected that either his Reason should have preserved him, or his Experience set him free.

He is strongly inclined to believe whatever has been told of the Efficacy of Medicines, and seems never to suspect either Weakness or Imposture. Nor is the Power of Medicines the only Object of his Credulity, which extends even to the Efficacy of Amulets and Charms, and he mentions some Remedies of this Sort for the Ague, Stone, Gout, and Colic. Those whose Reverence for Antiquity produces in them a Regard even for the Follies and Superstitions of antient Times, may here gratify their Curiosity with a Quotation from *Ostanes*, one of the old Persian Magi.

It is useless either to inquire into the Reasons of this Depravation of *Alexander's* Understanding, or to extenuate his Error, by enumerating the learned and wise Men that have been misled by Superstition. The Causes of Error are innumerable, and therefore cannot be particularly pointed out, and to produce Testimonies in Favour of Folly, is at least to contribute very little to its Extirpation.

It is probable from some of these Charms, which consist of Passages from the Bible that *Alexander* was a Christian; but if this Proof of his Religion be allowed, it evinces likewise, what is no Advancement of his Character, that he had learned his Religion with a very slight Attention.

Whatever might have been his Character as a Man, he has deserved as a Writer much more Applause than he commonly receives, and perhaps he is in Merit the next of the Greek Authors to *Aretæus* and *Hippocrates*.

THE EDITIONS OF ALEXANDER'S WORKS are

In Greek, *Parisis apud Robertum Stephanum, 1548, Fol. cum Castigationibus Jacobi Goupili.*

An old barbarous Latin Translation, in the Opinion of *Fabricius*, from some Arabic Translation, under the Title of *Alexandri Yatros Practica*, of which there have been many Editions, as *Lugduni, 1504. 4to. Papiæ, 1512. 8vo. Venetiis, 1522. Fol.*

Albanus Torinus afterwards put this into better Latin, but this was not a Translation from the Greek, but a Metaphrasis of the barbarous Translation above-mentioned. It was published, *Basil. apud Henricum Petri, 1533. Fol. and 1541. Fol.*

Johannes Guinterius Andernacus translated the Greek into Latin. Of this Translation there have been the following Editions:

Argentorati apud Remigium Guidonem, 1549. 8vo.

Lugduni apud Antonium Vincentium, 1560. 12mo.

Lugduni, 1575, cum Johannis Molinæi Annotationibus.

This Translation is also amongst the *Medicæ Artis Principes*, published by *Stevens*.

Many detached Pieces have also been published amongst Collections of Authors upon different Medicinal Subjects.

There is a small Treatise, *ὑπὲρ ἐντέρας*, of Worms, which is ascribed to *Alexander* by *Mercurialis*, and is addressed by *Alexander* to his Friend *Theodorus*. This is published amongst some of the Works of *Mercurialis*, and is inserted by *Fabricius* in his *Bibliotheca Græca*, in Greek and Latin, at the End of his Article of *Alexander*. It is not printed amongst his other Works.

There were many Physicians of this Name before *Alexander Trallianus*, but we know of nothing remarkable relating to them.

ALEXANDRIA. A Name of the *Daphne* (*Bay-tree*) it is hot, acrid, and bitterish; whence it provokes Urine and the Menes. The *Daphnoides* (*Periwinkle*) has the same Qualities, and so has the *Chamædaphne* (*Spurge-laurel*) which is also eaten. *P. Eginet. L. 7. C. 3.*

ALEXANDRI ANTIDOTUS AUREA. *Alexander's golden Antidote*, excellent for Defluxions from the Head, for it immediately alleviates the Pain of it, stops Tears from the Eyes, and cures the Tooth-ach, not only drank but laid on the Place. It perfectly relieves those who are taken with a sudden Fit of an Epilepsy, composes the extravagant Gestures of mad People, and is admirable for all Kinds of Pain in the Head. It is good for coughing, consumptive, cardiac, and asthmatic Patients. It wonderfully relieves such as vomit Blood, from some inward Erosion, is good for the Palsy, and Disorders of the Viscera and Sides, breaks the Stone, cures the Strangury and Difficulty of Urine, and all Disorders of the Uterus; gives Relief in Quotidian, Tertian, and Quartan Agues, if taken before the Fit. Whoever shall accustom himself to this Antidote, will never be subject to the Apoplexy nor Colic. It is prepared in this Manner:

Take of Afarabacca, Henbane, Carpobalsamum, each two Drams and a half; of Cloves, Opium, Myrrh, Cyperus, each two Drams; of Opobalsamum, Indian Leaf, Cinnamon, Zedoary, Ginger, Costus, Coral, Cassia, Euphorbia, Gum Tragacanth, Frankincense, Styrax Calamita, Celtic Nard, Spignel, Hartwort, Mustard, Saxifrage, Dill, Anise, each one Dram; of Xylaloes, Rheum Ponticum, Alipta Moschata, Castor, Spikenard, Galangals, Opoponax, Anacardium, Mastic, crude Sulphur, Peony, Eringo, Pulp of Dates, red and white Hermodactyls, Roses, Thyme, Acorus, Pennyroyal, Gentian, the Bark of the Root of Mandrake, Germander, Valerian, Bishops Weed, Bay-Berries, long and white Pepper, Xylobalsamum, Carnabadium (that is, according to the Commentator, Ethiopian Cummin) Macedonian Parsley-seeds, Lovage, the Seeds of Rue, and Sinon (a Sort of wild Parsley, according to the Commentator) of each a Dram and half; of pure Gold, pure Silver, Pearls not perforated, the Blatta Byzantina, the Bone of the Stag's Heart, of each the Quantity of fourteen Grains of Wheat; of Sapphire, Emerald, and Jasper Stones, each one Dram; of Hasle-nut, two Drams; of Pelitory of Spain, Shavings of Ivory, Calamus odoratus, each the Quantity of twenty-nine Grains of Wheat; of Honey or Sugar a sufficient Quantity. The Dose is the Quantity of an Hasle-nut. *Myrepsus, Sect. I. Cap. 1.*

ALEXANDRI REGIS COLLYRIUM SICCUM, *King Alexander's dry Medicine for the Eyes*, was composed of Saffron, Celtic Nard, and Terra Ampelitis (a Sort of bituminous Coal). *Actius, Tetr. 2. C. 39.*

ALEXANDRINUM EMPLASTRUM VIRIDE. A Plaister described by Celsus, *L. 5. C. 19.* and by him recommended as a Drawer.

Take of Plumose Alum, one Ounce twenty Grains; Sal Ammoniac, seven Drams seventeen Grains and a half; Squama Eris, two Ounces forty Grains; of Myrrh and Frankincense, each two Ounces, two Drams, forty-five Grains; of Wax, one Pound, seven Ounces, four Drams, fifteen Grains; of Colophonian or Pine-resin, two Pounds, five Drams, fifty-five Grains; of Oil, half a Pint; of Vinegar, a Pint.

ALEXANTHI, or ALTINGAT. Rulandus explains this *Flos Eris, Flowers of Copper*, perhaps the Rust.

ALEXASTHÆ. *Ἀλεξασθῆς*. Erotian and Hesychius explain it by the Word *ἰατρικόν*, to bring Aid, repel, succour; and thus it is used by Hippocrates, *Ἀλ. ὅτι τοῖς ἐνδεδυσμένοις τοῖς ἰατρικῶν ἰατρικῶν*, by this Regimen therefore such must be relieved. *De Salub. Vict. Rat.*

ALEXICACON. An Amulet, said to be powerful against Poisons. From *ἀλεξέω*, to repel, and *κακόν*, Evil. *Blancard.*

ALEXION. This Physician lived in the Time of Cicero and Atticus, and had a great Share in the Friendship of both those illustrious Persons. He died before Cicero, and was very much lamented by him, as appears from what Cicero himself writes to Atticus on that Occasion: "O factum male de Alexione! incredibile est quantā me molestia affecerit; nec me hercule ex ea parte maximē quod plerique mecum; ad quem igitur te Medicum conferes? Quid mihi jam Medico? Aut si opus est, tanta inopia est? Amorem erga me, humanitatem, suavitatemque desidero; etiam illud; quid est quod non pertimescendum sit, cum hominem temperantem, summum Medicum, tantus improviso morbus oppresserit? Sed ad hæc omnia una consolatio est, quod ea conditione nati sumus; ut nihil quod homini accidere possit recusare debeamus."—*Epistol. ad Attic. Lib. 15. Cap. 1.*—What a Misfortune is the Death of Alexion! I cannot express how deeply I am affected by it; not for that Reason which chiefly afflicts others; their being at a Loss what Physician they shall apply themselves to. For what Occasion have I for a Physician? Or if I had, is there so great a Scarcity of them; No,—what I lament is the warm and sincere Friend, the generous, humane Man; and the agreeable Companion. Besides, what has not one to fear; when we see it in the Power of a Disease to snatch away, so suddenly, a Man of his Temperance and consummate Skill in Physic? But for all these Things we have only one Consolation, namely, that we are born into the World on this Condition; that we submit to all those Accidents to which human Nature is subject.—What Cicero says here gives us a very advantageous Idea of this Physician. It is a Loss to the World that we have no farther Particulars concerning him.

ALEXIPHARMACA. From *ἀλεξέω*, to repel or drive away, and *φάρμακον*, properly a Poison. *Alexipharmics*. An *Alexipharmic* seems originally to have signified a Remedy to expel, or prevent the ill Effects of Poisons taken internally, and this is Galen's Explanation. But since some amongst the Moderns had conjured up a chimerical Poison, in order to inflame or otherwise affect the imaginary animal Spirits in acute Distempers,

Alexipharmics have been understood to mean Remedies adapted to expel this Poison by the cutaneous Pores, in the Form of Sweat. Hence it appears, that *Alexipharmics* mean just the same as *Sudorifics*. I am persuaded that no Theory was ever introduced into Medicine without very ill Effects upon Practice; but that which paved the Way for *Alexipharmics* has exerted extraordinary Heroisms, and made uncommon Havock amongst Mankind.

Hippocrates in his Treatise *de Ratione Victus in Acutis*, has the following Passage: *Whoever in the Beginning of an inflammatory Disease attempts the Cure by Cathartics, does not in the least diminish the Tension and Inflammation of the Part affected; for the Distemper in this State of Crudity, will not yield to such Medicines; on the contrary, this Method of Treatment liquefies and wastes the sound Parts, which would otherwise resist the Distemper; and when the Body is in this Manner weakened, the Disease gets Ground, till at last it becomes incurable.* Though this is said with a great deal of Justice and Propriety, I am persuaded it may with stronger Reason be applied to Sudorifics, that is, to *Alexipharmics*, which frequently do a great deal of Mischief. And indeed there is nothing in which the lower Class of Practitioners in Physic make more fatal Errors, than in the Use of *Alexipharmics*, which I have frequently known exhibited to young People of plethoric Habits, in the very Beginning of Fevers, and even without previous Evacuations.

About the Year 1723; 1724, or 1725, a Fever appeared with uncommon Violence, and was more universal than any I have ever known, and by this great Numbers of working People perished, insomuch that in many Countries scarcely enough were left to gather in the Fruits of the Earth; and this Sort of Fever continued for many Years after. In this Disorder it was remarkable, that a warm Regimen, or hot Medicines, seldom or never failed to render the Fever continual, and keep it so, bringing on Deliria, and all Symptoms of Malignity; whereas a cool Regimen, with Evacuations by Bleeding, and Purging with Caution, and an intire Abstinence from hot Medicines, almost always brought the Fever to a regular Intermision, and then the Bark effectually took it off. As I had an Opportunity of seeing a great Number of Patients under this Fever, I was abundantly convinced, that more died of *Alexipharmics* than of the Distemper itself.

But that I may not appear singular with Respect to this Sort of Medicine, I shall give the Opinion of the illustrious Hoffman upon this Subject, who having just before mentioned Cathartics goes on thus:

There is another Set of Evacuants which carry off the more subtle Parts of the morbid Matter, by the Pores of the Skin, in a plentiful, less offensive, gentle, and more imperceptible Manner. The Remedies most conducive to this are called *Sudorifics*, and by the Greeks *Hydrotics*; by whose Operation a sensible Moisture is perspired through the cutaneous Glands. Of the vegetable Kind the most efficacious, for this Purpose, are the Roots of a very acrid, penetrating, oily Taste, as those of Angelica, the different Species of Master-wort, Butter-burr, Elecampañe, Lovage, Swallow-wort, Valerian, Contrayerva, Virginia Snake-root, Lignum Guajacum, and Sassafras, with their Barks. In the mineral Kingdom crude Antimony, Regulus Antimonii medicinalis, volatile Tincture of Sulphur, prepared of Quick-lime, Sal Ammoniac and Sulphur, corrected and fixed Sulphur of Antimony, and also the Mixture simple. Likewise Venice Treacle, its Essence, Spirit, and Water; all Spirits and volatile Salts prepared from the Parts of Animals, particularly Harts-horn, Ivory, and Earth-worms, Spiritus Buffii, Tartar, Silk, Soot, the Essences of Woods, and the distilled fetid Oils, as fetid Oil of Harts-horn dissolved in Spirit of Wine.

These nobler Medicines, of the sudorific Kind, owe the Virtue of their Operation to the Power they possess of increasing the Systaltic Motion of the Heart, and the Elasticity of the Arteries, as to the Number and Force of their Vibrations, by which Means, a greater Velocity being added to the Circulation, they protrude the perspirable Matter through the outward and porous Substance of the Skin. This they perform either by a subtle, acrid, hot Oil, as the Roots above-mentioned, which are also called *Alexipharmics*; or by a volatile empyreumatic Salt of an igneous Nature, such as are all the Spirits, volatile Salts, and Oils from Animals; or by an acrid, resinous Salt, more or less fixed, as the Root of white Burnet, Guajacum and its Bark, Contrayerva, Virginia Snake-root; or lastly, they act, and that very powerfully, by Means of a very fine mineral Salt and Sulphur, by which they rouse the nervous Fibres to a violent Motion; and for this Purpose a very small Dose is sufficient. Thus a single Grain of our diaphoretic Mercury, or two or three Grains of fixed Sulphur of Antimony will raise a Sweat over every Part of the Body. A Decoction of the Woods, or a Decoction of crude Antimony with the Woods, also Regulus Antimonii medicinalis have the same Effect.

I. These strong Sudorifics, though given in a larger Quantity, will by no Means raise a Sweat, unless the Body is prepar-

ed for it; that is, unless the porous Substance of the Skin be sufficiently open and lax, or unless the Blood be enough diluted. Wherefore if any one, in the Cure of a Disease, thinks Sweating required, it will be necessary for him to give the above-mentioned Sudorifics with a sufficient Quantity of some Liquid to dilute the Blood; for Example, a weak Tea, or a Decoction of Barley; and that the Pores of the Skin may obtain a due Relaxation, the Person to be sweated should be put into a warm Bed, or hot Stove, or into a Bath, especially a Vapour-bath, that so a plentiful Sweat may be excited.

II. These very active Sudorifics rarely find a Place in Medicine, and are not to be administered except with singular Caution. For a Sweat never arises in a healthful and natural State, unless the Blood is put into an extraordinary Motion; nor when this happens, is it a Sign of Health, like insensible Perspiration, the Matter of which is void of Acrimony, watery, of Kin to the nutritious Juices, and almost without either Taste or Smell, and differs very much from Sweat, which is of a salt Taste, a foetid Smell, and approaches the Nature of Urine. Besides, these Sudorifics excite a great Commotion, and notable Orgasm; for they act not with Moderation but Rapidity, whence it comes to pass, that in Bodies full of Blood, or contaminated Serum, by impelling the Fluids with too much Violence to the small and narrow Vessels, they bring on dangerous and acute Symptoms, occasioned by the Inflammation and Redundance of Humours. But they are most hurtful where the Primæ Viæ are obstructed by a Load of vitious Humours, where the Body is costive, and when they are administered immediately after a violent Fit of Anger. By this pernicious Practice, I have known them more than once occasion arthritic and rheumatic Pains, slow and hectic Fevers, which have proved of long Continuance, and been attended with imminent Danger.

III. In all acute Diseases, as inflammatory and scarlet Fevers, Sudorifics are to be intirely banished, or, at least, to be administered very seldom, and that with the greatest Caution. For I have often observed that the promiscuous Use of Alexipharmics, as the Custom too generally prevails, has only served to increase Heat, Anxiety, and the Violence of the Symptoms. These Remedies are called *Alexipharmics*, as are also all those of the theriacal Kind, from a Virtue attributed to them of resisting Poisons and malignant Humours, for which Reason they are highly extolled by Physicians in the Plague, and other contagious Distempers. But the Truth is, they are much more powerful for the Prevention than Cure of these Diseases, especially when an epidemical and malignant Distemper owes its Birth to an over-wet, foggy, cloudy Season, which has been long destitute of the East and North Winds, or to a Deluge or Inundation of Waters. For in this Case it will be much better and safer to give them in Wine-vinegar diluted with Water, or to infuse the sudorific Roots in Vinegar, which by this Means being impregnated with their alexipharmic Virtue, two or three Spoonfuls may be drank in any convenient aqueous Vehicle. The Aqua prophylactica Sylvii is also of admirable Use at a Time when such Distempers are abroad.

It is to be remarked, That the East and North Winds, by bringing with them plentifully an Acid, render the Air more cool and active, and destroy Contagion. See AER.

IV. But Sweating is very serviceable in those Diseases which proceed from external Cold, and obstructed Perspiration, as in Catarrhs, Rheumatisms, Fluxes, Stoppages of the Head, Coughs, and glandular Tumors: Also when Danger is apprehended from a Person's having drank a large Quantity of any cold Liquor, when very hot, or in a Sweat. But then they should be administered in the Beginning of these Disorders, and in such Cases Bezoardic Tincture, or Spiritus Bezoardicus Buffii, mixed with our anodyne Liquor is of excellent Use. Nor is a Sudorific of less Service in the Beginning of any infectious Distemper, taken immediately after a mild Emetic; and for this Purpose may be used Bezoardic Vinegar, or the Bezoardic Powder, with a little Camphire, which is the chief of *Alexipharmics*.

V. Likewise in those Diseases which have their Seat in the porous and fibrous Substance of the Skin, and consist of an acrid viscid Matter, which destroys and deforms its Texture, as an inveterate Itch, the Ring-worm, Leprosy, and venereal Pustules and Ulcers, a plentiful Sweat may be excited to great Advantage, with proper Remedies. The same may be also practised in arthritic and rheumatic Pains in any Part of the Body, for by this Means the acrid, viscid, and stagnating Serum, which adheres to the nervous Membranes, is thrown off and discharged. For the same Reason in all those Diseases which are called *cold*, as in Dropsies of every Kind, the cold Scurvy, Pox, settled Gout, Sciatica, Palsy, and others of the same Nature, Sudorifics are of great Efficacy; because they promote and restore the Elasticity and contractile Power of the Heart and Vessels, which in Disorders of this Kind are very much depressed, and increase the Circulation of the Blood, for the better Separation of the morbid Matter. But this Course must be persisted in for some Time.

VI. Sudorifics always operate best, when taken in a sufficient Quantity of some warm Liquid. Celsus, in the sixth Chapter

of his third Book, commends warm Water for this Purpose: His Words are these, *Si Nota est Sudoris venturi, tum demum calidam Aquam Potui dare oportet, cujus salubris Effectus est, si Sudorem per omnia Membra effundit.* 'When you perceive the Sweat coming you should give warm Water to drink, which hath a most healthful Effect, if it excite a Sweat over the whole Body.' It is notorious that this is procured in the most plentiful Manner by a Decoction of the Woods, whose Use in venereal Cases, and other cold Distempers, cannot be enough commended. I have also known several Country People happily cured of Intermittent Fevers, and Tertian and Quartan Agues, by taking a few Hours before the Fit a Vomit, and immediately after it a Sudorific (observing a Regimen) of Rob of Elder, Salt of Tartar, and a few Corns of Pepper, mixed together in a Spoonful or two of Brandy.

In the Passage above quoted Celsus only advises to promote a Sweat when the Marks of one approaching are evident.

Diaphoretics are inferior in their Power of acting to Sudorifics, but much superior to them in their healthful Qualities, which gently increase and promote Perspiration. Of these the chief in the vegetable Kingdom, are the Roots of China, Sarsaparilla, the Carline Thistle, and Gentian. Of Herbs, the holy Thistle intire, its Seed and all the Preparations from it, whether Essences, Waters, Extracts, or Salts; Water Germander, the Elder, and Dwarf-Elder, with its Flowers, Rob, and Water; also Fumitory, Scabious, Saffron, the Flowers of Marygold, and Opium. In the animal Kingdom, all Bones, Horns and Teeth of Animals, whether rasped, or burnt to Ashes and chymically prepared, especially those belonging to the Stag; the Stones, Shells, and Claws of Crabs. Of Earths, all sealed Earths, and different Kinds of Marle, and the Bolus Fabrilis. Of Salts, the Salts of Plants procured by Burning, and Nitre. Of precious and exotic Stones, the Petra di Porco, and the Eastern and Western Bezoar Stone. Of Minerals and chymical Preparations, the Flowers and Milk of Sulphur, Cinnamon, native, common, and that of Antimony; diaphoretic Antimony, Cerufs of Antimony, Magistery of Antimony, the Bezoardic Mineral, Tinctura Temperata of Antimony, prepared from the Regulus and Salt of Tartar, and Poterius's Antihectic. Of Compounds, Goa Stone, which is compounded of oriental Bezoar, Tragacanth, and Ambergrise; Sennertus's Bezoardic Powder, the English and Pannonian red Powder, Dorncrellius's Cordial, our mineral anodyne Liquor, Wine Vinegar, or distilled Vinegar, with Elder Flowers, or Crab Stones infused in it; our Pulvis Polychrestus Diaphoreticus, Theriaca Coelestis, Liquid Laudanum, and Wildegansius's Pills.

The Operation of Diaphoretics is manifold and various; for either they act in a privative Manner, by absorbing and changing the Acid in the Primæ Viæ, which, carried into the Blood, depresses its Spirituosity, Fluidity, and intestine Motion, of which Kind are all the Earths of an alkaline Nature: Or by imbibing the superfluous Moisture, and bracing the relaxed Fibres, as the sealed Earths, Boles and Marles; also Bones and Horns, both those burnt and those chymically prepared, and the Unicorn Stone: Or by relaxing and mollifying, in Diseases of the Skin, its contracted Superficies by their mild anodyne and vaporous Sulphur, as the different Species of Elder, especially the Flowers, Saffron and its Extract, the Flowers of red Poppy or Corn-Rose, our anodyne, mineral Liquor, the Emulsions of Poppy-seed, corrected Opizates, particularly the Theriaca Coelestis, Wildegansius's Pills, and Liquid Laudanum prepared as directed by Sydenham: Or by composing and quieting the too violent intestine Motion of the Blood, as the Remedies of the nitrous Kind, corrected by being joined with the more fixed Diaphoretics; also Spirit of Nitre dulcified, Emulsions of the four greater cold Seeds, and the milder Acids, as Juice of Lemons and Vinegar: Or lastly in a positive Manner, by gently stimulating the Fibres and languid Vessels, of which Sort are the holy Thistle, Water Germander, Fumitory, China, Sarsaparilla, lesser Centory, Scabious, Carline Thistle, and Gentian.

I. Now as this Evacuation of the finer Parts of the morbid Matter through the Pores of the Skin, by insensible Transpiration, is of all others the most healthful; and as an Obstruction thereof is the Occasion of many Maladies; so the Use of Diaphoretics, which promote this cutaneous Excretion, is certainly very great, universal, and almost infallible, in almost all Diseases, even those which, from their present Symptoms, we are not thoroughly acquainted with; so that a Physician can by no Means be without them. For an increased Circulation of the Blood, and an enlarged Perspiration, are the grand Mediums and Instruments of Nature, by which the morbid Matter in any Disease is corrected, digested, resolved, and at last thrown off, and the Distemper cured without Danger. Particularly in all acute Diseases, as Fevers and Inflammations of all Kinds, these alone given in some convenient Vehicle, in small Doses, and continued for some Time, answer every Intention of Cure, and are in Truth the best Discutients and Purifiers of the Mass of Blood.

II. Because excessive Heat, especially in Summer, and in choleric and bilious Constitutions, also in choleric and bilious Fevers, dries too much, consumes Moisture, and hinders Perspiration, acidulated and nitrous Remedies, and particularly Crabs-eyes

eyes with Nitre, given in a Julap of diaphoretic Waters and Syrup of Citron-juice, by moderating the too great Heat, and procuring a plentiful Diaphoresis, give great Relief to the Patient.

III. When through the Violence of any Disorder the Skin is dry and without Moisture, and its Pores become narrow and contracted, it is always best to join some mild Anodynes and Antispasmodics to the Diaphoretics; and in this Case our anodyne mineral Liquor, mixed to the Quantity of three Parts with one Part of Spiritus Bezoardicus Buffii, is of admirable Virtue, as is also the fixed diaphoretic Powder, a little nitrous, with Cinnabar, and one or two Grains of Wildegansius's Pill, as is witnessed in many Instances by Ettmuller, in his Dissertation on the diaphoretic Virtue of Opium.

IV. Diaphoretic Powders have this peculiar Property, that they not only promote Perspiration, but also often exert a loosening and remarkably diuretic Virtue. This I can affirm from manifold Experience, that our bezoardic polychrest Powder, being taken in the Morning or Afternoon, if it meets with acid Juices in the Primæ Viæ, will give four or five Stools, which in old Men and Hypochondriacs is attended with great Advantage. The same being given at going to Bed, if the Skin is not properly disposed to admit of a Sweat, as in the Beginning of Catarrhs, will work off by a large Discharge of Urine; but where the Skin is sufficiently disposed to a Diaphoresis, a plentiful Sweat frequently ensues.

V. In acute Diseases and Fevers, where but little Acid is lodged in the Primæ Viæ, it will be safer and of more Service to give the fixed and earthy Diaphoretics in a small Quantity, and well mixed with Syrup of Citron-juice, or Wine Vinegar, because Vinegar alone will not coagulate with Water, but often resolves and throws off the stagnating Blood, especially if joined with Diaphoretics. *Frideric. Hoffman. Medicinæ Rationalis Systematica.*

Thus Hoffman very justly distinguishes betwixt Sudorifics or Alexipharmics, and Diaphoretics; Alexipharmics being such Medicines as excite a great Degree of Motion and Heat, and a considerable Orgasm in the Body, which tend to extort profuse Sweats, and do a disagreeable, and prejudicial Violence to Nature, who is by this Means deprived of a great deal of the more fluid Part of the Blood, which otherwise might be of great Use in preserving the whole Mass in a State of Fluidity, in promoting the Solution of the stagnating, and obstructing Humours, and assisting in the Expulsion of the morbid Matter out of the Limits of the Circulation; whereas Diaphoretics are Medicines endued with a gently stimulating, and perhaps resolute Virtue, by which they aid and assist Nature in carrying on her own salutary Purposes, without any Tendency to divert her from her Method, or to do any Violence.

In order to account for the very sudden Effects which some Alexipharmics have in raising a Sweat, before they can possibly be supposed to enter into the Blood, we must reflect, that Alexipharmics consist of very penetrating and stimulating Particles. Now when these act upon the nervous Coats of the Stomach, the Stimulation thereby caused derives a greater Influx of the nervous Fluid (if any such there be) into these Nerves, and all the correspondent Branches of Nerves proceeding from the same Trunk. Now the Stomach receives a great many Nerves from the descending Trunks of the Par Vagum, and some Branches immediately from the Plexus Cardiacus, formed by the same Par Vagum, and situated a little above the Heart, from which Plexus, the Heart is furnished with Nerves. Whatever therefore stimulates the Nerves of the Stomach, must also affect the Nerves of the Heart, the Consequence of which is, that the Force and Frequency of the Contractions of the Heart must be increased, and of Course the general Heat of the Fluids circulating by Means of such Contraction, because the Motion and Friction is greater than before. The Blood thus circulating with an increased Velocity, must be impelled more frequently and with more Force towards the Surface of the Skin, and hence an increased Evacuation by the cutaneous Pores. I am far from being certain that what is generally understood by the *Animal Spirits*, or nervous Fluid, really exist in Nature, but let the immediate Vehicles of Sensation and Motion be whatever they will, what I have said with Respect to the Stimulation of the Nerves must hold true.

ALEXIPPUS, was one of the Physicians of Alexander the Great; who, as Plutarch informs us, wrote him a Letter of Thanks, on Account of his having recovered Peucestas from a dangerous Disease.

ALEXIPYRETICUM, ALEXIPYRETOS, and ALEXIPYRETUM. From *ἀλεξω*, to drive away, and *πυρετός*, a Fever. It signifies any Remedy for a Fever.

ALEXIR. A Medicine chymically prepared; an Elixir. *Rulandus. Johnson.*

ALEXITERIA. *Ἀλεξίτηρια*. Alexiterials. In Hippocrates, and indeed strictly (*Ἀλεξίτηρια*) Alexiteria signifies nothing more than *Helps*, or *Remedies*. Thus in the first Book on the Diseases of Women, the Author having mentioned Asses Milk and Wine as proper in a particular State of the Uterus, add

καὶ τὸ ἄσιν ἀλεξίτηρια, and other Remedies. Thus also in his Treatise on Regimen in acute Diseases, having just before taken Notice of some bad Symptoms arising from the continual Use of Hydromel in acute Cases, he says, *ἀλεξίτηρια δὲ τῶν γυναικῶν, The Remedies for these shall be specified.*

But later Writers applied Alexiteria to external Remedies against the Bites of venomous Animals, and even to Amulets and Charms, directed to be wore with a View of preventing the ill Consequences of Poisons, Incantations, and Fascination.

It is said by some Authors, that Alexiterials differ from Alexipharmics thus: Alexipharmics signify Medicines against Poisons taken internally; whereas Alexiterials are Remedies against the Poisons of venomous Animals inflicted externally. Hence the Word has been said to be derived from *ἀλεξω*, to drive away, or *repel*, and *θηρ*, a wild, or *poisonous Beast*; but this seems without any Foundation, for *Ἀλεξίτηρια* seems to import exactly the same as *βονθήματα*, *Helps*, *Aids*, *Remedies*, as *ἀνέκασθαι* is in Signification the same as *βονθῆσαι*, to help, aid, or assist. And thus both are explained by Galen.

Our College Dispensatory give a Water under the Title of Alexiterial Milk-Water, and some Troches under the Name of Trochisci Alexiterii, Alexiterial Troches.

AQUA LACTIS ALEXITERIA, Alexiterial Milk-Water:

Take of the Leaves of Meadow-sweet, Carduus Benedictus, and Goats-rue, each six Handfuls; of Mint and Wormwood, each five Handfuls; of Rue, three Handfuls; of Angelica, two Handfuls. Pour three Gallons of new Milk upon the Ingredients when bruised, and distil in a Bath or a Sand-heat.

TROCHISCI ALEXITERII, Alexiterial Troches:

Take of Zedoary-root, of the Virginian Snake-root, and of the Powder of Crab's Claws, each one Dram and half; of the outer Bark of Citrons dried, and of Angelica-seeds, each one Dram; of Armenian Bole, half a Dram; and of white Sugar-candy the Weight of the Whole. Let them be all made into a fine Powder; and then, with a sufficient Quantity of the Mucilage of Gum Tragacanth made in Treacle-water, work them into a Paste fit for Troches.

These are transcribed into the first Edition of the College Dispensatory from Renodæus, much in the same Manner as Schroder hath also got them in his *Pharmacopœia Medico-Chymica*, and it was continued down to the last of the College without the Emendations here, though much corrected to what it was before. The Virginian Snake-root here is intirely new, and many Things are left out which not only made the Medicine too nauseous for this Form, especially the Gentian; but also lessened the Proportions of the most efficacious Ingredients, and frustrated the main Intention, which seems originally to have been contrived as a Preservative against pestilential Contagions. *Quincy's London Dispensatory.*

ALEZARAM. (*Lotura Plumbi*) The Washing of Lead: *Rulandus. Johnson.*

ALFACTA. Distillation. *Rulandus. Johnson.*

ALFADIDAM. The Scoria of Gold, Iron, or Copper: It also signifies Burnt Copper. *Castellus* from *Rulandus* and *Johnson.*

ALFASIT, or ALUASIT (*Testa*) an earthen Pot. *Rulandus.*

ALFATIDA. Burnt Copper, or (*Laminatura*) the Lamina or Scales of Copper. *Rulandus. Johnson.*

ALFATIDE. Sal Ammoniac. *Rulandus.*

ALFESERA, or ALPHESERA, is the Name of a Confection described by Mesue, and said to be good in spasmodic Affections of the Nerves. From the Arabic Particle *Al*, and the Word *Fesera*, or *Phesera*, the Root of the *Vitis Alba*. *Castellus.*

ALFOI. Sal Ammoniac. *Castellus* from *Rulandus.*

ALFUSA. Tutty. *Castellus* from *Rulandus.*

ALGA. A Sea-plant thus named by Authors:

Πικρὸν θαλάσσιον; Dioscor. Alga, Offic. GRASS WRACK. Ger. Emac. 1569. Alga, & Ulva; Chab. 569. Alga anguifolia variorum, C. B. 364. J. B. 3. 794. Raii Hist. 1. 75. Fucus marinus, sive Alga marina graminea, WRAKE, OR SEA WEED, OR GRASSE, Park. 1291. Hist. Oxon. 3. 647. Raii Synop. 7. GRASS WRACK. Dale.

There are three Kinds of Alga; one broad, another oblong and reddish, and the third white, which grows in Crete along the Sea-shore, bears a good Flower, and is not subject to Putrefaction.

All the Kinds are of a cooling Nature, and effectual in Cataplasms; for the Gout, and Inflammations. But they are to be used while they are moist. Nicander gives the red Sort a Place amongst the Alexipharmics, and some have taken it for the Fucus which Women use to give themselves a false Colour, but this last is a Root of that Name which serves them for the said Purpose. *Dioscor. L. 4. C. 100. copied by Oribasius Med. Coll. Lib. 12.*

Alga, *Sea-weed*, called also *Beta maritima*, *Sea Moss*, and *Chorda*; is compounded of a terreftrious and aqueous Substance, both cold, for it is astringent to the Taste, and refrigerating to the Touch. *Orib. Med. Col. Lib. 15. Cap. 1.*

Taken green and wet just out of the Sea, it is an extraordinary Cooler, with a moderate Astringency. *Orib. de Virt. Simpl. L. 2. C. 1. Aetius, Tetr. 1. Serm. 1.*

Alga is a Kind of Plant which grows in the Water. There are several Kinds of it. The most Part shoot out their Leaves like Grass, the rest like Hairs.

The common *Alga* is a Sea Plant, its Leaves are about a Foot and half long, smooth, soft, and easy to break, sometimes white, sometimes red, or of an obscure green, narrow, but some narrower than others. This Plant grows in great Quantities along the Shore of the Mediterranean Sea, and elsewhere. The Countrymen dry it, and it serves for Fodder for their Oxen and other Cattle, and obtain from it a very good Manure for the Earth.

They also make Glass of it as with the Kali, for it contains a great Deal of Salt.

It is aperitive, vulnerary, and desiccative, it is also esteemed good to kill Lice and Flees. *Lemery de Drogues.*

ALGALI. *Nitre. Rulandus. Johnson.*

ALGAMET. *Coals. Rulandus. Johnson.*

ALGARAB, or GARAB. *An Anchilops. Avicenna. Senert, Tom. 2. See ANCHILOPS.*

ALGAROT. See ALGEROTH.

ALGATIA. (*Cibetta*) *Civet. Johnson.*

ALGEDO. A Name of an Accident which sometimes happens in a Gonorrhœa, of which Cockburn gives the following Account:

Amongst the various Accidents that happen in the Course of a Gonorrhœa, none is attended with more violent Pain, and more dire Consequences, than a Running stopping soon after it appears, which we may properly call the *Algedo*; yet I do not find that any Author has offered any Observation of this Kind to the World; which Neglect very much arraigns their Sincerity, or the Accurateness, at least, they pretend to, in relating the various Appearances that occur in the Practice of a Gonorrhœa. Musitanus alone suggests the Symptom, but injudiciously places it among those that precede a Caruncle. For he alledges that we may apprehend a growing Caruncle, *Ex prægressâ sædâ Gonorrhœâ, quâ modò Stranguriam, modò Dysuriam, jam Ischuriam infert.* But I have observed, that if the Running does not proceed after the common Manner already related, but continues to be in a small Quantity, as it always shews itself at first; or if it stops without any sensible and obvious Cause of an improper Administration; in that Case there is often an intense Inflammation on the Glands, and an insufferable Pain striking into the Anus, sometimes into the Testicles, without their being in the least swelled, and most commonly into the Bladder, which last Pain is always attended with a frequent Desire of making Water; but it is made in a very small Quantity, and with much Difficulty. These Symptoms thus related become very manifest from the Nature of a Gonorrhœa, and of the Liquor of the Lacunæ. For let the infected Liquor of the Lacunæ be tied up by Applications or Administrations of any Kind, or become grosser on a sickly Account, so that the Stimulus of the Corruption does not excite the Quantity of the Efflux in a due Proportion; in that Case the Liquor is still more corrupted, and becomes more sharp. Now this sharp Liquor being constantly applied in the excretory Ducts of the Glands, to the membranous Coat of the Urethra, excites Pain and an Inflammation.

Pain being thus made in the Urethra, we may easily conceive how it is propagated into the Bladder, and other Parts mentioned above; for the Urethra is a continued Duct to the Neck of the Bladder, and the Inflammation is very readily carried its Length, and communicated to the Bladder, and with it the Pain. This is likewise the Reason that the Vasa Deferentia and Vesiculæ Seminales, that open into the Urethra, partake of this Inflammation, and communicate the Pain into the Testicles: As also, that the Pain is conveyed into the Anus by the Means of the accelerating Muscles of the Penis, which terminate in that Part.

But to explain these Symptoms more particularly, that the Design we have in curing may become more obvious and direct, we will begin with accounting for the frequent Desire of making Water; and why it is voided with great Pain, and in a small Quantity. The Reason of this Symptom is, that the Neck of the Bladder being vastly inflamed, it is vehemently stimulated by the Saltiness of the Water, and by this Stimulating a frequent Desire of discharging it is excited. The Bladder itself being also inflamed, it cannot be so easily applied for expelling the Urine, and therefore it is thrown out in a smaller Quantity; and, upon both Accounts, is made with great Pain. Moreover the Neck of the Bladder being thickened by the Inflammation, it is opened or dilated with great Difficulty, and therefore the Urine is neither freely expelled, nor without great Pain.

The frequent Irritating the Bladder with the sharp Urine is the Reason why the quick and repeated Pain in making Water is a more constant Symptom of the Stoppage of the corrupted Matter, than are either the Pain in the Anus or in the Testicles, though the Pain in these is produced as really by the Pain in the Urethra as that in the Bladder, but not so directly. For Pain made in contiguous Parts is occasioned by the Stimulus or Compression of adjacent Parts that are affected; so that the derived Pain is equally owing to the Inflammation, as is the Pain in the Part originally affected. Daily Experience affords us various and sensible Examples of Pain derived to a contiguous Part from another that is first hurt. A Pain any way produced in a Finger is not only propagated by the common bending Muscles that may send a Branch to some Distance, and thus be carried directly a great Length up the Arm, but it likewise affects other Muscles in the same Contiguity, and reaches farther than the Origine of any of the Muscles of the Fingers, and may be propagated to Parts very distant from that first affected with Pain.

But which is more surprising, contiguous Parts affected mutually by the Inflammation of either, not only receive Impressions of Pain from each other, but will even adhere and stick to one another. The Adhesion of the Lungs to the Pleura is an Affection of this Kind, as is the Adhesion of an Intestine to the Peritonæum, and such Adhesions of many other Parts that have often been found in dissecting Bodies, especially those that were morbid or sickly.

All these grievous Symptoms being produced by the retarded Efflux of the Liquor of the Lacunæ, notwithstanding that is sharp and corrupted, and commonly flows in a greater Quantity upon that Account; yet as this Liquor is found at present in a small Quantity, for Reasons afterwards to be assigned, it acquires the greatest Degree of Corruption possible, and that by its not running off in the ordinary Quantity. Now as this very sharp Liquor is constantly applied to the Urethra by its continuing in the Lacunæ, which run parallel to its inner Coat, the Pain is rendered more and more intense. Our Inquiry therefore must be, why this Efflux is retarded, notwithstanding that the Liquor is more sharp, or is indued with a greater Stimulus, a Cause we formerly found sufficient for exciting a Running. It will easily be believed that Injections and Medicines, that are any thing astringent, inwardly administered have sufficient Power to check the Discharge of the corrupted Liquor; nay, Medicines of such Qualities are esteemed so sufficient a Cause, that seldom any other has been assigned for the Interruption; so that we may assert, that these Medicines are sometimes the Occasion of checking the free Efflux of the Liquor of the Lacunæ, though it be corrupted, and were otherwise sharp enough to produce a Running.

But another Cause never yet assigned for producing such a Stoppage, is when the Liquor of the Lacunæ, even in this its corrupted State, acquires an extraordinary Grossness, and on that Account becomes incapable to flow, or flows only in a very inconsiderable Quantity. This Grossness of the Liquor of the Lacunæ is acquired from a Grossness in the Blood itself in a great many Diseases, as in a Cold, a Fever, &c. The Way how this Grossness is formed by a Cold or a Fever, is obvious from the general Defect of Secretions at that Time; inso-much that Hippocrates observes that Ulcers, and I have observed that Issues, very commonly dry up in the Beginning of a Fever. And in great Colds, when a Fever is generating, and in several other Distempers, the Liquor of the Lacunæ is become so gross, that the Quantity of its Efflux is but moderately augmented; though it being corrupted it stimulates the Glands and their excretory Ducts, and for that Reason ought to increase its Quantity considerably: Hence it is that the Pain, and all the above-mentioned Evils or Misfortunes are produced.

Some very good Practitioners, who have been apprised of the great Danger and Difficulty that arises from the slow Running in this Circumstance of a Fever, have attributed the Slowness of a Running, or the Smallness of its Quantity, to the Heat of the Fever, which they supposed did lick up the Matter of the Running; but this slow Efflux is truly an Unaptness in the Liquors to run off, and that because of their Thickness.

Because an inward Shanker sometimes suppresses the Running, it may give some Suspicion of its being an Occasion of this terrible Symptom; but Shankers seldom give any great Pain, nor do they infect the Liquor of the Lacunæ till they begin to dissolve; and this Liquor not being infected during the Hardness of the Shanker, there is not naturally any Pain produced on that Account, or Shankers in the Urethra never produce this painful Symptom. All this is manifest from the Experience of inward Shankers.

From what has been said it plainly appears, that the Inflammation and Pain in the Urethra, in the Glands, Bladder, Testicles, and in the Anus, are altogether the Consequences of this sharp Liquor's being pent up in the Lacunæ; and therefore, that in curing these Symptoms, little or no Regard is to be had to the Inflammation in the mentioned Parts, but rather to what may make the pent up Liquor flow. Indeed the Folly of endeavouring to cure Diseases, by taking Aim at their Symptoms,

is as conspicuous in the present Case, as it can be in any other whatsoever: So that Bleeding, Emulsions, and other cool Administrations that most readily occur to French Surgeons, are of no manner of Use. But Bathing, that commonly goes along with the former, is of great Use; though not for cooling an Inflammation, as they think, it really satisfying the principal End and Design of unlocking the Lacunæ, and giving a Passage to the stagnating Liquor. So vastly different is a Practice managed upon Analogy, and a blind Experience, and when our Experience is directed by Reason.

And therefore, as the Indication of Cure is always best drawn from the Nature of the Disease, I will endeavour to deduce the Method of Cure from the Nature of this Symptom thus explained, which being occasioned by the Discharge out of the Lacunæ being very little or nothing at all; and that upon the Account of the extraordinary Grossness their Liquor acquires, either on Account of the present State of the Blood, or that the Blood and the Liquor of the Lacunæ are become thicker by the Means of Medicines that bring this Quality of Thickness upon the Blood. The Method of Cure therefore consists in destroying the mentioned Grossness of these Liquors, which will be found more easily done when this Thickness is acquired by Medicines, than when it is occasioned by the Mearis expressed, while I investigated the Symptoms of Inflammation and Pain.

In conducting the Practice of Physicians for relieving these Symptoms, I cannot proceed in the Method of giving the Designs and Prescriptions of other Authors, none other having spoke of this Accident before me, and on that Account we have not any Method for curing what either they never observed; or they were afraid to relate Symptoms so surprising, and at the same Time so new, lest the first should cast some Reflection on their Judgment in treating, or the last on their Skill in discerning them. But as I am sure that no such Symptom has been mentioned among Physicians, so the Mistakes I might be under in first apprehending it, give more Credit to the rest of the Relation to Men of Worth and ingenious Physicians.

HISTORY I.

In August 1716, I was sent for to visit a Patient who had been long ill of a Gonorrhœa, which had been checked by an Injection made with Plantain Water, Honey of Roses, and Sugar of Lead. He had it once checked before he brought it from a foreign Country. As I found the Running of a very green Colour, and the Glans very much inflamed, I was persuaded that the Inflammation was continued from about the first Lacunæ down to the Neck of the Bladder, so that the best Course was to excite the Running.

For this Purpose I prescribed him a Scruple of Æthiops Antimonialis with ten Grains of Gum Guaiacum, to be taken every Night going to Bed, and in two or three Days the Running increased, and his Pains vanished.

HISTORY II.

It was in August 1716 that I found the *Algado*, when a Gentleman put himself under my Care to be cured of a Gonorrhœa; but finding he was ill of a continual Fever, I recommended it to him to return to his Lodging and to go to Bed.

Next Morning his Running was in a very small Quantity, though it had then appeared five Days; the Glans was prodigiously inflamed, and the Fever of a low Sort, that was like to hold him a Fortnight, or three Weeks.

I told him that in his Circumstances no Method for curing a Gonorrhœa could agree with the Practice of the Fever, excepting that by a proper Injection; but something extraordinary appearing in the Running, I was not willing to make Use of this new Method in a Case liable to a great Variety of Accidents, whereby both I and the Method might be exposed to much Obloquy; and as the Infection could not creep into the Blood by neglecting to cure it, the safest Course we could take was for curing the Fever.

Our Matters went very successfully while we pursued this View, but I was surprised that the Running did not increase as the Fever came to its State; but was rather less, and the Gentleman began then to complain of a Pain in making Water, and that he had often Occasion to make it. In a Fortnight the Fever went off, but my Patient was not yet in a Condition to enter upon any Course for the Gonorrhœa, which continued to be as was related at the Beginning. When he had been three or four Days about the House, and the Season of the Year warm, he was tempted to go out a walking in an adjacent Garden, though the Wind was Easterly, and the Garden on the River Side. He took Cold; and the Pain and Desire of making Water increased so vehemently, that he could not sleep, but sent early next Morning for me.

When I had considered these Symptoms, I found the Bladder was inflamed, but did not dream of this Inflammation being derived from some other Part, and therefore I ordered him Emulsions, Bathing, to be bled, and Clysters, on Account of this Inflammation. Moreover, the Pain being excessive, he sometimes took Clysters in a very small Quantity, in which were five Grains of Opium, to procure a little Quiet and Re-

spite from it. But as these Methods and Applications afforded small Relief, I was joined with another Physician, who agreeing with me, about the Opinion I had of the Bladder being inflamed, we pursued the former View with Changes of Medicines, and with as little Success.

The Pain darting some Time into the Anus, gave the other Physician some Suspicion of the Piles, but I thought it passed into that Part from the Bladder, as I did believe the Pain he found sometimes in some one of his Testicles likewise did: Nay, after every Day suspecting a new Disease, this Physician, at length, suspected his having a Carnosity, which I convinced him to be impossible in so little a Time; yet these Differences occasioned Mention to be made of having Assistance from a Surgeon, which I readily agreed to, and was mightily pleased with the Person he named, though he was a Stranger to me, he having a very good Character, both for his Honesty and Skill.

But before we met, the Disease shewed itself, for in the Water, appeared a great deal of Running, and of a Slough; so that afterwards we found we could have no other End to pursue, than that of exciting the Running. The Surgeon confessed he never had any such Case, but that the Matter of the Gonorrhœa had been licked up by the Fever. I added, that the Fever had certainly hindered the Running, as I have formerly explained, together with the mentioned Symptoms of Pain in the Bladder, Anus and Testicles; but when this Surgeon and I were met alone at this Patient's Lodging, I offered my Opinion about the true Cause of all such Accidents, which he generously acquiesced in, and told me, he had long entertained a like Opinion. He took Occasion, likewise, to declare to my Patient, that no Method could have been taken for the Gonorrhœa, that would not put him in Danger of his Life, or have ended in the Lues Venerea.

The Method therefore we took to provoke the Running, was by giving mercurial Medicines, and purging them off.

Take Calomel fifteen Grains,
Solid Laudanum one Grain;
Conserve of Hipps, enough to make a Bolus, to be taken going to Bed, and to be repeated the two succeeding Nights.

Take of Gereons Decoction of Senna, four Ounces,
Calabrian Manna, half an Ounce; make a Potion, to be taken the Morning after the last Bolus.

He proceeded in this Method almost a Month, before he was free from Pain. In all that Time, his Running never was in a great Quantity. He was obliged to persist taking the Emulsions, Broth, and other soft Liquors that were formerly prescribed for the Inflammation, which were proper enough to ease this Symptom, though not to cure it. When the Pain and Difficulty in making Water were removed, the small Gonorrhœa was cured by one of the common Forms.

HISTORY III.

In the same Month of August, 1716, I received a Letter from a Gentleman in the Country, desiring my Advice for an intolerable Pain he had when he made Water; and the frequent Desire he had to make it; which he always did in a very little Quantity. He told me, that he often was afflicted with the Pain in his Testicles, or in the Anus, when it was not working about his Bladder. He found he had a Gonorrhœa in the Morning, which stopped by Noon, and ever since that Time he had been tortured with Pain.

These Symptoms increased so fast upon him, before he could expect an Answer to his Letter, that he forthwith came to London, and made me a Witness of his Torment. But as it was manifest that the Pain was occasioned by stopping of the Gonorrhœa, and this by an excessive Cold; I endeavoured to excite the Running, and that by the mentioned Method of Calomel Boluses he took four Evenings successively, which were afterwards purged off next Morning after he had taken every Bolus. His Drink was as soft as we could contrive, but not diuretical, and his Diet was chiefly Broth; yet we found no Manner of Respite from these terrible Symptoms in a Fortnight. And therefore I ordered mercurial Medicines of greater Efficacy, and that he should take a Bolus every other Evening made with eight Grains of Turbith Mineral; which neither purging nor vomiting him, each Dose was augmented to fourteen Grains in the Turn of a Fortnight; which very great Dose would purge him twice or thrice, but never vomited him: I would gladly have put him into a Salivation, rather than have continued in a Course of so vast Doses of so rough a Medicine; but some Business he had then depending did not admit of it, so that I was forced to proceed in this Method for a Month or five Weeks before he found any Benefit from it. After that Time he had no Darting into the Anus, he made his Water very freely and without Pain, but he suspected that he sometimes found a Darting into one of his Testicles. It ran a little for three or four Days, but it afterwards ceased of itself.

When our Matters were brought to this Pass, I had him purged four or five several Times, intermitting always a Day between the Purging; and after he had taken this Physick I ordered him fifteen Grains of Turpeth Mineral twice a Week for a Fortnight. After all, he drank a very strong Decoction of the Woods for six Weeks together.

Notwithstanding the great Quantity of Mercury this Gentleman had taken, which he took as well as the Diet-drink with the utmost Exactness of Diet, and Manner of Living, he broke out all over his Body four Months after he had finished this Course; yet he found nothing to complain of, but that he had at Times a small darting Pain in some one of his Testicles. This Misfortune put us under the Necessity of a Salivation for a more perfect Cure, and his Affairs now favouring this Method, he went straight under that Course.

He spit about two Quarts every Day for about a Month, and about a Quart in a Day for three Weeks more; in the last Part of this Time he felt no Manner of Pain; yet in less than six Weeks after the Salivation, he broke out again in his Legs and Arms, but was cured by the diaphoretic Mercury of Paracelsus. *Cockburn of a Gonorrhœa.*

ALGEMA. *Ἀλγῆμα.* Uneasiness, Pain. The Word is also often used by Hippocrates, to signify the Disease whence the Pain proceeds. This Author makes Use of the Word in a Multitude of Places.

ALGEMET. *Coals. Rulandus.*

ALGERIÆ, ALGERIE. *(Calc.) Lime. Rulandus. John-Jon.*

ALGEROTH. *(Mercurius Vitæ) Mercury of Life.* A Preparation of Antimony and Sublimate, so named from *Algerothos*, a Physician of Verona. *Castellus.*

ALGOIDES. An aquatic Plant of which Monsieur Vaillant gives the following Account:

Algoides vulgaris, Potamogeton capillaceum, Capitulis ad Alas trifidis. B. Pin. 193. Prod. 101. Raii Hist. 1. 190. N° 12. Item, *Potamogeton Affinis, Graminisfolia, aquatica.* Raii ibidem, N° 13. Itemque *Potamogeton omnium minimum, Graminis Facie capillaceum, Filiculis curvulis binis, ternis, Dorso dentato.* Hort. Cath. ejusdem Raii Hist. 3. 122. *Potamogeton similis, ramosa, & ad Genicula polyceratos.* Pluk. Tab. 102. fig. 7. *Equisetum polygonoides, Aquis innatans, Potamogetonis tenuisfoliæ Facie, ad Genicula vasculiferum.* Hist. Oxon. 3. 621. N° 20.

It is strange that a Plant, so common in our Waters, should not be mentioned in the *History of those Plants which grow in the Country about Paris.*

It is to be observed, 1. that though Ray be not one of those Botanists who love to multiply the Species of Plants without Necessity, he has yet made three of this one, as you see by the Quotations of the different Synonyma. 2. That though among the Characters he gives of the *Potamogeton* he had mentioned the Growing of the Flowers in Form of an Ear, and though he had observed that those of this Plant, whose Structure he did not know, were dispersed along the Stalks and Branches, yet he scrupled not to reduce it under that Kind, from whence he should in Truth have excluded it both in the last Edition of his *Synopsis*, and in that of his *Methodus*. 3. If this Author saw no more than two, three, or at most but four Pods, or Cornicula (so he names what I call *Capsula*) at each Joint of the Plant, it was because he had the Fortune only to meet with one or two that happened to be no better furnished, for they have commonly five and sometimes six at a Joint.

The *Algoides* is a Species of aquatic Plants, with imperfect and hermaphrodite Flowers. Each Flower proceeds from the Wing of a Leaf, and commonly consists only of a Testicle, or Stamen, and some Ovaries disposed in a circular Order, which become so many solid monosperm Seed-vessels. The Leaves are simple, intire, without a Pedicle, and for the most Part stand opposite by Pairs.

We know only one Species of *Algoides*.

It grows at the Bottom of Waters, and because its Leaves resemble those of *Alga*, I suppose it took the Name of *Algoides*. *Memoires de l'Academie Royale des Sciences Ann. 1719.*

ALGOS. *Ἀλγος.* The same as **ALGEMA**, which see.

ALHAGI. This is the *Agul & Almagi Arabibus, Planta spinosa Mannam resiciens.* J. B. *Genista spartium spinosum Foliis Polygona.* C. B. *Spinosum Syriacum.* Park. The PLANT THORNY BROOME OF SYRIA.

It rises a Cubit or more in Height, and is set very thick round with a great Number of exceeding sharp, slender, pliant Thorns, on which grow divers Flowers of a purple Colour. When these fall off, they are succeeded by small, long, reddish Pods (like those of the *Scorpius*) full of Seeds of the same Colour.

The Inhabitants of Aleppo gather from it a new Kind of Manna, the Grains of which are somewhat larger than Coriander.

It is bushed round with an almost infinite Number of small, smooth Branches, which disperse themselves from the Trunk in a very beautiful Order, and are for the most Part overspread with Dodder, after the Manner of *Thyme*. At the Joints of

the Thorns grow the Leaves, which are ash-coloured, oblong, and of a polygonal Shape. The Root is long and of a purple Colour.

The Manna, gathered from this Shrub, is called by the Arabians *Terenabin*, or *Trangebin*.

It is found in Persia, and in the Neighbourhood of Aleppo; also about Kacka a City in Mesopotamia.

The Leaves are of a hot drying Nature, and the Natives use the Flowers as a Purgative, one Handful of which boiled in Water suffices for a Dose. *Raii Hist. Plant.*

ALHANDAL. *Colocynth.* See **COLOCYNTHIS**.

Our College Dispensatory directs a Troche under the Name of *Trochisci Albandal*, as follows:

Take of white Colocynth Pulp cleared from its Seeds, and cut small, of Gum Arabac, Tragacanth, and Bdellium, each six Drams. Let the Gums be macerated for three or four Days in a sufficient Quantity of Rose-Water, so that they may be dissolved in it; and with the fore-mentioned Pulp let all together be beat up into a Consistence for Troches.

"This Contrivance is as old as Mesue, and hath been but little varied in all the Hands it hath passed through; it seems originally designed by the Gums to deaden, in some Measure, the violent Operation of the Colocynth." *Quincy's London Dispensatory.*

ALHANNA. The same as **ALANA TERRA**, which see.

ALHASEF, or ASEF. A Sort of Pustule, called also **HYDROA**, which see.

ALICA. A Food much celebrated amongst the Antients. But the various Accounts given of it by different Authors make it somewhat uncertain what it was. For some represent it as a Sort of Grain, and others as a Sort of Aliment made of Grain.

In order to give a just Idea of this Aliment, I shall insert the different Passages wherein the Antients have taken Notice of, and then give the Opinion of Salmasius concerning it.

The Greek Word is *ἄλικο*.

Alica cleaned is a proper Aliment for the Sick in Fevers. If the Stomach be firm, and the Belly bound, it is adviseable to give it in Hydromel; but if the Stomach be weak, and the Belly loose, it is best taken in Vinegar and Water. *Celsus, L. 3. C. 6.*

Alica is in the next Degree to Ptisan for Goodness, and has some few Qualities in common with it, which are the Cause that it is highly esteemed. Viscidity, Smoothness, and Pleasantness of Taste, are common to them both, but in all other Respects Ptisan exceeds *Alica*; and both of them are either simple or compounded with Honey only. *Aretæus de Acut. Morb. L. 1. C. 10.*

The Chondrus [*χόνδρος*] is made of that Sort of Zea which is called dicoccos (*double-grained*). It is more nourishing and binding than Rice, and much more agreeable to the Stomach. Boiled in Vinegar, and the Parts anointed therewith, it takes off the Lepra [*λεπρα*] amends the Roughness and Scabbiness of the Nails, and heals a beginning Ægilops. The Decoction used in a Clyster, is good for such as labour under a Dysentery accompanied with Pains. *Dioscor. L. 2. C. 118.*

Alica in other Things is like Chondrus, but binds the Belly more. *Paulus Æginet. L. 1. C. 73.*

Alica is a Kind of Wheat. We ought to be very careful in preparing those forbile Liquors which are made of it; for its Juice is mixed with Water, and requires a good deal of Boiling; whence it is apt to deceive those that prepare it, who think it is boiled enough, and so present it to the Sick who are great Sufferers by it, for it soon thickens, being of a gluey viscid Substance. Therefore putting a great deal of Water to it, boil it very well, and stir it with a Stick of Dill till it be enough, when you may throw in a little Salt, and if you add a little Oil at first, it will be never the worse. But for healthy Persons, who by Reason of a vehement Gnawing of the Stomach, or a sudden Transfit of a bilious Humour, may want a hearty Draught, let the *Alica* be boiled till it be quite soft, and then strained, and then it makes a Liquor like Ptisan, which is to be drank off. The same Way of Preparation is to be used with *Alica* after it is steeped in Water. *Oribas. Galeno-Med. Col. Lib. 4. C. 1.*

Alica ought first to be macerated in Water, and three Eights of a Pint allotted to three Pints and a half of Water, and two Pints of Milk. Let it boil gently over the Coals, and stir it, holding the Vessel in your Hand that it may not burn. But observe that the Milk is to be poured hot into it, when almost boiled enough. *Oribas. ex Dioscor. Med. Col. 4. C. 7.*

Alica is more drying than Wheaten Meal, and therefore not so proper to bring a moderate Inflammation to suppurate as the other, but is better than Wheat for humid Inflammations. *Oribas. Med. Col. Lib. 14. Cap. 37.*

Alica and Simila are of a very thick and glutinous Juice. *Oribas. Euporist. Lib. 1. Cap. 19—21.*

Wheat bruised or broken into large Fragments like *χρόδος*, *Chondrus*.

Though the Nature of the *Chondrus*, or *Alica*, sufficiently appears from what has been said, some have reckoned it among the Species of Grain, as a Sort of Wheat. Paulus Aegineta, *χρόδος οὗτος τὸ ἴδιον, The Chondrus, a Species of Grain.* And Galen, *τὸ γένος τῶν σιτηρῶν ἐστὶν ὁ χρόδος, ἡλικὸς τρέφειν τι καὶ γλυκύως ἔχει τὰ χυμῶν. Chondrus is a Kind of Wheat, sufficiently nourishing, and of a viscid Juice. Lib. i. de Aliment.* He adds that by the Antients it was called *συστάς τῇ περιουσίᾳ*, Wheat appellatively. Who cannot but admire so much Ignorance in so great a Man? He cites Hippocrates, who says, *τὸ ἐν τῷ χρόδῳ κατέσκευασμένον ἄγρος τροφικώτατον μὲν ἔσται, διαχυρὸν δὲ ἥϊον, Bread made of Alica was very nourishing, but not very easy to pass off.* Hippocrates does not speak this of such a Sort of Corn, but as the Property of a Kind of Meal, properly so called from its being coarsely ground. Bread made of this Meal, he says, was very nourishing. These were called *χρόδριται*, *Chondritai*, as the *σινυδαλίται*, *Semidalitai*, were so called, because they were made of Semidalis, which also was not a Species of Grain, but a Sort of Meal. In Galen's Time the Greeks had left off the Use of the Word *χρόδος* for *Alica*, and changed it for the Word *Alica*, corrupted *ἀλῆς*. So that they knew nothing of the antient *χρόδος*, and by that Means came to interpret it of a Species of Wheat. *Salmaſtus de Homonym. Hyles latr. Cap. 57.*

ALICES. The little red Spots in the Skin which precede the Eruption of Pustules in the Small-pox. *Castellus.*

ALICORNU. The same with **UNICORNU**, which see.

ALIENATIO MENTIS, is the same as **DELIRIUM**, which see.

ALIENUM. In a medicinal Sense it is applied to any Thing that is foreign and troublesome to the Body. Sometimes also it imports *corrupted*, but *alienatus* is generally used in this last Sense.

ALIFORMES PROCESSUS. See **PTERYGOIDES**.

ALIGULUS. A Confection. *Rulandus.*

ALILAT, or *ʿAlila*, an Arabian Word, signifying what the Assyrians call *ܠܝܠܐ*, the Jews *לילית* *Lilith*, and the Greeks *Ἑλέθυια*; and is the same as *Mater Terra*, and *Filia Lucina*, or *Luna*, the Deity that presides over Child-birth. *ʿAlila* is as you would say *אלילה* *Alilath*, whence comes *Lilith*, and also the Word *לילה* *Lailah*, signifying the Deity of the Night. *ʿAlila* is as much as to say *אליטה* *Alitha*, which also signifies a Goddess, as well as the Greek *Ἑλέθυια*, which is much the same as *אליθυיה* *Elithuia*. In the most ancient Ages, *ἕως*, or *ἑῷω*, among the Greeks, signified *Filius*, a Son. Therefore *Ἑλέθυια* was the same as *Κῆρ*, or *Filia*, a Daughter, or *Libera*; as *ἕως* was the same with *Κῆρ*, or *Liber Pater*. **𐤀𐤋𐤅** is also the Gothic Name of the Sun. The Assyrian *ܠܝܠܐ*, or *ܠܝܠܝܬܐ* *Melidbetta* signifies a *Midwife*; for Women with Child reckon by Moons. *Alilat* therefore is the same as *Lucina*.

ALIMA. A Sort of Sand, found in Gold Mines, of which they make Lead. *Rulandus.*

ALIMENTA. *Aliments.* Whatever is taken to nourish the Body, from *Ala*, to nourish.

The Nature of *Aliments*, in general, may be understood by what is said on this Subject under the Article **ACIDA**, and the Article **ALCALI**. And the Properties of particular *Aliments* are specified under their respective Names.

The Antients, particularly Galen, have been very diffuse on the Subject of *Aliments*.

As I would avoid being tedious, I shall give Hippocrates's own Abridgment of his Sentiments upon *Aliment*, I mean his *Treatise de salubri Victus Ratione*; and because Galen is too prolix, I shall insert his Doctrine from later Authors who seem to have taken great Pains to epitomise his Works, not without adding some Things from their own Fund. And I shall end this Article with some Chymical Observations made by Mr. Geoffroy the Younger, and by him communicated to the Royal Academy of Sciences.

I attribute the following short Treatise to Hippocrates; on the Authority of Galen, who thinks it certainly done by him, or his Son in Law Polybius, though even in the Time of Galen it was said by some to be wrote by others either contemporary with, or perhaps elder than Hippocrates.

But I must remark one Error which was universal amongst the Antients, which is, that they imagined the Blood to be formed from the *Aliment*, in the Liver. But this Piece of Theory has been absolutely confuted, since modern Discoveries have made the true Passage of the *Aliment*, and the real Method of the Blood's circulating, manifest.

With Respect to *Aliments*, it must be observed in general, that it is very little worth their While to consider the different Qualities of Foods, who use Exercise daily sufficient to bring them to the Verge of Lassitude, who go early at a Night to Bed, and rise soon in the Morning; for all *Aliments* supply

a good Chyle when perfectly digested, by the Assistance of Exercise and Regularity. But the Consideration of *Aliments* is a Speculation of great Importance to the Valetudinary, the Lazy, and the Riotous.

The Regimen best suited to Persons in the ordinary Way of Life [*ιδιότατος*] is to eat plentifully, and drink sparingly in the Winter Time. They ought to drink pure undiluted Wine, to eat Bread, and to have their Meat all roasted. Greens are seldom or never to be eaten during this Season: By this Method, the Body will be preserved dry and warm.

In the Spring they should bring themselves by Degrees to drink more, and have their Wine more diluted. Their vegetable Food is to be more thin, and less in Quantity. Maza is to be used instead of Bread; their animal Food is on the same Account to be diminished, and boiled Meats are to supply the Place of roasted. They are to be sparing in the Use of Greens till Summer approaches, but feed on the more thin vegetable Foods, and boiled Flesh, and some Herbs boiled, or raw; their Drink in like Manner ought to be much increased in Quantity, and much diluted. But this Change must be brought about by Degrees, that the Transition may not be too great and sudden.

In Summer the Food ought to be thin Maza [*μαζα μαλακή*] the Drink plentiful and diluted, and all the Flesh boiled. And this is the Way of Living to be chosen while Summer lasts, in order to render the Body cool and moist during this hot and dry Season, which inclines the Body to Heat and Dryness. By this Management, we guard against the Inconveniences of Summer: And by the same easy Steps as we pass from Winter to Spring, are we to proceed from Spring to Summer, in shortening our Allowance of dry Food, and increasing our Measure of Drink; but just the contrary Method must be taken as we pass on from Summer to Winter.

In Autumn our *Aliment* of the frumentaceous Kind [*σνίττα*] ought to be more in Quantity, and drier; and our animal Food [*ἑλκ*] in Proportion. Our Drink, on the contrary, is to be diminished, and to be less diluted, that so we may pass over the Winter in the most commodious Manner, when our Drink comes to be least in Quantity and undiluted, and our *Aliment* the most copious and driest, under which Regimen a Person shall enjoy a good State of Health, and be least sensible of the Severity of the Weather in this cold and humid Season of the Year.

For Persons of a full Habit of Body, whose Flesh is soft, and their Countenances ruddy, it is most advisable to use a dry Kind of Diet for the greatest Part of the Year, because their Constitutions abound with Moisture. On the contrary, they who are lean, whose Fibres are dry and tense, and whose Complexions are tawny or black, ought to feed on moist *Aliment* the most Part of the Time, as being most agreeable to the Dryness of their Bodies.

Young Persons are to chuse such Meats as are tender and moist, because their Youth inclines them to Dryness, and their Fibres are rigid. But Persons of an advanced Age are to use a dry Kind of Diet for the most Part of their Time, because Bodies at that Period of Life are soft, moist, and cold.

In general, our Regimen of Diet is to be accommodated to the Age, Season, Custom, Country, and Constitution, in such a Manner as to always guard against Attacks from Heat, or Cold; for this is the Way to live sound, and free from Diseases.

In Winter you should travel fast, in Summer slow, except in the burning Heat of the Sun. The Corpulent are to travel fastest, and the Lean slowest. In Summer you are to bathe often, in Winter but seldom; and Bathing ought to be used more frequently by lean than fat Persons. The Clothing of fat People in Winter ought to be the natural Stuff, in Summer the same dipped in Oil; but lean Persons are to observe the contrary*.

Such as are burdened with Fat, and desire to be thin, ought to take all their Exercises fasting, and afterwards to sit down to their vegetable Food, before they have recovered Breath from the Fatigue, or are cool, and then to begin with a Draught of Wine, diluted, and not too cold. Their Flesh ought to be dressed with Sesamum [oily purging Grain, *Dale.*] or some grateful preserved Vegetable, or something of that Kind, and to be very fat, that it might the sooner create a Satiety. Besides, they ought to eat but once a Day, to abstain from Bathing, to lie on a hard Bed, and to exercise themselves in walking naked as much as possible.

Lean Persons, who are willing to grow fat, ought to act directly contrary to the aforementioned Precepts, and to use no Exercise upon an empty Stomach.

As to Emetics and Clysters, observe the following Rules: During the six Winter Months use Vomiting, because this Season is more phlegmatic than the Summer Half-year, and generates such Diseases as affect the Head, and the Region above the

* This Passage perplexed Galen very much; but Dacier has taken away the Difficulty, by the Addition of three or four Words, in which he is warranted by a Manuscript in the King of France's Library.

the Diaphragm. When it is very hot, make Use of Clysters, for then it is very sultry, and the Body abounds with Choler, there is a Sensation of Weight upon the Loins and Knees, Heats arise, and griping Pains affect the Belly. The Body then wants to be refrigerated, and the Humours, which are exalted and tend upwards, ought to be drawn down from the higher Parts.

For corpulent Persons, who abound with Humidity, Clysters of a saline and thin Substance are to be prepared; to dry, lean, and feeble Bodies, fatter Clysters, and of a thicker Consistence, are best accommodated. These last are prepared with Milk, or the Decoction of Chich-pease [*ispease*] or other like Ingredients, the thin and saline Clysters are made with Brine, or Sea-water, and other Things of that Nature.

The Use of Emetics is to be regulated in the following Manner: Persons of a fat and full Habit of Body are to vomit upon an empty Stomach, after Running or Walking very fast, about the Middle of the Day. For this Purpose they may take four Ounces of Hyssop bruised in six Pints of Water, with an Addition of Vinegar and Salt, to make it the more agreeable; let them drink this first leisurely, and afterwards quicker.

They who are of a thin and weak Constitution must vomit after Eating, in the following Manner: After coming out of the hot Bath, let them take half a Pint of pure Wine, and then make a Meal on Variety of vegetable Food; but not drink either at or after Eating, abstaining from Drinking while a Man may run ten Stadiums [about an English Mile and a Quarter]. Then mix up for them three Sorts of Wine, which must be the austere, the sweet, and the sour. Let these be drank first pure, soberly, and by small Quantities; but afterwards more diluted, and by quicker and more plentiful Draughts.

Such as have accustomed themselves to vomit twice a Month had better take an Emetic two Days one after another, than every fifteenth Day; but some observe a quite contrary Method.

As for those who are subject to throw up their Victuals by Vomit, or are costive, the best Method is to eat often in a Day, and of all Kinds of Food; to have their Meat dressed all Manner of Ways, and to drink of two or three Sorts of Wine. Those who are not subject to vomit, or who have loose Bellies, ought to manage themselves by a Method directly contrary to the foregoing.

Infants are to be washed with warm Water for a long Time, and to drink Wine diluted, but by no Means cold. Let their Wine be such as will not breed Inflammations, or cause the Belly to swell; by which Means they will be the less subject to Convulsions, will grow large, and have a good healthy Colour.

Women ought, in general, to observe a dry Regimen; for dry *Aliment* is best accommodated to the Softness of their Flesh, and Wine almost pure is best for the Womb, and to nourish the Child therein.

As to Exercise, Running and Wrestling ought to be used in the Winter; in Summer but little Wrestling, and no Running, but much Walking in the cool Air is then very convenient.

Those who are tired with Running ought to wrestle; and those who are fatigued with Wrestling ought to run; for by this Means he who exercises will procure a Warmth to the fatigued Part, compose himself at Leisure, and afterwards betake himself to Rest in the most agreeable Manner.

If a Person, during a Course of Exercises, be seized with a Diarrhoea, and his Food comes off undigested, he must forbear one Third at least of those Exercises, and eat but half his usual Allowance. For it is plain, that the Stomach is destitute of sufficient Heat to concoct such a Quantity of Food. Let him eat Bread very well toasted and put into Wine; let his Drink be very little in Quantity, but of the purest and undiluted Wines, and let him not walk after Meals, of which he must make but one in a Day, while under this Regimen. By this Management the Stomach will be wonderfully warmed and cherished, and have Strength to digest whatever it receives. This Kind of Diarrhoea is most incident to such as have firm, hard Flesh, especially when they are obliged to live much upon animal Food, being naturally disposed to this Disorder, for their strait and narrow Vessels are incapable of receiving the *Aliments*. This is a very uncertain Sort of Constitution, and ready to turn either Way, never remaining long settled on a firm Basis of Health. But they who are of a thinner and more lax Habit of Body, and more hairy, bear Eating of Flesh, and sustain Labour much better, and enjoy their Health much longer, than the others. They who are troubled with Eructations, and Inflammations of the Hypochondria, from the indigested Food of the preceding Day, ought to sleep longer than ordinary, and to force themselves upon some new Exercise, to drink their Wine pure, and in larger Quantities, and at the same Time to shorten their Allowance of Food; for there are plain Indications, that the Stomach, by Reason of its Coldness and Imbecillity, is unable to digest the great Quantity of Food which it receives.

For such as labour under Thirst, less Food, and less Exercise, with the most refrigerating and diluted Wines, are most proper to be advised. They who are afflicted with Pains in the Viscera, whether from Exercise, or hard Labour, ought to be-

take themselves to Rest without Eating, and to take a Draught, which, though little in Quantity, shall be a most powerful Diuretic, that so the Vessels of the Viscera may not be distended through a Repletion, whence Tumors and Fevers arise.

Persons who labour under Disorders that proceed from the Brain are first affected with a Stupor; they make Water often, and have other Symptoms in common with those who suffer under a Strangury. These hold them for nine Days, and if there be an aqueous or mucous Discharge from the Nose or Ears there is a Solution of the Disease, and the Strangury ceases. Plenty of white Urine comes off from the Patient without Pain till the twentieth Day, at which Time the Pain of the Head leaves him, but a Dimness of Sight remains, when the Patient fixes his Eyes long on any Object.

The Man of Understanding knows that Health is the most valuable Gift to Mortals, and when attacked by Diseases has Skill enough to baffle them, and be his own Physician. Hippocrates *regi diuturnis vivens*.

The Man who takes due Care of his Health ought to know, above all Things, the Nature of *Aliments*. To say somewhat then in Relation to this Subject, *Aliments* that have an attenuating Quality open the narrow Passages, scour off the glutinous Particles that stick to Bodies, and incise and attenuate those which are gross. But if a Person accustom himself for a long Time to the Use of them, he is in Danger of being over-run with serous and bilious Humours; and if he perseveres in such a Diet, his Blood, in the End, will become melancholy. For all Foods of this Quality are apt to heat and dry to Excess, and by that Means to breed the Gravel in the Kidnies. He must abstain therefore from the continual Use of them, especially of such as are of a bilious Nature; for Meats of this Kind are only proper for those who abound with Phlegm, and crude, gross, and tenacious Juices. Many chronic Distempers have been cured merely by the Use of an attenuating Diet. And it is much better to abstain from Medicine, in Cases where we may attain our End by a Regimen; as I have known that out of many Persons labouring under the Gravel, and not a few under the Gout, who have had their Joints laid bare with Tophi, some have been perfectly cured, and others much relieved, by a strict Observance of the Rules of Diet. Some who have been a long Time afflicted with an Asthma, or Difficulty of Breathing, have been wholly released from that Disorder, or had the Intervals of their Fits very considerably lengthened. An attenuating Diet reduces an overgrown Spleen, and mollifies an hardened Liver, perfectly cures Epilepsies, if undertaken in the Beginning, and not a little moderates them, when grown inveterate. All that are irritating, or biting to the Taste, or Smell, are acrid and attenuating; and whatever is nitrous or bitter, the same has an incising Quality. But there is no small Difference, whether any of these Simples be administered in Oxymel, Vinegar, Salt, or Oil. For Vinegar and Oxymel increase their Strength; but Oil diminishes it. In the Whole, among attenuating Eatables we shall find more Medicine than *Aliment*.

Foods of an incrassating Quality afford much Nourishment, provided they are well concocted in the Stomach and Liver; nor do they fail of generating Blood of a good Juice, and yet they cause Obstructions of the Liver and Spleen, and if there be but the least Beginning of an Inflammation in the Viscera, they greatly increase it, as well as Inflammations; and scirrhous Affections, and generate Abscesses. Of this Sort of *Aliments* some there are which generate only a thick Juice, as Lentils; others a glutinous, as Mallows; some both, as Animals which are covered with a Shell. But it is a safer Way, in order to Health, to use an attenuating, than an incrassating Regimen of Diet. But because the former neither affords much Nourishment; nor gives Force and Strength to the Fibres, we may safely, though with Moderation, at proper Seasons, indulge those who live by attenuating Food in the Use of Meats that generate a thick and very nutritive Juice, especially when they find themselves to want Nourishment. Indeed such as are not concerned in publick Offices, but can use much Exercise, and sleep as long as they please, are enabled by Custom to indulge themselves in the Use of Meats that yield a thick and glutinous Juice, and especially if after a full Meal they have no Sensation of a Weight or Tension in the Hypochondria. But such as, through Age or Imbecillity, cannot use Exercise before Eating, must wholly abstain from such Food, as well as they who spend their Lives in Sloth and Idleness; for Rest of the Body is as great an Enemy to Health, as moderate Motion is a Friend.

After all, Meats of a middle Nature between attenuating and incrassating are the best and fittest to be chosen, as keeping the Blood in a due Consistence. *Aliments* of this Kind then are most accommodated to our Bodies; but such as generate bad Juice are hurtful, and always to be avoided. And you will find it the best Way to shun Variety in Foods, and the rather if they are of contrary Natures, because they will never be brought to a due Concoction. *Orib. Med. Coll. ex Galena Lib. 3. Cap. 1.*

ALIMENTS of an ATTENUATING NATURE.

Aliments of an attenuating Nature are Garlick, Onions, Leeks, Cressets, Mustard, Pepper, Alexanders, Pellitory of Spain, Origanum, Nep, Hyssop, Water-Mint, Penny-Royal, Thyme, Savory, when they are green; but dried, they become medicinal. And, generally speaking, dried Simples are stronger than the same green; and what grows on Mountains, or in dry Places, has more Virtue than what is gathered in Plains, or in Gardens. After the fore-mentioned, follow in Order Rocket, Water Parsnip, Smallage, Parsley, Basil, Radish, Cabbage, Beets, Carduus, Eringo, Nettles, Fennel, Coriander, Rue, Dill, Lovage, Cummin, Capers, the Fruit of the Turpentine-Tree, the Seeds of Caraway, of Anise, of wild Parsley, of Bishops-Weed, of Heartwort vulgar, and of Candy, and of wild Carrots, all odoriferous, acrid, and manifestly hot Simples. The Seeds of Rue and of Hemp vehemently attenuate, so as to become medicinal. Of Corn, only Barley properly belongs to this Class, and, though in an inferior Degree, wheaten Loaves baked in an Oven. From the rest you are to abstain, unless you have a Mind now and then to taste some Pease, or Lentils. But we are plentifully supplied with attenuating *Aliments* from Rock-Fish, and Mountain-Birds; for Animals that live on Mountains are of a hotter and drier Nature, and their Flesh least pituitous and glutinous. Therefore you may eat Starlings, Thrushes, Blackbirds, and Partridges, with House-Sparrows, and such small Birds as live about the Vineyards. Of Pigeons, wild ones are better than tame; and observe, in general, that Animals which are exercised, and live on dry Food, and breath a pure and free Air, are wholesomer than such as lie still, feed on humid *Aliment*, or are confined in Coops and Stalls. Of Rock-Fish, you may eat of the Rainbow-Fish, the Cock-Fish, the Old Wife, and the Scare, and, in short, whatever is of a soft and friable Flesh. But meddle not with those whose Flesh is hard and glutinous. The Cod-Fish is of a soft Flesh, but less friable than that of Rock-Fish; on the contrary, that of the Mullet is friable, but not soft. Therefore let Softness and Friability be the two Properties by which you are to judge of the Flesh of Animals; where these are in Conjunction, you may eat to Satiety; when both are absent, avoid such Fish intirely; if either be wanting, you are to eat, in such a Case, where better is not to be had, but not to Satiety. Your Cod-Fish then, and Whiting and Mullet, and other Sea-Fish may be eaten, for Want of Rock-Fish, especially with Mustard, as the Scorpion-Fish. There are some other Sorts of Fish that are endued with one of the above-mentioned Qualifications, but, by Reason of an Excess in another Property, are to be refused. For Eels, and most cartilaginous Fish, are of a soft, but, at the same Time, of a glutinous and pituitous Flesh, and are therefore hurtful to such as have Need of an attenuating Diet. Of cartilaginous Fishes, only the Cramp-Fish and Turtle are allowed, and may be eaten, when Rock-Fish cannot be procured; the Sole and Plaice have the same Properties. As to Birds, I do not forbid those who use Exercise the Eating of Hens, Pigeons, and Turtle-Doves, especially such as live in the Mountains; but they must not be fresh killed, but the Day before at least, which I would have observed of all Animals whose Flesh is moderately hard. Salted Fish attenuate and incise in an extraordinary Manner; of these, chuse such as are naturally of a tender Flesh, but the cetaceous Kind is to be avoided. Pork salted may be safely eaten with Moderation. Of autumnal Fruits, such as mollify the Belly can do no Harm; chuse therefore soft Fruits before hard, and refuse such as stay a long Time in the Body; but eat of none to Satiety. Fruits extraordinary sharp or sour are contrary to the Regimen proposed; but the most adapted to our Purpose are Figs, Walnuts, Fistic Nuts, and bitterish Almonds. Olives are of such a Nature, that I can neither commend nor disapprove of them. As for sweet Things, whether Meats or Drinks, none but Honey, I dare say, generates an exquisitely thin Juice. White and thin Wines cut gross Humours, and expel them by Urine. Whey is accounted among Things endued with an attenuating Virtue, but Oxymel is much more accommodated to the Purposes of an attenuating Diet. *Orib. Med. Col. Lib. 3. Cap. 2. ex Galeo.*

ALIMENTS of an INCRASSATING NATURE.

Things which generate thick Juices are Loaves baked under the Embers, and such as are not well made, what they call *Tragus*, Cakes made of Flour and Must, and those they call *Itria*, and whatever else is made of wheaten Meal, without Ferment, or Leaven, particularly Cakes made in a costly and artful Manner of the same. Besides these, Simila and Alica breed Plenty of a thick Juice, but Amylum moderately. Kidney-Beans are of a thick Juice, and so are Lupines, and the inner Substance of Lentils, the Seeds of Sesamum and of Hedge-Mustard, Fishes which are called *soft*, such as the Kinds of Cuttle-Fish, the Polypus, and the cetaceous Kind. The following are of an extraordinary thick Juice: Oysters, Whelks,

the Purple Fish, Escallops, the several Sorts of Cockles, Nazers, and, in one Word, all that are covered with a Shell. To these we may add Eels, Snails, Deer, and Goat; Beef; Pork, Hare, Liver, Kidnies, Testicles, Brain, spinal Marrow, Udder, Tongue, Glands, this last moderately; Milk too much boiled, all Cheese, but least when new, or made of four Milk, four Milk boiled over the Fire, Eggs boiled to a perfect Concretion, and more so when roasted, but most of all when they are fried in a Pancake; Dates, Chestnuts, Acorns, Bulbi, Turneps, Mushrooms, the Root of Arum, Truffles, Pine-Nuts, Figs not full ripe, the Pulp of a Citron, Cucumbers too freely eaten, unripe Apples. Of Wines, the sweet generate a thick Blood, especially what they call *Defrutum*; and so does Must, and thick and black Wines. *Oribas. Med. Col. Lib. 3. Cap. 3. ex Galeo.*

ALIMENTS of a MIDDLE KIND.

Meats of a middle Nature between Attenuating and Incrassating are, Bread well made, Hens, Dunghil-Cocks, Pheasants, Partridges, Pigeons, Heath-Cocks, Turtle-Doves, Thrushes, Blackbirds, and all small Birds, Fish that live about the Rocks, near the Shore, or in the Shallows of the Sea, as Sea-Gudgeons, Lampreys, Soles; in a Word, all such as do not taste slimy, nor have a rank Savour; ripe Figs, and among Greens that grow wild, Seris, which is a common Name to several Species, for which the Attics have distinct Appellations, as Lettuce, Gum Succory, Chervil, and others innumerable. To this Class of Meats belong also wild Sparrowgrass, with the tender Shoots of the Dwarf-Laurel and Bryony. And also Wines of a yellow Colour, sweet, and pellucid, as those of Chios, Lesbos, Falernum, and the Mountain-Wine of Tmolus; for all these generate a laudable and moderately thick Blood. *Idem, Cap. 4.*

ALIMENTS which generate a VISCID JUICE.

Foods generating a viscid Juice are, Wheat that is ponderous, dense, and yellow in its inner Substance; but the light, thin, and of a white Substance, has less of this Property. Simila also and Alica are very viscid Food, as likewise Tendons, and the nervous Extremities of Muscles, the Parts about the Lips, the Tongue, all Swine's Flesh, and Lamb, the Seed of Sesamum, Bulbi, and fat Dates. *Idem, Cap. 5.*

ALIMENTS generating CRUDE HUMOURS.

Green Dates to fill the Body with crude Humours, as to cause a Shivering in those who eat them, which is difficult to remove. Turneps too freely eaten; testaceous Animals of the Water, who have hard Flesh, and have lost all their salt Liquor by too much Boiling; those you call *soft*, as the Polypus, and Cuttle-Fish, and the like, with the cetaceous Kind; the Ventricle, Intestines, and Uterus of Quadrupeds; hard Glandules boiled, four Milk, Cheese, Bread fried in a Pan, Lupines, Grapes that burden the Stomach; all these Foods generate a crude Juice, and fill the Body with raw Humours. *Idem, Cap. 6.*

ALIMENTS generating COLD HUMOURS.

They who feed on Cucumbers to a Satiety must of Necessity, and by Order of Nature, fill their Bodies with cold Juices, which are not easily converted into good Blood. The like are generated by the Bellies, Intestines, and Uterus of Quadrupeds, by four Milk, Mushrooms, unripe Apples, and Bulbi. *Idem, Cap. 7.*

ALIMENTS generating PHLEGM.

Phlegm, or a merely pituitous Juice, are generated by the nervous Parts of Animals, Glandules, boiled Lamb, the Mushrooms called *Amanita*, testaceous Fish whose Flesh is soft, unripe Apples. *Idem, Cap. 8.*

ALIMENTS generating a MELANCHOLY JUICE.

Beef, and Goat's Flesh, but especially that of a He-goat, and Bull's Beef, generate a melancholy Juice; much more the Flesh of Asses, Camels, Foxes, Dogs, Hares, Wild Boars, the Flesh of terrestrial Animals salted, and their Milks. Of Sea-fish, the Tunny, the Whale, the Sea-calf, the Sea-dog, and all the cetaceous Kind, produce the like Humour. To these we may add Snails, Cabbage, Buds of Trees pickled, as those of the Lentisk, Turpentine-tree, Bramble, and Dog-rose. The Pulp of an Artichoke and Lentils are very melancholy Food. Of the same Quality are Bread made with Bran, and such as is made of Typha, and other coarse and bad Sort of Grain; so are green Wheat, Aphace, Vicie [Kinds of Vetches] and thick and black Wines. *Idem, Cap. 9.*

ALIMENTS generating a BILIOUS JUICE.

The Juice of the Artichoke is bitter, and rarefies the Bile; it is best therefore to eat the Artichoke boiled. Honey also easily changes into Bile in hot Bodies; which is also the Case with

With all sweet Wines, and sweet Food, which supply Matter for the Generation of Bile. *Idem*, Cap. 10.

ALIMENTS generating an EXCREMENTITIOUS JUICE.

Wood-Pigeons, Geese, except their Wings, all Viscera, spinal Marrow, Brain, Birds that live near Marshes, Pools, and Lowlands, Chiches, green Beans, Egyptian Beans, Pigs just farrowed, and the Young of all Animals newly fallen from their Dams; Animals that lie at Rest; Fish that live in Rivers and standing Lakes, and delight in Mud, and all Sea-fish of the ectaceous Kind, generate all of them a foul and excrementitious Juice. *Idem*, Cap. 11.

ALIMENTS void of EXCREMENTS.

The Necks, Tails, and Wings of Birds, the Flesh of wild Quadrupeds, and such as use dry Places, are void of excrementitious Matter. *Idem*, Cap. 12.

ALIMENTS full of NUTRIMENT.

The Flesh of Swine, bred up and fattened by Hand, nourishes above all other Eatables. The Brains of Oxen, their Testicles, Heart, spinal and other Marrow, the Wings of Geese, and more the Wings of Hens, the Bellies of all Birds; Snails, especially after two or three Boilings; all these afford abundant Nutriment. Of testaceous Fish those whose Flesh is hard, as Cockles, the Purple Fish, Whelks, and others of the like Sort; also the Kinds of Lobsters, Cray-fish, Crabs, Shrimps, and such like, with those called *soft*, as Polypuses, the Kinds of Cuttle-fish, and the like, nourish much; of the cartilaginous Kind, the Cramp-fish, and the Weafs, or Old Wife, nourish moderately; the Thornback, Maid, and Skate, more than these, and the Mullet and Sea-gudgeon less. Milk that is thickest nourishes more than the thinner. Of Bread made of Siligo or Simila, the former nourishes most, and next to these what is mixed with Bran. Boiled Wheat, Simila, Alica, Beans, generate Flesh not firm and close, but of a lax Texture. Chiches and Kidney-beans nourish more than Beans, and Ochri than Fenugreek. Kidney-beans nourish as much as Pease, Lupines, Chestnuts, Lentils, sweet Dates, rich and sweet Grapes, Acorns, a Sort of Turneps, called *Naveus*, and Bulbi, are all very nourishing, especially after two Boilings. Honey clarified is proper not only for Nourishment, but for the Distribution of the same; and so is Hydromel well boiled. All Wines nourish in Proportion to their Thickness; therefore red and thick Wines are best qualified to breed Blood; next to these are the Black, Sweet, and Thick, where these Properties unite as before, and after them the Red, Thick, and Astringent at once. Wine that is white, thick, and austere, is less nourishing; and Wine that is both white and thin, least of all. In short, all Foods of a thick Juice, if they are well concocted, afford much Nourishment. *Idem*, Cap. 13.

ALIMENTS which yield little NUTRIMENT.

The extreme Parts of Animals nourish little; which Property belongs also to the Uterus, Belly, Intestines, Tail, Ears, Feet, and Suet. Birds nourish less than terrestrial Animals; the Flesh of old Animals nourishes less than while they are growing. The Aliment that Fishes afford, breeds a thinner Blood, as not being in a sufficient Quantity, and soon digested. Of testaceous Fish, such as have soft Flesh, as Oysters, nourish little. Barley-bread, howsoever made, nourishes less than any other; so does the Polenta that is made of it. The same may be said of Bread mixed with Bran, or any other coarse Ingredient, and of Loti, Amylum, Maza made of Barley, Polenta, Oats, Millet, but especially Panic, Rice, green Beans, Poppy-seed, Linfeed, Clary, Hips, Juniper-berries, Myrtle-berries, Almonds, Pistaches, Plums, Peaches, Apricots, Olives, especially ripe, Hassle-nuts, but especially the largest Sort of Walnuts, Jujubes, the Fruit of the Cornel-tree, Blackberries, the Fruit of the Strawberry-tree, Zizypha (a Sort of Jujubes) common Walnuts, Winter-cherries, Capers, especially pickled with Salt, Cabbage, Beets, Docks, sharp-pointed Docks, Purslane, Night-shade, Radishes, Turneps, Mustard, Cresses, Pellitory of Spain, all young Shoots of Plants, Parsneps, Carrots, Carraway Root. Onions, Garlic, Leeks, Vine-leeks, eaten raw, afford no Nourishment, and very little after two or three Boilings. Pomegranates nourish little; as for Pears, especially the larger Kinds, I have little to say of them. Gourds afford some Nutriment, as do dried Raisins, which are austere and not fat.

Of a middle Kind between Foods that nourish much and those which nourish little, are Kidney-beans, Birds-pease, wild Vetches, Chiches, and Figs, which last give but a small Matter of Nourishment, and contrary to that of other autumnal Fruits, for they generate a lax Kind of Flesh, as well as Grapes. All Eatables that are endued, in an eminent Measure, with some medicinal Quality, which they lose in Roasting, Boiling, or any other Way of Dressing, afford but a small Pittance of Nu-

triment to the Body, after they are thus prepared, and none before. *Idem*, Cap. 14.

ALIMENTS of GOOD JUICE.

Among the vast Variety of Things we feed on, there is scarce any of better Juice than Milk. The best Milk is what is just drawn from sound Animals. Poached Eggs are a Meat of good Juice. The best are those of Hens and Pheasants, and the worst are those of Geese and Ostriches. Birds and Fishes are almost all of them reckoned to be of good Juice, except such as live in and about Marshes, and Pools, and muddy Streams, especially if the Water comes through some City, where it receives all the Filth of Baths, Kitchens, and common Sewers; or runs by some Fuller's Yard, whence it comes impregnated with the Washings and Scourings of dyed Cloaths. It is safest therefore to eat Fish that come from the Sea, where there is no Mixture of fresh Water. Such are Fish that live in the Sea, and about Rocks, for in Goodness of Juice, as well as Deliciousness of Taste, they far exceed the rest. As for such as use both Waters, as the Pollard, the Sea-wolf, the Cod, the Sea-gudgeon, Lampreys, Crabs, and Eels, you are first to inquire where they were caught, and then to judge of them by their Taste and Smell. Fish that live in impure Waters, though fatter than others, are ill tasted, and stinking, and mucous, whence they soon putrefy. And you may easily know by your Senses, that Fish are better or worse according to their Aliment. For Instance, the worst of all Mulletts are such as have fed upon Crabs; the Flesh of others is hard indeed, but of no ill Juice. The Black-cap, Turbot, Bream, Sole, Plaice, and Sea-lizard are of a middle Nature between such as have tender and such as have hard Flesh, and they afford very good Aliment to those who use no Exercise, or are of a weak Constitution; but for sound and healthy Bodies, soft and friable Aliment is most proper, and generates the best of all Juices. Quadruped Animals, if well digested, create very good Blood, especially such as are of good Juice, as the Swine in particular; for Pork, both for Savour and Concoction, is a most excellent Kind of Flesh. The best is of a middle-aged Hog, for after that Time the older the worse he grows; and the Flesh of newly farrowed Pigs is too humid, and generates Phlegm in Abundance. The Dug is of good Juice. The Liver, the Parts about the Lips, the Gristle of the Ears and Snout, and the other Extremities, the Intestines, the Uterus, and the Tail, are not of so good a Juice as the rest. The Glandules are next to the Flesh in Point of Nourishment. The Heart is of no bad Juice, the Feet are better than the Ears and Snout; for a Cartilage of perfect Animals can never be concocted, but while it is in Growth, provided it be well broken and chewed in the Mouth, it admits of Concoction. In proportion as the Flesh of other Quadrupeds is exceeded by that of Swine, their extreme Parts are to be accounted inferior to those of that Animal. The Brain of winged Animals far exceeds that of Quadrupeds. The Flesh of wild Animals is of better Juice than that of tame. Bread pure and well made is of good Juice; Alica, Ptisan well boiled, Beans, and Chestnuts are of no ill Juice. Ripe Figs, ripe Grapes hung up, are not to be condemned. Dried Figs, speedily distributed, are of good Juice, but retained long in the Stomach turn to bad Juice, and generate Lice. Eaten with Walnuts they are a very good Kind of Food; but Figs, whether green or dried, eaten with any Thing besides Walnuts, are hard of Digestion. Among Greens, Lettuce breeds good Blood, next to that is Endive. Fragrant Wines are of good Juice; the best are those of Falernum, especially the sweet Sorts, those of Chios, and the sweet yellow Mountain Wine of Tmolus. *Ibidem*, Cap. 15.

ALIMENTS of BAD JUICE.

All Aliments of bad Juice are not of the same Kind, for one Sort is cold and phlegmatic, another hot and bilious, and a third atrabilious. My Advice is to abstain from all Meats of bad Juice, however easily concocted in some Stomachs. For the bad Juice they generate is collected, and lies hid a long Time in the Veins; and, upon the least Occasion of Putrefaction, gives Rise to malignant Fevers.

Meats of bad Juice are Mutton and Goats Flesh, because of their Acrimony. The Flesh of He-goats is worst, next that of Rams, and next to this is Bull's Beef. Of all Kinds the Flesh of the castrated is the best, and that of old Animals the worst. Hare generates a thick Kind of Blood, but is however to be preferred to Beef, or Mutton, or Venison, which is of as bad a Juice as either of the foregoing. The Kidnies and Testicles of old Animals, except the Testicles of old Cocks, are of bad Juice. The Brain, spinal Marrow, Heart, Milt (though Hog's Milt least) all Viscera, fried Eggs, old Cheese, Mushrooms, and Funguses, called *Amanita*, are of bad Juice; and the safest Way is to avoid all other Sorts of Mushrooms. Fenugreek, Lentils, Tipha, [a Grain much like Rye] Oats, and Bread made of them, are of no good Juice. Olyra is as much inferior

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* Swines Flesh may be agreeable to some Appetites, and does not seem difficult to digest, but it certainly supplies an excessive bad Nourishment.

ferior to Wheat, as it exceeds Tiphæ and Oats. Panic, Millet, and other like Grain, contain no good Juice. Of Fish, the Weaver, Gurnard, Hound-fish, Scorpion-fish, Banstickle, Mulletts, Ruffs, and all of the cetaceous Kind, are of bad Juice. All Summer-Fruits are of bad Juice, but Figs less than others. But dried Figs, if too freely eaten, breed no very good Blood, as appears from the Plenty of Lice which is the usual Consequence. Unripe Apples and Pears, and the Fruit of the Turpentine-tree are of bad Juice; and so are Artichokes, especially when they are hard, with Cucumbers, Pumpions, and Melons, but these last are not so bad as the rest. The Gourd is better than all of them, though this too, if it happens to corrupt in the Stomach, yields Abundance of bad Juice. Of Greens there is none of a good Juice; Lettuce, Endive, and Mallows are a Mean between Good and Bad; next to these are white Orache, Purslain, Beets, and Dock. The Roots of Gardeners Ware, such as have an acrid Taste, as Onions, Leeks, Garlick, Radishes, and Carrots, are of a bad Juice; of a middle Kind are the Roots of Cuckow-pint, Turneps called *Naveus*, and the Roots of Carraway. Basil is very bad Juice, as well as raw Turneps, Cabbage, and Bulbi, not well boiled; Leeks, Onions, Garlick, and Vine-leeks, after two Boilings, lose their bad Quality. But all Greens that are called *Wild*, are of very bad Juice, as wild Lettuce, Gum-succory, Shepherd's Needle, Chervil, Seris, and wild Succory. Thick, foetid, and austere Wines, such as is imported from Bithynia, in large Vessels, and at a low Rate, are of bad Juice; for what comes in smaller Vessels is neither good nor bad, but a Mean between both. *Ibidem*, Cap. 16.

ALIMENTS of EASY CONCOCTION.

Food of easy Concoction are, Bread made as it ought to be, all Rock-fish, the Sea-gudgeon, the Cramp-fish, and the Turtle. All Kinds of Birds are easier of Digestion than Quadrupeds, especially the Partridge, Wood-cock, Pigeons, Hens, Dung-hill Cocks, Pheasants. The Wings of Geese are easy to be concocted, but those of Hens are easier; and, in short, the Wings of those that are young and well fed, are of excellent Concoction, but very bad if lean and old. Such as are fed on Whey, the Livers of Geese, and others fattened after the same Manner, with the Testicles of Dung-hill Cocks, are very easy to be digested; so is Pork. Veal is easier of Concoction than Beef, and Kid than Goat, and the Flesh of growing than of declining Creatures. Animals that live in dry Places, are easier to be concocted than such as live in moist, and Walnuts than Hassle-nuts; Bulbi, after two Boilings, are easily digested, as well as poached and forbile Eggs, Lettuce, Endive, and Mallows, and boiled Gourd too, when it is not corrupted in the Stomach. Sweet Wine is more easily concocted than four; and in general of Things equally wholesome, the most agreeable passes best off the Stomach. *Ibidem*, Cap. 17.

ALIMENTS of DIFFICULT CONCOCTION.

Goats Flesh, Beef, and Venison, are hard of Concoction; but the hardest is the Flesh of a He-goat, the next that of a Ram, and Bull's Beef takes the third Place. The Flesh of old Animals, particularly Swine, is fibrous and dry, and therefore exceeding hard to digest. The Ventricle, Intestines, Uterus, Heart, Testicles of adult Animals, and Geese, except their Wings, are difficult of Concoction. The Flesh of Wood-pigeons, Starlings, Blackbirds, and small Birds is hard, that of Ducks and Turtle-doves is harder, but that of Peacocks and Bustards hardest of all. The Gizzards of all Birds are hard of Digestion; and they therefore who eat the Gizzard of an Ostrich, or of a Cormorant, as imagining it will strengthen their digestive Faculty, impose upon themselves, for neither is such Meat digested without much Difficulty, nor has it the least medicinal Tendency towards that End they propose from it. Snails are hard of Digestion, and so is sour Milk, especially to a cold Stomach. Old Cheese has the same Quality; but what is new, or made of sour Milk, is accounted better. The Flesh of the Purple-fish, Whelks, and other testaceous Kinds, whose Substance is hard, are difficult of Concoction. Also the Kinds of Lobsters, and Crabs, and others of that Kind, Polypuses, the Kinds of Cuttle-fish, and all those of soft Flesh, Thornbacks, Maids, Skates, Weaver, Gurnard, Hound-fish, Scorpion-fish, Banstickles, Mulletts, Ruffs, Stock-fish, Congers, Sea-eagle, Eggs roasted, boiled, fried; boiled Wheat, Tragus, coarse Meal (which is harder of Concoction than Polenta) Tiphæ, Oats, Bread made of them, Beans, Pease, Kidney-beans, small Chiches, Chiches, Rice, Lupines, Panic, Millet, and such like, Lentils, Colts-foot, Sesamum, Hedge Mustard, Chestnuts, Acorns, Apples, Pears, Figs, unripe Services, acid and austere Grapes, all Dates, Carobs, Citrons (the outer Rind of which, taken medicinally, helps Concoction, as do most Acrids) Basil, Turneps, and Bulbi, too raw, Parsnep, Carrot, Carraway-root, all Roots of Greens, and Greens themselves, except Lettuce and Endive, as well as all the foregoing, belong to the same Class. *Ibidem*, Cap. 18.

ALIMENTS AGREEABLE and CORROBORATIVE to the STOMACH.

Things grateful to the Stomach are, austere Dates, Quinces, Olives pickled with Salt (but the best are those prepared with Vinegar) austere Raisins, Grapes preserved, Walnuts more than Hassle-nuts, and especially if eaten with dried Figs. All prickly Things are moderately grateful to the Stomach. Of this Kind are Carduus, the Distaff-Thistle, St. Mary's Thistle, the Teasel, the Tragacanth, the Artichoke, the Root of Skirret boiled, Chervil, and Venus's Comb, which raw or boiled is wonderfully grateful to the Stomach; it will not bear much Boiling. Add to these Mustard, Radish, Turneps, Cresses, Pellitory of Spain, Asparagus, Butchers-broom, the Dwarf-laurel, Barberry-shrub, and Bryony. The Bulbi and Capers, pickled with Salt, excite an Appetite; the outer Rind of a Citron, taken medicinally, corroborates the Stomach. Austere Wine, especially warm, is good for an hot Intemperies of the Stomach. Of medicinal Things, Wormwood and Aloes corroborate the same Part. *Ib. C. 19.*

ALIMENTS DISAGREEABLE to the STOMACH.

Juniper-berries are hurtful to the Stomach, and much more the Fruit of the Cedar, Flower-gentle, and the Seed of the Vitex. Beets are so disagreeable to the Stomach, that the plentiful Eating of them causes a gnawing Pain in that Part. Add Dock, Basil, Turnep too raw, Blites, white Orache, except it be eaten with Oil, Vinegar, and Garum. Fenugreek and Sesamum subvert the Stomach. Milk turns acid in cold Stomachs, and nidorous in hot; hence it is justly forbidden in Fevers. Milk drank with Honey excites Vomiting. Pumpions not well concocted usually bring on bilious Disorders. They are proper to provoke Vomiting, before they are corrupted, for if a Person feeds plentifully on them, and takes no Aliment of a good Juice afterwards, they will be sure to give him a Vomit; the same Property belongs to Melons. All Brains, and Marrow of Bones are ungrateful to the Stomach, and create Nauseas. Black and austere, as well as thick and new Wines, easily turn acid, and excite Vomiting. Of medicinal Things Southernwood, Seawormwood, and Aphronitrum, are disagreeable to the Stomach. *Ibidem*, Cap. 20.

ALIMENTS HURTFUL to the HEAD.

Things noxious to the Head are Mulberries, Blackberries, the Fruit of the Strawberry-tree, of the Cedar, Hemp-seed, the Root of Spignel, all Sorts of Dates, Rocket, Fenugreek, and the Seed of the Vitex. Wine that is yellow and austere hurts the Head, and affects the Mind, more than what is black and austere. Fragrant Wine also flies to the Head, but this Wine causes no Pain in the Head, nor stimulates the Nerves; and what they call *ἀνυσσός* even easeth the Pain of the Head, which is caused by the Juices in the Stomach. Milk is not proper for the Head, unless it be a very firm one. Water in which Grapes have been soaked causes Head-ach. *Id. C. 21.*

ALIMENTS which cause no INFLATIONS.

Pease, Kidney-beans, Cummin, the Root and Seed of Lovage, the Seed of the Vitex, and the Fruit of Hemp, cause no Inflation. To these we may add, what would unprepared cause Inflation. Beans boiled or stewed, Bulbi much or twice boiled, and eaten with Oil, Garum, and Vinegar. Clarified Honey, and Oxymel discuss Inflation. Barley Bread, however made, is inoffensive in this Respect. Of a middle Nature between Aliments which cause Inflation, and such as cause none, are Kidney-beans with some Sorts of small Pease and Chiches. *Id. Cap. 22.*

ALIMENTS which cause INFLATIONS.

Chiches, Lupines, Kidney-beans, Panic, Ochri, Millet, and the like, inflate. Beans hulled are more apt to cause Inflation when cooked by themselves than otherwise. Maza made of Polenta generates Flatuosities; but if it be well beaten and worked up, it moves the Belly, especially if some Honey be mixed with it. Malt Liquor and all Juices cause Inflation, especially the Cyrenæan, that of Satyrion, with the Juice and Root of Silphium. Figs cause a short Inflation, because they soon pass through; but when thoroughly ripe, they can hardly be said to do any Harm, no more than dried Figs. Green Dates have much the same Effect as Figs, or raw Turneps. Milk soon breeds Flatuosities in the Stomach, as well as raw Bulbi, or Honey not well purged. Sweet Wines cause long Flatuosities; but such as are both sweet and austere, and are neither distributed or digested, but remain a long Time in the upper Belly, there generate Inflation; Mustum also is a very flatuous Liquor. *Id. C. 23.*

ALIMENTS of a DETERGENT, INCISIVE, and APERITIVE QUALITY.

Detergents are Pisan, Fenugreek, Melon, Pompion, sweet Raisins, Beans, Chiches, especially the black Kind, which is also

also an excellent Lithontriptic. Capers are of pretty fine Parts, but pickled in Salt, they become a good Deterfive, and cleanse the Stomach of Phlegm, and open Obstructions of the Liver and Spleen; for which Purposes they are to be taken in Oxy-mel, Vinegar, or Oil, before any other Food. The Juice of Beets has an absterfive Faculty, and frees the Liver from Obstructions, and especially when eaten with Vinegar and Mustard. Docks too and Nettles belong to this Class, with the Roots of Wake-Robin and Asphodel, which are of fine Parts. Bulbi are deterfive, attenuating, and aperitive. On this Account, the tender Shoots of Asphodel are prescribed as a sovereign Remedy in the Jaundice. Onions, Garlick, Leeks, and Vine-Leeks attenuate and cut thick and glutinous Humours; after two or three Boilings these Simples lose their Acrimony, but retain their attenuating Virtue. Whey attenuates a thick Humour; Figs absterge; whence in nephritical Disorders much Gravel has been voided after Eating of Figs. Dried Figs attenuate and incise; whence they are great Cleaners of the Reins. Juniper-Berries cleanse the Liver and Reins, and attenuate gross and tenacious Humours in those Parts. Almonds absterge and attenuate, and scour the Viscera, and cause a free Expectoration. Pistach-Nuts are good to strengthen the Liver, and to cleanse it of those Humours which obstruct its Passages. Radish has an attenuating Virtue. Honey is of the more attenuating Nature, as it is collected from hot and dry Plants; so that even Hydromel is apt to provoke Spittle. Oxy-mel promotes the easy Discharge of other Humours besides the thick and glutinous, and cleanses the Viscera without Pain or Sickness, and has an admirable Effect in Diseases of the Breast and Lungs. Such as abound with thick Juices ought to drink thin Wines, and if distempered besides with cold Humours, are to chuse Wine that is old, thin, and acrimonious. Small Wine promotes the Discharge of Humours from the Lungs, for it corroborates, and dilutes the Juices, and is moderately incisive. Sweet Wines are proper, in acute Distempers, as a Peripneumony and Pleurisy, after a Concoction, to provoke Spitting. *Idem, Cap. 24.*

ALIMENTS which cause OBSTRUCTIONS.

Milk that contains much Whey can do no Hurt, though you feed on it never so long; but the long Use of Milk that has little Whey, and much Cheese in it, is dangerous; for it is bad for the Kidnies that are subject to the Gravel, and promotes Obstructions of the Liver, when it is predisposed to them. Dates are hurtful in Inflammations of the Liver and Spleen, as well as Figs, not from any peculiar Property, but from the Nature of sweet Things, for all sweet Things are hurtful in Obstructions, or scirrhus Disorders of the Liver and Spleen. In their own Nature they can neither do much Good nor Hurt; but in Conjunction with deterfive and incising Simples they may have a very good Effect. Hydromel is hurtful to the Viscera under a Tumor, Scirrhus, Oedema, or Inflammation, because Honey of its own Nature is soon changed into a bilious Juice. The Seeds of Poppy stop Evacuations from the Breast, and rich and sweet Dates cause Obstructions, and the green more. All Sorts of Cakes made of Honey, Meal, and Oil, and those made of Simila, are of an obstructing Nature, and augment the Spleen, and generate Gravel in the Kidnies; wheaten Meal wetted with Milk has the same Effect. Alica also is hurtful to such as labour under Obstructions of the Liver, and are subject to the Gravel in the Kidnies. Sweet Wines are obstruent, and augment Tumors in the Viscera. *Id. C. 25.*

ALIMENTS of SLOW PASSAGE.

Aliments flow in passing are all such as are made of Itria [a Sort of Cheesecakes] and Simila, fried Beans, the finest Bread, Lentils pilled, Brain, spinal Marrow, Liver, Heart, boiled Wheat, boiled Eggs, roasted more, and much more fried; Lupines, Pease, Sesamum, Hedge-mustard, Acorns, Apples, unripe Pears, the Fruit of the Carob-tree, sweet Wine, and more what is austere and black without any Sweetness; thick Wines, and all new Wines. Water is of very slow Passage. *Idem, Cap. 26.*

ALIMENTS EASILY CORRUPTED.

Peaches, Nectarins, Apricots, are easily corrupted, and so are all Summer Fruits, which being of a humid Nature are easily vitiated in the Stomach, if they are not soon discharged thence. Therefore they ought to be eaten before all other Meats, for by this Means they are soon discharged, and carry off other Things with them; but if they are eaten last of all, they corrupt, besides themselves, the rest of the Food. *Idem, Cap. 27.*

ALIMENTS NOT EASILY CORRUPTED.

Of this Property are the Chemulæ [a small Sort of Cockles] the Purple Fish, Whelks, and all testaceous Animals, whose Flesh is hard, and which are usually prescribed to such as, by Reason of ill Humours, corrupt their Food. They boil them twice or thrice in the best Water, and take them out into

another clean Water as soon as they are thought to be seasoned: To this Class also belong all Sorts of Lobsters, Crabs, Shrimps, and others of that Kind. *Idem, Cap. 28.*

ALIMENTS that LOOSEN the BELLY.

Lentils and Cabbage excite to Stool. Of Fishes, almost all the testaceous Kind are endued with contrary Qualities; for the solid Part of their Substance is slow in passing, and binds the Belly, but their humid Part provokes Excretion downward. Therefore if you boil Lentils or Cabbage, or any of the Animals before spoken of, and season the Decoction with Oil, Garum, and Pepper, and then let any one drink of the same, you will soon see the Effects of a Cathartic: Nay the very Broth of the Sea Hedge-hog, of all small Shell-fish, and of an old Cock, moves the Belly. Whoever has a Mind to reap the like Benefit from Cabbage, must take it out of the Pot, with the Liquor in which it is boiled, and clap it into Oil and Garum; it must not boil long. Coarse Bread excites to Stool, both on Account of the Quantity of Excrement it creates, and of the deterfive Quality of Bran. The Juice of Fenugreek, boiled with Honey, is good to purge off all corrupt Humours from the Intestines, and by its absterfive Virtue stimulates them to Excretion, but the Quantity of Honey must be but small, for Fear of a biting Sensation. Salted Olives eaten in Garum, before other Food, have a cathartic Virtue, as well as the Juice of testaceous Animals and small Shell-fish, which some pickle for that Purpose with Oil, Wine, and Garum. Milk, the more liquid it is, the more it loosens the Belly. Whey is a great Opener, and you may sweeten it with as much of the best Honey as the Stomach can take, and as much Salt as will make it palatable, and if you desire it should work more effectually, you must add more Salt. The Flesh of very young Animals, and their Extremities easily pass through the Body. Of cartilaginous Fishes, the Cramp-fish and Weafs are moderate Openers. Beets, Docks, Nettles, new Cheese with Honey, white Orache, Blites, Gourds, Pumpions, Melons, Figs, dried Figs, sweet Grapes, especially when full of Juice, Mulberries taken on an empty Stomach, and before other Food, very quickly pass through the Body, and make Way for the rest: But eaten after a Meal, if they meet with a vicious Juice in the Stomach, they, as well as Gourd, are very soon corrupted. New Walnuts loosen the Belly, and so will dry ones, if first soaked in Water, as well as green ones. Plums in their full Moisture are loosening; dried Plums infused in Hydromel that tastes much of the Honey, though eaten alone, are a sufficient Purge, and much more if the Hydromel be drank with them. You will be satisfied of their Virtue, if you drink sweet Wine some Space of Time after taking them, and defer your Dinner. Mulberries, Cherries, Apricots, Peaches, and all moist and aqueous Things, and, in general, all such as are no way remarkable either for Taste or Smell, if the Belly be free for Dejection, easily make their Way through the Body: But if the Belly be otherwise disposed, they stay behind the rest, nor excite the least Motion, because they have no Acrimony, nor nitrous Quality.

The Substance of these last *Aliments* is, in some Sort, a Medium between such as bind and such as loosen the Belly, inclining very little on either Hand, when they do not meet with a Body very ill disposed for Excretion, or strongly inclined to Distribution. Thus sometimes the Belly is bound, and Hydromel, when there is a quick Distribution, does not only excite the Belly to Excretion, but carries off other Foods mixed with itself. If the Distribution be slow, it immediately stimulates towards a Motion, because it has somewhat of Acrimony. Even Honey itself, sucked from the Comb, loosens the Belly; and Hydromel that has had little or no Boiling passes off without Distribution. Oxy-mel more gently stimulates the Intestines. Sweet Wine is somewhat opening, and Raisin-wine works more effectually.

ALIMENTS of a MIDDLE NATURE between PURGATIVES and EMOLLIENTS.

Aliments of this Kind are, Mercury, dressed alone, or with other Greens, and first eaten, and then the Pottage drank. Polypody also and Herb Terrible, are of the same Nature, and the Seed of this latter taken to the Quantity of a small Spoonful purges black Bile. The like Virtue is in the Seed of Holy Thistle, bruised and taken in Hydromel or Cock-broth, or mixed with Almonds, Nitre, Anise, Honey, and dried Figs. *Oribas. Synop. L. 4. Cap. 28.*

ALIMENTS which BIND the BELLY.

Austere Dates and Raisins, Mulberries, Blackberries, bind the Belly; and, more than these, Hips and Sloes. Apples of an astringent Taste are binding, but acid ones meeting with thick Juices in the Stomach, incise and separate them, and by that Means loosen the Belly; but if they are received into a clean Stomach, they render it more bound. Apples of a sweet Juice, without Acrimony, are easily distributed; but acrid ones are unfit for Distribution, and the watry and insipid are void

void of Properties, and good for nothing. What has been said of Apples may be applied to Pomegranates and Pears. Milk boiled till the Whey be consumed is not loosening, for if you quench fiery Stones in Milk, till the Whey be evaporated, the Remainder is an Astringent, and usually prescribed when the Intestines are afflicted with a growing Pain from the Acridness of their Contents. This Intention is better answered by quenching red-hot Globes of Iron in the Milk. But Milk so prepared easily curdles in the Stomach, and therefore it is usual to put Honey and Salt in it, though Water is better. Nor is it without Reason that we pour Water in the Milk, when the ferrous Part is consumed, for it is not the Humidity of the Whey, but the Acrimony that infects the Intestines, which we would get rid of. The several Kinds of Lobsters, Crabs, Shrimps, and such others as are covered with a soft Shell are binding, though less than such as are inclosed in a hard Shell. But the former have a salt Humour, and if this be left behind them in the Water, they prove no less astringent than Oysters and other hard-shelled Fish. Lentils and Cabbage twice boiled, to the Consumption of their Juice, bind the Belly. When we intend to stop a Looseness, we boil Cabbage moderately, then throwing away the first Water, pour other hot Water to it, and boil it afresh till it be dry, taking Care that no Air or cold Water come to it, for there is no making of it quite dry, boil it never so much. Pilled Lentils lose their strong astringent Quality, and are of no Efficacy in a Flux of the Stomach; but if you bruise them, and give them two Boilings, and after throwing away the first Water, put a little Salt and Garum, with some palatable Astringent, to it, you will have prepared a very pleasant and wholesome Food and Medicine. Polenta drank in austere Wine, and Rice, are Binders; and so are Panic, Millet, fried Meats, Hares Flesh, austere Wine, and yellow austere Wine. *Oribas. Collect. Medicin. L. 3. C. 31.*

ALIMENTS of an ACRID and HEATING QUALITY.

Heaters are boiled Wheat, Bread made of Wheat, Tiphia, Oats, Fenugreek, Juniper-berries, sweet Dates, sweet Apples, Sesamum, and Hedge-mustard; these provoke Thirst by their heating Quality. To these we may add Hempseed, sweet Grapes, sweet Raisins, Mallow (which heats moderately) Smallage, Alexanders, Rocket, Garden and Horse-radishes, Mustard, Cresses, and Pellitory of Spain.

Food of both an acrid and heating Nature are Parsnep, Carrot, Caraway; these are manifestly hot. Garlick, Onions, Leeks, Vine-Leeks, are sufficiently acrid, but after two or three Boilings they lose their Acrimony. Old Cheese is hot, and excites Thirst. Sweet Wine is moderately hot, and has the same Effect. The deep Yellow is hotter than the Black, but the bright Yellow is the hottest of all; the next in Degree of Heat is the deep Yellow, then the Red, next the Sweet, and lastly the White, which heats least of all; but all Wines very long kept are sufficiently heating. *Id. Cap. 32.*

ALIMENTS of a REFRIGERATING QUALITY.

In the Number of Refrigerants are Barley, howsoever prepared, Millet, Panic, Mushrooms, boiled Gourds, Melons, Cucumbers, Plums, austere and acid Grapes, and austere Raisins. Astringent Apples are of a cold and earthy Juice, but the Juice of acid ones is cold, and of fine Parts. The watry and such as have no remarkable Property, Pears, and Pomegranates, and the Fruits of many other Trees, especially such as will not endure to be kept, are of this Class. Astringent Dates have a cold Juice, and so have Lettuce and Endive, though in a moderate Degree, Purslane, Poppy-seeds, which are soporiferous, and hurtful if too freely taken, but good for thin Distillations from the Head, for which Purpose the white is best. Myrtle-berries refrigerate, but are no Astringents, being endued with an acrimonious Quality. Solanum is an effectual Refrigerant and Astringent. Water and small Wines are no manifest Heaters, and therefore may the more safely be given in Fevers. Wine that is white, austere, thick, and new, manifestly refrigerates, as well as Vinegar, which being of fine Parts, is therefore more penetrating into the inward Parts than other Refrigerants; on which Account it is an Enemy to the Nerves. Of a middle Kind of Nature between Heaters and Refrigerants are Bread made of the Fruit of the Lote-tree, Amylum, and Grapes. *Id. C. 33.*

ALIMENTS of a DRYING QUALITY.

Lentils and Cabbage are Driers alike, and for that Reason dull the Sight, except the whole Eye be moist; but the young Buds, or Coleworts, are less drying. Of other Greens the Stalk is the driest Part. But the Contrary is true of the Radish, Onion, Mustard, Cresses, Pellitory of Spain, and all those whose tender Shoots are acrid. Polenta and the Seed of the Vitex are Driers. Vetches twice boiled, and often thrown into fair Water, make a drying Food; the best Sort is the White. Roasted and boiled Meats yield a drier Aliment, boiled Meats a moister, fried Meats are of a middle Quality. Whatever is most seasoned with Wine and Garum is the driest, and what-

ever has least of these, and most of Defrutum, and is boiled in simple and pure white Broth is the moistest, or if it be boiled only in pure Water it is moister than the first. But Seeds, Greens, and Plants differ much according to the Ways of seasoning them, and though they are all drying, yet they exert more or less of that Quality according to those Ingredients with which they are mixed. *Id. Cap. 34.*

ALIMENTS of a MOISTENING QUALITY.

Pisifan, boiled Gourd, Pompions, Melons, Cucumbers, green Nuts, Plums, the Fruit of the Sycamore-tree meely moisten without Refrigeration, except they be eaten cold. Lettuce and Endive moisten too, but in a lower Degree. Purslane, Mallows, Blites, and white Orache, are the most watry of all Greens. Most Fruits are humid, especially such as will not keep. Lettuce, and Poppy-Seed, green Beans, and green Chiches, moisten, Water moistens and refrigerates, but hot Water both heats and moistens. *Id. Cap. 34.*

ALIMENTS NOXIOUS to the HEAD.

The Fruit of the Sycamore hurts the Head, Blackberries cause Head-ach, as do Dates, Rocket, and Fenugreek. Austere Wine of a deep Yellow creates Head-ach, and disorders the rational Faculties, more than black and austere Wine. Fragrant Wines have the same Effect. *Oribas. Medic. Collect. Cap. 51.*

ALIMENTS BAD for the TEETH.

The constant Use of Milk is bad for the Teeth, and causes them to rot, and loosens the Gums. Therefore, before you feed on Milk, wash your Mouth with diluted Wine; but it is better to put Honey in the Milk. *Id. C. 37.*

In treating of the Qualities of *Aliments*, we are to shew first the Nature of each Quality in general, and then to speak in particular of those belonging to the various Kinds of *Aliments*.

Of Qualities some are simple, which seem to belong to the peculiar Nature of *Aliments*, others compounded; some intense, other remiss; some so attuned as to conspire in the same Purposes with the prime efficient or constitutional Quality, others tending a different Way. If we should undertake to speak of Qualities in this Method, a Multitude of Heads would offer themselves. But waving these, and to come directly to our present Purpose:

Of Qualities, with Respect to our Sense, there is the *Sweet*, the *Fat*, the *Acid*, the *Astringent*, the *Salsuginous*, the *Bitter*, and the *Acrid*. If we fancy there are more, we shall find them, on Examination, reducible to one or other of the forementioned. For aqueous Dulcidities come under the general Epithet of *Sweet*, oily Qualities are comprehended in the *Fat*, and the austere and four are Species of the *astringent* Quality, differing only in Degree. Besides the above-mentioned there are reckoned the *aqueous* and *frumentaceous* Qualities; not that these represent any manifest Quality to our Sense, but on Account of our Familiarity with them, by taking the Word in a large Extent, have obtained that Name. The *Vinous* may be said to be a Mixture of Qualities divers Ways concurring, and admitting of innumerable Distinctions, as it inclines more or less to this or that Quality. The *Frumentaceous* is that Quality, or Property, which belongs to Seeds adapted for Bread, to Pulse, and others of that Kind. The *Aqueous* is inherent in Greens, Herbs, Fruits, and some Roots which make but a faint Impression on our Sense. On this Quality we also bestow the Epithet of *cold*, in a large Sense, comparing it with the just and equal Temperament of our own Bodies. The *dulci-aqueous* Quality, as you may call it, seems to have lost just as much of the cold Quality of simple Water, as it has acquired of Sweetness, though by Comparison with an equal Temperament, it may still be accounted, in some Measure, cold. Both indeed have a Humidity beyond a just Proportion, but the exquisitely Sweet consists in a moderate Temperament, which being intended to a more than just Proportion of Heat, loses as much of a moderate Share of Humidity. The fat and oily are temperate Qualities, and friendly to Nature, and are besides endued with a Power of relaxing the overstrained Fibres; they seem to have the Pre-eminence above the Sweet, in that Concoction is better performed upon them. Both of them by Length of Time acquire much Heat, and lose as much Humidity. The Sweet in Time degenerate into their opposite Quality, Bitterness, when their Sweetness becomes incapable of Increase. The Fat passes into the noxious, and we have no Name for the Sensation they give us under that State. Things dressed and concocted by an external Fire are in much the same State as those that struggle with and are digested by their native Heat, especially where Acridity is predominant. The acid Quality is among the cold ones, and being of fine Parts has a Power of incising, and moderately attenuating, and is no less wont to exsiccate. The Austere has a moderate Astringency, and cements, and incrassates Matter, strengthening the loose Parts; and consisting of grosser Parts, refrigerates and exsiccatates. This Quality,

Quality, in being rendered more intense, passes into the Sour, which is made up of still grosser Particles, and is a more powerful Dryer. The Salsuginous is hotter than the Sweet, and not much drier than the Fat. It seems to consist in some Measure of fine Parts, which attenuate, and consume superfluous Moisture. Being intended, or increased, it participates of the Bitter, and becomes hot and dry, and prevailing over Salts by its absterfve Faculty. Again, the Acrid is much the hottest and driest of all the Qualities, consisting of fine Parts, which easily intrude into the most profound Recesses, inciding, attenuating, opening Obstructions, and consuming Superfluities.

So much for simple Qualities in general, which being rightly comprehended, compounded ones may easily be understood; for there are a Thousand such; with their Opposites, and distinguishing Characteristics, the accurate Consideration whereof will instruct a Physician to apply them as seasonable Remedies to their Contraries. Nothing appears more evident than this to a Person well versed in the best and most useful of all Arts, who imagines and forms to himself Complications and Distinctions of Qualities and Temperaments, according to what he observes in Herbs, Fruits, and other more simple Bodies, in order to qualify himself for undertaking the Cure of various and complicated Distempers.

OF FRUMENTACEOUS ALIMENTS, and PULSE, with their DIFFERENCES.

The Frumentaceous and other Kinds, contained under the Notion of simple *Aliment*, are by no Means to be considered after the Manner of Qualities, such as those above-mentioned; unless they are found to have something like it in them, but are proved and distinguished, every one, by Concoction, Elixation, Density, or Tenuity. Some are defective in Point of Dressing and Seasoning, and by that Means hard and distasteful, and slow and difficult of Concoction. Among Animals, some of a greater Bulk than ordinary are harder, and have more of Earth in them than others, and they differ also in Respect of Health, Age, Diet, and Exercise. And all these are proved by their Suitableness to the peculiar Temperament, for the same Things do not agree with all, but this with that and not with another, Respect being had to the Constitution, and Employment, so far that if a Person be ignorant of these Differences, and how to suit them to their proper Subjects, he will in vain set about prescribing a Regimen.

Since then there is a vast Variety of *Aliments*, and a much greater in the Ways of cooking them, I think we cannot do better than begin with the most common, and what most Mortals feed upon. Wheat then (for this is the most common Food of the human Race) is but one in Kind, but admits of several specifical Differences and Properties, for one Sort is of a deep Yellow, or a denser Substance, or perhaps both; on the Contrary, another shall be white, small, furrowed, or plump. Hence you may infer Variety of Properties and Effects. The deep Yellow, or Fallow, is reckoned the hottest (for among Things of the same Kind this Colour is thought to signify the most Heat). The dense requires most Pains in working and preparing, and yields Plenty of *Aliment*; but the thin and striated owe these Properties to some Defect in their natural Powers. Persons who use Exercise ought to feed on the most solid Wheat, as their Perspiration and Waste of Spirits from all Parts is greater, and for that Reason require the stronger and more solid *Aliment*. But for such as lead an easy Life, and are discharged from Labour and Toil, the lighter Sort is most convenient, and such as is brought to a proper Degree of Maturity; for if this be wanting, it is so far weak and imperfect. Care ought to be taken that it be not tainted with noxious Effluvia from neighbouring Bodies, of which it runs great Hazard when reposed in Granaries, and that it be not mixed with other Grain. And now we are speaking of the lighter Sort, which best agrees with those who lead a sedentary Life, we ought to be somewhat particular. To eat green Wheat moderately, can hurt but moderately, for being now in its humid State, there is no Danger of its Adhesion to the Viscera, but it passeth off without any Damage. The daily Use of it parboiled may have very ill Effects; for the crude and indigested Mass very often sticks to the Viscera, whence as from an impure Spring a Multitude of Crudities are dispersed over the Body. It is much the wholesomest Way to use it thoroughly cleaned, and well boiled, as we usually eat it dressed with Oil and Fat. Of Wheat well ground, the finest Part is called the Flour [*αλευρον*] and the coarsest Part is what they call the Bran. The Meal then is a Medium between them, and the Similago is more solid as well as finer than the Polenta. Of the finest and whitest Part of the Meal they make the Bread called *Silagineus*, from *Siligo*, as the *Similagineus* is made of *Similago*, and the *Furfuraceus* [branny *αυριγιος*] after the finer Parts of the Meal are taken away. The *συνκεχυμενος* [miscellaneous] is made after the Bran only is cleaned off. All these Sorts are prepared with Salt and Leaven, or without them; and are baked either in Ovens, or heated Pans, or in hot Embers. The first two are called *ισιζαι*, and *επισαυται*, and the other

επισαυται, because in Baking they are hidden in the Embers. I think the most wholesome Way of making them is with Salt and Leaven, and that they are best baked one of the former Ways, that is, in a standing or portable Oven; for they are much the better for being free from Ashes, and other Sordes. But the Salt and Leaven are highly serviceable, in consuming whatever is recrementitious, and at the same Time imparting a Sort of Concoction, or more elegant Consistence to the Mass. For unleavened Bread is more difficult of Concoction, and requires much Exercise of Body, which does not comport with their Way of living to whom this Advice is directed. The best Bread then is the *Silagineus*, because it affords the most Nourishment; the next to this is the *Miscellaneous*; the *Similagineus* comes in the third Place, and the worst of all is the *Furfuraceus*, which yields the least Nutriment, passes soonest through the Body, and is easily converted into an atrabilious Juice. As the *Silagineus* consists of the purest Part of the Wheat, so it yields the purest *Aliment* to the Body. The *Similagineus*, as being close and compact, though it generates good Blood; certainly requires a longer Time for Concoction. The middle Sort between them, or the *Miscellaneous*, is most serviceable as well as harmless, for it is not hard of Digestion, like the *Similagineus*, nor affords such an Abundance of Nutriment as the *Silagineus*, and thereby obstructs the Passages. It is to be observed also that Bread differs much in Goodness, according to the Rate of Baking, which ought to be understood of all Eatables that require Dressing. Cakes fried in a Pan made of Meal, Water, and Oil, afford much Nutriment, and that of a solid Kind, but require a very strong Stomach, and are fitter for athletic Constitutions than others, in whom they are apt to breed crude Humours.

Next to Wheat, Barley deserves to be considered, according to the Saying of a certain Author: *Next to Bread of Wheat, give me good Maza* [a Sort of Barley-Pudding]. Barley is less nourishing, and more absterfve, than Wheat, and is besides of a cooling Nature, and exceeds, on that Account, other frumentaceous Fruits. The Cremor prepared of it is very wholesome both for healthy Persons who are of an acrid Temperament, and for feverish Patients, whom it refrigerates and moistens. If to this you add the Cremor of Almonds, they will make together an excellent Kind of Food, light of Digestion, and of good Juice; and endued besides with an attenuating and absterfve Virtue; in short, desirable upon all Accounts. The best Barley is white, and of a good Body, and does not prove itself any Way vitiated by its Smell.

Zea is reckoned among the light Kinds of Food, when thoroughly cleaned, and dressed after the Manner of a Panada. But it generates not the best of Blood, nor affords sufficient Nutriment, much less Strength to the Body; however, it deserves a Place among light Meats. Millet, though like Zea, it nourishes little, yet has an Advantage over it, in that it imparts some Kind of Firmness to the Body, and breeds Flatulencies. Beans, though absterfve and nutritive, generate a thick Blood, and a Multitude of Flatulencies besides, and are therefore, as well as the former, forbidden the Weak and Sedentary. But if Necessity at any Time requires the Use of them, they are best when made into a Gruel, which is more absterfve, and loses most of its Flatulency in the Dressing. But if you add thereto some of the carminative Seeds [*ἀρωμα*] or Honey, you will expel much of their ill Qualities out of them. Kidney Beans are worse, being accounted of a hot and earthy Nature, and Disturbers of the Brain and Spirits, causing unquiet Sleep.

Chiches yield a strengthening and moderately pure *Aliment*, though it be flatuous, and requires a strong Stomach. But the Broth made of these is valued, being absterfve and diuretic, as participating of a salsuginous Quality; wherefore this is wholesomer than the Substance of the Pulse itself. Rice is moderately hot and dry, nourishing, and obstructing the Passages; but if you allow it a sufficient Time to work off and be distributed, it produces no ill Effects. Lentils are accounted the worst Kind of Pulse, generating a thick, earthy, and atrabilious Blood. They bind the Belly, after two, three, or more Boilings, and throwing away the Liquor; but any other Way prepared, are said to increase a Looseness. We shall take our Leave of the Frumentaceous and Leguminous Kinds of Food, with observing in general, that they are accounted best while green, as retaining in that State something of Humidity; but when, by Length of Time, they have wholly lost this Property, they become gross, heavy, and earthy. And as much as juicy Things are preferred to dry, so much are boiled to be valued above raw, and Things prepared before crude and unprepared.

OF GREENS, and AUTUMNAL FRUITS, with their different SPECIES.

We are to observe, in general, that all Greens generate a thin and watery Blood, in Comparison of other *Aliments*, and that they differ from one another in Quality and Goodness of Juice, and in some remarkable Property.

Cabbage, in the first Place, is a Sort of Food, that is of a moderately hot, but more of a dry Nature. If it be boiled, and

and its Juice not exhausted, it loosens the Belly, but if you give it three or four Boilings, or more, still throwing away the Liquor, and then eat it, it has a binding Effect. And this ought not to seem strange, for the Juice of Cabbage is of an absterfitive Nature, but its Substance is astringent. It is too apt to breed an atrabilious Humour, and therefore is to be sparingly eaten.

Beet far exceeds Cabbage in Goodness, for it generates no such bad Humours as the other, and, by the nitrous Quality of its Juice, loosens the Belly; it is accounted of a moderately hot Nature. The Roots yield a stronger Nutriment, and breed a much thicker Blood, than the Green, and besides cause Flatulencies, though in other Respects they pass well through the Body, and therefore may now and then be used.

Purslane and white Orache are Greens of a cold and humid Nature, accommodated to hot Temperaments, and the hot Season of the Year. They generate a thin and watery Blood, and are hurtful to cold Constitutions.

Endive too is accounted one of the cold Eatables; it breeds a thin Blood, but much worse than white Orache. In other Respects it is agreeable to the Stomach, and strengthens the Liver by its moderately astringent Quality.

Lettuce is much colder and moister than the former, and generates a thin but florid Blood, if it be well concocted; and procures Sleep by refrigerating and moistening the Brain. However it is to be used with Caution, lest it should render the Brain too cold and moist, and so relax the due Bent of it, which is necessary for the Exercise of its Faculties.

Wild Radish is of an acrid Quality, and therefore medicinal, by inciding and attenuating the Humours in the Stomach and Viscera; it is hard enough of Concoction. The Garden Species is of a milder Nature in all Respects, for which Reason the Wild Sort is neglected, and deservedly, because, like other Acrids, it causes an Effervescence in the Blood, by communicating its Acridity; unless any one has a Mind to use it medicinally.

Smallage, Fennel, and others of that Kind, are of an hot and dry Nature; but they provoke Urine, and relieve under Oppressions, being otherwise difficult of Concoction, and rather to be used as Medicines than Food. Leeks, after Boiling, are more approved than Onions, for they lose much of their bad and acrid Juice in dressing. They are esteemed very hard of Digestion, from their fibrous Substance, but, by their natural Viscidity, render the Humours in the Breast fit for Expectoration; they are moderately diuretic.

Raw Cucumbers deserve no better Character, for they generate raw Humours, and are cold and humid to Excess, and difficult of Concoction. Pompions are a much better Food, as being allowed to ripen; though these, if they are not well digested, nor pass well through the Body, are apt to corrupt in the Stomach, and to communicate their Depravity to the Humours; but their deterfitive Quality renders them easy to work off, and they usually carry with them other bad Juices. However they breed but a thin and watery Blood, if they be never so well concocted.

Gourds eaten raw are a Medium between Cucumbers and Pompions; boiled it grows better. They afford an *Aliment* of a cold and humid Quality; and though they are much used in Medicine, they are good for little else, yielding very little Nutriment, but Plenty of watery Humours, especially when they meet with a cold Stomach.

Amanitæ, (a Species of Mushroom) Mushrooms, and Truffles are of a cold and humid Nature, and generate thick and crude Juices; they agree with hot and dry Constitutions.

Sparrow-grass is in best Repute of all Greens: It creates not the least Molestation to the Stomach in Concoction, is moderately hot, consists of fine Parts, and renders the Blood every Day purer; and if any Green provokes Urine, it is sure to do it. Wherefore I think it adviseable not only to eat it in the Spring, when it is at the best, but to keep it in Pickle all the Year, because it nourishes without Dispute, and generates a pure Blood; and is also highly serviceable in opening Obstructions of the Viscera, and attenuating the Humours contained in them. So much for Greens.

As to Fruits, we shall begin with Cherries. These, in general, are cold and moist; some of them are sweet and soft, others hard and more astringent. The first are to be chosen, as being more easy of Digestion, and passing sooner off the Stomach; the other agree best with a bilious Stomach, because they are not easily corrupted, and besides corroborate the Stomach by their astringent Virtue. But the immoderate Use of them, if they are not corrupted together with the inbred Juices, fills the Body with watery Humours.

The best Sort of Apples is what they call *Poma Regia*, which are themselves of a cold Nature; but they are esteemed Cardiacal, because they repel the smoaky and fuliginous Vapours that annoy the Heart, and thence ascend to the Brain. They are good to settle the Head after Drinking, for which Purpose the acid ones are best, as being of a cooling Nature, and by the Fineness of their Parts qualified to penetrate into the inmost Recesses. The most valuable Apples are such as will keep

during Winter; for acquiring due Maturity by Time, they are much fitter for Use, and not so easily corrupted.

Peaches and Apricots are also of a cold and humid Nature, and, when they are well digested, generate a thin and humid Blood. Besides, it is usual with them, if they pass not soon off the Stomach, to corrupt; wherefore I would advise those who cannot pass them through their Bodies without Molestation, to abstain from them, unless he can warrant the Temperament of his Body to be accommodated to such *Aliment*.

Plums are more commended than these last, as being quick in Passage; but where they are not so, which is the Case in some Constitutions, they are also liable to be corrupted.

Pomegranates, as well as other autumnal Fruits, yield light *Aliment*, and always generate a thin Blood. They are friendly to the Stomach, and blunt sharp and gnawing Juices; for which Reason they are very helpful, when Heat predominates in the Body, and the Season of the Year calls for Coolers. In other Circumstances, it would be imprudent to turn Physic into Food, especially when the Temperament runs counter to the Dictates of senseless Appetite and Custom.

Quinces are an astringent Kind of autumnal Fruit, which bind the Belly. This Effect it has on some Persons, when eaten before other Food, and a contrary one, if taken afterwards. Nor is this to be wondered at; for Astringents, by compressing the Mouth of the Stomach, forcibly protrude the *Aliment*, as we are wont to shew the like Effect upon a Bag or Leather Bottle, by squeezing them between our Hands, and thereby easily getting out their Contents, especially if they are pretty full, and their upper Part strongly compressed.

But among all these Fruits, the greatest Astringents are Services, Cornels, and Medlars, which are very much used in Medicine, and are otherwise good for the Stomach from their Astringency. But taken as *Aliment*, they generate Blood no Way laudable, and where Costiveness prevails, are very hurtful to the Head, and other Parts of the Body.

Figs and Grapes, considered as Eatables, have the Preference before all autumnal-Fruits, in that they breed better Blood, and yield more Nutriment. But even these are accounted a flatulent *Aliment*, and are supposed to generate a lax and flaccid Kind of Flesh, and to be very bad for Scirrhusities or Obstructions in the Viscera. Figs excel the other, in having a peculiar Virtue of purging the Reins of Gravel. Both of them loosen the Belly, though the Stones are binding: By Age they lose much of their recrementitious Humidity.

Chestnuts are Fruits of a cooling, drying, and moderately astringent Quality, but generate abundance of Flatulencies. It is certain that they nourish; Roasting very much abates their Flatulency, whereas they would otherwise stick in the Passages, and be very hard of Digestion.

Walnuts are accounted hot and dry; the constant Use of them very much affects the Head, and Stomach, and they are very difficult of Concoction. They are thought to be wholesomer when eaten with Figs, because by their Means they are quicker in passing through the Body.

Halle-nuts may indeed be supposed good for the Stomach, on Account of their Astringency; but are, notwithstanding, very hard to be concocted, by Reason of the Closeness of their Substance, which also renders them more binding to the Belly.

Almonds surpass the former in Goodness; but especially the Cremor and Oil drawn from them, which are well known to be effectual, as Lenitives, in Stiffness or Roughness of the Jaws and Aspera Arteria, and as Pectorals, in evacuating the Breast and Lungs of pituitous and viscid Humours. Of the Cremor boiled, is prepared a forbile Liquor, which is both nutritive and aperient, that strengthens the Reins, and thoroughly cleanses the Thorax and Viscera, but is not so well accommodated to the Stomach. Almonds eaten whole are hard of Digestion; but the Cremor of them mixed with Barley cleansed and boiled, or something of that Kind, and especially Amylum, makes an excellent Food upon all Accounts, being light, and easy of Digestion, of good Juice, and generating a fine and florid Blood.

Of QUADRUPEDS, BIRDS, and FISHES, with their SPECIES.

Of Animals, the Species of which are vastly numerous, some are terrestrial, others winged for Flying in the Air, and a third Sort live in the Water. Each of these may be distributed into Ranks or Classes, greater or lesser, according to their different Kinds. And as to Individuals, with Regard to our present Purpose, a Distinction is to be made with Respect to Age; some are young and tender, others in full Vigour, others again are worn with Age. Besides, we must distinguish between wild and tame, or domestic Animals, and between those which are used to much Exercise or Motion, and those that are used to little or none.

As for terrestrial Animals, or Quadrupeds (with which we shall begin) they are all accounted hot, beyond a moderate Degree, affording a strong *Aliment*, which generates a thick Blood, which is best accommodated to athletic Constitutions. Volatile or aerial Animals afford not so much, but a far lighter, Nourishment. They are, in some Measure, more dry and fibrous,

fibrous, and generate a thin Blood; but such as use the Water are accounted more humid and carnos than the rest. Aquatile Animals, generally speaking, are far more humid and cold, than those we have been speaking of; but there is no small Difference between them; for there is the scaly, the soft, the testaceous, and the crustaceous Kind of Fish. And of the first of these some are cetaceous, and live in the main Sea; others live about the Rocks and Shores. Again, among these, such as are of a larger Bulk, yield a more plentiful, but gross *Aliment*, whereas the smaller afford a more scanty, but purer, Measure of the same, especially the rocky Sort. And there is no less Ground for a Distinction to be made between them, with Respect to their Food. For since Sea-fish are universally preferred before such as live in fresh Waters, a Number of Differences will hence arise to be made on the foregoing Account. Fish that are Inhabitants of the Deep, and are continually tossed and dashed by the Waves, are better exercised, and feed on cleaner *Aliment*, and their Flesh is finer, and more solid, than others are able to shew; for which Reasons they nourish more, and generate a thick Blood. But Fish that get their Food in the Mouths of Rivers, or in marshy and muddy Places, or where Sinks and common Sewers discharge themselves, may indeed be fat, and savoury enough besides, but have nothing good or wholesome in them. Rock Fish, that live in pure Waters, have much better Flesh, are easy of Concoction and generate a pure and thin Blood. All soft Aquatics, as to Goodness of Juice, are preferable to many of the scaly Kind, as generating a thin and florid Blood: But they are full of Nerves, which makes them harder of Concoction than the rest, and they are also supposed to be colder, as being void of Blood. Next to the scaly and soft Kinds of Aquatics, are the Crustated, which are easier of Digestion than the Soft, and generate a thinner and purer Blood. The Testaceous are less valued, because they are never exercised or moved, for which only Reason some prefer Scallops because they alone, of all the testaceous Kind, are endued with a locomotive Faculty, or Power of shifting from Place to Place. Testaceous Aquatics breed a thin and watry Blood, and are besides hard of Digestion, and lie long in the Stomach. Many Persons chuse Fish with Scales and Bones, and they may easily persuade me that their Flesh is drier than that of others. For that a dry Thing may be found among moist is no more absurd, than to meet with a moist Thing among dry, of which latter we have Examples among Birds in the Dunghil-Cock and Pheasant, and more especially in the Goose and Duck, and all aquatic Fowl.

Now as we have said that terrestrial Animals consist of an earthy Substance with Abundance of Blood and Juice, and because it is presumed that they impart to us an *Aliment* of the same Nature with themselves, it would be advisable to chuse such as are young and tender, and some of the least in Bulk of their Kind, and not too much inured to Labour or Exercise. For as the Sluggish and Unexercised are over-run with Humidities, and excrementitious Juices, so those which are over-worked, or ever in Motion, are dry, and of little Substance; Excess is to be avoided in all Things. And there is a Difference to be made, even with Regard to the Members, or Limbs, of the same Animal, for the outer Parts thereof yield a drier and less recrementitious Juice than the inner, a smaller Limb than a greater, being so formed by Nature. There is also a Way of trying these Animals by Inspection of their Flesh, for in Proportion as the Flesh of any Animal degenerates from Whiteness, so much is the Goodness of its Juice depraved. In Animals of the same Species, it is universally observed that young ones yield a humid *Aliment*, the full-grown a firmer, hotter, and drier; and the old ones the worst of all, and such as increase an atrabilious and excrementitious Humour, in Proportion to their Bulk, and their Measure of Exercise.

Of WINE, WATER, MILK, EGGS, HONEY, OIL, SOAP, VINEGAR, JUICE OF UNRIPE GRAPES, POMEGRANATES, and SALT, with their different SORTS.

Of Wines, there is the thick, the thin, the austere, and the sweet; and of these, one is white, another of a deep Yellow, and a third red, for we need not mention the intermediate or bordering Colours. Again, some Wines will bear much Dilution with Water [*πολύσιτος*], others but little [*ὀλιγοσιτος*]. The thick are most nutritive, and generate a thick Blood, causing Obstructions in the Viscera. Thin Wines, on the contrary, are diuretic, and generate a thin Blood. Austere Wines are best accommodated to the Stomach, but nourish little; the sweet are just the contrary. White Wines are not so heating as others. The deep Yellow have the most Heat, and next to them are the red; small Wines, that require but little Dilution, and are therefore called *Oligophora*, are the lowest, and least affect the Head. For such as study only to cherish their Bodies, and keep them in good Case, rich and high-coloured Wines will best answer their Purpose; but let such as have their Health and the calm and free Course of their animal Spirits most at Heart, be content with *oligophorous*, which is white and thin, except when an extraordinary Chilness and low State of the Blood direct to the Use of more generous Liquors.

The best Water is such as no way affects the Taste, nor is standing like those in Pools or Lakes; or stagnates and corrupts, as in Marshes and low Grounds, that are impervious to the Winds. Spring-water is more commendable, as well as that which is drawn out of Wells, whose Waters are in continual Agitation. Next to these, in Point of Wholesomeness, are River-waters, if they run pure and unpolluted from common Sewers, and Ditches, that derive into them all the Filth and Sordes of the neighbouring Cities and Country. Rivers that are remarkable for their cold and chilling Quality, or are swelled with melted Snows, are especially to be avoided; likewise all such as run foul, have muddy Bottoms, or take their Course near some hot Spring. The most wholesome Water is that which is soon hot, and soon cold, and neither affects the Taste or Smell with any sensible Quality.

Milk is to be considered as consisting of the serous, the butyry, and the cheesy Parts. The serous Part or Whey, is only to be used medicinally, as a Cooler, and Loosener of the Belly; for it nourishes little or nothing, but is a Detergent. Butter, being heating, and its Humidity suspected, is noxious to the Stomach; but generates Blood, if it be well concocted. It soon changes into Bile, if it meets with a hot Constitution. The cheesy Part is earthy, hard of Digestion, and creates Obstructions, especially where the Viscera are already stuffed, or the Passages strait by Nature. Milk indeed, taken in the Whole, is a nourishing Food; though it affects the Head that is subject to Repletion. The Curd causes Obstructions in the Viscera. Goats Milk is to be preferred, as being of a thinner Substance than the Milk of Ewes or Cows. Chuse your Cheese new, and little salted; avoid all other, as being hard of Concoction, hurtful to the Stomach, causing Obstructions, and generating a thick Blood.

Hens Eggs are best, next are those of Pheasants, then of Ducks, and lastly of Geese. The best Part of the Egg is the Yolk, which affords pure and plentiful Nourishment to the Body; but the rest is harder and slower of Concoction*. As to the rest, what has been said of Animals may be said of their Eggs. The Eggs of Fishes are far inferior to those of Birds, both for Heat and Nutrimint; as their Flesh, in Goodness, is surpassed by the others. Eggs dried with Salt are hard of Digestion, and corrupt the Blood; and the same may be said of all salted Meats.

Honey is good for the Aged, and Persons of a cold Constitution, and in the Winter-season; but hurtful to bilious Constitutions, or used in Summer. For Honey being of a heating and drying Quality, and, from its Gratefulness, familiar to the Palate, where it meets with a Temperament as much too cold, beyond a moderate Rate, as itself is too hot, they must, between them, generate a pure and temperate Blood. But when two Things of the same Quality concur, as the Honey and a hot Stomach, the Degree of Heat is augmented, and the Sweetness of the Honey converts it into Bile. Some have a Way of clarifying it, and by that Means, blunting its Acrimony, take off much of its Heat. Being so prepared, and mixed with some other Kinds of Food, in Cases where Heat is not in Fault, it becomes most wholesome and medicinal, not only nourishing the Body, but gently purging the Belly.

Oil is of a moderately hot and moist Quality, but usually disagreeable to the Stomach, on Account of its Fatness, as well as other Things of an oleous and fat Quality. Wherefore though the moderate Use of it with Meats has no sensible ill Effect, an immoderate Quantity of it, as its Nature is to swim uppermost, extinguishes the retentive Faculty of the Stomach. Oil extracted from Linseed, being neither so hot nor glutinous; and of finer Parts than the other, is more easy of Digestion, and less offensive to the Stomach. Oil of Almonds surpasses them both in Goodness; being not only of finer Parts by Nature, and less incommodious to the Stomach, but an Incisive; and an excellent Pectoral, and Emollient of the Jaws. Sapa [*Rob made of Grapes*] also makes a Part of our Diet, and is not only less heating, and more nourishing, than Honey, but causes not the least Obstruction, and moderately loosens the Belly.

Vinegar, except in cold Disorders, is wholesome Sauce with Meats; for being of a cold and dry Quality, of the finest Parts, and a great Incisive, it cuts, attenuates, and absterges those ill Humours which oppress and clog the Stomach and Viscera; and where any Food of gross Parts has been received, it is attenuated, and, as it were, elaborated, by the prevailing Force of the Vinegar.

The Juices of four Grapes, called *Omphacium*, and of Pomegranates, are useful as Medicines, but unnecessary otherwise; for though the first of them be agreeable to the Stomach, yet, as it consists of gross Parts, is of a cold Nature, and binds the Belly, it must be hurtful to some Constitutions. The Juice of four Pomegranates, though it be of pretty fine Parts, a Resister of Bile, and a Cooler especially of an immoderately heated Blood and Liver, yet it is too incommodious to the Stomach to be used. The Abuse of this also binds the Belly, for the Acid has always a Mixture of the astringent Quality.

Salt,

* The Author makes a Mistake in this Place, for the White of Eggs is excellent *Aliment*, for Reasons given under the Article ALBUMEN.

Salt, used to season our Foods, is hot and dry, and moderately excites an Appetite. It exhausts and exsiccates a redundant Humidity. But the frequent Use of it is to be avoided, as it is an immoderate Dryer, increases Thirst, and corrupts the Blood. Used only as a Preserver and Relisher of our Meats, it can do but little Hurt; it is the immoderate Use of it that does the Mischief.

Of the QUANTITY of FOOD.

The Measure and Rule of Eating, in all Kinds of Food, must be such as comes short of Satiety; for then the natural Heat will prevail, and have Force sufficient to make a perfect Concoction. It will be advisable also to take our Measures from the Strength of the *Aliments*, so as when we sit down to feed upon very strong and nutritive Meats, we take Care to leave off long before our Appetite forsakes us. In Food that affords but small and light Nourishment we may freely indulge ourselves, and approach much nearer to the Bounds of Satiety, for this Sort is soon concocted, but the former stays long in the Stomach. Our Measure of Drinking must be regulated by the Dryness or Humidity of our *Aliment*. These are admirable Rules.

Whether it be best to eat TWICE a Day?

For the Preservation of Health, and the due Supporting and Recruiting of the animal Spirits, my Advice is, that the Provision for the Day be divided into three Parts, of which two are to be taken at Noon, and the third a little before Night. For, by this Method, the Brain will have the Benefit of a continual Humectation, Sleep will the more easily be procured, and the Spirits being thus cherished by a perpetual Irrigation, will hold out the longer, nor be liable to take Fire, or be refrigerated, with too long Fasting, for either of these may happen, according to the Difference of Temperaments and Seasons. But if Custom contradicts this Rule, and you are loth to spend your Time in doing the same Thing twice, let Custom, which has brought upon the natural Faculties a Habit of performing this necessary Work at such long Intervals of Time without Injury, be obeyed. Besides, the Spirits are rendered, though less firm and durable, yet brighter, by this Management. *Actuarius de Spir. Animal. Nutritione.*

One Regimen of Diet will by no Means suit with all Persons, but must differ according to Constitution, Habit, and Way of Life, or any other Circumstance that may require an Alteration. There are a thousand Differences in Constitutions, whether you consider the Structure of the whole Frame, or only of the Viscera, and consequently as many Distinctions are to be made in Diet, in order to select what is most proper for each Particular. Custom also, as an external Principle, will furnish out a great Variety on this Head. No fewer than these, but almost infinite, are the various Kinds and Measures of *Aliments* that are adapted to Individuals. One likes this, another that; and every one judges of the Fitness of an *Aliment* by his Sense, and the Effect it has upon him, and founds his Choice on Experiments, and the Testimony of his Senses, which are unerring Guides in these Matters. As to the Nature of *Aliments*, with Respect to Mankind in general, some are of good Juice [*ἰσχυρὰ*], others of bad Juice [*κακὸς χυμὸς*]. The first are such as are endued with the Virtue of generating a pure Blood; the other generate Bile, or an atrabilious Humour. Again, such *Aliments* are said to be of a crude Juice [*ἀσώχυρὰ*] which naturally generate a crude and pituitous Humour. Moreover some Sorts of *Aliments* are easy of Concoction [*ἰσχυρὰ*], others difficult [*δυσωρὴ*]. The first of these, we say, are agreeable to the Stomach, the others disagreeable and noxious to the same. Some loosen the Belly, others bind it, and every Sort is supposed to be endued with some peculiar Virtue or Property, the Reasons of which are founded in Nature. But when we say that this and that Sort of Food are so and so qualified, it must be understood with Respect to a rightly constituted and well tempered Body. Wherefore when you examine the Lists of *Aliments*, and see one consisting of Meats easy of Concoction, another of the contrary, one List of Emollients, another of Binders, &c. and are ready to object from Experience, that the Event has not answered the Virtues ascribed to them, you are not to impute it to the Ignorance of the Professors in the Art they pretend to, but to an Alteration in the Thing prescribed, which is produced in it from some Perversion or Distemperature of the whole Body, or some Part of the Viscera; for a slight Disorder in the human Frame sometimes causes a great Alteration in the natural Functions; nay, the Redundancy of any Humour may possibly work the same Effect. Proper Allowances must also be made for the Season of the Year, for Age, Calling, &c. for these may cause considerable Changes in the natural Disposition. Take Care therefore of Mistakes, when you see such and such Food pass off easily with a Man, another Sort loosen his Belly, and a third have a contrary Effect, and consider with yourself, whether, and how far towards either Extreme, by any of the fore-mentioned Causes, he is removed from a moderate Standard; for, observing this Caution, you will know how to appoint him a Regimen of Diet, that shall move Step by Step with his Advances, and di-

rectly counter to the Progress of any morbose Disposition. Contraries, you know, destroy one another, and so produce a good Effect; and Things alike are confirmed by Union. Upon the Whole, then, *Aliments* seem to vary according to the Temperaments they meet with; and if we are not able to explain in what Manner they act, or how we thus become the Subject of their Action, it is enough that we are convinced by Experience, though sometimes Reason may, perhaps, succeed in her Enquiries.

The Quantity of Food must vary according to Age, Season, Constitution, and Nature of the Food itself. Young Persons not full grown, and such as are in the Flower of their Age, demand more Sustainance; the first, as not yet arrived at their just Dimensions, want more than ordinary Nourishment; and the latter, because of the Vigour of their natural Heat, and a greater Measure of Exercise withal, have strong and quick Digestions, and therefore require as much Food as the other. But Persons in a State of Life declining to old Age, must diminish their Diet, as their Vigour decays, and their Years increase upon them; for if they load themselves with more than their natural Heat is able to concoct, Crudities are generated in Abundance, and lay the Foundation of many grievous Distempers that accompany them to the End of Life. As to Seasons, if we regard the Strength of the natural Heat, the Winter requires most *Aliment*, next to that the Spring; and a moderate Quantity agrees best with Summer. For in Winter the natural Heat retires inwards, and is supposed to augment the Force of the concoctive Faculty; but in Summer, it is weakened, and exhales, being called forth, and dissipated by the external Heat of the Season. The natural Excretions are no less to be minded, for if these do not proceed according to Custom, a proportionable Quantity of Food must be subtracted. Again, the Nature of Foods, in Respect to their Nutrition, is a Matter no less worthy of Consideration. Flesh, especially of large and full-grown Animals, is supposed to be the most nutritive of all Foods. And next to these are the younger and smaller. Inferior to these, in Point of Nourishment, are all exanguious Meats, and Vegetables in particular, which differ also as much from one another, in this Respect, as they are all surpassed by sensitive and locomotive Beings. The surest Rule, then is, when the Body wants Nourishment, to chuse such Foods as will best supply its Necessities; when it grows luxuriant, to betake ourselves to Meats of a less nourishing Kind. If the Appetite be voracious, because the extraordinary Heat of the Stomach soon consumes, or makes away with whatever comes into it, though the Body stands in no Need of Repair; in this Case, if nothing contra-indicates, Meats of small Nutrition, and of slow Concoction, are advisable. Moreover, another Consideration, of no small Importance, is the Person's Measure of Exercise and Motion. For Bodies accustomed to much and vehement Motion, stand in Need of stronger and more copious *Aliment*, than such as are indulged in Ease and Rest. Another Thing, not to be neglected, is, Whether the Belly be soluble, and the Pores free for Exhalation in the Bath, for these contribute not a little to a good Digestion, and consequently require a suitable *Aliment*. To proceed; as the Quantity and Quality of the Food, so the Times and Seasons for receiving it, are to be heedfully regarded. If Concoction be perfected, the Stomach is free for a Dinner; but if an Error be committed in Concoction, we are to beware of receiving *Aliment* upon Crudities. For when crude Juices are mingled one among another, we may reckon ourselves very fortunate, (as it rarely happens,) if we can discharge them upwards or downwards. But it generally falls out, that the ill Humours settle themselves in the Belly, or Viscera, and there breed Vertigoes, Eructations, Gripings, and other Disorders. If the Humours discharge themselves outwards into the Limbs, they are attended with all the Symptoms of a Defluxion, as the Gout in the Feet and Joints, and the consequent Disorders. Therefore he that intends a Regimen of Diet, must not determine himself to one or two Meals a Day, but to eat after perfect Concoction. For two Meals may be too much for him, and even one, if chosen of improper Meats, and his Digestion be vitiated, may be hurtful; but let him, however, feed on pure and light Food, and such as is familiar to his Temperament and Disposition. For it must be observed, that among several Sorts of Meats, of good Juice, and easy of Concoction, some are more acceptable than others, on Account of a certain grateful Propriety and Familiarity with the Stomach and Palate. Hence the same *Aliment* is not to be offered to all indiscriminately, without the least Variation; for sometimes a Defect in one Food, compared with another of better Juice, is more than compensated by the good Liking of the Appetite towards it. And this ought not to seem strange, but very reasonable, that Food with which our Body is familiarized, should prove most grateful and nutritive. For since there are various Temperaments and Qualities in *Aliments*, it is very reasonable and natural, that we should prefer such as agree with the Disposition of our own Body, or at least of our Stomach. *Actuarius de Methodo Medendi. Lib. 3. Cap. 12.*

Aliment in too great a Quantity, though of good Juice, usually causes Crudities, Vomiting, and a Looseness; *Aliment* in a less

less Quantity than Necessity requires, renders the Body empty, lean, weak, and unable to perform its accustomed Duties for Want of Spirits. *Aliment* of bad Qualities generates a *Cacochymy*, which is known by the prevailing Quality. Again, a Person oppressed with the Quantity of Food is immediately sensible of the Hurt he receives; but the Evils proceeding from Food of bad Juice are not felt under a long Time. Hence, though a Man may seem to bear bad Diet, and to come off well and unhurt, he cannot be said to have escaped whole and undamaged, but the Issue is to be expected a good while, when the Mischief at last will appear in the Form of a putrid Fever, or break out in Scabs, Tubercles, or other pruriginous Affections of the Skin. Wherefore we ought not only to take Care that our Food be moderate in Quantity, but also that this moderate Quantity offend not in Quality, that we may not feel the bad Effects of it hereafter; except in Cases that require a medicinal Diet, which ought then to be followed for the greater Security of the Patient. But an *Aliment* of bad Juice, and yet medicinal, is quite different, as to its Use, from *Aliments* to which the Body is accustomed. For in sound and temperate Constitutions, that want Nothing which is excessive in any Respect, whatever agrees not in a like moderate Commixture of its Elements, we place under the general Title of *Cacochyma*, or *Aliments* of bad Juice: But *Aliments*, which by their Excess in any Quality supply the Defect of it in our Bodies, and so reduce it to a just Temper, we call *medicinal*. *Actuarius de Methodo Medendi Lib. 3. Cap. 9.*

As the preceding Rules of *Actuarius* are generally excellent, and give many useful Hints, I could not deny myself the Satisfaction of inferring them.

In the preceding Pages I have given the Sum of what the Antients have wrote with Respect to *Aliments*. I shall now proceed to give the Sentiments of Hoffman, who has treated the Subject more scientifically, and has given better Reasons for his Assertions.

The Health of the human Body evidently depends upon the Quantity and Quality of the Blood and Juices; whence it is plain, that all those *Aliments* which preserve and maintain a just Temperament, and a due Quantity of these, are beneficial to Health, and that such as have a contrary Tendency are to be reckoned unwholesome.

For Blood of a just Temperament, and neither exceeding nor falling short in Quantity, as it circulates most easily through the Body, and is clear of all foreign Particles, is admirably adapted to nourish the Parts and increase Strength; so that it may be called the *real Treasure of Life*.

Blood of a due Temperament, and benign Quality, by its progressive as well as intestine Motion, which continue during the whole Course of Life, is not only continually wasted, but likewise acquires a morbid Disposition, and degenerates into an impure and excrementitious Mass.

Experience proves, that the Blood of those who have fasted long is converted into saline and bilious Excrements, which are discharged by Stool, Urine, and Sweat, and even loses that natural balsamic Quality which is necessary to Health, and the Mass of Humours is by this Means rendered so thin and fluid, that it becomes intirely unfit for nourishing the Parts. This appears still more plainly from continual Fevers, and hectic Disorders, the Nature of which Diseases it is to waste the Juices, and convert the most benign Humours into useless, salt, and bilious Excrements. Labour also, and Exercise, because they augment the intestine and progressive Motion of the Blood considerably, lessen the Quantity of superfluous Humours, as Persons of full plethoric Habits experience, to the no small Advantage of their Health.

Because the Blood, by its continual Motion, is wasted and converted into an excrementitious Mass, utterly unfit for nourishing the Solids, or recruiting that fine Fluid which supplies the Body with Sense and Motion, it is plain that Life and Health cannot be preserved, unless these natural Motions be continually repaired, and new Juices substituted in the Room of those thrown out of the Body as excrementitious.

The Reason is therefore plain, why People stand in Need of continual INGESTION and EGESTION, or, in other Words, of Eating, Drinking, and Evacuations, for Health cannot long be preserved, unless the Place of the corrupted Humours discharged be supplied by new Juices.

Solid Foods of a good Quality, as well as Liquors, recruit the lost Juices; and therefore all those *Aliments* that are nearly of the same Nature with the Blood, and easily mix with it, ought to be reckoned amongst wholesome *Aliments*.

Blood and Juices fit for Nourishment are of a benign Quality, of a due Temperament, and resembling a Jelly, consisting of small earthy, aqueous, oily, and easily moveable Particles, thoroughly mixed with each other: Hence all those *Aliments*, which abound with a mucilaginous Juice of a due Temperament, are most fit for SANGUIFICATION, or the Production of new Blood.

The Flesh of young Animals, their Juices, and Broths made

of them, especially of young Beef, Veal, and Mutton, afford large Quantity of Jelly, and on that Account are justly reckoned among the *Aliments* which are most quickly converted into Blood. All Sorts of the Hen Kind and Pigeons, with their Young, are likewise well disposed for Nourishment, because they afford a more subtle Jelly than the animal Flesh above-mentioned, though in a smaller Quantity.

It is worth while to observe, that the CLEAN ANIMALS, which, according to Moses, were used by the Israelites in their Sacrifices, were principally such as afforded a good and wholesome Nourishment, since they abounded more than others with nutritive mucilaginous Juices.

Broths and Jellies made of Flesh are therefore, not without Reason, prescribed for recruiting the Strength of those who either by large Hæmorrhages or violent Fevers have sustained a Loss of Blood; and People who feed much upon those mucilaginous *Aliments*, which the French above all other People in the World do, can bear to have Blood taken from them more frequently, and in larger Quantities, than People who are not so much accustomed to them.

The Chyle is the immediate Matter of the Blood, and resembles a natural Emulsion made of soft, oily, insipid, watery, and mucilaginous Particles; for this Reason all those *Aliments*, into the Composition of which Parts resembling Chyle enter, are proper for nourishing the Parts, and producing Lymph and Blood.

Milk, which is nothing but Chyle, is an universal *Aliment*, and, in Respect of Nourishment, to be preferred to all others.

And for this Reason Milk is given as the first *Aliment*, not only to Children, but to robust Animals, that their Bodies may grow the faster, and acquire Strength and Maturity the sooner; for Food that is solid, of a firm Cohesion, or hard Digestion, does not well agree with young and tender Bodies, because the Stomach and Intestines have not that Strength and Force which are necessary for the Digestion and Expulsion of solid Foods. Hence a Reason may be assigned, why some People, especially the Swiss, who are great Lovers of Milk, and make much Use of it in Food, grow so very large and tall, that scarce any Nation in Europe can surpass them in that Particular. Pliny, Tacitus, Justin, Cæsar, and Salust give us Accounts of many who by the Use of Milk have lived to a very great Age; and Galen, in *Lib. 5. Cap. 7. de Sanitate tuenda*, mentions a Man who, using no other Food than Milk, lived to more than a hundred Years. In Holland, and some Northern Countries, and likewise in Friseland, many use Milk for their ordinary Drink instead of Beer; and Ovid gives us the Sense of Antiquity with Regard to Milk in the following Lines, *Lib. 4. Fast.*

*Lacte mero Veteres usi memorantur & Herbis;
Sponte sua si quas Terra ferebat.*

All mild Seeds which abound with a milky Juice are to be reckoned among the Class of nourishing *Aliments*.

Hence appears the Reason, why Seeds and Grains of most Kinds, such as Barley, Wheat, Oats, Rye, Beans, Pease, Almonds, Chestnuts, Pine-nuts, Fistic-nuts, Rice, Mays, and Turkish Corn are extremely proper for nourishing Animals, and why the Meals of these baked into Bread are the principal and most general *Aliments* made Use of; from this likewise one may account for People's being able to live tolerably on Bread and Water only.

Among all other *Aliments* Bread holds the principal Place, nor can we possibly want it without injuring Health. Its Use is proper at all Seasons, and accommodated to all Constitutions, and may therefore properly be called an *universal Aliment*; nor can Flesh and other Substances be taken alone, and without it, since in that Case they create a Nausea.

The Texture of the Parts of Bread is admirably adapted to the Nature of the nutritious Juices; for it is mixed with mild, oily, and mucilaginous Particles, and likewise with a subtle acid Salt, which are very grateful to the Stomach, and quicken the dissolving Power of the salival and fermentative Juices. But as all Bread is not made of one and the same Grain, so one Kind of Bread is preferable to another with Regard to its healthful Qualities. The best and most nourishing Bread is made of dry Rye-meal, not very white, but mixed with the smaller and finer Parts of the Bran. For by a chymical Analysis, blackish coarse Bread upon Distillation affords more Oil, which diffuses a more agreeable Flavour, and more effectually recruits Strength, than that which is drawn from fine Bread. But that which is made of Barley, Oats, Turkish Corn, or even of Acorns or Chestnuts, is heavier on the Stomach, nor is it so effectual for repairing lost Strength. See BOMPERNICKEL.

Eggs, because they contain a very fine, balsamic, pellucid Lymph, which approaches nearest to the immediate Matter of Nourishment, therefore afford a very speedy Nourishment to the Parts.

Eggs afford a very speedy Nourishment, if they are new laid and soft, according to that Maxim of the *Schola Salernitana*, *Si sumas Ovum, melle sit atque novum, i. e. If you incline to eat*
Z z z

an Egg, let it be soft, and new laid. The Yolk contains many unctuous, fat, and sulphureous Parts; the White, on the other Hand, consists of moist, balsamic Parts like those of the Serum, so that if any Food is universal, this is certainly such, and is in a peculiar Manner adapted to increase the seminal Liquor. Eggs are of all other Things most proper when the Body, either weakened by an Effusion of Blood, or wasted by the Shocks of a Fever, requires a very speedy Supply of Nourishment. For this Reason the *Talmud* advises poached Eggs for those who have had a Vein opened. They are vastly beneficial to old Men, who stand in Need of good Nourishment, and such as may be easily digested by the Stomach. I do not, on the contrary, approve of their being used by those who have their Stomachs loaded with Bile, or any Collection of acid Humours, because the more Bodies abounding with impure Juices are nourished, the more they are injured by that very Means. They are known to be fresh by their being pellucid when exposed to a clear Light, and by their retaining their milky Liquor, after having been boiled over a strong Fire.

Cheese and Butter are universal and most excellent *Aliments*.

Since Milk is resolved into Butter and Cheese, and since the Butter contains its oily, and the Cheese its mucilaginous and terrestrial Parts, it is therefore plain that these two, especially with the Addition of Bread and Water, must be a very valuable and universal Nourishment, fit for Persons of all Ages and Constitutions. The newer Butter is, it is of Consequence at once the more grateful to the Stomach, and the more conducive to Health; but when long kept, it grows foetid and rancid. The too great or too frequent Use of it, by relaxing the Fibres of the Stomach, weakens its Tone, and excites Nauseas. Butter joined with Cheese is likewise very nourishing; but Cheese should be neither too new, nor too old. If too new, it loads the Stomach, and binds the Belly; if too old, it increases the Acrimony and Impurity of the Humours, as it is endowed with a poignant Taste, and a foetid Smell.

As the Blood, the nutritive Juice, and in general all the Parts of the Body, are made up of three Elements, viz. First of one which is sulphureous, oily, and inflammable: Secondly one of an earthy, subtle, alkaline Nature, which is nevertheless more fixed: Thirdly one of an aqueous; so the several Kinds and Virtues of *Aliments* may be most commodiously reduced to these three Classes.

Aliments of these three several Qualities, duly mixed with one another, afford a proper Nourishment for the human Body.

The Flesh of Animals, especially when roasted, affords the Body its principal Supply of the sulphureous Part; but it is to be observed, that wild Animals are preferable in this Respect, to those of the tame and domestic Kind, *because their Oils and Salts are exalted by their habitual Exercise.*

That the Flesh of Animals contains more of a subtle Oil, than Vegetables, is plain from this, that in the Summer Flesh very soon turns putrid and offensive, which is not found to be the Case with Respect to Vegetables.

Vegetables have an Acid in their Composition, and their Oils, excepting some of the hotter Herbs, are for that very Reason so much the milder. Animals, on the other Hand, have no Acid in their Composition; for all the Parts of them, subjected to Distillation, yield a subtle Oil, and a volatile Salt; and this hot Oil is what principally excites an intestine and fermentative Motion in the Blood, and proves the Occasion of the penetrating and disagreeable Smell which is felt upon Putrefaction.

The roasted Flesh either of wild Beasts, or wild Fowls, furnish the Blood with greater Store of a light sulphureous Substance, than boiled Flesh, or those of tame Animals.

The Flesh of wild Animals, and wild Fowls, is undoubtedly lighter, more subtle and oily, but fraught with a smaller Quantity of mucous balsamic Matter, than the Flesh of tame Animals; because wild Animals use more violent Exercise, breathe a freer and purer Air, and feed upon drier *Aliments*. Add to this, that by the very Roasting much of the Humidity is evaporated, by which Means the oily Principle disentangling itself from the rest of the component Parts, and being exalted by the Fire, enjoys its full Liberty, and has the Ascendant over the other Parts.

Among the *Aliments* which furnish the Blood with its humid Parts, of Animals Fish, and of Vegetables Pot-herbs, the milder Roots, and some Summer Fruits, are reckoned the principal.

Fish subjected to Distillation yields much Phlegm, little Oil, and very little volatile Salt. *This Assertion is a little too general.* See *ALCALI*.

Because Fish contains only a very small Quantity of Oil and volatile Salt, it does not so easily turn putrid as Flesh, and for this Reason is generally less hurtful in Fevers than Flesh. *I suppose Hoffman means River Fish, which have Scales.*

To the third Class of *Aliments* which supply the Blood with its fixed and earthy Parts, belong all Kinds of Grains, as the

several Kinds of Bread, Rice, Pease, Beans, Lentils, Chestnuts, Almonds, Cacao, Cheese, &c.

From what has been said it will appear, that all such *Aliments* as are of a mild Quality, and resemble the Chyle and Blood, are fit for Nourishment.

All such *Aliments* therefore as either recede from, or are quite opposite to the Nature of the Chyle and Blood, are unfit for Nourishing the Parts.

All *Aliments* in which there is too much of an Acid, are improper for Nourishment; because Milk and Blood will not mix with an Acid, which is quite opposite to their Natures, and induces a Coagulation of the circulating Juices.

Hence the Reason is plain why the too liberal Use of Salads, Summer Fruits, especially whilst crude and unripe, Vinegar, sour Ale, and Wines that abound with an Acid, are so remarkably prejudicial to Health.

No Salt whatever can be mixed with the Blood, Chyle, and Milk, for which Reason all Salts, and all Foods too highly salted, must be improper and unfit for Nourishment.

Blood and Chyle never incorporate with spirituous Liquors, but rather separate from them; whence it is easy to judge how detrimental the free Use of them is, both to Health and Nourishment.

All sweet Things, as Sugar, and Honey, have no Affinity with the Blood and Chyle, but rather recede from their Nature, since they have an exquisite Taste which the Blood, Chyle, and nutritive Juices have not.

Though sweet Substances consist of a temperate Mixture of Parts, and may on that Account seem proper for Nourishment; yet the sweet Particles are Salts of a peculiar Kind, which are dissoluble in Water; hence they cannot be joined to the Substance of the Parts, since they are liable to be dissolved by the circulating Fluids.

Aliments proper for preserving Health ought not only to contain a laudable Juice, but should likewise be easily dissolved by the Stomach. Hence it is plain, that all those Kinds of Food, which on Account of the Closeness and Compactness of their Texture are with Difficulty dissolved, are for that very Reason less conducive to Health.

The Flesh of old Animals, Flesh dried in the Smoak, hard Eggs, Sea Fish almost of all Kinds, and very coarse Bread, on Account of the rigid and complicated Texture of their Parts, are for that very Reason with some Difficulty concocted by the Stomach, and converted into Juice and Blood.

As these hard and compact Foods require much Warmth, Abundance of fermentative and salival Lymph, and a strong Stomach to disjoin and break their complicated Textures, so they do not agree but with robust Constitutions, and People that labour hard; for this Reason the Inhabitants of some Northern Countries, such as the Swedes, the Norwegians, the Laplanders, the Finlanders, the Westphalians, and the Pomeranians are not easily injured by Foods of this Kind, because their Stomachs being not only naturally vigorous, but likewise strengthened by Custom, easily dissolve and digest them.

Of Vegetables, Roots, Fruits, and Herbs, especially if eat crude, and before they are sufficiently softened by Boiling, are difficultly concocted by the Stomach, because their fibrous Texture is hard to be dissolved.

Aliments of the vegetable Kind are for that Reason likewise heavy on the Stomach, since they produce many Flatulencies which disturb and disorder the primæ Viæ.

To this Class belong all unripe Fruits, Pease, Beans, Turnips, Rape, bulbous Roots, the several Kinds of Cabbage, Garlick, Onions, Radishes, Salads prepared of Lettice and other Herbs, Pears Apples, Prunes; Honey and Water, Honey, Must, and all sweet Fruits of whatever Kinds; for such is the Nature of these that they easily run into a Fermentation, or even become sour, and by Reason of their viscid Tenacity are resolved into Fumes and Vapours.

The tenacious and glutinous Parts of Animals, among which are the Stomach, the Intestines, the Spleen, the Kidnies, the Beaks, the Vulvæ, the Ears, the Skins, and the Claws, are of hard Digestion, and with Difficulty yield to the Menstruum of the Stomach.

Fat Substances are with Difficulty digested by the Stomach, for if an Acid, with which Vegetables principally abound, be added to them they run into a Coagulum.

Fat Foods require an alkaline Liquor for breaking and disjoining their complicated Textures; for which Reason a good Deal of Bile is requisite to prevent their proving hurtful to the Stomach; for when an Acid in the Stomach attempts the Solution of fat Substances, hot sulphureous Vapours and Eructations are caused, which are very troublesome to the Alimentary Tube.

The more viscid, rancid, and old, fat Substances are, they are for that Reason so much the worse. The new and recent are better, and sooner yield to Solution and Digestion.

Hence the Reason is plain why the Fat of Beef is not so hurtful when used in the Preparation of Food, as the Fat of Mutton, or that of the Kid, the Sow, or the Goose. Hence likewise

likewise may a Reason be assigned why old Flesh such as is hardened in the Smoak, because of the Rancidity which Fat contracts, and Bacon which has acquired a Rustiness and yellow Colour, are highly improper for the Preservation of Health.

In order to the Performance of the Office of Nutrition, it is necessary that the small Mouths of the internal rough Coat of the Intestines absorb the Chyle, and convey it to the Blood; for which Reason none of those *Aliments*, which either obstruct, or too much corrugate its Mouths, can be used, without in some Measure injuring Health.

Since the effete Mass of *Aliments* drained and exhausted, by the Separation of the Chyle from it, ought by the expansive and contractive Motion of the Intestines to be thrown off from them, it must of Course follow, that all those *Aliments* are prejudicial to Health which either pass through the Intestines with Difficulty, stop their Motions, or weaken their Tone, and impair their Strength, by suppressing Excretion so necessary to Health.

All *Aliments* that are acid, astringent, mouldy, glutinous, viscid, austere, or such as easily run into a Coagulum, are for this Reason prejudicial to Health, because they weaken the Tone of the Intestines, and by that Means prevent the superfluous Fæces from being discharged.

This Characteristic of Unwholesomeness belongs to all unripe Summer Fruits, Pears, Quinces, Pomegranates, Medlars, the Fruits of the Thorn, and Myrtle, Sea Biscuits, the Crust of Bread, Bread that is mouldy, hard, too coarse, or taken warm from the Oven, all farinaceous Substances, Gruels made of Pease, Beans, Lentils, and Millet, Cakes or Bread not sufficiently fermented, Cheese eat too freely, Sheeps Milk, and in fine all milky and fat Substances; all which *Aliments* do still more remarkably hurt the Constitution, if Wine, Acids, or cold Liquors, are used along with them; for by this Means they are reduced into a firm Coagulum, which adheres immovably to the Coats of the Intestines, and incrustates the Orifices of their small absorbent Vessels; whence proceed copious Flatulencies and Spasms.

The Unwholesomeness of *Aliments* is to be estimated from their impairing the fermentative and solutive Powers of the Stomach, since by that Means Crudities are generated.

The Action of the fermentative Juice is impaired and weakened by all fat, oily, and very sweet Substances; by Honey, Hydromel, or Honey and Wine, new Grapes, Summer Fruits, green Figs. All Pulses, farinaceous Substances, Gruels made of Millet, lukewarm *Aliments*, the fibrous Roots of Pot-herbs, Cheese, and curdled Milk, all which are the more prejudicial to Health, the greater Quantities of them are taken into an empty Stomach.

Every Acid, and every Putrefaction, are prejudicial to Health; and for that Reason all *Aliments* which easily grow sour or putrid in the Stomach, may be justly reckoned unwholesome.

An Acid is equally injurious to the Primæ Viæ and to the Blood; for it destroys the alkaline and balsamic Quality of the Bile, coagulates the Chyle, and retards the Expulsion of the Excrement. Add to this, that when it is mixed with the Blood, Stagnations of the Juices, and Infarctions of the Viscera, are generated. (This Assertion is a little too general. See the Article ACETUM.) And when the first Organs of Digestion are affected by putrefied *Aliments*, and the Putrefaction extends itself towards the more internal Parts, it communicates its own bad Disposition to the most wholesome Juices. Among those Foods which by their long Continuance in the Primæ Viæ grow acid, may be reckoned all Summer Fruits, Milk, Honey, almost all Sorts of Tarts, sweet Wines of several Kinds, Must, Hydromel, and fermented Bread; and those *Aliments* which soonest grow putrid by a long Stay in the Primæ Viæ are boiled Flesh; for of all *Aliments* used by us, none have a greater Tendency to Putrefaction than Flesh. Wherefore it is for very valuable Purposes, that Nature in acute Diseases, and in Habits abounding with impure Juices, does of her own Accord loath and abhor Flesh; and those Physicians laudably assist Nature in carrying on her Design, who in Cases of that Nature forbid their Patients the Use of nourishing Broths; for *Aliments* of this Kind wonderfully add to the Putrefaction which is the formal Cause of the Malignity. For this Reason when Pestilences or other epidemical Diseases rage, it is advisable to abstain from Flesh, and use acidulated Liquors, which strongly resist Putrefaction, and by that Means prove remarkably serviceable; but this is to be understood of those Constitutions which are infirm, weakened with Fevers, or loaded with impure Juices; so that Hippocrates was very just in his Observation, That the more Bodies abounding with impure Juices are nourished, the more they are injured. Corrupted Fish, putrid Flesh, or that of Animals which laboured under any Disease, have of all other Kinds of Food the strongest and most direct Tendency to produce a Putrefaction in the Body. *Hoffman. Medicina Rationalis Systemat.*

A CHYMICAL EXAMEN of FLESH-MEATS commonly used for BROTHS. By M. Geoffroy the Younger. *Mémoires de l'Acad. Roy.* 1730.

Of all *Aliments* those derived from Vegetables must be fittest for sick Persons, because, being less complicated with Respect to their Elements, they seem to bear a greater Analogy to Nature, as M. Lemery has proved in one of his Memoirs. How reasonable soever this appears, Broths made of Flesh are established by Custom, and generally pass for the most wholesome and necessary Food in Cases of Sickness, when it is almost the only Diet in Use.

It is only by an Examen of the Principles contained in this Sort of *Aliment*, that we are qualified to give it with Discretion, so that we may avoid on the one Hand the Danger of prescribing it too freely, in Circumstances where a strict Diet is almost the only Remedy, and yet not be too sparing on the other Hand, when the Patient exhausted by long Sickness requires a gradual Augmentation of *Aliment* for the Recovery of his Strength. For our Satisfaction in this Point, and that we may know how to adjust the Proportions of such Food in whatever Cases may offer, I have made an Analysis of such Flesh-meats as are most in Use, or contain an *alimentary* Juice which is accounted salutary; such as Beef, Veal, Hens, &c. I undertook this Disquisition only because the Analysis of carnosous Foods had not been carried so far as that of Vegetables.

The late M. Dodart, whose Memory is so much respected by the Academy, and who was distinguished for his extreme Accuracy, contented himself with saying, in 1702, That he was of Opinion, with the late M. Bourdelin, that the Flesh of Animals boiled to a Jelly, and afterwards distilled, yielded no less Quantity of volatile Salts, than if they had been distilled raw. Now as it appeared that none had been so careful as to determine the Quantity of the Extract which these Jellies left after Evaporation, and what these Flesh-meats had communicated of their Principles to the Water in which they had been boiled, I undertook the Affair, with an Intention to adjust that neglected Part according to Analyses which are already well known. I proposed to myself to discover the Quantity and Quality of the Principles of the raw Flesh-meats which are put in Distillation; what Principles they impart to those solid Extracts which are made out of them by Ebullition and Evaporation; the essential Difference of those volatile Salts which are drawn from them; what Principles are yet further contained in these Meats, after they are exhausted of their Juices, and become dry; lastly, I shall determine, in another *Memoir*, the Quantity of Nutrient that is to be expected from the Bones and osseous Substances in the Dressing.

BEEF.

To begin with Beef, I took a thick Piece of the same, and having cleared it of the Fat, Bones, Cartilages, and Membranes, had it cut into Slices of a Quarter of a Pound Weight. One of these I distilled in a Bath Heat, without any Addition; it afforded two Ounces, six Drams, and thirty-six Grains of Phlegm, or Humidity, which passed into the Receiver, and the dry Flesh, which remained in the Retort, was reduced to the Weight of one Ounce, one Dram, and thirty-six Grains. The Phlegm had the Smell of Broth, and had some Characters of a volatile Salt, for it precipitated a white Powder from a Solution of corrosive sublimate Mercury, as is the Manner of pure volatile Salts; and the Phlegm that came over last in the Distillation gave yet more sensible Marks thereof, by precipitating a greater Quantity of the same Solution.

The dried Flesh, weighing as aforesaid, being placed in the Retort, in a reverberatory Furnace, in order to an Analysis, afforded a small Quantity of Phlegm, charged with a volatile Spirit, which weighed one Dram four Grains, and after that three Drams forty-six Grains of a volatile Salt, and a thick foetid Oil, which could not be separated.

The Caput Mortuum, or Substance left in the Retort, weighed three Drams thirty Grains. It was a black Coal shining, and of little Weight, which was calcined in a Crucible over a very strong Fire, and by that Means reduced to Ashes, which weighed forty Grains. These Ashes, being exposed to the Air, imbibed the Humidity which augmented their Weight. They were made into a Lixivium, which being examined afforded no Signs of an alkaline Salt, but of Sea-salt, by precipitating a white Powder from a Solution of Mercury in Spirit of Nitre. It caused no Change in the Solution of the sublimate Corrosive, except that, after it had rested some Time, it formed at the Bottom of the Vessel a Sort of Cloud, in Form of a slight Coagulum. Now hitherto we know of no Salts, except those which are of the Nature of Sal Ammoniac or Sea-salt, that precipitate a white Powder from a Solution of Mercury in Spirit of Nitre; nor any Thing, except the absorbent animal Earths that I have observed to slightly precipitate a Solution of Corrosive sublimate.

Upon

Upon four Ounces of Beef, dried in a Bath Heat, I poured the like Weight of Spirit of Wine well rectified, and let them digest together for a very long Time. The Spirit took a weak Tincture from the Flesh, and extracted from it some Drops of Oil, the Colour it had acquired was red, and it had a faint Smell. Oil of Tartar mixed with this Spirit discovered itself by an urinous Smell. Its Mixture with a Solution of Mercury in Spirit of Nitre turned it white, whence proceeded a yellowish white Precipitate. This Liquor afterwards became gritty, from the urinous Sal Ammoniac with which the Spirit of Wine was impregnated. The Experiment of mixing this Spirit of Wine with a Solution of Corrosive sublimate produced a white Precipitate, which turned a little yellow. In this last Case there would have been no Precipitation, but for the urinous volatile Salt which entered the Spirit of Wine with the Sal Ammoniac.

Four Ounces of the like Beef being boiled in a Vessel well closed with three Pints of Water, and the Boiling being renewed six Times with the like Quantity of new Water, in order to exhaust as much as possible the Juice of the Meat, I put together all the Liquors of these Dressings; the two or three last of which had only a very faint Smell of Veal-broth, evaporated them by a gentle Fire, and towards the End of the Evaporation filtrated them in order to separate the earthy Part; and there remained in the Vessel an Extract moderately solid, which very readily imbibed Humidity from the Air, and was found to weigh one Dram fifty-six Grains. Thus the Result of this Experiment is, that since four Ounces of boiled Beef afford one Dram fifty-six Grains of Extract, one Pound of the like boiled Beef must yield seven Drams eight Grains of the like Extract, besides eleven Ounces, six Drams, sixty-four Grains of Phlegm, and three Ounces two Drams of Fibres exhausted of all their Juice. This Produce may vary according to the Feeding of the Animal in good or bad Pastures, or as the Flesh we chuse for the Experiment is fresher or staler. It is to be observed, that good Beef boiled will scarce ever turn to a Jelly, if we strip the Flesh of the Membranes, Tendons, and Cartilages. Now by *Jelly* I do not mean the Extract above-mentioned, but what after Boiling becomes of itself one clear, trembling Mass when it is cold.

The Extract of this Beef, which weighed one Dram fifty-six Grains, afforded in its Analysis one Dram two Grains of volatile Salt, which adhered to the Sides of the Receiver, not in Ramifications, as is usual with volatile Salts, but in flat Crystals, shaped for the most Part like Parallelopipedons. The Spirit and Oil, which came together, after the volatile Salt, weighed thirty-eight Grains. The fixed Salt of Tartar, mixed with this volatile Salt, seemed to augment its Force, which might give Room to suspect that this last was an urinous Sal Ammoniac, and so much the more for that the Crystals of this volatile Salt had a near Resemblance to the volatile Salts of Urine, which are known to be different from other volatile Salts extracted from the Flesh of Animals.

The Caput Mortuum, or Coal which remained in the Retort, was very light and porous, and weighed but six Grains. The Lixivium thereof precipitated a white Powder from a Solution of Mercury, like the Lixivium of the Ashes of the raw Beef above-mentioned.

The six Drams thirty-six Grains of the dried Mass of Fibres, being analysed after the same Manner, yielded two Grains of volatile Salt, in the Form of common volatile Salts, which adhered to the Sides of the Receiver in Ramifications, mixed with a little fetid Oil, thick enough, but not so brown as what was extracted from the boiled Mass. The Spirit, which was of a citron Colour, being separated from its Oil, weighed thirty-six Grains. The Caput Mortuum weighed one Dram sixty Grains.

The Lixivium made after the Calcining could not alter the Solution of Mercury made with Spirit of Nitre, because, when the Fibres of this dried Beef were analysed, they were already deprived, not only of all their essential Sal Ammoniac, but also of their fixed Salt, which is of the Nature of Sea-salt; for these Salts passed off, in a great Measure, with the Oils, into the Water, during the long Boiling of the Flesh. This Lixivium had only a faint Tincture of the Colour of an Opal. The Solution of Corrosive sublimate proves that there still remains an oily Part. It is known that sulphureous Substances precipitate a black Powder from that Solution, or rather a deep Violet, which begins with an opal Colour.

It appears then by the Analysis of the boiled Mass, that there passes into the Water, during the Ebullition, a Sal Ammoniac, which we may look upon as the essential Salt of this Kind of Flesh, and which, in the Distillation of the Extract, appears under a different Form from what was extracted from the Flesh distilled raw, which was the Method of former Analyses. And it seems probable, that this Salt is the very same as is separated from the Blood by Urine after Nutrition, since the volatile Salt, which I gained by this Extract, has a near Agreement, as I made appear, with the Salt extracted by Analysis from Urine. The Salt then produced by the Extraction will be the Product of that natural Sal Ammoniac which is in Flesh-meats, and is easiest to be sublimated with that which is afterwards extracted

from the Fibres. And we may say, after this Operation, that the volatile Salts are almost constantly the Product of the Fire, since Principles so little sensible will discover themselves no farther, than as they are disclosed by the Violence of the Fire acting on the Matter by Burning or Calcining, in order to the Formation of the volatile Salts.

I have given a particular Relation of my Operations on Beef, that I might give an exact Account of my Labours, which were the same on all other Kinds of Flesh-meats which I examined, so that I need not repeat the Process in the Course of this *Memoir*.

VEAL.

Four Ounces of Flesh, cut from a Fillet of Veal, and distilled in a Bath Heat, as the Beef was, afforded two Ounces, six Drams, fifty-four Grains of Humidity; the dried Flesh weighed one Ounce, one Dram, eighteen Grains, after it had yielded out its Principles by Analysis. The Caput Mortuum weighed two Drams fifty one Grains; its Lixivium gave Marks of a Sea Salt, as did the Beef.

Four Ounces of the same Flesh boiled afforded a Substance somewhat like a Jelly, which was reduced by Extraction to two Drams thirty Grains of a pretty solid Matter, though difficult to be dried. The Mass of the dried Fibres weighed five Drams sixty-two Grains: So that one Pound of a Fillet of Veal contains eleven Ounces, six Drams, sixty-four Grains of Phlegm, one Ounce, one Dram, forty eight Grains of Extract, and two Ounces, seven Drams, thirty two Grains of Fibres dried, or intirely deprived of their Juice.

By comparing the Products of the first Operations made on Beef with the like made on Veal, I found the Veal to contain more Phlegm than the Beef, by four Ounces eighteen Grains; that it afforded forty-six Grains more of Extract, and that the dried Fibres weighed forty-six Grains less. Now since the dried Fibres weigh less than those of the Beef, and since more Phlegm and gummy Parts are thence extracted, may we not presume that the Liquids which circulate in the Body of the Calf, where they serve not only for Nutrition, but also for the Growth of the Animal not yet come to Perfection, contain Particles more disposed to become solid, than the Liquids circulating in the Beef, where they serve only for Nutrition? For the same Reason the Extract from the Veal becomes firmer than that from the Beef; because it contains a greater Quantity of those gummy Particles which are appointed to become solid for the Lengthening of the Bones, Cartilages, Tendons, &c. And it is impossible to give the same Firmness to the Extract of Beef, unless it be boiled with the Bones, Cartilages, and Membranes, which are nothing, as I may say, but a Composition of these gummy Particles.

The two Drams thirty Grains of Extract from the Veal afforded me in the Analysis one Dram twelve Grains of Spirit, Oil, and volatile Salt, which last had the urinous Character like that of Beef. The Caput Mortuum left in the Retort weighed but a Dram.

The five Drams sixty-two Grains of dried Fibres, from which the Extract was made, being put in the Reverberatory, afforded one Dram sixty-six Grains of volatile Salt, of the Character of common volatile Salts, that is, it was in Ramifications; and one Dram thirty-seven Grains of Oil and volatile Spirit; the Caput Mortuum in the Retort weighed two Drams eighteen Grains.

Here I take again the Weight of these Caput Mortuums, or Coals, in which there can be no Mistake, especially with Respect to their Weight. That of the Extract of Beef weighed but six Grains, that of the Extract of Veal seventy-two; so that there was a Difference of sixty-six Grains in the Weight of the two Coals of the Extracts.

The Coal of the dried Fibres of the Beef weighed but one Dram sixty Grains; that of the Veal two Drams eighteen Grains; here is another Difference of thirty Grains.

These two Excesses added together make a Total of ninety-six Grains of Parts, considered as solid, more in the Veal than in the Beef. These solid Parts added to the gummy Particles spoken of above, which are appointed to become solid for the Growth of the Animal, being very considerably more numerous in the Veal than in the Beef, might not one conjecture that if these Particles preserve in our Bodies, when we take them as *Aliment*, the same Disposition which they seem to have in the Body of the Animal whence they are taken, Veal must be agreeable to Children, because they are growing, and to sick Persons who are much extenuated, and have undergone a considerable Loss of Flesh; and that Beef would better agree with adult Persons and such as enjoy a perfect State of Health? But I offer this only as a Conjecture.

MUTTON.

Four Ounces of Mutton, taken from the Leg, distilled in a Bath Heat, yielded two Ounces six Drams thirty Grains of Phlegm.

The Flesh drained of its Humidity weighed one Ounce one Dram forty two Grains, which being placed in a Reverberatory, after

after it had been exhausted of its Principles, left in the Retort a Coal which weighed but two Drams thirty-six Grains; the Lixivium of which gave Marks of a Sea Salt, that is to say, it made not the least Alteration in a Solution of corrosive Sublimate, and precipitated a white Powder from a Solution of Mercury.

Four Ounces of the same Mutton-boiled, yielded two Drams fifty-eight Grains of Extract: Hence one Pound of such Flesh-must yield eleven Ounces five Drams thirty-two Grains of Phlegm, one Ounce three Drams sixteen Grains of Extract, two Ounces seven Drams twenty-four Grains of Fibres, exhausted of their Juice.

The two Drams fifty-eight Grains, distilled in a Reverberatory, afforded about as much volatile Salt as the Beef, and more than the Veal; its Crystals took a better Form. The Caput Mortuum weighed but fifty-four Grains, the Lixivium of which gave more abundant Marks of a Sea Salt than the other Flesh-meats.

The dry Fibres of this Mutton, after the Extract was made, weighed but five Drams sixty Grains; which evidently proves, that Mutton contains more nourishing Parts, and volatile Principles, than either Beef or Veal, since it leaves in its Analysis less of a fixed Matter. The Analysis of these Fibres yielded a good Quantity of volatile Salt in Ramifications, such as always results from the Analysis of the dried Fibres of Flesh-meats: The Caput Mortuum weighed two Drams, its Lixivium gave very slender Marks of a Sea Salt with Solutions of Mercury, because the greatest Part of the Salts were volatilized, or passed into a Sal Ammoniac in the Extract.

CHICKEN

This being one of the most common kinds of Flesh, eaten alone, or with other Meats dressed with it, I undertook a like Examen of it as I did of the others. I took a Chick which weighed nine Ounces four Drams forty-eight Grains; after bruising it, I boiled it in several Waters, which produced a Jelly-like Extract, which weighed seven Drams thirty-six Grains; the Flesh and Bones, dried in a Stove, as the other Flesh-meats, weighed but one Ounce six Drams forty Grains: Whence the Chick contained six Ounces six Drams forty-four Grains of Humidity. I distilled, separately, in a Reverberatory, six Drams eighteen Grains of the dry Flesh, and three Drams nine Grains of the dry Bones, which was all I could get: The Flesh yielded some volatile Salt in beautiful Ramifications; the Caput Mortuum weighed one Dram six Grains; the Lixivium of the Coal gave no Mark of a Salt.

The Bones afforded, besides the other Principles, a small Quantity of volatile Salt, of the same Figure as that of the other Sorts of Flesh: The Caput Mortuum, which weighed two Drams eight Grains, produced nothing remarkable in the Experiments made on its Lixivium.

The Extract of the Flesh, which weighed seven Drams thirty-six Grains, yielded a volatile Salt of the same Figure as that of Beef, which however would not come over without enforcing the Fire: The Caput Mortuum weighed two Drams twenty Grains; the Lixivium of it afforded some Signs of a Sea Salt.

The COCK.

An old Cock, which weighed two Pounds two Ounces six Drams, yielded four Ounces seven Drams sixty-six Grains of gummy Extract, transparent, and very dry.

A CAPON.

The Flesh of a Capon, stripped of the Fat, and weighing one Pound seven Ounces two Drams forty-eight Grains, yielded one Ounce five Drams of Extract, which it was difficult to dry.

PIGEONS.

Two young House-pigeons, which weighed fourteen Ounces, afforded an Extract solid enough to become dry; it weighed seven Drams thirty-five Grains.

The PHEASANT.

A Pheasant, of the Weight of two Pounds, afforded a saline Extract, which could not be sufficiently dried to form a solid Extract, tho' I left it a long time in the Stove: That Extract weighed two Ounces four Drams sixteen Grains; so that this Flesh furnishes more Extract, than Beef.

The PARTRIDGE.

Two Partridges, weighing one Pound two Ounces five Drams, yielded one Ounce six Drams thirty Grains of Extract, less solid than that of the Pheasant.

The TURKEY.

A Turkey, weighing nine Pounds, yielded twelve Ounces forty-three Grains of Extract, considerably solid, which could not be dried, but always continued oily, and, as it were, resinous.

The Result of all that has been said, is, that the Extract of boiled Flesh-meats ought to be looked upon as the nourishing Part afforded by the Flesh of Animals in boiling; I don't mean by this, that the Whole of it is concerned in Nutrition, because it contains also gross Particles, which, in the Work of Digestion, are separated as useless by the Organs, in greater or lesser Quantities, according to the State of the Patient: This being supposed, we are to make it appear, what Nourishment is communicated to a sick Person from the Quantity of a Gallon of common Broth.

If, according to Custom, the Boiling consists of a Slice of Beef weighing a Pound, a Pound and a half of a Fillet of Veal, with half a Capon, which may weigh fourteen Ounces; if all these Sorts of Flesh, weighing together three Pounds six Ounces, are boiled in seven Pints of Water till reduced to three Pints, in order to make six Messes, which ought to be a Jelly when the Meat is sufficiently boiled, these six Messes will contain two Ounces five Drams thirty-four Grains of Extract at least; for the total Extract of all these Meats would be more by three Drams twelve Grains, if the Boiling were repeated as I did it, when I had a mind to have out all the nourishing Juice; and if the Patient takes the whole fix in twenty-four Hours, he will consequently have received about two Ounces five Drams thirty-four Grains of Aliment, which being compared with the whole Weight of Bread and Flesh, which he may be supposed to eat in Health, appears to be more than enough: Hence the Vulgar are mistaken, in imagining that sick Persons are not sufficiently nourished with Broths.

There are Circumstances in which even Veal-water, or Chicken-water, would afford sufficient Nutriment to the Patient; for the first, which would be made with one Pound of Veal, boiled in four Pints of Water till reduced to half, would contain one Ounce one Dram forty-eight Grains of Extract; and Chicken-water, where the Chick perhaps might weigh nine Ounces four Drams and some Grains, affords seven Drams thirty-six Grains of Extract: You are also desired to take Notice, that the Oil and volatile Salts of these Extracts, which are dispersed in the Boilings, are more disengaged, and more readily pass into the Blood, than those which are still embarrassed in the gross Fibres of the Meat, and require a long Time for Digestion; not to mention, that it is easier for this Kind of Aliment, than any other, to unite with the Juices of such Plants as shall be thought proper to mix with it, in order to temper and moderate its Action in the Blood.

I shall not repeat here the Relations between Extracts of other Flesh-meats, because I have joined with this Memoir a Table, containing, in Columns, the particular Products of my Operations.

A TABLE of the PRODUCTS of EXPERIMENTS made upon FLESH-MEATS.

BEEF RAW, distilled in Balneo Mariae.			
	Oz.	Dr.	Gr.
First Water.			
Four Ounces of Beef yielded of the first Phlegm	2	6	36
The dry'd Flesh in Balneo Mariae weighed	1	15	36
Total	4	0	0
Extract from Beef boiled.			
Four Ounces of Beef yielded of Extract	0	1	56
Weight of the dry'd Fibres	0	6	136
Total	0	8	20
Water, or Phlegm, drawn in Balneo Mariae	2	6	36
To this must be added a second Phlegm, which could not be extracted in Balneo Mariae	0	1	16
Total of Humidity, or Phlegm, contained in the four Ounces of Beef, 2 Ounces, 7 Drams, 52 Grains.			
Total	4	0	0
The Weight of the several constituent Parts of a Pound of Beef.			
One Pound of sixteen Ounces contained of Phlegm	11	6	64
Of Extract	0	7	8
Dried Fibres	3	2	0
Total	16	0	0
Analysis of the Extract of four Ounces of Beef, which produced 1 Dram 56 Grains.			
Volatile Salt	0	1	2
Oil and Spirit	0	0	38
Caput Mortuum, or Coal	0	0	6
Loss	0	0	10
Total	0	1	56

ALI

	Oz.	Dr.	Gr.
<i>Analysis of the 6 Drams 36 Grains of dried Fibres.</i>			
Volatile Salt	0	2	0
Volatile Spirit	0	0	36
Caput Mortuum, or Coal,	0	1	60
Loss	0	2	12
Total	0	6	36

VEAL RAW.

<i>First Water.</i>			
Four Ounces of Veal yielded for the first Phlegm	2	6	54
Dried Fibres in Balneo Mariae	1	1	18
Total	4	0	0

<i>Extract of Veal.</i>			
Four Ounces of Veal produced of Extract	0	2	30
The dried Fibres	0	5	62
Water in Balneo Mariae	2	6	54
Total	3	7	2

To be added a second Phlegm, not extracted in Balneo Mariae, or Loss,	0	0	70
Total	4	0	0

Water, or Phlegm, of the first Evaporation	2	6	54
Of the second	0	0	70
Total	2	7	52

The Weight of the several Divisions of the Pound of Veal.

The Pound of 16 Ounces contained of Phlegm	11	6	64
Of Extract	1	1	48
Dried Fibres	2	7	32
Total	16	0	0

Analysis of the Extract of Veal, weighing 2 Drams 30 Grains.

Volatile Salt, Oil, and Spirit	0	1	12
Caput Mortuum	0	1	0
Loss	0	0	18
Total	0	2	30

Analysis of the 5 Drams 62 Grains of dried Fibres.

Volatile Salt	0	1	66
Oil and Spirit	0	1	37
Caput Mortuum	0	2	18
Loss	0	0	13
Total	0	5	62

MUTTON distilled in Balneo Mariae.

<i>First Water.</i>			
Four Ounces of this Flesh yielded of the first Humidity or Phlegm	2	6	30
Dried Mutton in Balneo Mariae	1	1	42
Total	4	0	0

Extract of Mutton boiled.

Four Ounces of Mutton produced	0	2	58
Dried Fibres	0	5	60
Water in Balneo Mariae	2	6	30
Total	3	7	4

To this add a second Phlegm, which could not be extracted in Balneo Mariae	0	0	68
Total	4	0	0

Weight of the several Divisions of one Pound.

The Pound of 16 Ounces contained of Phlegm	11	5	32
Of Extract	1	3	16
Of dried Fibres	2	7	24
Total	16	0	0

ALI

Analysis of the Extract of four Ounces of Mutton, 2 Drams 58 Grains.

Volatile Salt	0	1	0
Oil and Spirit	0	1	0
Caput Mortuum	0	0	54
Loss	0	0	4
Total	0	2	58

Analysis of the five Drams sixty Grains of dried Fibres.

Volatile Salt, and inseparable Oil	0	3	12
Spirit	0	0	24
Caput Mortuum	0	2	0
Loss	0	0	24
Total	0	5	60

LAMB, a Pound of the Flesh without Fat.

The Extract difficult to be dried, and always moist	1	1	39
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A CHICK, Flesh and Bone together, 9 Ounces 4 Drams 48 Grains.

Phlegm	6	6	44
Extract	0	7	36
Dried Flesh and Bones	1	6	40
Total	9	4	48

Analysis of the 7 Drams 36 Grains of Extract.

Spirit, Oil, and Phlegm	0	4	15
Volatile Salt and Oil	0	0	58
Caput Mortuum	0	2	20
Loss	0	0	15
Total	0	7	36

Analysis of the dried Fibres, being 6 Drams 18 Grains.

Spirit, and a thick Oil	0	3	34
Volatile Salt	0	1	0
Caput Mortuum	0	1	6
Loss	0	0	50
Total	0	6	18

Analysis of the Bones of the Chick after boiling, being 3 Drams 9 Grains.

Spirit, Oil, and volatile Salt	0	0	69
Caput Mortuum	0	2	8
Loss	0	0	4
Total	0	3	9

An Old COCK, Weight 2 Pounds 2 Ounces 6 Drams.

The dry Extract like a Jelly	4	7	66
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A CAPON, the Flesh cleared from the Fat, 1 Pound 7 Ounces 2 Drams 48 Grains.

The Extract difficult to be dried	1	5	0
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Tame PIGEONS, two weighing 14 Ounces.

The solid Extract in Lozenges	0	7	35
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A PHEASANT, Flesh and Bones weighing 2 Pounds.

Extract of a soft Consistence	2	4	16
Dried Fibres, with the Bones	9	2	32
Phlegm	20	1	24
Total	32	0	0

Analysis of the Flesh only of the Pheasant, 4 Ounces.

Phlegm	2	6	36
Spirit and Oil	0	4	0
Volatile Salt	0	2	36
Caput Mortuum	0	2	48
Loss	0	0	24
Total	4	0	0

Analysis

Analysis of the Extract of the Pheasant, 1 Dram, 56 Grains.

	Oz.	Dr.	Gr.
Spirit and Oil	0	0	48
Volatile Salt	0	0	36
Caput Mortuum	0	0	36
Loss	0	0	8
Total	0	1	56

The dried Fibres without the Bones, 6 Drams 36 Grains.

	Oz.	Dr.	Gr.
Spirit, volatile Salt, and a thick Oil	0	5	10
Caput Mortuum	0	1	12
Loss	0	0	14
Total	0	6	36

PARTRIDGE: Two old Partridges weighing 1 Pound 2 Ounces 5 Drams.

An oily, or fat and humid Extract	1	6	30
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A TURKEY: A Turkey of 9 Pounds.

A fat and oily Extract	12	0	43
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CALVES HEARTS: Two Calves Hearts weighing 11 Ounces 4 Drams.

Yielded an Extract which would not turn to a Jelly, nor be dried	0	3	60
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A CALF'S LIVER, weighing 2 Pounds 7 Drams.

It afforded of a watry Extract	2	1	60
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CALVES FEET, eight Feet weighing 6 Pounds 8 Ounces.

	P.	O.	D.	G.
Phlegm	3	5	4	45
A gummy and dry Extract	0	8	3	27
The Bones as they came humid out of the boiling, with the Cartilages	2	10	0	0
Total	6	8	0	0

Analysis of 1 Ounce of the gummy and dry Extract of Calves Feet.

	Oz.	Dr.	Gr.
Spirit and Oil	0	3	0
Volatile Salt	0	2	18
Caput Mortuum	0	2	25
Loss	0	0	29
Total	1	0	0

Two Macreuses weighing 2 Pounds 7 Ounces.

The solid Extract, which grew moist at the Change of the Weather	2	1	50
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Mr. Geoffroy in a Memoir for 1732, pursues his Subject, and proceeds to the Analysis of other Substances used sometimes by way of Aliment, or Medicine:

Having in my former Memoir given the Analysis of some of our most juicy Foods, I now proceed to that of the most solid Parts of Animals, which are their Bones; and having, for that Purpose, made Choice of the Bones of an Ox's Leg, because they contain little Marrow, I ordered them to be carefully stripped of their Flesh, and rasped down, taking care at the same time not to break the inner Lamina, which covers the Marrow: I put a Pound of these fine Shavings, well-dried, into a Pewter Pot, exactly covered with eight Pints of Water, with which I boiled them five several times, adding fresh Water at each Boiling, and pouring the Water of each former Boiling into a Vessel by itself: The Shavings of these Bones were reduced into a whitish Kind of Pap, and the Broth, loaded with their most subtle Parts, could not be depurated without Filtration, and that too with some Difficulty: Being put into a Silver Bason, in order to evaporate, it did not thicken into a Jelly till towards the End of the Evaporation, during which no Precipitation happened.

This Jelly, or Extract, dried readily in the Air, and was reduced into a gummy, transparent, very dry Substance, which weighed three Ounces three Drams and thirty-six Grains: I call it a gummy Substance, because it remained clear and transparent, became brittle by being dried, and, as to its external Appearance, exactly resembled the Gum produced by the extravasated Sap of Trees.

An Ounce and forty-five Grains of this Substance, subjected to Distillation, yielded three Drams and eighteen Grains of

a very white volatile Salt, which crystallized itself in Ramifications, as other volatile Salts generally do: The Caput Mortuum, remaining in the Retort, weighed only two Drams and thirty-six Grains; its Lixivium had some faint Characteristics of Sea Salt, like the Caput Mortuum of the Beef, mentioned in my first Memoir.

Four Ounces of the dry white Paste which remained upon the Filtration, when subjected to Distillation by a reverberatory Fire, yielded very little volatile Salt, which was formed into flat Crystals of the Figure of Parallelopipeds, like those procured from the Extract of the Beef Broth: The Caput Mortuum lixiviated did, upon Trial, give some Marks of a fixed Alkali; and this Substance, after a new Calcination in a close Fire, ought to be looked upon as a kind of Calx, or Lime: Its Lixivium, attentively examined, left me no room to doubt of its being possessed of the Characteristic of a fixed Alkali, since it produced a red Precipitation in a Solution of corrosive Sublimate, like well calcined Hartshorn.

HARTSHORN.

Hartshorn managed in the same Manner, and in the same Quantity with the Bones of Beef, yielded a clear Broth; which became a Jelly as soon as cold; after Evaporation it left a gummy Substance, which, when dry, weighed four Ounces two Drams and sixty-three Grains.

An Ounce and forty-five Grains of this Substance, analysed by a reverberatory Fire, yielded only two Drams of volatile Salt in Ramifications, and thirty Grains of a volatile Citron-coloured Spirit, mixed with a little fetid Oil of a deep red Colour; the Caput Mortuum weighed two Drams and thirty-six Grains; its Infusion produced a greyish white Precipitation, in a Dissolution of Mercury, and in a Solution of corrosive Sublimate.

The Mass remaining after the several Boilings, when pretty dry, weighed only nine Ounces three Drams and thirty-six Grains: Four Ounces of this Substance, subjected to an Analysis, yielded one Dram and eighteen Grains of a volatile Salt, of the same Figure with that of the Beef Broth, and, like it, loaded with an Oil and a Phlegm; which, when separated with all possible Care, weighed about a Dram: The Caput Mortuum of this Substance, which weighed three Drams and twenty-four Grains, gave in its Lixivium all the Proofs and Marks of a Sea Salt; being then freed from the Remains of its volatile Oil, by Calcination, it produced a red Precipitation in the Solution of corrosive Sublimate.

I have made the same Experiments upon Ivory, thinking it proper to compare the Results of them with those made on other bony Substances, since Ivory is often used in Ptisans, Broths, and Jellies for the Sick.

IVORY.

A Pound of Ivory Shavings produced a limpid clear Broth, which coagulated in Proportion to its cooling; but, in the Evaporation, it insensibly let fall a very fine white Earth, loaded with some Quantity of an essential Salt, which obliged me to strain the Liquor again: The gummy Part, which remained after the Evaporation of this Broth, now twice filtrated, became more dry, hard and solid, than that produced from the Bones of the Beef, but less coherent than that produced from the Hartshorn: This gummy Substance weighed four Ounces seven Drams and one Grain; and when subjected to an Analysis, it first yielded a little Phlegm, then an Orange-coloured Spirit, then a white volatile Salt in Ramifications, which weighed forty-eight Grains; the thick black Oil, which it yielded last of all, weighed, together with the Spirit, three Drams and thirty-six Grains.

The Lixivium of the Caput Mortuum, which weighed three Drams and twelve Grains, produced a white Precipitation in the Solution of Mercury, and only rendered that of the corrosive Sublimate a little turbid.

The white Paste remaining after the Filtration of the Broth, afforded no concreted volatile Salt in Distillation; it only yielded a Citron-coloured Oil, and a volatile Spirit of a bluish Colour: The Whole, taken together, weighed four Drams and thirty-six Grains. The Lixivium of the Caput Mortuum, at first rendered the Solution of corrosive Sublimate turbid, and at last produced a white Precipitation, but produced no manner of Effect upon the Solution of Mercury.

These three Analyses furnish us with a very curious Observation: One would think it more difficult to extract, by boiling, the volatile Salts from solid Substances, than from those of a tenderer Nature; yet, in boiling, they deposit in the Water their Principles, and volatile Salts, sooner, and in greater Quantities, than the Fleashes of Animals: For, in my first Analyses made last Year, tho' I had stripped, if I may so speak, those Fleashes of their Principles by boiling, yet their Fibres, when dry, yielded a considerable Quantity of volatile Salt: This, Mr. Doddard has asserted; this, Experience has confirmed. In comparing the Analysis of Beef with that of its

its Bones, we find, that six Drams and thirty-six Grains of dry Fibres, that remained of four Ounces of Flesh, have yielded two Drams of volatile Salt and Oil; whereas four Ounces of the dried white Mass, produced from boiled Bones, have yielded only three Drams and an half of Spirit, impregnated with a very little fetid Oil, and with so small a Quantity of volatile Salt, that it could not be weighed. That which, in the Analysis of Flesh Broths, appeared to me an essential Salt, probably remains closely united to the Bones during their Growth; since in the Analysis of Bones, it does not discover itself in the same Order in which the same Salts discover themselves in the Analysis of Flesh. An Extract from Flesh has first yielded me an urinous Sal Ammoniac, of the Figure of Parallelopipeds; their Fibres, a volatile Salt in Ramifications, which nevertheless was of a more fixed Nature, since it was forced out by the Violence of the Fire, which alcalizes it. The Bones of Beef, on the other hand, have, in boiling, freed themselves of the ramified volatile Salts contained in their Laminæ; and these same Laminæ, after being long boiled in Water, have yielded an urinous Sal Ammoniac, though in a small Quantity, like that which I have drawn from an Extract of Flesh. Thus one may conceive, that Bones are more easily penetrated by Water than the Fibres of Flesh, which, by their pliant yielding State, elude, as it were, the Action of that Fluid.

Hartshorn is at first a fleshy Substance, as may be observed in the small sprouting Horns of the Deer; but, in Proportion as the Horn is nourished and augmented, that which before consisted of a fibrous fleshy Substance, and a thick Skin, furnished with Vessels, becomes so dry, that the Juices not being able any longer to enter it, that Horn falls off, being thrust out by a new sprouting Horn. If an Observation of the Hartshorn was not sufficient to prove it a fleshy Substance, yet the Chymical Analysis of it would almost afford a convincing Proof, that it is so; since it is a Substance which yields Principles, which, of all others, come the nearest those of Animal Flesh: Its Extract yields a sufficient Quantity of volatile Salt, which indeed appears in Ramifications; and the gross thick Substance, that remains after Filtration, yields one Dram and eighteen Grains of volatile Salt of an urinous Nature, which is a considerable Quantity, and makes Hartshorn approach nearer to a fleshy Substance than to that of Bones, since those latter furnish scarce any of that Salt.

Ivory is a Substance which pretty much resembles Bones, and like them consists of several Laminæ, or Plates. If we saw Ivory into thin Plates, and boil them in Water, these Laminæ, or Plates, may be easily separated; for they disentangle themselves from one another, and at the same time preserve their almost circular Figure. It is probable, that the Teeth of the Elephant have not, at first, all that Solidity which we find them endowed with; that they have their Vessels corresponding to the Pivot which fills the cony Hollow of the Base of the Teeth; and that, at last, being arrived at their full Growth, which they acquire in the Way of Strata, or Layers, and in many Years, the Vessels, we now suppose, are dried up and disappear. Ivory, upon its Analysis, yields no other Principles than those of Bones; that is to say, all the volatile Salt in the Extract, and almost none in the white Mass, stripped of these Juices. Ivory contains a greater Quantity of Juice than Bones, but has nevertheless a smaller Portion of volatile Salt in it: One might assign as a Reason for this, that the Ivory comes from warm Countries; and that in its Way to the African Ports, the Heat of the Climate has insensibly dissipated the volatile Salts.

The Analysis of a Chicken confirms my Position, that the younger the Bones are, the more immediate Approaches they make to the Nature of Flesh; since three Drams and nine Grains of Chickens Bones yield thirty-five Grains of an urinous or an ammoniacal Salt; an Extract of Chicken Broth does not yield its volatile Salt but by means of a strong Fire, and that Salt resembles urinous Salts; that is, it is of the Figure of Parallelopipeds; whereas that yielded by the Fibres deprived of their Juices, was in beautiful Ramifications, and under a drier Form.

W H E Y.

I also examined Whey, and for that Purpose took twelve Pints of new Milk, without any Mixture; and after curdling it with one Dram of *Runnet*, I put it on a gentle Fire, to produce a more thorough Separation of the Whey, which, after Filtration, weighed eight Pounds; while the Curd in the mean time weighed only two Pounds and seven Ounces: After having evaporated this Whey, in *Balneo Mariæ*, almost to Dryness, (for the Whey does not become thoroughly dry, on the contrary it becomes very suddenly moist, if taken off the Fire for ever so short a time; I say, after having almost evaporated it to Dryness) its Weight was nine Ounces and twenty-four Grains.

This Extract, subjected to an Analysis, yielded Phlegm, an acid Citron-coloured Spirit, and then a pretty thick Oil;

there were, in all, four Ounces six Drams and thirty-six Grains of Liquor, without any Appearance of volatile Salt. The Caput Mortuum, which weighed three Ounces and six Grains, being exposed to the Air, became moist, and its Lixivium had the Marks of a Sea Salt. As there was enough of it to afford its Salt, I had from it cubical Crystals like those of Sal Geminae, or those of Salt regenerated by the Spirit of Salt upon the Salt of Tartar; and this is a Proof, that there is a Sea Salt in the very first Juices of Animals. The Caput Mortuum dried, and thoroughly calcined, in its Lixivium had the Marks of an Alcaline Salt, and produced a red Precipitation in a Solution of corrosive Sublimate.

As Fish are also sometimes used in making Broths, I have examined some of them.

C A R P.

Upon boiling a Pound of Carp, clear of Skin and Bones, in four Pints of Water, like other Victuals, and frequently repeating the Boilings, the Broth, filtrated, let fall a Precipitate like that of Beef; when it was evaporated to the Consumption of half, and then filtrated afresh, the dry Extract weighed one Ounce and eight Grains.

A Dram and fifty-six Grains of this Extract analysed, in order to be compared with the same Weight of Extract of Beef, yielded half a Dram of volatile Salt, distinctly formed into Ramifications; its Oil, which was of a yellow brownish Colour, and mixed with the Spirit, weighed half a Dram; and the Caput Mortuum, in the Retort, forty-eight Grains; so that there were eight Grains of Loss.

The Lixivium of the Caput Mortuum produced a white Precipitation in a Solution of Mercury, which is a Proof of its being a Sea Salt, and a greyish Precipitation in a Solution of corrosive Sublimate.

The Mass of dried Fibres weighed one Ounce six Drams and twelve Grains.

Six Drams and an half of this Mass yielded a Dram and an half of volatile Salt in Ramifications; the Oil and the Spirit weighed two Drams sixty Grains; and the Caput Mortuum, remaining in the Retort, one Dram six Grains; its Lixivium produced a white Precipitation in the Solution of corrosive Sublimate, but produced no Change in that of Mercury.

It is a common Opinion, that Fish, being nourished in Water, cannot contain so much nutritive Juice as the Flesh of Land Animals; which we may be assured of, by adverting to the following Proportions:

Beef has no less Humidity than one Ounce two Drams and sixty Grains.

Extract of Beef contains thirty-eight Grains of volatile Salt more than the Carp, and two Grains more of Oil and Spirit.

The dried Fibres of Beef, compared with those of the Carp, contain thirty-six Grains more of volatile Salt; and the Carp yields in volatile Spirit, and in fetid Oil, two Drams and twenty-four Grains more than the Beef.

P I K E.

Four Ounces of Pike's Flesh, boiled like the Carp, yielded two Drams and twenty-four Grains of solid Extract: This Extract, subjected to an Analysis, yielded forty-six Grains of a Citron-coloured Oil, mixed with the Spirit; and the volatile Salt, which came last, was of an urinous Nature, and weighed thirty Grains: The Caput Mortuum weighed one Dram eleven Grains; its Lixivium produced a white Precipitation in a Solution of Mercury, but had no Effect upon that of corrosive Sublimate: The dried Fibres, which weighed only four Drams fifty-nine Grains, yielded two Drams and fifty-six Grains of Oil and Spirit of a yellowish Colour, and sixteen Grains of a volatile urinous Salt: The Lixivium of the Caput Mortuum, which weighed one Dram fifty Grains, did at first produce a white Precipitation in a Solution of Mercury, then a yellowish one, and at last the Whole became black; being poured upon a Solution of corrosive Sublimate, it produced a white Precipitation, which, without changing, remained in the same State.

F R O G S.

Two Pounds of the Flesh of Frogs, of which I only took the Thighs, and the half of the Legs, with the small Bones, yielded a white Broth, which afforded one Ounce one Dram and thirty-six Grains of Extract, without forming itself into a Jelly. One Dram and fifty-six Grains of this Extract yielded fifty-six Grains of volatile urinous Salt, and then forty-eight Grains of volatile Spirit and Oil somewhat thick: The Caput Mortuum, which remained in the Retort, weighed thirty-six Grains: Its Lixivium produced no Effect upon the Solution of Mercury, but produced a white Precipitation in that of corrosive Sublimate.

The dried Fibres, with their Bones, weighed three Ounces four Drams and thirty-six Grains; six Drams and thirty-six

Six Grains of these Fibres yielded two Drams of volatile Salt in Ramifications, which was very dry, and half a Dram of Spirit and Oil of a deep yellow Colour: The Caput Mortuum, which remained, weighed two Drams: Its Lixivium produced no Precipitation in a Solution of Mercury, but a white one in that of the corrosive Sublimate.

TORTOISE.

A small Land Tortoise, which weighed thirteen Ounces and eighteen Grains, being separated from its Shell, the Flesh, with the Head, the Feet, and the Tail, stripped of the Skin, weighed eight Ounces, exclusive of the Intestines, which were thrown away: The Broth produced from them became a little gelatinous; and being filtrated, and evaporated to Dryness, it formed an Extract which weighed five Drams and six Grains.

In distilling it, I procured from it first a Phlegm, then a reddish volatile Spirit, and afterwards a pretty rich Oil, the Whole together weighing fifty-four Grains: The Lixivium of the Caput Mortuum, which weighed two Drams and twenty-four Grains, produced no Change in a Solution of corrosive Sublimate; but immediately produced a white Precipitation in a Solution of Mercury, and soon after a blackish grey one, because that Lixivium was loaded with Sulphur: The fleshy Fibres separated from their Juices, and the Bones, when dried, weighed six Drams and forty-eight Grains; in analysing them they yielded a Phlegm, a Spirit, and an Oil, weighing two Drams and sixty-six Grains of volatile Salt in Ramifications; the Mass, which remained in the Retort, weighed only three Drams and forty-six Grains; its Lixivium, like the before-mentioned, only produced a white Precipitation in Solution of Mercury.

LOBSTERS.

Four Ounces of Lobster, pounded and well washed, yielded a gelatinous Broth; the Extract from which, when very dry, weighed two Drams and thirty-three Grains: This Extract yielded Phlegm, a little volatile Spirit, a little Oil, and so little volatile urinous Salt, that it was impossible to collect it in order to be weighed: The Whole, taken together, weighed one Dram twenty Grains; and the Caput Mortuum, in the Retort, one Dram: Its Lixivium produced, at first, a white Precipitation in Solution of Mercury, which afterwards acquired a grey blackish Colour; but produced no Change in the Solution of corrosive Sublimate: The gross Matter from which the Extract was made, when dry, weighed six Drams and thirty-six Grains; and, when subjected to an Analysis, yielded a Phlegm, a Spirit, a fetid Oil which weighed two Drams four Grains, and a Quantity of volatile Salt; from which twenty Grains, in a dry Form, and in Ramifications, were procured: The Lixivium of the Caput Mortuum, which weighed only one Dram, produced a yellowish white Precipitation in a Solution of Mercury; but had no remarkable Effect upon that of corrosive Sublimate.

VIPERS.

As the Viper is used in Broths, in Powder and in Troches, I have examined it with such a Degree of Attention, that one may safely rely on the Detail I am now to give.

I weighed very exactly two live Vipers, and their Weight amounted to three Ounces two Drams eighteen Grains: I cut off their Heads and Tails, which weighed two Drachms and a half; in cutting them they yielded fifty-four Grains of Blood; their Skins were taken off, that so their Ovaria and Livers might be got from them: The two Skins, and Entrails, weighed four Drams and fifty-four Grains: The two Trunks, with the Eggs and Livers, weighed one Ounce six Drams and thirty-six Grains. There were thirty Grains of Loss or Evaporation. I then took a Part of another Viper to make up the two Ounces: I made a Broth of these Vipers, cut in the ordinary Manner; which, after Filtration and Evaporation, reduced itself into a gelatinous Extract, which, when dry, weighed one Dram and thirty-six Grains.

The Fibres and dry Bones, after boiling, weighed three Drams and sixty-six Grains; so there was in two Ounces of the Trunks of the Vipers, an Ounce two Drams and forty-two Grains of Phlegm.

That I might still, with the greater Accuracy, assure myself of the Weight of all the Parts of the Viper, I began to make my Observations upon fresh Vipers; and accordingly got one of the largest Kind, which weighed, when alive, three Ounces six Drams and an half.

The Head and the Tail, when cut off, weighed, together, one Dram six Grains.

The Blood, yielded by the Viper, one Dram eight Grains.

The Skin, four Drams sixty-two Grains.

The Liver, one Dram fourteen Grains.

The Heart, six Grains.

The Gall-bladder, seven Grains.

The Fat, three Drams forty-four Grains.

The Entrails, four Drams sixty Grains.

The Trunk itself, one Ounce three Drams and sixty-three Grains.

Thus there were, in the Whole, one Dram and fifty-two Grains of Humidity lost by Dissipation.

The Trunk, when dry, weighed three Drams seventy-one Grains; so that it contained seven Drams and sixty-four Grains of Humidity.

The Blood, when dry, seventeen Grains and a half; Humidity sixty-two Grains and a half.

The Heart, when dry, one Grain and a quarter; Humidity, four Grains and three quarters.

The Liver, when dry, forty-three Grains and a half; Humidity, forty-two Grains and a half.

The Gall-bladder, when dry, one Grain and a half; Humidity, five Grains and a half.

The Skin, when dry, one Dram seventeen Grains; Humidity, three Drams and forty-five Grains.

The Head and Tail, when dry, twenty-eight Grains and a half; Humidity, forty-nine Grains and a half.

The Trunk of a Viper, whose Skin was taken off, and weighed four Drams fifty-four Grains, yielded, by boiling, thirty Grains of a gelatinous Extract. The Flesh, dried and separated from the Bones, weighed sixty-seven Grains; the Bones, dried, thirty-six Grains and a half; so that the Trunk of the Viper contained two Drams sixty-four Grains and a half of Phlegm. We may be readily assured, that the ordinary Broth of a Viper, which weighs only four Drams and fifty-four Grains, is only impregnated with about thirty Grains of the Substance of the Viper; and that, when one takes the smallest Dose of Viper Powder, which is twelve Grains and a half, or three Quarters of a Grain, the Turn of the Balance being subject to vary, this is equivalent to thirty-seven Grains and a half of recent Vipers Flesh. We may also know, from this Calculation, what we ought to think of the gelatinous Parts, when drawn from the Trunks of Vipers, to be used in Troches. For, suppose we use four Ounces of the Trunks of Vipers, whose Skins are newly taken off, there may be drawn from them one Ounce fourteen Grains and a quarter Grain of Extract from the Broth, or the dried Flesh; and there will be found, of what remains, three Drams thirty-three Grains and three quarters of a Grain; and two Ounces three Drams and twenty-four Grains of Phlegm and Moisture.

A Viper's Liver and Heart, which weighed sixty-one Grains, yielded, by the Evaporation of the Broth, three Grains of a gelatinous Extract; and the Heart and Liver dried, after boiling, weighed no more than eighteen Grains and a half.

Analysis of the Extract of Viper Broth.

I took the Extract of the Broth made from two Ounces of Viper, the Heart and Liver included; it weighed one Dram and thirty-six Grains: It yielded in Oil, Spirit, and volatile Salt, of the Figure of Sal Ammoniac, fifty-four Grains: The Caput Mortuum, remaining in the Retort, weighed also fifty-four Grains; and its Lixivium had the Marks of a Sea Salt. The dried Fibres, and the Bones, which weighed three Drams and sixty-six Grains, yielded in Spirit, in Oil, and in volatile ammoniacal Salt, one Dram and fifty-four Grains. The Caput Mortuum, which weighed only two Drams and six Grains, by its Lixivium produced a white Precipitation in a Solution of Mercury.

To make the Analysis complete, I took the Bones of Vipers, which, by boiling, had been freed of all their Juice, and then of all their Fibres, by washing them thoroughly in Water. Two Ounces of these Bones, well dried, yielded, when subjected to an Analysis, two Drams and forty-four Grains of volatile Spirit and Oil. The volatile Salt, which had adhered in a dry Form to the Sides of the Vessel, and which was crystallized like the volatile Salt of Urine, was found to weigh seventy Grains. By still augmenting the Fire for five Hours, there were twelve Grains of volatile Salt in Ramifications, like that which is drawn from Hartshorn. I procured eighty-two Grains of volatile Salt, in a dry Form, from two Ounces of Viper Bones, which one would have imagined destitute of all their Principles; and this Abundance of volatile Salt is almost equal to that which is drawn from the Hartshorn. The Lixivium of the Caput Mortuum of these Bones, did not change a Solution of corrosive Sublimate, but only discovered some Marks of Sulphur.

This Analysis of the Bones of Vipers proves, that the Antients were in the right to boil Vipers, in order to draw out their Principles in the Troches destined for the Theriaca; and that the Bones have nothing noxious, nor even useless, in that Antidote; since being disentangled, and rendered friable by boiling, they furnish a Substance like Hartshorn prepared in boiling Water: But what ought to make us regard them as useful in this Composition, is, that the preceding Analysis demonstrates,

demonstrates, that they contain almost as much volatile Salt as Hartshorn.

B R E A D.

I shall close this Memoir by giving the Analysis of Bread, in order to shew how much Extract, and grosser Parts, Bread, managed like other Aliments, and prepared by reiterated Boilings, would yield; and afterwards what Principles it yields, when subjected to Distillation: But I must advertise the Reader, that the Experiments upon Bread vary according to the Differences of Breads, according as the Meal is fine or coarse, and the Bread itself high or low baked.

I chose, for my principal Experiments, a kind of Bread which, to me, appeared to have the least Mixture of heterogeneous Substances in its Composition, as having neither Barm, Milk, nor Salt. I took, at different times, four Ounces of this Bread, which was baked the Day before; I took the Crust off, because it might, as well as the Degree of baking, accelerate or retard the drying of it, which is more equally performed upon the Crumb.

Four Ounces of this Crumb, well dried, were reduced to two Ounces seven Drams and thirty-six Grains.

The Crumb and the Crust cut in small Slices, as it were for Pottage, did not diminish so considerably, by reason of the Crust, which is dry; and four Ounces of the one, and of the other, dried at the same Fire, and at the same time, weighed three Ounces and six Grains.

The Extract of it was made with all possible Care, but the Decoction could not be filtrated, though made with a pretty large Quantity of Liquor; so I was obliged to allow it to settle at every different Boiling, and put the best clarified Part of it into a Vessel by itself.

The Decoction, clarified from the Crumb of the Bread, was reduced by Evaporation into a gummy Extract, tolerably transparent, and weighing six Drams: The remaining Part, after all the Washings and Boilings were over, being rendered so dry as to break, weighed no more than one Ounce seven Drams and fifty-four Grains, or two Ounces within eighteen Grains.

The Bread which had its Crust yielded, by the same Process, an Ounce two Drams and eighteen Grains of Extract; and the Mafs, remaining after the Boilings, weighed an Ounce four Drams and fifty Grains.

The six Drams of Extract, analysed as above, yielded a Phlegm, an acid Spirit of an Orange Colour, and a fetid Oil, which, together, weighed three Drams. The Caput Mortuum weighed two Drams: Its Lixivium produced a very slight Precipitation in a Solution of Mercury in Spirit of Nitre; which indicates a light Ammoniac, or urinous Salt, since the same Lixivium produced no Effect upon a Solution of corrosive Sublimate.

The dried Paste which remained after the Boiling, and which weighed two Ounces within eighteen Grains, yielded the same Principles which the Extract did; and the Liquors drawn from it, weighed in all seven Drams and eighteen Grains. The Caput Mortuum, remaining in the Retort, weighed six Drams and forty Grains: Its Lixivium produced no Effect in the Experiments I made with it.

By these Experiments we may be assured, that in a Pound of such Bread as I have mentioned, and used the Day after baking, there will be three Ounces seven Drams and forty-eight Grains of Moisture; since that Pound, when dry, will weigh no more than twelve Ounces and twenty-four Grains; and that it will yield five Ounces and one Dram of Extract, which is probably the Matter which, by Digestion, is separated from it for the Nourishment of the Body, and six Ounces and three Drams of a gross crude Matter. *Memoires del Acad. Roy. des Sciences.*

ALINDESIS, Ἀλινδῆσις, Ἀλινδῆς, an Exercise of the Body, mentioned by Hippocrates in his second Book de Victus Ratione, Ἀλινδῆσις, πρὸς ἀνάσσειν τῇ πάλῃ διακίνησιν. Ἐρεαίνει δὲ μάλλον διὰ τὴν κίνησιν, ἢ σαρκὸς ἥσιν. "Rolling on the Ground has nearly the same Effect as Wrestling; but it dries more, because of the Dust, and is less productive of Flesh." And again, in his Treatise de Insomniis, Τεῖς δὲ μὴ ἔσω, μὴ δὲ πάλῃ, μὴ δὲ ἀλινδῆσις. "Neither let Friction, nor Wrestling, nor Rolling in the Dust be used."

This Exercise consisted in rolling in the Dust, after being anointed with Oil.

ALINTHISAR, the same as *Vua* or *Uvula Procidentia*. See *UVULA*.

ALIOCAB, Sal Ammoniac. It is also called *Alemzadar*. *Castellus* from *Rulandus*.

ALIPENOS, Ἀλιπῆνος, Ἀλιπῆνος, from a Negative, and *λιπαρῶν*, to grow fat. A Word used to express external dry Medicaments, or Remedies which had no pinguious Ingredient in their Composition; and thus it is explained by *Celsus* in the following Passage: "There are no Plasters of greater Use than those which are immediately laid to green Wounds, and called ἔρωμα by the Greeks. For they resolve Inflammations;

unless very violent, and even then they very much abate their Violence; and close and cicatrize those Wounds which suffer no Inflammation. They are made up of Ingredients that are not pinguious, and are therefore called by the Greeks Ἀλιπῆνα." *L. v. Chap. 19.* They were opposed to the Emplastra *λιπαρῶν*, which were made of pinguious Ingredients. *Galen* called them Ἀλιπῆν.

ALIPASMA, from ἀλείφω, to anoint. A Powder which, when mixed with Oil, is to be rubbed over the Body, in order to prevent Sweat. *Blancard*.

ALIPILI, Servants attending upon Baths; so called from their being employed to pull off (*Alarum Pilos*) the Hair of the Arm-pits with Tweezers.---*Castellus*. For this Purpose they also applied Plasters, called *Dropaces*, made of Pitch and Rosin, which, being torn suddenly off, pulled off the Hair together with them; or they were anointed with certain Unguents called *Pfilitbra*, which had the Power of bringing off the Hair. Hence the Men who performed this Office were called *Dropacifla* and *Alipilarii*, and the Women *Picatrices* and *Partiltria*. *Le Clerc Hist. Med.*

ALIPTÆ, (from ἀλείφω, to anoint) Servants belonging to the Baths, whose Business it was to anoint Persons after bathing. This they did at first under the Direction of the Physician, who was himself above this mean Office: Whence they were called, among the Romans, *Unctores*, or *Reunctores*, and were generally of a servile Rank, as *Pliny* testifies of *Prodicus* the *Selymbrian*, *Mediastrinis Reunctoribus vestigal invenit*. [He received Wages among the servile Herd of Anointers.] But after they had acquired a Dexterity in this very meanest Branch of the Art, they began, by Degrees, to shake off their Dependence upon the Physicians, and at last engrossed it into their own Hands; nor contented with this, assumed first the Name of *Iatroaliptræ*, and soon after that of Physicians.

This, at length, brought a Reflection upon Physicians in general, many Slaves having learnt this Art, which they practised in the Houses of the Nobility, especially among the Romans, at a very low Rate: Whence it comes to pass, that many idle People will object to Physicians, even at this Day, that they were no better than Slaves at Rome; though they cannot fix this Reproach upon any but such as our modern Waiters at the Bagnios; for these are the only true Successors of the ancient *Aliptræ*, who, while Athletic Exercises were in Fashion, managed the Business of Bathing, Friction, and Anointing."

Schulzii Hist. Med.

The London Dispensatory directs the following Troches under the Name of *Trochisci Aliptæ Moschata*, "Balsamic Troches with Musk."

Take of the purest Labdanum three Ounces; of strained Styrax one Ounce and a half; of Benjamin in Powder one Ounce; of Aloes Wood two Drams; of Ambergrease one Dram; and of Musk half a Scruple. Let the Labdanum be rubbed in a Brass Mortar with an Iron Pestle, both warm, and rubbed over with an Almond with a little Rose Water, until by Agitation it becomes dissolved: Then put in the Styrax and Benjamin, which manage the same way; and lastly, put in the Aloes Wood in Powder, with the Musk and Ambergrease dissolved together, in another Mortar with Rose Water; and when the whole Composition is almost cold, form it into Troches. *S. A.*

This is from a Prescription of *Nicolaus*, and is transcribed into the *Augustane* and College Dispensatories, with half a Dram of Camphire, which is here omitted, as giving to it a Flavour very disagreeable to most Persons.---*Quincy's London Dispensat.*

ALISMA. This is the Ἀλίσμα Dioscorid. in the Opinion of *Matthiobolus*. *Arnica* Offic. Schrod. 20. *Arnica Officinarum*, Buxb. 98. *Arnica Schroderi*, Rupp. Flor. Jen. 141. *Doronicum sive Alisma* & *Arnica Germanorum*, Cod. Med. 46. *Doronicum Germanicum*, Park. 320. *Raii Hist.* 1. 276. *Doronicum plantaginis folio alterum*, C. B. 185. *Tourn. Inst.* 487. *Boerh. Ind. A.* 100. *Hist. Oxon.* 3. 127. *Buxb.* 98. *Doronicum Germanicum foliis semper ex adverso nascentibus villosis*, J. B. 3. 19. *Chab.* 339. *Calendula Alpina*, Ger. 603. *Emac.* 740. *GERMAN LEOPARD'S BANE*. *Dale*.

Alisma is by some called *Alcea*, by others *Damaconium*, by some *Acyrus*, and again by others *Lyrus*. Its Leaves are like those of Plantain, only narrower, with the convex Side towards the Ground: It has a slender smooth Thyrsoidal Stalk above a Cubit high, and bearing small Heads at the Top; the Flowers are thin, and of a white Colour, inclined to a palish Yellow; the Roots are like those of black Hellebore, slender, scented, of an acrid and moderate fat Taste: It delights in a watery Soil. (This Description is transcribed by *Oribasius*.)

A Dram or two of the Root, taken in Wine, cures those who have eaten of the Sea Hare, or have been bit by a Toad, or drank too much Opium. It is also good for the Gripes and Dysentery,

Dysentery, either drank alone, or with an equal Quantity of Wild Carrots Seed; and is of good Efficacy in Convulsions and Hysterical Fits. The Herb binds the Belly, but provokes the Menfes, and dissolves Tumours, if applied. *Dioscorides, Lib. ii. cap. 169.*

We have found, by Experience, that the Decoction of the Root of Damasonium, or Alisma, in Water, being drank, breaks the Stone in the Kidneys. *Aetius Tetr. i. Serm. i. Tit. Damasonium.*

Alisma is the fourth Species of Doronicum; it is a Plant which sends from its Root many Leaves, resembling those of Plantain, fibrous, somewhat thick, downy; and spreading upon the Ground. From the Middle of these proceeds a downy Stem, which grows to the Height of a Foot, or a Foot and a half, bearing Leaves a great deal smaller than those at the Bottom; and at the Top a yellow radiated Flower, resembling that of Doronicum, or common Leopard's Bane, but larger: Its Seed is longish, and of a sharpish, acrid, and fragrant Smell: Its Root is reddish, surrounded with long Filaments, like that of black Hellebore; spreading under Ground; of a sharp, aromatic, and agreeable Taste: It grows in hilly Places; it contains a great deal of Salt and Oil.

It is diuretic, sudorific, and sometimes a little emetic: It dissolves coagulated Blood. *Lemery des Drogues.*

It is found by frequent Experience to be a Discussive and a Vulnerary, and is counted the very best and only Panacea for such as have hurt themselves by Falls from high Places.—*Ephem. Germ. An. 9, & 10.* The Country People use it, instead of Hellebore, for the Murrain among Cattle.—*Hoff. Cat. Abstr. Dale, p. 88.*

Tournefort mentions five Sorts of Alisma: The first is the *Alisma repens, foliis graminis & subrotundis: Damasonium radicales emittens ex geniculis. Ranunculus palustris, foliis graminis & subrotundis. Petit. Epit. pag. 47. Damasonium repens, Potamogetonis rotundifolii folio: Tab. 4. Fig. 9. Al. Ac. Reg. Sc. 1719. Vail. 46.* in the great Lake below the old Castle at Llanberys.—*Mr. Brewer.* The second is the

Alisma Cord. in Diosc. Ranunculus palustris; Plantaginis folio ampliori. Inst. 292. Plantago aquatica latifolia. C. B. Pin. 190. Plantago aquatica. J. B. 3. 787. Plantago palustris sive aquatica. Tabern. Icon. 734. Great Water-Plantain:

Tabernaemontanus has a very good Figure of it; we must not confound it with that which *Lobel* calls *Plantago aquatica; foliis Betae aut Plantaginis, flore Gallii albi*; as *C. Bauhin* does: *Lobel's* Figure gives a better Representation of the following. The third is the

Alisma angustifolium umbellatum, capitulis rotundis. Ranunculus palustris, Plantaginis folio angustiore. Inst. 292. Plantago aquatica angustifolia. C. B. Pin. 190. Plantago aquatica minor. Tabern. Icon. 734. The lesser Water-Plantain. I have not found this about London: It is common in the Moors about Cambridge.

We must not confound the *Plantago aquatica humilis, angustifolia & longifolia Lob.* with this Plant, as *C. Bauhin* has done: We need but compare the Figures of *Tabernaemontanus* and *Lobel*, to see the Difference. The fourth is the

Alisma umbellatum, foliis angustissimis. Ranunculus aquaticus; Plantaginis folio angustissimo. Inst. 292.

The Root of this Plant is a Tuft of white capillaceous Fibres: The Leaves are two or three Inches long, two or three Lines broad, pale-green, having Nerves running lengthwise, pointed, sustained by a pretty long Pedicle, insipid at first, but afterwards tasting something like Coriander: The Stalks are usually crooked, naked, one Line thick, terminated by an Umbel of Flowers, the Rays of which are an Inch and a half long; each Flower has three Petals, which are almost round, pointed, white, inclining to a Flesh-colour, with a yellow Nail: The Emplacement consists of three hollow, yellowish-green, smooth, shining Leaves, a Line and half long, pointed, channelled; each Flower has six very short Chives, each loaded with a yellow Summit; the Pointal of the Flower is a little greenish Button, which becomes afterwards three Lines diameter, and sustains several clustered Seeds, channelled, one Line long, pointed, of the same Taste with the Leaves.

It flowers in July and August: It varies according to the Soil. I have observed it at Montpellier a Foot high, and with two or three Umbels, one above another.

Clusius's Description of his *Plantago aquatica minima*, would agree well enough with this Plant, if he did not affirm, that the Fruits open into two Parts, and inclose small Seeds; which agrees better with the Damasonium. The fifth is the

Alisma humile, supinum, angustifolium. Ranunculus palustris, Plantaginis folio, humilis & supinum. Inst. 292. Plantago aquatica, humilis, angustifolia & longifolia. Lob. Icon. 300.

This Species is very well represented by *Lobel's* Figure.

ALISTELES, Sal Ammoniac. *Rulandus.*

ALITURA, Nutrition. *Blancard.*

ALKAFIAL, Antimony. *Rulandus.*

ALKAHEST. See ALCAHEST.

ALKALE, (*Oleum Gallinae*) the Fat or Oil of a Hen. *Rulandus.*

ALKALI. See ALCALI.

ALKALIA, (*Vas*) a Vessel. *Rulandus.*

ALKALID, ALKES, or ALCOB, (*Æs ustum*) burnt Brass. *Rulandus.*

ALKANT, either Mercury, or a kind of Ink. *Rulandus.*

ALKANTUM, burnt Brass, or a kind of Aromatic, or, according to some, Arsenic. *Rulandus.*

ALKANRI, or ALCANRI, the Name given by *Mefne* to a particular Electuary or Confection; now out of Use. *Castellus.*

ALKARA, or ALCARÁ, a chymical Cucurbit; called so from its Shape, which is like that of the Cucurbita or Gourd. *Rulandus.*

ALKARANUM, *Rulandus* explains this *Duénec viride.* See DUENEC.

ALKASA, the same as ALKAZOAL, or ALBÖT, which *Rulandus* interprets a Crucible.

ALKAUT, ALMARKASITA, Mercury. *Johnson*, who by a Mistake transcribes *Alcant* for *Alkaut*, from *Rulandus.*

ALKAUTUM. *Johnson*, the literal Transcriber of *Rulandus*, also mistakes this for *Alkautum.*

ALKEKENG. A Plant thus distinguished:

Alkekengi, Halicacabum; Offic. Alkekengi Officinarum; Tourn. Inst. 151. Elem. Bot. 126. Boerh. Ind. A. 2. 66. Dill. Cat. Giff. 83. Alkekengi Tournefortii, Rupp. Flor. Jen. 38. Solanum vesicarium, C. B. Pin. 166. Solanum vesicarium vulgatus repens, fructu & vesica rubra, Hist. Oxon. 3. 526. Halicacabum, Ger. 271. Emac. 342. Solanum Halicacabum vulgare, J. B. 3. 609. Chab. 522. Raii Hist. 1. 681. Solanum vesicarium sive Alkekengi, Park. Parad. 532. Halicacabum, Rivin. Halicacabum sive Alkekengi vulgare, Park. Theat. 462.

WINTER CHERRY. *Dale.*

The Root of the Winter Cherry runs creeping in the Earth, shooting out in the Spring several brownish Stalks about two Foot high, somewhat angular, about a Finger thick, and not much branched; beset with many dull-green Leaves, broad at Bottom, and ending in a sharp Point somewhat waved about the Edges; in Shape like the common Nightshade; but larger. The Flowers come forth at the setting on of the Leaves; on long Foot-stalks; each Flower being a single Leaf, divided into five Segments of a white Colour, with yellow Stamens in the Middle; when the Flower falls off, its Calyx is extended into a large thin roundish Husk or Bladder, as big as a Walnut, first greenish, and as it grows to Maturity, of a reddish Colour, including a Berry of the Bigness and Colour of a red Cherry, containing a great many small flat Seeds in a clammy pulpy Juice. They grow with us in Gardens, where they are easily propagated; it flowers in July and August; and the Fruit is ripe in September. The Leaves and Berries are used.

The Leaves are cooling; and of the Nature of common Nightshade. The Berries are a singular good Diuretic, and useful against the Gravel and Stone: Being boil'd in Milk, and sweetened with Sugar, they cure the Heat of Urine, making bloody Water, and Ulcers in the Kidneys and Bladder. They help the Jaundice; by opening the Obstructions of the Liver and Gall-bladder, and the Dropsy; by carrying off the Water through the urinary Passages.

The only official Preparation, is, the Trochisci Alkekengi. *Miller Bot. Off.*

The Berries have a vinous and most penetrating Juice, like Wine, or the Juice of Citrons; and are therefore commended in burning Fevers. The dried Berries ground to a Meal, and infused in Wine, is a principal Diuretic; and besides moves the Belly; and is the more beneficial, as there is nothing in our Body but Urine, that inclines to an alkaline Putrefaction; wherefore alkaline Diuretics are to be suspected. Half an Ounce of the dried Berries bruised, and taken as Tea or Coffee with Sugar, cleanses the Reins, corrects grumous Blood, helps the Yellow Jaundice, Strangury, Gout and Dropsy. The Smoke of the Seeds received into the Mouth, makes the Worms drop out of a hollow Tooth in a wonderful manner. *Boerhaave.*

Lemery adds, That it is good for the Nephritic Colic; it is commonly apply'd in Decoction, and dry sometimes, and sometimes pulverized.

Alkekengi, is an Arabian Name. *Lemery de Drogues, p. 26.*

The Species of this Plant are:

1. Alkekengi Officinarum. *Tourn.* Common Winter Cherry of the Shops.

2. Alkekengi Officinarum, foliis variegatis. *Tourn.* Common Winter Cherry, with variegated Leaves.

3. Alkekengi fructu parvo verticillato. *Tourn.* Winter Cherry with small Fruit, growing in Whorles round the Stalks.

4. Alkekengi Virginianum, fructu luteo. *Tourn.* Virginian Winter Cherry, with yellow Fruit.

5. Alkekengi Indicum majus. *Tourn.* Greater Indian Winter Cherry.

6. Alkekengi Americanum annuum ramosissimum, fructu ex luteo virescenti. *Houft.* American annual branching Winter Cherry, with a yellowish-green Fruit.

7. Alkekengi Americanum annuum maximum viscosum. *Houft.* The largest annual American Winter Cherry.

8. Alkekengi

8. *Alkekengi Barbadosense patulum, parvo flore, fructu amplo, mucrone productioni. Ait. Phil. N. 399.* Dwarf Barbados Winter Cherries, with a small Flower, and an ample pointed Fruit.

9. *Alkekengi Curassavicum, foliis Origani incanis, flore viete subphureo, fundo purpureo. Boerh. Ind. alt. 11. 66.* Hoary Winter Cherry from Curasso, with Origan Leaves, and Sulphur-colour'd Flowers, with purple Bottoms.

10. *Alkekengi Americanum frutescens, fructu globoso rubro, vesica atro-purpurea. Houst.* Shrubby American Winter Cherry, with a round red Fruit, having a dark-purple Bladder. *Miller, Supplement to Gard. Dict.*

The third Species of Alkekengi mentioned by *Miller*, is thus distinguished:

Σαρούχρον ὀναντισμόν. Dioscor.

Solanum somniferum, Offic. Ger. Emac. 339. Park. Theat. 345. *Solanum somniferum verticillatum*. C. B. Pin. 166. Chab. 522. Hist. Oxon. 3. 526. Comm. Flor. Mal. 253. *Solanum somniferum Antiquorum*. Alp. Exot. 71. *Solanum verticillatum*. J. B. 3. 610. Raii Hist. 1. 682. *Solanum, Alkekengi Mexicanum*. Hern. 296. *Alkekengi fructu parvo verticillato*. Tourn. Inst. 151. Elem. Bot. 126. Boerh. Ind. A. 2. 66. *Pevetti Hort. Mal. 4. 113. Baccifera Indica, floribus ad foliorum exortus, fructu sulcato decaplyreno*. Raii Hist. 2. 1632. SLEEPY NIGHTSHADE.

It is cultivated by the Botanists, and blossoms in July. The Root and Fruit are in Use: The Root has a somniferous Quality, but milder than Opium. The Fruit powerfully provokes Urine, and therefore is prescribed in hydropic Cases. Its Decoction easeth the Tooth-ach: The Juice of the Root with Honey, cures Dimness of Sight. *DALE* from *Dioscorides*.

The Winter Cherry is not a Native of England; but is cultivated commonly in Gardens for medicinal Uses.

Alkekengi Leaves are acrid and bitter: They give no Tincture of Red to the blue Paper; but the Fruit gives it a very deep one. It seems at first to be sourish, but afterwards very bitter; so that 'tis probable there may be in the Fruit a Salt, like the *Oxyfal diaphoreticum Angeli Salæ*, mix'd with a little foetid Oil, but so involv'd in the Leaves with Sulphur and terreftrial Parts, as not to be perceptible.

The Alkekengi is very aperitive and diuretic: *Dioscorides* made use of it for the Jaundice, and Suppression of Urine.

The bruising or squeezing of three or four Winter Cherries in a Glass of Wine, in hydropical Cases, and Suppression of Urine, is advised by *Arnaldus de Villa Nova* and *Casalspinus*. In Vintage-time take a sufficient Quantity of Winter Cherries and Grapes; squeeze or bruise both together to make a Must, run it up, and take four Ounces of this Wine every Morning for the Gravel. The Juice, thickened to the Consistence of an Extract, has the same Virtues. Four or five Cherries squeezed in an ordinary Emulsion, drank while in the Bath, is good for Suppression of Urine. *Brassavola* used the Juice of these Fruits in the same Disease: He affirms, That one who suffer'd exquisite Pains for three Days, was perfectly cured by it. There are Lozenges prepared of the Fruit of Alkekengi: *M. Lemery* has given an excellent Description of them: This Fruit is used in the Syrup of Succory, and the Anti-nephritic Syrup of the Royal Dispensatory. *Martyn's Tournefort*.

The Trochisci Alkekengi, Troches of Winter Cherries, is directed by the College to be prepared thus:

Take of Winter Cherries three Drams; of Gum Arabac, Tragacanth, Olibanum, Pine Nuts, Sweet Almonds, Starch, Juice of Liquorice, Armenian Bole, and White Poppy Seeds, each six Drams; of Melons, Cucumbers, Citrills, and Gourd Seed, each three Drams and an half; of the Seeds of Smallage, and white Henbane, white Amber, Lemnian Earth, and Opium, each two Drams; and make them all together into a PASTE, of a due Consistence for Troches, with a sufficient Quantity of the fresh Juice of Winter Cherries. *S. A.*

This is an old Arabian Prescription, taken originally from *Mesne*. Both the Augustane and first Dispensatories of the College have got it considerably different from what it is here, and in some respects also different from one another; but this is exactly as in the last Edition of the College. *Quincy's Lond. Dispensatory*.

ALKERMES. The *Confectio Alkermes* is thus directed by the College:

Take of the best scented Rose-water two Pints, of the Juice of Kermes Berries three Pints, of the whitest Sugar one Pound; boil them almost to the Consistence of Honey, and then stir in the Powders of Cinnamon, and Aloes Wood, both the best in their Kind, each six Drams, and make into a Confection. *S. A.*

This was originally a Composition of *Mesne*, but it hath undergone many Alterations amongst Dispensatory Writers,

and particularly those of the Faculty of Montpelier and Leyden, as may be seen in the *Pharmacopœia Regia of Zwelfer*; but they are all perplexed and injudicious Processes. The College at first received it into their Dispensatory, according to the original Prescription; but it hath, upon every Revise since, been altered, until reduced to the simple and easy manner as herein ordered. All the superfluous Ingredients, and troublesome Parts of the Process, are here rejected, and nothing retained but what is of some Efficacy to the main Intention, and easy to manage: The Omission of the Gold, indeed, may lessen it in the Esteem of such as attributed any cordial Virtues to it on that Score; but when they have learned to judge better, they will be more reconciled to it, as here ordered, without that Decoration. *Quincy's Lond. Dispensat.*

For the Virtues of the CONFECTION ALKERMES. See KERMES.

Many prefer the simple Juice of the Kermes to this Confection.

ALKIAN, is defined by the Chymists to be that Spirit which nourishes and governs a Man, by which his Food is turned into Nourishment, and Animal Generation performed, and by which Man himself subsists, or is a mixed Substance of all these together. *Theat. Chym. Tom. 5. p. 135.*

ALKIBRIC, ALCHIBRIC, ALCHIBERT, ALGIBIC, ALKIBIC, or ALCHABRIC, the same as Sulphur vivum. *Rulandus*. *Johnson* calls it *Alkibrie*. In the fifth Volume of the *Theatrum Chymicum*, p. 492. it is said by a certain anonymous Author, to be incombustible Sulphur.

ALKIEN. This Word is used in the *Theatrum Chymicum*, Vol. 5. p. 170. It is not easy to understand it by the Definition there given. The Author says, *Alkien Terra est Alkien Animalis: in finibus Terræ in lamina alta sunt Vires præparatione, sicut Vires Animalis quas vocant Medici Alkien*. Probably *Alkien Terra* is that Spirit which carries on all the Operations performed in the Earth, as *Alkien* or *Alkien Animalis* does those in Animal Bodies.

ALKIMIA. See ALCHEMIA.

ALKIN, (*Cinis clavellatus*) Pot-Ash. *Rulandus*.

ALKIR, Smoke, or Coals. *Rulandus*.

ALKITRAM, (*Pix liquida*) Tar. *Rulandus*.

ALKOEL, a very fine sort of Lead dug out of the Mines. Others affirm it to be the *Lapis Lazuli*; and others, that it is Antimony. *Rulandus*. See ALCOHOL.

ALKOL, the same as ALCOHOL, which see.

ALKOSOR, Camphire. *Rulandus*.

ALKI Plumbi, a certain sweet Preparation from Lead, perhaps *Saccharum Saturni*. *Rulandus*.

ALLA, Ale, a Liquor very well known in our own Country, the Nature of which may be comprehended from what is said under the Article ALCOHOL. As a spirituous Liquor, it must necessarily be pernicious, if taken in too large Quantities, or too frequently. It is distinguished from Beer by the Age. As Ale, properly so call'd, is not kept a sufficient Time for the remaining *Gas Sylvestre* to be destroy'd, or incorporated with the Liquor in such a manner as to lose its Elasticity, or at least a Part of it, this, as an Aliment, must be excessively windy; and we frequently find violent Colics produced by it. Some, who have drank considerable Quantities, in a short Space of Time, of very flatulent Ale, have been almost instantly kill'd by the extreme Rarefaction of this *Gas Sylvestre*, or incoercible Spirit. Others have fell into the *Cholera Morbus*, and difficultly escaped with Life.

It must, however, be allow'd, that Ale, as an acescent Fluid, must be a very proper Drink, when acalescent Aliments are used in Quantities superior to the Powers of Digestion. Ale also is esteem'd by many to be less productive of the Stone and Gravel, than Wine, or any other Liquor, Mead excepted.

Upon the Whole, Ale well prepared, and kept to a proper Age, so as to lose its flatulent Qualities, seems to be a much safer, and perhaps more healthful Liquor, than that Wine which the Merchants and Vintners are pleas'd to supply us with, which is to such a Degree sophisticated, as to make it utterly uncertain, whether a single Glass of genuine Wine is, on any Terms, to be procur'd from their Cellars.

Lemery makes the following Remarks on Ale and Beer:

There are several Sorts of Beers, which differ from one another, according to their Consistence: For some are heavy, thick, and muddy, other clear and fine. Secondly, according to their Colour; for you will find those that are pale, yellow, and red. Thirdly, according to Taste; for some are sweet and penetrating, others bitter and sharp, and some again, almost as pungent as Mustard. Lastly, they differ also according to their Age: for new Beer hath a very different Taste from that which is stale. These various Differences proceed from the Way of brewing them, from the different Countries or Climates, from the Water that is used, from the Time spent about them, and from the Ingredients put in, and the Proportions of them.

You are to chuse that Beer which is clear, of a good Colour, of a pungent and agreeable Taste, that sparkles much when you stir it, and that is neither too old, nor too new, and without any Sourness, according to these Lines:

*Non acidum sapiat Cerevisia: sit bene clara:
Et gravis sit cocta bonis: satis ac veterata.*

Beer is of an opening, fortifying, moistening and refreshing Nature: It's nourishing enough, and makes People fat, which is manifest enough in Northern Countries, where most People drink nothing but Beer, and where they are almost all fatter, bigger, and more vigorous, than those that live in Countries, where Wine is their common Drink. See how the School of *Salernum* explains the Effects of Beer.

*Crassos humores nutrit Cerevisia, vires
Præstat, & augmentat carnem, generatque cruorem.*

Beer, when drank to Excess, makes People drunk; and the Effects of it this way, last long. When 'tis too new, 'tis windy, provokes Venery, and sometimes so operates upon the Channels, that it causes a kind of Gonorrhœa, which indeed is a little dangerous; and this, perhaps, has made some People say, that the Use of Beer, is pernicious to the Reins and Nerves; tho' Experience does by no means confirm it, but on the contrary, makes this Drink to be generally very wholesome.

They extract an inflammable Spirit from Beer, like that of Wine; they also draw Phlegm, black Oil, and a Spirit from it, which is nothing but acid Salt, dissolved in the Phlegm.

Beer agrees, at all times, with any Age and Constitution; but especially more with plump and fat People, than others.

R E M A R K S.

Beer is a Liquor well known, and which by Fermentation has been made vinous: It's made of Barley, Oats, or some other Sort of Corn, which they reduce into large Meal, of which they take a certain Quantity, put it into hot Water, wherein they boil it for some time, till the Liquor has impregnated the active Principles of the Meal; after which they draw it off, and boil it again with Hops in it, or a little Wormwood, or other bitter Plants. When the Liquor is boiled enough, they stir it much, and pour it backwards and forwards, from one Vessel into another, while 'tis yet hot: Then they let it work, in order to which they put Yeast or Dregs of Beer into it, or some other fermenting Matter. Lastly, when it has been well purged and clarified by Fermentation, they put it into Tuns or Barrels, and keep it.

The working of the Beer proceeds from the essential Salts of the Corn, which rarefy, attenuate, and exalt the oily Parts of the same Corn. This Fermentation ceases, when the Salt has surmounted the Opposition made by the oily Principles; and when the gross Matters have been precipitated into the Bottom of the Vessel: This Fermentation is still more or less full of the Principles of the Corn.

Tho' we have, in this Place, but related one Way of brewing Beer, yet 'tis done several Ways; for we may say, that every Brewer has his own Method: It's enough, that we have shewed that which is most common, and most in use.

Hops, or other bitter Plants, which they put into Beer, produce good Effects therein; they help to rarefy the gross and viscous Part of the Corn. Moreover, they hinder the Beer from growing sour; for every body knows, that bitter things are very proper to consume those that are sour.

All Sorts of Waters are not alike good for brewing of Beer with; those which are very clear, cold, and vivid, such as Well and Spring Waters, are to be preferred before others; because that, being not liable to ferment, they hinder the Beer from being spoiled. In short, if Beer does work at first with too much Violence, or else if it ferments anew, after it has once worked enough, this Fermentation will make way for the spirituous Parts to fly away; and then the acid Salts which are in the Beer, extending themselves much, and getting the Ascendency, never fail to make the Liquor turn sour.

Hence it is, that the Beer which is brewed in the Northern Countries, as in *England*, *Sweden*, *Flanders*, and several Parts of *Germany*, is better, and keeps longer, than others. In short, as the Sun has but little Power in those Parts, the Waters upon that Account are colder and rawer, and do more vigorously retain the active Principles of the Corn: And by this Reason also we may perceive, that the Beer brewed in hot Countries will not keep long, and therefore 'tis not proper to brew any in *Provence*, *Dauphiné*, or *Languedoc*.

We know by Experience, that the best Time of the Year for brewing of good Beer, is in cold Weather, as the Beginning or latter End of a Winter; and that that which is brewed in Summer, does not keep so long.

Beer may be called a liquid Bread, because 'tis made of the Meal of Corn, steeped in a deal of Water: This Drink is nourishing and moistening, by reason of the oily and balsamic

Principles, which the Corn supplies it very largely with; it makes People intoxicated, when drank to Excess, because it contains many spirituous Parts, that cause Drunkenness in the same manner, as other vinous Liquors do, as we have already accounted for.

Beer that is too new, contains much viscous and acid Phlegm, which not having been sufficiently attenuated, during the Fermentation of it, causes Wind, and rarefies itself in the Bowels, by the Heat of the Body: It also causes Heat in the Urine, and even a kind of Gonorrhœa, by sticking in the urinary Passages, and strongly pricking them. These Accidents are remedied, by drinking a little Brandy, which separates and cuts this viscous Phlegm, and expels it from the Places where they were lodged: This is the Phlegm which contributes to make the Intoxication, caused by Beer, to be longer and more dangerous, than that done by *French Wine*, because it doth, in some measure, obstruct the Channels of the Brain, and bear down the Animal Spirits in such a manner, that it requires a pretty deal of Time, to bring them into their pristine State again.

The *English* prepare another Sort of Liquor, which they call Ale; it is yellowish, clear, and transparent, very pungent and subtil: It tickles the Nose and Mouth of those who drink it; somewhat like Mustard: It's very opening, and more pleasant to the Taste, than common Beer. They pretend, that there are no Hops, or other bitter Plants, put into it, and that its Strength proceeds from an extraordinary Fermentation caused therein, by the Help of some sharp and pungent Drugs. In the mean time, *Schookins*, in his Treatise of Beer, observes, that some put a few Hop-tops into their Ale, in order to qualify the over Sweetness of the Malt.

Mundy, a London Physician, speaking of Beer, says, That when this Liquor is new boiled, many put some Birch Boughs into it, in order to make it a little more pungent, and the sooner drinkable: He says also, That some others put Ground-ivy into the Vessels, wherein this Liquor is put, by the Help of which, the Liquor is fined in a little Time: They usually bottle up their Ale, and cork them well: But Care must be had, when you drink it, that you open the Bottle by Degrees; for the Liquor is rarefied to such a Degree, when the Bottle is suddenly opened, that it flies, and so is spilt.

Beer in *Latin*, is *Cerevisia*, à *Cerere*, because Corn, which *Ceres* was reputed the Goddess of by the Antients, is the Ingredient of which it is made: It's also for the same Reason, that some call it *Liquor Cereris*, the Liquor of *Ceres*.

It's also called, *Vinum Hordeaceum*, *Vinum Regionum Septentrionalium*, because 'tis made of Barley, and in the Northern Countries used instead of Wine: It may be also said, that it has this Advantage of Wine, that it may be made at all times, that it moistens, is more nourishing, and marketable. *Lemery on Foods.*

ALLABOR, ALAHABAR, ALABARI, ALCHONOR, AL-LARINOC, ALHOHONOC, ALRACHAS, ALASTROB, ALOMBA, ALOOC, ALCAMOR, Lead. *Rulandus.*

ALLABROT, a kind of factitious Salt. *Rulandus.*

ALLANTOIS, from ἀλλὰς, a Sausage, or Hogs Pudding, as we call it; because in Brutes it is long and thick.

It has been much disputed by Anatomists, whether the human Fœtus was furnish'd with an Allantois or not. But *Dr. Hale*, in the *Philosophical Transactions*, and *Monsieur Littre*, in the *Memoirs of the Academy of Sciences*, put the thing out of Dispute. I shall therefore give their Sentiments and Observations on this Subject.

I shall here give a true and exact Account of a human Allantois, as it appeared in two Subjects, still by me; one of which I observed several Years ago, and the other in *March* 1698-9.

Most of the Antients allow of one; not from their Experience of it, but because they took it for granted, that Men, and other Animals, were alike, in the *Viscera*, *Membranes*, *Vessels*, &c. *Hippocrates* says, That Twins lie in *Sinusses*, and that the *Uterus* has *Cornua*. *Galen* describes the *Navel-string* to consist of four Vessels, besides the *Urachus*, and the *Allantois* to be like a Pudding reaching from one *Cornu* of the *Uterus* to the other. In short, notwithstanding the Antients might sometimes dissect human Bodies, and although *Herophilus* and *Erasistratus* did open live Men and Women, yet it can't be found, what great Use was made of those Opportunities. For the Antients Accounts of many Parts, particularly of the *Urachus* and *Allantois*, (as to its Name, Figure, Site, &c.) agree only to their Appearance in *Brutes*. I shall say nothing of the *Allantois* in *Brutes*, since it is granted by most Anatomists to be in these Animals, and sufficiently described by *Dr. Needham*, who also first discovered Part of the *Allantois* in human Subjects; but neither he, nor any other, has taken the right Method of finding it intire; and 'tis no Wonder they could not truly describe what they never saw. *Dr. Needham* says, That after the *Amnios* is cleared, and left fixed to the *Umbilical Rope*, you may divide by the Fingers, or Knife, the remaining Part of the *Involucra* into two *Membranes*. The

Exterior he truly calls the *Chorion*, the *Interior* he takes to be the *Allantois*. But by these ways of Separation, you will presently tear the *Allantois*, and be able to discern only some small Pieces of it. Besides, the *Allantois* is at first Sight so like the *Amnios*, that many who suppose the *Amnios* double, and that its Coats are easily separable, have taken these Pieces of the *Allantois* for broken Parts of one of the Coats of the *Amnios*: Whereas having first found the Hole whence the Urine came forth, (if the *Allantois* is not too much torn) you may blow up the *Allantois* with a Pipe to its full Dimensions, and then see its true Shape, the *Fundus*, the *Cervix*, the Insertion there of the *Urachus*, its relation to the other Membranes, &c. Be the *Allantois* never so much torn, yet this way you may easily separate many Inches of it from the *Chorion* and *Amnios*: Which easy Separation demonstrates a Distinction of Membranes, since no double Membrane can be divided by the Breath alone.

Indeed *Hoboken* and *Diemerbroeck* made it a very easy thing to separate the *Allantois* from the other Membranes, only by the Fingers; but 'tis plain from their Descriptions, that they never saw one intire. Amongst other Mistakes, *Diemerbroeck* says, That the Urine of a *Fœtus* lies between the *Urinary Membrane*, and the *Chorion*; as though not contained in a distinct Bladder, but in a Cavity made partly from the *Chorion*, partly from the *Urinary Membrane*. I confess *De Graaf* tells us, That by blowing with a Pipe into a Hole made through the *Chorion*, all the Membranes of the *Secundines* will appear distinct. He has also delineated an *Allantois*, with the other Membranes, &c. as he says he found them; yet this Figure must be drawn from his own Fancy, and not from any Preparation, for these Reasons: First, Because by this way of Separation, you can only part the *Allantois* from the *Chorion*, but never see its true Dimensions, nor any Appearance of a Bladder, as the *Allantois* is, can be shew'd only by blowing into its Cavity, or by finding it full. Yet in this Figure no Sign can be observed where it was blown up, and tied, *De Graaf* also speaking of making a Hole only in the *Chorion*. Nor can this *Allantois* be supposed full of Urine, because 'tis not of the Shape of a full *Allantois*; and our Author himself calls it only the inflated Part of the *Allantois*. However, I can't conceive how the *Allantois* could remain partly filled with Air, (any more than it might with Urine) so long as till this Figure was drawn, unless some Hole was tied up, whence the Urine came forth, and the Air was blown in. Secondly, Because in this Figure the *Umbilical Rope* seems to run through both *Amnios*, and the *Allantois*, to its Insertion on the *Placenta*; whereas the *Allantois* is no-where perforated by the *Umbilical Rope*, nor does it any-where pass through the *Amnios*, but only runs under it, at the Place of its Insertion on the *Placenta*. If the *Navel-string* could be allowed to enter the *Amnios*, and to pass under it to the *Placenta*, why should it not appear (which it does not) under the *Amnios*, as well as the thin Substance of the *Allantois*? Again, according to *De Graaf's* Position of the *Secundines*, nothing could hinder a plain View of the Place where the *Navel-string* is set on the *Placenta*. This will be easily apprehended, by supposing the Part H, in my Figure, (Plate 3. Tab. 2.) to lie uppermost, the *Fundus G* and *Navel-strings* being turned over; for then the *Strings* will run over the *Allantois*, as in *De Graaf's* Cut, and its Insertion appear plain on the *Placenta*, which yet can't be discover'd in his Figure. I am sure the Whole is irregular, and I take it to be fictitious. As for the *Urinary Membrane*, it seems to be the *Allantois* of a *Colt*, (where *Needham* says, The *Umbilical Rope* runs through the *Urinary Membrane*) not less absurdly added to the *Secundines* of a human *Fœtus*, than the *Secundines* of a *Whelp* are to a like *Fœtus*, by *Vesalius*.

Lastly, 'Tis most evident, that *De Graaf* knew nothing of the true Shape of this Membrane, and that he had never seen one intire, because he consents to *Needham's* Description of it as true, which yet is false in several Particulars. For, First, The *Urinary Membrane* does not cover the whole *Fœtus*, (as he affirms) but only that Part of it which respects the *Chorion*, and does not lie on the *Placenta*; for the *Allantois* can be extended at farthest but to the Edges of the *Placenta*, where the *Amnios* and *Chorion* are so closely joined by *Fibres*, that no Membrane can come between them. Wherefore, Secondly, The *Allantois* is not every-where fastened to the *Chorion*. And consequently, Thirdly, The *Allantois* can't be of the same Shape that the other Membranes are of, nor be like the *Allantois* of a *Colt*, which contains the *Fœtus* in the *Amnios*; all which, nevertheless, *Needham* asserts. In short, Dr. *Needham* had seen only Pieces of the *Urinary Membrane*, but never an intire one, and so could only guess at the Shape, &c. of it, from what he had observed in *Mares*, and *Glanduliferous Animals*. He might have made a better Guess at the Figure, Site, &c. of a human *Allantois* from that of a *Whelp*, which does not every-where encompass the *Fœtus*; as he observes. *Bidloo*, in most of his Figures of the *Secundines*, letters some *Vestigia* of the *Urinary Membrane*; but in any of these Figures you only see broken Pieces of one, so confusedly placed, than no Idea of

its Bigness, Shape, or Situation, can be formed from them. I must confess, that oftentimes the Membranes of the *Secundines* are so torn, that no Art can exhibit an intire *Allantois*; however, among the many *Secundines* that have come under the Hands of Anatomists, several, no doubt, must have been intire enough for a fuller Discovery than they have made, had it not been, by their ways of Proceeding, (viz. by Knife, Fingers, or blowing under the *Chorion*) impossible to discover any thing plain, or satisfactory, even in the fairest Subjects.

I come now to answer the Objections of those who still deny an *Urinary Membrane* to a human *Fœtus*.

The Difficulty of finding this Membrane, is by no means an Argument against the Existence of it: But a Woman that dies big with Child, is so fair a Subject for the Discovery of three Membranes, that I wonder *Parey*, having such an Opportunity, could find but two, if he was so careful as he says he was. Dr. *Tyson* observed three Membranes some Years ago, in a like Subject. After the *Chorion* was divided, and laid aside, he saw two *Bladders*, containing Liquors of different Colours, which he pressing one towards the other, did not mix, but remained distinct. This Observation fully satisfied that great Anatomist, as to the Existence of an *Allantois*; and its Figure, Texture, Site, &c. might also have been discovered by him, had not the less curious Spectators been impatient to pass on to other Parts of the Dissection.

Some deny a *Urinary Membrane* to a human *Fœtus*, because they suppose the *Urachus* to be impervious, and that therefore there would be no Passage for the Urine, and consequently no Need of an *Allantois*. *Needham* indeed says, That he could never find any Sign of a Cavity in the *Urachus*; yet is of Opinion, that by blowing from the *Bladder*, the Air might be forced through a *Human Urachus*, as easily as he has often done it through that of a *Whelp*. I don't understand why Dr. *Needham*, and others, should insist so much upon an apparent Cavity in the *Urachus*, or expect that Air should necessarily pass through it upon blowing, and think that otherwise it cannot be fit for the assigned Office; since many Bodies, as Membranes, &c. will not admit Air, &c. yet let Water pass freely through them. It will not seem strange, that Water should pass through the Substance of the *Urachus*, if we consider, that the Cavity of the *Urachus* to the *Navel* is open, as appears by Inflation, or Injections (to say nothing of those who are mentioned to have made Water by the *Navel*); and that the rest of the *Urachus* is pervious, tho' not plainly hollow, (the Urine rather soaking gently, than running through its more strait Tubes) may be gathered from hence: First, That the Substance of the *Urachus* (as well as the Cavity of the *Allantois*) is always found turgid with a Liquor, that in Colour, Taste, and Smell, seems urinous. Secondly, That since the mucous Coat of the Intestines is demonstrated to be vascular by Mr. *Leeuwenhoeck*, therefore the mucous Substance of the *Urachus* may also be vascular. Thirdly, That Urine may as easily ouze through these mucous Vessels, as other Fluids run through vascular *Cartilages*, and *Bones*, &c. or the Chyle into *Lacteals*, (whose Orifices, as *Leeuwenhoeck* observes, will scarce admit of Particles so big as 1,000,000,000 Part of a Grain of Sand) the great Cavity of the Intestines being open at the same Time, or as easily as grosser Parts of the *Semen* pass the Tubes of the *Testicles*, whose Cavities are not more perceptible. I am sure the Urine is more assisted in its Motion by the *Detrusor Urinæ*, &c. than any of these Fluids can be by the *Heart*, or other Muscles.

Others will not admit of an *Urinary Membrane*, they thinking it would be useless, because they imagine, that when the *Bladder* is full, the Urine must be discharged at its *Cervix*, and not at its *Fundus* by the *Urachus*. But in answer to this, the Urine can never pass through the *Cervix* and *Urethra*, unless the *Abdominal Muscles* contract; because we never void Urine naturally, but by the Help of these Muscles, nothing less being able to force open the *Sphincter Vesicæ*. Now it being more than probable, that these Muscles never act before *Respiration*, no Urine can pass through the *Sphincter*, before the Child breathes. No Reason can be given, why the *Abdominal Muscles* of a *Fœtus* should voluntarily contract, since neither the Quantity nor Quality of the Urine can excite to such an Action: For when the *Bladder* is too full of Urine, it will ouze through the lax spongy Substance of the *Urachus*, being gently pressed by the *Detrusor* alone. There would arise many Inconveniencies from the voluntary Contraction of the *Abdominal Muscles* of a *Fœtus*, as voiding *Fæces* as well as Urine into the *Amnios*, which should be more prejudicial than Sweat, &c. Yet if we should suppose the *Abdominal Muscles* of a *Fœtus* to act, the Urine will however pass where it can most easily, that is through the *Urachus*, which is partly open, and altogether of such a Texture, as in no wise can hinder the passing of the Urine, much less be able to resist a considerable Force, as the *Sphincter Vesicæ* can. Besides, the *Urachus* is not only thus qualified for the Admission of Urine, but when the Mother lies down, 'tis almost upon a Level with the *Urethra*; and what has once passed the *Urachus*, cannot return by reason

feason of the Length, Situation, and peculiar Structure of it. Lastly, The *Pudendi Clausura*, sometimes happening in both Sexes, demonstrates, that then at least the Urine cannot pass through the *Urethra*.

Dionis not finding any *Allantois*, nor an *Urachus* plainly pervious, thinks there is no Need of either, on another Account. For he supposes, that the Blood which serves for the Nutrition of the *Fœtus*, is depurated from all Excrement. But I cannot apprehend, what should make this Portion of the Blood and Chyle freer from Excrement, than the rest of the *Massa Sanguinea*. There is indeed no Portion of it, which does not contain Parts unfit for *Assimilation* and *Nutrition*. Our Author would have been convinced of this Error, had he ever opened *Abortions* of five Months old or upwards, their Bladders being always full of Urine, and some *Fœces* constantly in the Intestines. 'Tis difficult to determine when this Separation of Urine first begins; but I am apt to think it much sooner than is generally supposed. Fig. 4. Plate 3. is the *Allantois* of a very small *Abortion*, which I have still by me. Since all the Parts are perfectly formed before *Impregnation*, not very long after *Impregnation* they may begin to perform their Offices. No doubt they begin as soon as there is Occasion for any Separation; and a Separation of Urine is necessary, when the *Fœtus* is first nourished by the *Umbilical Arteries*.

The Existence of an *Allantois* is denied by some who grant an *Urachus*, but will have it convey the Urine to between the *Amnios* and *Chorion*. *Diemerbroeck's* Opinion is somewhat like this, only he would have the Urine lodged between the *Urinary Membrane* and the *Chorion*. These Men don't consider, that the Urine in this Case would get into the *Amnios*, as well as the *Succus Nutritivus* of the *Chorion*, whether imbibed from the *Uterus* by the *Chorion*, or separated by its Glands. Such a *Succus Nutritivus* of the *Chorion* is granted by the Maintainers of the forecited Opinions; as well as by those who deny an *Allantois* altogether, or suppose it to have a different Figure, &c. from what *Diemerbroeck* assigns it. The Transudation (or Filtration through the Membranes) of this *Succus* seems most likely in *Mares* and *Sows*; for in a *Mare*, the *Chorion* is not joined to the *Uterus*, till she is half gone; and in a *Sow*, it does not adhere to the *Uterus*, till near the End of her going with young: But 'tis most evident, that the Urine of a *Human Fœtus* is not contained between the *Chorion* and *Amnios*, nor between the *Chorion* and *Allantois*, from the close Connection of these Coats to one another; also from the Observation of Midwives, who often find a Bladder of Water (they call it a *By-water*) offering itself before the Child, whereas the Humour of the *Amnios* is little, and of the *Chorion* much less, and of another Colour, &c. at the time of Birth: This *By-water* is taken Notice of, as an Argument for an *Allantois* by Mr. *Cowper*, to whose Assistance we owe, that the Figures belonging to these Papers appear correct.

The great *Harvey* will not allow an *Allantois* even to Brutes, and fancies the *Allantois* and the *Chorion* to be the same Membrane, that has two Names, the first from its Shape, the other from its Office, or Number of Vessels. Yet it is plain from *Galen*, and all the Antients, that they meant two distinct Membranes by the *Allantois* and *Chorion*. Dr. *Harvey* thinks, that a *Fœtus* does not void Urine, but that the Bladder contains it till the Time of Birth. What was offered against *Dionis's* Opinion, may serve for an Answer to this also. Because 'twas impossible for this diligent Anatomist not sometimes to observe an *Urinary Bladder*, he has thought of ways to explain such *Phænomena*, without granting an *Allantois*. In Sheep and Does, he had seen as it were a certain Process between the *Umbilical Arteries* full of Urine. This Process is no doubt the *Allantois*, though *Bartholinus* calls it the *Urachus*. Again, he thinks what is called by others an *Allantois*, (if it is not the *Chorion*) is some Coat accidentally formed from a Reduplication of the Membranes; because (since every Membrane is double) Nature may, upon a Streight, lodge the Urine between a Duplication. Yet he does not tell us how his Duplication is to be filled, he allowing no *Urachus*. But in short, this *Urinary Bladder* can be no Duplication of the other Membranes, since in all Animals it differs from them, as to Figure, Texture, and in having an *Urachus*, which no other Membrane has; and since every Animal that has a Bladder, must have a like Necessity for a Receptacle of Urine till born; since also the *Urachus* is ever alike inserted in the same Species of Animals, and the *Urinary Bladder* constantly the same, as to the Shape, Texture, Situation, &c. the *Urachus* and *Allantois*, with its *By-water*, can be no accidental or preternatural things.

Fig. 2. Plate 3. represents the Secundines of Twins, to shew the *Allantois*, and its Relation to other Membranes, &c. after the Parts were prepared and dried.

A A A A, Part of the *Chorion* expanded.

B B B, a Line expressing the Edges of the *Placenta*.

C C C, the *Amnios*, which is united to

D, the *Allantois*, at

E E E, the Line of Union.

F, the *Cervix* of the *Allantois*.

G, a Hole at the *Fundus* of the *Allantois*, whence the Urine came forth, and where the *Allantois* was blown up.

H, Part of that half of the *Allantois*, which lies under the Line of Union, and immediately covered the *Fœtus's*, unless it is supposed that the *Amnios* is continued under the *Allantois*.

I I, two Stiles or Probes thrust under the *Amnios*. They support the *Allantois*, and keep open the Aperture of the *Amnios*, whence the *Twins* came forth.

K, Part of the *Placenta*, with some Blood-vessels injected.

L L L L, the Arteries of the *Navel-string* filled with red Wax.

M M, the *Umbilical Veins* filled with green Wax.

N, a communicant Artery, by the means of which all the Arteries of both *Navel-strings* were filled at once; and the Veins were filled by one Injection in like manner.

O, a Pin that keeps out the *Amnios*, where, from the Edge of the *Placenta*, it runs partly to the Line of Union or Adhesion, and partly over the *Placenta*.

P, Part of the *Chorion* at the Edge of the *Placenta*, where it runs under the *Amnios* on the *Placenta*.

Q, a Pin, that by a Thread helps to pull open the Aperture of the *Amnios*.

R R R, the *Urachus*, lying between the Arteries.

a a a, Fibres or Vessels which fasten the *Allantois* to the *Chorion*.

Fig. 3. exhibits a Side-view of the same Preparation, that the Insertion of the *Urachus*, &c. may be better seen.

N. B. That A, and all the same Letters in these three Figures, denote the same Parts in every one.

S, shews the Course of the *Urachus* R at F in pricked Lines.

T, Part of the *Amnios* raised from the *Placenta*, to discover the *Placenta* K and V.

V, that Part of the *Allantois* which is below the Line of Union, near its Neck F.

Fig. 4. shews an intire *Allantois* of a very small *Abortion*.

N. B. This *Allantois* was easily separated from the other Membranes, between which it lay; and the *Amnios* remained an intire Bladder or Membrane under the *Allantois*.

Now some Object, that which is called the Line of Union, can be no real Thing: As to this, I don't know whether the *Allantois* of *Twins* may not require such a Conjunction to sustain, and keep steady, a greater Quantity of Urine; nor can I resolve, whether the *Allantois* of *Twins* (like that of a single *Fœtus* in Fig. 4.) may not be distinct, and separable from the *Amnios*, but was not discovered by me to be so, thro' want of Skill or Care. However, the Reasons why such a Line was figur'd, are these:

1. Although I used more Force, with equal Care, to separate the *Allantois* in this Place, than in any other, (where nevertheless the Separation was very easy) yet I could not divide these Membranes farther than that Line.

2. This Line seeming so regular, as to divide the *Allantois* into two equal Parts, I could not take it to be the Effect of Chance, or my Separation.

3. The Part H below the Line E E, was alike in Transparency to that Part of the *Allantois* D above it; whereas had the *Amnios* been joined to the *Allantois*, (as the Objectors suppose) the *Allantois* below this Line must have appeared thicker than that Part above it, since the *Amnios* alone is much thicker than the *Allantois*. 'Tis easy, indeed, to conceive the *Amnios* running an intire Bladder, or Membrane, under the *Allantois*, and perhaps it may be so; but I think it disingenuous to conceal what I did observe, or to make out by Fancy, what I could not discover in Fact.

Others have thought this *Allantois* to be an *Amnios* of one of the *Twins* belonging to these *Secundines*. This Objection, though it may seem plausible, yet it is of no Force. For, first, this *Allantois* is much finer to the Touch, as also much more transparent, than the other *Amnios*, which still remains stiff, whilst the much thinner *Allantois* sinks under the least Blast of Air, notwithstanding the Stiles I I, which assist it. Secondly, This *Allantois* had two visible *Urachus's*, and is of an Oviform Figure, somewhat like the common Cuts of a Man's Bladder (for a true Cut of a human Bladder I never yet saw, for it ought to be made much bigger (as it really is) at its *Cervix*, &c.); also this *Allantois* no-where touches the *Placenta*, unless at the Neck F; but on the contrary, the *Amnios* is of the same irregular Figure, as the Position, Motion, &c. of the *Fœtus* require; likewise it covers the whole internal Surface of the *Placenta*. Thirdly, They who make this Objection must suppose some Hole in this Bladder, and in the *Amnios*, through which one *Umbilical Rope* may pass from the *Placenta* to the *Fœtus*; but such a *Foramen* would be preternatural, because the *Navel-string* only runs from the *Placenta* to the *Fœtus*, under a Coat taken from the *Amnios*, and lies with the *Fœtus* in the Cavity of the *Amnios*, that is no-where perforated. Fourthly, The Hole at the *Fundus* G was scarcely wide enough to receive the End of a Man's Finger, whereas the

Twins

Twins did not want six Weeks of their full Time. Since therefore a *Fœtus* of near eight Months could not possibly pass this Orifice, this Bladder could not be an *Amnios*.

Nothing in these *Secundines* is preternatural, only some things were not before observed. Hitherto Anatomists have not allowed Twins to lie in a common *Amnios*, but supposed each *Fœtus* to have a distinct *Amnios*. The Reason of this Opinion might be, that some, denying any Urinary Membrane, called every Membrane they found (except the *Chorion*) an *Amnios*; and these, finding two Membranes in the *Secundines* of Twins, supposed them to be two *Amnios's*: That others, granting an *Allantois*, but not distinctly discovering it, but only two Membranes, also imagined them to be two *Amnios's*; both of these taking that for the *Amnios*, which might really be an *Allantois*. But since one *Chorion*, and one *Placenta*, (the *Placenta* and *Chorion* being ever of the same Number) generally serve Twins, (nay, sometimes three *Fœtus's*) why should it seem strange, that one *Amnios*, (at least sometimes) and one *Allantois*, should serve the like Number?

I am not ignorant, that *Mauriceau*, and *Diemerbroeck*, think there is an absolute Necessity for every *Fœtus* to lie in a distinct *Amnios*, and that otherwise Twins in the same Membrane would grow together, and make a Monster. *Aquapendens* farther says, That all *Ova Gemellifica* do produce some other sort of Monster; yet 'tis most certain, that *Ova Gemellifica* do exclude two perfect Chickens, however not both alive. The great *Harvey*, indeed, thinks it possible, that such an *Ovum* may produce a monstrous Chick, if its *Vitelli* are contained in the same Membrane, &c. yet does not positively say it must be so. For my Part, I cannot see any more Reason, why Twins in one *Amnios* should grow together, than that the Hands or Heels of the same *Fœtus* should grow to its own Body. How can the Humours that lubricate a single *Fœtus*, and help it to move, join two together? Since the Humours are the same, and the Parts of the same *Fœtus* as tender as those of Twins are, and lie as close to one another, as Twins do. 'Tis very observable, that among all Monsters we read of, there are very few which seem to be made of two intire Bodies joined together, and that most of these, upon Dissection, were found to have but one Heart, one Liver; whence 'tis most plain, that these Monsters (and no doubt all others) were originally Monsters in the *Ova* before Impregnation, and not so from want of the *Amnios*. Yet *Diemerbroeck* does not a little boast of having first (as he thinks) found the Reason why Twins must lie in distinct *Amnios's*: But since the Matter of Fact (sometimes at least, as in these *Secundines*, there was only one *Amnios*, and two regular *Fœtus's*) is not true, his Argument for a Necessity of two *Amnios's* for two *Fœtus's* will never prove valid, even where Twins, and two *Amnios's*, are found. Indeed any Part may be made to grow to any Part, as we see in the Cure of Hair-lips, &c. but then the Fibres must be first broke, before there can be any Union. Now I cannot conceive what should naturally break the Fibres of the Twins in the *Uterus*. But although 'tis evident, from what has been said, that Twins may be distinct in the same *Amnios*, yet there must be as many *Urachus's* as *Fœtus's*. In these *Secundines* I saw two running over the *Placenta*, to the Neck of the *Allantois*, which I communicated to some Physicians, before the Parts began to grow dry. The *Urachus* passes under the *Amnios*, as the other *Umbilical Vessels* do, and runs from that Part where the *Umbilical Rope* is set on to the *Placenta*, strait to the *Cervix F.* S describes the Course of that *Urachus* marked R, at F in the second Figure. The other *Urachus* lay about a quarter of an Inch laterally beyond that marked R in the same Figure. I mean by two *Urachus's*, two long roundish Bodies, of a depressed Figure; they seemed as big as a Knitting-needle, and were of a darker Substance than the *Placenta*, on which they lay; they appear'd, in every respect, like that Part of the Navel-string which is allowed by all Anatomists to be the *Urachus*, and in like manner shrunk in two or three Days from a mucous Substance to a mere Membrane: These two are the only intire Urinary Membranes that I have prepared. Yet in the *Secundines* that have come to my Hands, I have ever found three distinct Membranes easily separable. *Phil. Trans. abr. Vol. 4. p. 87 to 96.*

M. *Littre*, in his Observations on a monstrous Human *Fœtus* (*Mem. de l'Acad. Roy. des Sci. 1701. p. 115.*) says, That he found in the After-birth of that *Fœtus*, besides the *Chorion* and *Amnios*, a third Membrane, of the same Make as the two others, and not like a Gut, but exactly what we find in some Animals, and call *Allantoides*. This Membrane he intirely, with his Finger, and blowing, separated from the *Amnios*, and from the *Chorion*, as far as where this adheres to the *Placenta*, and even partly in that Place, but with a little more Difficulty. This third Membrane was a little thinner than the *Amnios*, but as thick as the *Chorion*; he could perceive no Blood-vessel in it, nor any Liquor between that and the *Chorion*; but betwixt it and the *Amnios*, there was half an Ounce of yellowish mucilaginous Liquor, which, he says, was probably the most glewy Part of the Urine, which, by reason of its Viscidity, could not run off with the rest at the

Rupture of the Membranes in the Birth. And perhaps it is this Matter that remaining between the two Membranes, after the thin Part is run off, glues them together, and causes them to be taken for one. Since this, he says, he found the same Membrane in several human *Fœtus's* perfectly well form'd, by taking hold of it in the same manner as he did in the monstrous *Fœtus*.

The Use of this third Membrane of the After-birth of the Human *Fœtus* is, probably, the same as that of the *Allantoides* in Animals where it is found, which is, that the Urine which cannot be contained in the Receptacles of the Kidneys, in the Ureters, nor in the Bladder, might pass from the Bladder, by the *Urachus*, to the Cavity formed by the *Amnios*, and this particular Membrane, to be there kept in Reserve till the time of Delivery. *Mem. de l'Acad. Roy. des Sci. 1701. p. 115.*

ALLELUJA, a Name for *Acetosa*, Wood-forrel. See ACETOSA.

ALLIARÆRIS, a Term used by Alchymists in their Process for preparing the Philosopher's Stone, to signify the *Æs Philosophicum*, Philosophical Copper: It is also called *Aqua Mercurii*, Water of Mercury; *Æs Album*, White Copper; *Animal Kenkel*, *Lapis & Ovum*, the Stone and the Egg; and by innumerable other Names, as appears from *Gulielmus Tectonensis*, in the second Chapter of his *Lilium de Spinis Evuls.* *Theat. Chym. Tom. iv. p. 889.*

ALLIARIA, a Plant thus distinguished:

Alliaria, Offic. Ger. 650. Emac. 794. *Raii Hist. 1. 792.* *Park. Theat. 112.* *J. B. 2. 883.* *C. B. Pin. 110.* *Mer. Pin. 4.* *Merc. Bot. 1. 17.* *Phyt. Brit. 4.* *Alliaria Matthioli*, *Rupp. Flor. Jen. 61.* *Alliaria, Alliariis*, *Chab. 281.* *Hesperis Allium redolens*, *Hist. Oxon. 2. 252.* *Raii Synop. 3. 293.* *Tourn. Inst. 222.* *Elem. Bot. 190.* *Boerh. Ind. A. 2. 17.* *Dill. Cat. Giff. 51.* *Hesperis separia allium redolens*, *Buxb. 155.* JACK BY THE HEDGE. SAUCE ALL ALONE. *Dale.*

ALLIARIA. This Plant has a small woody whitish Root, perishing every Year after giving ripe Seed; the Stalks grow to be about two Foot high, slender and striated, and a little hairy; the Leaves stand on long Foot-stalks; the lowermost are roundish, hollowed in next the Foot-stalk; those which grow on the Stalk are somewhat pointed, and waved about the Edges, thin and tender; being rubbed, they smell strong of Onions or Garlic; the Flowers grow on the Tops of the Stalks, small and white, of four Leaves a-piece, and are succeeded by long slender Pods, including small long Seeds: It grows in Hedges and Bank-sides, and flowers in May.

The Leaves are used; being hot, and of thin Parts, they provoke Urine, and are good for the Dropsy; the Juice mixed with Honey helps old Coughs; they resist Poison, and pestilential Distempers; outwardly they are used with good Success in Gangrenes. *Miller's Bot. Off.*

It contains a great deal of Essential Salt and Oil.

It is incisive, attenuating, and deterfive; good for the venomous Bites of Serpents, for the Dysentery, to strengthen the Stomach, and to abate Hysterical Vapours: It is used in Decoction. *Lemery de Drogue.*

It is esteemed an excellent Antiscorbutic, eaten by way of Sallad.

ALLIGATURA, is used by *Scribonius Largus* for Ligatura, a Bandage. *Scribon. Larg. Cap. 77. N. 209.* See LIGATURA.

ALLIOTICUM, (from *ἀλλίω*, to alter or vary) A Galenical Medicine, which alters and purifies the Blood; consisting chiefly of the Roots of Dandelion, Succory, Fennel, and Raisins; with the Herbs Endive, Common Ox-eye, Lettice, Sorrel, Fumitory, &c. *Blancard.*

ALLIUM, Garlick, a Plant well known.

There is in *Egypt* a mild Sort of Garlick, which is cultivated in Gardens, and grows after the manner of Leeks, with a single Head; this is sweet, small, and of a purplish Colour: But in other Places it is white, and has a Head composed of a Multiplicity of Cloves, called (in *Greek*) *ἀγλῖθαι*, *Agliithai*. There is also a wild Kind, called *ἐπιόσχορδον*, *Ophioscordon*. (*Vipers Garlick*.)

Garlick is of an acrid, heating, biting Nature; expels Wind, disturbs the Belly, dries the Stomach, excites Thirst, and causes Inflammations; will raise Blisters on the Skin, and dull the Sight. The *Ophioscordon*, called also *ἐλαφίσχορδον*, *Elaphoscordon*, (*Stags Garlick*) being eaten has the same Effects. Garlick, taken in Food, expels the flat Worms, and provokes Urine; and there is nothing better for the Bite of the Viper, or the Hemorrhoids, than to eat Garlick after a Glass of Wine, or to drink it bruised in the Wine. Applied outwardly as a Cataplasm, it is good for the aforesaid Purposes, and also for the Bite of a mad Dog. Taken as Food, it prevents Injuries from Change of Waters, clears the Voice (*ἀρσείας λαμπρύνει*); and eaten raw or boiled, mitigates an inveterate Cough. Drank with a Decoction of Origanum, it destroys Lice and their Nits. Burnt and mixed with Honey, and the Parts anointed therewith, it cures Lividness about the Eyes occasion'd by Blows, and the Alopecia; but for this last Affliction, there must be an Addition of Ointment of Nard. Mix'd with Salt and Oil, it

it cures the Eruption of Papulæ; and with Honey it heals the Vitiligo (ἀνίαν), the Lichenes, and Lentigines (ζάρες), and Lepra. Boiled with Pine, Resin and Frankincense, and held in the Mouth, it assuages the Tooth-ach; with Fig-leaves and Cumin, it makes a Cataplasm for the Bite of the Shrew-mouse. A Decoction of the Tops, added as an Ingredient in Inseffions, brings down the Menfes and Secundines. A Suffumigation thereof has the same Effect. Pounded into a Mass with the (Leaves of the) black Olive, which Composition they call *Myrtoton*, it provokes Urine, opens the urinary Passages, and is good for Hydropical Persons. *Dioscorides, Lib. 2. Cap. 182.*

Garlick is recommended by *Celsus* to be eaten before the Access of the Fit of the Ague, in order to take off the Shiverings. *Celsus, Lib. 3. Cap. 12.*

Garlick is mentioned, among Cicatricers of Ulcers, by *Oribasius* from *Zopyrus*. [*Med. Coll. Lib. 14. Cap. 58.*] And it heats and dries to powerfully as to expel Leeches without any other Help. *Orib. de Virt. Simp. Lib. 2. sub Scordon.*

It has something medicinal, and of bad Juice in it, which is lost in boiling. The constant Use of it is to be avoided, especially in hot Constitutions; for Eatables of such an acrimonious Quality are only fit for Persons troubled with pituitous, crude, gross, or glutinous Humours. *Ætius Tetr. 1. Serm. 1. Orib. Med. Col. Lib. 2. Cap. 27.*

The Garlick Drawing Plaister for all Hardnesses, Abscesses, Boils, Strumæ, Tumours in the Groins, Fistulas, humid Tetters, and hardened Breasts.

Take of Wax two Pounds, of Colophony and Stags Marrow each an Ounce and half, of white Nitre eight Ounces, twenty Cloves of Garlick, and four Pounds of Oil. Boil the Cloves first, peeled, in the Oil, till they are quite dry; then strain the Oil, and put thereto the liquefiable Ingredients, and afterward the Nitre pounded, and so use it.

My Method of Preparation is as follows:

Take of Wax, Colophony, Oil, each five Ounces, Nitre an Ounce and half, Stag's Marrow two Ounces, with thirty Cloves of Garlick; prepare them as before for a Plaister, to be used especially for Fistulas; for it draws out the Humour, which must be often wiped away. This alone, without any other Help, draws, incarnates, and heals or cicatrizes. *Ætius Tetr. 4. Serm. 3. Cap. 44.*

Garlick, Onions, and Leeks, are remarkable for their Acrimony, on which account they heat and attenuate the Body, and cut gross, thick Humours. After two Boilings they yield a little Nutrimment, but raw none at all. Garlick is the most difficult and aperitive. The Ampeloprasum is drier than the Leek, as growing wild. *Ægineta, Lib. 1. Cap. 76.*

Two or three Drams of Garlick, reduced to a very fine Powder, and drank in Wine, is a good Phlegmagogue. *Actuarius Meth. Med. Lib. 5. Cap. 8.*

There are several Sorts of Garlick; the first is the 1. *Allium* Offic. Ger. 141. Emac. 177. Park. Theat. 513. Raii Hist. 2. 1125. *Allium sativum*. C. B. Pin. 73. Hist. Oxon. 2. 387. Buxb. 15. Tourn. Inst. 383. Elem. Bot. 304. Boerh. Ind. A. 2. 147. Rupp. Flor. Jen. 122. *Allium vulgare & sativum*. J. B. 2. 554. GARLICK. Dale.

The Root consists of several Cloves, or small Bulbs, of a reddish white Colour, set together in a round Compass, and inclosed in one common skinny Coat or Cover, having several small Fibres at the Bottom; the Leaves are broad and long, like those of Leeks; on the Top of the Stalk, which grows two or three Foot high, stands an Umbel of small white five-leaved Flowers; the whole Plant, especially the Root, is of a very strong and offensive Smell.

Garlick is called the Countryman's Treacle, though it is not used nigh so much in England as it is in foreign Parts. It is accounted a Strengtheners of the Stomach and Bowels, an Expeller of Wind, and very good for the Colic; in Asthmas and Difficulty of breathing, it is a very good Medicine, the Root being either preserved with Sugar, or a strong Decoction of it made into a Syrup. *Miller Bot. Off.*

It grows in Gardens, and flowers in June. The Root is used, being of a heating, drying, incisive, aperient and discutitive Quality, and an Alexipharmac. Its principal Uses, internal and external, are in the flatulent Colic, Worms, Pessilence, Cough, Stone, Itch, Obstruction of Urine, Dropsy, &c. Dale.

Taken internally, it is thought to preserve from the Influence of an infected Air. It is used also externally; for, being bruised, it is applied to the Wrists in a cold Fit, or Beginning of an Intermitting Fever. It also is good to take away Corns of the Feet, being bruised and laid upon them.

Rocambole, which they call Shalotes of Spain, are the Fruit of the Garlick, which is cultivated in Spain. *Lemery de Drogues.*

It provokes Urine, it kills Worms, makes the Voice good and agreeable.

VOL. I.

It causes Pains in the Head, heats too much, and makes the Humours too sharp, and over-agitates them: It is also pernicious for those that have the Piles, and for Nurfses. *Lemery on Foods.*

Hoffman informs us, that Garlick is an effectual Remedy for that Dysentery which Sailors contract in East-India Voyages, from the Use of putrified Flesh.

Boiled in Milk, it is a popular Remedy for the Worms.

The second Sort of Garlick is the,

2. *Ophioscorodon*, Offic. Ger. Emac. 181. *Scorodoprasum alterum bulboso & convuluto capite*, Park. Theat. 872. Raii Hist. 2. 1120. *Allium sativum alterum, sive Alioprasum caulibus summo circumvoluto*. C. B. Pin. 73. Hist. Oxon. 2. 387. Tourn. Inst. 383. Elem. Bot. 304. Boerh. Ind. A. 2. 145. Rapp. Flor. Jen. 122. *Allii genus Ophioscorodon*, Chab. 201. *Allii genus, Ophioscorodon dictum quibusdam*. J. B. 2. 559. VIPERS GARLICK, ROCAMBOLE. Dale.

It is planted in Gardens, and flowers in July. The Root and Kernel are in Use, and it agrees in Virtues with the former, but is of a milder Nature. Dale.

The Ophioscorodon, which is a wild Garlick, is stronger than the Garden Sort. *Paulus Ægineta, Lib. 7. Cap. 2.*

A third Sort of Garlick is the,

3. *Scorodoprasum*, Offic. Chab. 201. Park. Theat. 872. *Scorodoprasum primum Clusii*, Ger. Emac. 180. *Scorodoprasum dictum*, J. B. 2. 558. *Allium sphaericeo capite, folio latiore, sive Scorodoprasum alterum*, C. B. Pin. 74. Tourn. Inst. 389. Boerh. Ind. A. 2. 145. *Allium maximum multis porraceis foliis latioribus, sphaericeo capite ex floribus albis confiato*, Hist. Oxon. 2. 387. *Allium montanum majus Anglicum Newtoni*, Raii Hist. 2. 1125. *Allium Holmense sphaericeo capite*, Raii Synop. 3. 570. WILD LEEKS. Dale.

The Scorodoprasum grows to the Bigness of a Leek, and partakes of the Qualities of Leeks and Garlick; and by a Mixture of their Virtues serves for the same Purposes with either of them, though with less Efficacy. The Scorodoprasum, boiled after the Manner of Leeks, grows mild and sweet, and eatable like other Greens. *Dioscorides, Lib. 2. Cap. 183.*

This Species of Garlick grows plentifully in *Holmes-Island*.

A fourth Species of Garlick is the,

4. *Ampeloprasum*, Offic. Matth. 552. Comp. 299. Lugd. 1543. Cam. Epit. 323. *Allium montanum bicornne, an Ampeloprasum*, Raii Cot. Angl. 2. 12? *Allium montanum bicornne purpureum proliferum*, Raii Synop. 3. 169. Tourn. Inst. 384. *Porrum sylvestre vinearum*, C. B. Pin. 72. Tourn. Inst. 382. Elem. Bot. 303. Garr. 376. FRENCH LACK. Dale.

It grows on Hills, in Meadows, and in the Gardens of the Botanists, and flowers in June. The Root is used, and is good against the Bites of Serpents, according to *Dioscorides*.

It has been much doubted, of late, by very good Writers, what Plant is meant by Botanists under the Name of *Ampeloprasum*; one fixing here, another there. They have been led into this Uncertainty by *Dioscorides*, in his omitting to give a Description of the *Ampeloprasum*. There are four kinds of Herbs in *Bauhine*, which have had this Name from some or other of the Botanists, out of which I have chosen the foregoing, as having the most Vouchers. Dale.

The Ampeloprasum is not so agreeable to the Stomach as the Leek, but is more healing, and more powerfully provokes Urine; it also brings down the Catamenia; and, being eaten, is good for the Bites of venomous Creatures. *Dioscorides, Lib. 2. Cap. 180.*

The Ampeloprasum differs from the Leek, just as the Wild, in all other Kinds, differs from the cultivated of the same Kind. *Oribas. Med. Col. Lib. 2. Cap. 27.*

The Ampeloprasum is drier than the Leek, as being wild; it is hot and acrimonious in a very high Degree, and therefore hurtful. It is of an incisive and deobitruent Quality, but ungrateful to the Stomach. *P. Æginet. Lib. 1. Cap. 76. & Lib. 7. Cap. 3.*

Another Species of Garlick is the

Viötoralis, Offic. Schrod. L. 4. P. 173. *Allium Alpinum*, J. B. 2. 566. Raii Hist. 2. 1122. *Allium Alpinum, Viötoralis mas quibusdam*, Chab. 203. *Allium latifolium montanum maculatum*, C. B. Pin. 74. Hist. Oxon. 2. 388. Tourn. Inst. 388. Elem. Bot. 304. Boerh. Ind. A. 2. 145. *Allium Alpinum latifolium, seu Viötoralis*. BROAD-LEAVED MOUNTAIN GARLICK. Ger. Emac. 182. Ger. 142. *Allium agninum*, Park. Theat. 872. *Moly Alpinum latifolium maculatum*, Rupp. Flor. Jen. 122. SPOTTED RAMSONS, Dale.

It may be met with in the Gardens of the Curious, where it flowers in June.

The Root is used, being of a heating and drying Quality like wild Garlick, with which it agrees in all its Properties. It is commonly worn as an Amulet by the vulgar Sort of our People, as well as the Jews, who are persuaded that it renders them secure against infectious Air, and Apparitions. Dale (from Schrodner).

Miller mentions a Sort of Garlick under the Name of *Allium bulbiferum Virginianum*, Boerh. Ind. Alt. Virginian Garlick.

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Besides

Besides the above-mentioned, there are some others, which go by the Name of Allium, as the

Allium sylvestre, Offic. Ger. Emac. 179. Park. Theat. 870. Raii Hist. 2. 1117. Synop. 3. 369. Mer. Pin. 4. *Allium sylvestre tenuifolium*, Volck. Flor. Nor. 17. Merc. Bot. 1. 17. Phyt. Brit. 4. *Allium campestre juncifolium capitatum purpurascens majus*, C. B. Pin. 74. Dill. Cat. Giff. 112. *Cepa juncifolia minor purpurascens*, Tourn. Inst. 383. *Cepa sylvestris tenuifolia, prolifera & florifera* Rand. Boerh. Ind. A. 2. 144. CROW GARLICK.

The Medicinal Virtues of this, are represented to be the same as those of common Garlick.

Moly, Offic. *Dioscorideum*, Ger. 143. Emac. 183. Park. Parad. 145. *Moly Dioscoridis parvum quibusdam*, J. B. 2. 568. Raii Hist. 2. 1123. *Moly Dioscoridis parvum quibusdam, flore candido*, Chab. 204. *Moly angustifolium umbellatum*, C. B. Pin. 75. Boerh. Ind. A. 2. 146. *Moly angustifolium umbellatum album*, Hift. Oxon. 2. 393. *Allium angustifolium umbellatum album*, Tourn. Inst. 385. MOLY OF DIOSCORIDES.

Dioscorides recommends this, made into a Pessary, with Oil of Orris, (or Meal of Orris, for the Copies differ) in Relaxations of the Uterus.

Moly Theophrasti, Offic. *Moly Theophrasti magnum*, J. B. 2. 568. Raii Hist. 2. 1122. *Moly Theophrasti magnum, floribus albis stellatis*, Chab. 204. *Moly Homericum*, Ger. 144. Emac. 183. *Moly Homericum, vel potius Theophrasti*, Park. Parad. 141. *Moly latifolium liliflorum*, C. B. Pin. 75. Boerh. Ind. A. 2. 146. *Moly latifolium flore albo*, Rupp. Flor. Jen. 122. *Allium latifolium liliflorum*, Tourn. Inst. 384. *Ornithogalum Indicum latifolium floriferum sphaericum, colore colofino aut albo*, Hift. Oxon. 2. 380. MOLY OF THEOPHRASTUS.

The Virtues of this are said to be the same as those of the *Moly of Dioscorides*.

ALLIUM GALLICUM, is a Name in *Marcellus Empiricus* for Portulaca; and also, in the same Author, for Inula Rufica, or Comfrey Root; perhaps the last is, by Mistake, for *Alus Gallica*, one of the Names of Comfrey in *Gerard*.

ALLOBROGICUM VINUM. An austere Sort of Wine, of the Growth of *Savoy* and *Dauphiné*, recommended by *Celsus* in a Resolution of the Stomach. *Lib. 4. Cap. 6.*

ALLOCHOOS, ἀλλοχοῦς. A Person who talks wandering, or deliriously; in which Sense it is used by *Hippocrates* in his second Book of Epidemics: "Οἱ πολὺ μᾶλλον καὶ δύσπνοοι, καὶ διαλεσφόροισιν ἀλλοχοῖ." "Such were much more troubled with Difficulty of Breathing, and wandering in their Discourse." But it must not be omitted, that for ἀλλοχοῖ in this Place, *Galen* reads σαλοχοῖ, which signifies those who spit much; and that *Erotian* seems to approve this Reading.

ALLOCHROEO, ἀλλοχρῶω, to change the Colour of the Skin, to appear first of one Hue, and then of another. And thus it is applied by *Hippocrates*, in his Treatise de Intern. Affect. "Ἰστέαι ἐν ἡ χροὴ ὑπὸ τοῦ δέρματι, καὶ ἐν τῇ κεφαλῇ, ὥς δὲ τοῦ ἀλλοχρῶετο τοῦ σώματος." "The Bile therefore stagnating under the Skin, and in the Head, immediately changes the Colour of the Body."

ALLOCOTON, ἀλλοκότον. *Hippocrates* makes use of this to signify what the *Latins* express by *alienus*, absurd, or improper, or unusual. Thus in his Treatise of the Diseases of Women, he says, they are perpetually desiring absurd or unnatural Food (ἀλλοκότων βρωμάτων).

ALLODEμία, ἀλλοδμήν. This Word is used by *Hippocrates* to express travelling into another Country. Thus in his Treatise de Internis Affectionibus, speaking of a Fever, attended with an odd kind of Delirium, he says, it most frequently happens in ἀλλοδμήν, (in peregrinatione) in travelling, or on a Journey into another Country.

ALLOEOSIS, ἀλλοίωσις, & **ALLOEOTICOS**, ἀλλοιωτικός (Alteratio). An Alteration induced in the Body by a proper Regimen, and proper Medicines, changing it from a morbid Condition towards a State of Health.

ALLOGNOON, ἀλλογνώω, from ἄλλος, (another) and γνῶω (to know). It imports being delirious: That is, according to the Derivation, knowing, or conceiving Things different from what they are in Reality.

ALLOPHASIS, ἀλλόφασις, from ἄλλος, (another) and φᾶω (to speak). It signifies a Delirium: That is, speaking of Things differently from what they really are. Hence ἀλλοφασσόμενος is frequently used by *Hippocrates*, to express delirious, or light-headed.

ALMA, or rather **HALMA**, ἄλμα. A Word which *Hesychius* interprets ἀνάημα, and says it signifies τὴν πρώτην τῆ ἐμβρυῶν μεταβάσιν ἐκ τῆς μήτρας. "The first Motion made by a Fœtus in the Womb towards freeing itself from its Confinement." It also signifies Water. *Rulandus*.

ALMABRI, (Lapis Ambrae similis) a Stone resembling Amber. *Rulandus*.

ALMAGER, the same with **SINOPIS**, or **RUBRICA SINOPICA**, which see. It is a red bolar Earth.

ALMAGRA, the *Bolum Cuprum*, Laton, the Stone itself, or the *Terra rubea*, the Red Earth. Or, **ALMAGRA** is the same as **LOTUM**, **LOTIO**. *Rulandus*. It is also a Name for the Sulphur album, White Sulphur of the Alchymists. *Theat. Chym. Tom. 4. P. 729.*

ALMAKANDA, **ALMAKIST**, **ALMARIAB**, **ALMARCAR**, **ALMARCAB**, (Lithargyrium) Litharge. *Rulandus*.

ALMARCARIDA, (Lithargyrium Argiritis) Litharge of Silver. *Rulandus*.

ALMARCAT, the Scoria of Gold. *Rulandus*.

ALMARGEN, **ARMALGOL**, **ALMARAGO**, Coral. *Rulandus*.

ALMARKASITA, Mercury. *Rulandus*.

ALMARTACK, (Lithargyrium cinis) Powder of Litharge. *Rulandus*.

ALMATATICA, (Metallum cupri) Copper. *Rulandus*.

ALMECASIDE, **ALMECHASIDE**, Copper. *Rulandus*.

ALMELILETU, a Word used by *Avicenna*, to express a preternatural Heat less intense than that of a Fever, and which may sometimes continue with Persons after their Recovery from that Distemper. *Castellus*.

ALMENE, Sal Lucidum, or Sal Gemmae. *Rulandus*.

ALMETAT, (Scoria Auri) Scoria of Gold. *Rulandus*.

ALMISA, Musk. *Johnson*.

ALMISADIR, **ALMISADAR**, **ALMIZADAR**, **AMIZADIR**, **ASANON**, **AMISADU**. (Sal Armoniacus preparatus) Sal Ammoniac prepared. *Rulandus* and *Johnson*.

ALMISARUB, Earth. *Johnson*.

ALMIZADIR, (viride Eris) Verdigrise. *Rulandus*.

ALMYRINTHRA, a Word used by *Myrepsus*. It is supposed, by his Commentator, to signify the same as the Arabic Word **ALMYRA**, which is Quick-Lime.

ALNEC, Allenec, or Alcalap. *Tin. Rulandus*.

ALNUS, a Plant thus distinguished:

Alnus Offic. Ger. 1294. Emac. 1477. Jonf. Dendr. 334. Raii Hist. 2. 1409. Synop. 3. 442. Chab. 60. Mer. Pin. 4. *Alnus vulgaris*, Park. Theat. 1408. J. B. 1. 151. Merc. Rot. 1. 17. Phyt. Brit. 4. Dill. Cat. Giff. 55. *Alnus rotundifolia glutinosa viridis*, C. B. Pin. 428. Tourn. Inst. 587. Elem. Bot. 460. Boerh. Ind. A. 2. 181. Rupp. Flor. Gen. 265. Buxb. 16. The ALDER TREE. *Dale*.

Its Leaves resemble those of the Hazel. The Male Flowers (or Catkins) are produced at remote Distances from the Fruit on the same Tree. The Fruit is squamose, and of a round Figure. *Miller*.

It delights in watry Places. The Bark and Leaves are in Use: The Bark is drying and astringent. The green Leaves, apply'd, discuss Tumours, and allay Inflammations: Taken internally, they are Vulneraries: Put in the Shoes of Travellers, they mitigate Pain and Lassitude. *Buxb.* Scatter'd in Chambers, while they are green, and the Dew upon them, and soon after gathered up, they rid the Rooms of the Fleas, which are apt to stick to them. *Trag.* The Bark dyes a black Colour, and may be used instead of Galls to make Ink. It is beneficially apply'd in Inflammations. *Dale*.

It contains a great deal of Oil, and but little Salt, and that almost all fixed.

Its Leaves are resolute, being bruised and apply'd upon Tumours; it serves for a Decoction to wash Travellers Feet with after being tired; and, rubb'd upon the Posts of the Bed, it kills Fleas. The Bark and its Fruit are cooling, and proper for Inflammations of the Throat, being used as a Gargarism. *Lemery de Drogues*.

Lobel represents this Plant in the Figure of the *Alnus altera Clusii*, which is very different: *Tragus*, *Gesner*, *C. Bauhine* upon *Matthioli*, *Dodonæus*, and *Stapel*, confound its Catkins with the Fruits. *J. Bauhine* distinguishes them very well: This Author supposes the little Threads at the End of the young Fruit, to be the Flowers of the Alder; but this is no more than a Dispute about the Name. I believe we had better take the Catkins for the Flowers. All these Parts are correctly engraved in the *Elemens de Botanique*: The Dyers and Hatters make a beautiful Black with the Infusion of Iron and the Bark of the Alder: The *Hist. Lugd.* relates, That a Tincture is made of Vitriol and an Infusion of the Fruit of this Tree: Thus it is probable, the Bark and Fruits may contain the same Principles as the Galls; viz. a great deal of Acid and Earth. *Tragus* and *Dodonæus* made use of its Leaves as a Cataplasm, to soften and resolve Tumours. Alder Leaves are used in the *Alps* in Paralytic Cases, especially when the Disease has proceeded from an external Cause, as lying in the Fields or damp Houses. Thus some Sack-fulls of the Leaves, either dried in the Sun or an Oven, are spread forth, upon which the Patient lies, being sufficiently covered with the same, and other warm Cloaths, till he has sweated plentifully. This Remedy is good for the Rheumatism, Sciatica, and such-like Diseases: Those that have the Pox receive no Benefit by it. *Martin's Tournefort*.

There are two other Species of this Tree in England, according to *Miller*, viz.

Alnus folio oblongo viridi, C. B. The long-leav'd Alder.

Alnus vulgaris sub conis ligulis membranaceis rubris donata.
The scarlet Alder.

This last Sort was found in a Meadow near Longleet; but is a matter of Doubt, whether it is a distinct Species, or some accidental Variety. *Miller*.

Another Tree, which is also called *Alnus*, is the

Frangula, alnus nigra, Offic. *Frangula*, Volck. Flor. Nor. 173. Tourn. Inst. 612. Elem. Bot. 486. Boerh. Ind. A. 2. 231. Dill. Cat. Giff. 66. Rupp. Flor. Jen. 34. Buxb. 116. *Frangula, sive Alnus nigra baccifera*, Park. Theat. 240. Raii Synop. 3. 465. *Alnus nigra, sive Frangula*, Ger. 1286. Emac. 1470. Mer. Pin. 4. *Alnus nigra baccifera*, J. B. 1. 506. C. B. Pin. 428. Raii Hist. 2. 1604. Chab. 45. Merc. Bot. 17. Phyt. Brit. 4. *Alnus baccifera nigra vulgaris*, Jonsf. Dendr. 436. THE BLACK ALDER-TREE. *Dale*.

This Tree never grows to any great Bigness, but shoots out into many small Branches, covered with a reddish brown Bark; it bears broad roundish, but sharp-pointed Leaves, about the Bigness of the Leaves of the Pear-tree, smooth, and full of Veins. The Flowers grow on the younger Branches, on the lower Part next the Trunk, several together, at the setting on of the Leaves, being small and white; and are succeeded by small round Berries, about as big as Juniper Berries, green at first, then red, and when ripe, blackish, full of a greenish Juice, of a bitter Taste, and having two flat Seeds in every Berry. The black Alder grows in moist thick Woods, as in *Hornsey* and *Hampstead* Woods, and flowers in May; the Fruit is ripe in September.

The inner Bark of this Tree (which is of a yellow Colour, and tinges the Spittle like Rhubarb) purges ferous and bilious Humours pretty smartly, and is commended for the Dropsy and Jaundice; but it ought to be corrected with proper Aromatics, or else it will cause cruel Gripping and Vomiting: Beaten in a Mortar, and mix'd with Vinegar, it is accounted very good for the Itch, the Parts being washed with the expressed Liquor. It is rarely used. *Miller Bot. Off.*

The Species of this Alder, according to *Miller*, are
Frangula rugosior & *amplexifolia*. *Tourn.* Berry-bearing Alder, with a larger and rougher Leaf.

Frangula montana pumila saxatilis, folio subrotundo. *Tourn.* Low Mountain rocky Berry-bearing Alder, with a round Leaf.

Frangula montana pumila saxatilis, folio oblongo. *Tourn.* Low Mountain rocky Berry-bearing Alder, with an oblong Leaf.

Frangula semper-virens, folio rigido subrotundo. *Hort. Eltham.* Ever-green Berry-bearing Alder, with a round stiff Leaf, commonly called the *Hottentot Cherry*.

ALOE, a Plant thus named.

The Aloe is like a Squill, only bigger, and with fatter Leaves obliquely striated. It has a tender Stalk, red in the Middle, and not unlike the Anthericos. The best comes from *India*, but it grows also in *Asia*, tho' the Leaves only of this latter are used for unglutinating of Wounds, for which it is excellent, even the Juice of it; and for that Reason is planted in Pots like the greater Houfeleek. Some cut the Stalk, before the Seed is ripe, for the sake of the Juice; others cut the Leaves for the same Purpose. Sometimes the Juice is found sticking to the Plant like a Tear; on which account it is usual to make a Pavement round it, that the Tear might not be absorbed in the Earth. We are told that in *Judea*, above *Jerusalem*, it is of a metalline Nature; but this is the worst Sort of all, as being the blackest and moistest. [This last Circumstance *Salmasius* treats as fabulous.]

Aloe is of an inspissating, condensing, and gently warming Quality. It is useful for many Intentions, but principally for purging, since it is almost the only thing of that Nature, which is so far from being hurtful to the Stomach in any respect, that it strengthens it. The Dose is a Dram; but in a Resolution of the Stomach 'tis usual to give the Measure of a Cochleare (about a Dram) in one sixth of a Pint of warm or cold Water, two or three times a Day, at proper Intervals, as Occasion shall require. The highest purging Dose is three Drams; and it works the better for making a Meal after taking it. *Pliny* finishes what he has to say of it, in ascribing the same Virtues to it, as you have in *Dioscorides*. *Plin. Lib. 27. Cap. 4.*

The Aloe has a thick fat Leaf, like the Squill, of a pretty wide Circumference, and convex on the Outside. On both Sides of the Leaves are here and there some blunt Prickles, which stand obliquely, and seem broken. It sends up a Stalk like the Anthericos, [the Stalk of this *Asphodel*, according to *Pliny*] which bears a Flower and Seed like the *Asphodel*. The whole Plant has a strong Scent, and a very bitter Taste. It has but one Root, which runs downward into the Earth, like a Stake.

It grows very plentifully, and extraordinary fat and rich, in *India*, whence the Juice is exported. It grows also in *Arabia*, *Asia*, and in some maritime Places and Islands, as in *Andros*: This indeed does not yield its Juice freely and copiously, but

is excellent for conglutinating of Wounds, if bruised, and applied to the same.

There are two Kinds of this Juice; one sandy, which seems to be the Dregs or Dross of the purest Sort; the other resembles the Liver. Chuse the fat, and unadulterated, which is void of Gravel, shining, yellowish, friable, resembling the Liver, easily moistened, and of an intense Bitterness; but reject the Black, and hard to break. Some adulterate it with Gum-Arabic, which may be discover'd by the Taste, and its coming short of the Bitterness and strong Smell of the true; and also in that it will not crumble to Dust between the Fingers. Some will mix Acacia with it.

As to its Virtues, it is an Astringent, procures Sleep, dries, condenses, loosens the Belly, and cleanses the Stomach. The Dose is two Cochlearia in cold Water, or Water heated Milk-warm. It stops spitting or vomiting of Blood, and purges off the Yellow Jaundice, if taken to the Quantity of half a Dram or a Dram in Water. Swallowed with Resin, or drank in Water or clarify'd Honey; it loosens the Belly. The Weight of three Drams is a complete Purge. Mixed with other Cathartics, it renders them less incommodious to the Stomach. The dry Powder sprinkled [*επιπασσιν*, according to the Scholiast, for *επιπασσιν*] on Wounds, conglutinates them, and heals and cicatrizes Ulcers. It has a peculiar Virtue in Exulcerations of the *Pudenda*, and heals the torn Prepuces of Boys. Mix'd in sweet Wine, it cures the Condyloma, and Fissures of the Arms. It stops the Flux of Blood from the Hemorrhoids, cicatrizes Pterygia, and takes off the livid Marks of Bruises and Blows in the Face, being mixed with Honey. It mollifies the Roughness of sore Eyes, and the Itching of the Canthi. Mixed with Vinegar and Oil of Roses, and the Forehead and Temples anointed therewith, it mitigates the Pain of the Head; and mixed with Wine, puts a Stop to the Shedding of the Hairs. With Wine and Honey, it is good for the Diseases of the Tonfils, Gums, and the other Parts belonging to the Mouth. When used in a Collyrium, it is roasted in a clean white earthen Saucer, and stirr'd with a Spoon, till it be equally and thoroughly done. It is usual to wash Aloes, by which the sandy Part sinks to the Bottom, and is set aside as useless; and the rest, which is of a very fat and smooth Substance, is reserved for Use. *Dioscorides, Lib. 3. Cap. 25.*

Aloes is no violent Purger; is very friendly to the Stomach, like Wormwood. Two Drams in Hydromel are a Dose; it purges Bile and Phlegm. It may be taken every Day after Supper; for it passes off the Stomach, without disturbing the Concoction of the Food, and causes no Thirst, but excites an Appetite. Bruise your Aloes, and with the Juice of Cabbage make it into Pills, of the Size of a Chick-pea or Bean, of which you may take two or three at a time, as Necessity shall require. You may also make it into Pills with Resin, or clarify'd Honey, especially for those who cannot well endure its Bitterness. It is proper also to be mixed with Scammony, or any other Cathartic, which is subject to lower the Spirits.

It is good for Quotidian Agues, Yellow Jaundice, Pains in the Liver, Nausea, and Crudities. It is as proper for Women as Men, and would be a very fit Purge for Children, were it not for its Excess in Bitterness, which Children cannot endure. *Orib. Med. Coll. Lib. 7. Cap. 27. Ruffus Ephesus, Fragment. de Med. Purg.*

Aloes is excellent for Ulcers, that are difficult to be cicatrized, especially those in the *Pudenda*, and about the Anus. *Orib. Synop. Lib. 7. Cap. 11.*

Aloes does not purge the whole Body, but is a fine gentle Cleanser of the Stomach, Belly, and Intestines, from Bile and Excrements. For this Reason, it is prescribed to such as have their Heads affected with continual Vapours from the Stomach, as it carries off the Seeds, and destroys the Original, of the Disorder. On the same Account it is proper for such as are troubled with sore Eyes, or are subject to a Dryness of the Mouth and Tongue, from a redundant Bile, or are afflicted with the Heart-burn, Nausea, or any weakening Disorder. It is also given to such as are unaccountably pale, and want Evacuation, when a Clyster, for some Reasons, cannot properly be administer'd. The Dose is two Drams in Hydromel. It may be taken every Day, either in the Morning fasting, or after Supper. Pound the Aloes, and make it up into Pills of the Size of a Chick-pea, with the Juice of the Rind of Citron; or, for want of that, with the Juice of Cabbage; it may also be done with Turpentine, or clarify'd Honey. The Pills ought to be swallowed in Hydromel, or a Draught of the same should be taken immediately after. Purging Medicines attract, like a Cupping-glass, the Causes and Seeds of Distempers, that infect the principal Parts, and evacuate them by the Belly. *Ætius Tetr. 1. Serm. 3. Cap. 24. Actuarius Meth. Med. Lib. 5. Cap. 8.*

To purge Bile, give a Dram of Aloes in the Morning. They who prescribe it in the Evening, or after a Meal, do hurt; for it corrupts the Aliment. In a less Dose, as half a Dram, it only evacuates the Belly of the Excrements. Of all Cathartics, Aloes only is grateful to the Stomach. For such as cannot

cannot endure its Bitterness, it is prepar'd in Pills. *Egineta*, Lib. 7. Cap. 4.

Medicines are generally hurtful to the Stomach; and for this Reason, all Cathartics ought to have a Mixture of Aloes. *Celsus* Lib. 2. Cap. 12. P. 32. E.

The *Arabians* call Aloes in their Language *Sabr*, and say, that the *Sabr Al Scootheri*, that is, the Aloes of *Zocatra*, excels what they call *Schegeeri* and *Hadramuthi*, or the Aloes that grows in the Countries of *Schegeer* and *Hadramuth*. *Herbelot* Bibl. Orient. Art. *Saccharab*.

Edrissi says, That the Aloes of *Zocatra* excels all others; and that *Alexander the Great*, being informed by *Aristotle*, of the Virtues of this Plant, transported the Inhabitants of the Island to *Arabia* and *Ethiopia*, and settled a Colony of *Greeks* in their Room, whom he charged with the Cultivation of the Aloe.

The Inhabitants gather the Leaves in *July*, and boil them in great Kettles to get out the Juice, which, after boiling, remains at the Bottom; this they take out, and expose it in other Vessels to the Heat of the Sun, during the Dog-days. *Herbelot* Bibl. Orient. Art. *Sabr*.

The Plants from which the Aloes, commonly used in Medicine, are procur'd, are

1. *Aloe Offic.* J. B. 3. 696. Chab. 541. *Aloe*, C. B. Pin. 286. Raii Hist. 2. 1195. Hist. Oxon. 2. 414. Tourn. Inst. 366. Elem. Bot. 294. Boerh. Ind. A. 2. 128. Hort. Beaum. 6. Herm. Hort. Lugd. Bat. 16. *Aloe Dioscoridis*, Colum. Ecph. 1. 40. *Aloe Dioscoridis & aliorum*, Sloan. Cat. Jam. 15. Hist. 1. 245. *Aloe vera vulgaris*, Munt. Alcod. 17. *Aloe vulgaris, sive sempervivum maritimum*, Ger. Emac. 507. Park. Theat. 149. *Caraguata Brasiliensis*, Marcg. 57. *Caraguata tertia*, Pison. Ed. 1658. 193. *Kadanaku vel Gatevala*, Hort. Mal. 11. 7. Tab. 3. COMMON ALOES.

It grows in both *Indies*. The Leaves are the useful Part of the Plant; and the inspissated Juice of the *Barbados Aloe*, is called the *Official Aloes*. This is sometimes of a shining Black, sometimes nearly of a Liver-colour, of a strong Smell, and extremely bitter. It is brought to us from *Barbados* in large Gourds. The Leaves are commended against Burns. The inspissated Juice has the same Virtues as the *Succotrine Aloes*. *Dale*.

2. *Aloe Guineensis Caballina vulgaris similis, sed tota maculata*, Commel. Prælod. Bot. 40. HORSE-ALOES.

The inspissated Juice is used; the impure, blackish, droffy Part of which is called *Aloe Caballina*; the purer Part, which is of a Liver-colour, is the *Aloe Hepatica*.

The above-named Author calls this Species *Caballina*, because the Leaves, when broken, shed a Juice like the Horse Aloes. *Dale*.

3. *Aloe Succotrina*, Offic. *Aloe Succotrina angustifolia spinosa, flore purpureo*, Breyn. Prod. 2. 12. Hort. Amst. 1. 91. Commel. Prælod. Bot. 40. *Aloe Indica Orientalis serrata, sive Succotrina vera, floribus phœniceis*, Hort. Beaum. 5. *Aloe Americana serrata, floribus coccineis*, Parad. Bat. Prod. 306. *An Aloe Americana Anonæ foliis, floribus suave rubentibus, ex codice Bentingiano*, P. P. Tab. 240. Fig. 4. SUCCOTRINE ALOES.

It differs from the *Horse Aloes* only in Purity, as some think. It has not only a purging, but a heating and drying Quality. It opens Obstructions, clears the Passages, provokes the *Hæmorrhoids* and *Menses*, strengthens the Stomach, kills and expels Worms, and purges bilious and phlegmatic Humours.

The Root of the common *Aloes* is pretty thick, running deep into the Ground, not much divided, but with several Fibres about it. It has many long, narrow, thick, fat and juicy Leaves, roundish on the Outside, and hollow on the In; the outer Leaves inclosing the inward; they are prickly about the Edges, and sharp-pointed, of a whitish green Colour; from among these the Stalk arises two or three Foot high, divided towards the Top into several Branches, on which grow many Bottle-like Flowers, of one single pretty large Leaf, divided at the End into five Segments, of a yellowish white Colour; each Flower being followed by a cylindrical Seed-vessel, divided into three Parts, and containing flat Seed. It grows in *Spain*, *Italy*, and the *West-Indies*. Of this Plant is made the *Aloe Hepatica* of the Shops, or the *Barbados Aloes*, which is brought over to us in Gourds, of a Liver-colour, and a very nauseous Scent. It is made by gently pressing the Leaves pluck'd from the Roots, stroaking them downwards; by which the bitter Juice, which is contain'd in particular Veins, drops into Vessels set under; and having stood all Night, the thin Liqueur is pour'd off, and the Sediment is dry'd and harden'd in the Sun, which is our *Aloes*.

The *Aloe Succotrina* is made the same way, but from another Species of this Plant; viz. *Aloe Succotrina spinosa angustifolia, flore purpureo*, Breyn. Prodrom. 2. *Aloe vera minor*, Munting *Aloedar*. This is a lesser Plant, fuller of Leaves, more neatly made, bearing red Flowers, in Form and Shape

like the other, but less. The *Aloes* made of this Species comes over from the *East-Indies* in Skins; the best being made in the Island of *Succottra*. It is blacker, more shining and brittle, and when powder'd, of a fine yellow Colour, not apt to clot together after it is powder'd, and of but little Smell, in Comparison to the other.

Aloes is a purging Medicine much in Use, and chiefly beneficial to cold moist Constitutions; it is not much given by itself, unless now-and-then to Children for the Worms; but is a main Ingredient in most of the officinal Pills, as also in the Species *Hiera Picra*; it is accounted a good Stomachic, and useful to carry off tough and slimy Humours from the Bowels, and good to mix with Steel to promote the menstrual Flux. Outwardly, it is serviceable in fresh Wounds, a little of the fine Powder being put in them; it is also mix'd with other Ingredients, and laid to Childrens Navels against the Worms.

Officinal Preparations from *Aloes*, are, *Aloes Rosata*, *Pilula de Aloe lota* and *Aleophangina*. *Miller* Bot. Off.

Miller enumerates thirty-seven different Sorts of Aloes.

The *Succotrine Aloes* grows in *Zocatra*, an Island in the Straights of *Babel Mandel*, where they formerly prepared the Aloes by expressing the Leaves, and then letting the expressed Juice stand in a quiet Place, till an oily Substance rose at the Top. This Substance they took off, and evaporated it to the Consistence of an Extract.

The *Succotrine* and *Hepatic Aloes* are both very good Purgers, but they rarefy the Blood, and therefore cause *Hæmorrhages*, and other undesign'd Evacuations, to those who are subject to them. This Medicine ought therefore never to be given to Women with Child, or to those who are subject to Piles, &c. Again, Aloes, after its purgative Effect is over, is constipating; and therefore to such Persons as are inclined to be costive, Cassia is preferable. The Dose is from four Grains to half a Dram. The resinous Part, extracted by Spirit of Wine, will purge violently; and the gummy Part, extracted by Water, is a good Vulnerary, especially in Ulcers of the Bladder and Kidneys. The Tincture of Myrrh and Aloes is used to prevent Mortification in Wounds. *Geoffroy*.

Tho' Aloes does not belong to the Class of drastic Purgatives, it has Strength enough to be sufficiently cathartic, and uses to excite vehement Commotions in the Mass of Blood; so that a few Grains are enough for a Dose. But if it be dissolved in Water, Rain-water, for Instance, and boiled a considerable time, its cathartic Virtue is weakened, so that it has no Effect at all, except the Dose be augmented. *Hoffman* Obs. Physico-Chy. Lib. 2.

Laxative Preparations of Aloes, both the *Hepatic* and *Succotrine*, are Remedies of great Efficacy, provided the Aloes, by proper Methods, be freed from its foreign volatile and sulphureous Principle, and stript of the Refin which closely adheres to the Coats of the Intestines. These Preparations must be administered in small Doses, and mix'd with bitter Extracts, and mild balsamic Ingredients. For this Reason the Pills which were perhaps casually found out by *Becherus*, and which, according to his Method, ought to be prepar'd of the best Aloes, cannot be too highly commended, because they gently open the Belly, and restore the Tone of the Intestines, when weakened by any Distemper, to such a Degree, that other Purgatives would be prejudicial to them. And tho' these Pills produce no considerable Effects upon robust Constitutions, and People of plethoric Habits, yet their Virtues are very considerable, and exert themselves very speedily in Constitutions naturally weak, or such as have been extenuated by Sickness, and in Women who are either in Child-bed, or who, thro' some Fault of the Womb, have their menstrual Discharges in an irregular manner. They are likewise proper for correcting and evacuating crude Humours, when the Digestion of those who are recovering of a Fit of Sickness happens to be bad; they are also beneficial to those who labour under hypochondriacal Disorders, whose Stomachs perpetually throw up acid Crudities. Preparations of Aloes, on the other hand, administered without a proper Corrector, or in large Doses, put the Blood into a quick Motion; for which Reason, plethoric Persons, such as are easily wrought upon, or such as are subject to Discharges of Blood, ought together to abstain from Aloes, because all aloetic Preparations have this peculiar Disadvantage attending them, that they excite very painful *Hæmorrhoids*, and drive the Blood towards the Region of the Loins, and Parts contain'd in the Pelvis. But besides the Pills of *Becherus*, there are others not to be defrauded of their Worth, nor banish'd from Use, in which Aloes is made up with other proper Ingredients, such as the *Pilula Tartarea* of *Schroder*, the *Aleophangina*, the *Marocostina*, *Pilula de Succino Cratomis*, and those of *Solomander*. *Hoffman*. Medic. Rational. Systemat. Tom. 3. Sect. 2. Cap. 5.

The Author might have added the *Pil. Ruffi*, and some others in our Dispensatory.

A L O

M. *Boulduc*, in his Treatise of Purgatives, considers Aloes in particular. It ought to be pure, transparent, bitter, and of a strong Scent. It is reckon'd among the moderate Purgatives.

By M. *Boulduc's* Analysis by Extraction, it appears, that the *Succotrine* Aloes contains scarce half the Quantity of Refin, or sulphurous Matter, and about a third more of a saline Substance, than the *Hepatic*. As for the Horse-Aloes, it is so impure, and contains so much Earth in Proportion to its Sulphur and Salts, that it deserves not to be regarded.

The different Proportion of the Principles of the *Succotrine* and *Hepatic* Aloes, might well be the Cause of their different Properties. As the resinous Part of Aloes, contrary to other Cathartics charg'd with Refin, is little or nothing Purgative; the *Succotrine*, which has the least of that Refin, has been always prefer'd to the *Hepatic* for inward Uses; and, on the contrary, the *Hepatic*, which has more of it, excels as much the other, on account of its external Usefulness, for cleansing of Wounds, and closing the Lips of recent Cuts, &c. M. *Boulduc* equals it, in that respect, to the natural Balsams. 'Tis plain enough, that these Effects are the natural Result of the resinous and balsamic Parts.

The Salts of Aloes are very active, and corrode the Extremities of the Veins, where the Fibres are finest, whence proceed Hemorrhages. Therefore it highly concerns us, that the saline Part, which wants to be restrain'd by the resinous, be not separated from it; and yet this is the Case in several Preparations of Aloes, when they have not been made by skilful Hands. They have rejected the resinous Part, as too gross, and good for nothing, because it kept at the Bottom of the Solution. M. *Boulduc* assures us, that he has been several times a Witness to the fatal Effects of a free Use of *Elixir Proprietatis*, and all Preparations of Aloes, which have either been ill made, or taken to Excess.

M. *Boulduc* is so far from approving a Separation of the resinous from the saline Part of Aloes, that, on the contrary, he would have them more strictly united by the Mediation of an Alkali, such as the Salt of Tartar. We are not only to assist Nature under Disorders by Remedies, but lend her our helping Hand in the Remedies themselves. *Hist. de l'Acad. Roy. des Sciences*, 1708.

ALOES ROSATA, Rosated Aloes.

Take of bright *Succotrine* Aloes in Powder, four Ounces; of the depurated Juice of Damask Roses, one Pint; and digest them together over a gentle Heat, till the superfluous Humidity is exhaled, and the Remainder is of a due Consistence for Pills, *S. A.*

This is ordered, in the *Augustane* Dispensatory, to be done three times over; and in the *Pharmacopœia Regia*, it is directed with an Addition of Diagyridium, and Refin of Scammony; but that is now rejected. The same Dispensatory also orders another, with Infusion of Violets; but this is the most simple of them all, and the only one, that is now used in Practice.

PILULÆ DE ALOE LOTÆ, Pills of washed Aloes.

Take of Aloes, dissolved in the Juice of Roses, and again inspissated, one Ounce; of the Troches of Agaric, three Drams; of Mastich, two Drams; Syrup of Damask Roses, a sufficient Quantity; to make into a Mass for Pills, *S. A.*

This is, in the *Augustane* Dispensatory, under the Title of *Pilulæ de Aloe lotæ incerti Authoris*, with the Addition of half a Dram of the Species *Diamoschu dulcis*. It hath stood also in the same manner in the College Dispensatories down to the present, which hath also rejected that Species out of the Number of that Class. *Zwelfer* finds Fault with the Title, because Aloes cannot properly be said in this Process, nor indeed in any other, to be washed; and directs the Aloes Rosata to be used in its stead. There are many other Compositions in this Form with Aloes, in the *Augustane*, and other Dispensatories, as particularly one with Mastich, from *Nicolaus Myrepsius*; but they are quite rejected from amongst the present Officialins. *Quincy's London Dispensatory*.

ALOEDARIA, cathartic compound Medicines, so called from Aloes, a principal Ingredient.

Aloedaria of *Philagrius*, gently purging with Honey of Roses.

Take of Aloes six Ounces; of Costus, Spikenard, Carpopalsamum, Flowers of Juncus odoratus, each one Ounce; of Cassia, one Ounce; of Agaric, four Drams; of Saffron, four Drams; the Tops of Centaury, four Scruples; of Honey, two Ounces; Juice of Roses, four Ounces; Epithymum, one Ounce; of Rheum, eight Scruples; of Asarabacca, four Scruples; of Xylobalsamum, six Scruples. Vol. I.

A L O

ples; of Mastich, eight Scruples. Make them into an Electuary with Honey of Roses, and let the Dose be according to the Strength of the Patient.

Another of the same, gently purging without any manner of Trouble, and good for Pains in the Joints and Loins, but especially for the Sciatica, and opening Obstructions of the Liver.

Take of Ilium, (supposed to be the black *Chamaeleon*) eight Scruples; of Agaric, four Drams; of Aloes, two Ounces; of Spikenard, eight Scruples; of Flowers of Juncus Odoratus, eight Scruples; of Saffron, four Scruples; of Cassia, sixteen Scruples; of Costus, eight Scruples; of Carpopalsamum, eight Scruples; of Honey of Roses, three Ounces and eight Scruples. Bruise them, and make them into Pills with the Honey of Roses, of which give five after Supper, every Day, or every other Day, as you please. It is a Detergent of the Stomach and Joints, and chiefly purges Phlegm. You may dine and sup during the taking of them as usual.

Another, that purges both Phlegm and Bile.

Take of the Tops of Wormwood bruised and strained, and of Aloes very finely powdered, each one Ounce; and with the Juice of Spurge, especially the Myrtle-Spurge, make into Pills of the Bigness of a Kidney-bean, of which give three at a time.

Aloedarium from *Philagrius*, purging Bile and Phlegm.

Take of the Medulla, or inner Substance, of the Colocynthis, Aloes, Scammony, each five Drams; Juice of Tops of Wormwood, five Drams; with the Juice of Cabbage make them into Pills, of the Bigness of a Chickpea, and give one-and-twenty at a time to adult Persons.

Another, approved by long Experience, which purges three Humours.

Take of Aloes, Epithymum, Scammony, each two Drams; of Colocynthis, Agaric, each one Dram; make them into Pills with the Juice of Cabbage, and give fifteen at a time.

Another, made in the City of Tyre.

Take of Scammony, two Ounces; of Aloes, one Dram; of Mastich, Bdellium, Pepper, Wormwood, each one Dram; make them into Pills with the Juice of Citrons, and the Rind of the same, and give seven or nine at a time. If you would have them work smartly, give the Weight of four Scruples and a half, or more.

The Aloedarium of *Oribasius*.

This is chiefly design'd for sore Eyes, and principally purges black and yellow Bile.

Take of Scammony, one Ounce; Rind of black Hellebore, one Ounce; Sal Ammoniac, one Dram; Root of All-heal, three Drams; Pepper, Penyroyal, each one Dram; make them up with Water into Pills like a Grecian Bean, and give seven of them at a time, so as they weigh nearly one Dram and a Scruple.

Another of *Oribasius*.

Take of Aloes two Ounces, of Spikenard, Asarabacca, Mastich, Saffron, Xylobalsamum, each six Drams; of Cassia, twelve Drams; of Epithymum, twelve Drams; make them into Pills of the Size of a Vetch, with a Decoction of Penyroyal, and give twenty-one for a Dose. This cures Quartan Agues. They may also be made up with boiled Honey. *Ætius Tetrabib. l. 1. Serm. 3. C. 105. &c.*

ALOFEL, according to *Rulandus*, or ALOFEL, according to *Johnson*, a Cloth made use of to cover a Vessel.

ALOGOS, ἀλογος, is an Adverb, used frequently when any thing is said to happen without sufficient Reason or Cause: Thus when a Fever disappears without any critical Evacuation, *Hippocrates* says it is resolv'd ἀλογος, without sufficient Reason, and in this Case is subject to a Relapse.

ALOGOTROPHIA, ἀλογотροφία, from ἀλογος, disproportionate, and τροφω, to nourish. Unequal or disproportion'd Nourishment, as when, for Example, in the Rickets, one Part receives a greater Degree of Nourishment than another.

ALOHAR, ΑΛΟΗΟC, ΑΛΟΣΗΟC, or ΑΛΟΣΟΤ. Quick-silver. *Rulandus*.

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ALOIDES,

ALOIDES. *Aloe palustris*, Offic. Mont. 36. *Aloides*, Boerh. Ind. A. 2. 132. *Aloe palustris*, C. B. Pin. 386. Johr. Hed. Bot. Pl. Ign. *Aloe five Arizon palustre*, J. B. 3. 787. Chab. 567. *Militaris aizoides*, Ger. 677. Emac. 825. Raii Hist. 2. 1324. Merc. Bot. 2. 26. Phyt. Brit. 75. Mer. Pin. 77. *Stratiotes, five militaris aizoides*, Park. Theat. 1249. Hist. Oxon. 3. 618. *Stratiotes foliis Aloes, semine longo*, Gundelsh. 2p. Johr. Raii Synop. 3. 290. *Stratiotes aquaticus Belgicus*, Bod. in Theoph. 436. **WATER ALOES, or, FRESH WATER SOLDIER.** Dale.

It has Leaves like the Aloe, but shorter and smaller, and surrounded with short stiff Prickles, with Pods between them, like Crabs-claws, which opening, produce white three-leav'd Flowers, very much resembling those of Frog-bit (*Morsus Ranae*, Dale) and bearing small yellow Chives. Its Roots consist of long, round, white Fibres, very like long Earth-worms, or the bigger Harp-strings, which from a short Head, when the Plant puts forth Leaves, shoot down towards the Bottom of the Water, but seldom reach it. Besides these, it has other Fibres, which run obliquely, and propagate it after the manner of Frog-bit.

It grows in flow Streams, and Lakes of Standing-waters, and is often found in large Ditches by Marshes, with most of its Leaves and Flowers above Water, the rest of the Plant being hid under it.

This Herb, in the Isle of Ely, flowers in June and July, and sometimes in August.

The Fibres, with which it is furnish'd instead of Roots, are shewn by knavish Mountebanks to old Women for Worms, in a Vial full of Water, to make them look the bigger, the Cheats pretending they have brought them away from their Patients, by Virtue of their Medicines. Raii Hist. Plant.

The Herb is used, being accounted among the Vulneraries. Dale.

ALOPECES, (Lat. *Vulpes*) Muscles of the Loins, the only ones of the Back, which grows to the Loins, otherwise called *Ψαι*, *Ψοαι*, and by some *νευεμύτρες*, (read, also *νευεμύτρες*, for which some substitute *νεφεμύτρες*) *Ruffus Ephesus*, Lib. 1. Cap. 30.

ALOPECIA. A Distemper attended with Baldness, all or most of the Hair falling off. It is deriv'd from *ἀλώπηξ*, a Fox, because this Animal is said to be very subject to a Distemper which resembles it.

The Antients, amongst whom the Disorder seems to have been more common than it is amongst us, have been pretty long in their Accounts of this Disease: But as *Sennertus* has collected from them all, I shall content myself with inserting his Abridgment, after having given the Sentiments of *Celsus*.

There are two Kinds of Areas, in both which it is common for the outer Skin to grow dead, and the Hairs first to wither, and then fall off; and if the Part be wounded, a thin Blood issues out, of a foetid Smell. Both Areas in some are of a quicker, in others, of slower Growth; the worst is, what condenses and pinguifies the Skin, and renders it quite bare and smooth.

That called *ἀλωπεκία*, *Alopecia*, spreads itself under any Figure, and affects the Beard as well as the Head; the other, which, from its resembling a Serpent, is called *οφίασις*, *Ophiasis*, begins from the Back-part of the Head, and creeps about the Breadth of two Fingers, 'till it has extended its two Heads to both the Ears, and sometimes to the Forehead, 'till both Heads meet in one. The Alopecia comes at any Age, the Ophiasis seldom but to Infants; the first is very rarely taken off without Medicine, the other often goes off of itself.

Some exasperate these Kinds of Areas by scraping them with a Knife, others anoint them with Cathartics mix'd with Oil, especially burnt Paper, dipt in Oil. Others again spread over the Place Resin of Turpentine with Thapsia (deadly Carrot). But there is no better way than to shave the Part every Day with a Razor; for in cutting away by little and little the outer Skin, the Roots of the Hairs are opened; nor must we desist 'till we see the Skin set thick with budding Hairs. It is proper to rub over the Place thus often shaved with Vitriol. *Celsus*, Lib. 6. Cap. 4.

Of the ALOPECIA and OPHIASIS.

There is a peculiar Sort of Falling-off of the Hair, called *ἀλωπεκία* "Alopecia," and *οφίασις* "Ophiasis." It has the Name of *Alopecia*, because such a Defluxion of Hairs often happens to Foxes; and it is termed *Ophiasis* from the Figure of the smooth and bald Parts, which wind about in the manner of a Serpent. In both these Affections it is common for the Hair to fall off by Handfuls at a time, so as to leave whole Spots quite bare; whence the Disease has also the general Name of *Area*, [a bare Plot of Ground] and *Celsus* treats of Areas, Alopecia, and Ophiasis, in the same Chapter. It took the Name of *Area* from the Areas you see in Gardens in the Country; for as these are Plots disposed here and there, and are bare and naked, as having nothing growing on them, so does the Skin, in this Affection, at certain Places, appear smooth and bald.

However these Affections differ at least in Figure; for the Alopecia has no determinate Form, but, as *Celsus* says, extends itself under all Shapes; but the Ophiasis creeps winding like a Serpent, sometimes from the Back-part of the Head on both Sides, as far as the Ears, and of the Breadth of almost two Fingers; sometimes it passes by the Ears, and extends itself, creeping like a Serpent, to the very Forehead. Besides, in the Ophiasis there seems to be more Malignity in the Cause, since not only the Roots of the Hairs, but the Cuticle itself, is corroded as far as these Roots reach. From what has been said, the Alopecia and Ophiasis may be defined, a Defluxion of the Hairs of the Head, which lays whole Places bare at a time, and owes its Rise to a deprav'd and corrupted Humour, that corrodes the Roots of the Hairs.

The Author of the Treatise, *De Medicamentis facile parabilibus*, reckons Alopecia and Ophiasis among the Affections which change the Colour of the Hair. But we ought to take Notice, that this Alteration is not a Property of that Defluxion of the Hair, which occasions Areas; but the Change of Colour in the Hair either precedes the Alopecia and Ophiasis, as when the Hairs from a vitiated Nutriment first turn white, and afterwards fall off; or this Alteration happens after the Alopecia and Ophiasis. For when the Hairs spring afresh upon these Areas, or bare Spots, they appear white or yellow; as white Hairs use to grow upon the healed Spot of an Ulcer in the galled Back of a Horse, which owe their Colour to a vitious Nutrition, and the Tendernefs of the Skin. This is hinted also by *Celsus*, Lib. 6. Cap. 1. where he observes, that the Ophiasis affects only the Hair of the Head; but the Alopecia extends itself to the very Beard.

The Cause of both Affections is a depraved and acrid Humour, of some Kind or other, that corrodes the Roots of the Hairs; tho' they generally proceed from a salt Phlegm, adust or putrefy'd. Hence *Galen*, *De Diff. Sympt. Cap. 4.* writes, that these Maladies are the Consequence of a depraved Nutrition of the Skin of the Head. The Reason why sometimes an Alopecia, at other times an Ophiasis, are occasioned, or that the Hairs sometimes leave a strait, sometimes a crooked Area, is owing to the Quantity and Quality of the Matter: For if the Matter be thinner and more copious than ordinary, it corrodes the Hairs alike in more and larger Spots; if it be scantier, and mix'd with a gross Humour, the Defluxion of Hairs becomes unequal and crooked, because the Humours, being various and mixed, don't readily take their Course strait forward, but creep obliquely, corroding the Hairs in their Way.

The more remote Causes are the Heat of the Liver and Head, and especially a Fault in the first and second Concoction, by which means salt and acrid Humours are generated. This Infirmary is incident to all Ages, but especially to Childhood, and succeeds the *Tinea*, *Achores*, and *Favi*.

Sometimes this Disease is produced also from external and malignant Causes, among which *Galen*, *De compof. Med. Sec. Loc. Lib. 1. Cap. 2.* accounts eating of Mushrooms, because they contribute much to the generating of vitious and corrupt Humours. Among other Causes of this Kind, we may reckon the Pox, which also corrodes the Roots of the Hairs; and other malignant and contagious Distempers may have the same Effect.

The Alopecia is distinguish'd from the Ophiasis by the Form of its Area, and in that it occasions only a Falling-off of the Hair, whereas in the Ophiasis not only the Hairs fall off, but the Skin is excoriated, and changes its Colour, sometimes turning whiter, sometimes paler, or blacker; and if it be pricked, a ferous Blood issues out.

The Alopecia and Ophiasis differ from the *Tinea*; for in the Ophiasis the Excoriation in the Skin is but superficial, and when it is healed, the Hairs grow again; but in the *Tinea*, the Excoriation and Exulceration are deeper, and the Skin is oftentimes so vitiated, that the Hairs never grow again.

As to Signs of the Causes, the kind of peccant Humour may be known by the Colour of the Skin; for the better Observation of which, the Hairs which are left, are to be shaved off, and the Skin gently rubbed; and there are other Signs by which you may know what Humour abounds in the Body. The Hairs also, when they grow again, will shew by their Colour, which varies, according to the Nature of the morbid Matter, what kind of Humour is the Cause of this Affection.

The Alopecia and Ophiasis, tho' not attended with much Danger, occasion Deformity; and among the *Romans*, those Slaves, who were affected with an Area, and especially an Alopecia, were sold at a lower Price; and, in our Times, these Areas are matter of Disgrace, as giving a Suspicion of the Pox.

Whether the Alopecia or Ophiasis be most easy to cure, Authors are divided in their Sentiments. *Celsus* and *Avenzoar* write, that the Ophiasis is sooner cured than the Alopecia. *Alexander*, Lib. 1. Cap. 2. and *Serapion*, Lib. 1. Cap. 1. say the contrary. But *Celsus* seems to speak chiefly of the Ophiasis of Infants, which often goes off of itself, by the Benefit of Age and Change: But in Adults, indeed in any Age, if the Alopecia and Ophiasis be compared

pared together, the latter seems on all accounts more difficult to cure, as owing its Rise to a grosser and more malignant Humour, that corrodes not only the Roots of the Hairs, but the Skin itself, which does not happen in the Alopecia.

The more inveterate either of these Infirmities is grown, the more stubborn it is to be remedied; and the contrary.

If the Place grow red with Friction, there is Hope of a Cure; and the sooner it does so, the easier will the Cure be; if the Place grows not red with Friction, 'twill be in vain to attempt a Cure.

The worst Kind of Areas is, where the Skin is thick and fattish, and absolutely bald and smooth.

Alopecia and Ophiasis from a Leprosy, are incurable; from the Venereal Disease, are not to be cured, before that Distemper is removed.

There is good Hope of a Cure, when the Extremities of the Areas adjoining to the standing Hairs, begin to send forth Hairs: For the Parts next the sound ones, are less perverted from their natural State, and are therefore sooner restored, and begin to produce Hairs.

If a vitious Humour abounds in the whole Body, it is first of all to be evacuated; otherwise it would continually foment the Disease. And so if it accompanies the *Lues Venerea*, this latter must first be cured, before the other can be removed. So also a Distemperature of the Viscera, on which depends the Generation of vitious Humours, is to be rectify'd. The antecedent Cause being removed, the continent or immediate Cause is to be taken off. This *Galen* effects by Repellents and Digestives; but Care must be taken at the same time to restore the Skin to its natural Temperament.

First then, the whole Body is to be purged by Remedies accommodated to the Nature of the peccant Humour. After this, *Galen* prescribes an Apophlegmatism for Evacuation of the Head in particular.

As to the Matter, while it is yet fluctuating, and in its Beginning, before the Areas are formed, *Galen* makes use of Repellents. This is what *Avicenna* also advises, when he tells, that the Remedies for an Alopecia must be such as, by a moderate Astringency, strengthen the Skin of the Head, in *Septima quarti Tract. 1. Cap. 6.* "These Medicines, says he, must be of a corroborating and repelling Quality, by which means the Head may be guarded against the Influx of the malignant Matter." But where the Alopecia and Ophiasis are already formed, Repellents have no Place, neither in these Cases, nor in the Itch.

If the Areas are already formed, and the Matter lodged in the Skin, Digestives are to be used. These are to be hot in Quality, of fine Parts, and not too dry; for if they should be of a drying Nature, they would not only discuss the vitious Humours, but also what should nourish the Hairs. And if the Temperament of the Skin be too hot and dry, as it is in confirmed Areas, cooling and moistening Medicines are to be intermix'd with the other Topics.

The Remedies which remove the proximate Cause of this Malady, are called *μετασυνκριτικά*, "Metasynkritica" [See the Word]. Here, first, if any corrupt Hairs still remain, they are to be drawn out either with Tweezers, or by Dropacism; or the Place must be shaved with a Razor. Then the Head must be washed with Lye, in which Capillus Veneris, Polytichum, Abrotanum, and such kind of Herbs, have been boiled; after the Washing, let the Place be rubbed with a Linen Cloth, not too soft, nor too dry, till the Skin begins to grow red; after which let Topics be apply'd, such as Mustard, Nasturtium, and Roots of white Lilies, (which last are also said to restore the Hairs after Combustions) Rocket-seed, Nitre, Oil of Bays, Tar, Sulphur, the Powder and Ashes of Abrotanum, the Root of Sowbread, of Hellebore, the Seed of Staves-acre, Pigeon's Dung, and, which are stronger than all the rest, Thapsia and Euphorbium; these last, the fresher they are, the more they retain of Acrimony, which they lose by being kept. Choice is to be made of these, as shall appear best suited to the Case, and due Application is to be made. For not all the Medicines just now enumerated are proper for all Areas, at all Seasons, in all their Degrees, and whether more or less inveterate; for each has its proper Season and Measure: To a beginning and slight Disease, a weak Remedy; to an inveterate one, strong Medicines are best accommodated; to tender Bodies, as of Women and Children, gentle Topics; to those of adult Persons, and Men, smarter ones are to be apply'd.

Galen, De Compos. Med. Sec. Loca, Lib. 1. Cap. 1. has many Compositions to this Purpose, examin'd and approv'd by long Experience, such as those of *Heras, Crito, Orestinus, Oritho Siculus, Cleopatra, Archigenes, Asclepiades, Dionysiodorus, Soranus*, and others. He himself recommends the following:

Take of the Leaves of Arundo Græca burnt, four Ounces; of Hedgehog calcin'd, one Dram; of Mouse-dung, two Drams [in *Galen* it is two Ounces]; pound them in Vinegar, and anoint the Parts affected. Or,

Take of the Ashes of burnt Reed, Goats Hair burnt, Maidenhair, Bear's Fat, Tar, Cedar-Turpentine, of each an equal Quantity. This he calls an admirable Remedy, Or,

Take of domestic Mice burnt, Linen Cloth burnt, Horses Teeth calcin'd, Bear's Fat, Stag's Marrow, Bark of Reed, of each equal Parts; of Honey, a sufficient Quantity; make them into an Ointment. Or,

Take of Euphorbium, Thapsia, Oil of Bays, each two Drams; Sulphur vivum, Hellebore, each one Dram; Wax, six Drams; melt them up, and mix them together with Oil of Bays, or old Oil, or Tar. This is the strongest Medicine of all, and best accommodated to the Disease, when grown inveterate.

In a more moderate Degree of the Distemper, a Remedy prepared of Abrotanum, or the Roots of Reed burnt, mixed with old Oil, or Oil of Bays, or Tar, will be sufficient. Or,

Take of Rocket-seed, Nasturtium; Nitre, and mix them with Oil of Bays, or Tar. Or, which is milder, and adapted to Women and Children,

Take of Abrotanum, the Ashes of the Root and Bark of Reed, Frankincense, an equal Quantity; of Bear's Fat, and Oil of bitter Almonds, a Sufficiency. Make a Liniment. If there be Occasion to make it stronger, you may add Froth of the Sea, Sulphur vivum, Ox Gall, Rocket, Nitre, or even Thapsia. Or,

Take of Mustard, Thapsia, and Seed of Nasturtium, equal Parts; reduce them to a fine Powder, and add thereto Oil of Bays and Resin, of each a sufficient Quantity; and make thereof a Plaster by the Fire-side.

A Multitude of such Remedies are every-where to be found in the Works of *Valescus de Taranta, Rondeletius, Hallerius, Trincavellius*, and other practical Physicians.

In using the stronger Kinds of Medicines, observe to apply the softer and more liquid Sorts, and such as are temper'd with the Mixture of Oils, which moderate in some measure their Force; and then taking Notice of what Alteration is wrought in the Part affected by the first Medicine, increase or diminish its Strength, as you see Occasion. Now an Alteration may be best discover'd by attentively observing whether the Skin be grown redder, or will redden with a strong or gentle Friction. For the greatest Care is to be taken, that the Skin be not parched by the repeated Use of the stronger Medicines. It is farther to be observed, with respect to compound Medicines, that, if the Parts are quite bare, they are fittest to be used in a solid Form, as by way of Plaisters; but if the Hairs are not clean gone, more liquid and softer Forms, such as Liniments and Ointments, are most convenient.

The milder Topics must remain Night and Day on the Part, that they might be able to exert their Force; the stronger ones, till you can perceive they have made some Alteration in the Skin, and Pain begins to be felt. Therefore in using these latter, the affected Part is to be inspected once or twice every Day; and if they have had too rough an Effect, recourse must be had to milder ones; and the Part is to be anointed with the Fat of a Goose, Oil of Dill, or some such Anodyne Medicine; for if the stronger Remedies be kept on longer, they will burn the Skin. Thus *Christophorus a Vega* writes, That he had seen not a few Persons, who by the Use of too forcible Medicines, were reduced to a perpetual Baldness, or remained all their Life-time without a Beard.

A Regimen of Diet is also very effectual in the Cure of an Alopecia and Ophiasis. Such Meats are to be chosen as generate good Blood, and put a Stop to the breeding of ill Humours. Let the Food be such Eatables as contain a good Juice, which may rectify the depraved Fluids. Let the Patient abstain from Wine till the Body be purged; for Wine serves as a Vehicle to carry the detained and corrupt Humours into the Veins. After sufficient Purging, Wine that is mild, and of a sweetish Taste, may be indulged, since it nourishes much, and generates good Blood. A warm Air suits best with the Patient. *Sennertus, Lib. 5. Part. 3. Sect. 2. Cap. 4.*

ALOPECUROS, from *αλωπεκ*, a Fox, and *ουρ*, a Tail. It is a Plant thus distinguish'd:

ALOPECUROS, Offic. Ger. 81. Emac. 87. *Alopecurus genuina*, Park. Theat. 1166. Hist. Oxon. 3. 101. *Gramen Alopecurus spica brevi*, J. B. 2. 474. Chab. 186. Raii Hist. 2. 1265. *Gramen Alopecuroides spica rotundiore*, C. B. Pin. 4. Theat. 56. Boerh. Ind. A. 2. 159. Elem. Bot. 418. *Gramen spicatum tomentosum longissimis aristis donatum*, Tourn. Inst. 517. FOX-TAIL. Dale,

A L O

It is a very tender Herb, with a short Spike of about two Inches, pretty round, and nearly resembling a Fox's Tail, white and thin. The Husks that hold the Down are almost hid by the Thickness of the downy Tufts, and are pretty long-bearded, soft, and of a circular Form. The Stalk has many Joints, and grows to the Height of a Cubit, or a Cubit and half, beset with grassy Leaves, which are cover'd with very fine soft Hair. The Root is small, white, and has abundance of Filaments.

It is observed to grow in Sicily, at Baia in Italy, and in Languedoc near Frontiane, chiefly in sandy Ground, but with a short Spike, and a low Stalk, not above a Foot high, and very slender in the upper Part. *Raii Hist.* 1265.

I don't find any Virtues ascrib'd to it.

Ray, besides the above, enumerates the following Species:

1. *Gramen Alopecuro simile Glabrum, cum Pilis longiusculis in spica, Onocordon mihi denominatum, J. B. Alopecuroides Major, Ger. Phalaroides Majus, Park. Gr. Phalaroides majus, seu Italicum, C. B. & forte etiam Phalaroides spica molli, seu Germanicum, C. B. Park.* THE MOST COMMON FOX-TAIL GRASS. This grows very plentiful in Meadows and Pastures throughout England.

2. *Gramen Aquaticum gemiculatum spicatum, C. B. Fluviale spicatum, Ger. Aquat. spicatum, Park.* SPIKED FLOTE-GRASS.

3. *Gramini Caudæ Muris purpurascenti aliquatenus simile, J. B.*

4. *Gramen Alopecurinum minus, Ger. Alopecuroides spica longa majus & minus, Park. Typhoides, V. Seu spica angustiore, C. B. Cum Cauda Muris purpurascente, J. B.* THE LESSER BASTARD FOX-TAIL GRASS.

5. *Gramen pumilum hirsutum spica purpuro-argentea molli, nostras.* THE DWARF HAIRY FOX-TAIL, WITH A SILVER WHITE SPIKE INCLINING TO PURPLE.

6. *Gramen Alopecuroides spica aspera, C. B. Alopecuroides spica aspera, Park. Gra. cum cauda Leporis aspera, seu spica murina, J. B. Alopecuroides spica aspera Bauhini, Ger. Emac.* ROUGH-EAR'D FOX-TAIL GRASS.

7. *Gramen Alopecuros spica longa tomentosa candicante, J. B. Alopecuros major spica longiore, C. B. Gr. Alopecuroides alterum radice repente, seu Pseudo-Schoenanthum Monspeliensium, Park. Schoenanthum adulterinum, Ger.* GREAT LONG-EAR'D FOX-TAIL GRASS.

8. *Alopecuros maxima Anglica, Park. Altera maxima Anglica paludosa, Ger. Emac. Altera maxima Anglica paludosa, seu Gramen Alopecuroides maximum, J. B. Lob. Adv. part. alt.* GREAT ENGLISH MARSH FOX-TAIL GRASS.

9. *Gramen Alopecuroidi accedens ac Phalaridi, spica longiuscula, folio lanuginoso, J. B. Typhoides molle, C. B. Alopecuroides minus, Ger.* Long-ear'd soft-leaved FOX-TAIL.

10. *Gramen cum cauda muris, foliis hirsutis, J. B. Typhoides culmo reclinato, C. B. Alopecurinum majus, Ger.* THE GREAT BASTARD FOX-TAIL GRASS.

11. *Gramen Alopecuros altera Lobelii, J. B.* ONE OF THE SPECIES OF FOX-TAIL OBSERV'D BY LOBEL.

12. *Gramen Alopecuros minus spica longiore, C. B. Cauda vulpina Monspeliensium, Adv. Lobel.* FOX-TAIL OF MONTPELLIER.

13. *Gramen Typhoides maximum spica longissima, C. B. Typhoides maximum, Park. Typhonum tertium, Ger. Emac.* THE GREATEST CATS-TAIL GRASS. *Raii Hist.* p. 1264.

ALOPEX is a Sea-fish, mention'd by Oribasius, (*Med. Coll. Lib. 2. Cap. 58.*) among those which frequently come up the Rivers into fresh Water, and are hard of Concoction.

ALOSA five CLUPEA, the Shad: It is a Sea-fish, which often travels into Rivers; it grows to the Bigness of a Salmon; it is cover'd with large Scales, but thin and easy to be pulled off; it is sharp-snouted, and has no Teeth; there appears at the Top of its Head, above its Eyes, a Bone or a Scale on both Sides, which is bright and shines; its Tongue is blackish, the Back is of a yellowish White, the Sides and Belly of a silver Colour. This Fish loves Salt, and has a delicious Taste; it contains a great deal of volatile Salt and Oil. When this Fish is not very fresh, it has a Taste somewhat acrid, which offends the Gums of those who eat it.

They find in the Head of this Fish a stony Bone, which is Aperitive, and good for the Gravel and Stone, and to absorb Acids, being itself alkaline.

The Stomach of this Fish, dried and reduc'd to Powder, is proper to strengthen the Stomach, being taken inwardly. *Lemery de Drogues.*

It agrees in the Spring, when it is better than in any other Season of the Year, with any Age and Constitution, provided it be moderately used.

It's said this Fish is so afraid of Thunder, that the Noise thereof many times kills it out of Fear. *Rondeletius* says,

A L P

that he had seen some of them, by playing on the Lute, run and skip about on the Face of the Water.

They pickle Shad to keep, and for the exporting it into other Parts; but 'tis not so well tasted as before. *Lemery on Foods.*

ALOSANTHI, Flos Salis, Flower of Salt. *Rulandus.*

ALPAM. This is the Siliquosa Indica flore tripetalo, siliquis teretibus, pulpa absque feminibus repletis. *Raii Hist. Plant.*

The Stem of this Plant, which divides itself twice or thrice, is covered with a Bark of an ashy, green Colour, inodorous, and of an acid astringent Taste. The Branches are of a whitish Wood, have a green Pith running thro' them, and are distinguished into Joints. The Root is red, composed of a great Number of capillary Fibres, which disperse themselves on every Side. The Leaves are of a narrow oblong Form, and terminate in a sharp Point, of a Deep-green on the Outside, but pale on the Inside, have their main Rib very much branched, are interwoven with many Veins and Fibres, and are set single on thick, short Pedicles, which are flat on the Inside. They have a Smell not ungrateful, and taste somewhat acrid. The Flowers, which are of a dark-purple Colour, and inodorous, grow on very slender, round Pedicles, sometimes two or three together, and consist of three broadish, sharp-pointed Leaves, which are covered on the Outside with very white Hairs, and in the Middle have their Stylus divided into three oblong, red Stamina or Chives, that cross one another. To the Flowers succeed the Pods, which are sharp-pointed, round, and full of a carnosé Pulp, but without Seeds, at least any that are discernible.

It delights in sandy, open Soils; and is found in great Plenty in *Aregatti* and *Mondabelle*, and many other Places.

It bears Flowers and Fruit, as well at the End of the Year as in the Beginning, and is always full of Leaves.

Any Part of this Shrub, made into an Ointment with Oil, is a powerful Remedy in case of the Scab, and old Ulcers.

The Juice of the Leaves, with Calamus Aromaticus, is good against the Venom of Serpents; and the Root bruised with Juice of Lemon, tied in a little Knot, and thrust up the Nose, by way of Errhine, is esteemed a Specific against the Bite of the Serpent called *Regulus*, or *Cobra Capella*. The Poison of a young *Cobra Capella* is also expelled by the Root drank in Cow's-milk. For the same Purpose Cataplasms are likewise used, made of this Root and Calamus Aromaticus.

ALPHABETUM CHYMICUM. *Raymond Lully* has presented the World with a Chymical Alphabet, but to what End, and with what Design, will be a difficult Matter to discover, especially till it can be understood; and till then I shall beg Leave to give it in his own Words, it being very difficult to translate what one cannot comprehend.

Significationes Literarum hujus Testamenti.

- A Significat Deum.
- B Significat Mercurium.
- C Significat Salis petram.
- D Significat Vitriolum.
- E Significat Menstruale.
- F Significat Lunam claram.
- G Significat Mercurium nostrum.
- H Significat Solem purum.
- I Significat compositum Lunæ.
- K Significat compositum Solis.
- L Significat terram compositi Lunæ.
- M Significat aquam compositi Lunæ.
- N Significat aerem compositi Lunæ.
- O Significat terram compositi Solis.
- P Significat aquam compositi Solis.
- Q Significat aerem compositi Solis.
- R Significat ignem compositi Solis.
- S Significat lapidem album.
- T Significat Medicinam corporis rubei.
- U Significat calorem fumi secreti.
- X Significat ignem siccum cineris.
- Y Significat calorem balnei.
- Z Significat separationem Liquorum.
- Ξ Significat alembicum cum cucurbita.

ALPHENIC, an Arabic Word, which signifies Sugar-candy, or Barley-sugar. *Blancard.*

ALPHESERA, the same as ALFESERA, which see.

ALPHITA, ἀλφίτα, the Plural Number of ἀλφιτον; it is said to signify, strictly, the Meal of Barley hull'd and parch'd; though some take it to be the Meal of Barley, as ἀλεύρον, according to their Interpretation, is the Meal of Wheat. It is certain, however, that *Hippocrates* uses ἀλφίτα to express the Meal of all sorts of Seeds. And *Galen* tells us, It signifies Meal of a moderate Fineness; whereas κείμια signifies the coarsest Sort, and ἀλεύρον the finest; and this Explanation seems the nearest to Truth.

Ἀλφίτα περιώνια is also mention'd by *Hippocrates*, and signifies probably Meal made of very new tender Barley, before it was

A L P

was laid to dry in the Granaries. It seems it was the Custom amongst the Antients, especially those who liv'd in moist Situations, to set a Post erect upon a Floor, and lay their Barley round it, to dry, so that the Heap resembled a Cone (κῶνος). Ἀλφίτα περὶ κῶνα then was Meal made of Barley, before it was laid to dry in this manner; though Galen says, some took it to signify Meal made of Barley unparch'd.

Hence ἄλφιτον was also taken for a kind of Hasty-pudding, which the Romans call'd POLENTA. It was generally made of Barley-meal moisten'd with Water, or any other Liquid, as Wine, Must, or Hydromel. This was a very common Food, especially amongst the Soldiery, and therefore we may conclude it was esteemed very coarse. Hippocrates frequently orders ἄλφιτα medicinally, without Salt (ἀνάλατα). Hence

ALPHITEDON, ἄλφιτιδὸν, was apply'd to a Fracture, when the Bone was broken into very small Fragments, like Alphita.

ALPHUS, ἄλφς, one of the three Species of Vitiligo, the other being Melas and Leuce, described by Celsus; in which, says he, the Skin is of a white Colour, with a kind of Roughness for the most part, not continuous, but sprinkled with somewhat like Drops; sometimes it spreads to a considerable Breadth, with some void Intervals. Celsus, Lib. 5. Cap. 18.

Some Authors make but two Species of Vitiligo, comprehending the Melas under the common Name ALPHUS.

The Alphi bear the same Analogy to the Leuce, [λευκή] as the Scabies to the Lepra: For the Leuce commonly descends deep in the Flesh, and infects the Hairs with their own Colour, but the Alphus sticks in the Superficies; though now-and-then they take deeper Root, and also change the Colour of the Hairs. The Alphus, for the most part, is of a milder Nature than the Leuce, and gives way to moderate Remedies; but when grown inveterate, it approaches more and more to the Nature of the Leuce, and has Need of the same Medicines. Aetnarius, Meth. Med. Lib. 2. Cap. 11.

The Species of Vitiligo called the Leuce, is generated from a pituitous and glutinous Blood, which by Length of Time assumes a whiter Colour. The Alphus has a like Original, but does not penetrate the Flesh, sticking only about the Skin. The Alphus is generated from a pituitous Humour, the black from an atrabilious. The Lepra is generated by a Humour that sinks deep within the Flesh, but the Scabies principally affects the Superficies of the Skin.

One of the most certain Remedies for these sort of Distempers is to wash the Parts affected with Lime and Water, made considerably strong or thick, which is done by pouring Water upon Lime-stones washed and dried. But the Alphus requires only a thin or weak Liquor, the Scabies a thicker, but the Lepra a very thick or strong one. The Root of Tarragon in Vinegar cures the Alphus, being washed therewith, and both the Hellebores do the same. The Decoction of bitter Lupines, or the Meal thereof, with Honey or Vinegar, externally used, have a like Effect. Other Remedies are, the Bark of Caper-roots and Vinegar, Lily-roots and Honey, Onion and Vinegar apply'd in the Sun, the Dung of a Lizard, Starlings fed only on Rice, and the Shell of the Cuttlefish calcined. Oribasius de Morb. curat. Lib. 3. Cap. 58.

The Alphus is so called from ἀλφαῖρα, an old Word, signifying to change, because it changes the Colour of the Skin. It has the same kind of Original with the Leuce and Lepra, only is not so deeply rooted, but like Scales sticking on the Skin, the white ones being derived from a phlegmatic, the black ones from an atrabilious, Humour.

To cure the white and black Alphus:

Take Fig-leaves, Sulphur vivum, Alum, of each an equal Quantity, and Vinegar, and anoint the affected Parts, it being an excellent Medicine.

For the black Alphus, in particular:

Take of black Hellebore, and Terra Cimolia, equal Quantities, and dilute them in Water, or Vinegar, to the Thickness of Lees of Oil, and therewith anoint the Parts in the Sun, being first well rubb'd over.

For the black Alphus, when grown inveterate, and harden'd to a Callus on the Superficies of the Skin:

Take of the Root of the black Chamæleon, nine Ounces; Sulphur vivum, two Ounces; Aphronitre, one Ounce: Macerate them in Vinegar, and therewith anoint the Parts in the Sun.

Another most effectual Medicine, and sweet-scented withal, is as follows:

VOL. I.

A L S

Take of white Hellebore, eight Drams; Iris, Aphronitre, Costus, each four Drams: Macerate them in Vinegar, and so rub them on the Parts in the Bath, without mingling any Fat with them.

Another very celebrated Remedy for both the black and white Alphus; viz.

Take of Myrrh, Sulphur vivum, Spuma Nitri, white Hellebore, each two Ounces; burnt Bastard-sponge, an Ounce and an half: Make them into a Wash-ball, and use them in the Bath, or in the Sun with Vinegar.

But here is to be noted, with reference to all that has been said, That Purging ought to precede external Applications. For the white Alphus you may begin with Galen's Hiera, or Pills of Colocynthis and Aloes; and for the black sort, you may purge with black Hellebore and Epithymium. Aetius Tetr. 4. Serm. 1. Cap. 132.

ALRAMUDI cineritious. Rulandus.

ALRATICA, a Word used by Albucasis, to signify the total or partial Imperforation of the Vagina, whether natural or accidental.

ALSAMACH, or ALSEMACH, the Arabic Name for the great Foramen in the Os Petrosum.

ALSECH, Alumen Jamei. Rulandus. That is, Alumeri Plumosum.

ALSELAT, Burnt Copper. Rulandus.

ALSINASTRUM.

1. *Alsinastrium Gratiolæ folio*, Inst. 244. & *Alsinastrium Gallii folio*; Ibid. Found by Mr. J. Sherard, on boggy Ground, on the Common just by the Road from Eltham to Chislehurst. Syn. Stirp. Brit. 346.

The Roots are composed of white Fibres coming out of the lower Joints of the Stalk, and disposed in Whirls. The Stalk is divided on the Inside, and lengthwise, into ten Cells, formed by little membranaceous Leaves, which are placed in Form of a Ray. It is channelled throughout its Length; and that Part which appears above the Water is pale, the other washed with a little Purple, and distinguished with Joints, at the Distance of two Lines, to which are fastened eight or ten Leaves, and sometimes twelve, before the Stalk gets above the Water. These Leaves are disposed in Rays, and are but about one third Part of a Line broad at their Base, to eight or ten Lines in Length. Those which appear above the Water, are much broader and shorter not much unlike those of the *Glaux Maritima*, C. B. The Flowers grow in the Bosoms of some of the Leaves, and consist of four white round Petals, about one half of a Line in Diameter, placed round a Pointal, and opposite to the Divisions of an Empalement, which is cut into four equal Segments. It has four very short Chives sustaining white Summits. The Pointal at last becomes a round flat Capsule, ribbed like a Melon, having a Navel on the Forepart, and opening into four Parts to the very Base, and disclosing many oblong Seeds. It flowers in July and August. Vaill.

2. *Alsinastrium serpyllifolium, flore albo tetrapetalo*. Vaill. 5.

3. *Alsinastrium serpyllifolium, flore roseo tripetalo*. Vaill. 5. Martin's Tournefort.

ALSINE. A Plant thus distinguished.

Ἀλσιν, Dioscorid.

1. *Alsine*, Offic. *Alsine minor*, Park. Theat. 760. *Alsine media*, C. B. Pin. 250. Hist. Oxon. 2. 550. Tourn. Inst. 245. Elem. Bot. 208. Boerh. Ind. A. 209. Rupp. Flor. Jen. 87. Dill. Cat. Giff. 41. Buxb. 16. Merc. Bot. 1. 18. Phyt. Brit. 6. *Alsine minor five media*, Ger. 489. Emac. 611. *Alsine vulgaris five morsus Gallinæ*, J. B. 3. 363. Raii Hist. 2. 1030. Synop. 3. 347. *Alsine five morsus Gallinæ*, Chab. 449. *Alsine minor media*, Mer. Pin. 5. CHICK-WEED. Dale.

ALSINE is by some called *Mousser*, because its Leaves resemble the Ears of Mice: But it has the Name of *Alsine* from [ἄλσος, lucus], it delighting in Groves, and shady Places. The Herb is like Pellitory of the Wall, but lower, and with longer Leaves, and not at all rough, but being rubbed, sends forth a Smell like a Cowcumber.

It is of a strong and refrigerating Quality, on which Accounts it is good for Inflammations of the Eyes, being apply'd in a Cataplasm with Polenta. The Juice of it, instill'd into the Ears, easeth the Pains thereof; and, in short, it has the same Virtues, and serves for the same Purposes, as the *Helxine*. Dioscorides, Lib. 4. Cap. 87.

It grows in Gardens, especially on the Walls. It springs in the Midst of Winter, and withers away in the Heat of Summer. It is weaker than the *Helxine*, but has a peculiar Virtue in Inflammations of the Eyes. It is good also in Ulcers, and Distempers of the Pudenda, being apply'd with Barley-meal. [Farina Hordeacea, by which, no doubt, Pliny means the same as Dioscorides by his ἄλφισα, commonly render'd Polenta.] Pliny, Lib. 27. Cap. 4.

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Chickweed

Chickweed is a small tender Plant, arising above half a Foot high, having its weak brittle Stalks growing thick together, which are round, and have two small roundish sharp-pointed green Leaves, growing at each Joint, opposite one to the other; on the Top of each Stalk, it bears many small, star-like, white Flowers, of five narrow Leaves apiece, with a green Calyx cut into as many Parts under them. The Seed-vessel is long and round, containing many small, round, brownish Seeds. The Root is small and fibrous, perishing after Seed-time. It grows every-where in moist Places, and in Gardens too frequently.

Chickweed is cooling and moistening, good for Inflammations of the Liver, St. Antony's Fire, Redness and Pimples in the Face, being applied to the Parts affected as a Cataplasm, or Cloths dipp'd in the Juice, laid on, and now-and-then shifted; made into a Poultice with Hog's-lard, it helps hot Swellings and Tumours; the Juice dropp'd into the Eyes, takes away Redness and Bloodshot. *Miller Bot. Off.*

It contains a great deal of Phlegm and Oil, and but little Salt.

It is sweetening and thickening, it stops the Flux of the Hemorrhoids, and it mitigates Pain, being taken in Decoction, and externally apply'd. *Lemery de Drogues.*

It grows in watery Places, by the Sides of Hedges and Paths. The Herb is in Use; it refrigerates and moistens, and has the Virtues of Pellitory of the Wall, only it has no Astringency. It is supposed to be very nutritive, and therefore a wholesome Food for Persons in an Atrophy or Phthisis. *Dale.*

The Chickweed varies according to the Place of its Growth, as *Tragus* has observed. The Figure of the *Alfine media*, *Tabern.* represents it high and spreading, as one finds it in shady Places. In *Dodonæus's* Figure it appears more low, bushy, and like that which grows frequently in Gardens. I suspect it is the *Alfine marina* of this last Author. *J. Bauhin* supposes this to be the Species which he has named *Alfine Plantaginifolia*. For my part, I do not like *Dodonæus's* Figure; and it seems to resemble neither *J. Bauhin's* Plant, nor that of which we are speaking: So that it is a Wonder, that *Lobel* should make use of this Figure to represent the Chickweed; but he had but a confused Notion of it, as *J. Bauhin* demonstrates. *Thalius* probably spoke of this Plant, under the Name of *Alfine minor*; but as he makes several Species of it, we must say *Alfine minor foliis oblongis mucronatis*, and not simply *Alfine minor*, as *C. Bauhin* has done.

The Chickweed is of an herby Taste, a little saltish. *Cordus* found something nitrous in it; nevertheless, as it gives a pretty deep-red Colour to the blue Paper, its Salt seems to resemble the Sal Ammoniac, which is natural in the Salt of the Earth, but in this Plant is dissolved in a great Quantity of Phlegm. *J. Bauhin* affirms, That the distilled Water of Chickweed, or the Infusion of it in Wine, restores those who are emaciated, after long Diseases. *Schroder* commends it highly for the Phthisic. The Use of this Plant cures Children of Convulsions; and they give a Dram of its Powder for the Epilepsy. *Solenander* says, That its Powder being laid on the Piles, stops their immoderate Flux, and assuages the Pain. The Juice of Chickweed is vulnerary and deterfive, like the Sal Ammoniac, which is good to cleanse the Mouth, and take away Inflammations. For spitting Blood, the Patients must eat Omelettes made of this Herb, minced small, instead of Parsley. Applied to the Breasts, it dissolves the curdled Milk, and dissipates the too great Quantity of this Liquor. To all these Virtues we may add that of cooling, which is attributed to the Chickweed: For the greatest Part of Remedies cool no otherwise, than by quickening the Motion of the Blood, which, because of some Obstructions in the Bowels, stagnates, ferments more violently, and heats all the neighbouring Parts. Aperitives are capable of cooling in that Sense, because they open the Passages through which the Liquors ought to circulate. The Antients, who in Remedies inquired more into the Effects than the Causes, ought not to be blamed for calling the greatest Part of those cooling, which are capable of augmenting the Motion of the Humours. Every body knows, that Chickweed is frequently used to restore the Appetite to Canary-birds, Linnets, and other caged Birds: This Use is not new, *Tragus*, *Anguillara*, and several Authors, have mentioned it.

2. *Alfine Plantaginifolia*, J. B. 3. 364. PLANTAIN-LEAVED CHICKWEED. In shady Places, and among Bushes.

Mr. Ray has described this Plant very well, but he had no Reason to suspect, that it was that which *C. Bauhin* calls *Alfine aquatica media*: That of *Bauhin* is very well engraved in *Tabernæmontanus*, and is not often found but along the Brooks, in the Pyrenees, and the Alps.

The Petals of this are intire; it is the *Spergula Plantaginifolia*. *Dillen Cat. Giff. 58.*

3. *Alfine minor multicaulis*, C. B. Pin. 250. *Alfine minima*, J. B. 3. 364. THE LEAST CHICKWEED ON WALLS.

J. Bauhin's Figure is transposed; that of *Tabernæmontanus*, who calls it *Alfine minor*, is not bad. This Plant varies according to the Place where it grows; and I believe there is little Difference between it and that which the same Author calls *Alfine petraea minima*. If *Tragus* intended to comprehend it under his four Species of Chickweed, he is mistaken; for its Flowers are whitish, and not blueish.

This also has intire Petals: It is the *Spergula multicaulis*, *Dillen Cat. Giff. 58.*

4. *Alfine verna glabra, floribus umbellatis albis*, Inst. 242. *Caryophyllus arvensis umbellatus; folio glabro*, C. P. Pin. 210. *Caryophyllus arvensis umbelliferus*, J. B. 3. 361. *Holostium Caryophyllæum arvense*, *Tabern. Icon. 233.*

This last Author's Figure is a great deal better than that of the *Alfine verna*, *Lugd. Dalechampius*, however, is the first who has ascribed this Plant to its true Genus: *Fabius Columna* has confounded it with that which he calls *Eufragia Linifolia*. Part 2. 68.

M. Vaillant has observed, That the Flower of this *Alfine*, or *Spergula*, has but three Chives; and that the Pointal ends in three Threads, which are expanded horizontally. *Martyn's Tournefort.*

5. *Gramen Leucanthemon*, Offic. Ger. 43. Emac. 47. Park. Theat. 1325. *Gramen Fuchsi sive Leucanthemon*, J. B. 3. 361. Chab. 448. *Caryophyllus arvensis glaber, flore majore*, C. B. Pin. 210. *Caryophyllus holosteus arvensis glaber flore majore*, Raii Hist. 2. 1027. Synop. 3. 346. *Holostium vernum seu Gramen Leucanthemon*, Mer. Pin. 63. *Holostium vernum, flore majore, Euphrasia Gramen Tragi*, Merc. Bot. 1. 43. Phyt. Brit. 60. *Lychnis arvensis glabra, flore majore*, Hist. Oxon. 2. 546. Boerh. Ind. A. 214. *Alfine pratensis, gramineo folio ampliore*, Elem. Bot. 209. Tourn. Inst. 243. Dill. Cat. Giff. 50. Rupp. Flor. Jen. 87. Buxb. 18. *Alfine holostea glabra, folio gramineo, flore majore*, Volck. Flor. Nor. 21. STITCHWORT.

It grows in Woods, bushy Places, and Hedges every-where, and flowers in the Spring. The Herb is used, which is of a refrigerating and drying Quality, and is good for Inflammations of the Eyes. *Dale.*

Dodonæus affirms, That the Fruit of this Species is oblong; it appears to me to be rather spherical.

The Juice of this Plant, its distilled Water, its Leaves and Flowers bruised, are good to appease the Inflammation of the Eyes; for which Reason *Tragus* calls it *Euphrasia gramen*, 329.

6. *Alfine pratensis, gramineo folio angustiore*, Inst. 243. *Caryophyllus arvensis glaber, flore minore*, C. B. Pin. 210. *Gramini Fuchsi Leucanthemo affinis, & similis planta*, J. B. 3. 361. THE LESSER STITCHWORT. Among Bushes, especially in a sandy Soil.

J. Bauhin's Figure is good for nothing at all; that of *Tabernæmontanus* is good, under the Name of *Gramen floridum minus*, Icon. 232.

Mr. Ray observes very well, That the Summits of this Species are red.

7. *Alfine altissima nemorum*, C. B. Pin. 250. *Alfine major, repens, perennis*, J. B. 3. 362. *Alfine major*, Dod. Pempt. 29. GREAT MARSH CHICKWEED. In marshy Places, and by the Sides of Brooks.

Mr. Ray had Reason to believe, that it was the same Plant with the *Alfine aquatica major*, C. B. Pin. for the *Alfine palustris*, *Tabern.* does not seem to be different from the *Alfine major* of the same Author.

8. *Alfine maxima folanifolia*, Mentz. pug. Tab. 2.

This Plant is larger than the preceding; its Leaves are waved and notched upon the Edges. Mr. Ray believes it to be but a Variety.

M. Vaillant corrects our Author with regard to the Notches of the Leaves, and denies that any *Alfine* has notched Leaves.

9. *Alfine tenuifolia*, J. B. 3. 364. FINE-LEAVED CHICKWEED. On the Borders of *Triplew Heath* in *Cambridgeshire*.

This Plant intirely resembles that which *J. Bauhin* describes to grow about *Montpelier*; and I believe that *C. Bauhin* has described it under the Name of *Alfine nodosa Germanica*. Prodr. 116.

This has intire Petals: I have called it *Spergula tenuifolia elatior*. It flowers in May and June.

To. *Alfine verna glabra*, Bot. Monsp. desc. 14. *Alfine tetrapetalos, Caryophylloides, quibusdam Holosteum minimum*, Raii Hist. 1025. *Alfinella foliis Caryophylleis*, Cat. Giff. 47. THE LEAST STITCHWORT. It is common in barren, gravelly Places.

The Flower consists of four white, blunt-pointed Petals, two Lines long, and half a Line broad. The Centre of the Flower is occupied by an oval Pointal, encompassed by four Chives, with white Summits, and divided at Top in form of a Cross. The Empalement is tetraphyllous. The Fruit is cylindrical and transparent, having eight Indentations at the Top. It flowers in April and May. *Vaill.*

11. *Alfne minima flore fugaci*, Inft. 243. *Saxifraga Anglica Alfnefolia annua*, D. Plot. Raii Hift. 1026. Synopf. Ed. 3. 345. ANNUAL PEARLWORT.

The Flower of this is like that of the former; but the Petals of this are very soon loft, whereas thofe of the former commonly ftick about the Fruit till it is ripe. The Seed-velfel of this opens at Top into four or five Segments. It is laid to be found about Hedington and Cowley in Oxfordfhire.

12. *Alfne fpergulae facie minima, feminibus nudis*, Inft. 244. *Saxifraga paluftris Anglica*, Ger. Em. 567. *Arenaria*, J. B. 3. p. 2. 723. Vaill. 7. *Spergula minor, foliis Knawel, flore majusculo albo*, Dillen. Cat. Giff. 156. ENGLISH MARSH SAXIFRAGE. In boggy Places it flowers in July.

13. *Alfne saxatilis & multiflora, capillaceo folio*, Inft. 243. *Alfne polygonoides herbacea minor, Laricis foliis capillaceis, ex uno pediculo plurimis*, Pluk. Phytogr. Tab. 75. The Fruit of this Plant (according to Mr. Vaillant) opens into three Parts, from Top to Bottom. The Petals are entire.

14. *Alfne fegetalis, gramineis foliis, unum latus fpectantibus*, Vaill. 8.

The Petals are entire; the Seeds are very fmall and brown. It flowers in May and June. Ibid.

15. *Alfne fpergulae facie, minima, feminibus marginatis*, Inft. 244. *Alfne fpergulae facie, minima*, Bot. Monfp. 14. *Spergula annua, femine foliaceo nigro, circulo albo membranaceo cincto*, Mor. H. Ox. 2. 351.

Dr. Sherard found it in Ireland, in fandy Places.

16. *Alfne fpergula dicta major*, C. B. Pin. 251. *Spergula*, J. B. 3. 722. Dod. Pempt. 537. SPURREY. It is often found amongst Corn.

17. *Alfne fpergulae facie minor, five fpergula minor, fofculo fubcaeruleo*, C. B. Pin. 251. *Spergula purpurea*, J. B. 3. 722. PURPLE SPURREY. Common in fandy Places.

18. *Alfne folio gramineo anguftiore, paluftris*, Dillen. Cap. Giff. 173. *Caryophyllus holofteus arvensis medius*, Raii Synopf. Ed. 3. 347.

This is eafily diftinguifhed by its glaucous Colour. I have found it in great Plenty on the boggy Grounds about Gamlingay in Cambridgefhire.

19. *Alfne fegetalis, gramineo folio glabro, multiflora*. D. Sherard. Raii Supp. 500.

20. *Alfne Hyperici folio*, D. Vaillant, Inft. 242. *Alfne longifolia uliginofis proveniens locis*, J. B. 3. Lib. 19. 365. *Alfne aquatica media*, C. B. Pin. 251. *Alfne fontana*, Tabern. Ic. 712. LONG-LEAVED WATER CHICKWEED. In Boggs and watery Places.

It flowers in May, June, and July. Its Flower is but too Lines in Diameter. It has five white entire Petals, ending in a Point. They are placed immediately upon the Segments of the Empalement, which they cover; the Chives are ten in Number; the Pointal is furmounted by three Threads, difpofed in a Triangle. The *Alfne fontana*, Tabern. Ic. 712. refembles our Plant pretty well. Morifon (H. Ox. 2. 551.) fays, the Petals are bifid, but he is miftaken. Mr. Ray (Synopf. 348.) is likewife miftaken; for he affirms, that they are divided in two, to the very Bafe. J. Baubin fays, the Flower has ten white Petals. Vaill.

21. *Alfne Alpina fubhirfuta, Linariae folio*, Inft. 339. *Lychnoides Juniperi folio, perennis*. Vaill. 121.

22. *Alfne paluftris minima, fofculis albis, fructu Coriandri exiguo*, Ment. Pug. Tab. 7.

ALSINEFORMIS. A Plant thus diftinguifhed:

Alfneformis paludofa aricarpos, fofculis albis inapertis, Pluk. Phytog. Tab. 7. Fig. 5. *Alfne paluftris, Portulacae aquaticae fimilis*, Raii Hift. 1035. *Portulaca exigua five arvensis Camerario*, J. B. 3. 678. SMALL WATER CHICKWEED, OR PURSLANE, BY SOME CALLED BLINKS.

It flowers in the Spring, and is not uncommon in moift and boggy Places. Dr. Dillenius fays, the Flower is monopetalous. M. Vaillant affirms it to be pentapetalous. Martyn's Tournefort.

ALSIRACOSTUM, the Name of a Compound Medicine in Mefne, which he recommends much in Fevers attended with great Heat.

ALTAFOR, Camphire. Johnson.

ALTAMBUS. Rulandus explains this *Lapis rubeus*, that is, Human Blood.

ALTANUS, the South-West Wind. Rulandus.

ALTARIS, ALTARIT, or ALOZET, Quickfilver. Rulandus.

ALTERANTIA, Alteratives. Thus Medicines are called which induce a Change in the Blood and Juices for the better, without any manifelt Operation or Evacuation. Alteratives, therefore, muft generally be either fuch Remedies as deftroy fome prevailing Acrimony in the *Primæ Viæ*, or in the Juices; or elfe fuch as refolve Concretions in the Blood-velfels, and difpofe them, when thus refolved, to pafs out of the Body by Perfpiration, or fome of the leaft remarkable Evacuations.

Hoffman has given us a Differtation on Alteratives, which I fhall infer, as it feems worthy of Perufal.

Since almoft the whole Duty of a Phyfician confifts in feafonably adminiftring fuch Things as are proper to preferve or reftore Health, and are effectual to relieve the Sufferings of his Patient; and, at the fame time, in artfully avoiding, whatever may be unwholfome or prejudicial; it is plain, that nothing is fo neceffary to accomplifh thefe Purpofes, to a defirable Degree of Perfection, as a diftinct and accurate Knowledge of the Inftuments by which Health is preferved or reftored: Now this Knowledge fupposes not only an Acquaintance with their Efficacy and Virtues, but alfo with their Elements, and Manner of Operation; by which means a Phyfician may be enabled to judge, by folid Reafon, what are the Things, in all the *Materia Medica*, which are ferviceable or prejudicial, in this or that Diftemper, to this or that particular Perfon, at fuch or fuch a Seafon, with a due Regard to all other Circumftances. That he may rightly conduft himfelf in thefe Affairs, and be ready furnifhed with proper Means to anfwer all Emergencies; nothing feems fitter, and more conducive to the Purpofe, than an artful and compendious Diftribution of all the *Materia Medica*, under certain Heads, according to their Principles, their Way of Operation, and the Effects which, under fuch and fuch Conditions, they are qualified to produce.

There are, indeed, many Catalogues and Synopfes of Medicine, and fome of them compofed by learned Men; but, if it be allowed to fpeak the Truth, moft of them are huddled together in fuch a manner, as to be rather an Obftacle than Furtherance to folid and rational Pharmacy, and can fcarce be perufed, by Men of Skill and Experience in the Art, without Indignation. There you fhall meet with many neediefs, and almoft innumerable Claffes of Remedies; as I myfelf, not long fince, in a Medley of this kind, reckoned no lefs than fifty, which the Author diverfified, with refpect to the Parts affected, the Dif eafes for which they were proper, and their internal as well as external Effects. And thefe very Heads, or Claffes, are fo diffufe, and crowded with fuch a Variety of Medicines, of a different and manifeltly contrary Nature, that whoever fhall confide in them fo far as to depend upon them, without making a new and accurate Difftinction, in the Preparation of his Remedies, muft, of Neceffity, fall into great Confufion and Miftakes.

Wherefore it is my Opinion, that Medicines may be difpofed under their general Heads in a far more proper and compendious Way; if we confider, that whatever is fubfervient to the Ends of Medicine, is directed in its manner of acting towards the Removal of the Caufes of Dif eafes. But in every Dif eafe there is a Depravation, either in the Motion, or in the Matter which is moved, or even difpofes to move: And fince Motion is exceffive or defective, either in the whole Body, or fome Part of it; and Matter is in the Fault, either upon account of its Quantity or Quality; all Remedies muft, in general, be concerned in the Regulation of depraved Matter or Motion. To Matter vitiated in Quality, we appropriate Alteratives; to Matter offending in Quantity, Evacuants; if, on the other hand, the Motion is defective or impaired, or if the Parts have loft their proper Tone, reftorative and corroborative Medicines are to be ufed; and if the Motion is too intense and accelerated, or the Parts racked with Spafms, then, and in that Cafe, fedative and compofing Medicines are, of all others, moft efficaciously adminiftered.

There are the four general Claffes of Medicines, to which all the Stores, with which bountiful and indulgent Nature has enriched the Art of Phyfic, may be reduced; for, by this means, and by the Affiftance of thefe Helps, all the feveral Intentions of the medicinal Art may be exactly and effectually answered; fo that Hippocrates has given a Definition of Phyfic, which is, at once, beautiful and truly mechanical, when he fays, That it is no more than an Addition and Subtraction feafonably made; a Subtraction of thofe Things which exceed, and an Addition of thofe Things which are defective: He who beft can do thefe two Things, is defervedly efteemed the beft Phyfician; and the lefs a Man is qualified for carrying on thefe two Defigns, the more ignorant he is of the true and genuine Principles of Phyfic. De Flatibus, Lib. 3.

Then as to what relates to the Influence and Operation of Medicines, they act directly and immediately either upon the fluid or the folid Parts of the Body; fo that alterative and evacuating Medicines are appropriated to the Fluids, and thofe of a corroborative and compofing Quality to the Solids. But as liquid as well as folid Bodies, are of different Qualities, fo they produce their refpective Effects in different Ways; for fome Medicines, by their immediate Action, affect that moft fubtile and eafily moveable Fluid which is lodged in the Brain and Nerves, and is the chief Inftument of Motion and Senfation, either by augmenting its Quantity, or accelerating its Motion; fuch as analeptic, cordial, and fweet-fcented Medicines; or by quelling and becalming its more violent Motions; fuch as antihyfteric and anodyne Medicines, Opiates, and Foetids; which, even when exhibited in very inconfiderable Dofes, produce very fudden, and almoft inftantaneous Effects. Other Medicines operate

operate immediately upon the Blood and Juices themselves; such as those of the diluting, incrassating, and attenuating Kind; and also, such as are endowed with an absorbent Quality, or are calculated for subduing any corrosive or sulphureous Acrimony.

Those Medicines which induce a Change upon the Solids, produce their immediate Effects upon the more nervous Parts; such as the Stomach and Intestines, which are endowed with a most exquisite Sensation. To this Class belong all the medicinal Preparations of Minerals, which produce their Effects when given in small Doses, resolve themselves into Particles of an incredibly small Size, without losing their Texture and Virtues, enter the minutest Recesses of the nervous Parts, and are with some Difficulty washed away: Such as, among Emetics, Emetic Tartar; among salivating Medicines, White Precipitate; among Sulphurs, the Sulphur of Antimony, prepared in my Method, to which volatile Salts may be added: Other Substances strongly stimulate the nervous Parts, by that subtle caustic Salt with which they abound; such as, among Poisons, Arsenic; among Purgatives, White and Black Hellebore, Gamboge, Resin of Jalap, and some more of the same Kind, together with all Insects, especially Cantharides. 'Tis nevertheless to be observed, that of Medicines of this Kind, some affect particular nervous Parts more than others; for Instance, Mercurial Preparations affect the Glands, the Lymphatic Ducts, and the Jaws themselves; Emetick Preparations of Antimony affect the Biliary Ducts; Preparations of Colocynth, the nervous Coats of the Intestines; Hellebore, the Oesophagus, Larynx, and Aspera Arteria; Cantharides, and other Insects, the nervous, urinary, and seminal Ducts; and, in fine, oily volatile Salts and Sudorifics, prepared of the volatile Salts of Animals, affect the Coats of the Arterial Vessels. Some others of those Medicines, that are appropriated to the Solids, insinuate their Virtues more effectually into the muscular and fibrous, than into the nervous and membranous Parts; among the Number of which are all those Corroboratives, which either abound with a sulphureous, or with a mild astringent, fixed, and earthy Principle.

The whole Body of Medicines in general, is, with Reason, distinguished in this Manner; and in this Manner are we to form our Ideas of their respective Methods of acting, and Manner of operating. I now come to treat of each Class in particular: But as the Art of Physic, in order to become rational, must be built upon most evident Causes, all obscure ones being rejected; as *Celsus* says, not only by the Physician, but also from the Art of Physic itself; so that particular Branch of Physic which displays the Virtues of Medicines, and accounts for their Methods of Operation, is, in my Opinion, to be drawn not from obscure and too remote Causes, nor from the atomical and geometrical Principles of the Magnitude and Figure of the Parts, which are in reality incomprehensible; but from Causes that are evident, immediate, comprehensible, subjected to our Senses, and made known by Experience. This Method I shall at present follow; and in my Explication of the Virtues and Powers of Medicines, proceed in a Method that is plain, simple, and easy to be conceived; but, forbearing to enumerate all the several Species belonging to each Class, I shall only touch upon the select ones, such as by their Worth have highly recommended themselves to Mankind, and, as clearly as I can, explain their Uses, and Methods of operating. I shall begin with Alteratives, which make up the first Class of Medicines, and are principally employed in correcting Matter that is faulty in point of Quality: But because the Matter to be corrected in Diseases may be faulty in different respects, so 'tis plain, that there must be various Species of Alteratives, adapted to the various Defects of the offending Matter. For Instance: If the Juices of a human Body, which, in their natural State, are benign, mild, and balsamic, should either acquire a salino-acid, and corrosive Quality, or assume a hot, subtle, sulphureous Intemperies, or become thick, viscid, and tenacious, or over-acid and corrosive; I say, in such an Instance, Alteratives of four different Kinds ought to be administered: That is, Absorbents for imbibing and blunting the Acid; tempering Medicines for checking and mitigating the Rage of the bilious Intemperies; penetrating Medicines for dissolving and attenuating the thick and viscid Juices; and, in fine, Demulcents for sheathing and mitigating the burning and corrosive Acrimony.

In the first Kind of Alteratives are included Absorbents; the principal of which are of Sea Substances, as the Mother of Pearl, Cockle-shells, Oyster-shells of all the several Species, Coral, red and white, and the Bones of the Cuttle-fish: Of Animals, the Bones and Horns, whether subjected to boiling, and softened by Evaporation, (which in Pharmacy is styled Philosophically prepared) or burnt in an open Fire, their Teeth and Claws, the Shells of Eggs, the Claws and Eyes of Crabs, the Jaws of Fishes, the animal and fossile Unicorn: Of subterraneous Substances, the *Lapis Specularis*, (or Selenite) Chalk, prepared Crystal, Osteocolla, (or the Bonebinder) all Stones calcined and burned, and various Kinds of Boles, Clays, and sealed Earths: Of Metals, the Filings of Steel: Of Chymical

Preparations, all Salts prepared by Incineration, *Cineres clavellati*, (or Pot-ash) Salt of Tartar, fixed Nitre, urinous Spirit of Sal Ammoniac, volatile Sal Ammoniac, the Magnesia alba, Tincture of Salt of Tartar, and of Antimony.

'Tis the Nature and Property of all these Absorbents, that they speedily incorporate with any Acid that falls in their Way, imbibe it, blunt and destroy its corrosive Quality, and are, along with it, changed into a third neutral and inoffensive Body. This Effect is plain, from the Example of our extremely corrosive Spiritus Nitri fumans; from Oil of Vitriol, Sublimated Mercury, Aqua-regia, Aqua-fortis, and other highly caustic Liquors; which, by the Addition of Filings of Iron, the Mixture of an alkaline Salt, or an earthy absorbent Substance, lose the Whole of their acid and corroding Qualities. But although all saline and earthy Alkalies agree in this, that they subdue any Acid, and change it into a third Substance, yet there is this Difference between them, that alkaline or lixivious Salts are quickly and totally dissolved in the Body, not only by any Acid, but likewise by any aqueous Fluid; whereas earthy Substances are not, without Difficulty, entirely dissolved, as is plain in Corals, Filings of Steel, and Quick Lime, which are never thoroughly dissolved by an Acid, especially of the vegetable Kind, but always remain a kind of fixed earthy Substances: And, which is still more, alkaline Salts, besides their absorbent Quality, do, after they have, in a manner, embraced the Acid, acquire a new and additional medicinal Virtue, which is, that of attenuating and colliquating the viscid, slimy, and tenacious Juices: They are likewise gently stimulating, and either open the Belly, or promote a Discharge by Urine, or even by Perspiration; and are, besides, attended with this Advantage, that they quickly pass through the excretory Ducts. But many other alkaline Substances, instead of being calculated to quicken and forward the Secretions, rather prove astringent by their Effects, which is usually the Case with Filings of Steel, Corals, Boles, and sealed Earths.

1. Since then, as earthy Alkalies are not dissolved but by an Acid, we ought to be cautious in exhibiting them in Disorders where the first Organs of Digestion, the Scene where Absorbents produce their principal Effects, are loaded with any Collection of crude and viscid Juices, lest they should adhere to them undissolved, and so oppress the Stomach, destroy the Appetite and Digestion, and render the Belly more costive, as has sometimes happened in Fevers of the burning, bilious, and hectic Kind, which were attended with a Decay of the Peristaltic Motion, and of the constrictory or retentive Force of the Stomach.

2. On the other hand, because these Absorbents so readily destroy and consume the Acids, and because Acidity is what principally infringes and interferes with the Efficacy of Cathartics and Emetics, they are very usefully, where there is any just Suspicion of the Redundance of an Acid, prescribed before Vomiting and Purgings, by way of Digestive.

3. Tho' all earthy Substances absorb and blunt an Acid, yet upon account of their different Natures and Textures, it sometimes happens that they produce very different Effects, and such as are often contrary to the Intention of the Prescriber; 'tis therefore necessary we should be very cautious in our Choice of such as we design to use: When, for Instance, a Physician desires, besides an absorbent Quality, a corroborative and astringent Virtue, marine Substances are chiefly proper for answering his Intention, such as Coral, Oyster-shells, the Shells of Eggs, and the various Species of Earths, or *Marls*, especially such as are generally called *sealed*. If he desires a gentler Astringent, Mother of Pearl, and Shells, best answer his Intention; and if a Flux of the Seminal Matter is to be restrained, the Bones of the Cuttle-fish are peculiarly proper for that Purpose. When, by Absorbents, a laxative Effect is, at the same time, to be produced: The Magnesia alba, duly prepared of a Lixivium of Nitre, and which is nothing else but a fine Flower of Quicklime, is to be administered, which, being entirely dissolved by an Acid, is changed into a bitter Salt of a middle Nature, which occasions a speedy Discharge of the Fæces; for this Reason 'tis of singular Efficacy in hypochondriacal Cases; and when the first Organs of Digestion abound with acid Juices, or when the Belly is costive, when the Effects of diuretic Medicines are to be produced by Absorbents, the Claws and Eyes of Crabs, Shells, or Coral, calcined, and *Osteocolla*, (or *Bonebinder*) are in that Case most efficacious. For procuring a free and plentiful Perspiration in any Disease, the Bones of Animals burned, and philosophically prepared, are, of all other Medicines, the best calculated and most effectual: And, in fine, for resolving the stagnated and condensed Humours, and the Blood itself, when coagulated, nothing is more proper than our common domestic Medicine, which consists of the Eyes of Crabs dissolved in Vinegar, and drunk.

4. Tho' absorbent Medicines are very simple, and, generally speaking, very easily prepared, yet their Virtues and Efficacies are almost superior to those of all others; nor can they be sufficiently commended; for none of all the Tribe of Alteratives are endowed with such a Power of speedily subduing the bad Qualities

ities of noxious Juices; nor are any of them so safe and innocent as Absorbents, where not used to Excess. Add to this, that the Body is very subject to be affected by an Acid, especially in those whose Bile is deficient; such as Women and old Men, those who lead a sedentary Life, or drink freely of Liquors abounding with an Acid; and in many Disorders, especially those of the melancholic and hypochondriacal Kind, the Quantity of Acid in the Body is scarce credible: But Acids, by their coagulating Quality, are hurtful to the human Constitution, obstruct the Circulation of the vital Juices, and lay too sure a Foundation for very terrible Disorders, especially of the chronical Kind. 'Tis therefore evident, that Absorbents are endowed with singular Virtues, and accommodated to a great Number of Diseases; but they were very sparingly used by the Antients, and only brought into Credit by *Helmont* and *Takenius*, and their two Followers in *Holland*, *Sylvius* and *Bonle-koe*, who assigned an Acid as the Cause of many Diseases, and prescribed Absorbents for their Cure.

The second Class of Alteratives comprehends those Medicines which are of a lenient and temperating Quality, such as check the hot intestine Motion of the sulphureous Particles of the Blood, and qualify, subdue, and cool the scorching, hot, and bilious Humours in the Intestines themselves. Of Vegetables, the Principal of this Kind are, the Root and Herb of Sorrel, Wood-sorrel, Citrons, Oranges, *China* Oranges, Pomgranates, Strawberries, Barberries, Raspberries; Cherries, and the Juices of them prepared; and likewise Syrups, and Water distilled from these; add to these the four great cold Seeds, and Decoctions of Oats. Of Animals, Whey, Butter-milk, the Juice of Craw-fish, a Decoction of Tortoises, thin Decoctions of the Shavings of Hartshorn, and Vipers-grafts, with or without Barley, Jellies of Hartshorn, and Water distilled from the Shavings of Hartshorn. Of the mineral Tribe, well-purified Nitre is the best and most efficacious, and becomes still better, if restored from Aqua-fortis to its former State, by the Addition of Salt of Tartar. Of chymical Preparations, the essential Salt of Wood-sorrel, Cream of Tartar, Phlegm of Vitriol, sulphurated Quintessence of Antimony, (*Clyffus Antimonij sulphuratus*) Tinctures of Roses, Daisy Flowers, and Violets, philosophically prepared, with Spirit of Vitriol, are good temperating Medicines.

Temperating Medicines act in three several Manners; for they either, by their acid Salts, bind up the volatile sulphureous Particles, and; by fixing and coagulating them, lessen in some measure their intestine and gyratory Motions; or they operate by an expansive and aërio-elastic Quality, such as that which is inherent to Nitre; which, consisting of an acid and alkaline Salt, contains great Store of sulphureous Particles; and also of a subtile aërio-æthereal Fluid, by means of which it dispels the hot Matter, whilst in a gyratory Motion, and forces it, as it were, from the Centre to the Circumference; by its neutral Salt attenuates, dissolves, and separates the viscid Matter, which is the Matrix of Heat and Sulphur, and, at the same time, by its subtile Acid retards the accelerated Motion of the sulphureous Parts: Or, in the last Place, they restore the Moisture consumed by the Heat, by their diluting and dissolving the sulphureous Parts, and, at the same time, lessen the too great Elasticity of the Vessels, upon which the Heat, in a great measure, depends; as is observable in the Use of watery Liquors, Whey, Decoctions of Hartshorn, and of Oats.

1. These temperating and qualifying Medicines are of great Use in Phytic, where-ever a preternatural Heat is to be extinguished; and therefore cannot be wanted in Fevers of all kinds, Inflammations, Spasms, and grievous Pains, which are almost always occasioned by too great, or too hot, a Commotion of the Blood: But nitrous Preparations are deservedly to be preferred to Acids, which fix and coagulate; for Nitre is not only cooling, but antispasmodic, and relaxes the Rigidity of the Parts; it, in like manner, promotes the Discharges by Urine and Stool. Besides, as other cooling and acid Fluids condense and coagulate, and as Nitre rather colligates, rarifies, and attenuates thick and viscid Humours, so when sprinkled either in Powder, or dissolved in Water, upon black coagulated Blood, it renders it more florid: For this Reason, Nitre is not only preferable to Acids in Inflammations, and even in inflammatory Fevers, which arise from a black, coagulated, and pent-up Blood, but is likewise a noble and efficacious Preservative against Inflammations; because it effectually fuses and dissolves the viscid Serum, which is to be observed in the Blood of those who are subject to Inflammations.

2. In chronical Fevers, such as those of the slow and hectic Kind, which, for the most part, owe their Origin to a Defect or Putrefaction in some of the Viscera; and when a Cough, or spitting of Blood, is joined with them, or when the Lungs themselves are faulty, not Acids, but nitrous and diluting Remedies, especially such as are taken from the Animal Kingdom, are to be used; such as Whey, the Water, the Decoction, and the Jelly of Hartshorn. When also a feverish Heat accompanies Diarrhoeas, Dysenteries, or a Cholera-Morbus, cooling Acids are to be abstained from, and diluting, gelatinous, and mucilaginous Me-

dicines, and temperating and absorbing Powders, with the Addition of a Grain or two of Nitre, are to be used.

In the third Class of Alteratives, are comprehended inciding and attenuating Medicines; among which may be reckoned the Roots of White Burnet, Dragons, Sweet Flag, Asarabacca, Wild Radish, Elecampane, Succory, Florentine Iris, Solomon's Seal, Swallow Wort; the Herbs, Leopard's Bane, Brook-lime, Scurvy-grass, Water Cresses, and *Indian* Cresses, Dittander, Rosa Solis, Fumitory, Buck-bean, the lesser Centaury, Hyssop, Germander, Chervil, Carduus Benedictus, lesser House-leek, the several Species of Garlick, Leeks and Onions, Guajacum Wood, and its Bark; the Spices Pepper and Ginger; the Seeds of Mustard, Scurvy-grass, and Water Cresses; the Gums Ammoniacum, Galbanum, Sagapenum, Opopanax, Myrrh, Benjamin; of chymical Preparations, Mercurius dulcis, Æthiops Mineral, Flowers of Sulphur, fixed alkaline Salts of Vegetables reduced to Ashes, especially Salt of Tartar, and of Wormwood; also neutral Salts, as the Digestive of *Sylvius*, my opening Salt, Sal Ammoniac, Sal Polychrestum, Epson Salt, Sedlitz Salt, vitriolated Tartar, Terra foliata Tartari, called also Tartarus Regeneratus, Arcanum Duplicatum, a Solution of Crabs Eyes, Nitre; and Sal Ammoniac. Volatiles, as volatile Sal Ammoniac, urinous Spirit of Sal Ammoniac, and Oxy-mel of Squills, acrid Tincture of Antimony, Essence of Gum Ammoniac and of *Indian* Pepper, Resin of Guajacum, Syrup of Tobacco, of Hedge-mustard, Fæcula of Arum, &c. Medicinal Waters also, which, besides their diluting and opening Virtue, are possessed of an attenuating and inciding Quality, such as the Waters of *Egra*, *Sedlitz*, and the *Caroline* Baths. As also, Infusions in Form of Tea, which, by their great Store of an aqueous Element, exert their Virtues, disjoin the coalescent Globules; and, lastly, sweet Whey, which, on account of the sweet and subtile Salt it contains, is deterfive, and opens the excretory Ducts.

Of these some act upon the fluid; and others upon the solid Parts of the Body: Those which affect the Fluids by immediate Contact, are very few in Number, and those either consist of aqueous Diluters; which are very efficacious for fusing the glutinous and viscid Juices, or of alkaline, fixed, and volatile Salts, and nitrous Salts; which, when mixed, especially in a liquid Form, with thick and coagulated Blood and Humours, liquify and attenuate them in such a manner, as even to be perceptible to the Eye. All the rest operate upon the Solids, by augmenting their Tone, their Strength, and contractile Force, and by adding to the elastic Powers of the Vessels, by which means they strongly press and agitate the contained Juices, accelerate their progressive and intestine Motions; and, forcibly and frequently propelling them through the Capillary Vessels, divide and disjoin the viscid Juices into small Globules, upon which Fluidity depends. This Action upon the Solids is, in some Medicines, performed by a fixed acrid Salt; as the Roots of Arum, White Burnet, Asarabacca, Florentine Iris, Solomon's Seal; the Herbs, German Leopard's-bane, Dittander; Rosa Solis, and Pepper and Ginger, which are, indeed, of an acrid Smell; but being distilled with Water, by an Alembic, neither yield a volatile acrid Oil; nor a Water of an acrid Taste; which is a sufficient Proof, that they are of a fixed Nature. Other Medicines, again, produce their Effects by an acrid, subtile and volatile Salt; such as Wild Radish, Elecampane, Water Cresses, Scurvy-grass, Mustard, and all Kinds of Onions, Garlicks, and Leeks. Some act by their stimulating neutral Salts, of which Kind are those Salts whose Acrimony, and irritating Quality, are not only discoverable by their Taste, but by their Effects; for which Reason, when exhibited in large Doses, they open the Belly, and prove diuretic. Others produce their Effects by an acrid Salt, which contains many sulphureous Particles, as is obvious in Gum Ammoniac, Sagapenum, Opopanax, Guajacum, and its Resin, which, besides their acrid Salt, contain an Oil, which, upon Distillation, they yield in Abundance. Lastly, some Medicines perform their Work by a penetrating, subtile, and metallic Salt, as Mercury, especially Mercurius Dulcis, and Æthiops Mineral.

1. The Virtues of attenuating and inciding Medicines are so extensive, that, on account of the great Variety of their Effects, they are usually ranged under different Denominations; for when tenacious viscid Humours not only stagnate in the Cavities of the Vessels, but stuff up and obstruct the small Tubes of the Intestines and Emunctories, these Medicines, by their inciding and attenuating Quality, disengage the impacted Humours, remove the Obstructions; and may, for that Reason, be called Aperients, since they produce the same Effect. They also deserve the Name of Anti-scorbutics; and Purifiers of the Blood; for since the Purity, and good State, of the animal Juices depends upon the due Secretion and Excretion of superfluous and recrementitious Matter, and since Secretion and Excretion cannot be carried on, if the small Canals of the Glands and Emunctories are blocked up by viscid and tenacious Humours, 'tis therefore plain, that those Medicines that are endowed with a Power of inciding viscid Juices, and removing Obstructions, must not only be Purifiers of the Blood, but also

Preservatives against the Scurvy, in which the Juices are of a bad Quality, and loaded with various heterogeneous, viscid, salt, sulphureous, and sharp Particles. Since attenuating Medicines produce so different Effects, the Physician ought to know what particular Attenuants are best adapted to particular given Cases.

2. In Disorders therefore of the Stomach, and first Organs of Digestion, for inciding and attenuating viscid Crudities, the following Medicines are excellently calculated. The Root of Arum, of White Burnet, and of Calamus Aromaticus, Pepper, Ginger, purified Sal Ammoniac, vitriolated Tartar, Arcanum Duplicatum, the digestive Salt of *Sylvius*, my aperitive Salt, Salt of Wormwood, Spirit of Salt, simple or dulcified, and *Moebius's* aperitive Tincture; and if crude and ill-concocted Juices are to be evacuated by way of Excrement, the neutral Salts are preferable, especially the Sedlitz, the Polychrest, and the Epform Salts, taken in large Doses, and drank in a sufficient Quantity of some aqueous Vehicle.

3. In Disorders of the Breast, when viscid Humours are to be attenuated, and thrown up by spitting, the most effectual are the Roots of Elecampene, and of the Florentine Iris, Rosa Solis, Hyssop, Germanander, Maiden-hair, Gum Ammoniac, Myrrh, Benjamin, Sulphur, Balsam of Peru, Nitrum Antimoniatum, Terra foliata Tartari, Oxymel of Squills, Solution of Crabs Eyes in distilled Vinegar, Syrup of Tobacco, and that of Hedge-mustard.

4. When the Blood is tainted with any thick tenacious Impurity, and by that means the Emunctories are clogged, and the Humours polluted and vitiated by a salt, sulphureous, and scorbutic Dyscrasy, the Medicines chiefly in Use, in that Case, are, the Wild Radish Root, Garden Scurvy-grass, Water Cresses, *Indian* Cresses, Dittander, Brook-lime, the lesser Centaury, Marsh Trefoil, Carduus Benedictus, Fumitory, the smaller House-leek, Mustard, Gum Ammoniac, Sagapenum, Myrrh, Oil of fixed Nitre, Oil of Tartar per Deliquium, a Solution of Nitre, my Elixir temperatum, Tincture of Antimony, the Essence of the Woods, Spirit of Sal Ammoniac, Salt of Wormwood, with Citron Juice; and of medicinal Waters, those of Sedlitz and of *Egra*.

5. When grumous Blood, occasioned by Contusions, Blows, or Suffusions, is to be dissolved and fused, the Medicines most to be commended, in this Case, are Solomon's Seal, German Leopard's-bane, Chervil, Vinegar distilled with Crabs Eyes, Terra foliata Tartari, and antimoniated Nitre.

6. In Diseases where the Lymph is become thick, especially from a Venereal Taint, the principal, and most efficacious, are Guajacum, Sopewort, acrid Tincture of Antimony, Mercurius dulcis, and *Aethiops* Mineral, which, if prudently used, is of uncommon Efficacy for colliquating and resolving the viscid Humours lodged in the Glands and Liver.

I come now to the fourth and last Class of Alteratives, which comprehends the emollient and softening Medicines, of which the chief are, the Roots of Marsh Mallow, of White Lilies, of Liquorice, and of Vipers Grass, the five emollient Herbs; Lettice, Bear's Breech, Pellitory of the Wall, the Flowers of Elder, of Melilot, of Mallows, of Mullein, of Yarrow, of Chamomile, of White Lilies, of Borrag, of the Wild Poppy, of the Lime Tree, of the *Egyptian* Thorn, of Violets, and, most of all, Saffron; the Seeds of Flax, (Linseed) of Fennugreek, of Anise, of Quinces, of Flea-bane, of White Poppies, the four greater and lesser cold Seeds, the Siliqua, Sweet Almonds, Figs, Pine Nuts, Pistaches, Cherry-tree Gum, Gum Arabic, Gum Tragacanth, Shavings and Jelly of Hartshorn, Human Grease, that of a Dog, of a Capon, the Marrows of their Bones, the Fat about their Omentum, Bones, and Mesentery; the native Oils of Animals, fresh Butter, Cream, Milk itself, Crystals of Milk, Sperma Ceti, Honey, the Yolk of an Egg, and its White dried, and reduced to a Powder: Of prepared Medicines, Oil of Sweet Almonds, Linseed Oil, Rape Oil, Oil of the Male Balsam Apple, Decoctions of Hartshorn, and Vipers Grass, mixed with the Juice of Citrons, the Pissan, Sweet Whey, *Fernelius's* Syrup of Marsh Mallows, Ointment of Marsh Mallows, simple Diachylon Plaster, that of Melilot, and that of Frog's Spawn.

The Virtues of these Medicines are two-fold, the one appropriated to the Solids, the other to the Fluids. In the Solids they relax, soften, and render moveable the hard, stiff and tense Fibres; and, at the same time, enlarge and dilate the Channels of the small constricted Vessels. But in the Fluids, they, by their viscid Mucilage, bind up, involve, and, as it were, inclose in a Sheath, the piercing Points of the sharp corroding Salts, and by that means prove excellent lenitive Medicines; and, when externally applied, they convert into a laudable Pus any Collection of extravasated Humours, which cannot be resolved, or taken into the refluxing Mass by the lymphatic Vessels; so that having, by their moderate Warmth, dissipated the most subtle Part of the extravasated Humour, the remaining viscous Matter is happily disposed to mature; the Pores being now gently blocked up, lest too much Moisture should be exhaled, and the

nutritious Juice, of which Pus chiefly consists, being excited to flow more plentifully through the small relaxed Tubes.

1. These lenitive Medicines are of incredible Efficacy, if any one has had the Misfortune to take a caustic Poison; and scarce can more powerful Antidotes than these be used for checking and subduing the Virulence of animal and vegetable Poisons, especially if abundance of Milk and oily Liquors are used as their Vehicles; because these not only sheath up and blunt the sharp Points of the Poison, but also relax the Membranes, contracted and rendered subject to Spasms by the violent Shocks of the Poison; and, by these means, they always promote the Evacuation of Poisons either by Vomit, or by Stool.

2. In long and violent Distempers, especially such as arise from an Acrimony of the Humours, and which prey upon the Nerves, Infusions and Decoctions of these emollient Medicines are of singular Advantage; at least, I have often known Convulsions, attended with Madness, scorbutic Contractions of the Joints, and intolerable Gripes of the Belly, cured with Decoctions of Piony Root, Marsh-mallows, Mallows, Pellitory of the Wall, Bear's Breech, Flowers of Mullein, of White Lilies, of Elder, of Borage, of Chamomile, and Wild Poppy, and by Figs and Fennel Seed, prepared with Water or Whey; but they are to be used in large Quantities, and for a long Time, with the Addition, now-and-then, of a Spoonful or two of Oil of Sweet Almonds, sometimes bathing in fresh Water mixed with Milk.

3. Fresh Fat and Grease of Animals, especially the Marrow of the Bones, which abounds with a very subtle Oil, are used internally with Success, in a sharp scorbutic Disposition of the Humours.

4. In a Dryness of the Parts, and when the Joints can scarce move without making a Noise, and in arthritic Pains, these emollient Medicines (that is, the Root of Viper's Grass, Elder Flowers, Yarrow, Chamomile, the four greater cold Seeds, but especially sweet Whey, as yet full of the fat little Particles of the Cream, or even fat Substances, reduced to the Texture of Sope, with some Alkali) produce wonderful Effects; but these fat Substances are to be used when the Stomach is empty, and not in large, but in frequent Doses, drinking some suitable warm Draught after them.

5. In Exulcerations of the Kidneys, and Discharges of bloody Urine, which sometimes happen in the Small-pox, on account of the Acrimony of the Humours, Cherry-tree Gum, or even Tragacanth, or the dried White of an Egg, dissolved in Whey, are of singular Use: But in Disorders of the Breast, for blunting the Acrimony, which is the Cause of the Cough, and disposing the Matter for Expectoration, the following Medicines are excellently calculated; Decoction of Oats, Sperma Ceti, Liquorice, Oil of Sweet Almonds, the Siliqua, Saccharum Lactis, Saffron, Figs, Syrup of Violets, and Flowers of Poppy and Elder.

6. In continual hectic Heats, and if the sweet Juices, by a continued slow Fever, acquire a saltish alkaline Acrimony, Cream and new Butter, on account of their demulcent Qualities, are found to produce excellent Effects.

7. In a Cholera-Morbus also, and in a Dysentery, a Scurvy, a scorbutic Decay, a Consumption, and, in general, where-ever the Acrimony of the Humours gives Rise to the Disease, gelatinous Decoctions of Flesh, of Bones, and especially of Hartshorn, Calves Feet, and Sheeps Feet, are of singular Efficacy and Advantage, as well used internally by way of Drink, as injected by way of Clyster.

8. When the Intestines are violently contracted, and the Excrements pent up by Flatulencies, emollient demulcent Medicines, such as Oil of Sweet Almonds, Whey, Decoction of Oats and Hartshorn, produce very great Effects; but should rather be injected by way of Clyster, than taken by the Mouth.

9. Emollient Flowers and Herbs, if boiled with a small Quantity of Saffron, inclosed in a Bladder, and externally applied over the internal Part affected, procure almost incredible Ease and Relief, as may be experienced in a Pleurisy, an Inflammation of the Liver, a Colic, or when the Anus suffers by the blind Hæmorrhoids.

10. When any extravasated and impacted Humour is to be converted into Pus, no Applications can be more properly used than Liniments and Cataplasms, made of emollient Fats, and Milk; but especially of the Flowers and Leaves of White Lilies, Saffron, Figs, roasted Onions, Bean-meal, Yolks of Eggs, and Honey: But these are not to be used when the Matter is contained in harden'd and scirrhus Parts, where it cannot be converted into Pus, unless we incline to bring on a fatal Putrefaction.

11. Mucilages made of the Seeds of Quinces, and Flea-bane, with Rose Water, or Frog's Spawn Water, often afford immediate Relief in excoriated and exulcerated Parts, attended with Heat and Pain; such as the ulcerated Aphthæ in the Mouth, blind and painful Hæmorrhoids, a Tenesmus, Dysenteries, Gonorrhœas, or a corroding Fluor Albus.

ALTERCUM,

ALTERCUM, or **ALTERCANGENON**. The same with **HYOSCYAMUS**, which see.

ALTEY PLUMBI, or **ALKY PLUMBI**, (*materia dulcis ex Plumbo*) a sweet Preparation from Lead. Perhaps *Saccharum Saturni*. *Rulandus* and *Johnson*.

ALTHÆA. A Plant much used as an Emollient. It is thus distinguished.

Althæa, *Bismalva*, *Ibiscus*, Offic. *Althæa Dioscoridis*, Breyn. Prod. 2. 12. *Althæa Dioscoridis* & *Plinii*, C. B. Pin. 315. Dill. Cat. Gift. 144. Tourn. Inst. 97. Elem. Bot. 82. Boerh. Ind. A. 269. *Althæa vulgaris*, Park. Theat. 303. Raii Hist. 1. 602. Synop. 3. 252. *Althæa*, *Ibiscus*, Ger. 787. Emac. 933. Merc. Bot. 1. 19. Phyt. Brit. 6. Mer. Pin. 6. *Althæa five Bismalva*, J. B. 2. 954. Chab. 301. *Malva Bismalva Officinarum dicta*, Volck. 272. *Malva sylvestris, aut palustris, aut Ibiscus*, Hist. Oxon. 2. 523. *Malva palustris mollis* & *incana* P. Herman. Buxb. 207. Rupp. Flor. Jen. 12. **MARSH-MALLOW**. Dale.

The Roots of Marsh-mallows are pretty large, thick, woody and tough, and much branched, of a yellowish Colour on the Out-side, and whitish within, slimy and mucilaginous. The Stalks grow to be above a Yard high, soft and downy; the Leaves are covered with a soft Pile like Velvet, of a yellowish-green Colour, more angular, longer, and sharper pointed than the common Mallows. The Flowers are also like the common in Shape, but less, of a paler red Colour, and without the deeper coloured Veins; and when they are fallen, come the like Seeds, set together in a Round, like Cheeses. It grows in salt Marshes, and maritime Places, flowering in July.

The Root and Leaves, and sometimes the Seed, are used.

They are mollifying, digesting, and souping, of great Use in the Strangury, Gravel, and Stone; in Heat and Acrimony of Urine; against sharp, corroding Humours in the Stomach and Guts, which sometimes excoriate them, and cause Dysenteries.

They are likewise balsamic and pectoral, good to help a Cough, Hoarseness, and Soreness of the *Aspera Arteria*. They are frequently ordered in Clysters for the Stone, and in Cataplasms and Fomentations against Swellings and Inflammations, and to ease Pain; as also to suppurate and ripen Tumours and Imposthumes.

Official Preparations, which take their Name from Marsh-mallows, are, *Syrupus de Althæa*; *Pulvis de Althæa*; and, *Unguentum de Althæa*. Miller. Bot. Off.

Lemery adds, it is lenient and aperitive, proper for the Diseases of the Kidneys, for the acrimonious Humours which affect the Breast, and for the Nephritic Colic. *Lemery de Drogues*.

It is found with Leaves more or less pointed; they appear a little too much so in the Figures of *Dodonæus*, *Clusius*, and *Lobel*. *Matthioli*, *Fuchs*, and *Tabernaemontanus*, have engraved it with rounder Leaves; and it is, in all Appearance, this last Species which the learned Mr. *Sutherland*, Professor of Botany at *Edinburgh*, has named *Althæa folio rotundiori, five minus acuminata*. The Leaves of the Marsh-mallow are sometimes, indeed, more or less singular. *M. Herman* has called that with the angular Leaves *Malva sylvestris, aut palustris, aut Ibiscus folio angulosiori*. *Cordus*, *J. Bauhin*, *Morison*, and Mr. *Ray*, have taken the Flower of this Plant to be pentapetalous, whereas it is really monopetalous.

The Leaves of the Marsh-mallow are glutinous and insipid, and give no Tincture of red to the blue Paper. Its Roots have the same Taste, but they stain it a little.

Its glutinous Juice, which appears to be a Mixture of a great deal of Phlegm, a considerable Quantity of Earth, Acid, and Sulphur, so clogs the acrid Salt, that it cannot discover itself but by the Fire; for it is certain, that by a chymical Analysis, we obtain from the Marsh-mallow a concrete, volatile, and a fixed lixivial Salt. The Acid is a little more disentangled in the Roots, because they give a faint red Colour to the blue Paper: Nevertheless, in all Probability, this Plant operates chiefly by its glutinous Juice, which the Fire entirely destroys. By the Consent of all Authors, it is very lenitive and emollient. By its Mucilage it not only blunts the Points of the corrosive Salts, but, by relaxing the too much distended Fibres, restores them to their natural Tone, and consequently causes the Pain to cease. The Root of the Marsh-mallow is employed in lenitive Ptisans; but it must not be mixed till towards the End, for fear of making it too clammy. These Ptisans are of great Use in a violent Cough, when the Spittle is acrid and saltish. In four Quarts of Water boil four Ounces of the Root of *Nymphæa*, and one Ounce of the Root of Marsh-mallow; strain this Liquor through a Linen Cloth, dissolve in it two Drams of Nitre, Crystal Mineral, or Sal Prunellæ; give a good Draught of it in a nephritic Colic, in a Heat and Retention of Urine, attended with a great Inflammation: But when the Inflammation is over, the Marsh-mallows must be omitted, for fear of rendering the Humours too viscid. Boil also three Pugils of Pellitory, and one Ounce of the Roots of Marsh-mallow, in three

Quarts of Water, and strain the Decoction; afterwards add as much Sugar as will bring it to the Consistence of a Syrup, and give it to drink with convenient Ptisans. For great Inflammations in the Abdomen, after necessary Bleedings, make also Fomentations with the Decoction of the Leaves, Flowers, and Roots of Marsh-mallows and Violets, the Seeds of Fenugreek, and the Tops of Chamomile and Melilot, and apply the Forces to the Part affected, in Form of a Cataplasm. These Decoctions make an excellent Semicupium; give them also in Clysters, with two Ounces of Honey of *Nymphæa*. The Syrup of *Althæa*, according to the Description of *M. Charas*, is of great Use: Dog's-grass, Pellitory, Asparagus, and the other Plants mixed with it, sharpen the Marsh-mallow a little, and make the Syrup proper to provoke Urine, and promote Expectoration. It was with this Intention that the Iris of *Florence* was used in the Lozenges of Marsh-mallows. *M. Lemery*, who has made an excellent Choice of the best Compositions, and reformed them with a great deal of Prudence, quickens these Lozenges with the Flowers of Benjamin. These are preferable to those which they call simple Lozenges of Marsh-mallows, for this Plant has need of something to stimulate it. Thus *Quercetan*, very judiciously, has mixed, in his Lohoch of Marsh-mallows, the Flowers of Sulphur, the Powder Diareos, &c. To render the Ointment of the *Althæa* more resolvent, they have added very properly Fenugreek, Squill, Galbanum; and *M. Lemery* substitutes, not without Reason, the Gum Ammoniac to that of Ivy. The camphorated Spirit of Wine may be mixed also with it, when it is given for the Sciatica and Rheumatism: For the same Reason the Mucilage of Marsh-mallows, made with the Seeds of Fenugreek, is preferable to that which is simple; because it resolves by removing the Inflammation; one ought to put this Seed in the Poultice of Marsh-mallows and Milk, to dissipate or suppurate Tumours, according to the Disposition of the Humour. The Cataplasms prepared with the Roots of this Plant, those of the Lilies and Onions, together with the four Meals, are very good for the same Tumours; especially if the camphorated Spirit of Wine, the Spirit of Sal Ammoniac, or some other spirituous Liquor, is mixed with them. We need not conclude with *M. Seger*, that the Roots of Marsh-mallows are acrid, because several red and painful Pustules have appeared on the Part where this Herb has been applied in Cataplasms. It is more likely, that the obstructed Matter of Transpiration produce these Pustules. *Martyn's Tournefort*.

PULVIS DIALTHÆÆ, Compound Powder of Marsh-mallows.

Take of the dried Marsh-mallow Roots five Drams; of Spanish Liquorice, and Medlar Kernels, each half an Ounce; of Gromwel, Parsley, and Fox-glove, each three Drams; of prepared Crabs Eyes, six Drams; of Gum Arabic, two Drams; of the Gums of the Cherry and Plumb Tree, each one Dram: Let them be pounded together, so as to make a fine Powder.

This continues as the former Dispensatory, and is likewise a modern Composition; but it is seldom prescribed, and therefore little made in the Shops.

SYRUPUS DE ALTHÆA, Syrup of Marsh-mallows.

Take of Marsh-mallow Root two Ounces; of Grass, Asparagus, and Liquorice Roots cleansed, and of stoned Raisins, each half an Ounce; of the Leaves of Marsh-mallows, common Mallows, Pellitory of the Wall, Saxifrage, Pimpinell, Plantain, and the white and black Hellebore, each one Handful; of red Cicers one Ounce; of the four greater and lesser cold Seeds, each three Drams. Infuse them for a whole Day in six Pints of Water; then boil it to four Pints, to which, when pressed out and strained, add three Pounds and a half of white Sugar, and boil it up to a Syrup in a Bath Heat. *S. A.*

This Syrup is originally ascribed to *Fernelius*, and has remained unaltered in all the College Dispensatories. If it is not boiled up to a good Consistence, it is so apt to ferment in warm Weather, that it is very troublesome to keep. *Quincey's London Dispensatory*.

The *Edinburgh Dispensatory* directs this Syrup somewhat differently.

Take of the Root of Marsh-mallows two Ounces; those of Asparagus, Liquorice, and Grass, of each half an Ounce; the Herb Maiden-hair, an Ounce; the Leaves of Marsh-mallows, Mallows, Pellitory, Pimpinell, Saxifrage, broad-leaved Plantain, and stoned Raisins of the Sun, of each half an Ounce; red Cicers, an Ounce; Spring-water, three Quarts: Boil them together till one Third of the Liquor is evaporated; then strain the Remainder, and add thereto four Pounds of the whitest Sugar, and make a Syrup

Syrup thereof, according to the Rules of Art, by boiling it in Balneo Mariæ.

This Syrup ought to be made of a high Consistence in hot Weather; otherwise it presently runs into Fermentation, and is spoiled in the Capacity of a Syrup. The four greater and four lesser cold Seeds are here dropped by the Compilers, I suppose, as being judged foreign to the Purpose.

UNGUENTUM DIALTHÆÆ, Ointment of Marsh-mallows.

Take of fresh Marsh-mallow Roots bruised, two Pounds; of Linseed and Fenugreek Seed, each one Pound: Let them macerate three Days in eight Pints of Water: Then slightly boil them, and press out the Mucilage, of which take two Pints; of Neats-foot Oil four Pounds; and let them boil together, until the more aqueous Part of the Mucilage is consumed; then add of Wax one Pound; of Resin half a Pound; of Turpentine two Ounces: Let them be again boiled into an Ointment. *S. A.*

This is titled by the *Augustane Dispensatory*, *Unguentum de Althæa simplex*, in Distinction from an *Unguentum de Althæa Compositum* there also given, and both taken from *Nicolaus*. The *London Dispensatory* likewise received them both at first; but the greater Composition is very blameable on many Accounts, as may be seen by *Zwelfer's Animadversions* upon it; and therefore hath it been, for some time, justly expunged by our College: In that which is here yet retained, the Neats-foot Oil for common Oil of Olives, always before directed, is indisputably a very good Emendation, because its mucilaginous Quality suits it much better to the Intention of the Medicine. *Zwelfer* tells us, that some put it in Turmeric Root to beautify the Colour, but blames it for being foreign to the true Intention of the Whole; and it is to be wished, that a much greater Fault was not to be found with some Medicine Merchants amongst us, who, to save both Trouble and Charge, put in little or none of the Mucilage, but give their Smell to it by a Mixture of some of the Seeds, with which it ought to be made, in Powder. And this Caution, it is hoped, will not be taken amiss by any honest Compounder; because the Composition is justly designed for some Purposes of Consequence, and which it may fail in by means of such unworthy Practices. *Quincey's London Dispensatory*.

The *Unguentum Dialthææ* of the *Edinburgh Dispensatory* is different, in some respects, from ours.

Take of the Oil of Mucilages, two Pounds; of yellow Wax, half a Pound; of white Resin, three Ounces; and of Venice Turpentine, an Ounce and a half: Mix them together, and make an Ointment, according to Art.

When the Oil of Mucilages is ready prepared, this is a very compendious Way of making the Ointment of Marsh-mallows:

The *OLEUM MUCILAGINUM*, Oil of Mucilages, is prepared as follows.

Take of fresh Marsh-mallow Root, bruised, four Ounces; the Root of white Lily, and fresh Squill bruised, of each an Ounce; of Fenugreek Seed, and Linseed, each an Ounce and half: Steep the Ingredients in a proper Quantity of Spring-water; and afterwards boil them gently till they make a thick and viscous Mucilage; which being pressed strongly out, add thereto two Quarts of Oil-olive, and boil it over a very gentle Fire, or in Balneo Mariæ, till the aqueous Moisture is evaporated; observing to keep it continually stirring, to prevent its burning.

The keeping this Oil in Readiness, as an Official, will greatly ease the Trouble of making several Medicines, particularly the *Unguent. Dialthææ*, *Emplastr. Diachylon*, *Emplastr. de Mucilaginib. &c.* as we shall see hereafter.

The Compilers of the *Edinburgh Dispensatory* have given another Ointment, called

UNGUENTUM DIALTHÆÆ COMPOSITUM, Compound Ointment of Marsh-mallows.

Take of the Ointment of Marsh-mallows, four Ounces; of Gum Ammoniac, dissolved in a proper Quantity of Spring-water, and strained, an Ounce; of Linseed Oil, two Ounces. Melt the Ointment and the Oil together; then add the Solution of the Gum Ammoniac, thickened a little over the Fire, and whilst it yet remains hot; lastly, boil all together, till the aqueous Moisture is consumed, so as to make an Ointment.

This is a judicious Composition, and not chargeable with the Faults committed by others in ordering the Compound Ointment of Marsh-mallows.

ALTHÆA, by some called *IBISCUS*, is a Species of Wild Mallow, with round Leaves like the Cyclamen, (Sow-bread) and covered with Down. It bears a Flower like a Rose; its Stalk is about two Cubits in length, and its Root of a slimy and glutinous Substance. It took the Name of *Althæa* from (*ἄλθε*, *Remedium*) its manifold and extensive medicinal Virtues. For,

A Decoction of it in Wine, or Hydromel, or the Herb itself bruised, is an effectual Medicine for Wounds, Parotides, Strumæ, Abscesses, Inflammations of the Breasts, Pains about the Anus, Bruises, flatulent Tumours, and Strains of the Nerves, being endued, for these Purposes, with a ripening and discutive, or a breaking and healing Quality. Being boiled, as aforesaid, and worked up with the Fat of a Hog or Goose, or with Turpentine, in the Form of a Pessary, it is a Remedy for Inflammations and Obstructions of the Womb. The Decoction has the same Effect, and also brings away the Lochia. The Decoction of the Root, drank with Wine, relieves those who labour under a Difficulty of Urine, or a tormenting Fit of the Stone, Dysentery, Sciatica, Tremblings, or a Rupture. The Root boiled in Vinegar, for a Gargarism, assuages the Tooth-ach. The Seed, either green or dry; being levigated in Vinegar, cleanses the Skin from an Alphus, if it be anointed therewith in the Sun; and, used with Oxylæum, prevents the Mischief from the Bites of venomous Creatures. The same is effectual in Dysenteries, Diarrhœas, and spitting or vomiting of Blood. The said Decoction of the Seed is usually drank with Wine, or Posca, (*ῥέξυρα*) by those who are stung with Bees, or any other little revengeful Creature; and the Leaves with a little Oil are applied as a Cataplasm to the Hurt; and the same is good in Burns. The Root bruised, and laid in Water, which is left to stand in the open Air, will coagulate the same. *Dioscorides, Lib. 3. Cap. 163.*

Ebiscus, or *Althæa*, digests, relaxes, and mollifies, assuages Inflammations, and maturates stubborn Phymas. The Root and Seed have the same Virtues as the Leaves, but are of finer Parts, and more drying, and appear to be more absterive, in that they deterge the Alphus, and the Seed breaks the Stone in the Kidneys. The Decoction of the Root, by its astringent Quality, cures the Gripes and Diarrhœa, and relieves those who bring up Blood. *Orib. de Virt. Simpl. Lib. 2. Cap. 1. copied by Ætius, Tetr. 1. Serm. 1.*

The Wild Mallow is gently discutive, and a little mollifying. The Garden Mallow, being of a more aqueous and humid Substance, is by so much the weaker in Virtues. The former easily passes the Stomach, not only on account of its Humidity, but Viscosity, especially when taken with Oil and Garum, mixed with a little Wine, at Meals. The Seed of the Mallow is the more effectual, as it is the drier. The Dendromolache, too, is a Species of the Mallow, but a greater Discutifive than the former; it is also called *Althæa*. *Ætius Tetr. 1. Serm. 1.*

Emplastrum ex Althæa Polletis, POLLES's Plaster of Althæa.

Take the Bark of the Root of Althæa, while the Herb is in its best State, and pound it in a Mortar. Then remove it into a Copper or Earthen Pot, and sprinkle it with old White Wine, that is fragrant and astringent, just enough to moisten it. Cover it, and let it stand three Days. Then pound it afresh, and strongly press out the Juice. This done, take of Colophonia twenty-four Ounces; of Wax four Ounces; of Oil and Verdigrease, each two Ounces; of the expressed Juice of the Plant, two Attic Heminas (*a Pint*). The Colophonia being first melted in the Oil, and then strained, boil it over a gentle Fire of Pine Wood, stirring it with a Spatula made of the same, till being dropt into cold Water, it consolidates. Then put in the Wax, and when that is melted, take the Pot off the Fire, and after it is cool, pour in the Juice by little and little, taking care of any Effervescence; for it is subject to Ebullitions, and to overflow the Brim of the Pot. After it has stood a while, remove it to the Fire, and, when it is thoroughly hot, put in the Verdigrease; which done, take it off, and, after it is cool, work it well with your Hands, that the Ingredients may thoroughly unite.

This Plaster is good for old and fresh Ulcers, and for the Bite of a Dog, or a wild Beast. It draws out the virulent Matter of Ulcers. It discuties Pain and Strumæ, or suppurates and breaks them, drawing the peccant Humour to the Superficies, and there causing it to evaporate, as in the Case of Lividness from Blows in the Face. It easeth Pains, cleanses the Scabies, and scabby Nails, the Lepra and Alphus, in which Cases it is not to be taken off till the seventh Day. It draws out Stings, or other Matters, fixed in the Flesh; mitigates the Inflammation, under an Exacerbation of the Gout; dissolves Tumours of the Joints and Ganglia; heals the Favi and Ficus; and cures Infants of the Hydrocephalus; mollifies the Hardness of the Spleen; and is a Lenitive for Cancers that are not ulcerated, and restrains their threatened Erosions. Used as a Pessary, it provokes

provokes the Menfes; and, apply'd to the Pecten, it expels the Storie, helps Difficulty of Urine, and relieves under Costiveness. Diluted with Oil of Roses, it heals Fissures in the Soles of the Feet, and cleanses and incarnates Ulcers of the Testes and Pudenda. Prepared without the Erugo; it restrains phagedenic Ulcers, and is serviceable, instead of an Embrocation, in Fractures, as an Anodyne.

There is also a very useful Medicine prepared of the Flowers, which are like Roses, in the following manner: They take the Flowers, and cutting off the Bottoms of the Leaves, first bruise, and then pulverize them. Of this Powder, they take twelve Parts, of Colophonia twenty-four Parts, of Wax six, and Oil two Parts. Prepare them as directed in the former, and work them well with your Hands. It is more convenient for Use than the former, and a greater Anodyne. *Ætius Iatr.* 4. *Serm.* 3. *Cap.* 14.

An emollient Medicine.

Take of Colophonia, Wax, each one Pound; of Oil and Juice of Althæa, each two Pints. *Actuarius Meth. Med.* *Lib.* 6. *Cap.* 9.

Althæa has been the Occasion, that many have deceiv'd themselves, who presume they know it; and imposed upon others, who are credulous enough to take their Word for it; for when they would persuade us, that Althæa is a common Herb, and known by every body, they prove their Ignorance by so doing, and demonstrate, that they know nothing of the Matter. The Greek Authors, on the contrary, who are to be found in close and select Libraries, assure us, that Althæa is a very scarce Plant, and only to be met with in *Asia* and *Sicily*. I shall give you their very Words: *Ἡ μὲρ Ἀλθαία ἐξ ἁδίας ἐνείσκειται, εὐομένη ἐν τοῖς τῆς Ἀσίας τόποις ἢ Σικελίας, ἐνείσκειται δὲ ἐν τῇ Σμύρῃ ἐν τῷ Σχελλίῳ ποταμῷ.* "Althæa is not easily met with. It grows in *Asia* or *Sicily*, particularly near *Smyrna*, by the Banks of the River *Schelis*." *Theophrastus* also hints, that it was a scarce Herb, when he tells us, that it was to be met with among the *Arcadians*, who called it *Ἀργία μαλάχη*, "wild Mallows," but the Sons of the Physicians gave it the Name of *Ἀλθαία*, "Althæa," from the medicinal Virtues with which it is endued, *Lib.* 9. *Cap.* 14. Besides, he describes it by such Characters as they are forced to confess they never saw, namely, with a yellow Flower: *Ἐχει δὲ ἡ Ἀλθαία φύλλον μὲρ ὁμοῖον μαλάχῃ, πλὴν μείζον καὶ δασύτερον, τὲς δὲ καυλὸς μαλακὸς, ἀνθὸς μύλινον.* "Althæa has a Leaf like the Mallow, but larger and rougher, soft Stalks, and a Flower of a yellow or Honey-like Colour." *Dioscorides* says, it is *ροδοειδὲς*, "like a Rose," which we may understand to be meant of the Figure of a Rose, which it may have under a yellow Colour. *Harpocration* in his Book *Περὶ φυσικῶν ὀνομάτων*, "Of physical Powers," says, that the Flower of Althæa is called a Rose; whether from its Colour or Shape, is uncertain: *Ὀνόθυρις βόταν ἐστίν, ἣν οἱ μὲρ ὀνόθυρον καλεῖσιν; οἱ δὲ ἐνομολόχον· αὐτὴ ἐστὶ τὸ ρόδον, ἐξ ἧς τὲς σερῶνες πλέκουσιν Ἑλλήνες ἐν ταῖς ἐορταῖς τῶν θεῶν, φύλλα ἔχουσα ὁμοία μάλᾳχης ἡμέρας ταύτης Ἑλλήνες καλεῖσιν Ἀλθαίαν.* "The *Onothyris* is an Herb, which some call *Onothure*, others, *Onomolochæ*. It bears Roses, which the *Greeks* weave into Crowns at the Feasts of their Gods; and has Leaves like the Garden-mallow; this the *Greeks* call *Althæa*." But it is most reasonable to interpret *ροδοειδὲς* [*rhodoeides*] of the Colour. For *το ροδοειδὲς* [*prae-scoeides*] means something of a Leek-green Colour; and *ροδοειδὲς*, [*rhodoeides*] apply'd to Metals, signifies a Rose-colour. In his following Description of Althæa, he makes its Flower to be like a Rose: *Ἀνθὸς μικρὸν ἐμμορφεὲς ρόδῳ.* "It has a small Flower like a Rose." Therefore by *ροδοειδὲς* he meant the Colour, which an ancient Transcriber of *Dioscorides* expressed by painting the Flower of Althæa of a Rose-colour. If this be so, *Dioscorides* must have spoken of quite a different Plant from the true Althæa; for that bears a yellow Flower. Some, I know not for what Reason, suppose it to be the Abutilon of *Avisena*; but *Avisena* says no more of his Abutilon, than that it was a Plant like a Gourd; to which his *Arabian* Expositors add, that the Abutilon resembled a Gourd not only in Leaves, but also in its Fruit, which is not round, but oblong, and that it was to be found in the City of *Gaza*. This, you see, is very different from the Althæa of the *Greeks*. *Dioscorides* says, that "It is called *Ebiscus* by some." Why did he not say by the *Romans*, as he usually does on other Occasions? For none but the *Romans* called the Althæa *Ebiscus*; or *Ibiscus*. The old *Greek* Horse Physicians, in that Part which is wanting in the Editions: *ἀνθὸς μὲρ Ἀλθαία, ὑπὸ τινῶν δὲ Μολόχῃ; Ῥωμαῖσι δὲ Ἐβισκῳ, ὡς Σαματάις δὲ καὶ Ἰβίσκῳ καὶ ὀνόθυρον Ἀριστῶτι.* "It is called Althæa; by some, *Molochæ*; in *Latin*, *Ebiscus*; by the *Sarmatians*, *Getes*, and *Thracians*, *Arispis*." *Neophytus*, *Ἀλθαία δὲ Ἀλβίσκος, οἱ δὲ μαλάχῃν ἀργίαν, Ῥωμαῖσι Ἐβισκῳ.* "Althæa is the *Althiscum*, some call it the *Wild Mallow*, and the *Romans* *Ebiscum*." In the Glossary, *Ἀλθαία* is *Hibiscum*; in other Glossaries it is, without an Aspiration, *Ibiscus*, *Herba mollis*; thence comes the *Italian* *Malva-visco*, for *Malva Ibisco*, for which the *French* say, *Ibisco-malva*; for thence comes their

VOL. I.

Grimaudi, we placing before what the *Italians* place after. The *Barbarians* call it *Bismalva*, which is plainly a Corruption of *Ibisco-malva*.

I don't wonder, that *Pliny*, in the Place where he speaks of *Hibiscus*, makes no mention of Althæa, nor says any thing of *Hibiscus* when he mentions Althæa. 'Tis plain, that he thought them different, as his Manner is in other Cases. But I can't help being surpris'd at his placing *Hibiscus* among the Kinds of Parsnip, and seeming willing to have it be like a Parsnip, and that in more Places than one. In *Lib.* 19. *Cap.* 5. treating of the Kinds of Parsnips, *Hibiscum a Pastinaca Gracilitate distat; damnatum in cibis, sed Medicinæ utile est; & quantum Genus in eadem similitudine Pastinacæ, quam Gallicam vocant, Græci vero Daucon.* "Hibiscum differs from a Parsnip, on account of its Slenderness: it is condemn'd as Food, but useful in Medicine. And there is a fourth Kind, resembling in like manner a Parsnip, which they call *Gallic Parsnip*, but the *Greeks* name it *Daucon*." He pretends, that the *Hibiscum* differs from a Parsnip only in Slenderness, that is to say, is more slender than a Parsnip, but like in other respects. This he repeats in another Place, that is, *Lib.* 20. *Cap.* 4. *Pastinacæ simile Hibiscum, quod Molochæ agriam vocant, & aliqui Plistolochiam.* "There is a Resemblance between the Parsnip and the *Hibiscum*, which is commonly called the *Wild Mallow*, and by some *Plistolochia*," which by all is recorded to be like the Mallow, and to be a kind of wild Mallow; but how it should come to look like a Parsnip, I am at a Loss to imagine, especially of the *Plistolochia*; for this, in another Place, he ranks among the *Aristolochia*'s, and makes a fourth Kind of it.

As to *Hibiscum* being like a Parsnip, which *Pliny* affirms, I fancy, that I see whence he derived his Conceit. He had read in some *Latin* Author, that *Hibiscum* was a kind of wild Mallow, and pass'd with some under the *Greek* Appellation of *Molochæ Agria*, and differed not at all from the *Pastinata*, but only in Slenderness. Now by the *Pastinata* is to be understood, the Garden Mallow, which is planted *Pastinato*, "in delved Ground." All cultivated Things are larger than what are wild, and therefore the wild Mallow was slenderer than the sative, or *pastinata*, "planted in delved Ground." The *Hibiscum*, he says, was condemn'd as Food, that is, the wild Mallow; for we are assured, that the Garden Kind was formerly eaten. *Pliny* therefore, having his Thoughts diverted another way, mistook *Pastinata* for *Pastinacæ*, "a Parsnip." 'Tis certain, and not a little material to the Purpose, that the most antient Manuscripts, in that Place, have *Pastinata* in express Letters; *Hibiscum a Pastinata gracilitate differt.* "Hibiscum differs from the *Pastinata* in its Slenderness;" whereas in other Places, the same Copies have the Word *Pastinacæ*, whole and uncorrupted. The Author from whom *Pliny* borrow'd his Account, doubtless wrote, *Hibiscum, id est, agrestis Malva, a Pastinata gracilitate differt.* "Hibiscum, that is, the wild Mallow, differs from the cultivated, in Slenderness." He omitted the *agrestis Malva*, and read *Pastinacæ* for *Pastinata*, as these two Letters are often exchange'd for one another, in Words of that Form; for Example, *Securiclatæ, securiclatæ; lingulata, lingulata; personata, personata; ἡ προσωπίς, [Prosopitis] by some called Personacia, a Personation.* The Glossary has *Pastinatio, ψυλά, "Pasti-nation [means] a Cultivation."* It is not to be doubted then that *ἡ ψυλάς*, "the planted," cultivated, and Garden Mallow, was properly called *Pastinata*, "planted in delved Ground." Under the same Mistake he asserts every-where, that the *Hibiscum* is like a Parsnip.

I formerly took the *Alcæa* of the *Greeks* to be meant by the Name *Hibiscum*; for the *Alcæa* is a kind of wild Mallow, which some, we are assured, have confounded with Althæa. For *Neophytus*, under the Name of Althæa, has described the *Alcæa*, which he furnishes with Leaves, *επεχρισμένα πρὸς τὰς ἰσθμὰς βόταν*, "indented like those of Vervain." Now I thought, that *Pliny* had reckon'd this indenting of the Leaves in *Alcæa*, which he took for Althæa, among the Characters in which it resembled a Parsnip; but nothing is more certain, than that he fell into this Mistake in the manner we have related.

The same Author, in another Place, thus distinguishes the Althæa among the other Mallows: *Ex sylvestribus, cui grande Folium, & Radices albæ, Althæa vocatur ab excellentia Effectus, ab aliis Aristalthæa.* "Of the wild Kinds, that with the large Leaf, and the white Roots, is called *Althæa*, from its excellent Virtues, by some named *Aristalthæa*." An antient Manuscript indicates, that this last Word is not rightly written, by reading *ab aliis Plitolochia* "by others *Plitolochia*." Hence it appears, that it ought to be read *Plistolochia*, which is confirmed by the Manuscript Index: *Malva Althæa, sive Plistolochia, "the Mallow-Althæa, or Plistolochia."* In another Place it says, that *Hibiscum* is called by others *Plistolochia*; Perhaps it took that Name from its Virtue in extracting the Secundines, which the *Greeks* call *λογία*.

Pliny, in reckoning the Kinds of *Aristolochia*, makes *Plistolochia* the fourth, which is also called *πυλῶπις*, "many-rooted;"

H h h h

"rooted;"

"rooted;" for thus it is written in the Manuscript Index: *Aristolochia, fræ Climatis, fræ Cretica, fræ Plifolochia, fræ Lochia Polyrrhizosque, quæ Malum Terræ.* So it ought to be read.

But I never read this Name *Plifolochia* in Greek Authors, and I am afraid it took its Origin from some wrong Reading, either by *Pliny* himself, or one of those who used to read to him, who hastily running over the Greek Book written in large Letters, and slightly glancing on the Words, as is too commonly done, might for *ΑΡΙΣΤΟΛΟΧΙΑ* read *ΠΛΙΣΤΟΛΟΧΙΑ*, which is not so very remote from the Truth, nor unsuitable to *Pliny's* Character. For my part, I can give no Account for the Name, the changing it into *Pistolochia* being contradictory to all the Books; nor can I see the Reason of this Word *πισολοχία* [*Pistolochia*].

Authors say never a Word of the Althæa called *Plifolochia*, or *Aristolochia*; and I am apt to think, that *Pliny* made this too out of *Theophrastus*, by wrong reading and pointing his Words. *Theophrastus*, enumerating the medicinal Herbs which grow in *Arcadia*, has these Words: *Καὶ ἡ ῥίζη Ἀλθαία, ἐκείνοι δὲ μάλαν ἀγείαν, ἢ ἰατρολόχια, καὶ τὸ σίσελι.* "And there is the Althæa, which they call *Wild Mallow*, and *Aristolochia*, "[*Birthwort*] and *Seseli* [*Hartwort*]." *Pliny* read or understood the Words, as if they had been written *ἐκείνοι δὲ μάλαν ἀγείαν, ἢ ἰατρολόχια*. "They call it *Wild Mallow* and "*Aristolochia*," where perhaps he read himself, or, deceiv'd by his Ears, imagin'd he heard another read *ἢ πισολοχία*, "and "*Plifolochia*."

That Place in *Pliny*, where he distinguishes between *μολόχη* [*Moloché*] and *μαλάχη* [*Malache*] deserves our Laughter. The Passage, as it ought to be read, *Lib. 20. Cap. 21.* runs thus: *Duo Genera earum Amplitudine Folii discernuntur. Majorem Græci Molochen vocant in Sativis, alteram ab emolliendo ventre dictam putant Malachen.* "Two Kinds of them are distinguished by the Largeness of the Leaf. The greater is called "by the Greeks, *Moloché*, and is cultivated in Gardens; the "other is supposed to have its Name *Malache* [*Greek μαλάχη*, "soft] from mollifying the Belly." But *μολόχη* [*Moloché*] is the Word in the *Attic* Dialect, and *μαλάχη* [*Malache*] in the others. This is the Rule in the antient Grammarians; but I should rather think *μολόχη* an *Æolic* Word; for 'tis their Manner to change *a* into *o*; so they say, *ονόγουρον* [*Onoguron*] for *ανόγουρον* [*Anaguron*] which is in the *Attic* Dialect; *ονωνίς* for *ανωνίς*, *βόνις* for *ανόνις*, and so in Hundreds of others; but we shall now finish what we proposed. What is commonly called *Malva-viscô*, or *Ibiscum*, is not the Althæa of the Greeks, tho' the old Latins called this *Ibiscus*. The true Althæa, at this Day, is unknown to our Botanists; for the *Bis-malva*, which is the *Roman Hibiscum*, is not determined to one thing. Perhaps the old Romans themselves were ignorant of the true Althæa; for what they called *Hibiscum*, was no other than what is called *Malva-Ibiscum*; so much is certain.

Tho' Althæa be like the wild Mallow, yet, which is strange, *Dioscorides* has not assign'd it a Place among the Mallows, as if he thought it of a different Kind from them. For he describes the common Mallows in his second Book, and defers the mentioning of Althæa to his third Book. What he thus separated, he does not seem to think of the same Kind, though he says, that Althæa is a Species of the wild Mallow.

The *ανανδενδρομαλάχη* [*Anadendromalache*] mentioned by *Galen*, and mistaken by some for the same as *Ibiscus* or Althæa, is another thing. The Authors of the Greek Farriery have these Words: *Ἐστὶ δὲ ἐτέρα βλάστη λεγόμενη ανανδενδρομαλάχη, ὅπερ τὴν ἄν σαλκίαν ἔστι τὸ φύλλον πλατύτερον ταύτης, τὴν ῥίζαν ὡσαύτως σκευάζονται, καθὼς ἐπάνω γέγραπται. χρῆσθαι.* "There is another "Herb called *Anadendromalache*, and by some *Salcies*; this has "a broader Leaf, and the Roots are prepared in the same "manner as before directed." I take this to be the *Alcæa* of *Dioscorides*, which the Name *σαλκίαν*, [*Salcies*] being a Corruption of *ἀλκαίν*, [*Alcæa*] plainly intimates. *Galen* does not mention *Alcæa*, but seems to mean the same by the Word *Anadendromalache*. *Salmasius de Homonym. Hyl. latr. Cap. 42.*

Notwithstanding the Opinion of *Salmasius* to the contrary, I find most Botanists esteem our Althæa to be the same as that of *Dioscorides*.

ALTHANACA, or **ALTHANACHA**, (*Auripigmentum*) Orpiment. It is also called **ALTERNET**, **ALBIMEC**.

ALTHERBEGIUM, the Arabic Name given by *Avicenna* to a certain Swelling, resembling those which happen in a Cachexy, and proceeding from a morbid State of the Liver, and an ill Habit of Body. The Swellings are also like those which appear under the Eyes, and in the Faces, of Persons who sleep over-much. A Tympany is a Disease of the same Kind. *Fabric. Ab Aquapendent. Lib. 1. Cap. 10.*

ALTHERIS, *ἀλθεῖς*, from *ἀλθεῖν*, to cure or heal. It signifies the Cure of a Distemper, in which Sense it is frequently used by *Hippocrates*.

ALTHOLIZOI. See **ALTOLIZOIM**.

ALTIHT. The Name given by *Avicenna* to the *Laserpium* of the Antients.

ALTIMAR, **AYCAPHER**, (*Æs ustum*) burnt Copper. *Rulandus*.

ALTIMIO, (*Fæx Plumbi*) the Dross or Scoria of Lead. *Rulandus*.

ALTINCAR, a sort of factitious Salt used in the Purgation and Separation of Metals. *Castellus* from *Libavius*.

ALTINGAT, *Flos Æris*, Rust of Copper, Verdigris. *Rulandus*.

ALTINURAUM, Vitriol. *Rulandus*.

ALTOLIZOI, a Word mentioned by *Helmont*, which is in a great measure unintelligible. In his Treatise *De Lithiâsi*, he directs the Ludus of *Paracelsus* to be well confused, calcin'd, and boil'd into the Form of an Oil, which is almost express'd by a single Word *Fel Terræ*, or **ALTHOLIZOI** *correctum*, which he says, signifies, totally converted into Oil by Ebullition. *Castellus* has made two or three Blunders under this Article. For he calls it *Altolizoin*, whereas *Helmont's* Word is *Altholizoi*, and *Altholizoin*; and he mistakes in his Explanation *Ludus*, and calls it *Lutum*. See **ALKAHEST**.

ALTUS. This is used sometimes in a medicinal Sense join'd with *Sopor*, to express a sound Sleep, inclining to a Lethargy, or Coma.

ALU. See **ARE-ALU**, and **ATTY-ALU**.

ALUACH, or **ALUECH**, pure or refin'd Tin. *Rulandus*.

ALUCO, a Bird mentioned by *Bellonius*, *Aldrovandus*, and *Johnson*.

It is a nocturnal Bird of Prey, of the Owl Species; they are of different Sizes; for some are as big as a Capon, and others of the Size of a Pigeon: They are of a Lead-colour spotted with White; their Head is large, black, without Ears, crown'd with Feathers; their Beak is white, their Eyes are large, black, and seem to be sunk in their Heads, because they are surrounded with many Feathers; their Limbs are cover'd with white Feathers, their Feet are feather'd and arm'd with long Claws, which are strong and sharp; they live in decay'd Buildings, Towers, in Caverns, and in the Hollow of old Oaks; they ramble at Night in the Fields; they live upon Mice, and little Birds; their Gullet is so large, that they swallow Pieces as big as an Egg; their Cry is frightful; they contain a great deal of volatile Salt and Oil.

Their Blood is good for an Asthma, being dried, pulverized, and taken at the Mouth: The Dose is from half a Scruple to two Scruples; their Brains are esteemed good for agglutinating Wounds. *Lemery de Drogues*.

ALUDEL. An **ALUDEL** is a chymical Vessel used in Sublimation. Many of these are generally employ'd in one Operation, in the following Manner: The Matter to be sublim'd is put into a Body, or Pot, the superior Part of which is fitted into a Hole on the lower Part of an Aludel, and the superior Part of the Aludel is received into the inferior Part of the next Aludel, and so on, till as many Aludels are set one upon another, as the Process requires; to the superior Part of the uppermost Aludel, a Head or Alembic is fix'd, to receive the Matter which sublimes. So that there is a continu'd Tube form'd by the Aludels from the Pot which contains the Matter to be sublim'd, to the Head or Alembic which receives it, in the manner, that a continu'd Chanel is form'd by a Number of Elm Pipes: The Use of Aludels seems to be to remove the Matter sublim'd in the Head to a Distance from the Fire.

ALUDIT, Mercury. *Rulandus*.

ALVEARIUM, the Bottom of the Concha, or Hollow of the external Ear; it terminates at the Meatus Auditorius, which is the Entrance of the Auris or Ear, strictly so call'd. *Drake*.

It is generally defin'd to be that Cavity where the Cerumen or Ear-wax is principally lodged.

ALUECH. See **ALUACH**.

ALVEOLI, the Sockets in the Jaw Bones, in which the Teeth are plac'd, by that sort of Juncture or Suture, which Anatomists call *Gomphosis*, by Joiners call'd *Pegging*. The Alveoli are lin'd with a Membrane of exquisite Sense, which seems to be nervous, and is wrapp'd about the Roots of each Tooth. *Drake*.

There are usually sixteen Alveoli in each Jaw.

ALVEUS. Medicinally it is apply'd to many Tubes or Canals, thro' which some Fluid flows, particularly to the Ducts which convey the Chyle from the Receptacle of the Chyle to the Subclavian Vein.

ALUFIR, *Rubedo*, Redness. *Rulandus*.

ALVIDUCA, *Medicamenta*, are purging Medicines.

ALUIS. *Rulandus* calls this *Alafor*, id est *Vabs*, without any farther Explanation. But *Johnson* explains *Alafor*, *Sal Alkali*.

ALUM, or **ALUS**. A Name in *Scribonius Largus* for the *Symphytum* Comfrey.

ALUMBOTI, *Plumhum Ustum*, burnt or calcin'd Lead. *Rulandus*.

ALUMEN, Alum, *Στυπτηρίον*. *Hippocrates* recommends **ALUM** in many Passages of his Treatise of Ulcers, as a proper Application for Ulcers, especially those of the depascent Kind (*νομάς*) sometimes burnt, and sometimes not. He thinks the Egyptian

Egyptian the best, and next that the *Melian* (that got in *Melos*). And in his Treatise on the Diseases of Women, *Lib. 1.* he orders burnt ALUM as an Ingredient in an Application he directs for Ulcers of the Uterus. And afterwards in the same Treatise he advises *Egyptian* ALUM, with some other Ingredients, to be moisten'd with Goose Grease, and then with Wool to be made into a Pessary, and apply'd to the Os Uteri, with a View of promoting Fecundity. And in his Epidemics, *Lib. 1.* he also advises *Egyptian* Alum as a beneficial Application in painful Tumors of the Gums.

Celsus, *Lib. 6. Cap. 19.* recommends *Melian* Alum prepared in the following manner, as an effectual Application to Ulcers of the Fingers, which the *Greeks* call *πρωγύα*. Melt round *Melian* Alum in Water, till it acquires the Consistence of Honey; then mix with it a Quantity of Honey, equal in Weight to the Alum when dry, and stir them about with a Spatula, till the Mixture is of a Saffron Colour. With this anoint the Uleers.

The Accounts of Alum we have from *Dioscorides*, *Pliny*, *Oribanus* and *Ætius*, are as follows:

Almost every Kind of Alum is found in *Egypt*, and among the same Metals; for the *Sciassile* Alum is, as it were, the Flower of the Solar. It is also produced in other Places, as in *Melos*, *Macedonia*, *Lipara*, *Sardinia*, *Hierapolis* in *Phrygia*, *Libya*, *Armenia*, and many other Countries, as well as *Oker*. There are very many Species of Alum; but the most serviceable for medicinal Purposes, are the *Sciassile*, the *Round*, and the *Liquid*; and of these the best is the *Sciassile*. Again, of this *Sciassile* Alum, the most valuable is what is fresh, very white, free from Gravel, smells strong, and is of an extraordinary Astringency; such as lies not close compacted like a Clod, nor falls abroad into thin Slices like Chips: but when broken into Bits, and pulled asunder, runs out into Filaments, like grey Hairs. Such is the Sort called *Trichites*, [hairy] which grows in *Egypt*. There is a Stone very like this Alum, but distinguish'd from it by its Taste, which has nothing of Astringency. The round Species, that is factitious, is to be refused as good for nothing; you may know it by the Figure. Chuse what has its Roundness from Nature, is full of Bubbles, is of a white Colour, and powerfully astringent; and has, besides these Properties, a sort of Paleness, and is somewhat fat, and comes from *Melos* or *Egypt*. The liquid Kind ought to be quite pellucid, milky, simple, and of equal Liquidness in all its Parts, clear of Sand or Gravel, and exhaling a Warmth as from a Fire.

These Alums are of a heating and astringent Nature, and have the Virtue of cleansing the Eye, and clearing it of whatever darkens the Pupil, and also of consuming fleshy or other Excrescencies that grow about the Eyelids. The *Sciassile* is more to be valued than the *Round*. They are burnt or roasted like *Chalcitis*. They restrain the Putrefaction of Ulcers, and stop Hæmorrhages. They compress the flaccid Gums, and fasten loose Teeth, if used with Vinegar or Honey; mixed with Honey, they cure the Aphthæ; used with the Juice of Knot-grass, they are good for Exanthemata and Rheums in the Ears. With Cabbage Leaves, or boil'd Honey, they are effectual in the Leprosy; and are good in warm Water to make a Fomentation for the Itch, Paronychia, Pterygia, and Kibes. Mix'd with Lees of Vinegar and burnt Galls, of each an equal Quantity, they are good to anoint phagedenic Ulcers; and with a double Quantity of Salt restrain the spreading of Nomæ. Mix'd with Ervum and liquid Pitch, they absterge all Kinds of Scurf anointed with them; and, used in Water, scour away all Nits and Lice, and are good for Scalds or Burns. They are used to anoint cedematous Tumours, and to take off the rank Smell of the *Alæ* and *Pudenda*. What comes from *Melos* promotes Conception in Women, *πρὸ τῆς οὐδοῦ παρατρέχουσα τὸ εὐαλὲς τῆς ὕλης*, and expels the Foetus. In short, the Alums are, all of them, proper for Excrescencies of the Gums, and for the *Uvæ* and *Tonsillæ*; and also for the Mouth, Ears, and *Pudenda*, when used with Honey to anoint the Parts. *Dioscorides*, *Lib. 5. Cap. 123.*

Alum is supposed to be a saline Humour of the Earth [*salugo Terræ*]. There are several Kinds of it: In *Cyprus* they have the White and the Black, where the Difference in Colour is inconsiderable, but in the Use very remarkable; for the White and Liquid are very useful in dying Wool of a bright Colour; and the Black, on the contrary, in giving it a sad and dark one; the latter is also serviceable in refining Gold. 'Tis all, however, generated of Water and Mud, that is, from the Nature of the Exsudation of the Earth. What the Winter brings together by uniting Streams, is matured by the Summer Suns, and what comes to Perfection soonest, is the whitest. It is produced in *Spain*, *Egypt*, *Armenia*, *Macedonia*, *Pontus*, *Africa*, and the Islands of *Sardinia*, *Melos*, *Lipara*, and *Strongyle*. The choicest is to be had in *Egypt*, the next in *Melos*. There are two Kinds of this, namely, the Liquid and the Solid; the first is presumed to be good, if it be limpid, and have a Milkiness, may be rubbed without emitting an offensive Vapour, but a sort of fiery Sparkles, with a sensible Heat: This they call *Phorimon*, [useful] and try whether it be adulterated by

the Juice of a Pomegranate, which turns the true Alum black. There is another Kind, which is pale and rough, and dy'd with Galls; for which Reason they call it *Paraphoron* [good for nothing].

The liquid Alum is of an astringent, hardening, and corroding Quality. Mixed with Honey, it heals Ulcers in the Mouth, Pimples, and Itching. For these Purposes, they mix two Parts of Honey with one Part of Alum, and manage the Cure in a Bath. It is taken in Pills for Disorders of the Spleen, and to remove an Itching, and for pissing of Blood. Mixed with Nitre and wild Fennel Flowers, it cures the Itch.

There is one Kind of concrete Alum, which the *Greeks* call *Schiston*, that cleaves, and when pulled asunder, runs into a sort of grey Hairs, whence some chuse to call it *Trichitis*. This is made out of a Stone, whence it is called *Chalcitis*, so that it is a sort of a Sweat of this Stone coagulated into a spumeous Substance. This Kind is drying, and not so astringent as the other; but it is very proper for the Ears, either put into them, or the Part anointed; and also for Ulcerations of the Mouth, and for the Teeth, if the Spittle be retained with it. It is also an Ingredient in Collyria, and Medicines adapted to the *Pudenda* of both Sexes. They boil it in Pans till it will melt no longer.

There is another Kind, of an inferior Nature, which they call *Strongyle*, round. Of this there are two Sorts, the Fungous, which readily imbibes Moisture, and is counted good for nothing; and the Pumicous, which is better than the other, and lax and porous like a Sponge, naturally round, bearing pretty much upon the White, has a sort of Fatness, is friable without Sandiness, and will not give a black Colour. They burn it by itself, over a clear Fire, till it turns to Ashes. All the Kinds of Alum are of an astringent Quality, from whence they have their *Greek* Name. *Pliny*, *Lib. 25. Cap. 15.*

All sorts of Alum have a remarkable Tartness, and are of gross Parts; the finest is the *Sciassile*, and next to this the *Round*, and the *Astragaline*. The Liquid consists of Parts remarkably gross, as well as that Sort called *Placitis*, and the *Plinthisis*. *Oribas. Med. Col. 15. Cap. 1.*

All Alums are extremely astringent, drying, and conglutinating: the finest is the *Sciassile*; it is usually added to other Ingredients in Medicines after they are boiled; for there is no Rule to direct us in the boiling of it. When it changes Colour, it commonly takes a Green. *Ætius Tetr. 4. Serm. 2. Cap. 25. P. 697. C.*

There are three Sorts of ALUM commonly used; the first is the

Alumen rupeum, *Offic.* *Alumen rupeum sive Crystallinum*, *Ind. Med. 7.* *Alumen factitium*, *Mer. Pin. 217.* *Alumen*, *Schw. 362.* *Alumen factitium pellucidum*, *Calc. Mus. 169.* *Alumen rupeum candidum & pellucidum*, *Aldrov. Mus. Metall. 334.* *Commune vulgò*, COMMON ALUM, *Dale.*

The second Sort of Alum is the

Alumen Rochi Gallis, *Offic.* *Alumen Romanum sive rubrum*, *Ind. Med. 7.* *Alumen Rochæ*, *Aldrov. Mus. Metall. 332.* *Worm. 23.* *Alumen rupeum seu Rochæ*, *Charlt. Foss. 9.* *Alumen factitium ex præduro lapide subrubro confectum*, *Calc. Mus. 169.* *Alumen Romanum quibusdam*, ROCH-ALUM.

It is like the common Alum, only of a pale-red Colour. We have it imported from *Italy*, *Smyrna*, &c. They make it after the same manner as they do the common Alum, but without the Addition of Urine and Kali, as I am informed by a Letter from the learned Dr. *Tancred Robinson*, M.D. It agrees in Virtues with the preceding. *Dale.*

The third Sort of Alum is the

Alumen plumosum, *Offic.* *Ind. Med. 7.* *Alumen plumosum sive Trichites*, *Schrod. 3. 477.* *Alumen plumæ, quod Sciassile*, *Latins*, *Aldrov. Mus. Metall. 331.* PLUMOSE, or FEATHER'D ALUM. *Dale.*

It is sometimes called *Alumen Iamenum*.

Alumen Catenum is a Name for the *Cineres clavellati*, Pot-ash. In order to the understanding what the modern Alum, which we make use of, is, with Exactness, it will be necessary to give an Account of its Production; and by this it will appear, that our Alum differs considerably from the Alum of the Antients; for theirs was found naturally, without the Help of Art, whereas ours is factitious, and consists of other Ingredients, besides the concreted Juice, which the Antients called ALUM.

Alum is made of a Stone, of Sea-weed and Urine.

The Stone is found in most of the Hills between *Scarborough* and the River of *Tees*, in the County of *York*; as also near *Preston* in *Lancashire*. It is of a bluish Colour, and will cleave like *Cornish Slate*.

The Mine, which lies deep in the Earth, and is indifferently well moisten'd with Springs, is the best. The dry Mine is not good; and too much Moisture cankers and corrupts the Stone, making it nitrous.

In this Mine are found several Veins of Stone call'd *Doggers*, of the same Colour, but not so good. Here are also found those, that are commonly call'd *Snake Stones*: The People have a Tradition, that the Country thereabouts being very much annoyed with Snakes, by the Prayers of St. *Hilda*, there inhabiting,

inhabiting, they were all turned into Stones; and that no *Snake* hath ever since been seen in those Parts.

For the more convenient working of the *Mines*, which sometimes lie twenty *Yards* under a Surface or Cap of Earth, (which must be taken off, and barrow'd away) they begin their Work on the declining of a Hill, where they may be also well furnished with Water. They dig down the Mine by Stages to save Carriage, and so throw it down near the Places where they calcine it.

The Mine, before it is calcined, being exposed to the Air, will moulder in Pieces, and yield a Liquor, whereof *Copperas* may be made; but being calcined, it is fit for Alum. As long as it continues in the Earth, or in Water, it remains a hard Stone.

Sometimes a Liquor will issue out of the Side of the Mine, which, by the Heat of the Sun, is turned into natural Alum.

The Mine is calcined with *Cinders* of Newcastle Coal, Wood, and *Furzes*; the Fire is made about two Feet and an half thick, two Yards broad, and ten Yards long. Betwixt every Fire, are Stops made with wet Rubbish, so that any one or more of them may be kindled, without Prejudice to the rest.

After there are eight or ten *Yards* Thickness of broken Mine laid on this Fuel, and five or six of them so cover'd, then they begin to kindle the Fires; and as the Fire rises towards the Top, they still lay on fresh Mine; so that to what Height you can raise the Heap, which is oftentimes about twenty Yards, the Fires, without any further Help of Fuel, will burn to the Top, stronger than at the first Kindling, so long as any Sulphur remains in the Stones.

In calcining these Stones, the Wind many times does Hurt, by forcing the Fire, in some Places, too quickly thro' the Mine, leaving it black and half burnt; and in others, burning the Mine too much, leaving it red. But where the Fire passeth softly, and of its own accord, it leaves the Mine white, which yields the best and greatest Quantity of Liquor.

The Mine, thus calcined, is put into Pits of Water, supported with Frames of Wood, and rammed on all Sides with Clay, about ten Yards broad, and five Feet deep, set with a Current, that turneth the Liquor into a *Receptory*, from whence it is pumped into another Pit of Mine; so that every Pit of Liquor, before it comes to the Boiling, is pumped into four several Pits of Mine, and every Pit of Mine is steeped in four several Liquors, before it be thrown away; the last Pit being always fresh Mine.

This Mine, thus steep'd in each of the several Liquors twenty-four Hours, or thereabouts, is of course four Days in passing the four several Pits, from whence the Liquors pass to the Boiling-house.

The Water or Virgin Liquor oftentimes gains, in the first Pit, two Pounds Weight; in the second, it increaseth to five Pounds Weight; in the third, to eight Pounds Weight; and in the last Pit, which is always fresh Mine, to twelve Pounds Weight; and so in this Proportion, according to the Goodness of the Mine, and the well calcining thereof. For sometimes the Liquors, passing the four several Pits, will not be above six or seven Pounds Weight; at other times, above twelve Pounds Weight, seldom holding a constant Weight one Week together. Yet many times, Liquor of seven or eight Pounds Weight produceth more Alum, than that of ten or twelve Pounds Weight, either through the Illness of the Mine, or, as usually, the bad calcining thereof. And if by passing the weak Liquor through another Pit of fresh Mine, you bring it to ten or twelve Pounds; yet you shall make less Alum with it, than when it was but eight Pounds Weight. For what it gains from the last Pit of Mine, will be most of it *Nitre* and *Slam*, which poisons the good Liquors, and disorders the whole House, until the *Slam* be wrought out.

That which they call *Slam*, is first perceived by the Redness of the Liquor, when it comes from the Pit, occasioned either by the Illness of the Mine, or, as commonly, the over or under calcining it, as abovesaid; which in the Settler sinks to the Bottom, and there becomes of a muddy Substance, and of a dark Colour. That Liquor which comes whitest from the Pits, is the best.

When a Work is first begun, they make Alum of the Liquor only that comes from the Pits of Mine, without any other Ingredients, and so might continue, but that it would spend so much Liquors as not to quit Cost.

Kelp is made of a Sea-weed call'd *Tangle*, such as comes to London on Oysters. It grows on Rocks by the Sea-side, between High-water and Low-water Mark. Being dried, it will burn and run like *Pitch*; when cold and hard, 'tis beaten to *Ashes*, steeped in Water, and the Lees drawn off to two Pounds Weight, or thereabouts.

Because the Country People, who furnish the Work with *Urine*, do sometimes mingle it with Sea-water, which cannot be discovered by Weight, they try it, by putting some of it to the boiling Liquor; for so, if the *Urine* be good, it will work like *Yeast* put to *Beer* or *Ale*; but if mingled, it will stir no more than so much Water.

It is observed, that the best *Urine* is that which comes from poor labouring People, who drink little strong Drink.

The boiling Pans are made of Lead, nine Feet long, five Feet broad, and two and a half deep, set upon Iron Plates about two Inches thick, which Pans are commonly new-cast, and the Plates repaired five times in two Years.

When the Work is begun, and Alum once made, then they save the Liquor which comes from the Alum, or wherein the Alum shoots, which they call *Mothers*; with this they fill two third Parts of the Boilers, and put in one third Part of fresh Liquor, which comes from the Pits. Being thus filled up with cold Liquors, the Fires, having never been drawn out, will boil again in less than two Hours time; and in every two Hours time, the Liquor will waste four Inches, and the Boilers are filled up again with green Liquor.

The Liquor, if good, will in boiling be greasy, as it were, at the Top; if nitrous, it will be thick, muddy, and red. In boiling twenty-four Hours, it will be thirty-six Pounds Weight; then is put into the Boiler about a Hoghead of the Lees of *Kelp*, of about two Penny-weight, which will reduce the whole Boiler to about twenty-seven Pounds Weight.

If the Liquor is good, as soon as the Lees of *Kelp* are put into the Boiler, they will work like *Yeast* put to *Beer*; but if the Liquor in the Boiler be nitrous, the *Kelp-Lees* will stir it but very little; and in that Case, the Workmen must put in the more and stronger Lees.

Presently after the *Kelp-Lees* are put into the Boiler, all the Liquor together is drawn into a Settler, as big as the Boiler, made of Lead, in which it stands about two Hours, in which time most of the *Nitre* and *Slam* sink to the Bottom.

This Separation is made by means of the *Kelp-Lees*; for when the whole Boiler consists of green Liquor drawn from the Pits, it is of a Power strong enough to cast off the *Slam* and *Nitre*; but when the *Mothers* are used, the *Kelp-Lees* are needful to make the said Separation.

Then the said Liquor is scooped out of the Settler, into a Cooler made of Deal Boards, and rammed with Clay. Into this is put twenty Gallons or more of *Urine*, more or less, according to the Goodness or Badness of the Liquor; for if the Liquor be red, and consequently nitrous, the more *Urine* is required.

In the Cooler, the Liquor, in temperate Weather, stands four Days. The second Day the Alum begins to strike, gather, and harden about the Sides, and at the Bottom of the Cooler.

If the Liquor should stand in the Cooler above three Days, it would, as they say, turn to *Copperas*.

The Use of *Urine* is as well to cast off the *Slam*, as to keep the *Kelp-Lees* from hardening the Alum too much.

In hot Weather, the Liquors will be one Day longer in cooling, and the Alum in gathering, than when the Weather is temperate. In frosty Weather, the Cold strikes the Alum too soon, not giving time for the *Nitre* or *Slam* to sink to the Bottom, whereby they are mingled with the Alum. This produceth double the Quantity; but, being foul, is consumed in the Washing.

When the Liquor hath stood four Days in the Cooler, then that call'd *Mothers* is scooped into a Cistern, the Alum remaining on the Sides, and at the Bottom; and from thence the *Mothers* are pumped back into the Boiler again; so that every five Days the Liquor is boiled again, until it evaporate, or turn into Alum or *Slam*.

The Alum taken from the Sides and Bottom of the Cooler, is put into a Cistern, and washed with Water, that hath been used for the same Purpose, being about twelve Pounds Weight, after which it is roached, as followeth:

Being washed, it is put into another Pan, with a Quantity of Water, where it melts and boils a little. Then it is scooped into a great Cask, where it commonly stands ten Days, and is then fit to take down for the Market.

The Liquors are weighed by the Troy Weight, so that half a Pint of Liquor must weigh more than so much Water, by so many Penny-weight. *Phil. Trans. Abr. Vol. 2.*

Somewhat different from this is the Account given by *Hoffman*, of the Production of Alum at the Works near *Hall*, in *Saxony*. As this Author's Experiments and Remarks upon ALUM are curious and instructive, I shall insert them here.

Of the Generation and Nature of ALUM.

As Vitriol is produced from a sulphureous Mineral, either simple or compound, that is, of Iron and Copper, so Alum, which is, as it were, a kind of white Vitriol, is also generated of a sulphureous Mineral, partly bituminous, partly luteous. Therefore the Acid which is extracted from Alum, seems to be of the same Nature and Properties with what is afforded by Vitriol, whatever Difference there is in the Earths, or Receptacles, in which both these Kinds of Salts are coagulated. For the Caput Mortuum of Vitriol is of a Metalline, that is to say, of an Irony or Copper-like Quality; but the Earth of Alum seems to be a peculiar Kind of Bole, very spongy and subtil.

The remarkable Agreement between the Acids of Vitriol and Alum will abundantly appear from the following Experiments:

1. Vitriol of Iron is prepared with Spirit of Alum, and with Iron, as well as with Spirit of Vitriol; and Aqua-fortis is as well made with Alum as Vitriol and Nitre. Again, if the Acid of Alum, by the Mixture of alkaline Salt, be converted into a neutral Salt, and this Salt, with a little Salt of Tartar and Powder of Charcoal, be melted in a Crucible, there is produced a red Mass like Liver of Sulphur, in the same manner, as it usually happens, when the Acid of Vitriol or Sulphur is fixed by Salt of Tartar, or the alkaline Salt contained in Nitre or common Salt, and converted into a neutral Salt.

Tho' Vitriol and Alum be produced, as it were, from the same Matter, and from one sulphureous Matrix, yet each of them is endued with peculiar Properties and Virtues. For Alum and Vitriol are very different in Taste; and the common Vitriol leaves no such Astringency on the Palate, as is observed in Alum. Again, a Solution of Alum makes no Commotion nor Precipitation in a Solution of Gold or Silver, which a Solution of Vitriol is known to effect. Nor will a Decoction of Galls, or Pomegranate Flowers, grow black, and be converted into Ink, by the Mixture and Solution of Alum, as we observe it does when mix'd with a Solution of Vitriol. Lastly, in Alum, the Acid may be readily separated, by the Help of Fire, from its earthy Principle, in which it is inherent; but the Case is otherwise with Vitriol.

To proceed, in Alum the Acid is very much saturated with its Earth; for an Ounce and a half of Alum, by a vehement Calcination, affords six Drams and a half of aluminous Earth, quite insipid. That there is a less Portion of Acid in Alum than in Vitriol, may be known by this, that the Acid of Vitriol, saturated with a Solution of Pot-ash, produces a far greater Quantity of Sal Enixus, than would be afforded by a Solution of Alum saturated with the same Lixivium.

Besides, the Salt this way prepared of Alum is more successful in loosening and purging the Belly, than what is prepared of Vitriol, according to the Method of *Tackenius*. And not long since I met with a Phenomenon not unworthy to be related, which is, That while I was managing and beating this Salt in a Mortar, it emitted Sparks in great Plenty, which I never observed in any other Salt.

Here we must not pass over a very fine Experiment of *Hombert's*, who with three Parts of Alum, and one Part of any combustible Matter, which turns to a Coal, by a previous Calcination, Distillation, and Ignition, in a closed Vessel, prepared a Phosphorus, or sulphureous Matter, which immediately kindled at the free Access of Air. But this inflammable Matter cannot be produced with the Acid of Vitriol; nor the Spirit of Salt or Nitre; a plain Indication, that the Acid of Alum, as being more subtil, has a freer Ingress into the phlogistic Earth, than the Acid of Vitriol itself. See below *Hombert's Memoire*.

But it happens, that tho' Alum is known almost to every body, yet its mineral Elements and Preparations are not clearly understood by the curious Naturalists. Wherefore I thought it worth my Pains in this Place, to shew the Way how some thousands of Quintals are yearly made at the Village of *Schwenzel*, near the City of *Tieben*, five Miles from *Hall*, where are very plentiful Mines of Alum.

Near this Village are Strata of bituminous Matter, of vast Extent, which Matter is the Matrix of this Salt. These Strata lie two or three Yards deep, whence they dig the Earth, which is of a blackish Colour, and of an astringent aluminous Taste. If this mineral Earth be thrown into the Fire, it not only kindles, but emits a strong and foetid Smell, like mineral Sulphur set on Fire. When burnt out, there remains a spongy tasteless Mass of an Ash-colour.

The fresh Mineral Earth is thrown into Heaps, which lie a Month expos'd to the open Air; then they remove it into Vats, and are for some Days extracting the Salt by Affusions of Water; after which, the Lye is convey'd by Pipes into leaden Cauldrons, and boiled. When the Liquor is inspissated by the Consumption of one half, they mix it with a Solution of Pot-ash. This excites a vehement Ebullition with a Spumescence, and a Powder in great Plenty subsides to the Bottom. When every thing is cool, they take off the yellow Liquor, that swims at the Top, and the white aluminous Meal at the Bottom is dissolved in Water, and boiled anew; the Water, well saturated with Salt, is poured into great Vats, which stand together closed up for some Weeks. The Vessels being open'd, Crystals of a vast Bigness, in the Figure of an Octohedron, are seen sticking to the Sides.

Besides this, it is observable, that these vast Heaps of Alum Ore are kindled merely by the Heat of the Sun, and burst into open Flames, which require the utmost Care and Pains to extinguish by Affusions of Water. For when the Salt of the Alum is dissolved by the Rains, it begins to act upon its bituminous Earth; so that a rapid intestine Motion being by this means excited, not only a Heat and Smoke, but even Flames are produced, almost in the same manner as it happens when a

Mass, consisting of equal Portions of Sulphur and Filings of Steel, is moistened with Water, where, in a few Hours, arises an Ebullition, the Mass swells, sends forth a Smoke, and at last a sulphureous Flame ascends. These Experiments directly lead us to the Explication of the Nature and Causes of subterraneous Heat.

Moreover, it is worth Notice, that if these mineral Earths, after they are deprived of their Salt, are thrown together again in Heaps, and expos'd to the open Air for a whole Year, they become impregnated with a very aluminous Salt, so as to serve for a new Preparation of Alum, and that for three Years together.

Hence it appears very plainly, that aluminous Salt is regenerated by the Air, and doubtless contains some universal Acid, which with the inflammable bituminous Parts, in Conjunction with the earthy ones, constitutes the Salt of Alum; nor do I know any Salt, that can be so soon regenerated from its exhausted Mineral Earth; for if crude Alum be calcined by a pretty strong Fire, to such a Degree, that no Mark of Salt remain in its spongy Earth, and this Earth be afterwards for some Days expos'd to the open Air, it not only increases in Weight, but recovers its aluminous Taste, and makes an Effervescence with infilled Oil of Tartar *per Deliquium*.

In boiling of Alum, there is also one thing worthy to be inquired into, which is, that Alum cannot be brought into any solid Form, much less reduced into Crystals, from its Lye, without the Addition of Pot-ash, or some alkaline Salt. The Reason of this singular Effect and Phenomenon seems to consist in what follows: The Lye of the Mineral Earth is too acid, and too sulphureous; but because the sulphureous Liquor, in which the Acid is predominant, is very difficult to be formed into a solid saline Consistence, there needs the Accession of an Alkali, which partly saturates the redundant Acid, and partly imbibes and absorbs the pinguious and sulphureous Matter, which hinders Crystallization; by which means the Spicula may wedge themselves the more closely together, and form a more perfect Coalescence. Formerly, and even now, in other Places where they boil Alum, instead of Pot-ash, they use human Urine putrefy'd, because of the urinous volatile Salt, by which the redundant Acid is temper'd; but since the Invention of so cheap and easy an Expedient, Urine is no longer used.

The Skilful in Chymistry know what Care and Industry were employ'd in finding out some Means for volatilizing the fixed Salt of Tartar, since *Helmont* attributed a wonderful Efficacy to this Salt in curing Diseases. Hence, that otherwise celebrated Physician and Chymist, *Daniel Ludovici*, in a particular Treatise of the *Volatilization of the Salt of Tartar*, communicated to the Public a Method to effect it; for while he was distilling crude Alum mix'd with Salt of Tartar, there came forth a volatile urinous Spirit. The good Man, who was perfectly sincere, believed, that this fixed Salt was render'd volatile; but he was not aware, that Alum, according to the vulgar Method, was prepared by an Addition of human Urine, and that his volatile Salt had no other Original; for when volatile Salt is fixed by the Acid of Alum, and there is afterwards an Accession of alkaline Salt, it is again set at Liberty, in the same manner as it happens with Sal Ammoniac. Wherefore if the same Experiment be try'd upon Alum, which has not been mix'd with human Urine, but Pot-ash in the Boiling, neither Salt nor volatile Spirit will manifest themselves.

In the last Place, I think it proper to advise, that the Salt called *Epsom Salt*, which in great Quantities is exported from *England* to many other Countries, and is really a very elegant and safe Cathartic, may be prepared of Alum and common Salt. Now whoever undertakes to prepare this Salt from crude Alum, and common Salt, such as it is sold in the Shops, will come short of his Aim; but whoever tries the Experiment with a Solution of the mineral Earth of Alum, and the Lixivium which remains in the Boiling of common Salt, and proceeds in a right Method, will hardly fail of accomplishing his Desire. *Hoffman. Observ. Physico-Chym. Lib. 3. Obs. 8.*

The way of making Alum in *Italy* is contain'd in the following Extract, from the History of the Royal Academy of Sciences:

M. Geoffroy had an exact Information, in *Italy*, of the way of making Roch-Alum at the Alum-Works of *Civita Vecchia*. Near that City are Quarries of a greyish or reddish Stone, pretty hard, like the Travertin. They calcine it in Kilns, and then boil the Calx in Water over a great Fire. The Water takes out all the Salt that is in the Alum, there separates from it a useless Earth; and, at last, the Water is left to cool, impregnated with a Salt, which, for several Days together, shoots into Crystals, like Tartar, about the Casks, and makes what we call *Roch-Alum*.

Alum is also made at the *Solfatara*, near *Puzzoli*, in the Kingdom of *Naples*. The *Solfatara* was formerly a burning Mountain, of which there remains nothing but the Ruins, and a Circle of Rocks, which are of a yellowish White, dry, half-burnt, and calcined; from which, in several Places, there issues forth a very thick Smoke. The Natives have it by Tradition, That the Earth, which was between these Rocks, and made

the Top of the Mountain, sunk down to a certain Height. After mounting these burning Rocks, you descend into a little hollow Plain, which must have been the Top. It is nearly oval, being one thousand two hundred forty six Feet in Length; where it is longest, and a thousand Feet in Breadth. The Earth of this Plain is a yellow and white Substance, all saline, and so hot, that in some Places you cannot suffer your Hand long upon it. In Summer the Surface of this Earth is spread with a saline Flour or Dust, which they need only to sweep together, and then shovel it into the Ditches, which are full of Water at the Bottom of the Plain; after which, to evaporate the Water, which is impregnated with Salt, and depurated from Earth, they want no other Fire than what burns under the Mountain. The Water is put into large Kettles sunk in the Ground, which is their only Method. This Alum does not bear so great a Price as that of *Givita Vecchia*. They make also Sulphur at the *Solfatara*, whence the Place too has its Name.

It appears by all the Preparations of Alum, that the same Mine which produces it, produces also, or might produce, Sulphur, Nitre, and Vitriol; and perhaps these different Minerals are no other at Bottom, than the same Principle disguised in these four Salts, according as it is mixed by Nature with other Substances, or undergoes Operations by Man. M. *Geoffroy* thinks he has Reason to conclude, that the Alum of England and Sweden participates more of Vitriol, and the Italian of Sea-salt; which Consideration might occasion a Variation in some nice Operations, and change the Effect of some Remedies, which require an extraordinary Preciseness. *Hist. de l'Acad. Roy. des Scienc. 1702.*

Alum, when united with sulphureous Substances of many sorts, has a very remarkable Quality of taking Fire itself, and communicating it to all inflammable Substances, by only being exposed to the Air. This Discovery was made by M. *Homburg*, and farther examin'd by the Gentlemen of the Royal Academy of Sciences, the Particulars of which are contained in the following Papers:

Take four Ounces of Excrement, newly voided, and mix with it the like Weight of Roch-Alum, grossly pounded. Put the Whole into a little iron Pan, which will hold about a Pint of Water, and set it in a Chimney over a small Fire of Coals; the Mixture will melt, and become as liquid as Water. Let it boil over a small Fire, and keep stirring it with an iron Spatula: Continue this Fire till the Matter be dry: It will grow difficult at last to be stirr'd, but you must continue to roast it in the Pan, always stirring it, and breaking of it into small Bits, and scraping off with the Spatula whatever sticks to the Bottom and Sides of the Pan, till it be perfectly dry. You must, from time to time, take the Pan off the Fire, that it may not grow red-hot; and also remove the Matter from the Fire, to prevent its sticking in too great Quantities to the Pan. When the Matter is become perfectly dry, and in small Crumbs, you must let it cool, and then pound it small in a Mortar of Metal. After this, you must put it again in the Pan over the Fire, continually stirring it. It will still contract a little Humidity, and gather into Clots, which you must continue to roast, still breaking them as before, till they are perfectly dry; let them cool; then pound them to fine Powder, which must be put in the Pan the third Time, and placed over the Fire, and roasted till perfectly dry. This done, pound it over again to a very fine Powder, which put up in a Paper, to be kept in a dry Place. And this is the first or preparatory Operation.

Take two or three Drams of this Powder, and put it into a small Matrafs, whose Belly is capable of containing an Ounce, or an Ounce and half, of Water, and whose Neck is six or seven Inches in Length: Order it so, that the Powder may take up no more than about one third of the Matrafs; close the Neck of the Matrafs very slightly with a Stopple of Paper; then take a Crucible four or five Fingers Breadth in Height, and in the Bottom thereof put three or four Spoonfuls of Sand: Upon this Sand place the Matrafs in the Middle of the Crucible; that is to say, so as not to touch the Sides. After this, fill up the Crucible with Sand, that the Belly of the Matrafs may be bury'd in it. This done, place the Crucible with the Matrafs in the Midst of a small earthen Stove, which has the Opening at the Top of about ten Inches wide, and is in Depth to the Grate six Inches. Put live Coals all round the Crucible, to half its Height, for the Space of half an Hour; then lay on more Coals, till they reach the Brim of the Crucible. Keep the same Fire for a good Half-hour, or till you see the Inside of the Matrafs begin to be red; then augment the Fire by heaping Coals above the Brims of the Crucible, and keep this great Fire for the Space of a full Hour, after which let it alone to go out.

In the Beginning of this last Operation there will come forth thick Fumes through the Neck of the Matrafs, across the paper Stopple. These Fumes sometimes come in so great Abundance, as to throw off the Stopple, which must be replaced, and the Fire diminished. These Fumes cease when the Inside of the Matrafs begins to grow red; then is the Time to increase the Fire, without being apprehensive of spoiling the Operation.

When the Crucible is cold enough to be taken out of the Stove without fear of burning the Hand, the Matrafs must be lifted out of the Sand as far as the Middle of its Belly, and left to cool for about half a Quarter of an Hour; then it must be taken quite out, and rested a Moment on the Sand. But if you are not in Haste, or if the Operation be performed in the Winter, it would be better to let the Matrafs grow quite cold in the Crucible before you take it out. 'Tis advisable also, at the same time, to put a Cork in the Neck of the Bottle, instead of the paper Stopple, to prevent as much as possible the Ingress of the Air into the Matrafs.

If the Matter, which is at the Bottom of the Matrafs, turns to Powder in the stirring, 'tis a Sign that the Operation is well perform'd; if it form a Cake, which will not resolve into Powder at the shaking of the Matrafs, it shews that the Powder was not roasted and dry'd enough, in the iron Pan, during the preparatory Operation.

Having successfully gone through the Operations, that is, having got your Matter in Powder in the Matrafs, pour a little of it, about the Quantity of a small Pea, upon a Bit of Paper, and quickly stop the Bottle again. In a Moment after the Powder has been upon the Paper, it will begin to smoke, and at the same time to kindle, and will set Fire to the Paper, or any other combustible Substance.

If you happen to pour too much Powder out of the Matrafs, you must not put it back, tho' it be not yet kindled; for it would be sure to set Fire to all the Powder in the Matrafs. Hence it appears, that there is no pouring of it from the Matrafs into another Vial, but it must always remain in the same Vessel where it was calcined.

This Powder is of different Colours, sometimes black, brown, red, green, yellow, and even white, according to the Vessel in which the preparatory Operation is made, and according to the Degrees of Fire given it under the two Operations. If you mix too much or too little Alum with the Excrement, the Powder will not kindle.

It kindles in the Day, as well as in the Night, without putting one to the Trouble of rubbing, chafing, or even mixing it with any other combustible Matter; and in this respect it is different from all the other facitious Phosphori as yet known to us; for that made of Urine stands in Need of a small Degree of Heat in order to make it shine or kindle. The *Smaragdine Phosphorus* requires a great deal of Heat before it can produce its Effect. The *Bolognian*, and the *Phosphorus of Baldwinus*, only shine during the Day, but produce no Effect in the Night. The distill'd Oils of Cinnamon, Cloves, *Sassafras*, and some others, do not kindle without Fire, unless they be mixed with well rectified Spirit of Nitre. The Phosphorus describ'd by me in the Memoirs of the Academy for the Year 1693, does not become luminous till briskly rubb'd, or struck with some hard Body.

I have only yet made this Powder of Ordure or Excrement: But I am persuaded it may also be made of Urine; and I even believe, that Urine, treated in this Manner, will yield a greater Quantity of its Phosphorus, than when manag'd in the common way; and that its *Caput Mortuum*, even after the Distillation of the Phosphorus, will yield this Powder.

I have made three different kinds of it. The first sets Fire to combustible Substances, without appearing to be kindled itself: The second not only kindles them, but burns itself like a Coal: And the third, at the same time that it kindles other combustible Substances, flames itself like a Wax-candle, according as it has had more or less Fire in its Preparation, or more or less Alum in its Composition.

In order to preserve this Powder good for any considerable time, it is necessary to keep it in a dry, well-air'd Place, to have the Bottle well-cork'd, with its Mouth always upright, and to cover it with Paper, or some other Substance; it is also proper it should be lodg'd in a dark Place, because a great Light spoils it as much as the Humidity of the Air, tho' not so soon.

In order to have a tolerable Idea of the precise Manner in which this Powder kindles, 'tis necessary to remember, that 'tis a Substance strongly calcin'd by the Fire, and that by that Calcination it has lost all its aqueous Part, and the greatest Part of its Oil and volatile Salts. By this means it has acquir'd a great many large Pores, which the volatile Matter driven out by the Fire have left empty; so that the Powder which remains after Calcination, consists only of a spongy Contexture of earthy Matter, which has retained all its fixed Salt, and a little of its foetid Oil; but the empty Pores retain for some time

a Part of the Flame which enter'd them during the Calcination, almost in the same Manner with quick Lime.

As this is the Case, we must consider, that the fixed Salt which abounds in this Powder, quickly absorbs, as it commonly does, the Humidity of the Air that comes into Contact with it. This sudden Rushing of the humid Air into the Pores of the Powder, occasions a Friction capable of producing a little Heat, which, being join'd to the Parts of the Flame retain'd in the same Pores, generates a Heat sufficient to set on Fire the small Quantity of inflammable Oil which had escap'd the Rigour of the Calcination, and which is a Part of the Powder.

As a Proof of this it may be alledg'd, that when this Powder is kept in a Vessel that is not closely stop'd, it absorbs slowly, and by Degrees the Humidity of the Air that reaches it, which not being able to produce a Friction sufficient to generate a sensible Heat, spoils the Powder, so that it will kindle no more; just like quick Lime when expos'd to the Air for some time, retains its Heat no longer, because it has by little and little absorb'd too small a Quantity of Humidity at a time, for producing a Friction capable of exciting Heat.

Quick Lime, which contains Particles of Fire, as well as our Powder, does not produce Heat by the Humidity of the Air alone, as our Powder does, but it must be moistened by throwing Water on it before it has the same Degree of Heat. The Reason of this is, because the Lime does not, like our Powder, contain a Salt capable of absorbing a great deal of humid Air at a time, the violent Rushing in of which might produce Heat; but Water, when thrown upon it, rushes into it suddenly enough to produce the same Effect.

And the Reason why quick Lime does not, like our Powder, produce a Flame, tho' it contracts as great a Heat, is, because in quick Lime there is no oily Matter capable of being kindled by the Heat excited, as there is in our Powder; but if an Oil be artificially mix'd with quick Lime, it kindles in the same Manner.

We said before, that a free Light spoils this Powder, tho' shut up in a glass Vessel well stop'd. The Reason of this is, that the Friction produced by the Rushing in of the Humidity of the Air, is not the only Cause of a Heat capable of kindling the Oil contain'd in our Powder: The Particles of Fire which it has retain'd in its Pores, contribute also something to that Effect: And as in the Day-time when the Matter of the Light always in great Motion perpetually strikes the Powder through the Glass, it disengages by little and little that Fire which had been lodg'd in it during Calcination; and diminishes it so much, that at last there remains no more of it to join the Heat produced by the Friction of the Air's Humidity, and is consequently render'd incapable of kindling. *Mr. Homberg, Mem. de l'Acad. Roy. des Sciences, Ann. 1711.*

An Account of different Substances, which, join'd with Alum, make a Phosphorus. By M. Lemery.

M. Homberg having given us, in the Memoires of 1711, a Description of a new Phosphorus, made with Alum and human Ordure, which being expos'd to the Air thence as well by Day as by Night, and set on Fire every combustible Matter that came near it, and need'd not to be rubb'd or chafed like what is made of Urine by Distillation, it put me upon examining whether there were no other sulphureous Matters capable of producing the same Effects in Conjunction with Alum.

My first Operation was upon Urine, whence, I thought, agreeable to Mr. Homberg's Opinion, the greatest Quantity of Phosphorus could be extract'd by a well known Method, I evaporated then a good Quantity of Urine to the Consistence of thick Honey: Of this I took four Ounces, which I mix'd with the like Weight of Roch-Alum pulveris'd in an Iron Pan over a small Fire, to consume the Humidity, continually stirring and breaking it till it was perfectly dry; and when it was cool, I reduced it to Powder, and kept it in a dry Place.

After this I put it in a small Matrafs, of which it took up a third Part, and stopp'd the Neck with a Stopple of Paper. I then took a Crucible, of the Depth of four or five Fingers, in the Bottom of which I put a little Sand, and placed the Matrafs upon it, and surrounded the rest of the Matrafs with Sand. This done, I placed the Crucible in a little Stove, and made a Fire about it of one Degree of Heat for half an Hour. When the Vessel was hot, I augmented the Fire till the Matter grew red, which took up about an Hour and a Quarter. Then I let the Fire go out, and stopp'd the Bottle very well with a Cork, taking care however to let it cool by Degrees before I quite clos'd it, lest the Vessel should burst, which indeed once happen'd, when having stopp'd my Matrafs too soon, the rarefy'd Vapour which continu'd to ascend from the Matter, finding no Vent by the Neck, burst a Hole in the Bottom of the Matrafs, and moreover destroy'd in a manner the Shape of the Vessel, which being pretty thin, the sooner gave way to the Efforts of the Vapour.

When the Matter was cool enough, I pour'd it upon a Paper, and it neither burn'd nor so much as heated it. It was of a grey Colour.

The same Process serv'd for all the other Substances I try'd afterwards. Blood with an equal Quantity of Alum made a Phosphorus that kindled pretty quick.

The Yolk of an Egg, manag'd in the same manner, made a very good Phosphorus, but the White did nothing at all.

Cantharides, and Earth-worms, did not succeed very well. Beef, Mutton, Veal, chopp'd and pounded long enough to make them pass through a Sieve, and mix'd with an equal Quantity of Alum, produced a Phosphorus like that of Blood.

Among animal Substances, Urine, and the White of an Egg, being the only ones that would not serve for a Phosphorus with an equal Quantity of Alum, I try'd what double the Quantity of Alum would do, but without Success.

Afterwards I made Trials whether those Phosphori, which had succeeded with an equal Quantity of Alum, would succeed with double the same; in which Procedure Blood, the Yolk of an Egg, the several sorts of Flesh before-mentioned, Flies, and Worms, made a Phosphorus, which seem'd to me to kindle quicker than when I us'd an equal Quantity of Alum: This gave me the Curiosity to augment by Degrees the Quantity of Alum.

I observ'd, that six Parts of Alum to one Part of the sulphureous Substances before-mention'd made a Phosphorus that burnt more briskly than those of the preceding Trials. Seven Parts of Alum did as well as six; but eight had scarce any Strength at all, and would not kindle but when it was hot, and just taken out of the Fire; and two or three Hours after it was made, would do nothing at all; whereas the others kept their Virtues above eight Days, provided they were well stopp'd.

Ten Parts of Alum to one of those sulphureous Substances never made any Phosphorus: Urine, and the White of an Egg, never succeeded with any Proportions of Alum which produc'd Phosphorus with other Matters.

From Animals I pass'd to Vegetables, and began with Seeds. The Flour of Wheat, Barley, and Rye, would not kindle with equal Quantities of Alum, as did the animal Substances; but from double to seven times the Quantity of Alum, the Phosphorus kindled better and better, and burnt almost as well as that made of Blood, or the Yolk of an Egg.

Honey likewise did nothing with an equal Quantity, but succeeded very well with six Parts of Alum.

The Leaves of Rosemary, Baum, and Senna, made a Phosphorus with two, three, and four Parts of Alum, but did nothing with five or six; but their Phosphorus did not hold long, and had no good Effect, but when it was a little hot: That of Senna seem'd stronger than the others.

Flowers with three and four Parts of Alum kindled well, especially Roses.

Woods of Sassafras and Guaiacum afforded a Phosphorus: But it must be observ'd, that in order to extract one from these Woods, the Fire must not be so great as for other Substances; without this Precaution you will obtain nothing.

The Roots of Orris and Rhubarb did not kindle well but with two or three Parts of Alum, and succeeded not with more.

As the Phosphorus is made by means of the oily Substance contain'd in those Bodies, I imagin'd that the Oils separated from the other Principles, might, as well as the other Substances above-mentioned, make a Phosphorus. But I found a great Difference, for they produced nothing with an equal, double, or triple Quantity of Alum; and though, by gradually increasing, five Parts of Alum to one of these Oils afforded a Phosphorus, yet it was very languid in Comparison of one extract'd from Animals and Seeds. What was particular, they kindled with ten Parts of Alum, which other Matters would not do. 'Tis true, ten Parts of Alum to one did not make so good a Phosphorus as five to one. The Oils I made use of were those of sweet Almonds, Olives, Guaiacum, and Hartshorn; of these the two last did best.

After this I divert'd my Operations to Minerals and Metals, as Iron, common Sulphur, Antimony, golden Sulphur of Antimony, and some others. I mix'd them with different Proportions of Alum, but not one of them produced any Flame, nor so much as Heat; whence it appears, that to make such a Phosphorus as M. Homberg's, we must have recourse to animal and vegetable Substances.

I shall next examine, whether any other Salt may be substituted instead of Alum, in order to make this Phosphorus.

By the different Analysis of Salts that are known to us, it appears, that the Acid of Vitriol, common Sulphur, and Alum, are of the same Nature, I had therefore a Mind to try if one of these might not be substituted for the other. And as M. Homberg had observ'd, that he had rare Success with Colcothar, I fancy'd that Vitriol, which is much more pregnant with Acids, might have more Effect: I us'd it then after the same manner as I did Alum, but to no Purpose; I could never make any thing even of Colcothar, whatever Trials I made. Perhaps I was wanting in some Circumstances, having several times experienc'd, that the Success of some Operations

which

which I made on Vegetables, often depended either upon a little Variation of the Fire, or the Quantity of Alum.

I next try'd Salt of Sulphur, which is known to be an artificial Salt, compounded of the Acid of Sulphur, incorporated into the Pores of Salt of Tartar, but with the same Success. Sea-salt, Crystals of Tartar, Borax, vitriolated Tartar, and Salt of Tartar, mix'd in different Proportions with these Substances, had no Effect.

Saltpetre in our Operation did as it uses to do when mix'd with other oily Substances; that is, when the Matter has been warmed, it flew out of the Matrafs with a great Noise and Detonation, and consequently no Phosphorus was to be made of it: But if to a Phosphorus made with Alum, and just on the Point of kindling, you add Saltpetre well dry'd, at the rate of two Drams to half an Ounce of Matter, which you may mix together very well in the Matrafs; after it is close stopped, you will find, that being pour'd upon Paper, the Phosphorus will burn with much greater Strength, than it did before it was mix'd with the Sulphur.

Lastly, I was willing to see if Acids, disengag'd from their earthy or metallic Parts, as they actually are in Spirits of Nitre, of Salt, and of Vitriol, would succeed better than the concreted Salts from whence these Spirits were extracted; but all these, together with the Spirit of Alum itself, had no better Success than the Salts before-mention'd. *Memoires de l'Acad. Roy. des Scienc. 1714.*

Though a vast Variety of oily Substances are proper to enter the Composition of M. *Hamburg's* Phosphorus, yet no other acid Mineral is necessary to be join'd; than what that Gentleman only used, which is Alum. We shall give a general Idea of this Phosphorus, which is of such a Nature, as at all Times, and without any Assistance, to be kindled by Air alone. For the better understanding how this is to be effected, we shall make use of two known Phosphori. The first which has not the Name, and but imperfectly the Nature, is Lime: It is full of an Infinity of fiery Particles, introduc'd by Calcination, and imprison'd in an Infinity of little Cells. This Matter, being extremely dry, greedily receives the Water poured on it; and the Water impetuously penetrating and opening the Prisons of these Particles of Fire, frees them, and so causes an Effervescence, and a very sensible Heat, over all the Substance of the Lime. This Water kindles this kind of Phosphorus, not by itself, but by the Liberty of Action which it procures to the Particles of Fire.

The second Phosphorus is the essential Oils of *Indian* aromatic Plants, which kindle into a Flame as soon as you pour on them acid Spirits well dephlegmated.

In these two Phosphori the Water does not act immediately of itself. In the first we have already prov'd it; in the second, the Acids alone act on the Oil, which is almost entirely void of them; and the Phlegm or Water, in which these Acids swim, is no more than their Vehicle. This second Phosphorus only burns, because there is nothing but Sulphurs or Oils that will burn, of which there are none in the Lime; and Oils themselves will not burn, but when they are animated by some Acid. Common Sulphur wholly depriv'd of it would not burn. We are certain then, that an oily Matter, whose Acids are separated from it, will be set on Flame, as soon as Acids of a good Degree of Purity shall come upon it, so as to penetrate it with Violence.

But if you would have the Matter be kindled by the Air only, the Air will not furnish the necessary Acids; for it either contains them not, or not in a Body strong enough for the Purpose. The Acids then must be contained in the oily Matter of the Phosphorus, but in such a manner, as not to be intimately united with it, but only, as it were, mixed with it by small separate Parcels, so as to want a more perfect Union.

For this End the Acids must be for the present shut up in their little Cells, but in so loose a manner, that the least Shock will dislodge them, and make way for their sudden Irruption into the oily Matter, and Penetration into its most intimate Parts. To this Purpose the Air will be sufficient, not of itself, but by the aqueous Humidity it contains, that is, by the very small Parcels of Water, which, by dissolving the Acids that are proportion'd to them, put them on Action. This subtle and invisible Water works the same Effect in this Phosphorus, that the gross and common Water did in the two others of which we have spoken; for besides putting the Acids in Action, it also disengages the Particles of Fire which the new Phosphorus requires in the Operation.

Here you have the System of this Phosphorus: It is no easy Matter to prove by Ratiocination, that such a thing is possible to be effected; but as we know by Experience, that it is actually so, these are probably the Principles of its Formation.

Hence we see of what a delicate Nature it is, and how the Circumstances on which it depends ought to be just, and the Quantities of Ingredients nicely proportion'd: For Example, that the oily Matter, which must be deprived of its Acids, and the concrete Salt, which is to supply the Acids, might be cal-

cined together, there is nothing but Alum which can be that concrete Salt, which in spite of Calcination preserves a Quantity of Acids necessary for the Effects of a Phosphorus, and also keeps them as loosely confined in their Cells, as the Matter requires. This depends almost upon an indivisible Point. The oily Matter having lost its Acids, which were carry'd off by the Fire of the Calcination, there remain their forsaken Cells, and it is the Alkali which absorbs the new supervening Acids: Wherefore, that there might be a sufficient Supply to fill these Cells, and to penetrate the oily Substance, it is necessary that the Quantity of Alum be exactly proportion'd to the particular Nature of the oily Matter. The more Alkali or fixed Salts remain after Calcination, the greater is to be the Quantity of Alum; for which Reason animal Oils, which have less fixed Salt than Vegetables, need a less Quantity of Alum. *Hist. de l'Acad. Roy. des Scienc. 1715.*

M. *Boulduc*, resolving to make an Examen of *Ebsom's* Salt, was immediately inclined to think, by some Marks, and especially the Swelling of that Salt, when it is begun to be distilled, in which it altogether resembles calcined Alum, that it participated much of an aluminous Nature; to discover which, he made continual Operations upon Alum combined with other different saline Substances. What succeeded best was Salt of Tartar, or Oil of Tartar *per Deliquium*.

Alum is an acid Spirit, which is impregnated in the Bowels of the Earth with earthy and alkaline Particles, enough to make it a concrete Salt. Now Salt of Tartar, pour'd on a Solution of Alum, being a more powerful Alkali than the earthy Matter united with the Acid of Alum, forces them to separate, and the Earth of the Alum precipitates, and there is a new Union of the Acid of Alum, with the Alkali of Tartar, whence results a new concrete Salt, entirely divested of its earthy Matter.

After M. *Boulduc* had made several Trials, and given his Salt all the Perfection he was able to do, he found it in all respects resembling that of *Ebsom's*, only not quite so bitter, but the Difference was too inconsiderable to be regarded. But this Salt of M. *Boulduc* had the Advantage of being discharged of its earthy Part, which the other wanted; for when mixed with the Oil of Tartar, it precipitated a white and earthy Matter, like what was precipitated from Alum after the like Mixture, and even somewhat more in Quantity. M. *Boulduc*, who thought himself the Inventor of this Preparation of Alum with Salt of Tartar, found it afterwards in *Hartman's*. *Hist. de l'Acad. Roy. des Scienc. 1718.*

M. *Geoffroy* discover'd, that the Basis of Alum was a Solar Earth dissolv'd by an Acid.

Boles are a sort of fat, soft, brittle Earth. The Pieces of Pipes in *Holland* which are made of these sorts of Earth, and the Fragments of our common Pottery-ware, which imbibe a good deal of Acid, because the Fire which bak'd them, open'd their Pores, afforded true Crystals of Alum: And it is further observable, that these Pipes, at the End of two Years, shot forth fine Threads like those of plumose Alum, which grew and vegetated in the Air. *Histoire de l'Academ. Royale des Sciences, 1728.*

M. *Geoffroy*, before quoted, says, That

Besides those Mines which contain Sulphur, Vitriol, and Alum, there are some purely of Alum. They who have hitherto written upon that Salt, have told us, that the Base which coagulates the vitriolic Acid, is a white Earth not vitrifiable, and of the same Nature as Chalk.

I have prov'd by Experiments, says he, that this Earth is dispersed and mixed in very many Substances, and especially in Boles and Clays that are bak'd, since they have all afforded me, with the Acid of Sulphur, or the Acid of Vitriol, that Salt [Alum] which I had a Mind to imitate: It is no longer surprising then, that there should be Glass which produced Alum, since it inclosed Matter capable of forming it, as soon as the vitriolic Acid should have Strength to make its Way between the Laminæ of the Glass, where that Earth was lodged, in order to join it.

My Experiment for producing Alum, that best succeeded, was thus managed: I took some of our common Potters Vessels that were not varnished, but porous and brittle, and sprinkled them with Spirit of Sulphur, and they imbib'd it more perfectly than Earths not bak'd, because their Pores are more open. They fermented slightly with this Spirit, which in the Digestion became mucilaginous; and that Mucilage, being exposed to the Air, produced Crystals of Alum, which increased by Degrees, and took the most exact Figure that was possible for that Salt to have. *Memoires de l'Acad. Roy. de Sci. 1728.*

The factitious Alum is distinguished only by the Countries where it is made, into a great many different kinds; and if it is in large Masses, like Rocks, it is termed Rock or Roch-Alum; and if it looks like the Fragments of Ice, it is termed Glacial, or Icy-Alum. Factitious Alum was entirely unknown to the Antients, but with us is the only kind in Use; for we now know very little of the natural kinds, which were formerly so common.

common. *M. Tournefort* found two Species of natural Alum in the Island *Milos*, or *Milo*; one was in *Strata*, or *Crusts*, of an astringent Taste, and an Ash-colour, covered with some filamentary Efflorescences, which smelled like *Aqua fortis*, but not near so strongly: The other was the capillaceous or filamentary kind, or true *Alumen Plumosum*; it was in small Pieces, of the Thickness and Length of a Man's Finger, and might, by beginning at the Ends, be easily divided into small greyish Filaments, resembling a Tuft, or Pencil; it was soluble in Water, and melted in the Fire, and of an astringent Taste. Even in *Dioscorides's* Time, this Alum seems to be confounded with the *Lapis Amiantus*; for that Author, talking of the Sciffile-Alum, observes, that there was a Stone very like it, and that the way to distinguish them was by the astringent Taste of the Alum, which the Stone had not: And he might have added, That it could not be melted by Fire, nor dissolved in Water. The History of Medicines being afterwards quite lost in the Ages of Ignorance and Darkness, the Name of the Salt was given to the Stone, and from thence it is, that it is still found thus mistaken in some Dispensatories.

Alum is a strong, astringent, acid Drier: The native Alum smells a little like *Aqua fortis*, but the factitious has little or no Smell; when thrown upon live Coals, it rises in Bubbles, and melts in Water: The Crystals of Alum have eight Sides, representing an hexagonal Pyramid, with the Angles cut off, or they are bounded by four hexagonal and four triangular Surfaces. A Solution of Alum coagulates Milk, turns the Tincture of Heliotropium purple, makes no Alteration in the Solution of corrosive Sublimate, turns the Infusion of Galls turbid and whitish; with Salt of Tartar it concretes into a white Coagulum, without any sensible Heat or Smoak; and often upon mixing this Solution with Oil of Tartar, an urinous Smell is perceived; but this happens only when the Alum has been purified with Urine, as in the *English Alum*; but there is no such Smell in the *Roman*.

In Fluxes of Blood Alum may be used inwardly, in the following manner:

Take Rock-Alum, a Dram; Plantane, and Knot-grass Water, of each three Ounces: Add to the Solution, Syrup of White-thorn, an Ounce: For a Julep, to be taken by Spoonfuls. Or,

Take of pure Rock-Alum, two Ounces: Melt it over the Fire, adding, in the mean time, of the finest Powder of Dragon's-blood, half an Ounce; and make this Mixture, before it grows hard, into Pills as big as a small Pea. The Dose is from a Scruple to a Dram, every four Hours, till the Flux is stopped, and then once or twice a Day for some Days afterwards. After every Dose, the Patient ought to drink a large Draught of some proper Liquor; but great Care is to be taken not to stop the Flux unseasonably, and therefore Bleeding ought to go both before and after it; and Clysters ought likewise to be administered, from time to time, to prevent Costiveness, which commonly follows on taking this Medicine. *Geoffroy*.

Something different from this, in the Proportion of the Ingredients, is that Pulvis Stypticus mention'd by Dr. *Alexander Thompson*, of *Montrose*, in the following Dissertation:

Scribonius Largus, the *Roman* Empiric, made use of simple Alum in the Evacuations of the Sex exceeding their due Bounds; and I have been told by Ladies, that it has very good Effects.

Helvetius improved on this, by adding Sanguis Draconis, whether as a Larva, to make it his own, or to prevent the Uneasiness of the Stomach, which he might suspect the Alum might give, I can't determine: But Dr. *Pitcairn*, whose Memory must continue as long as Physic is known, was the first who introduced the Use of it into this Country; at least, it was he who first desired me to make Experience of it in a Case which had resisted a great many other Medicines. Its Reputation kept up many Years, under the Name of Pulvis Helvetii, as an Astringent, especially in uterine Hæmorrhages; and I see it inserted in the *Edinburgh Pharmacopœia*, by the Name of Pulvis Stypticus, tho' in some different Proportion, and different Manner of preparing, from what I have commonly used. The Dispensary Powder being prepared of a double Quantity of Alum to one of the Gum, and made into a Powder, without being put near to the Fire, whereas what I have used was equal Parts of both, the Alum being first melted in a Crucible, and the Powder of the Sanguis Draconis added to it, and then powdered together in a Mortar, possibly the Difference of their Effects may, notwithstanding, be very little.

The Use of both, I think, is now much laid aside, which I cannot but regret, since I never found any Medicine (and I have tried several) so much to be depended on in all the ute-

rine Hæmorrhages, whether to correct the too frequent Return of the Menfes, or their too great Abundance; to stop the Flooding which Women with Child are so subject to, or to moderate the Flow of too plentiful Lochia. I have tried it in so many Cases with Success, that it would be altogether tedious to give you their Histories.

The Quantity I give of the Pulv. Helvetii is more or less according to the Exigencies of the Patient. In violent Bloodings I give half a Dram every half Hour, and seldom or never miss to stop it before three Drams, or half an Ounce, is taken.

The Success of this Medicine, in these bloody Evacuations, has encouraged me to prescribe it also in the Fluor Albus, that obstinate, pernicious Disease of the Sex, in which I have been surpris'd at its good Effects. *Edinburgh Medical Essays*, Vol. 4. p. 38.

When it is proper to prevent or check a beginning Defluxion in a Quinsy, Gargles may be made with Alum, in this manner:

Take Red-rose Leaves, and Alum in Crystals, of each a Dram: Boil them in eight Ounces of Plantane Water; and in the strained Liquor dissolve an Ounce of Syrup of Mulberries, for a Gargle.

In Inflammations of the Eyes, the following Collyrium is excellent:

Let the White of an Egg be shaken or beat with a Piece of Alum, till it acquires the Consistence of an Ointment: Spread this upon a Linen Rag, and lay it warm to the Eyes.

Riverius orders this Collyrium to be taken off after two Hours, lest it should by its Astringency so far contract the Vessels, as to fix the obstructed Fluids in them. Some Physicians are of Opinion, that repellent and astringent Collyriums should not be applied to inflamed Eyes immediately after the Inflammation appears, lest the Fluids still in Motion should be fixed in the affected Part, and thereby the Obstruction be increased; but except the Motion of the Fluids toward the inflamed Part be very violent, this Precaution is unnecessary; and, on the contrary, by increasing the Strength and Contraction of the Vessels, these Applications enable them to resist the Force of the Fluids, whilst at the same time other proper Means are to be used to divert their Course another Way, such as Bleeding, Blistering, Purging, Cupping, and the like: Besides, if we stay till the Quantity of the obstructed Fluid is very much increased, it is in vain to think of applying Astringents, which would serve only to condense them more, and prevent their being resolved. In scorbutic Disorders of the Gums, the following Wash is very proper:

Take of Camphire, an Ounce; Crystal-Alum, two Ounces; Sugar-candy, four Ounces; French Brandy, a Quart: Let them stand in a quiet Place for two Days, and then strain off the Liquor, and keep it for Use.

Alum is by some reckoned a great Specific in intermitting Fevers, when prepared in this manner:

First calcine it in an open Fire; and while it is still hot, throw it into Vinegar, and let it dissolve; evaporate the Solution, and beautiful Crystals will be formed. It is to be taken from a Scruple to a Dram, in a proper Vehicle, before the Fit.

The usual Preparations of Alum are, Purification, Distillation, and Ustion or Calcination: It is purified by being dissolved in fair Water, and then by evaporating and crystallizing that Solution in the common manner. It is distilled like Vitriol, and the first thing that comes over is an insipid Phlegm, then an acid Spirit nearly the same with Spirit of Vitriol. What remains in the Retort is a white, light, friable Substance, called Burnt-Alum; being Alum deprived of its Phlegm, and some Portion of its Acid, and by a new Solution and Evaporation, it will run into Crystals, as before Distillation. The Phlegm of Alum would be perfectly useless if pure; but as it contains always some Portion of the Acid, and some Alum also, which sticks in the Neck of the Retort, it becomes a very useful external Application in chirurgical Cases, for moderating Inflammations, and drying Ulcers. One Dram of Alum dissolved in six Ounces of this Phlegm makes an Alum-water, which is an excellent Detergent for Wounds and Ulcers. The Spirit of Alum is used the same way as Spirit of Vitriol. Burnt-Alum eats away fungous Flesh, and is usefully sprinkled upon Linen, to absorb bad Smells arising from any Part of the Body. *Geoffroy*.

Alum is thus order'd to be burnt by the College :

Take any Quantity of Alum, put it into a new earthen Pot, and let it burn in it as long as it will bubble up, and raise any Steam : When it is cold, keep it for Use.

Bates has three Preparations of Alum : The first he calls

ALUMEN DULCE, Dulcify'd Alum.

Dissolve Alum in Water, and coagulate ; repeat this three times, that the Alum may be purify'd. This is also called Saccharum Aluminis, and is commended in Diseases of the Breast, especially if they take their Rise from mineral and subterraneous Exhalations. It gives Ease in the Tooth-ach, if applied to the Gums. The Dose is half a Scruple.

The second is called **ALUMEN FEBRIFUGUM**, which he takes from *Mynsicht* :

Dissolve three Ounces of Alum, in one Pint and an half of Carduus-water, sufficiently ting'd with Dragon's-blood, and strain'd, and then exhale till dry. The Dose one Scruple before the Fit comes on. It provokes Sweat.

The third he calls **ALUMINATUM** :

Take Lemon-juice, one Pint ; Alum, half an Ounce : Boil and skim them. This is of great Service in Redness of the Face, and Pustules, drinking in the mean time the *CEREVISIA CATAPSORAS*.

ALUNIBUR, (*Luna*) the Moon, or Silver. *Rulandus*.

ALUNSEL, (*Stilla*) a Drop. *Rulandus*.

ALUSAR, Mauna. *Rulandus*.

ALUSIA, *ἀλυσία*, from a Negative, and *λύω*, to wash. It signifies a Defect, or Neglect of washing.

ALUTA. It signifies a soft thin Leather, us'd to spread Plasters upon. See *SCUTOS*.

ALVUS, the Belly in general ; but the Word is used by *Celsus* for the Belly relative to Stools, in much the same Sense that *καίμα*, or *καίμιν*, is us'd by *Hippocrates*, and the other Greek medicinal Writers. Thus *Celsus*, (*Lib. 2. Cap. 41.*) speaking of the bad Symptoms in Fevers, says, That when the Belly (*Alvus*) is entirely suppressed, that is, when there are no Stools, it is a bad Circumstance ; as it is also when the Belly is so loose in Fevers, that it will not suffer the Patient to rest in his Bed, provided what is discharg'd is very liquid, or white, or pale, or frothy : Moreover it portends Danger, if what is excreted is small, glutinous, smooth, white, and palish ; or if it is livid, or bilious, or bloody, or more than ordinarily offensive. Those Stools are also bad, which after long Fevers are sincere. See *ACRATOS*.

The Antients had various cathartic Medicines, and were very attentive to keep the Belly loose in almost every Distemper. For this Purpose they prescribed black Hellebore, Polypody of the Oak, (*Filicula*) Squama *Aëris*, called by the Greeks *λεπὴ χαλκή*, and the Milk of the Sea-lettuce, which, dropped upon Bread, purges powerfully ; or they boiled the Milk of Asses, Cows, or Goats, with a little Salt, till it curdled ; and then taking away the Curd, preserv'd the serous Part for a Draught.

But Medicines are generally hurtful to the Stomach, and therefore all Cathartics ought to have a Mixture of Aloes. If the Belly be vehemently loose, or is too much purg'd, the Body is weaken'd ; therefore it is never right to prescribe Remedies, with that Intent, in any Distemper, except it be without a Fever ; as when we give black Hellebore to such as are afflicted with black Bile, [*atra Bilis*] or in that Species of Madness which is attended with Sorrow, or to those who are paralytic in any Part ; but where there is a Fever, and we would have the Belly loose, it is best to prescribe such Meats and Drinks as are both opening and nourishing ; and there are some Diseases in which purging with Milk is most proper.

The best Way of procuring Stools, is generally by Clysters, which *Aesclepiades* censur'd, but in such a manner, as not utterly to banish them out of Medicine ; but in the present Age they are much disused. However, it is best to use the same Moderation which that Physician seems to have followed, and neither to fatigue the Patient by frequent Clysters, nor to omit giving one, or two at the most, when the Case seems to require it ; as when the Head is heavy, in a Dulness of the Sight, and in a Disorder of the great Intestine, which the Greeks call *καλόν* ; if there be a Pain in the Belly below the Navel, [*in imo Ventre*] or in the Hip ; if there be a Conflux of bilious Juices in the Stomach, or if Phlegm, or any watery Humour, infest that Part ; if there be a Difficulty of Breathing ; if there be

no spontaneous Motion to stool ; if the Forces be near their Outlet, and yet stick in the Passage ; if the Breath of the Patient, who is bound, smell of the Excrements ; if what is voided be corrupt ; if Abstinence, first try'd, has not taken off the Fever ; if the Strength will not admit of bleeding when convenient, and the proper Time for it is elaps'd ; if the Patient drank freely before the Disorder happen'd ; if a Person becomes suddenly collicive, who before was us'd to frequent Stools, spontaneously or accidentally. But this must be understood with these Limitations, that we do not administer a Clyster till the third Day ; nor whilst any Crudities subsist, nor to a Patient weak or exhausted by Sickness, or whose Belly discharges freely enough every Day, or whose Stools are of a liquid Consistence. We should also beware of giving a Clyster in the Violence of a febrile Paroxysm ; for what is then given passes not through the Belly, but is cast back, and flies up to the Head, with much greater Danger to the Patient. Abstinence is to be enjoind the Day before, that the Party may be the fitter to undergo the Operation ; and on the same Day, some Hours before the taking of it, warm Water is to be drank in order to moisten the upper Parts ; then a Clyster is to be injected of pure Water, if a slight Medicine will serve the Turn, or of Mulla, if something stronger be requir'd ; for a Lenient, take a Decoction of Fenugreek, Pisan, or Mallows ; and for a Repressive, a Decoction of Vervain, Sea-water, or any other impregnated with Salt, is of an acrimonious Quality ; but its Acrimony is increased by an Addition of Oil, Nitre, or even Honey : The more acrimonious it is, the stronger is its Force, but the more difficult to be born. What is injected must be neither hot nor cold ; for either may do hurt. After Injection the Patient ought to keep in Bed as much as possible, and not be too hasty to give way to the first Motion, but go to the Stool when he can no longer contain it. Much after this manner are the superior Parts relieved, and the Violence of the Disease abated, by depriving it of the Matter that supports it : Moreover when the Patient has gone to the Stool as often as Necessity requir'd, and is pretty well exhausted, he ought to take a little Rest, and to eat something the same Day, that his Strength may not fail him ; but whether little or much is to be indulg'd, is to be regulated according to the more or less Apprehension we are under of the Approach of the Paroxysm. *Celsus, Lib. 2. Cap. 12.*

Purging the Belly [*Alvus dicta*] often relaxes the Rigour of the superior Parts. *Celsus, Lib. 4. Cap. 3.*

Nothing more contributes to the Cure of Deafness, than a bilious State of this Part. *Celsus, Lib. 2. Cap. 8.*

Costiveness of the Belly for several Days together, indicates either a sudden Motion to stool, or a slight Attack of a Fever coming on. *Celsus, Lib. 2. Cap. 7.*

They who are of a loose Belly in their Youth, are generally collicive in their old Age ; and they who are bound in Youth, are often loose when old. A laxer State in Youth, and rather bound than loose in old Age, is most desirable. *Celsus, Lib. 2. Cap. 3.*

Binders of the Belly are Labour, sitting in a Chair, Fullers-clay laid over the Body, Diminution of Food, and eating once a Day instead of twice, little drinking, and that only after a full Meal, Rest after Meals. On the contrary, Things which loosen the Belly are walking and eating more than usual, stirring after Meat, intermixing Draughts with eating. And it ought to be observed, that a Vomit binds a loose Belly, and loosens a bound one ; and that a Vomit taken immediately after Meat binds the Belly, but delay'd till a considerable time after loosens the same. *Celsus, Lib. 1. Cap. 3.*

The Belly various in its Excretions prognosticates Death ; as when it voids Strigments, (roapy Strings) Blood, Bile, green Excrements, sometimes at different Seasons, sometimes all together, and in a sort of Mixture, tho' distinct. But under these Symptoms Death may not be immediate, which however comes on precipitately, when the Excretions are liquid, and black, pale, or fat, and exceedingly fetid. *Celsus, Lib. 2. Cap. 6.*

A Whiting [*Astellus Marinus*] boiled with Dill, and season'd with a little Oil and Salt, cures all Diseases of the internal Parts, especially of the Belly when infested with acrimonious Humours. *Actius, Tetr. 1. Serm. 2. Cap. 184.*

In Wounds of the Head, a spontaneous Excretion from the Belly portends Death, but the contrary gives Hope of a Cure. *Cassii Problem. 11.*

If Constipation of the Belly occasion a Pain in the Head, let it be your principal Care, by a proper Diet, and mild Cathartics, to render it soluble. Of these there is great Variety, and among these Salt. If Costiveness be owing to viscous Humours, use the following Medicine :

Take of Sal Ammoniac, two Drams ; of Pepper, and Euphorbium, each a Dram : And give three or four Scruples, or two or four Drams, in an Egg, or in Pisan, for a Dose.

If the Fault be not in the Viscosity of the Humours, make use of such Remedies as have Scammony for an Ingredient; the following, for Example:

Take of common Salt torrefy'd, three Drams; Pepper, two Drams; Scammony, a Dram. The Dose is a Cochlearium in an Egg, Bread, or in whatever you please.

These Salts are admirable for opening and purging the Belly, in the most gentle manner, without Gripping or Sickness. You may safely use these Medicines, and also those which have a Mixture of Euphorbium. But if the Belly is too loose, and the Head is in Pain by reason of a too great Dryness of the Habit, endeavour to restrain it by a proper Regimen, and proper Medicines. *Trallianus, Lib. 1. Cap. 11.*

Costiveness of the Belly is accompany'd with Heaviness of the Head, Vertigo, a Bitterness in the Mouth, with a Disrelish of, and Aversion to, Food. In this Case a Clyster gives immediate Relief; for it certainly very much concerns us, that the Belly should perform its Office. We meet with some who, at certain Seasons and Intervals, have the Benefit of spontaneous and copious Evacuations that way, and at the same time get rid of a Multitude of infesting Humours, whereby their Health is repaired. Others, by a plentiful Discharge, by vomiting of all sorts of Crudities, have prevented many threatening Disorders. But if these Evacuations don't happen at their usual Seasons, after they are grown into a Custom establish'd by Nature, many grievous Distempers usually come in their room. We ought, therefore, by all means, when these customary Excretions fail us, to be provided with the necessary Assistance of Art. The same Advice is no less proper with respect to stated Hæmorrhages by the Nose, or Hæmorrhoidal Veins; for if the Blood refrain its usual Course, without manifest Cause, either the Passages must be open'd for it, or its Redundancy diminished by breathing a Vein, except where a great deal of Exercise consumes, or Abstinence diminishes, the abounding Superfluity: For as too great and immoderate Evacuations render the Body weak and cold, and blunt the natural Faculties, so it is as certain, that the Retention of what ought to be eliminated and expell'd, depresses, clogs, and disturbs the Mind, and supplies Matter for Pains and Distempers to arise one out of another, which in Process of Time subvert the Strength, and dissolve the Fabric, of the Body. *Aëtuarius de Spir. Anim. Cap. 16.*

In all Fevers the Belly ought to be loose, unless Pus be evacuated, as it happens in Pleurisy, Peripneumonies, and Consumptions; for in these Cases, the greater the Evacuations, the worse is the State of the Patient. *Aëtuarius, Meth. Med. Lib. 3. Cap. 18.*

The Belly makes not salutary Excretions, when they are either too plentiful, or various and multiform. The Excretions offend in Quantity, when they bear too great a Proportion to the Aliment received; and the Cause of this is either a medicinal Quality in the Food, or some internal Disorder. When it proceeds from the former, it is easily remedy'd by Alteration of Diet; but when it is the Effect of some internal Affection, it must be either because the Body receives no Nourishment, or the Intestines are irritated by some Humour. The Body ceases to be nourished, and falls into an Atrophy, [*ἀτροφία*] either on account of its Dryness, or the Obstruction of the Passages, by which the Aliment is distributed over the Body. In this Case then we are to use such Medicines as are distinguish'd for their moistening Quality, in Conjunction with those that attenuate, and open, and cleanse the first Passages. But if some internal sharp Humour affect the Intestines, and still irritate them to the Expulsion of their Contents, we are directed to such Remedies as are best adapted to sweeten the Humours, and blunt their Acrimony. *Aëtuarius, Meth. Med. Lib. 4. Cap. 6.*

Excretions of the Belly, of the most approved sort, are soft, smooth, brown, or yellowish, and answering in Proportion to the Food received. When they transgress or change in these respects, they indicate an Alteration in the Temperament, either of the whole Body, or of the Stomach and Intestines. If the Temperament change to cold, the Excrements appear whiter, and more humid; if to Heat, they become of a redder or yellower Hue; if they fall short in Quantity, they are either dissipated by too much Exercise, or are diverted into the Urine: But if neither of these be the Cause of the Defect, it shews the Belly to be oppress'd with a Load of Excrements, and that it wants to be eased by a Suppository, or Clyster. If the Excretions are more than in Proportion to what is taken in at the Mouth, it indicates either, first, a less than usual Exercise and Motion of the Body, or an imperfect Distribution of the Aliment; or, lastly, shews the Stomach and Intestines to be infested with an acrimonious and stimulating Humour. In this Case, while the natural Colours continue to appear, there is no great Mischief to be apprehended; but Excrements of divers Colours, bloody, or like Abrasions, or

voided with Pain, and a Tenesmus, portend more grievous Disorders. One thing here especially deserves our Consideration, that in all Evacuations, whether spontaneous, or procured by Art, if nothing be carry'd off, but what Expediency requires, Nature bears it well, and is refresh'd thereby; but the contrary Management will be sure to produce an answerable Effect. *Aëtuarius de Spir. Anim. Cap. 14.*

When more Food is taken into the Stomach than can well be concocted, Plenty of liquid and whitish Excretions are made, and sometimes a sort of Looseness succeeds, during which some of the Contents of the Stools remain as they were from the Beginning; others alter their Colour, either into a better, which denotes Concoction, or into a yellow, accompany'd with liquid and bilious Excretions. All this while the Body feels little or no Inconvenience; for when the expulsive Faculty is irritated, and hastens to discharge itself of infesting Humours, it takes this Opportunity of a Looseness, to expel, besides Crudities, whatever is noxious: Wherefore we ought to be very careful, lest, while we inconsiderately labour to restrain the Violence of the Looseness, we put a Stop to the Current of a Humour which Nature endeavours to discharge. Further, it is to be observ'd, that sometimes the Humours conspire to bring on a Cholera-Morbus, and discharge themselves sometimes both ways, sometimes only downwards, by Excretions of an aqueous and bilious Matter, [*ὕδατος χολα*] which, if suffer'd to continue long without Help, bring on a Weakness and Lowness of Spirits, and even a Coldness and Syncope. The whitish, milky, and incoherent Contents of the Stools, denote the great Weakness of the digestive and alterative Faculty, from too great a Refrigeration, as the brownish and yellow always proceed from a Redundancy of Bile, occasion'd by an immoderate Heat. Sometimes the Excrements are white and consistent, like those of Dogs, but not often, nor in Abundance. The same thing happens in a Looseness, and is a Sign of the Obstruction of the biliary Duct that leads to the Stomach; whence the Urine generally becomes bilious, the Bile being diverted that way, and is also very often discharg'd by vomiting. But such Excretions are principally incident to those afflicted with the Yellow-jaundice, because the Bile, which should colour them, is diverted to the Skin. Moreover the yellow, with the brown and reddish, receive their Dye from yellow and red Bile, as the æruginous, porraceous, and the cabbage-colour'd, proceed from one kind or other of the same Humour. Black Excrements sometimes are from over-heated and extravasated Blood, and sometimes from a deleterious Bile. Sometimes the Stools appear of various Colours, mix'd one among another, which is still worse than any before-mention'd, because it denotes the Violence and Strength of the Humours.

Now all those Humours which we have mention'd, if voided freely, and without Pain, and on the critical Day, after Concoction, and the Patient finds Relief from their Expulsion, are accounted salutary Signs in all respects; but if they proceed from contrary Causes, a contrary Judgment is to be formed: For a Fainting and Lowness of Spirits, Privation of Sense, and a Delirium, and sometimes sudden Death, are their Attendants.

With what has been said may be connected, that Disorder of the Stomach called the Celiac Passion, which is owing to the Intemperies of the Stomach. For when that Part happens to be affected with too much Heat or Cold, Foulness, or Moisture, and the Intemperies passes into the Habit, the Celiac Passion thence takes its Original. In this Disorder, the Patient is thirsty, and somewhat feverish, has yellow and brown Stools, and is refresh'd by the Application of Coolers. Some are slow of Concoction, are seldom thirsty, and have crude Stools. They who suffer from an Excess of Humidity, are rack'd with Pain, and void nothing but a liquid and palish Excrement; but such as labour under this Disorder, through excessive Dryness, have small, but colliquative Excretions: These are more thirsty, and more difficult to cure, because they are more spent and wasted under the Distemper, by the exhausting of their natural Moisture. The Vomiting and Looseness together are very troublesome, and the Vitioufness of the Excretions are Matter of no small Concern; but their Quantity proves of the worst Consequence, because when more is excreted, than can well be spared, the natural Heat exhales at the same time; and the Body being exhausted and dry'd up by a too plentiful Evacuation, ceases to receive Nourishment. On the other Side, in a frequent Desire of going to stool, commonly called a Tenesmus, in a Diarrhoea, and what is vulgarly called an Hepatic Flux, or a Dysentery, or Lientery, it is not only the Quantity, but the Malignity, of the Matter excreted, that kills the Patient. For when the Bile becomes effervescent, and very acrimonious, and the Intestines subject to morbid Impressions, the bilious Humour corrodes and abrades them in its Passage; and if the Disorder be seated principally in the strait Intestine, it is called a TENESMUS, a Word that signifies *stretching*, because the affected Part is on the Stretch, and is perpetually urged to Excretion. In this continued and violent

violent Straining, there is nothing excreted but some mucous, bloody, liquid, and viscous Contents, which will hardly come away; so that by the repeated Labour of often going to stool, and rising from thence, the vehement Solicitation thereto, and the Tension of the Part, rather than by the Quantity evacuated, the Strength of the Patient is worn out.

If the Intestines are infested with an acrimonious Humour, it grates, and stimulates to Dejection, which Distemper is called a Dysentery. Here the Part affected is known by the Pain, which never leaves the Patient. If the Pain be felt below the Navel, the great Intestines are affected; if above, the Disorder lies in the small ones. In this Disease, if the Bile that comes away be not extremely bad, as in the porraceous, and the æruginous, (for the black in the Beginning is mortal) and if there be no great Fever, nor the Body full of putrid Humours, the Patient has not much to fear, especially if the Disease be seated below the Navel; but if the Case be otherwise, and the most remarkable Symptoms of the worst kind, the Patient is in great Danger. When the Distemper lies in the strait Intestine, the Excrements of the Aliment, and the Abrasions of the affected Part, are voided separately. But if the Disease be seated higher, the Superfluities of the Food, and the Abrasions from the distemper'd Part, come off mix'd together, and so much the more, in proportion to the higher Situation of the Malady. When the Colour and Consistence of the Excrements come nearly to those of a sound State, when the Pains are alleviated, and what comes off from the corroded Parts is less in Quantity, and of a better kind, as being voided at longer Intervals, the Physician may reasonably hope, that his Patient is out of Danger: But the contrary shews, that the Disease is exasperated. While the Distemper is moderate, the Abrasions are few, and but lightly tinged with Blood; and the Pains are remiss, with long Intervals. If the Disorder increases, the Stools are for the most part bloody; but if it still rises to a greater Height, and the Intestines begin to be ulcerated, first, Blood comes away in Abundance, then carnosus Abrasions, which are still larger as they grow worse, fetid, and of a Colour next to black. But the worst Symptom of all in this Case is, a Loathing of Food. Hence it is known, whether the Disease be of a malignant Nature, or otherwise.

A Lientery commonly owes its Original to an inveterate Diarrhoea, or Dysentery, into which one of these degenerates, and is the more grievous, as it finds the Patient already debilitated and exhausted. The Nature of this Disease is known by its Name; for it levigates and lubricates the Intestines, so that they can by no means, tho' but for a short time, retain the Food. This Case nearly resembles theirs who labour under a Subversion of the Stomach, so that they can't retain what they eat, but are forc'd to throw it up, in which Disorder, if the Patient happen to be molested with acid Eructations, it is a good Sign, that the Stomach will come to itself, and resume the Exercise of its Office. *Actuar. Meth. Med. Lib. 1. Cap. 20.*

If the Food does not lie heavy upon the Stomach, nor incommode it by its acrid Qualities; and if the Substance and Faculties of the Stomach itself, and the Belly, be sound and vigorous, the Work of Concoction is perform'd in a light and easy manner, and none, or but very slight, and no way troublesome, Eructations attend. The Belly, which receives the Aliment after Concoction, not feeling the least Oppression, after it has assumed to itself the humid Part, at some reasonable Distance of Time, discharges itself of what is superfluous, without Pain, and with no great matter of Trouble. What is thus excreted, is of a soft, smooth, and slippery Contexture, and of a pale, or at least a yellowish, Colour, unless it has received another Tincture from the Aliments. But further it must be observ'd, that these Contents preserve some Agreement, both in Quantity and Quality, with the Food. For if the Things received by the Mouth, transgress the Bounds of Moderation in either of these respects; if the Organs appointed for the Preparation of Aliment be subverted, or corrupted, by Meats of undue Temperament, or bad Juice, many and various are the Disorders that will ensue.

An Oppression from too great a Quantity of Meat or Drink is usually succeeded by Vomiting or a Looseness; or, if it be not carry'd off by Vomiting or Urine, it hinders Concoction, and breeds Crudities. If the Food be endu'd with some Quality much beyond Moderation, as with Heat for Instance, there arises a biting or pricking Sensation, and Uneasiness in the Stomach and Intestines, Head-ach, with nidorous and unfavoury Eructations. If Cold be too predominant, Flatulencies are excited, and sour Eructations, or such as indicate the Quality of the Food; with a Fluctuation, and Pains in the Intestines about the Region of the Navel (*σπέρη*). All these Disorders are composed, and Matters set to Rights, by Vomiting, or a plentiful Stool, with a spare Diet on Meats of good Juice. *Actuar. Meth. Med. Lib. 1. Cap. 18.*

The Belly happens to be bound, when the Excrements are diverted another Way, or are otherwise disposed of. In this Case there usually succeeds a greater Plenty of Urine and Sweat,

and more is digested and carried off by insensible Perspiration: While this lasts, no Inconvenience is felt; since the Superfluities find a Vent, and no Damage, provided they return to their proper Chanel: But when the Belly is coftive, and the Excrements find no other Canals, or Ways, to dispose of themselves, various Pains, and much Uneasiness afflict the Patient. For, in this Case, either the humid Part of the Fœces, that were first lodged, is exhaled, whence the rest is hardened; and the Intestines being lined with a tough and viscous Phlegm, the natural Passage is by that means stopped; or the expulsive Faculty languishes, and is too weak to perform its Office, either on account of its being inflamed, or from a Blow received, or the Confluence of some Humours. The Consequences of this Disorder are, an Aversion to Food, Pains in the Intestines, and moderate Eructations; which, at first, afford some Relief to the Patient. If the Disease continue long, the lower Parts grow cold, and the superior more hot, the Heat contracting itself; then arise fetid and unfavoury Eructations, which don't afford the same Relief as at first. In the Progress of the Distemper, the Food is vomited up, mixed with the Humours, and all Communication between the upper and lower Passages is cut off; whence, as the last Act of the Tragedy, the Excrements are voided by the Mouth, under which Symptom the Case is reckoned desperate. This Disease is called the Iliac Passion, (*εἰλεός*, *Lat. Convulsus*) from a Word which signifies to roll together, or twist; because the Orbs of the Intestines are rolled together, or twisted by it, from the Causes before related.

The Pains, Inflatons, (*εμπνευμάσεις*) and wringing Sensations, (*σπέρη*) which affect the great Intestine called the Colon, arise also from the forementioned Cause; or may be owing to the too frequent Use of cold and moist Eatables. For, by a cold Diet, Phlegm is accumulated in abundance, which is received into the Intestines, and especially into the Colon; because its Form and Situation particularly dispose it for such Reception. This Phlegm being burdensome, on account of its Quantity, and of a noxious Quality, and not easily making its Way through the Intestine, by reason of its viscous Property, stretches the Part, to the great Pain and Misery of the Patient, who sometimes throws up his Food mixed with the Humours, while nothing passes through the Body but with much Difficulty; however, after a copious Evacuation of Phlegm, by means of a Clyster, or some other Medicine, the Patient is relieved, and the Pain mitigated: But if the noxious Phlegm, being not purged off, should fix its Seat in the Hip or Bladder, a Sciatica or Dysury are formed. If the morbid Humours take their Course down towards the Feet, and affect them with their ill Qualities, and having once taken Possession, and paved their Way, the Affection passes into the Habit; and the Patient suffers on every Occasion. The Humours, which are rendered incapable of Expulsion by Purging, or Discussion of any kind, but discharge themselves upon the Hands and Feet; where they form the Gout in those Parts, are observed to be of a simple as well as a complicated Nature; but the Humour which, above all others, is best adapted to cause and maintain the Gout, is generated by a continued Coacervation of Crudities. For when Errors in Diet are every Day committed, and fresh Food is still thrown in upon Crudities; a crude Juice is bred between them; which not being, either by Art or good Fortune, expelled by Vomiting, nor finding a clear Passage through the Belly, sometimes lodges in the Colon, affecting the Part with those Pains which we call the Colic; sometimes is thrown upon the Hip, and causes the Sciatica; or on the Bladder, whence follows a Dysury, or Difficulty of Urine; or, in the last place, discharges itself upon the Extremities, where it forms the Gout in the Hands and Feet. *Actuar. Meth. Med. Lib. 1. Cap. 21.*

When the Belly is bound, either by binding Medicines or Diuretics, these Obstacles being removed with small Assistance, it returns to its Duty. The Remedies, in this Case, are only a Clyster or two; and a mollifying or loosening Diet; but if a Constipation of the Belly succeeds an Inflammation caused by a Wound of the Intestines, the Cure is not so easy. It must, however, be attempted by Emollients, and proper Dressings, I mean when the great Intestines are affected; for sometimes it happens to succeed; but a Wound in the small Intestines cuts off all Hopes of a Cure: If then any considerable Obstruction happens, or some Humour falls into the Intestines, whatever may be the Cause, the Belly is to be mollified by the daily Use of Clysters, which, in order to mitigate the Inflammation, are to consist principally of Emollients; such as Oils of Chamomile and Lilies, and Fats of a Hen, Goose, and Swine; with Herbs of a mollifying Quality, well and carefully boiled; for all such Medicines digest an Inflammation, relax the stretched Parts, and ease the Pain. The Distemper being thus mitigated, we are to betake ourselves to Remedies endued with more Acrimony, by which the Intestines being irritated, might discharge themselves of the hardened Fœces, together with any crude and pituitous Matters that might be mixed with them. The Passage being thus cleared, we may afterwards administer some gentle Cathartics. The

Diet may be Hens, Rock-fish, and Broths of Chich-pease; and all Meats of a firm Consistence, and hard of Concoction, are to be forbidden: The Drink must be thin and cooling Wines.

If the Intestines are affected with an Inflammation, from an Influx of Humours, especially of a hot Kind, we must begin with Bleeding, and end with Clysters: The Diet must be the same as before, only a little more refrigerating, and less nourishing: The Medicines taken at the Mouth, are to be of fine Parts, and of an incisive and emollient Quality: To these, Stomachics are to be added, which, by restoring the Tone of the Stomach, may free it from the Necessity of lying unactive, and enable it to perform its Office to the Body. Fluctuations and Inflation are Affections of less Moment, but troublesome enough to the Patient; however, they may be mitigated by Injection of Clysters, and dry Fomentations with Millet or Bran. If the noxious Flatus will not yield to these Remedies, a dry Cupping-glass is to be affixed to the grieved Part. Discutient Remedies also, composed of the Carminative Seeds, are of Service here; and the Patient finds some speedy Relief from moderately heating Food, if taken in small Quantities: Bathing also, and moderate Walking, are esteemed beneficial.

When the great Intestine, called the *Colon*, is affected, many troublesome Symptoms attend the Disorder: In the Beginning of this Distemper all Food is forbidden, except Broths made on Chich-pease and Rock-fish, and mixed with Oil of the finest Parts, and prepared with Anise, Fennel, Dill, or others of the like Kind. The Belly also is to be loosened by Infusions of Mercury and Beets, or Centaury and Wild Cucumber, or with the Oils of Chamomile and Dill, and such-like. Those Antidotes also which go by the Name of *Colical*, are not to be omitted. When the Pain is remitted, you are to purge with Pills of Colocynth and Aloes, or such others as you think most suitable to the Condition of the Sick; and when the Disorder is over, let the Patient take some Chicken-broth, and afterwards go into the Bath.

If the noxious Humour takes its Course to the Bladder, or the Thigh, in the first Case it causes a Dysury, and in the latter the Sciatica: This Disease must be treated with Infusions of more acrimonious Simples, and with heating and discutive Plasters, and Cathartics, that properly purge such Humours: The Diet must incline to Heat; and Bathing must every Day be used, that the Humours may exhale.

If the Humour, by the Strength of the Parts, be driven out as far as the Feet, or thrown upon the Hands, there is formed what they call the Gout in the Feet or Hands; and here we are to consider whether the Humour be simple or complicated. In treating this Distemper, we are first to injoin Abstinence; the Belly is to be washed with Clysters, if it be needful; and Cerares of Oils and Fats are to be applied to the pained Parts. If the Gout be violent, it will be convenient for the Patient to go into the Bath. And because the Humours are very subject to a Conflux, and to renew their Excursions into the same Parts, they are to be cut short and restrained by a proper Diet; and the most predominant of them is to be carried off, or diminished by Purging, or corrected by suitable Food; and the Body is to be plied with much Exercise and Bathing. All Crudities are to be avoided, and Meats of bad Juice; for which End the Patient ought to rise from Meat with an Appetite, that the Concoction might be the more perfect; and Disfluents, which generate Crudities, restrained. *Aetnarius, Meth. Med. Lib. 4. Cap. 6.*

After these Quotations from *Aetnarius*, and those under the Article *Alimenta*, I need not inform the Reader, that *Aetnarius* is an admirable Author, and that he has shewn great Judgment, Genius, and Knowledge of his Profession, in making his Collections.

ALYCE, ἀλύχη, from ἀλῶ, to be anxious or uneasy. It signifies Anxiety, considered as a Symptom of a Fever, and is used by *Hippocrates* in much the same Sense as ALYSMOS. See ALYSMOS.

ALYPUM, ἄλυπον. A Plant called also ALYPIA, or ALY-PON, from α Negative, and ἄλπον, Pain, *Herb-terrible*. In a Memoir sent from *Montpellier* to the Royal Academy of Sciences in 1712, Notice is taken of the Alypum of *Montpellier*, which is there said to be different from the Alypum of *Dioscorides*. But it should seem, by the Description of *Dioscorides* compared with that of more modern Authors, and the medicinal Virtues, that the antient and modern Alypum is the same Plant. That the Reader may judge for himself, I shall insert the Accounts of it from *Pliny*, *Dioscorides*, *Ray*, *Dale*, and the above-quoted Memoir.

ALYPUM is a Plant with a slender Stalk and a soft Head, not unlike Beet, of an acrid and viscous Taste, and extremely biting and inflaming. Taken in Hydromel, with a little Salt, it proves a Cathartic. The least Dose is two Drams, a moderate one four, and six the largest, in Cock-broth. *Pliny, Lib. 27. Cap. 4.*

ALYPUM is a spriggy Plant, reddish, with slender Sprays, and fine Leaves, and a thin soft Flower. Its Root is like that of Beet, slender, and full of an acrid Juice. The Seed is like

that of Epithymum. It grows in maritime Places, and, in particular, very plentifully on the Sea Coasts of *Lybia*; it is to be met with also in many other Places.

The Seed purges Black Bile downwards, being administered with an equal Quantity of Epithymum, and an Addition of Vinegar and Salt; but it causes a slight Exulceration in the Intestines. *Dioscorides, Lib. 4. Cap. 180.*

It is the same with *Alypias*, and is administered in Aqua Mulsa. *P. Egineta, Lib. 7. Cap. 4.* The Dose is six Scruples. *Aetnarius, Lib. 5. Cap. 8.*

Alypum, Offic. *Alypum*, *Herba terribilis*, Mont. Ind. 36. *Alypum Montis Ceti*, Ger. 408. Emac. 506. *Alypum Montis Ceti*, five *Herba terribilis Narbonensium*, Raii Hist. 11. 1443. *Alypum Monspeliensum*, Park. Theat. 198. *Alypum Monspelianum*, five *Frutex terribilis*, J. B. 1. 598. *Frutex terribilis*, *Empetrum*, *Alypum Monspeliensum*, Chab. 48. *Thymelæa foliis acutis*, *Capitula Succisæ*, five *Alypum Monspeliensum*, C. B. Pin. 463. *Jonf. Dendr. 235. Globularia fruticosa*, *Myrti folio tridentato*, Tourn. Inst. 467. *Elem. Bot. 371. HERB-TER-RIBLE. Dale.*

It is a Shrub a Cubit or a Cubit and half high, divided into many slender woody Branches, covered with a reddish, or dark-purple-coloured Bark, and covered with Leaves nearly of the same Colour, and about the Size, but not the Shape of the common Myrtle. For beginning from a very narrow Bottom, they continually widen almost to the Extremity, where they are sometimes marked with one or two Dents, making an obtuse Point. They are thick, solid, and of a bitterish Taste. The Flowers generally grow at the Ends of the Branches, and sometimes hang in Bunches to the Middle. They are of a purple Colour, and consist of thin Scales. According to *Clusius*, the Flower-cups grow single, and close to the Tops of the Sprays, and consist of Scales, and are about the Size of the inferior Orb of the Flowers of Scabious, or Devil's-bit, containing a hairy and lanuginous Flower of an azure Colour, inclining to white in the Middle, and wholly azure all round it. The Root is of a thick, hard, black, and woody Substance. The whole Plant (says *Lobel*) is bitter, and has the unpleasant Taste of the Spurge Laurel, or the Mezereon, and even a stronger, after six Years keeping.

It grows plentifully on the South-side of the Mountain *Cetus* in *Frontinac*, where it runs into the Sea; and on many other Declivities of *Languedoc* and *Provence*, that face the Sea and the South. We have observed it to grow, in great Plenty, on the Stony Hills about *St. Chamas*, a Town in *Provence*.

It is a very strong Cathartic, and purges Phlegm, Bile, and watery Humours, with no less Violence than Spurge (*Tithymalus*); and is therefore to be used with Caution. *Ray's Hist. Lib. 26. Cap. 8.*

It grows on Hills, flowers in the Spring, and the Herb is used. It is said to be a violent Purger. *Clusius* assures us, that the Decoction has been given with great Success in the *Lues Venerea*. *Dale.*

ALYPUM.

Tho' the Plant now called by that Name be quite different from what *Dioscorides* described under the same Appellation, as all who have written since him are agreed, I chose rather to keep its Name entire, and to make use of that of *John Bauhine*, than to give it a new one, and so, by multiplying Names, to embroil Botany.

Caspar Bauhine, in his *Pinax*, calls it *Thymelæa foliis acutis*, *Capitula Succisæ*, five *Alypum Monspeliensum*. *Clusius* has described it by the Name of *Hippoglossum Valentinum*; and *M. Tournefort*, in the sixth Section of his Institutions, has placed it under the Genus of *Globularia*, by the Name of *Globularia fruticosa*, *myrti folio tridentato*. But its Characters are quite different from those of the *Thymelæa*, or from any of the Species of *Hippoglossum*, or *Globularia*, as will appear by the following Description.

The *Alypum* is a Shrub about a Cubit high; its Root, which is covered with a blackish Bark, is about four or five Inches long, and near an Inch thick at the Neck, shooting forth three or four thick Fibres. The Branches, which are covered with a thin Pellicle of a brown-red Colour, are slender and brittle. The Leaves are of different Figures, and placed disorderly, sometimes in Tufts, sometimes single, or in Conjunction with another small one at their Bosoms. Some of them pretty much resemble the Leaves of Myrrh; others, widening towards the Top, run out into three Points in the Shape of a Trident; others again form but one Point. The largest are about an Inch long, and three or four Lines broad, of a good Thickness, and of a bright Green. Each Branch bears a single Flower, seldom two, which are about an Inch in Diameter, and of a very fine violet Colour. They consist of two half Flowers, at whose Bottom arise a few small white Stamina, with little blackish Apices, which terminate in three Points, and are no more than about three Lines long, and one Line broad. Each half Flower bears an Embryo, which, after the Flower is gone, becomes a Seed, adorned with a kind of Tuft. The whole Flower is supported

ported by the Calyx, consisting of Leaves, lying one upon another like Scales, and no more than two or three Lines long and one broad.

Clusius relates, that *Empirics* and *Mountebanks*, who strolled about in *Andalusia*, used the Decoction of this Plant for the Venereal Disease, and boasted of their never-failing Success. And we have Men of this Character in our Parts, who use it as a Cathartic, instead of Senna. But it were to be wished, that their Avarice might not be attended with these fatal Consequences to which the violent Operation of this Medicine naturally tends, and of which the Name of *Herb-terrible* ought to put them in mind. *Mem. de l'Acad. Roy. des Sci.*

1712.

By these Accounts of *HERB-TERRIBLE*, it should be the same as the *ἀλυσος*, or *Alysum* of *Dioscorides*, notwithstanding what the more modern Botanists have said.

I find this Plant sometimes called White Turbith.

ALYSMOS, *ἀλυσμος*, from *ἀλύνω*, to be uneasy, or anxious. This Word is very frequently used by *Hippocrates*, to express that excessive Restlessness, and Anxiety, which many People feel in acute Disorders, or otherwise, and which will not permit them to remain long in the same Posture, but obliges them to be perpetually tossing about, in order to find an easy Situation; which, however, is not readily to be met with. Every one who has seen or felt the Thing, cannot help understanding what the *Alysmos* is by this Description.

Duretus distinguishes the *Alysmos*, into the *ἀλυσμος ναυτιώδης*, and the *ἀλυσμος ἀνέμετος*; the first is caused by a Sickness at the Stomach, by something contained in it which irritates; the second by an utter Oppression of the vital Powers.

But the *ALYSMOS*, or Restlessness and Anxiety, here spoken of, may be reduced to four different Species, two of which are Symptoms of a Fever, and two frequently happen without any febrile Disorder.

Those which happen without a Fever, are caused,

1. By something acrimonious contained in the Stomach, which irritates and stimulates the Nerves thereof, and consequently all the Nerves which are Branches of the same large Nerves, from whence the Nerves of the Stomach proceed. Hence the Contraction of the Heart is rendered irregular, and therefore the Circulation of the Blood thro' the pulmonary Arteries and Veins, and also thro' the Aorta, must labour, and be carried on with some Degree of Difficulty; whence a perpetual Uneasiness and Restlessness.

It is observable, that any thing which stimulates violently, and offends any of the Contents of the Abdomen, may, in some Degree, produce the same Effect. For a Sickness, and Inclination to vomit, are universally Symptoms which arise, when any of the Viscera, contained in the Abdomen, suffer an uneasy Sensation; as is remarkable in the obvious Example of the Gravel, or Stone, in the Kidneys, or Ureters.

When it proceeds from something acrimonious contained in the Stomach, the Cure consists in procuring its Discharge by Vomit, or other Evacuations; or in correcting the Acrimony by something of an opposite Quality; or in diluting plentifully.

But when it is caused by any Affections of the Abdominal Viscera, the original Distemper must be removed before the Symptom can be expected to cease.

2. The *ALYSMOS* is frequently caused by Spasmodic Contractions of the Viscera, arising from too large Quantities of fermenting, fermented, or fermentable Substances, taken into the Stomach; or from Hysterics.

For the Cure of that caused by fermenting Substances, see *CHOLERA MORBUS*; and of that caused by Hysterics, see *HYSTERICA*.

But the most general Species of this Restlessness, and Anxiety, attended with perpetual Tossings, and frequent Sighs, are those which attend Fevers, and inflammatory Disorders. These are immediately caused,

1. By some Impediment to the Blood's passing out of the Heart into the Aorta; but more frequently from its difficult Circulation thro' the Lungs.

The Blood is prevented from circulating freely through the Aorta, when the Obstructions in the several Branches thereof are become almost universal.

It is impeded from circulating thro' the Lungs, either when the Branches of the Pulmonary Artery are too dry, or affected too much by Spasmodic Contractions, to permit the Blood to pass readily through them; or when the Blood is in such an inflammatory or viscid State, as to be incapable of circulating through the Vessels of the Lungs.

These are attended with great Oppression at the Breast, a slow Pulse, and Difficulty in Respiration.

2. These Anxieties arise, when, either from a Viscidity of the Blood, or a Stricture of the Branches of the *Vena Porta*, the Blood cannot pass freely through the Liver; hence that which is brought by the Coeliac and Mesenteric Arteries, must stagnate, and distend the adjacent Parts.

This is attended with a great Weight and Oppression at the

Region of the Hypochondria; which Parts the wiser Antients had much greater regard to, than their less sagacious Posterity.

It is of infinite Importance, both to the Physician and Patient, to distinguish accurately the different Species of Anxiety above-mentioned, from each other; and to remove their Causes immediately, if that is, by any Ways, practicable. Those particularly which accompany Fevers, require our utmost Attention; for, if suffered to remain, fatal polypose Concretions, Inflammations, and Gangrenes are soon excited, (and these near the Heart, provided the Causes reside in, or nearly affect, the Thorax) which are attended with intolerable Oppression and Restlessness.

But if the Branches of the *Vena Porta*, or those adjacent to them, are principally affected, sudden Gangrenes of the Parts about the Hypochondria, or Putrefactions of the Liver, are almost unavoidable, which terminate in a putrid Diarrhoea; in which the Stools are extremely offensive, and have the Appearance of Blood and Water, and these seldom or never fail to terminate in Death.

Hence the Reasons are evident, why this great Anxiety, and Restlessness, which *Hippocrates* calls *ἀλυσμος*, is, according to the Doctrine of that great Man, a fatal Symptom, when it happens in febrile and inflammatory Distempers; but is less dangerous when caused only by Hysterics, or the Irritations of something offensive to the Stomach: And why, in almost every Distemper, it is the immediate Fore-runner of Death.

Boerhaave lays down a very rational Method of obviating the ill Consequences of these febrile Anxieties, by removing their immediate Causes. This, according to his Doctrine, is to be done by resolving and diluting the Mass of Blood, by relaxing the Solids, and by moderating the too violent Motion of the circulating Fluids. This End is to be attained by drinking plentifully, and almost continually, warm Decoctions of the farinaceous Vegetables, rendered somewhat acid, and very slightly aromatic, with an Addition of Honey, or Nitre, or both.

Emollient, relaxing, and anodyne Cataplasms, Fomentations, Epithems, and Plasters, applied to the Region principally affected, are also of great Service, as they resolve and relax.

Frequently repeated Clysters, prepared of emollient Ingredients, without any Addition of Cathartics, given in small Quantities, and retained long, are of excellent Use, as they carry on the same salutary End.

The Vapour of hot Water, in which emollient Ingredients have been boiled, received at the Mouth and Nostrils almost continually, is of much Importance; especially when the Circulation thro' the Lungs is impeded, as it contributes to the Relaxation of the Part, and Resolution of the Juices.

ALYSSOIDES, a Plant thus named from *ἄλυσος*, *Form*, and *ἀλυσσον*, *Alyssum*, as being like in Form to the *Alysmos*.

The Characters of this Plant, according to *Miller*.

It hath a Flower in Form of a Cross, consisting of four Leaves, out of whose Flower-cup arises the Pointal, which afterwards becomes an elliptical thick Fruit, divided into two Cells by an intermediate Partition, which is parallel to the demi-elliptical-turgid Valves, and filled with round flat Seeds, having Borders round them.

I do not find, that any Virtues are ascribed to this Plant.

Boerhaave mentions three Sorts of this Plant:

1. *Alyssoides saxatile Creticum*, folio angulato, flore violaceo. *Leucoium saxatile*, folio viridi, flore purpureo eleganti, *Cupani*. Ind. 137. *Alysson Creticum*, foliis angulatis, flore violaceo, *T. Cor.* 15.

Rocky, Cretic *Alyssoides*, with an angulated Leaf, and a violaceous Flower.

2. *Alyssoides incanum*, foliis sinuatis, *T.* 218. *Leucoium incanum*, siliquis rotundis, *C. B. Pin.* 201. *Leucoium*, cum siliquis rotundis, flore luteo, *J. B.* 2. 931. *Eruca peregrina*, *Clus. Hist.* 421. *ic. & Desc. & Hist.* 134. *Leucoium marinum Patavinum*, *Lob. Obs.* 180. *Leucoium incanum*, siliquis tumidis subrotundis, *M. H.* 2. 247. a, b.

Hoary *Alyssoides*, with sinuated Leaves.

3. *Alyssoides fruticosum*, leucii folio viridi, *T.* 218. b. Shrubby *Alyssoides*, with a green Stock-gilly-flower Leaf.

To these *Miller* adds a fourth, which is, the *Alyssoides orientalis annua*, myagri sativi folio, *Tourn. Cor.*

Oriental annual *Alyssoides*, with a *Myagrum* Leaf. *ALYSSUM*, *ἀλυσσον*, Madwort, from a Negative, and *λύω*; that particular Madness which is caused by the Bite of a mad Dog, and not from *ἀλυσσον*, as *Miller* derives it, nor from *ἀλύνω*, according to *Lemery*.

There is a Sort of *Alyssum* taken Notice of by *Dioscorides*, another by *Pliny*, and a third by *Galen*, which are thought by Botanists to be different from each other.

The *Alysson* of *Galen* is thought, by *Dale*, to be the *Marrubium album*, foliis profunde incis, flore caeruleo of *Morison*, (see *MARRUBIUM*) of which *Galen* speaks in these Terms:

Alysson is an Herb like Horehound, but has rougher and more prickly round Heads on the Tops of its Stalks. It bears a Flower inclining to an azure or sky-blue Colour. It ought to

to be gathered in the Dog-days, and dried and sifted, that the Parts of Efficacy may not exhale.

The Dose to a Person bit by a mad Dog, is a Cochlearium ($\frac{1}{12}$ of a Pint) in a Quarter of a Pint of Water and Mulsum, for forty Days together from the first Day; at least for the first seven Days. *Galen de Antidotis*, L. 2. C. 11.

It is of a moderately drying and digestive Quality, with something of Astringency, whence it clears the Skin from the Vitiligo and Sun-burns. *Galen de Simpl. Med. Lib. 6. Orib. Med. Coll. Lib. 15. Cap. 1. Paulus Aegineta, Lib. 7. Cap. 3.*

The Alyssum of *Pliny*, *Dale* takes to be the *Mollugo vulgaris* of *Parkinson*, Bastard-madder, (see MOLLUGO) of which *Pliny* speaks thus:

It differs from Madder (*Erythrodanum*) only in the Largeness of the Leaves and Branches, and took its Name on account of its preventing Madness from the Bite of a mad Dog, being drank in Vinegar, and bound to the Place. What they say further of it is wonderful indeed, that as soon as the wounded Person sees it, the Sanies of his Wound dries up. *Plin. Lib. 24. Cap. 12.*

The Characters of Alysson, according to *Miller*, are, The Characters consist of four Leaves, which are expanded in Form of a Cross: The Fruit is short and smooth, in which are contained many roundish Seeds.

Boerhaave, in his *Index*, takes Notice of twenty different Sorts of Alysson.

1. *Alysson Creticum saxatile, foliis undulatis incanis*, T. Cor. 15.

The Alysson of *Candia*, with hoary undulated Leaves.

2. *Alysson folio leucosii-incano, flore luteo. Thlaspi Austriacum, leucosii folio incano, flore luteo.* Bocc. H. Mauroc. 171.

3. *Alysson incanum luteum, serpilli folio, majus*, T. 217. *Thlaspi Alysson dictum campestre majus*, C. B. Pin. 107. M. H. 2. 291. *Thlaspi minus quibusdam, aliis Alysson minus*, J. B. 2. 928. *Alysson minimum*, Clus. H. 133. a.

Larger yellow hoary Madwort, with a Mother of Thyme Leaf. *Clusius's* Figure is good; but he is mistaken in the Description of the Flower, which is tetrapetalous, and not pentapetalous, as he affirms: The Figure which *Label* and *Tabernaemontanus* have given of this Plant, under the Name of *Thlaspi Polygonati folio*, is bad: I believe they have put, thro' Inadvertency, *Polygonati* for *Polygoni folio*. The last of these Authors has given a second Figure of it, which is much better, and which he calls *Thlaspi minus Clypeatum* 2. The Difference of these Figures has determined *C. Bauhine* to divide this Plant into two Species, great and small; *Morison* has follow'd him in this Point. It is true that the Plant varies, according to the Place where it grows; but we must distinguish them no otherwise than as Varieties: For the Seed of the smaller, sown in Gardens, produces a pretty large Plant. *J. Bauhine* observes, that *Schwenkfeldius* confounds this Plant with the *Thlaspi angustifolium* of *Fuchs*, which is the *Nasturtium sylvestre Osyridis folio*, C. B. Pin. 105. *Martyn's Tournefort*.

4. *Alysson incanum, serpilli folio, minus*, T. 217. *Thlaspi Alysson dictum, campestre minus*, C. B. Pin. 107. M. H. 2. 291. a.

Lesser hoary Madwort, with a Mother of Thyme Leaf.

This, in the Opinion of *Dale*, is the Alysson of *Dioscorides*, of which the last-mentioned Author gives the following Account:

The Alysson is a small Shrub, somewhat rough, with round Leaves, near which grows the Fruit like double Bucklers, which contains a flattish kind of Seed. It grows in Hills, and in rugged Places.

The Decoction, drank, cures the Hiccups that are not attendant on a Fever. It has the same Effect, if held in the Hand, or smelled to. Bruised with Honey, it cures Freckles, (oxalis) and Sun-burning (epidura). Pounded and eaten with Food, it is thought to cure the Bite of a mad Dog; hung up in the House it is said to be a Preservative of Health, and an Amulet to Men and Beasts against Witchcraft. Besides it keeps off Distempers from Cattle, if tied about them in a red Cloth. *Dioscorides, Lib. 3. Cap. 105.*

This is but a Variety of the former.

5. *Alysson parvum, capitulis glabris, flosculis luteis. Thlaspi umbellatum Smyrnaeum luteum.* Volk. 2.

6. *Alysson fruticosum incanum*, T. 217. *Thlaspi fruticosum incanum*, C. B. Pin. 108. *Thlaspi Machliniense incanum*, Lob. Ic. 216. Clus. H. 132. *Thlaspi capsulis sublongis, incanum*, J. B. 2. 929. *Thlaspi incanum, flore albo, capsulis oblongis*, M. H. 2. 192. *Thlaspi Alysson, folio leucosii, latissimo aspero viridi*, Ind. 137.

Hoary Shrub Madwort.

7. *Alysson fruticosum incanum, flore pleno.*

8. *Alysson balimi folio sempervirens*, T. 217. *Thlaspi balimi folio sempervirens*, H. L. 594. Descr. 595. Ic. b.

The Alysson with Sea-purflane Leaves.

9. *Alysson vulgare polygoni folio, caule nudo*, T. 217. *Bursa Pastoris minor, loculo oblongo*, C. B. Pin. 108. *Bursa Pastoria minima, oblongis siliquis, verna, loculo oblongo*, J. B. 937. *Parony-*

chia vulgaris, Dod. p. 112. *Bursa pastoris minor, loculo oblongo*, M. H. 2. 305.

Common Whitlow Grass.

It is very common on Walls, and in dry Places, in the Spring. *Dr. Dillenius* has observed very well, that the Petals are bifid, which is a singular Character in the Tribe to which it belongs.

This Plant appears to me very different from that which *Casalpinus* calls *Humilis quaedam herbula affinis Bursa pastoris, foliolis Thymi rotundioribus candicantibus subhirsutis, &c.* He describes it to grow common in Sicily, and about Piombino. *C. Bauhine* was in the wrong to refer it to this, the Leaves of which vary in their Incisures; but are always very different from the Figure of those of Thyme: These Varieties are represented in the *Hist. Ludg.* The *Paronychia Alsine folio Lobelii* *Lugd.* represents them with Incisures: The same Leaves are cut in the Figure of the *Myosotis parva Dalechampi* *Lugd.* 1318. *Martyn's Tournefort*.

10. *Alysson vulgare, polygoni folio, loculo rotundo.*

11. *Alysson vulgare, polygoni folio trifido. Bursa pastoris minor, foliis trifidis, aliquando multifidis, florum petalis bifidis, loculo oblongo*, M. H. 2. 306. *Bursa pastoris minima, oblongis siliquis, verna, loculo oblongo*, J. B. 2. 937.

12. *Alysson fruticosum aculeatum*, T. 217. *Thlaspi fruticosum spinosum*, C. B. Pin. 108. M. H. 2. 291. *Leucoium spinosum, sive Thlaspi spinosum aliis*, J. B. 2. 931. *Thlaspi fruticosum spinosum Narbonense*, Lob. Ic. 217.

Prickly Shrub Madwort.

13. *Alysson segetum, foliis auriculatis acutis*, T. 217. *Myagrum sativum*, C. B. Pin. 109. *Myagrum majus seu sativum*, M. H. 2. 315. *Myagrum dictum camelina*, J. B. 2. 892. *Myagrum Turcicum*, J. B. 2. 893. *Camelina sive myagrum*, Dod. p. 532.

Corn Madwort, with auriculated sharp-pointed Leaves.

Dodonæus is in the wrong to compare this Plant to the Madder. The *Myagrum sativum* is no more like the Figure of the *Myagrum* 1. *Tabern.* than like the *Myagro similis siliqua rotunda*, Pin. It's not ill represented in *Camerarius*, Fig. 1. though ill engraved by him under the Name of *Pseudo-Myagrum*; that Figure, being only a Copy from *Matthioli*, has the Fruits very ill drawn, and Flowers pentapetalous; which does not belong to any of the cross-like Flowers. *Martyn's Tournefort*.

14. *Alysson segetum, foliis auriculatis acutis, fructu majore*, T. 217. *Foliis est magis dissectis dentatis minoribus, fructu longe majore, tota planta humiliore.*

Corn Madwort, with auriculated sharp-pointed Leaves, and a larger Fruit.

15. *Alysson Siculum supinum, leucosii folio angusto, flore albo, odore mellis. Thlaspi Siculum supinum umbellatum, leucosii folio angusto, flore albo odore mellis*, ex H. Cath. H. Mauroc. 170. *Thlaspi Alysson dictum, campestre minus, folio breviori*, Ind. 137. a.

16. *Alysson montanum incanum luteum, serpilli folio, majus. Thlaspi montanum luteum, serpilli folio, majus*, C. B. Pin. 107. M. H. 2. 292.

I suppose this is the same that is mentioned in *Tournefort's* History of Plants, by the Name of *Alysson perenne montanum incanum*.

This is a Plant whose Leaves are oblong and white, particularly underneath, rough to the Touch; its Stalks are about a Foot high, Ash-coloured, garnished with many Flowers, composed of four Leaves set cross-ways, of a fine yellow Colour: The Flower is succeeded by a small flat Fruit in Bunches, divided length-ways into two Cells, full of small round Seed: Its Root is long, woody, dividing, and spreading itself very much: It grows in mountainous Places.

It is esteemed aperitive and proper against the Bite of a mad Dog. *Lemery de Drogues*.

Its Root is fibrous, white, five or six Inches long, about two Lines thick: It usually sends forth three or four Stalks, lying on the Ground, seven or eight Inches long, hard, woody, reddish towards the Bottom, wreathed, divided from the very Bottom into several small Branches, covered with a white Down, and garnished with Leaves of the same Colour; their Surface is a little shagreened, and they are shaped something like Olive Leaves, according to *J. Bauhine*; but they are about five Lines long: the Ground Leaves are much whiter than the rest, more ferrated, and shorter. The Flowers grow at the Extremity of the Branches, in a kind of Head, and afterwards part upon a kind of Spike two or three Inches long. Each Flower is composed of four yellow Petals, two Lines long, almost oval at the End; the Chives are very slender, charged with yellow Summits: The Empalement also consists of four narrow, pointed Leaves, a Line and a half long, and soon falling off: Out of the Middle arises a flat, round Pointal, ending in a pretty fine Point; it afterwards becomes a Fruit of the same Shape, about two Lines Diameter, raised in Form of a little Bos, divided into Cells by a membranous Partition: There are usually in each Cell two oval, flat, red Seeds, a Line long. The Figure of the *Thlaspi montanum luteum*, *J. B.* represents this

this Plant well enough, only the Petals are too much cut; and besides, *J. Baubine* has not noted whether it be perennial or annual. Our Plant lasts several Years. That which *M. Magnol* has called *Thlaspi Alysson dictum minus, capsulis majoribus retundis non foliatis*, is annual, and its Stalks are less crooked: Thus *J. Baubine's* Figure suits it less, than it does that which we just now described; and this Figure is much better than that which *Label* has given of it, under the Name of *Thlaspi supinum luteum*. The Capsules of these Plants appear, only because the Leaves of their Empalements fall off easily. *Martyn's Tournefort*.

17. *Alysson Alpinum hirsutum luteum*, T. 217. *Sedum Alpinum hirsutum luteum*, C. B. Pin. 284. *Sedum petraeum montanum*, Lob. Adv. 163. *Sedum minus*, 12. *Alpinum*, 6. Clus. H. 62. *Leucoium luteum aizoides montanum*, Col. 2. 62.

The yellow Alpine Alysson, with hairy Leaves.

18. *Alysson argenteo folio, flosculis luteis. Thlaspi folio majoranae Ciasii. Hoc nomine misit Amplissimus Sherard. Thlaspi Creticum, majoranae folio, supinum, flore luteo*, H. Maurocen. 171. Alysson with a Silver Leaf, and yellow Flowers.

19. *Alysson folio angustissimo viridi, flosculis albis spicatis confertum natis*.

20. *Alysson maritimum*, T. 217. *Thlaspi Alysson dictum maritimum*, C. B. Pin. 107. M. H. 201. *Nasturtium vel Thlaspi maritimum*, J. B. 2. 927. *Thlaspi centunculi angusto folio*, Lob. Ic. 215.

All these Plants are endowed with a very subtle, penetrating and diaphoretic Virtue, by which they expel Poison. The ninth and tenth are received, in Medicine, under the Title of Whitlow-grasses, and have the same Virtues as Scurvey-grass and Water-cresses. They spring up in Winter, and flower in January; and their Seeds also are used in Medicine, as Emollients, from which they express an Oil. The thirteenth and fourteenth are also called the German *Sesamums*, and the *Myagra of the Shops*. Bruised and drank, to the Weight of three Ounces, they are sudorific and stomachic, and a very good Remedy in cold Affections. *Boerhaave, Hist. Plant.*

ALZEGI, (*Atramentum*) Ink. *Rulandus*.

ALZEMAFOR, (*Cynobrium*) Cinnabar. *Rulandus*.

ALZILAT, (*Pondus trium Granorum*) a Weight of three Grains. *Rulandus*.

ALZIMAR, (*viride*) green. *Castellus* from *Rulandus*.

ALZOFAR, (*Æs ustum*) burnt Copper. *Rulandus*.

AMA, AME, or rather AMES, *ἄμς*, a Sort of small Cake. *Aretaeus* uses this Word to compare the Quantity of Hellebore to, which is sufficient for a Dose in strong Constitutions, when given in a Vertigo: His Words are *μυγδοῖς ἄμς*, by which it should be *ἄμς*, or *ἄμς*, making *ἄμς* in the Genitive Case. But this properly signifies a Sort of Scythe, or Instrument, used by Labourers: But *Aristophanes* uses *ἄμς* in the Accusative Case, which *Suidas* explains, a Sort of Cake made with Milk, which should seem to be the same that *Aretaeus* means; and then it should be *ἄμς*.

AMALGAMA. This, in Chymistry, is a Substance produced by an Incorporation of Mercury with a Metal: The Chymical Character is A. A. A. The best Methods of making an Amalgama, are thus specified by *Boerhaave*.

1. Melt some of the purest Lead in a clean Iron Ladle, and then put into it an equal Quantity of hot Mercury, and stir them about with an Iron Rod: Let them grow cold, and you will have a homogeneous Mass of a Silver Colour, which will be considerably hard, but by rubbing will grow softer and softer: Put this Mass into a Glass Mortar, rub it, and then add to it what Quantity of Mercury you please, and it will be united to it, as Salt with Water.

2. An Amalgama of Tin is made exactly in the same manner; and this will also receive more Mercury.

3. Take a Solution of the best Copper in Aqua-fortis, so much saturated with the Metal, that it will dissolve no more; dilute this, with twelve times as much clean Water: Into the Liquor, when hot, put Plates of polished Iron, and the Copper will be precipitated, to the Bottom, in the Form of a Powder, and the Iron will be dissolved: Proceed in this manner till all the Copper is precipitated: Pour off the Liquor, and wash the precipitated Powder with hot Water, till it is perfectly insipid: Dry the Powder perfectly, put it into a Glass Mortar, and, by rubbing, incorporate with it an equal Weight of hot Mercury, and they will unite into an Amalgama; which will also receive a farther Addition of Mercury. An Amalgama of Copper, in any other manner, is very difficult to make.

4. Pure Silver, precipitated from Aqua-fortis, may, in the same manner, be made into an Amalgama.

5. Dissolve the purest Gold in Aqua-fortis, till it can take up no more; dilute the Solution with twelve times as much pure Water; put into it some polished Plates of

Copper, and a Powder of Gold will be precipitated to the Bottom of the Vessel, and upon the Copper. Let it stand in Heat, till the Liquor will no longer be rendered turbid by an Addition of Copper; shake the Plates, that all the Gold may fall to the Bottom; pour off the Liquor, wash the precipitated Powder with Water, dry it, and then in a Glass Mortar reduce it to an Amalgama with Mercury; and afterwards it will receive more Mercury, like the other Amalgamas. Or, take a Mixture of Gold and Silver, coppel it with Lead, and, by means of a good assaying Aqua-fortis, separate the Silver; then wash the black Powder of Gold that remains at the Bottom, dry it, and, whilst it is hot, rub it with Mercury, and it will presently be reduced to an Amalgama, which will receive more Mercury, as before. All Amalgamas are white, from whatever Metal they are prepared.

REMARKS.

By these Methods an Amalgama may be made, without any Loss, from all Metals except Iron: There are also other Ways of doing it, but not without considerable Loss of Mercury, and Danger from the Fumes: Hence we see, that Mercury is the true solvent Fluid of Metals. These, when they are thus reduced to an Amalgama, may be mixed and confounded together, and lie concealed among each other. This Solution of Metals by Mercury, I look upon to be the Foundation of Alchemy. By these means, some cheating Sophisticians adulterate Mercury with Lead; but, by exhaling a Grain or two of it, the Fraud is easily discovered. And thus, perhaps, the Coagulation of Mercury, ascribed by *Paracelsus* and *Van Helmont* to the fixing Fume of Lead, and a wonderful fixing metalline Spirit, is brought about: For if you melt some Lead, and when it is beginning to cool, but is not hardened, you make an Impression on the Surface with a Stick, and gently drop a little cold Mercury, in a short time it will acquire a solid Consistence: But does not this happen from the hot Lead's being received into the Mercury, and so amalgamated, and of consequence forming a pretty hard Mass? Certainly, if you take a little of this fixed Mercury, and, in a proper Vessel, expose it to the Fire, you will find it so. This Art of making Amalgamas has given Rise to a common Cheat; for if you combine Gold or Silver with Mercury in this manner, by only adding Lead to them in the Fire, you may recover them again, and thus make a plausible Shew of producing these Metals: But only take a little of this Mercury, put it into an Iron Ladle, and set it on the Fire; and then the Mercury flying off, and leaving the Metal, will at once discover the Fraud. On these Principles depend the Art of Gilding with Gold and Silver.

The Ablution of Metals by Mercury.

Take an Amalgama, rub it in a Glass Mortar, the longer the better, and it will begin to grow black. Pour clean Water upon it, and continue to rub it, and the Water will grow black and turbid. Pour this out, add more Water, and rub again, and this will be changed as the former. Repeat this till the last Water, after rubbing, remains clear. You will then have a pure Amalgama, that looks like Silver. And here all Amalgamas, treated in this manner, make Water thus black, more or less, that of Gold however least of all. The Powder that comes away, when it is dried, is neither found to be Mercury nor Metal. The Amalgamas of other Metals will scarce ever, by thus washing, become perfectly clean, so as to communicate no more Blackness to the Water.

REMARK.

Hence we learn, that pure Mercury, by being mixed with Metals, becomes so united with them, that something which lay concealed in one or both of them, is by this means expelled. If in this manner you procure a large Quantity of this Powder from Gold and Silver, as the Matter of both these Metals remains exactly the same in Weight, without the least Addition or Diminution, the Powder must necessarily be produced from the Mercury.

There is something very surprising in this Ablution of Metals by Mercury, that the Amalgama should never cease to communicate this Blackness to Water.

AMALGAMATIO. *Rulandus* defines Amalgamation a Calcination of Metals by Mercury.

AMAMELIS, *ἀμαμνίς*, a Fruit mentioned by *Hippocrates* in his first Book of the Diseases of Women, where he directs them in a Sort of Emulsion he there advises for Women whose Milk is deficient. It is generally agreed, that the Amamelis of *Hippocrates* is the same as the Epimelis (*ἐπιμυλῖς*) of *Dioscorides*, which is the SMALL BASTARD MEDLAR.

There is another Kind of Medlar, which grows in Italy; some call it *Epimelis*, other *Setanium*. The Tree is like an Apple-tree,

Apple-tree, only has smaller Leaves. It bears a round, esculent Fruit, with a large Eye, somewhat affringent, and slow in ripening. *Dioscorides, Lib. 1. Cap. 170.*

AMANDINUS LAPIS, a Gem of various Colours, which is fabled by *Albertus Magnus* to resist and expel Poisons. *Johnson* calls it, by Mistake, *Amandicus*.

AMANITA, *amanita*, a Sort of Fungus, of which I meet no Account amongst the Antients, except in *Oribasius, Paulus Aegineta*, and *N. Myrepsus*.

Of the Clafs of Fungi, the Boleti boiled in Water, as they ought to be, become nearly of the Nature of those Aliments which are void of Qualities. They afford but a cold and phlegmatic Nutriment; and, if freely used, breed ill Juices. These, indeed, are the least hurtful of all the Fungi, and the next to them are the *Amanita*. As for the rest, it is safest to let them alone; for many have been poisoned by them. *Oribas. Med. Coll. Lib. 2. Cap. 25.*

Amanita, Fungi, and Tubera, (Trubs or Truffles, *Dalé*) being of a cold and humid Nature, generate a thick and crude Juice, and, upon that, agree with a hot and dry Constitution: *Astruc. de Spir. Anim. Cap. 6.*

Let those who are dangerously ill with eating *Amanita*, Boleti, or Fungi, eat heartily of fresh Radishes, drinking, between whiles, some moderately strong Wine, sweetened with a little Honey; and let them try to vomit; or let them drink Nitre; or Rye finely powdered in Posca. *Myrepsus de Propom. Sect. 38. Cap. 171.*

Paulus Aegineta, L. 1. C. 77. repeats what has been quoted from *Oribasius*.

I don't know that it has been determined what Sort of Fungi those were, which *Oribasius* calls *Amanita*; it seems probable, that they took their Name from the Place where they were produced: But *Amanita*, as now understood, seems to signify much the same as *Fungus Terra*.

The only Fungi, which commonly enter into Food amongst us, are the common esculent Mushroom, or Champignon, and the Morille: The true Champignon is known by its external Whiteness, and by being of a palish Red within, when very young, and of a more saturated Red as it grows larger and older. These are a delicious, but very hazardous Food; for they will not agree with all Constitutions, nor always with the same Person; for many who have, all their Lives, indulged themselves in eating Mushrooms, have, at last, been greatly injured by a moderate Use of them: And it is remarkable, that some Seasons produce Mushrooms much more unwholesome than those produced at other Times. *Claudius the Roman Emperor*, and *Charles the sixth*, the late Emperor of Germany, are both said to have lost their Lives by eating Mushrooms: And I once was Witness of a violent Disorder, which was brought upon a Gentleman by eating Mushrooms, which had all the Appearances of being good in their Kind, which I had an Opportunity of knowing; because I saw them before they were dressed, saw them eat, and was in the House with the Patient during his whole Illness.

In the Morning, at Eleven o'Clock, he eat about a Dozen Mushrooms of a moderate Size: That Day he eat heartily of Beans and Bacon, and some other Things; and at Night he supped moderately as usual. The next Morning he complained of a great Pain and Uneasiness about four Inches below the Navel, and a disagreeable Aromatic Taste in his Mouth. The Pain continued all that Day; but moved gradually higher: The next Day the Pain, and disagreeable Taste, were the same, except that the Pain was got above the Navel; about Noon he fell into a violent Diarrhoea, which lasted that Day, and the two next, with very few Minutes Intermision. The Day after, his Pain was got to the Region of the Stomach, and gave him much Uneasiness; but immediately after drinking a large Draught of Sherbet, he vomited plentifully, and brought up the Mushrooms, without the Appearance of having been digested, or undergone the least Alteration in the Stomach, and with them the Beans, Bacon, and whatever he had eat since the Mushrooms. After this he was very easy, and recovered immediately.

I have heard, that Leeks are esteemed a Specific against the Poison of Mushrooms; but I never have known it used, nor do I recollect my Authority.

Lemery's Account of Mushrooms is as follows:

There are several Sorts of Mushrooms, which spring up in a short time out of the Earth, in Meadows, amongst Shrubs, and on Dunghills. The best, and most safe for Mens Health, are those which grow up in one Night upon a Dung-bed, where Gardeners have found the Art to make them grow all the Year round; they ought to be white above, reddish underneath, pretty large, plump, tender, easy to be broke, and of an agreeable Taste and Smell. The Mushrooms that grow in Meadows are also very good, as appears by these Lines:

----- *Pratenfibus optima fungis*

Natura est; aliis male creditur.

Mushrooms are restorative, nourishing, and strengthening; they increase the seminal Fluid, create an Appetite, and have all those Properties that are necessary to please the Palate.

VOL. I.

Mushrooms sometimes work violently upwards and downwards, cause the Palsy and Apoplexy, and often kill with a malignant Quality, which they suddenly impart to the Humours. Now-and-then those of them which are looked upon to be the best and safest, suffocate and hinder Respiration, if taken never so little to Excess. There are also some of them, according to the Account given by divers Authors, which poison People, if they smell to them.

All Mushrooms contain much Oil, and essential Salt.

They agree at no time to any Age or Constitution, because they always do more Hurt than Good; and if Use be made of them, it ought to be done with much Moderation; and it is necessary you drink good Wine upon them.

R E M A R K S.

It's said, if you steep Mushrooms in Water, and afterwards pour that Water upon the Ground, Mushrooms shall grow there; and this arises because the Water is filled with the Seed of Mushrooms, which afterwards are, as it were, hatched in the Earth; or because that this same Water hath dissolved some of the essential Salts of the Mushrooms, which serve to dilate and rarify the Seeds of other Mushrooms, which are scattered on the Ground.

It's said, that at *Naples* and *Rome* there are Rocks, and stony Places, upon which, if you throw hot Water, Mushrooms will grow at any time. 'Tis probable, this hot Water softens the Seeds of the Mushrooms that are in such Places, and opens their Pores, so that these Seeds more abundantly receive the remote Juices that are proper to extend and make them grow.

Mushrooms are a Sort of Victuals that you cannot be too cautious of. *Dioscorides* divides them into two Classes, one of which are very dangerous, and may be reckoned of the Number of Poisons; the other does no Harm: However, we cannot but say, that these last, which are commonly made use of, are sometimes pernicious; since we see, every Day, whole Families brought to their End by eating them; which gave *Pliny* occasion to exclaim against the Luxury of Mankind, who, to gratify their Appetites, very often run the Risque of their Lives by eating Foods of that Kind. *Nero* called Mushrooms *βρώμα θεῶν*, that is, the Victuals of the Gods; because the Emperor *Claudius*, whom he succeeded, died with eating of Mushrooms, and was afterwards deified.

There are two different Parts in a Mushroom, viz. the oily, and saline, which last are of an acrid, volatile, very coagulating and malignant Nature: However, when they are strictly united with the others, they are not so dangerous; because they are kept down and embarrassed: But when there is not a strict Union between these two Parts, these Salts we have spoken of, getting the Ascendant, produce many ill Effects. For Example; the Mushrooms commonly used by us, spring up out of the Earth in a little time; they are presently to be gathered; for if you let them lie by for some time, they become a deadly Poison; because their Salts, which, at first, were sufficiently bound up by their ropy Parts, insensibly free themselves from the Fetters that shackled them, and, resuming all their Force, cause the Fermentation that is wrought in the Mushrooms.

Hence we may conclude, that the more oily Parts the Mushrooms have in them, the less dangerous they are; and that those which grow upon Dung-beds cannot produce such bad Effects as the others; because that Bed imparts a great Quantity of sulphureous Principles to them.

Mushrooms may also be pernicious by their spongy Substance, which coming to be diffused and rarified by the Heat of the Body, presses the Midriff, and those Parts which serve for Respiration, and hinders the Air to pass into the Lungs; and 'tis from thence that the best Mushrooms, being taken to Excess, sometimes suddenly suffocate.

When you eat Mushrooms, you ought to drink a good deal of Wine; because this Liquor, by the Help of the Sulphurs abundantly contained therein, embarrasses the Salts of the Mushrooms, and moderates their Operation. Honey is also accounted a Remedy against the ill Accidents caused by Mushrooms, and, upon this Occasion, operates in the same manner as Wine does.

Here it's to be noted, that if the Mushrooms do not retain their natural Colour after they are washed, but turn either blue, red, or black, they are very dangerous. *Lemery on Foods.*

The Morille is a kind of Spring Mushroom, as large as a Nut, of an oblong, pyramidal, or oval Figure, shriveled, tender, porous, cavernous, or pierced with large Holes, somewhat resembling Honey-combs, of a whitish or yellowish Colour; sometimes its Colour is white, inclining a little to red; and sometimes it is blackish.

The Morille contains a good deal of Oil, of Phlegm, and of volatile Salt, but very little Earth. It grows in grassy moist Soils, in Woods, and at the Roots of Trees. It is delicious when used as an Ingredient in Sauces; besides, 'tis of an in-

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vigorating,

vigorating, restorative Quality, and proper to excite an Appetite. *Lemery de Drugues.*

You are to chuse such as are tender, of the Bigness of a Nut, oval, or oblong, of a yellowish Colour, or whitish, and full of large Holes like Honey-combs.

These Mushrooms create an Appetite, are of a strengthening and restorative Nature, and of great Use in Sauces.

The frequent Use of them heats much, and makes the Humours sharp.

They agree, in cold Weather, with those that are phlegmatic, and such in general whose Humours are gross, and have little Motion; but Persons of a hot and bilious Constitution ought to abstain from them.

The Use of this Sort of Mushroom is not attended with such bad Accidents as the other; and that, in all Likelihood, because their Salts are less injurious and pestilential than those of the common Mushrooms; or else, because they are more confined and embarrassed by sulphureous Principles. *Lemery on Foods.*

Tournefort takes Notice of Eighty-three different Sorts of Amanitæ, which are as follows:

1. *Amanita campestris, alba superne, inferne rubens*, Dillen. Cat. Giff. 177. *Fungus pileolo lato, & rotundo, livido*, C. B. Pin. 370. *Fungus campestris, albus superne, inferne rubens*, J. B. 3. 824. *Fungi vulgatissimi esculenti*, Lob. Icon. 271. CHAMPIGNON, or esculent Mushrooms, common in Pastures.

2. *Amanita Kremlinga alba*, Dillen. Cat. Giff. 178. *Fungus pileolo lato orbiculari candicante*, C. B. Pin. 370. *Fungus Sylvarum, esculentus candicans*, J. B. 3. 828. Found with the former. *M. Vaillant* has repeated this in p. 75. under the Name of *Fungus totus albus edulis*. The white esculent Mushroom.

3. *Amanita vernâ, pileo rotundiori, odorato & esculento*. *Fungi verni, Mouceron dicti, odori & esculenti*. J. B. 2. 823.

4. *Amanita alba, pileo inverso*. *Fungi albi, pileolo inverso*. J. B. 3. 847.

5. *Amanita lutea perniciofa*. *Fungi lutei perniciosi, sub Pinu habitantes*. J. B. 3. 832.

This is engraved in the *Elemens de Botanique*, Tab. 328.

6. *Amanita piperata alba, lacteo succo turgens*, Dillen. Cat. Giff. 179. *Fungus piperatus albus, lacteo succo turgens*, J. B. 3. 825. *Fungi pileolo lato orbiculari candicante*, C. B. Pin. 370. THE PEPPER MUSHROOM.

Found by Dr. *Lifter*, in *Marton-Woods*, under *Pinno-Moor*, in *Craven, Yorkshire*, plentifully. *R. Syn. Ed. 3. p. 4.* I have found it near *Dulwich*, about the End of October.

7. *Amanita major, rubescens aut subfulva, pediculo brevi, lamellis crebris albenitibus*, Dillen. Cat. Giff. 181. *Fungus lignosus fasciatus*, Vaill. 61.

Under Oaks in August. *R. Syn. Ed. 3. p. 4.*

The Stalk is about an Inch in Length, and as much in Thickness, of a dirty white Colour, full and fleshy. The Head is about three Inches in Diameter, hollowed, reddish, with whitish Circles. The Gills are set pretty close to each other, and are white, as is also the Flesh. It yields a glutinous and acrid Milk. *Vaill.*

8. *Amanita major lactescens, pileo ex albo purpurascens, lamellis crebris, caule brevi*. *Fungus lacteus maximus-infundibuli forma*. Vaill. 61.

This resembles, pretty much, the two preceding ones. The Edges are, at first, turned down, but afterwards raise themselves so as to form a kind of Funnel, from three to nine Inches in Diameter. The Head, Flesh, and Gills are white, with a little Wash of Purple. The Gills are very close, and intermixed with shorter, and, as it were, half Gills. The Stalk is about an Inch long, and from half an Inch to an Inch thick. The whole Plant abounds with a very acrid Milk. *Vaill.*

9. *Amanita major lactescens, pileo subfusco, lamellis fulvis, caule brevi*. *Fungus lactescens prægnantissimus*. Vaill. 61.

Its Head is flat, and a little hollowed at the Centre, two or three Inches in Diameter, of a very dirty white Colour, inclining to a Box Colour, unequally indented about the Edges with rounded Divisions. It is exceedingly full of acrid Milk. *Vaill.*

10. *Amanita lactescens fulvâ*. *Fungus lactescens piperatus rufus*. Vaill. 62.

The Head, Gills, and Stalk are of a reddish, or Copper Colour. It yields an acrid Milk. *Vaill.*

11. *Amanita major, pileo subfusco, lamellis albis*. *Fungus piperatus non lactescens*. Vaill. 62.

The Flesh of this has an acrid Taste, but yields no Milk. *Vaill.*

12. *Amanita fasciculosa purpurascens arborea*, Dillen. Cat. Giff. 180. *Fungus nostras pediculo brevi, in pileolum didymum abeunte*, Cistel. Reg. Vaill. 62.

The Head is of a bright and shining Chestnut Colour, the Gills yellowish, and the Edges turn down. *Vaill.*

13. *Amanita major palustris albida*. *Fungus albidus, infundibuli forma, palustris*. Vaill. 62.

14. *Amanita pileo flavo viscido, caule rufescente*. *Fungus glutine flavo limacino resplendens*. Vaill. 62.

The Head is of a Conic Figure at first, and afterwards expands, so as to become two or three Inches in Diameter. *Vaill.*

15. *Amanita major pileo griseo holosericeo, lamellis carneis, caule albo*. *Fungus griseus holosericeus, pileolo crenelato*. Vaill. 63.

The Head is sometimes five Inches in Diameter, turned up at the Edges like a Saucer. The Stalk is two or three Inches long, and about an Inch thick. *Vaill.*

16. *Amanita citrini coloris*, Dillen. Cat. Giff. 181. *Fungus pileolo stramineo*, Vaill. 63.

17. *Amanita media tota alba*. *Fungus mediæ magnitudinis, totus albus*. Vaill. 63.

The Stalk is from an Inch to three Inches in Height, soft, usually full, and sometimes fistular, thicker at Top than at the Bottom, sometimes strait, and sometimes wreathed; sometimes round, and sometimes a little flat, with a Furrow on each Side, from one to three Lines thick. The Head is from four to eighteen or twenty Lines in Diameter, cut at first into a Hemisphere or Cone, which afterwards growing flat, forms another Cone, inverted. The Gills are very far distant from each other, but the Spaces are filled with half and quarter Gills, proceeding from the Circumference. The whole Plant is milk-white, and a little shining. *Vaill.*

18. *Amanita pileo gilvo, lamellis albis crebris, superne ad margines apparentibus, caule albido*. *Fungus gilvus, margine tenuissimus*. Vaill. 63.

19. *Amanita pileo coniformi albo maculato*. *Fungus pileolo conico maculato*. Vaill. 63.

20. *Amanita plana orbiculata aurea*, Dillen. Cat. Giff. 179. *Fungus planus orbiculatus aureus*, C. B. Pin. 371. *Fungi lutei magni dicti faseran speciosi*, J. B. 3. 831.

Found in *Hornsey Wood* by Dr. *Dillenius*, *Syn. Stirp. Brit. Ed. 3. p. 2.*

21. *Amanita purpurascens, pileo sursum repando, caule albo*. *Fungus margine per maturitatem sursum rependo*. Vaill. 64.

22. *Amanita orbicularis, pileo & lamellis fuscis*, Dillen. Cat. Giff. 184. *Fungus late fusco colore*. Vaill. 64.

I have found this near *Dulwich*, in October.

23. *Amanita pileo fusco, lamellis & caule albis*. *Fungus late fusco colore, pediculo brevior*. Vaill. 64.

24. *Amanita clypeiformis major*. *Fungi multi ex uno pede clypeiformes lutei & rubri*, J. B. 3. 835.

25. *Amanita clypeiformis minor*. *Fungus clypeiformis minor*, C. B. Pin. 373. *Fungi parvi lutei & clypeiformes albi letiales*, J. B. 3. 847.

26. *Amanita fasciculosa viscida arborea mollis alba*, Dillen. Cat. Giff. 187. *Fungi albi lucentes ex uno principio plures ex radice arborum*, J. B. 3. 835.

27. *Amanita fasciculosa lutea dumetorum*, Cat. Giff. 186. *Fungi multi ex uno pede perniciosi*, J. B. 3. 835. I have counted above a Thousand of these from one Root. *M. Vaillant* has repeated this *Amanita* in p. 68. under the Name of *Fungi plures ex uno pede, & prunorum radicibus enati*, *Raii Hist. 1. 99. App. 32. 8.* *Fungus multiplex parvus luteus, pileolo mollior convexo*, Cistel. Reg. And again, in p. 71. under the same Name, where the whole Description is also repeated.

28. *Amanita colore lacteo*. *Fungus colore lacteo*. Vaill. 64.

29. *Amanita piperata non lactescens viscida, pileo ex fusco rufescente, lamellis & caule albis*. *Fungus piperatus, non lactescens, coloris brasiliici*. Vaill. 65.

30. *Amanita obtuse coniformis cinerea, aut ex livido nigricans, utrinque striata*, Dillen. Cat. Giff. 182. *Fungus parvus, pediculo oblongo, galericulatus striis lividis aut nigris*, *Raii Syn. Vaill. 65.* In Pastures on Dung, in September and October, *Syn. Ed. 3. p. 8.*

31. *Amanita pileo albo, centro rufescente, lamellis carneis, caule albo*. *Fungus pileolo albo, centro rufescente*. Vaill. 65.

32. *Amanita parva, pileo viscido, ex albido luteo, lamellis lividis, caule longo*. *Fungus capite hemisphærico pallide lutescente*, Vaill. 65. It is common on Cow-dung and Horse-dung, in September and October. *M. Vaillant* seems to have repeated this *Fungus* in p. 71. under the Name of *Fungus parvus, pediculo oblongo, pileolo hemisphærico, ex albido subluteus*. *Raii Syn.*

33. *Amanita parva verna utrinque striata fusca, pileo obtuse coniformi, musco palustri ramoso majori, foliis membranaceis acutis Vern. innascens*, Dillen. Cat. Giff. 184. *Fungus capitulo conico pallide cineritio, centro fusco*. Vaill. 65.

34. *Amanita tota alba*. *Fungus totus albus*. Vaill. 65.

35. *Amanita tota grisea*. *Fungus totus griseus*. Vaill. 66.

36. *Amanita fasciculosa sordide carnea*. *Fungus multiplex sordide carneus*. Vaill. 66.

37. *Amanita fasciculosa buxæ*, Dillen. Cat. Giff. 187. *Fungus nostras multiplex, pileolo lato mammoso*. Vaill. 66.

38. *Amanita exigua, sanguinei coloris*, Dillen. Cat. Giff. 66. *Fungus parvus coccineus*, Cistel. Reg. Vaill. 66.

39. *Amanita exigua*, pileo umbilicato nigro, lamellis nigricantibus. Fungus minimus, totus niger, umbilicatus. Vaill. 66.

40. *Amanita minor umbilicata*, tota rufa. Fungus minor, totus rufus. Vaill. 66.

41. *Amanita minor*, tota citrina. Fungus minor, citrino colore, pedunculo flavescente. Vaill. 66.

42. *Amanita minor*, pileo villosio fusco, lamellis ex cinereo purpurascens, caule fusco. Fungus minor, pilei superficie flocculis fuscis, villosa. Vaill. 67.

43. *Amanita parva*, capitulo conico, violacei dilutioris coloris, Dillen. Cat. Giff. 181. Fungus minor Amethystinus. Vaill. 67.

44. *Amanita fasciculosa*, ex fusco violacei coloris. Dillen. Cat. Giff. 186. Fungus major violaceus. Vaill. 67.

45. *Amanita pileo incarnati coloris*, lamellis albidis, caule albo, ad imum tuberoso. Fungus dilute carneus, vel incarnatus. Vaill. 67.

46. *Amanita major*, pileo pallide violaceo, lamellis & caule candidis. Fungus magnus albus, pileolo lato, prona parte sordide caeruleo. Vaill. 67.

47. *Amanita pileo aurantii coloris*, lamellis & caule lividis, Hist. Plant. rar. Cent. 1. Dec. 3. p. 31. Fungus aurantii coloris, capitulo in conum abeunte, Inst. 559. Near Fulborn in Cambridgeshire.

This is of a red Orange Colour, and its Head is a perfect Cone.

48. *Amanita pileo conico aureo viscido*, lamellis pallide flavis, caule aureo. Fungus aureus, capitulo in conum abeunte. Vaill. 67.

49. *Amanita ex livido albicans*, oris intus converfis, Dillen. Cat. Giff. 182. Fungus colore castaneo, margine per maturitatem introrsum convolutus, Vaill. 68.

50. *Amanita minima*, pileo & lamellis cinereis, caule fusco conico. Fungus minimus, pediculo conico. Vaill. 68.

51. *Amanita pileo clypeato rufescente*, lamellis & caule cinereis. Fungus clypeatus, in medio protuberans. Vaill. 68.

52. *Amanita parva*, utrinque striata, pileo coniformi, murini coloris, lamellis & pediculo albis, Dillen. Cat. Giff. 183. Fungus capitulo mammoso, centro papillari, Vaill. 69. It is found in Pastures in Autumn. This seems to be the same with what M. Vaillant has called, in p. 69. Fungus pileolo candicante, lamellis paucis, pediculo fusco splendente.

53. *Amanita exigua*, incarnati coloris. Funguli incarnati, coloris minuti, musco innati. Mentz. Pugil. Tab. 6. Vaill. 69.

54. *Amanita parva*, utrinque striata, pediculo tenui longo firmo lento, pileolo in medio fastigiato, Dillen. Cat. Giff. 183. In Pastures.

55. *Amanita ochroleuca viscida*, pileo clypeiformi. Fungus colore homogeneo pallido, pileolo & pediculo glutine obducto. Vaill. 69.

56. *Amanita grisea viscida*, pileo clypeiformi. Fungus colore homogeneo griseo, pediculo glutine obducto. Vaill. 69.

57. *Amanita arborea mollis*, coloris exacte crocei, Dillen. Cat. Giff. 182. Fungus pileolo croceo, splendoris participat. Vaill. 69. On Trees and rotten Wood.

58. *Amanita viscida*, pileo expanso sordide albo, lamellis candidis, caule solido. Fungus capite expanso, viscosus. Vaill. 70.

59. *Amanita viscida*, pileo primum conico, postea plano. Fungus cono primum obtuso, postea plano, pileolo & pediculo glutine obducto. Vaill. 70.

When this is young, the Head of it is usually of a dirty White, and the Top of a Box Colour: Sometimes it is of a dark Green, and sometimes of a Russet. The Stalk and Gills of this last are of the same Colour with the Head; but the Gills of the White and Green are usually of a Brimstone Colour, and sometimes washed with a little Green. The Stalk also is of a Brimstone Colour, with a Tinge of Verdegri towards the Top. Vaill.

60. *Amanita pileo obtuse coniformi*, e cinereo fulvo, lamellis albidis, caule longo firmo striato gracili, castanei coloris. Fungus fmi equini, capitulo pileum Romanum referente. Vaill.

71. It has been found in Woods in England by Mr. Dale.

61. *Amanita pileo cinereo utrinque striato*, caule longo fistuloso. Fungus capitulo mammoso. Vaill. 70.

62. *Amanita fasciculosa*, pileo obtuse coniformi, utrinque striato pallido, lamellis nigris, caule albo fistuloso. Fungus nostras multiplex, pediculo fistuloso. Vaill. 70. I have often found this about the latter End of Summer; it soon rots; and is perhaps the same with that mentioned by Dr. Dillenius, (Syn. 7.) under the Name of Fungus parvus lethalis galericulatus. Lob.

63. *Amanita fasciculosa*, pileo ex luteo fusco, lamellis virentibus, caule pallido. Fungus medice magnitudinis, pileolo superne e rufo flavicante, lamellis subtus sordide virentibus, Raii Hist. 3.

17. Fungus luteus, pileolo molliter convexo, lamellis viridibus, Cimel. Reg. Vaill. 71. I found this on rotten Wood in the Apothecaries Garden at Chelsea in October.

64. *Amanita exigua candidissima*, pileo umbilicato. Fungus minimus albus umbilicatus striatus. Vaill. 71.

65. *Amanita fasciculosa*, pileo obtuse conico griseo, lamellis albis, caule griseo. Fungus multiplex obtuse conicus, colore griseo murino. Vaill. 71.

66. *Amanita pileo viscido luteo*, Hist. Plant. rar. Cent. 1. Dec. 3. p. 31. I suspect this to be the same with that which M. Vaillant describes under the Name of Fungus glutinosus, colore aurantio, p. 72. The Plant, which I mean, is very common in Pastures in Autumn.

67. *Amanita ovum referens*, humorem nigrum per maturitatem effundens. Fungus Typhoides. An Fungus non vescus, 7. Flor. Pruff. 89. An Fungus albus ovum referens, D. Doodii, Raii Hist. 3. 22. Vaill. 72. On a Moor betwixt Rood-Lane and Somerset-Bridge in Hampshire, Mer. Pin. I have seen it in great Plenty at Chesterton in May.

68. *Amanita fasciculosa*, ovum referens, minor, humorem nigrum per maturitatem effundens. Fungus multiplex ovatus cinereus minor. Vaill. 72.

69. *Amanita orbicularis alba*, lamellis & pediculo villosis, ac veluti farina conspersis, Dillen. Cat. Giff. 184. An Fungus minor tenerimus, farina respersus, pileolo superne cinereo, lamellis subtus tenuissimis nigris, Raii Syn. Vaill. In Pastures in September and October.

70. *Amanita fusca*, pileo infundibuli-formi. Fungus foliaceus vel lamellatus infundibuli forma, fusco-lividus. Vaill. 73.

71. *Amanita fasciculosa*, pileo fusco, lamellis & caule griseis. Fungus multiplex campaniformis, colore fusco. Vaill. 73.

72. *Amanita fasciculosa*, pileo & caule castanei coloris, lamellis ex sordide albo pallide rubentibus. Fungus multiplex campaniformis, colore castaneo. Vaill. 73.

73. *Amanita fasciculosa*, pileo rufescente, margine araneofo, lamellis crebris fuscis, caule albo fistuloso. Fungus capitulo mammoso rufescente. Vaill. 73.

74. *Amanita fasciculosa*, pileo ovato sulcato cinereo, lamellis crebris lividis, caule albo. Fungus multiplex ovatus. Vaill. 73.

75. *Amanita sicca & levis*, pileo magno plano orbiculari, pediculo longo, plerumque bulbiformi, Dillen. Cat. Giff. 180. Fungus pileolo lato, longissimo pediculo variegato, C. B. Pin. 371. Vaill. 74.

Observed frequently in England by Dr. Lister; as in Chesterton-Close near Cambridge, and in the Woods in Lincolnshire; who also experienced it, in eating, to be more savoury than the Champignon. R. Syn. Ed. 3. p. 3.

76. *Amanita pileo lato rufescente*, micis surfuraceis asperso, lamellis albis, caule tuberoso. Fungus pileolo lato, micis surfuraceis asperso. Vaill. 74.

77. *Amanita pileo virescente*, ex pila erumpens. Fungus phalloides annulatus, sordide virescens & patulus. Cimel. Reg. Vaill. 74.

78. *Amanita pileo lato albido*, lamellis candidis ex pila erumpens. Fungus phalloides. Vaill. 74.

79. *Amanita pediculo bulbiformi*, pileo maculato, Dillen. Cat. Giff. 184. Fungus pediculo in bulbi formam excrecente. C. B. Raii Hist. 1. 95. Vaill. 75.

80. *Amanita pileo lato puniceo*, lamellis albis. Fungus pileolo lato puniceo, lacteum & dulcem succum fundens. C. B. Pin. 371. Vaill. 75.

81. *Amanita pileo candido*, tuberculis flavo-fuscis variegato, lamellis creberrimis. Fungus colore candido, tuberculis flavo-fuscis elegantissime variegato. Vaill. 75.

82. *Amanita pileo clypeato castaneo*, centro rufo, circulo sordide albo circumdato, lamellis creberrimis flavescens. Fungus centro mammoso rufo, circulo sordide albo circumdato. Vaill. 76.

83. *Amanita minima*, pileo aurantii coloris, lamellis ex albo rufescentibus. Fungus minimus aurantius mamillaris. Vaill. 76. Martyn's Tournefort.

Something like the Mushroom is the Truffle, except that it never appears naturally above Ground. Of this there are two Sorts, the first sometimes used in Medicine, (see BOLETUS) the second much used in Food.

The second is thus distinguished:

Tubera, Offic. C. B. 376. J. B. 3. 849. Chab. 591. Raii Hist. 1. 110. Synop. 20. Sterb. 308. Tab. 32. A. Hist. Oxon. 3. 638. Tubera Matthioli, El. Bot. 442. Tourn. Inst. 565. Tubera terræ, Ger. 1385. Emac. 1583. Tubera terræ edibilia, Park. 1319. TRUFFLES or TRUBS.

Mr. Geoffroy the younger having given several curious Particulars, relative to Mushrooms and Truffles, in the following Memoir, it will be of some Importance to insert it.

Observations upon the Vegetation of Truffles.

All Substances which appear to vegetate, may, generally speaking, be divided into two Classes; such as have all the Characteristics of Plants, and such as want some of these Characteristics. Among those of the latter Kind, some have no Appearance of Flowers; as the Fig-tree, whose Flower is thought to be wrapt up in its Fruit: Others want the Appearance both of Flowers and Seeds; such as the most Part of Sea Plants, whose Seeds are suspected to lie concealed in particular Vessels, destined for the Purpose: Others have only Leaves without Stalks, such as Liver-wort, Sea-lettice, and Nostoch: Others have Stalks without Leaves, such as the Euphorbium, the Horje-tail,

Horse-tail, the *Sea-oak*, *Corals*, and the most Part of stony Plants. Lastly, others have scarce any Appearance of Plants, not having visibly either Leaves, Flowers, or Seeds. Of this kind are most *Mushrooms*, *Sponges*, *Morilles*, and especially *Truffles*, which are likewise without Roots. Botanists have only ranked them among the Class of Plants, because they are observed to grow and multiply, not doubting but they contained the essential, tho' they were destitute of the apparent Parts of Plants; as Insects have the essential Parts of an Animal, tho' their outward Form should have a different Appearance. Having made some Observations on the *Nostock*, I was led to examine the *Truffle* also, which is still more singular, and, for ought I know, has, as yet, had nothing positive advanced concerning it: I shall therefore give an Account of the Observations I have made upon its Analysis, and the uncommon Manner of its Vegetation.

This Sort of Plant is only a fleshy Tubercle, covered with a hard Sort of Crust, rough, and somewhat regularly furrowed on its Surface, almost like the *Cypress-nut*. It does not rise above the Surface of the Earth, but lies concealed about half a Foot below it. Great Numbers of them are found in the same Place, of different Sizes. Some of them are, now-and-then, found of a Pound Weight, or even a Pound and a Quarter: These last are but rare, and *Pliny* only mentions their being of a Pound Weight.

Certain it is, however, that some of them are very large: They grow in different Countries; and, in *Pliny's* Time, the most valuable were brought from *Africa*. They are now found in *Europe*, in *Brandenburgh*, and several other Parts of *Germany*; and are very common in *Italy*, *Provence*, *Dauphiné*, *Languedoc*, *Anjou*, and *Perigord*. They grow also in *Burgundy*, and some of them are found about *Paris*: It is observed, that they are ordinarily found in Fields, that are uncultivated, of a reddish-coloured Earth, and sandy, but somewhat rich. They grow at the Feet, and under the Shades of Trees; sometimes about the Roots of Stones, and sometimes in clear Earth: Their favourite Trees are, either the white or the green Oak; as the *Elm* is that of the *Morille*. They begin to be found when warm Weather first succeeds the cold, sooner or later, as the Season is more or less mild; for they have sometimes been very rare after hard Winters. At first they appear only like little round Pease, red without, and white within. These Pease grow larger by degrees; from that Time they begin to take out of the Ground what they commonly call *White Truffles*: These are of themselves insipid, and People dry them as an Ingredient for *Ragouts*; because they keep better when dried than marbled ones do. 'Tis a common Opinion, that *Truffles*, which have once been removed from their Places, are never after capable of being nourished; even when put into the same Earth from which they were originally taken: But if one leave them there for a certain Season, without disturbing them, they grow insensibly larger; their Bark becomes black, rough, and unequal, tho' they always retain their Whiteness within. Hitherto they have very little Smell or Taste, and can only be used in *Ragouts*. These are always called the *first White Truffles*, and are not to be made a different Species from the *marbled or black ones*, gathered in the End of Autumn, and even in Winter after the Frosts are begun; for, in my Opinion, they are only the same, arrived at different Degrees of Maturity. I look upon the *White Truffle*, in its first State, as a Plant which is, at one and the same time, Root, Stalk, and Flower, whose *Parenchyma* swells every Way, and whose Parts are insensibly unfolded: In proportion as the *Truffle* swells, its Bark becomes hard and furrowed in different Places, that so it may convey the more Nourishment to the grosser Mass: Then the *Truffle* changes its Colour, and, instead of white, it insensibly becomes marbled with greyish Streaks; and that which was formerly white, now looks like a Congeries of small Pipes, which spread themselves in the Heart of the *Truffle*, and terminate in the Furrows of the Bark.

The greyish Substance, which is wrapt up amidst these Canals, when viewed with a Microscope, appears to be a transparent *Parenchyma*, composed of Vessels or little Bladders: In the Middle of this Substance appear black round Points, distinct from one another, which have all the Appearance of Seeds nourished in that Substance, whose Colour they have darkened, and in which there remains nothing white, except the Vessels and some Capsulæ. I look upon that white Substance as hollow Pipes, because I always see them terminate in the Bark.

When the *Truffles* are arrived at this Degree of Maturity, they are of a very good Smell and Taste: The Heat and Rains during the Month of *August* forward their ripening very fast, which may possibly be the Reason why some Authors have said, that Storms and Thunder first produced them. The Truth is, good *Truffles* are not dug but from the Month of *October* to the End of *December*; and sometimes to the End of *February* and *March*, when they are, even at that Time, marbled; whereas those gathered from the Month of *April* till *July* and *August*, are only white. If People neglect to gather the *Truffles* when arrived at their due Degree of Maturity, they rot; and then

we may observe the Re-production of the *Truffle*, because, after some time, we see several Bunches of other young *Truffles* filling up the Places of the rotten ones. These young *Truffles* are nourished till the first Colds come on; and if the Frosts are not intense, they get over the Winter, and furnish us betimes with the white Spring *Truffles*.

The excessive Cold in the Year 1709, is an additional Proof of what I advance, since *Truffles* were not found till the Autumn of that Year; the most forward ones, which should have appeared in the Spring, having perished by the Rigour of the Season; whereas they were very common the foregoing Year: We observe neither Hairs nor Filaments of Roots at the *Truffles*, when taken out of the Earth, with which they are covered in such a manner as to leave the Traces of their Bark imprinted in it, without appearing to have any other Communication with it. They are subject, like other Roots, to be eat into by Worms. The Worm which preys upon the *Truffle*, is white, small, and different from that which is hatched by its Corruption: Afterwards this Worm forms a kind of Bean, shut up in a very slender Covering of a white kind of Silk; from which, some time after, comes forth a bluish violet-coloured Fly, which makes its Way, from the *Truffle*, thro' the Furrows or Clefts observed in it. These Flies are infallible Signs; that there are *Truffles* to be found near the Places where they are observed.

If a dressed *Truffle* has been pierced by a Worm, it may be discovered by its being bitter to the Taste; and by a little Attention, one may observe the Place, where the Hole is, to be blacker than the rest, and that the Bitterness is caused by it, since the rest of the *Truffle* tastes well. Upon laying open the Place where the Hole is, one may easily discover the Nest of the Worm, and a Space round it free from Marbling, of a different Colour from the rest of the *Truffle*, and resembling that of rotten Wood. Upon viewing the Surfaces of *Truffles* with a Microscope, I have found, that certain white Specks, which I saw there, were so many small Insects, which prey'd upon them. They follow the Furrows of the Bark, that they may the more commodiously suck their Nourishment. These Insects are white, transparent, and of a round Figure, almost like Mites. They have only four Feet, a small Head, and creep pretty fast. These Insects are nourished by the nutritive Juice of the *Truffle*; for I have found some of them lodged in the same Cell which had formerly been inhabited by the Worm: They were become, tho' transparent, of a Coffee-colour, like the Place where the Worm had nested. It is to be observed that the Earth which produces *Truffles*, bears no other Plants upon it; for the *Truffle* absorbs its nutritive Juice, or rather by its Smell destroys or prevents the springing of other Herbs. This Reason appears to me so much the more probable, because the Earth, in which they grow, smells perfectly like them. The Peasants in some Parts receive Profits so considerable from the Sale of *Truffles*, as to render them very industrious in discovering the Grounds where they are, so that they are now become very skilful at it. They know the Extent of the Ground where the *Truffles* are, by its bearing nothing, and being void of all Herbs. In the second Place, according to the Quality of the Earth, if the Ground abounds with *Truffles*, it is chapp'd in several Places. They also know it by its being more light than other Earth, by these little bluish violet-coloured Flies I have mentioned, and by another Sort of Flies which are large, black, long, different from those produced from the Worm, but which are ingendered by the Corruption of the *Truffle*, and like those which are hatched in every other corrupted Matter. There is a Dexterity in digging *Truffles* without cutting them, especially if they are big. The Peasants have a kind of *Planting Stick* for digging them. In other Parts they do not trouble themselves with searching for them, but have recourse to another Method mentioned by *Pliny*, and other Authors. Swine are known to be very greedy of *Truffles*; they therefore make use of one of these Animals, which they train up to discover and dig them; but there is a Necessity for being very quick in taking the *Truffles* they find from them, and giving them something in their stead, lest they should be discouraged, and give over a Pursuit from which they receive no Advantage: And in *Montserrat* they have Dogs trained up for this very Purpose.

These are, in general, the Observations I have made upon the *Truffle*, and its Origin. 'Tis now my Business to determine the several Species of it.

Mr. *Tournefort* only admits of two, which he distinguishes by their Figure. The first is round, the Figure of which may be seen in his *Elements of Botany*, and is the same with that represented in *Matthioli*, and other Botanists: This is the Species which *Mentzelius*, in his *Pugillus rariorum Plantarum*, styles *Tubera subterranea testiculorum forma*, or, *The Subterraneous Mushroom in the Form of Testicles*. This *Truffle* differs from others, both in its Figure, and its internal Colour; which, as this Author says, is of a greenish Red, like the internal Colour of the Fuz-balls in our Woods; but perhaps, if he had opened them at another Season, he would have found them of a different Colour. He also compares them to another certain Substance,

Substance, which changes Colour like them. *Mentzelius* discover'd this Species in the Months of *August* and *September*; at which Season they are not perfectly ripe; he found them in a Province on the Frontiers of *Brandenburg*. According to this Account, we have as yet only two Species of Truffles; which differ in their external Appearance; and we ought not to look upon the Variety of internal Colours, or the different Degrees of Bulk, as Characteristicks, or Marks of different Species, since the Roots or Stones they meet with in their Growth, may model them into different Forms. The Truffle then appears to me to be a Plant, and not a conglomerated Substance, or an Excrement of the Earth, as *Pliny* thought; and as a Proof of his Opinion, told a Story of the Governor of *Carthage*, who, upon biting a Truffle, found a Piece of Brass Coin in his Teeth. But this Circumstance is no satisfactory Proof of his Assertion, since the Truffle, in its Growth, must by chance have inclosed this Coin, as we sometimes observe in certain Trees, of whose Vegetation we are fully persuaded. I have Reason to think, that *Pliny* knew not well what to determine concerning this Matter, since he afterwards tells us, that no Truffles were found about *Mitylene*, in the Island of *Lesbos*, only when the overflowing of the Rivers carried the Seeds of them from a Place called *Tioves*, in the main Land of *Asia*, where were Truffles in Abundance. Perhaps we might be able to multiply Truffles, by trying different Means for that Purpose, since we plainly find, that they multiply in the Earth. This Reproduction would confirm my Opinion, that the Seeds are inclosed in the Heart of the Truffle, and that it is by this means, that the Colour of the Parenchyma is obscured. This Parenchyma is supported by Fibres, which run irregularly from the Circumference to the Centre, and all intersected by white Pipes, which form the Marbling of the Truffle. Sometimes these Pipes extend themselves, and form white Plates, composed of transparent little Bladders, which are slenderer than the rest; so that, when view'd Sideways, they form an even white Surface; and when observed perpendicularly, black Points may be observed scattered up and down them: If these Points are the Seeds of the Truffle, I should suspect, that the white Plates are, as it were, the Flowers of them, it being very probable, that the Flowers, together with the Seed, are included in the Truffle. Tho' the Fibres of the Truffle are very slender, yet the Whole of them, taken together, make a considerable Resistance, when an Attempt is made to break them in a longitudinal Direction. The Fibres are more distinctly observed in a faded Truffle, than in a fresh one, because the plump Contexture being wither'd, allows their Bags to be the more easily discovered, which, upon pressing them, yield their Contents; if, on the contrary, these Fibres are drawn in a lateral Direction, they easily separate into many fibrous *Laminae*. As a Proof, that these are real Fibres, the Place spoiled by the Worm, when view'd with a Microscope, appears like rotten Wood; so that they are in this State nothing more than Fibres or *Laminae*, without Juice, without Vesicles, and without Grains, which I take to be the Seed. We find them, as it were, pierced like a Sieve in the Places, where these Substances should have been contained; whence we may conjecture, that the Worms or Insects have extracted the nutritive Juice, since the Insects which I have found there, were of the same Colour with that Part of the Truffle where they made their Entrance.

But to come to the Analysis of this Plant, I first endeavour'd to discover whence its Smell proceeded; and that I might not alter their Principles by the Action of the Fire, I inclosed some of them in a Glass Cucurbit, covered with its Top, in which I had suspended Shreds of Paper, ting'd of a bluish Colour with the Tincture of *Turnsole*, and others ting'd with the Juice of Violets. In less than twenty four Hours, these latter Shreds assum'd a beautiful Emerald Colour, whereas the Paper ting'd blue with the *Turnsole*, did not change its Colour. This Experiment confirm'd me in the Opinion I had, that the Smell was no more than the unfolding and breaking forth of a *volatile alkaline Salt*, mixed with some Quantity of Sulphur. It also proves the Analogy of this Substance with Plants and Fruits; which only acquire a Smell by the Fermentation rais'd in them; and which ripens them. If this Fermentation becomes too strong, the Fruit rots, and yields a Seed perfectly ripe, as may be observ'd in Cucumbers, Gourds, and other soft Fruits. I find the same Circumstance to hold in the Truffle. It is insipid till the Fermentation has drawn forth its Principles, and put them into such a Motion as is sufficient to render them perceptible by the Smell and Taste. This Vapour is in the Truffle impregnated with such a Quantity of volatile Salts, that they discover themselves from the very Beginning of the Fermentation; whereas in other Plants, Wood alone excepted, the urinous Principle does not discover itself but in the Putrefaction. This is what I have observed with regard to Wormwood, from which I extracted an urinous Spirit, by allowing it to rot. The Smell of the Truffle is only agreeable in a certain Degree; for when there are many of them together, or when they are shut up close, they ferment to such a Degree, as to send forth a Smell like that of Musk; then they become mouldy and viscid.

VOL. I.

If Truffles are gathered in dry Weather, they keep much longer, especially if Care be taken to lay them at a Distance from one another, as People do other Fruits. I believe they might be preserved a considerable time in Oil, which would hinder the Fermentation, by blocking up the external Pores. The Country People pretend, that they are better after the first Frosts; which seems probable enough, since the Cold suppresses the Fermentation, and thereby qualifies them for being preserved longer than otherways they would have been. Those who keep them, chuse for that Purpose either Sand or Earth, according as they stand in need of Moisture or Dryness.

To continue the Analysis, I got some Truffles, took off their Bark, cut them into Slices, and put them into Water, which became impregnated with the Smell of the Truffle; and was of a nasty greyish Colour. I pour'd some of this Tincture upon Syrup of Violets, which alter'd its Colour, and assum'd a greenish Cast; I pour'd also some of it upon a Solution of corrosive Sublimate, which it at first darkened; and then insensibly produced a Precipitate of a dirty White: At last, the Water and the Truffles became putrid, of a very ill Smell, and viscid. I put into six Ounces of Spirit of Wine, three Ounces of Truffles, cut and clear'd from the Earth like the former; the Spirit extracted a red Tincture, which had exactly the Smell of the Truffle. This Tincture coagulated the White of an Egg, as Spirit of Wine uses to do, and produced a white Precipitate in corrosive Sublimate, because of the volatile Salt it contains. When I had suffered the Spirit of Wine to stand about two Months on the Truffles, its Smell was a little alter'd, and approach'd to that of a Quince. The Slices of Truffle, which I took out of it, were dry and tough like a Horn; and immediately after appear'd white; and cover'd, as it were, with an insipid saline Flower, which did not incorporate with the Spirit of Wine, as we daily observe, that volatile Salts do not mix with Spirit of Wine, or at least, that Liquor can only be impregnated with a very inconsiderable Quantity of such Salts. This Tincture of Truffles and Spirit of Wine, thrown into limpid Water, gave some Marks of a sulphureous or resinous Quality, since it a little disturb'd the Water. After having observed the volatile Principles of the Truffles; by the Help of a simple Fermentation, I afterwards call'd in the Assistance of a very mild Fire: For this Purpose I put twenty four Ounces of Truffles fresh, entire, and as thoroughly clear'd of their Earth, as they could possibly be, into a Cucurbit placed in a Sand Bath. In three Days I extracted two Ounces seven Drams and one Scruple of a limpid Liquor, which smelted very agreeably of the Truffle. This Liquor turn'd the Syrup of Violets green; but on mixing some of it with a Solution of corrosive Sublimate, both Liquors became milky, and assum'd the Colour of *Opal*, and then a white Precipitate was insensibly produced. In two Days and a half, I extracted five Ounces and six Drams of a Liquor, that was equally clear and fragrant, and which produced the same Effects as the former. In three Days more, I extracted three Ounces and a half more of a limpid Liquor; of a Smell somewhat empyreumatic, which considerably whiten'd a Solution of corrosive Sublimate, and even produced a kind of white and pretty thick *Coagulum*, but did not alter the *Turnsole* any more than the former Liquors, and fermented but very little with acid Spirits. In four other Days, I quite exhausted the Moisture of the Truffles, from which I drew, in that time, twelve Drams of a Liquor, which had the same Smell with the former, and produced the same Effects. I then found the Truffles in the Cucurbit entirely dry, and weighing only nine Ounces and five Drams. I put them into a Retort placed in a reverberatory Furnace, and drew from them, by a mild Fire, three Drams of a Liquor tolerably clear, which turned red after some Days, and had a volatile kind of Smell like that of Spirits, which have lost somewhat of their Strength. It turn'd the Syrup of Violets green, produced no Effect upon *Turnsole*, but coagulated, and even clotted a Solution of corrosive Sublimate. The second Liquor weigh'd three Drams, was of a milky Colour, and of a Smell like that of the volatile Salts of Animals. The third Liquor weigh'd one Ounce six Drams, was very red, and mix'd with a little Oil. These two last Liquors produced the same Changes as the former, in the Substances with which they were mixed.

The fourth Liquor weigh'd six Drams, was red, rich, thick, like Butter, and loaded with volatile Salt. This Oil did not change the Tincture of *Turnsole*.

There was about a Dram of volatile Salt in Crystals, loaded with Oil, and easily dissolv'd. The *Caput Mortuum* weigh'd four Ounces six Drams and thirty-six Grains. I calcin'd this Substance, and after the Calcination perceiv'd, that it was load'd with a great deal of Earth, which by the Force of the Fire had become red. I separated as much of it as I possibly could from the rest of the Mass, and procur'd of it an Ounce and two Drams; which amounts to the same as if I had only analysed twenty two Ounces and six Drams of Truffles; so that there only remain'd of the *Caput Mortuum*, after a Subduction of the Earth, three Ounces four Drams and thirty-six Grains. After the Calcination of this Substance, there only

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remain'd

remain'd two Ounces and a Dram of white Cinders, from which I drew, by way of Lixivium, a Dram of fix'd alkaline Salt, mixed with Earth, and which produced a yellow Oker-colour'd Precipitate in a Solution of corrosive Sublimate. It turn'd the Syrup of Violets into a faint-green Colour, and fermented with Acids. This Analysis proves, that the Smell of the Truffle depends only on the vast Quantity of volatile Salt, which it contains.

As to the Virtues of Truffles, the common Opinion is, that they are hot: *Galen* however, according to *Matthiolus*, looks upon them as indifferent, and the Basis of all other Seasonings; and indeed it is to this Purpose, that they are used in all Ragouts. *Avicen* speaks of them in a manner quite different, and says, they ingender thick Humours more than any other Food; that they are of hard Digestion, heavy on the Stomach, and that when much used, they have a Tendency to bring on an Apoplexy and Palsy. For my part, I believe these two Authors may be reconciled, if we consider two Qualities in the Truffle, which are capable of producing two different Effects: First, they may prove hot of themselves, by emitting their volatile Salts in the Stomach, or by being mixed with Salt, Pepper and other Spices, which they drink up like a Sponge. In the second place, they may prove of hard Digestion, when eaten immoderately by a Person of a weak Stomach, in which Case they produce bad Effects, stagnate and form themselves into a glareous Substance, which disorders the Stomach, which may be occasioned by the cold Quality ascrib'd to them by *Galen*. As a Proof, that the Truffle is of hard Digestion, it has this in common with other Fruits, that it grows hard in Spirit of Wine, and is with Difficulty dissolv'd in Water. I kept one six Months in Water, without its being entirely rotten, the Bark still remaining, and not rotten, after all the rest. *Memoirs de l'Acad. R. des Scien. A. 1711.*

AMARA, Bitters. Of these there are many Sorts, especially amongst Vegetables, of which proper Notice is taken under the respective Articles as they occur, and under the Disorders in which they are useful. Let it suffice to say in general, that Bitters seem to exert their Efficacy, first, by bracing up the weaken'd and relax'd Fibres of the Organs of Digestion; and, secondly, by supplying the Place of a languid and inert Bile. Hence, in Constitutions that require it, Bitters, by promoting the Digestion and Assimilation of the Aliment, mend the Blood and Juices; and by fortifying both the Solids and Fluids, enable them to perform the respective Offices, which are necessary to a State of Health.

AMARACUS, *Αμαράκω*, Sweet Marjoram.

The Antients, in the Opinion of *Salmasius*, understood by *Amaracus*, two different Plants; the greater *Amaracus*, which is Sweet Marjoram; and the lesser, which is Marum.

But it has not been easy to determine, whether the *Amaracus* and *Sampsuchum* were the same Plant, or different from each other, for Reasons which will be given in the Dissertation quoted at the End of this Article from *Salmasius*.

This Plant is thus distinguish'd:

AMARACUS *Majorana Sampsuchum*, Offic. *Majorana vulgaris*, C. B. Pin. 224. Raii Hist. 1. 538. Tourn. Inst. 199. Elem. Bot. 168. Boerh. Ind. A. 178. Rupp. Flor. Jen. 190. *Majorana vulgaris aestiva*, Park. Theat. 11. Hist. Oxon. 3. 358. *Majorana major*, or, Great Sweet Marjoram, Ger. 538. Emac. 664. *Majorana majori folio & semine nota*, J. B. 3. 241. *Sampsuchum, Amaracus, Majorana*, Chab. 419. SWEET MARJORAM.

This Herb has many Branches, which creep on the Ground, with hairy round Leaves, and thin, like those of Calaminth, of a very fragrant Smell, and heating, and folded into the Shape of Crowns.

It was usual to make this Herb an Ingredient in Acopas and Malagmas, on account of its warming Quality. *Dioscorides, Lib. 3. Cap. 47.*

The *Majorana vulgaris*, &c. Sweet Marjoram, is a little shrubby Plant, that grows to the Height of eight, and even nine Inches, is thick set with lignous Branches, which are of a square Form for the most part, somewhat hairy, and reddish. The Leaves stand opposite, and are shaped like those of *Origanum*, but of a much smaller Size, are covered with a hoary Down, have a fragrant Smell, and a somewhat acrid, bitterish, aromatic, and grateful Taste. About the Tops of the Stem and Branches, at the Bottom of the Leaves, and consequently from the Extremities of the little Sprays, shoot forth imbricated Ears, with hairy Leaves compacted like Scales, from the Middle of which proceed small whitish gaping Flowers, with a quadrid Lip hanging down, under a Leaf, that stands upright. From the Centre of this gaping Aperture, arises a whitish Style divided in two. The Seed is like that of the common *Origanum*, being small, round, and of a dark-red Colour.

It is produced of Seed imported from *Narbonne* or *Provence* in France. *Raii Hist. Plant.*

Diocles the Physician, and the *Sicilians*, called the same Plant *Amaracus*, which the *Egyptians* and *Syrians* named *Sampsuchum*. It is propagated both ways, that is, both by Seed and

Slip. It is more spirituous, and of a sweeter Odour, than those we have mentioned [*Origanum, Thymus, Abrotanum, &c.*]. It is as full of Seed as *Abrotanum*. *Pliny, Lib. 21. Cap. 11.*

The finest and most odoriferous *Sampsuchum*, or *Amaracum*, grows in *Cyprus*. With Vinegar and Salt it cures the Bite of a Scorpion, the Place being anointed with it. The Application of it powerfully provokes the Menfes; it is of less Efficacy when drank. Mix'd with Polenta, it restrains the Defluxion of Humours to the Eyes. The Decoction cures the Gripes, and provokes Urine, and is good for hydropical Persons. When it is dry, it excites Sneezing. There is an Oil made of it, called *Sampsuchinum*, or *Amaracinum*, which is warming and mollifying to the Nerves and Uterus. The Leaves, apply'd with Honey, discuss Lividness and Swellings, arising from Blows or Contusions in the Face, and are good for Luxations, if apply'd to the Place with Wax. *Pliny, Lib. 21. Cap. 22.*

The best *Sampsuchum* grows in *Cyzicus* and *Cyprus*: Next to these for Goodness, is the *Egyptian*. The *Cyziceni* call it *Amaracus*.

Amaracus is recommended by *Ruffus Ephesus*, and *Oribasius*, as a Purger of black and pituitous Humours. The Dose is four Drams of the Powder in Honey or Oxymel. *Ruff. Fragm. p. 127. Oribas. Med. Coll. Lib. 7. Cap. 27.*

The *Amaracus* grows with us in Gardens, and flowers in July; the Herb and Seed are used. It is a Cephalic, and an Anti-hysterical; and on that account is principally used in Disorders of the Head and Nerves, as well as of the Uterus and Stomach. It provokes the Menfes, used in a Pessary; comforts the Brain, and discusses the Flatulencies, that molest it. *Dale.*

'Tis of fine Parts, digests, and attenuates. Taken any way, it helps cold Diseases of the Head and Brain. The Powder of the dry'd Herb, taken by way of Snuff, excites Sneezing, and draws out Phlegm, and strengthens the Head; the Juice of the Leaves, infused into the Nostrils, has the same Effect. It corrects also the Defects of the Thorax, and is friendly to the Stomach. Taken any manner of way, it relieves such as labour under Distempers of the Liver or Spleen; and helps Flatulencies, and other cold Diseases of the Uterus. Drank, it is a Diuretic, and purges watry Humours by Urine; and, chew'd or apply'd, it eases the Tooth-ach. It is an Ingredient in many Antidotes.

The Oil of it warms and strengthens the Nerves.

Nicolas Chesneau, M. D. of *Marseilles*, commends the following Errhine, as often experienced by him in the Head-ach:

Take of the Root of white Hellebore, half a Dram; of the Leaves of *Sampsuchus*, two Pugils; boil them in six Ounces of Water, to the Consumption of a third Part. When you use it, fill your Mouth with Water, and putting some of the Decoction, a little warm, in the Hollow of your Hand, draw it up your Nostrils, when the Pain is very violent, for it exasperates a slight one.

The Water of *Majorana* helps a Catarrh, if, instead of an Errhine, you fill your Mouth with Wine, or pure Water, and taking some of the Water of the Herb in the Hollow of your Hand, you stop one Nostril, and draw it up the other as far as the Root of the Nose, or the *Os Ethmoides*. If you don't take this Method, the Errhine will not ascend to the aforesaid Place, but will be diverted and drawn back upon the Fauces, or *Narium Foramina*.

This Errhine (says *Simon Paulus*) my Father used with the highest Reputation in the Case of Prince *Walenstein*, who was afflicted with a Rheum.

If the Sides of the Nostrils (*Pinnæ Narium*) or the Space between the Eyebrows, be anointed with the Balsam of *Majorana*, it has a wonderful Effect in a Catarrh, or rather a Rheum (*Coryza*). The Nape of the Neck, (*Nucha*) and the Temples, are usually anointed with the same Balsam, not only in the aforesaid Disorder, but in other cold Distempers of the Head. These three Observations were communicated to Mr. Ray by Dr. E. Hulse. *Raii Hist. Plant.*

The Oil of *Amaracus* (*αμαράκων*) is thus prepar'd:

The finest *Amaracinum* is made in *Cyzicum*. It is prepared of the Oleum *Omphacinum* and Oleum *Balanum* is perfumed with *Xylobalsamum*, the *Juncus Odoratus*, and *Calamus Aromaticus*, and sweetened with *Amaracus*, *Costus*, *Amomum*, *Spikenard*, [*σάπυ*] *Carpobalsamum*, and *Myrrh*, to which some add *Cinnamon*, who prepare it more sumptuously. In its Preparation they make use of a Quantity of Wine and Honey, which serves as well for anointing the Inside of the Vessels, as to macerate the powder'd Aromatics.

It heats, promotes Sleep, opens the Pores, [*ἀνασπασίμων*] mollifies, kindles a Fervor, [*πύρεσιν*] provokes Urine, is effectual in Putrefactions, [*σύνπας*] and Fistulas, and in an Hydrocele, after the Operation. It cleanses and takes away the crusty Scabs round the Edges of exasperated Ulcers. It helps Difficulty of Urine, if the Patient be anointed with it about the Anus, and cures Inflammations of the said Part, and the Hemorrhoids,

morroids, if anointed in like manner. Apply'd to the Uterus, it provokes the Menfes, and diffuses any Hardness or oedematous Tumours which affect it; and, spread upon thin Woolen, and apply'd, is good for wounded Nerves and Muscles. *Dioscorides, Lib. 1. Cap. 68.*

This is directed in a manner somewhat different by *P. Ægineta*:

Take of Elecampane, [ἐλέγιον] ten Pounds; Xylbalsamum, twenty Pounds; Cyperus, eight Pounds; the Flowers of Juncus Odoratus, Aspalathus, [ἀσπλάθη] Savine, each eight Pounds; Opoponax, Seeds of Amaracus, each two Pounds; of the finest Oil, [ἐλαιον πρῶτον] eighty Pints; fragrant Wine, five Pints; macerate them all in Wine, except the Savine, and then boil them six Hours, but the Savine only three. Some add three Ounces of Ærugo, to give it a Colour. *P. Æginet. Lib. 7. Cap. 20.*

The Σαμψύχινον, or Oil of Sampsuchum, is thus prepared:

Take of Serpyllum, Cassia, Southernwood, Flowers of Symbrium, Myrtle-leaves, Sampsuchum, of each such a Quantity as you think fit, due regard being had to their Strength, and bruise them all together: Then pour on them as much Oleum Omphacinum as shall be sufficient, without over-powering the Virtues of the things macerated in it, and after four Days strain it: This done, take the like Quantity of fresh Ingredients, and macerate them in the same Oil, the same Length of Time, and then strain it; by which means the Oil will have the more Strength and Efficacy. Chuse your Sampsuchum of a black Colour, inclining to a Green, very odoriferous, and of a moderately acrid Taste.

It is of a heating, attenuating, and acrid Quality, is good for the Occlusion or Distortion of the Uterus, and brings away the Menfes, Birth, and After-birth, and relieves under Hysterics. It mitigates the Pains of the Inguina and Loins. It is best used with Honey, because by its vehement Astringency it hardens the Places. It dispels Lassitudes from the Parts anointed with it, and is a very useful Ingredient in Cataplasms. *Dioscor. Lib. 1. Cap. 58.*

Salmasius de Homonym. Hyl. Iatr. Cap. xiii. Of the Amarus and Sampsuchus.

Ἀμάραξ, with the Greeks, was not the Name of one Herb only: Some Writers, who are neither inconsiderable for Number nor Authority, would have the Sampsuchus so called. It is strange, that *Dioscorides* should tell us, that the σαμψύχον (so the Copies have it) was called by the *Cyzicini* and *Sicilians* ἀμάραξ, and yet make the σαμψύχινον and ἀμαράκινον Ointments two different things: But these Inconsistencies are customary with *Dioscorides*, as I have observed. *Hesychius* has it, Σαμψύχον πλείον, &c. "Sampsuchus grows very plentifully in Egypt; others call it Amaracus." But see, in Answer to this, *Meleager*, one of great Antiquity, who, in that Poem, where he compares each Poet with his proper Flower, makes σαμψύχον and ἀμάραξ two distinct things:

Τὸ δ' ἄμα καὶ σαμψύχον ἀφ' ἡδονῆς Πιανῆ,
καὶ γλυκὺν Ἑστῆναι παρθενόχρῳα κρόνον.

"There was present the Sampsuchus from *Rhianus*, famous for its pleasant Air, and the sweet Virgin-colour'd Saffron, of *Herinna*." And a little after,

Ἐν δ' αὖ ἀμάρακον ἦκε πολυτράχην ἀνθὸν ἀοιδῶν,
φθινοῖαν τε νέκυν κούρεον ἀπ' Ἀντιπάτρους.

"And there came the Amaracus, the Flower sung by *Polystatus*, and the mournful Phœnician Cypress, worn at Funerals, from *Antipater*." *Galen* also, and *P. Ægineta*, treat of the Amaracus and Sampsuchus in different Chapters, which they would not have done, if Amaracus and Sampsuchus had been all one. They who are mov'd by the Authority of *Dioscorides*, to think them the same, are not aware of what Stress ought to be laid upon it. Nor indeed do they apprehend, that his Words, as they sound, are not levell'd against the opposite Opinion, which holds them to be distinct Species of Plants, but rather, if you take them aright, tend, not a little, to support it. "The *Sicilians* and *Cyzicini*, he says, call that Amaracus, which others call Sampsuchus." This does not make them to be the same: Himself plainly shews the contrary, when he makes the μέγαν σαμψύχινον and ἀμαράκινον different Ointments. *Diocles*, quoted by *Athenæus*, has ἀμάραξ, ὃ τινες σαμψύχον καλεῖσι. To confirm this by an Example: Some of the Greeks call τὸ κρίνον also λεῖον, according to *Dioscorides* himself, and many more. Nor did this hinder others from calling *Narcissus* by the same Name; and indeed more used this Word λεῖον for *Narcissus*, than for the Lily, which the Greeks called κρίνον. But more than this may be said for Ama-

ratus, which they would have to be Greek, but σαμψύχον an Egyptian and Syriac Word. *Pliny* says, *Diocles* the Physician, and the *Sicilians*, called Amaracus, what Egypt and Syria named Sampsuchum. So that ἀμάραξ, it seems, is the Greek, and σαμψύχον, the Syriac Name for the same Herb. And indeed this latter Word plainly seems to be of a Syriac or Egyptian Turn; for Σάμψις is a City in Egypt, and Σάμψα a Village in Arabia, and Σαμψάσι another in Judæa, a Province of Syria, which they interpret ὁμοιοί, and Σάμψα ὁμοιον, whence also comes Βάισαμψα on the Arabian Gulf, which *Stephanus* interprets οἶκος ἡλίου, "the House of the Sun." The Sun in Hebrew, 'tis well known, is called שמש Shemesh, which is the same in Arabic. There is Mention made of ἀμάραξ in the Writings of *Theophrastus*, but none of σαμψύχον. In vain therefore would they draw him over to the Party of those who have inform'd us, that Sampsuchum is the same as Amaracus; I don't doubt but the Amaracus of the Greeks answered to the Sampsuchum of the Egyptians; but the Greeks called something else besides the Sampsuchus by this very Name. The *Cyzicini*, who had the best, and the greatest Plenty of Sampsuchum growing in their Territories, called it ἀμάραξ, and so did the *Sicilians*. But all the rest of Greece did not agree in that Name; for some called ἀμάραξ, *Parthenium*, of which *Dioscorides* speaks; viz. Παρθένιον, ὃ δὲ ἀμάραξ, ὃ δὲ λευκάνθημον καὶ τὸτο καλεῖσι (so I read it from a very ancient Copy). "Parthenium, some call it Amaracus, others, Leucanthemus." Therefore *Pliny* is to be corrected in this Word, *Lib. 21. Cap. 30.* *Parthenium alii Leucanthemum, alii Tamnatum vocant*, read alii Leucanthemum, alii Amaracum vocant. In the Index it is written *Parthenium, sive Leucanthemum, sive Amaracus*. Λευκάνθη is the same as λευκάνθημον. *Pliny* adds, *Celsus apud nos, Perdicium & Murarium*. He confounds, as he uses to do, two Parthenia. The Parthenium, which was also called Perdicium, was different from the Murarium, which grew on the Walls. There is a ridiculous Mistake of *Pliny's* in what follows, *Flore albo, odore Mali, sapore amaro*. The Greek, from which he translated, reads thus; ἄσπι λευκὰ κύκλα, τὸ δὲ μέσον μέλινον, ὁσμήν ὑπὲρ βρωμῶν. *Pliny* read μέλινον ὁσμήν, ὑπὲρ βρωμῶν, and render'd it *Odore Mali*, which is most absurd. The Greek Author means, that the circling Leaves of the Flower were white, but the Middle of the Calyx yellow. This sort of Parthenium grows not in the Hedges, or on the Walls, but the other, which is called ἑλξίνη. And this Helxine itself is homonymous to another Helxine named κισσάμπηλα and ἀμείριον, which is a Species of Convolvulus. The Parthenium Helxine, or Murarium of *Celsus*, is now called *Parietaria*, [Pellitory of the Wall] by a very ancient Name. *Constantine* called *Trajan*, *Herba Parietaria*, because his Name was inscrib'd on many public Buildings. *Ammianus* also calls it *Herba Parietaria*. The Authors of the *Hippiatrica*, *Cap. 390.* Σαίρων Γαλλικὸν καλὰ κρόνον, καὶ σιδηρίτιν περδίκιον τὴν ὀσμήν Ρωμαίοις λεγόμενὴν παρειάειαν βοῶντων. "Bruise Gallican Garlick, and *Sideritis* Perdicium, called by the Romans; Herba Parietaria." And *Cap. 496.* Καὶ εὐλλαν βοῶντων σιδηρίτιν, ἢ Ρωμαῖοι παρειάειαν καλεῖσι. And *Cap. 562.* καὶ περδίκιον βοῶντων σιδηρίτιν, ἢ Ρωμαῖοι καλεῖσι παρειάειαν. "And the Herb Sideritis, which the Romans call Parietaria." And so in many other Places. Now because there are several Species of Plants which bear the Name of *Sideritis*, they would be understood to mean what the Romans called *Parietaria*. *Paulus Ægineta* has, ἑλξίνη, ὃ δὲ περδίκιον, ὃ δὲ παρθένιον, ὃ δὲ σιδηρίτιν, ὃ δὲ ἑλξίλειαν, δύναμις δὲ αὐτῆς ῥυτίκη. "Helxine, called also Perdicium, Parthenium, Sideritis, and *Heracleia*; it is of an absterfve Quality." This was the same with the *Urceolaris* of the Latins so called, because they scoured their Urcei [Pots] and Glasses with it. The Greek *Hippiatrica* [Farriers] *Cap. 520.* πρὸς ἀνάπνοιαν, ἢ καὶ βήχα, "for a broken Wind, or a Cough." Βοῶντων, ἢ Ἕλληνας καὶ περδίκιον, Ρωμαῖοι δὲ ὑπερλάρεν ὀνομάζουσι. "The Herb which the Greeks call Perdicium, and the Romans, Urceolaris." Also *Pelagonius*, Βοῶντων περδίκιον, ἢ Ρωμαῖοι ὑπερλάρεν καλεῖσι. "The Perdicium, which the Romans call Urceolaris." The modern Italians call it *Vitreda*, from the Use it is put to in scouring of Glasses. An ancient Arabian Author, who added Arabic Nomenclaturas to a very old Copy of *Dioscorides*, calls this Helxine, *Hassjis Alzagiagi*, that is, Glasswort, because it was used to scour Glass Vessels. He adds, in the same Place, that it was a Species of *Lebleb*, that is, of a *Convolvulus*. Thus he confounded it with another Helxine, which climbs up whatever is near it. But that it serv'd the ancient Greeks for the same Use, that is, scouring of Glass Ware, its Name shews us; for they call'd it κλύβαλις, *Klubatis*, ἀπὸ τοῦ κλύειν τὰς βάσεις, or βάτιας, "from rinsing the Bases or Batiakes," which were a sort of Drinking-glasses. There is a Mistake in *Apu-leius*, *Cap. de Perdic.* of *Ulcioraria* for *Urceolaria*. *Pliny*, *Lib. 22. Cap. 17.* makes the Perdicium Helxine different from the Perdicium Urceolare. "Helxine, says he, is by some called Perdicium, because the Partridges especially feed on it; some call it Sideritis, others Parthenium." To this he subjoins its medicinal Virtues. A little after, as if he were speaking

Speaking of another Herb, he begins again thus: "Perdicium, or Parthenium, (for it is the same as Sideritis) is called among us, *Herba Urceolaris*, by others, *Astericum*. Its Leaves are like those of *Ocimum*, only blacker; it grows on Walls, and Roofs of Houses." He separated them also in the Index: "Helxine XII. Perdicium, or Parthenium, or Sideritis, which is *Urceolaris*, or *Arterium* XI." He transcribed those Accounts from two Authors, and therefore supposed they spoke of different things. For the Helxine of the Greeks is the same as *Urceolaris*, which was also called *Abstergium*, (for so it should be read in both the forementioned Places) because it was used in absterging or scouring of *Urcei*, "small Vessels." Helxine, in *Dioscorides*, which is the same as Parthenium, has Leaves like those of Mercury (*λινόζωσι*). Parthenium, which is the *Urceolaris* of *Pliny*, has Leaves like *Ocimum*. They are the same thing, for *λινόζωσι*, or Mercury, has Leaves also like those of *Ocimum*. But *Pliny* says, that Helxine has Leaves, that bear a mix'd Resemblance of those of Plantane and Horehound. How so? Why because he confounded the Helxine Sideritis with another Sideritis, the *Heraclia*, whose Leaves are of the Size of those of Horehound.

Parietaria, *Urceolaris*, *Abstergium*, *Perdicium*, and the *Herba Muralis* of *Celsus*, are Synonyma of the same Herb, which, with the Greeks, is that Helxine, whose different Names you find in *Dioscorides*, according to a very antient Copy, as follows: "Ἑλξίνη, ἡ δὲ παρθένιον, ἡ δὲ σιδερίτιν, ἡ δὲ ἡράκλειαν, ἡ δὲ ὑγιεινὴν ἀργύρεαν, ἡ δὲ κλύβαν, ἡ δὲ πολυώνυμον καλεῖται. φύεται ἐπὶ θέρυγας καὶ τοίχους." Helxine, which goes by the various Names of Parthenium, Sideritis, *Heraclia*, wild Hygieine, *Klybatis*, and *Polygonum*; it grows on Walls of Towns or Houses." The Reason of its Name *Helxine* [from *ἔλκω*, to draw] is taken from its rough Seeds about the Stalk, which stick to Clothes. *Pliny* expresses it, by lappaceous, [Dock-like] Heads. "Seeds, says he, in lappaceous Heads, which stick to Clothes, whence they would have it to be call'd *Helxine*." He seems to call whatever implies a Faculty of drawing and sticking, lappaceous. *Dioscorides* has it, Σπέρματα τραχέα ἀσπιδωδὲς τῶν ἱμασίων, "rough Seeds, that take hold of the Garments."

Another Helxine, *ἑλξίνη*, of a quite different Species, is so called, because to whatever it applies itself, it uses to climb up, and twist itself about it: "Ἑλξίνη, ἡ δὲ ἀμφοσίννι, ἡ δὲ κισσάμπελον, φύλλα ἔχει ὅμοια κισσοῦ, ἐλάττω δὲ, καὶ κλώνια μακρὰ περιστρεφόμενα ὅτε ἀντύχοι." Helxine, by some called *Hemifine*, by others *Cissampelus*, has Leaves like the Ivy, but less, which twine themselves about every thing they meet with." The Greeks, according to their usual Custom, transfer the Properties of one Helxine to another, without making any Difference. So the Parthenium *Amaracum* is quite different from the Parthenium Helxine, or *Murale*, between which *Pliny*, according to his careless way, makes no Distinction. None then shall persuade me, that he had any Knowledge in Botany, who shew'd so much Ignorance in his Notions about an Herb so very common as *Parietaria*.

Well, but there are also two *Amaracums*; one, otherwise called Parthenium, another also called *Sampfuchum*, which is either an Egyptian or Syriac Name. However I can hardly believe, that *Galen* and *Paulus*, when they gave us distinct Descriptions of the *Amaracus* and *Sampfuchum*, are to be understood of this Parthenium *Amaracum*; much less should I be able to prove, that the Unguentum *Amaracinum*, which in *Dioscorides* is different from the *Sampfuchinum*, was usually made of this Parthenium *Amaracum*; for it is an Herb of a very rank Smell. Besides, when *Galen* speaks of the Preparation of *Amaracinum*, he intimates as though he would be understood of that Sort of *Amaracum*, which was produced to the greatest Perfection in *Cyzicus*, and was called by the Egyptians, in their own Tongue, *σαμψύχον*. But *Neophytus*, under the Name of *Amaracum*, has described the Parthenium of *Dioscorides*, and ascribed to it the same Virtues, that *Galen* did to his *Amaracum*, which he separated from *Sampfuchum*. "Ἀμάρεον, says he, ἡ δὲ ἀνθεμὶν, ἡ δὲ λευκάνθεμον, ἡ δὲ παρθένιον, ἡ δὲ χαμαίμηλον, ἡ δὲ χρυσοκαλδὲς, ἡ δὲ μαλάβαθρον, ἡ δὲ ἀνθὸς πεδινός. Ῥωμαῖοι σάκκον ἐκκόλουν, ἡ δὲ μιλφόλιον. Ὅσοι καλεῖται. *Amaracum* is called by some, *Ἀνθεμὶς*, by others, *Leucanthemus*, *Parthenium*, *Chamamelum*, *Chrysocalus*, *Malabathrum*, and *Ground-flower*; by the Romans, *Oculus Solis*, *Millefolia*, and by the *Tuscans*, *Cantar*; to which he subjoins from *Galen's* *Amaracum*, Γαληνὸς ἀμάρεον θερμὸν ῥῶδ τῆς τριτῆς τάξεως, ξηρὸν δὲ τῆς δευτέρας. *Galen* makes *Amaracum* to be hot in the third Degree, and dry in the second." But I have long since resolved with myself to give but little Credit to those *Greeks* of the lower Ages; for believe me, who am pretty well acquainted with them, they are not to be trusted. Here this Writer has coupled together several Flowers of quite different Kinds, as if the Names of Plants were their only Characteristics.

Nor can we pay a jot the more Deference to the Opinion of very celebrated Medico-Botanists; [*ιστορίαι βοτανικαί*] who would

persuade us, that the *Amaracus* of *Galen* and *Paulus* is not the *Sampfuchus* of *Dioscorides* and *Pliny*, but *Marum*; as if *Galen* had not made distinct Mention of *Amaracus* and *Marum* in the Composition of the Ointment *Hedychroum*, where he also tells us, that *Marum* is of a stronger Smell than *Amaracus*. "These three, says he, are of different Kinds, according to *Galen*; viz. *Sampfuchus*, *Amaracus*, and *Marum*." *Pliny* also, *Lib. 13. Cap. 1.* in express Terms, makes the *Sampfuchinum* Unguentum to be quite different from the *Amaracinum*: "The best *Sampfuchinum*, says he, is to be had in *Cyprus* and *Mitylene*, where there is the most *Sampfuchus*." A little after, in the same Chapter, he mentions *Amaracinum* separately, as a distinct Thing, thus: "The Juices of each Plant make the celebrated Ointments. The choicest of these Herbs is the *Malabathrum*; next to this are the *Illyrian Iris*, and the *Amaracus* of *Cyzicus*." You see, that the most *Sampfuchus* is in *Cyprus*, whence comes the *Sampfuchinum*; but the greatest Plenty of *Amaracus* is in *Cyzicus*, whence we have the *Amaracinum*. But I would beg Leave to observe here, that by *Amaracus* in this Place, is not meant *Marum*. For, in the same Chapter, *Amaracus* and *Marum* are both Ingredients together in some Compositions. *Telino Amaracum* & *Maron pariter adduntur*. The Royal Ointment also, and very many more, contain both *Amaracus* and *Marum*.

These Inconsistencies are owing to the Heedlessness and Inadvertency of Authors, who transcribing from different Places into their own Writings, took no Care, for the most part, to distinguish between things which ought to be separated; but, on the other hand, made Distinctions without Foundation, and supposed a Difference between things which ought to be accounted one and the same. There is no doubt, but that the *Sampfuchus* was of the same Species with the *Amaracus*, this under a Greek, the other under an Egyptian Name. But to this Difference of Names we ought, perhaps, to add another resulting from the Nature of the Soil. For oftentimes the same Plant which grew in Greece, was of a different Habit and Figure from one growing in Egypt or Syria, as might be observed in the Cypress and Ligustrum, and not a few others. And so there might be also some Difference between the *Sampfuchus* and *Amaracus* as to their Juices, arising from their native Soil and Air. *Columella* makes Egypt the Country of *Sampfuchus*, and reckons it among exotic Herbs:

Nataque jam veniant hilari Sampfucha Canopo.
Come *Sampfuchus* from Egypt's merry Land.

Nicander makes this only Difference between *ἀμάρεον* and *σαμψύχον*, that *Amaracus* grows in Greece, but the *Sampfuchus* is an Exotic. Amongst Remedies, that are effectual against the Bites of Serpents, he reckons up *Amaracus* and *Sampfuchus* separately:

— μάλα δ' ἂν καὶ ἀμάρεον εἴη
Χρηστέον, περὶ τῆς τε καὶ ἀνδρησι χλοάζων.

"Let *Amaracus*, in particular, contribute its friendly Virtues, the Herb that flourishes in Garden-plots and Terraces." Here he plainly speaks of that *Amaracus* which was the usual Ornament of the Walks and Areas of Gardens. So in another Place, he distinguishes the medicinal *Nasturtium* from the common, in the following Words:

— πῶς φύλλον ἐναλλόμενον περὶ τῆς
Καρδαμίδος, Μῆδον τε —

"The Leaf of the *Cardamis*, that usually grows in Garden-plots, and the *Median*." He calls it the common *Cardamis*, which was brought from *Media*. This Place was never understood by antient nor modern Interpreters.

Amaracus then was proper to Greece, and, as *Nicander* tells us, was common in Gardens. But a little after, he places *Sampfuchus*, as though it were a different thing from *Amaracus*, amongst *Alexipharmacs*:

— ἑστὲ καὶ αἰλῆς
Καυλὸς ἡνεμόνιος, ἰδὲ πλεῖστα πολλὰ καὶ ἄνθη
Σαμψύχου.

"Nor (forget) the waving Boughs of the Elder-tree, with good Store of the Branches and Flowers of the *Sampfuchum*." No Reason but this can be given, why he should distinguish them. That *Sampfuchus* was not of the Growth of Greece, the Name itself sufficiently shews.

After this manner are Authors to be reconciled, who sometimes make *Amaracus* the same with *Sampfuchus*, at other times suppose them different. Have we not the like Instance in *Ligustrum*? which some would have to be the same with the Cypress, others contradict it. We have asserted in another Place, that Cypress is the Eastern *Ligustrum*, and *Ligustrum* the common Cypress; and yet there is no small Difference between them both in Figure and Smell.

They who have describ'd the *σκευασία*, [Preparation] of the *Amaracinum* Unguentum, as it is prepared in *Cyzicus*, where the Name *ἀμάρεον* obtains, call'd it *ἀμαρέκινον*. But they who

who left us in Writing the Egyptian way of Preparation of the same Ointment, called it *σαμψύχων*, because the Plant had the Name of *σαμψύχων* in Egypt. Others transcrib'd these different *συνασπασίας*, "Preparations," into their Books under distinct Titles. That *Dioscorides* did so, is plain; though in another Place he had owned, that *ἀμαράκων* and *τάμψυχων* were the same, and only differed in the Language. Hence *Galen*, and *Paulus*, who followed him, put them asunder, and enumerate them distinctly, as if they were really different.

I wonder too, that *Galen* and *Dioscorides* both write; that *Amaracus* was usually added to the *Amaracinum Unguentum*. But *Theophrastus*, in his Commentary on Smells, affirms this Appellation of *Amaracinum* to be Pseudonymous (*ψευδώνυμον*) because nothing of *Amaracus* used to enter that Composition: And 'tis observable, that *Amaracus* is the only fragrant Simple, that is left out in all Ointments by *Myrsus*. Τὸ δ' ἀμαράκων τὸ χρεῖν ἐκ τῶν βελίστων ἀρωμάτων συντίθεσθαι χρεῖς ἀμαράκων, τίτλη δ' ἐχρεῖται μόνον τῶν ἀρωμάτων τὰς μυρσίδας, ὅδ' εἰς ἐν μύρον. "Good *Amaracinum* is compounded of the best Aromatic, except *Amaracus*, which is the only thing of that Kind, that never enters the Composition of any one Ointment." Ἄλλα ψευδώνυμον ἢ ἐπικλησις, "the Appellation is pseudonymous," it is called *Amaracinum*, without a Mite of *Amaracus* in it.

With this agree *Servius's* Notes on the third *Æneid*. "*Amaracus* was a Boy, that was the King's Ointment-bearer; who happening to fall while he carry'd the Ointments, occasioned the greater Fragrance by their Confusion." Hence the best Ointments came to be called *Amaracina*. The *Amaracinum* then was so called from the Boy *Amaracus*, and not from the Herb of that Name, which had no Place in this Ointment.

Theophrastus informs us, that the *Amaracinum* was made of *Costus*. Ἀπὸ βίβλων δὲ τὸ τε εἶναι καὶ νάρδιον, καὶ τὸ ἀμαράκων ἐκ τῆς ὕλης τῆς γὰρ ὀνομάζεται τὴν βίβλον. "The *Itinum* and the *Nardinum* are made of Roots, and the *Amaracinum* of *Costus*; for they call this a Root." At this Rate indeed, the Unguentum *Amaracinum* must be different from the *Sampfuchinum*: But *Dioscorides* and *Galen* assure us, that the *Amaracus* was as usually added to the *Amaracinum*, as the *Sampfuchus* to the *Sampfuchinum*, in Defence of whose Assertion, the least that can be said is, that the Preparation of the *Amaracinum* in their Time, was different from what it was in the Days of *Theophrastus*. But what shall we do with *Pliny*, who tells us, that the Ointment was made of *Amaracus* alone, without the Mixture of any other odoriferous Ingredient? Why, we will say, that he was quite wrong; and, no doubt, he drew this contrary Sense from these Words of *Theophrastus*; viz. Τίτλη δ' ἐχρεῖται μόνον τῶν ἀρωμάτων τὰς μυρσίδας ὅδ' εἰς ἐν μύρον. He either read these Words wrong himself, or heard others read them so, as if they run thus: Τίτλη δ' ἐχρεῖται μόνον τῶν ἀρωμάτων ὅδ' εἰς ἐν μύρον. "This Aromatic is used to make up an Ointment by itself." But this same *Theophrastus*, who denies that *Amaracus* was used in the Composition of *Amaracinum*, assures us, that τὸ μάρον, "*Marum*," was an Ingredient in it: Τὸ δὲ μάρον καὶ τὸ χρώμα τὸ εἰς τὸ ἀμαράκων ἐμμιγνύμενον θερμαίνετα. "But the *Marum*, and the *Chroma*, (*Cyperus*) which is an Ingredient in the *Amaracinum*, are healing; and the τὸ μάρον, and τὸ ἀμαράκων, seem to have the same Original, and the latter derived from the former, μάρον, μάρον, and ἀμαράκων; so that they are Species of the same Genus, as appears by the Name. As the last descended from the other by Production, so it declin'd, and became inferior to it in Goodness and Virtue. The *Maron* then is better and more fragrant than the *Amaracum*, as is acknowledged by all.

As for the *Sampfuchus*, or *Amaracus*, then, we are certain it is that aromatic Herb which we call *Majorana* (*Sweet Marjoram*). The *Latins* of the lowest Ages so named it, by way of Difference, to distinguish it from the lesser *Amaracus*, which was called μάρον, "*Marum*." Nor are we to seek for any other Difference between *Amaracus* and *Maron*. The more modern *Greeks* interpret *σαμψύχων* by *μαϊωρίνα*, *Majorana*, which is the greater *Amaracus*, as *Marum* is the lesser. This latter is of a stronger and more fragrant Smell, according to *Galen*, and is really so. It is commonly called *Franca Majorana*, "*French Marjoram*." But, perhaps, this is a Corruption of the *Arabic* Name, of which by-and-by. It is also called in *Greek* ἰσόβρυον, *Isobryon*, because it is covered with a Multitude of small Leaves, resembling those of βρύον, "*Moss*." *Dioscorides*, μάρον, ἢ ἰσόβρυον (so it should be read). The more modern *Greeks* call it *βεργανίς*, *Neophytus* μάρον, ἢ *βεργανίδα*, *πία βεργανίδης*. "*Marum*, by some called "*Origanis*, is a shrubby Plant." *Calamintha* also is by some called *Origanis*, which *Calaminth*, we are told by *Dioscorides*, resembles *Sampfuchus*, at least, τῇ λεπτοφυλίᾳ, "in Thinness of Leaves." The Scholiast on *Nicander* makes *Sampfuchus* to resemble *Hyssop*. This *Hyssop* some interpret *Casia*, as *Neophytus*, who writes; that ὕσσωπος, "*Hyssopus*," was by the *Romans* called *κασίολα*, "*Casiola*." Ρωμαῖοι ὕσσωπον, ὡς

δὲ *κασίον*, ὡς δὲ *κασίολα*. "The *Romans* call *Hyssop* *Later*, and "some *Casiola*." Some have also expounded *Sampfuchus* in *Latin* by *Casia*. Glossæ, *σαμψύχων*, *Sampfuchum*, *Casia*. These Herbs were scarce in ancient Times, and not to be met with every-where. *Pliny* reckons *Marum* an exotic Shrub, of the Growth of *Lydia* and *Egypt*; but *Dioscorides*, that it was *πῶς γινώσκον*, "a noted Plant," which grew very plentifully in *Lydia*. It appears to be a noted Plant in *Asia*, the Country of *Dioscorides*, whose Ancestors were of *Anazarba*. It was so little known to the *Romans* in those Times, that *Pliny* makes it a large Shrub, worthy to be mentioned with the *Cypress* and *Aspalathum*. "*Egypt*, says he, produces also *Maron*, but not so good as *Lydia*. It has larger and various Leaves, but the *Lydian* has short, very small, and fragrant Leaves." I could venture to lay any Wager, that this *Egyptian* *Maron*, with the larger and less fragrant Leaves, is the same with *Sampfuchus*, or the *Egyptian* *Amaracus*. For the *Marum* had short and minute Leaves, and more fragrant than those of the *Sampfuchus*, which some also called *Marum*.

Sampfuchus was very plentiful in *Egypt*; whence the ancient Critics have expounded *Ναυκρησίτην* *σεβανον* in *Anacreon*, by *Sampfuchus*. *Athenæus*, Παμπόλλης δὲ οἶδα λέγουσιν ἐκ τῆς σαμψύχης ἐστάναι ἔλαι τὴν ναυκρησίτην, πολὺ δὲ τὸ ἀνθ' αὐτὴν κατὰ τὴν Αἴγυπτον. "I know many who are of Opinion, that the Garland of *Naucratis* was made of *Sampfuchus*, which Herb grows very plentifully in *Egypt*." *Dioscorides* says, that *Marum* grows in great Abundance about *Tralles* and *Magnesia*, which are Cities of *Lydia*; and *Theophrastus*, among the Flowers used in Garlands, mentions the *Phrygian* *Amaracus*, which is the same with that of *Cyzicus*. *Galen* tells us, that he saw *Amaracus* in *Italy*, but does not say so of *Marum*. Therefore *Marum*, at that time, was found in fewer Places than *Amaracus*.

In a very ancient *Dioscorides* it is written, that *Sampfuchus* was called in *Arabic*, *Marzangius*, but *Marum*, τὸ μάρον, *Marmarhanzi*. In *Avicenna* it is written *Marmarhanzi*; for it is certain, that *Marum* is described by him under that Name, in Chap. 465: of the *Latin* Edition. An ancient Interpreter reads it *Marmacor*, from the Transposition of a single Punctum, διακρίνον, "distinguishing Point." From this *Marzangius*, the *Barbarians* hammered out their *Majorana*; as if they would say *Marzangiana*. In both the *Arabic* Words you may trace the Term μάρον. There is room for Conjecture, that different Species of *Marum* are signified by these two Words. In the preceding Chapter, *Avicenna* reckon'd an Herb called *Maru*, among whose Species was found one named *Marmabuki*. *Belunensis*, in his Lexicon, remarked, that *Marmacor*, or *Marmarhanzi*, was an Herb, which the common People at *Venice* called *St. John's Wort*, and that its Seed was called the Seed of *Maron*. But *Marmarhanzi*, in *Avicenna*, is the Term for the *Maron* of the *Greeks*, as appears from the Description. But what is called *Maru* in that Author, of which *Marmabuki* is a Species, is another thing. *Alpagus* assures us, that it is the Herb *St. John's Wort*. *Leoniceus* pretends, that the *Bacchar* of the Antients is so called by the *Italians*. Whether this be true, I cannot say; but this is certain, that most of the Remedies, which *Avicenna* relates of the *Almaru*, agree to the *Bacchar*. Of the Species of *Marum*, one, he says, resembles an Ox's Tongue, or the Herb *Bugloss*, yea, is that very Herb. Nay in Chap. 436. where he treats of the *Bugloss*, he says, in express Terms, that its Leaves are like those of the *Almaru*. In a very ancient Copy of *Dioscorides*, *λεβανώσις*, is interpreted *Bezer Almaru*, "the Seed of *Maru*." Among the Species of *Libanotis*, *Dioscorides* reckons one, from *Theophrastus*, which has Leaves like the wild Lettuce. Θειράρας δὲ ἰστέ μετὰ τῆς ἐρείκης λεβανώσις, θρίδασι ἀγρία τῇ περὶ ὁμοία φύλλα ἔχουσαν, βίβαν δὲ βραχέειαν φύδα. "*Theophrastus* relates, that the *Libanotis* grows with the common *Erica*, Heath, and has "Leaves like the wild bitter Lettuce, and a short Root." The Place of *Theophrastus* is in Book 9. Chap. 12. of the barren *Libanotis*: Ὁ δ' ἀκαρπὸς ἔχει τὸ φύλλον ὅμοιον θριδάκων τῆς περὶ, τετραχύτερον δὲ καὶ λευκότερον φύλλον δὲ ὅσον περ ἐρείκου πλείον. "The barren Sort has a Leaf like that of the bitter "wild Lettuce, but rougher and whiter, &c." In this there is a remarkable Corruption, which must be amended by the Authority of *Dioscorides*, who, it is plain, read this Passage in *Theophrastus* thus: φύλλον δὲ ὅπου ἐρείκων πλείον, "it grows where "there is plenty of Heath." This is what *Dioscorides* expressed, by saying, that this *Libanotis* did μετὰ τῇ ἐρείκῃ φύδα, "grow with the Heath." 'Tis plain, that this is the *Libanotis*, which *Avicenna* reckons among the Species of *Almaru*, and likens to an Ox's Tongue. As to its having Leaves like the wild Lettuce, the more modern *Greeks* say the same of their *Bugloss*. *Neophytus*: Βεγλωσσὸν φύλλον μὲν ἔχει ἔξ ἢ ὀκτώ, μῆκος σπιδάμις, ὡς αὐτὴ ἀγρίας θριδάκος, πλάτος δακτύλου δὲ ἢ ἑκατὸν. "The *Bugloss* has six or eight Leaves, a Span long, like those "of the wild Lettuce, of the Breadth of two Fingers, or less." This *Bugloss* is different from that of the ancient *Greeks*, whose Leaves are compar'd by *Dioscorides* to those of *Mullein*, φλόκω, and is nearly the same with ours. The Leaf is less than the Breadth

Breadth of two Fingers. The Greeks of the latest Ages call'd *Βεράριον* what the Antients named *Βεράριον*. The barbarous Nations call'd it *Borrage*.

From what has been said, it appears, that partly *Baccharis*, and partly *Libanotis*, were, by *Avicenna*, comprehended under the Appellation of *Almaru*. In another Place, he puts *Libanotis* under the Title of *Scegiar Mariem*, that is, *The Tree of Mary*, which, he says, was also called *Buchur Mariem*, that is, *Thymiana Maria*. This I would have to be understood of the *Libanotis* used in Garlands, which the *Latins* called *Rosmarinus*; but *Avicenna* took it for the other, of which there are three Sorts; and they are mistaken who comprehend these under the Appellation of *Rosemary*, since there is but one Sort which goes by that Name, and serves both for Garlands and Suffumigations, and was also used by the Antients in Ointments.

In an antient *Dioscorides*, *Baccharis* is spelt the same, almost Letter for Letter in *Arabic*. There is no mention of this, so far as I know, in *Avicenna*. But his Account of *Almaru* is taken partly from this, and partly from the *Libanotis*, which, 'tis pretended, is the same with what is commonly called *St. John's Wort*. But this latter is a Name imposed on several Herbs in different Countries. The superstitious old Women, 'tis certain, gather several Sorts, out of a religious Motive, on *St. John's Eve*. *Fuchs* observes, that the *Hypericon* was called *St. John's Wort*, by his Countrymen, the *Germans*. There is another Sort, which our Peasants call by that Name, and a third, which is honour'd by that Title in *Venice* and the *Ferrarese*.

AMARA-DULCIS, a Plant thus distinguish'd:

Solanum lignosum Dulcamara, Offic. *Solanum lignosum*, seu *Dulcamara*, Park. Theat. 350. Raii Hist. 1. 672. Synop. 3. 265. Merc. Bot. 1. 69. Phyt. Brit. 115. *Solanum scandens*, seu *Dulcamara*, C. B. Pin. 167. Tourn. Inst. 149. Elem. Bot. 124. Boerh. Ind. A. 2. 67. Dill. Cat. Giff. 82. Rupp. Flor. Jen. 36. Buxb. 306. *Amara-dulcis*, Ger. 279. Emac. 350. *Dulcamara*, seu *Amara-dulcis*, Mer. Pin. 34. *Glycy-picos*, seu *Amara-dulcis*, J. B. 2. 109. Chab. 114. BITTER-SWEET. Dale.

It sendeth forth woody, brittle, slender Stalks, two or three, and sometimes five or six Feet long, which twine themselves about the adjacent Hedges or Shrubs, or otherwise lie flat on the Ground. The Bark of the young Sprays is green, but that of the old ones and the Stalks is rougher, and of a whitish or ash Colour on the Outside, but of a beautiful Green on the Inside. The Medulla, or Pith, is a fungous Substance. The Leaves stand alternately, resemble those of the *Solanum Hortense*, are of a dark Green, and sometimes furnish'd with two Lobes or Auricles at their lower Part, and a Pedicle of about an Inch long. The Flowers grow in small Umbellas, are fecund, but fine enough to the Eye, being of a coeruleo-purple Colour, and sometimes white, and divided into five narrow sharp-pointed Leaves, bending back outwards, in the Middle of which are yellow Chives forming an Umbella. These are succeeded by soft slimy Berries, somewhat long in Shape, of a scarlet Colour when ripe, of an unpleasant Taste, and full of small, flat, whitish Kernels. It has a fibrous Root.

It delights in moist and watery Places, and therefore is often found about Pits and Ditches. It flowers in *June* and *July*.

Sebizius says, that the green *Dulcamara* bruised, and apply'd in Form of a Cataplasm, mitigates Pains in Womens Breasts, mollifies their Hardness, and dissolves grumous Milk in them.

It is said to provoke Urine, and to be successfully prescribed against the Dropsy.

Take (according to *Tragus's* Receipt) a Pound of the Wood of this Plant, cut it into Pieces as big as those you play with at Draughts, and put them with a Measure of White-wine into a new Pot, and stop it well with a Pot-lid, which has a small Hole bor'd in the Middle of it, and paste it all round with Water and Bran. Set the Pot over a slow Fire, and let it boil to the Consumption of above a third Part, and use the rest.

An ordinary Glass of this Liquor taken in the Morning, an Hour before you rise, and just as you are going to bed in the Evening, purges off the Yellow-jaundice, tho' never so inveterate, in a gentle manner, by Stool and Urine.

The Juice of it drank, is said to be good for Ruptures, and Bruises by Falls or Blows, being esteemed as effectual in dissolving concremented Blood any-where in the Viscera, and healing the Parts that are hurt. It is held to be useful also in opening Obstructions of the Liver and Spleen. *Parkinson* writes, that whenever he knew it prescribed, it work'd with sufficient Violence. And *Prævotius* gives the Decoction of the Wood of *Dulcamara* the first Place among the gentle and kindly Evacuants of Bile.

The following Receipt is from Dr. *Hulse*:

Take four Handfuls of the Leaves of *Dulcamara* shred, with four Ounces of Linseed finely pulverized: Boil them in Muff Wine of Candy, or in Hogs Fat, to the Consistence of a Cataplasm, and apply it warm.

This Remedy, in the Space of one Night, dissolved a Tumour as big as a Man's Head, and healed deplorable Contusions of the Muscles. Raii Hist. Plant.

AMARANTHUS, a Plant thus distinguish'd:

Amaranthus flos amoris, Offic. *Amaranthus maximus*, C. B. 120. Raii Hist. 1. 201. Boerh. Ind. A. 2. 97. Tourn. Inst. 234. *Amaranthus paniculâ sparsâ*, Ger. 254. Emac. 322. *Amaranthus purpureus major*, paniculis sparsis, Park. Parad. 371. *Amaranthus paniculis procumbentibus*, semine albo, seu *Quinua*, Hist. Oxon. 2. 602. *Blitum maximum* seu *Amaranthus major*, semine albo, J. B. 2. 968. Chab. 304. FLOWER GEN-TLE. Dale.

The *Helichrysus*, which some call *Chrysanthemos*, others *Amarantus*, of which they make Garlands to adorn the Images of the Gods, has a greenish-white, strait, firm Stalk, with narrow Leaves, set at Distances, like those of *Southernwood*, a globous Head of the Colour of Gold, a round Umbella of dry Clusters of Flowers hanging downwards. It grows in rough and rugged Places.

The Top, drank in Wine, is effectual in a Dysury, and against the Bites of Serpents, is good for the Sciatica and Ruptures, and provokes the Menfes. Drank in Mulsium, it wastes Concretions of Blood in the Belly or Bladder. The Weight of half a Dram, taken fasting in White-wine diluted, restrains Catarrhs. It is also put among Clothes, to preserve them from the Moths. *Dioscor. Lib. 4. Cap. 57.*

Pliny, speaking of the Combat between Nature and Luxury in point of Colours, says, we are fairly outdone by the *Amarantus*: This, says he, is rather a purple Spike than a Flower, and has no Smell. What is to be admir'd in it is, that it loves to be cropt, and springs out again fairer, and with more Lustre. It blossoms in *August*, and lasts till Autumn; and, what is strange, after it is cropt, and all the Flowers fallen off, if it be water'd, it springs afresh, and bears Flowers for Winter Garlands. Its Nature is well express'd in its Name, *Amarantus* [from a Neg. and *μαραινω*, to wither]; for it never withers. *Plin. Lib. 21. Cap. 8.*

The *Amaranthus*, or *Floramour*, grows to be three or four Feet high, with big chanell'd Stalks spread into several Branches, bearing pretty large broad Leaves, ending in a long Point, of a light, green Colour, and frequently a little reddish: On the Tops of the Stalks grow long Spikes of deep, red, staminous Flowers, hanging downwards, which, if gather'd in time, keep their Colours a long while; among these Flowers grows the Seed, small, round, and somewhat flattish, of a reddish-white Colour, and very shining. It is sown in Gardens, and flowers in *July* and *August*, perishing in the Winter. The Flowers only are used, and that but seldom.

They are cooling, drying, and moderately restraining; and from their Colour are suppos'd to be good to stop Bleeding and Fluxes of all kinds, in any Part of the Body. *Miller Bot. Off.*

It is cultivated in Gardens, and flowers in *August*. Dale.

It is mollifying and agglutinating, but it is not much made use of in Medicine. *Lemery de Drogues.*

AMARANTOIDES, *Globe Amaranthus*, or *Everlasting Flower*, called by the French *L'Immortal*. It is deriv'd from *Αμάραντος*, *Amaranthus*, and *ἑίδος*, Form or Shape.

Amarantoides, lychnoidis folio, capitulis purpureis, T. 654. *Amarantho affinis, altera species, seu flore purpureo*, Breyn. Cent. 1. 110. *Amarantho affinis, Indiae Orientalis, floribus glomeratis, Ocymoidis folio*, H. A. 1. 85. *Gnaphalio affinis, ocyastri folio, flore ex purpureo violaceo*, H. L. 294. a *Pregn.*

The Flowers are small, and cut into four Segments, which are collected into squamose Heads; from each of these Scales is produced a single Flower. The Ovary in the Bottom of the Flower becomes a roundish crooked Seed, which is contain'd in a thin Pellicule or Skjn.

There are at present four or five Varieties of this Plant, but none used, as I can find, in Physic.

The two best Sorts were originally imported from the *East-Indies*, the rest we have received from *Barbados*. *Miller's Dictionary.*

AMARELLA, a Name given by *Gesner* to the *POLYGALA*. See *POLYGALA*.

AMATORIA Febris, the same as *CHLOROSIS*, which see. *Castellus.*

AMATORIA Veneficia, the same as *PHILTRA*, which see. *Castellus.*

AMATORII Musculi, the Obliquus superior, or *Trochlearis*, and Obliquus inferior, are sometimes thus call'd. *Cowper.*

AMATZQUITL, seu *Unedo Papyracea* *Nieremberg.*

Its Substance is light, and not unlike that of the Fig-tree. Its Leaves resemble those of the Lemon-tree, but are hairy and more acuminate or pointed. Its Fruit are as large as *Pontic Nuts*, divided into white Grains of the same Shape and Nature with those of a Fig. It grows in warm Countries; such as *Chietla*. A Decoction of the Bark of its Roots is of considerable Service in feverish Disorders. Its Leaves are only useful, by the agreeable Shade they form.

AMAUROSIS, *amaurosis*, is an Impediment of Vision, when the Patient, without any manifest Fault in the Eye, can discern nothing at all. It is usually call'd a Gutta Serena. *Actuarius de Meth. Med. Lib. 2. Cap. 7.*

Mr. de St. Yves, the famous French Oculist, distinguishes the Gutta Serena into the perfect and imperfect.

The perfect GUTTA SERENA.

The Disease, call'd Gutta Serena, is a total Blindness, proceeding from a Palsy in the principal Parts of the immediate Organ of Vision.

Whatever Part of the Body a Palsy attacks, it has different Degrees, which render it perfect or imperfect. The same may be said of a Gutta Serena, which entirely destroys the Sight, or at least leaves so little, that it is of small Service to the Patients.

In order to give a clear Idea of this Disease, it shall be the Subject of two Chapters. In the first, I shall treat of that sort in which the Sight is entirely lost: And in the second, of that in which part of it remains.

There are several Causes which may produce a Gutta Serena: The first is a light Apoplexy, in which the Humour, instead of falling on the other Parts of the Body, is discharged on the Optic Nerves only, by which they are obstructed, and become paralytic.

This Disease depends on other Causes, as when some other Humour is filtrated into the Nerves, or by lodging on them causes a Compression, which hinders their Action; so that, whether these Nerves be obstructed or compressed, either by Blood, Pus, or Phlegm, all these different Matters may produce a Gutta Serena. If the Blood becomes too saline, it gradually causes this Disease by its Saltiness, which decays and dries up the principal Organs of Vision; and, if the Comparison may be admitted, as salted Meat grows dry. By this means the Sight entirely perishes.

We often see a Gutta Serena succeed acute Fevers, when the Humour that caused them is removed to the Visual Nerves; a violent Fever, which has too much rarefy'd the Blood in the Vessels adjacent to these Nerves, sometimes produces the same Effect; when a Venereal Humour is discharged on the Visual Nerves, causing violent Pains, and the want of Sleep, a Gutta Serena often follows.

This Disease commonly begins with violent Pains in the Head; and as they decrease, the Disease increases. Several People, however, have been struck blind at once, without any previous Pain; in others, the Pains accompany'd the Disease, which strengthened gradually, and their Sight diminished daily, till at length it totally perished.

When a Gutta Serena comes without Pain, and one Eye only is attacked, nothing can be perceived by looking at both Eyes, whilst they are open; but if the well Eye be shut, you may observe the Pupil of the distempered Eye dilate itself, tho' exposed to the Light, and it will remain in that State, till the well Eye be opened again; then the Pupil of the diseased Eye contracts itself, in like manner as that of the good Eye, from which the distempered Eye borrows its Motion. By this Sign only, we are assured there is no Sight in the distempered Eye. This Sign is peculiar to this Disease, and cannot be found in a Glaucoma, in which the Pupil continues always dilated. There is likewise another Species of *Gutta Serena*, in which the Pupil is always contracted, whether the good Eye be open or shut.

The Signs of a Gutta Serena are visible; for from the Inspection of the Eyes, we may see whether the Pupil be dilated or contracted.

As some Muscles of the Body are called Antagonists, because they perform opposite Motions, such as Flexion, Extension, &c. in the same manner, amongst the Motary Fibres of the Iris, some serve to dilate it, whilst others contract it; therefore, when in a Gutta Serena the Pupil remains dilated, the Fibres, which should contract it, are paralytic, in the particular manner I have described: But if the Pupil be contracted, these Fibres, which should dilate it, are affected; the Sight is equally lost in both these Cases.

A Gutta Serena has been hitherto deemed incurable. I can, notwithstanding, produce many Experiments to the contrary. I have, for the most part, observed that Species to be incurable which succeeds an acute Fever, when its productive Humour has been discharged on the Visual Nerves. If this Humour damages but one Eye, there is room to fear, lest the Fever return in the Year, and the other Eye be affected in the same

manner. I have hitherto observed this Misfortune happen to all those, whose Gutta Serena began by a light Inflammation, attended with violent Pains in their Head on the Side of the disorder'd Eye. This Observation has induced me to think, though I never dare attempt it, that by extirpating the decayed Eye, one might prevent the good Eye from falling into the same Misfortune. It would be a great Comfort to the Patient to have his other Eye preserved from the Discharge of this destructive Humour, which for the most part happens a Year or two after the Loss of the first Eye.

I have cured several of a Gutta Serena, when they were committed to my Care, in the Beginning. My Method is to bleed them in the Arm, in the Foot, and in the Neck, in Proportion to their Repletion; afterwards I prescribe them an Emetic, to be taken once or twice in the Interval of two Days.

All Remedies for a Palsy are likewise good in this Disease. A Seaton or Blistering-plaster may be laid to the back Part of the Neck. I find the Caustic too slow in its Operation, and the productive Humour of the Gutta Serena has Time to thicken, and thus the Disease becomes incurable.

Twelve Years since, a Country Curate, after the Diocese of *Paris*, came to consult me, a few Days after he had been attacked with a Gutta Serena in one Eye. I gave him a Vomiting the first Day, the next Day he was let Blood in the Neck; two Days after he took a second Vomiting, upon which his Sight began to return, and was gradually restored by holding his Eye over the Steam of hot Spirit of Wine.

Besides the Gutta Serena, of which we have now treated, there is another sort. It generally attacks Maids that are not regular, or Women with Child; and Men are likewise subject to it, through a Suppression of the Hemorrhoidal Flux. Some Authors ascribe the Cause of this Disease to an excessive Distention of the vitreous Humour; and in order to prove their Assertion, they pretend the Globe of the diseas'd Eye is bigger than it should naturally be. I have tried all Means possible to discover, whether the Cause of this Disease was owing to the pretended Increase of Size in the said Humour; but I could never perceive the least Difference from its natural State.

I judge this Disease proceeds from some Humour that is thrown upon the Visual Nerves, by which they are compressed. The Symptoms seem to strengthen my Opinion; for the Patients feel a Heaviness, attended with Pain more or less acute, in the back Part of the Globe of the Eye. This shews the Optic Nerves suffer by some Humour which is settled upon them, before they enter into the Eye: Besides, this Species of Gutta Serena is more frequently cured than the preceding; for, without Doubt, it proceeds from a simple Compression of the Nerves, and not from the excessive Size of the vitreous Humour.

Remedies for this Species of Gutta Serena are, Bleeding in the Foot, and these Medicines that provoke the Menstrues in Women, and the Hemorrhoidal Flux in Men. To make a Derivation of the Humour from the Eyes, Wood-lice, Eye-bright, either in Substance or Infusion, and Viper-broths, will be of Service.

We find Infants are not exempted from this Disease, since some are born blind. At first, their Blindness does not appear; but as they grow up, it is perceived. I have cured several with an Ophthalmic Water. Some of these Children, at the Age of two Years, had no apparent Signs of Sight. It is to be observed, the Pupil of these Children, though it has no Movement, is no more dilated than in its natural State; which Observation shews this Disease is only a Numbness, or Weakness, in the principal Parts of the Organ of Vision.

Of the imperfect GUTTA SERENA.

I call a Gutta Serena imperfect, when the Patients continue to see but imperfectly. It has different Degrees, according to the Number of Fibres which are attacked by the Palsy. Sometimes it is only a sort of Numbness in these Fibres; sometimes only half an Object is seen, whilst the other half is not perceived, because only half the Eye can see, the other half being paralytic. You may easily find out the Degree of this Disease, by desiring the Patient to shut his good Eye, and look into a Book with his other Eye; for then he sees only a certain Part of the Page, whereas he can see the whole Page with his well Eye.

Sometimes the Fibres are quite emerg'd in the Humour which causes the Palsy; then the Patients can only perceive the Light, but not distinguish Objects. This Disease is often procured by what we call Vapours. I have frequently seen Women deprived of their Sight for the Space of half an Hour, an Hour, and sometimes for two or three Days. This last Case is incident to Women, in their Delivery.

This Disease has the same Causes with the perfect Gutta Serena, that Species which proceeds from Vapours excepted; but the Humour is in less Quantity, for which Reason the Eye is not so much injured.

I have

I have seen Persons afflicted with this Disease, from the Use of a Pomatum that had repelled a Tetter which was spread round their Eyes: They recovered their Sight by the Help of Aperitive Broths, and Sudorifics, which expelled the Tetter: Others have been attacked with this Disease, from a Cold they have taken in their Head, after a violent Heat.

The Signs of an imperfect Gutta Serena are easily known. By examining the Eye, whether the Pupil be dilated or contracted, the Degree of Sight may be soon learned; for in either of these Cases, if the Iris has one Quarter of its Movement, we judge that Quarter of the Sight remains; if it has half its Movement, half of the Sight remains.

In the Cure of this Disease, after the general Remedies, and these prescribed in the perfect Gutta Serena, Viper-broths, or the hot mineral Waters, should be drank, if the Disease seems to proceed from a viscous thick Humour; but if it is produced by a sharp thin Humour, the cold mineral Waters are to be preferred.

Let the Eye be held over the Steam of hot Spirit of Wine, or of Coffee; the Steam must pass thro' a Funnel. This must be repeated twice or thrice a Day.

I have cured several Persons afflicted with this Disease, by the Use of these Remedies. I shall only relate one Experiment, on account of its Singularity: Eleven or twelve Years ago, a Canon Regular of Rheims came to Paris to consult me. I perceived one of his Eyes was seized with an imperfect Palsy; there was a Dilatation of the Pupil, which had but a Quarter of its contracting Movement. I was very much surprised when he told me, if he looked into a Book, his well Eye being shut, that he could see the perfect Representation of his diseased Eye. At first, I judged him to be hypochondriac; but in order to be satisfied of the Truth, I desired him to close his well Eye, and to look into a Book; then I asked him, What he could see in the Page? He answered me, That he perceived the Lines like black Strokes, without distinguishing the Letters; and that, in the Middle, he saw the Representation of his Eye. I asked him, when he assured me he saw his Eye, of what Colour was the Iris, and the Disposition of certain Rays which cross it? He answered me so justly, and described them so accurately, that I could not see them better myself in his Eye. This young Canon was cured in thirty Days, by the Use of Purges, cooling Broths, and spirituous Applications to his Eye. He saw to read perfectly well, and was rid of the false Image of his Eye, which was so uneasy to him before.

Mr. Petit, of the Academy of Sciences, assured me, that he had seen the like Disease. St. Yves.

But Amaurosis, ἀμαυρωσις, in Hippocrates, does not seem to signify what we call a Gutta Serena, but only a Dimness of Sight, or temporary Loss of it. Thus, in his first Book of Prognostics, he mentions Dimness of Sight (ἐμμετὴν ἀμαυρωσις) amongst the Signs of approaching Convulsions. And in this Sense it is generally to be taken in the above-mentioned Author.

To what has been said on the Subject of the Amaurosis, it will be proper to add the Sentiments of Hoffman.

I.

That sort of Blindness which the Greeks call ἀμαυρωσις, and the Latins a GUTTA SERENA, is a terrible Disorder. It is caused by an Interception of the Influx of the nervous Fluid into the Optic Nerve, which occasions a Loss of Sight; the Eyes, in the mean time, remaining, to all Appearance, unaffected; for if, in this Case, you look at the outer Part of the Eye, it appears sound and entire; nor is there any Defect to be observed, either in its Coats or Humours, unless that the Pupil appears larger, black, and more dilated than usual; it likewise appears to be stiff and immoveable, when the Rays of Light strike upon it: But notwithstanding all this, the Faculty of Seeing is either quite destroyed, or there only remains a Power of distinguishing Light from Darkness.

II.

This Disease is therefore different from a Vertigo, in which the Patient imagines himself in a gyratory Motion, and consequently staggers; but the Influx of the nervous Fluid is not quite intercepted, but only impaired and diminished, and that not always. The Gutta Serena is also different from a Cataract; for, in this latter, the Crystalline Humour appears to be opaque, and the Pupil, when exposed to a free Light, is contracted, but in dark Places dilated; whereas in a Gutta Serena, the Crystalline Humour appears pellucid thro' the Pupil; and the Pupil itself, whether in a light or in a dark Place, is neither contracted nor dilated, but remains immoveable.

III.

Nor are the Circumstances of this Disease always the same; for it sometimes seizes the Patient suddenly and unexpectedly, which is generally the Case when it proceeds from violent and external Causes; such as a Fall from any high Place, or severe

Blows on the Head; Instances of which may be found in *Hildanus, Cent. 5. Obs. 8.* and in *Amatus Lusitanus, Cent. 5. Obs. 64.* At other times the Sight is gradually lost, which is generally the Fate of old People, who are affected with an Hemiplegia, or Palsy, and of such as have the Misfortune to have weak and languid Constitutions. On other Occasions this Disease is accompanied with Head-aches, Vertigoes, Drowsiness, Noise, and Singing of the Ears: And at other times it appears without any of these Symptoms, and only afflicts the Patient with Blindness. There is likewise a periodical Gutta Serena, which seizes the Patient suddenly, and lasting for some Hours; goes off, of its own Accord; but its Returns are frequent: This is often the Case with hypochondriac and hysteric Persons, and with Women in Labour. The Gutta Serena is divided into Perfect and Imperfect; in the former, not only the Sight, but every the least Remains of Perception of Light, is destroyed; in the latter, Light can be distinguished from Darkness; to this Class seems to belong the *Visus dimidiatus*, when the Patient sees only half the Object; a particular Species of which is described by *Chr. Sigism. Wolffius*, (in a Dissertation, *de Amaurosi imperfecta*, 1709. Trajecti) where the Patient could only see the Feet, and under Part of the Trunk of a Man's Body.

IV.

As, in a Gutta Serena, the external Parts of the Eye seem to be free from all manner of Fault, we may reasonably conclude, that the Cause of the Disorder is to be sought for in the Optic Nerve, rather than in the Eye itself; and this may be even demonstrated, by dissecting such People as, during their Lives, had been blind in this manner; for, upon accurate Observation, we find, that their Optic Nerves were either too much extenuated, flaccid, and, by half, too little (of which see Instances in *Bonetus's Sepulchretum Anatomicum, Lib. 1. Sect. 18. Obs. 3. and 4.*); or surrounded and compressed by Blood, extravasated from the Brain, as hath been observed by *Wepferus de Plex. Hist. 4.* or incompassed by a hard Tumour, such as *Bonetus, Lib. 1. Sect. 18. Obs. 1.* takes Notice of, about their Origin. *Pewius, Observat. Anatom. 2.* observed a Bladder full of a watery Humour upon the above-mentioned Nerves, near their Conjunction. *Platerus* found a globular Tumour near the Optic Nerves of a dead Person, who, when alive, had laboured under a Gutta Serena; and *Bonetus, Lib. 1. Sect. 18. Obs. 5.* found the carotid Artery turgid with Blood, at the Place where it enters the Orbit of the Eye.

V.

Almost all the Authors, who have wrote upon this Subject, have judged the Gutta Serena to proceed from the Optic Nerves being obstructed by a thick Lymph, whereby the small Tubes, of which the Nerve is formed, being rendered impervious, the free Afflux of the nervous Fluid to the Retina, was, of course, either checked, or entirely intercepted; but 'tis not, as yet, proved by Anatomists, that Nerves consist of small Tubes, or Pipes, thro' which their contained Fluids circulate; neither is a thick and tenacious Lymph, but a Fluid, the most subtle of all others, and least likely to coagulate, circulated through the Brain and Medulla oblongata. That an Obstruction of the Nerves should arise from this Cause, is by no means credible; and much less can we suppose, that an Obstruction of the Optic Nerves should happen from any Matter conveyed to them from the Brain. In all Cases of this Nature, there must be so strong a Compression of the Optic Nerves as to prevent all Influx of the nervous Fluid into them, and by that means induce a Paralysis: Hence it follows, that the immediate Cause of a Gutta Serena, is a Paralysis of the Optic Nerves. 'Tis now evident, from the Structure of the Eye, that the Optic Nerve, as soon as it has entered the bony Orbit of the Eye, together with the Periostracum, which lines its inner Side, and has disposed of the external Covering, which it receives from the Dura Mater, for the Formation of the Tunica Cornea; I say, 'tis evident, from the Structure of the Eye, that after this, by another Membrane, or Covering, which it receives from the Pia Mater, it forms the Tunica Uvea, the Processus Ciliaries, and Pupil of the Eye, and that its medullary Substance constitutes that soft and pulpy Coat called the Retina. Besides, 'tis well known, that the Retina receives the Images of visible Objects, and conveys them thro' the Optic Nerve to the common Sensory, where, by their means, the Ideas of Sight, or Vision, are excited; but 'tis equally plain, that, in order to perceive external Objects, a certain Tension of the nervous Parts is necessary; which Tension consists in a due Influx of the nervous Fluid: But since, in a Gutta Serena, there is a Paralysis of the Optic Nerve, and consequently of the Retina, the Uvea, and Processus Ciliaries; hence it must follow, that these Parts are neither tense, nor transmit the Rays of Light, but the Pupil appears enlarged and dilated, by reason of the Relaxation of the Processus Ciliaries. Nor is there, in this Case, any other Fault to be observed in the Eye, since the Motion of the Humours, and of the Muscles, which serve to move the Eyes, is regular and natural; which may be owing to this additional Reason, that the Mus-

cles and Vessels, conveying the Juices, take their Origins not from the Optic Nerve, but from other Nerves, that are not affected.

VI.

The Cause therefore which, by compressing the Optic Nerves, renders them paralytic, resides either about their Origin, that is, their *Thalami*, along which they run, or about those Parts of themselves which enter the Orbits of the Eyes: The Cause may also lie concealed in the Optic Nerve itself, and that too in the Blood-vessels, wrapt up in the very Middle of it; the Reality of which Vessels, not only our later Anatomists, but even *Wepfer* himself, (*L. de Cicut. aquat. p. 127.*) have demonstrated. If these Vessels, which are so many Branches, as it were, from the Carotids, or any of the rest of the Branches of the Carotids which surround the Orbit, should happen to be stuffed with stagnant Blood; they press upon and distend the medullary Tubes of the Nerves; and, at the same time, hinder the Return of the Lymph thro' the Vessels which surround the Nerves. This seems to be the Cause of a periodical *Gutta Serena*, which ceases upon the Removal of the Stagnation of the Blood: It is, besides, very probable, that, in a spurious Amaurosis, a Serum lodging itself within the Coats of the Eye, especially within the *Tunica Cornea*, is to be looked on as the Cause; in which Case, the Afflux of the nervous Fluid being too slow, a small Quantity of it only enters, which leaves no more of the Faculty of Seeing, than is sufficient to distinguish Light from Darkness.

VII.

Tho' the Disease now under Consideration may afflict Persons of all Ages, and of every Sex, when violent external Causes concur to its Production; such as Blows on the Head, Concussions of the Brain, or any other Accident, that may occasion a Stagnation of the Humours about the Optic Nerves; yet when it arises from internal Causes, it generally falls to the Lot of the Plethoric, the Phlegmatic, the Cachectic, and the Old, or of those who have a weak Head, and a frail System of Nerves, either thro' preceding Excesses of Passion, long Grief, anxious Care, too much Watching and Application, unseasonable Studying, reading small Print in a full Light, frequent Debauches; and, in fine, by being long exposed to the Cold, or labouring under the Misfortune of an hereditary Weakness. This Disease agrees with the other Disorders of the Brain, in this Circumstance, that it is founded on the Want of a due Tone and Spring in the Parts of the Brain itself.

VIII.

If we consider the secondary and more remote Causes of a *Gutta Serena*, they may be properly enough reduced to Repletion and Inanition. To the Class of Repletion belongs that *Gutta Serena*, which takes its Rise only from a Stagnation of Blood, more or less thick in those Nerves of the Brain which are contiguous to the Optic Nerve. This Species of the Disease is not only sometimes transitory and periodical, but even admits of a Cure, when it happens not to be of a long standing. This Degree of the Disease is incident, *First*, to those who are of a very plethoric Habit of Body, upon their using too violent Exercises, Baths that are too warm, or giving way to immoderate Transports of Anger: A Case of this Kind is to be found in *Consult. Med. Sect. Case 42.* *Secondly*, to Women that bear Children, either in the Birth itself, and then it is occasioned by the violent Constrictions of the lower Belly, throwing the Humours up to the Head with uncommon Force; or after the Birth, if it has been difficult, and especially if there has been any Defect in the *Lochial Evacuations*: *Mauriceau*, in *CENT. 5. Obs. 568.* mentions a Case of this Kind, which, he says, was soon cured by Bleeding: It is likewise to be observed, that the *Hemicrania*, or Megrin, which succeeds Childbirth, most frequently terminates in Blindness. *Thirdly*, to Women who labour under a Suppression of their Menstrual Discharges, or any hysterical Disorder; a Case of which kind I have given in *Consult. Med. Sect. Cas. 44.* *Pechlinus* also, *Lib. 1. Obs. 24.* makes mention of a *Gutta Serena*, which, in Conjunction with a Head-ach, every Month afflicted a Patient who had her Menstrual Discharges defective. *Fourthly*, to those who labour under hypochondriacal or hysterical Disorders; and to those who are racked with violent Spasms of the lower Belly, by which the Humours are forced up to the Head: Hence is that remarkable Case which is related of a *Gutta Serena*, which succeeded a vehement Colic, accompanied with a Constipation of the Belly, which being cured by a Clyster, the *Gutta Serena* was forthwith removed.

IX.

But as a *Gutta Serena*, which arises only from a Stagnation of Blood, is transitory; so, on the other hand, if it continues long; or seizes phlegmatic Patients, or such as are of a bad Habit of Body, by letting fall its serous Part, as a Load, on the Nerves, it renders the Disease long, and very often incurable:

It is therefore no unprecedented Thing, that a *Gutta Serena* should arise from a *Purple Fever*, the *Itch*, *Ulcers*, or *Achors*, struck back into the Mass of Blood (*vide Act. Berol. Dec. 2. Vol. 6. P. 28.*); nor is it surprising, that Children who are weakly, or abound with Humours, should be subject to it; especially in Cases where the Measles have not come out well; or where the Intestines abound with Worms. A *Gutta Serena* also happens after acute Diseases, malignant Fevers; the Small-pox, or a Phrenitis, the Humours falling, by Translation, upon the Optic Nerves. Sometimes Persons of a plethoric, or of a bad Habit of Body, become blind by strong Purges or Vomits (as *Guldenklec*, *L. 1. Epist. 20. P. 498.* has observed): But Mercurials, unskilfully administered to Bodies abounding with impure Juices, do, of all other Medicines, contribute the most effectually to the bringing on this Disorder, by occasioning an obstinate Stagnation of the Lymph.

X.

These Causes belong to the Class of Repletion; but under the Title *Inanition*, are comprehended all excessive and immoderate Profusions or Dissipations of the vital Juices, which, as Experience teaches us, are frequently succeeded by a *Gutta Serena*, which more especially comes on after great Hemorrhages; and a Blindness has been particularly observed to follow a plentiful Vomiting of Blood, too great a Quantity taken away by Bleeding from a Woman with Child, and after taking a large Quantity from the Vein of the Forehead (*Bonetus, Lib. 1. Sect. 18. Obs. 2. App.*); for while the vital Humour is drawing away, the Vessels, which are distributed thro' the Brain, collapse, the Secretion of the nervous Fluid is diminished, and thence arise Vertigos, *Gutta Serenas*, Faintings, and other Calamities: But what deserves our principal Attention, is, the remarkable Consent which, in this Case, is found betwixt the Eyes and the genital Parts; since we observe, that Blindness is frequently the Result of immoderate and ill-timed Embraces, of which Circumstance I have made frequent Mention, and related a Case of this Nature, *Cons. Med. Cent. 2. Sect. 3. Cas. 104.* For the lymphatic seminal Fluid is much of the same Nature and Quality with that which is secreted in the Brain, and distributed through the Nerves; for which Reason the more liberal and copious the Excretion of the former is, the more scanty and deficient the Secretion of the latter must be: Hence the Want of a due Tone in the nervous Parts, Weakness of Sight, and even Blindness itself, usually follow.

XI.

The *Gutta Serena* is a very terrible and a very obstinate Disorder; and 'tis particularly to be observed, that if it is a perfect and inveterate one, or seizes old and worn-out Subjects, it is so far from admitting of a Cure, that the most terrible Train of apoplectic and paralytic Disorders generally supervene. This Distemper, on the other hand, when of a short standing, when imperfect, or when its Cause is only seated in the Coats of the Eye, sometimes admits of a Cure, especially in young and robust Patients. That Kind of *Gutta Serena* also, which is periodical, and the Effect of a Stagnation of the Blood, yields to Medicines, and may be cured; but that Species of the Disease which is accompanied with paralytic Disorders, or other Distempers of the Head, generally portends a Danger that can scarce be surmounted or avoided.

The CURE.

I.

The Cure of the *Gutta Serena* is very hard and difficult; for this Reason, that the Force and Energy of Medicines can have but little Influence upon those Parts which lie, as it were, remote, and hid within the Bones of the Skull: But this Circumstance should not discourage the Physician from trying the Extent of his Art, and attempting the Cure by a Method accommodated and adapted to the Causes of the Disorder: This he may do by pursuing these two Intentions, that of dissolving the stagnant Humours, which compress the Nerves; and that of strengthening and invigorating the Parts affected.

II.

For obtaining the former, which is indeed the more difficult of these Intentions, generous, and what we call *Herculean Medicines*, are to be called in to our Assistance. Thus, if a serous Humour, poured in upon the Brain, should happen to stagnate there, which is commonly the Case with Patients that are phlegmatic, cachectic, of bad Habits, or who have had Pustles struck back into their Blood, and especially if the Disorder be of a short Date, great Good may be expected from the actual Cautey applied to the back Parts of the Head, or the Nape of the Neck; in lieu of which a Seton may also be substituted. These Remedies operate in a two-fold Manner; that is, partly by exciting Pain, for thus they communicate a tremulous and vibratory Motion to the minutest Fibres of the Brain; and partly by promoting the Afflux of the Humours to

the Parts where the Wound is made, to which they generally drain, they draw off the stagnated Juices from the Brain, and Parts affected: And, indeed, if, in this Case, any Relief is to be expected, it is rather to be looked for from these Remedies, than from Vesicatories and Fontanels.

III.

But if this Malady takes its Rise from a Stagnation of the Blood, which is the Case with Persons of plethoric Habits, of florid and ruddy Complexions, of full and strong Pulses, and of those who have any habitual Excretions of Blood retained; I say, in these Cases, we are to beware of the afore-mentioned Remedies, and must rather begin the Cure by Bleeding. In this Intention, it is very proper to take Blood from the Feet; but 'tis still more useful and advantageous to open the Veins of the Forehead, and the temporal Arteries; and, indeed, Nature herself seems to have pointed out this Method of Cure; for Examples have sufficiently proved to us, that blind Persons, who have received Wounds in the Forehead, which were followed by plentiful Hemorrhages, have, by that very Means, recovered the Use of their Sight. Leeches may also be used at proper Seasons, and even applied to the *Anus*, in case an hemorrhoidal Flux is stoppt. If an Hemorrhage from the Nose should be suppressed, a Probe may be thrust up them, in order to bring it on again, that so a speedy and efficacious Vent may be given to the Blood.

IV.

In a *Gutta Serena*, as well as all other Disorders of the Eyes, it is of singular Use to keep the Belly loose, that so the stagnating Humour in the Head may be drawn downwards: For this Purpose, the Medicines to be used should not be strong and violent Purgatives, but mild and gentle Laxatives, in Conjunction with Corroboratives, of which Kind are the *Balsamicocephalic Pills*. My balsamic Pills may likewise prove useful, if made up with *Mercurius Dulcis*, and the *Extractum Panchymagogum* of *Crollius*. Nor are pretty sharp Clysters to be despised in this Case; nay, their Efficacy is very considerable, if Costiveness of the lower Belly should happen to accompany the Disease.

V.

When the Disorder is very inveterate, and founded on an obstinate Stagnation of the Lymph in those Vessels which surround the Optic Nerves, then, after the Use of the Medicines already proposed, our only Hopes are placed in strong Discutients, especially when used internally; of which Kind there are two, which have the Advantage of all others; that *Sulphur of Antimony* corrected in the Manner ordered by me, and *Cinnabar*; of these two the following Powder may be made:

Take of native Cinnabar prepared, of Crabs-eyes, of prepared Amber, each two Drams; of the volatile Salt of Amber, and of Hartshorn, each ten Grains: Mix them up into a Powder, which divide into twelve Parts; to each of which, three or four Grains of the Sulphur of Antimony may be added. This Powder is to be taken every Evening, and next Morning an Infusion of Balm, Fennel-seed, and Valerian-root, is to be drank; and if the Disorder will not yield to these Medicines, we are to have recourse to a gentle Salivation, by which I have known some cured of an Amaurosis.

VI.

Along with the above-mentioned Remedies, external Discutients, nervous and balsamic Medicines, are to be used: Of this kind Sternutatories have a remarkably discutient Quality, and especially volatile Sal Ammoniac dried, and incorporated with Oil of Sage, Oil of Marjoram, and Balsam of Peru, snuffed up the Nose; or, which is still more effectual, Extract of Guaiacum Wood, in the Form of Refin, which remains after an Evaporation of the Decoction of that Wood, and was discovered by myself. Two or three Grains of this, taken up the Nose, excite a Sneezing, and powerfully draw the Phlegm from all Parts of the Head. A Bag likewise, stuffed with Valerian-root, Fennel-seed, and Rose-flowers, and besprinkled with the Water called, by the French, *L'Eau d'Arquebuse*, may be applied to the Eyes; or the Steam of the Infusion, mentioned in the preceding Paragraph, may be admitted into them. But, of all other Medicines, my *Balsamum Vitæ* is the most powerful, when Part of it is rubbed on the Temples, and Part of it dropt upon Sugar, and swallowed down; for, by using it in this manner, I have often carried off this Sort of Blindness, which has not been of a long standing.

PRACTICAL CAUTIONS.

Before Cauteries and Setons be used, the Body must be drained not only of its too great Quantity of Blood and Humours, but also of their Impurities; and the first Organs of Digestion must be cleared of all manner of Impurities: For which purpose Bleeding, mild Laxatives, and Medicines that

dilute and cleanse the Blood, are previously to be used. The same Caution ought to be used with regard to Sternutatories; for if they should be administered before the Body and Head are sufficiently purged, they would occasion a violent Afflux of Humours to the Head; but when the Body is duly prepared, they are of singular Advantage in the Beginnings of the Disease.

II.

Of corroborating Medicines, which are, at the same time, possess of a discutient Quality, my *Balsamum Vitæ* is one of the most efficacious against a *Gutta Serena*, especially if it proceeds from the falling of a serous Humour upon the Optic Nerves of phlegmatic Patients; in which Case, I have known this Balsam applied, upon Linen Cloths, to the Head and Forehead, about the Beginning of the Disease, entirely to remove the Blindness. But greater Caution is to be used in Bodies full of Blood, where the great Quantity and Congestion of Blood has brought on the Disorder; for, in that Case, Temperance, and such Medicines as not only diminish the Mass of Blood, but likewise check the Rapidity of its Motion, are most proper.

III.

As to the Use of external Applications, every one must see, that they are plainly of no Moment, in a true and inveterate Amaurosis, because their Virtues cannot reach the Parts affected; but when the Fault is not in the Optic Nerve itself, but rather in the Eye, and its Humours, or other Parts, then topical Applications are of considerable Importance; the chief of which are, either a Fomentation of the Decoction of Valerian-root, Cubebs, and Fennel-seed, made with Water and Wine, and conveyed into the Eyes, by means of a Funnel for that Purpose; or Cataplasms made after the following manner:

Take of the Roots of Angelica, of Master-wort, and Valerian, each two Ounces; of the Herb Chervil, German Leopard's-bane, of the Flowers of Elder, Lavender, and Roses, each three Pugils; of the Seeds of Fennel and Dill, each one Dram and an half; cut and beat them to a Powder, which boil in equal Quantities of Rose-water, and the Water called by the French *L'Eau d'Arquebuse*.

IV.

Sometimes the Cure of an obstinate Amaurosis is most seasonably and advantageously attempted by Hunger and Abstinence; which are principally conducive to this Purpose, in impure and cacoehymic Constitutions, and such as abound with Blood and Juices; but this Method previously requires the Patient to be gently, but at the same time effectually, purged. If a Cure is intended this way, the Patient must eat only a little boiled Bread, a little roasted Flesh, and Raisins; he must carefully avoid all Wine and Ale, and drink a Decoction of Sarsaparilla, Liquorice, Raisins, and Fennel-seed; in which Course he must persist for three or more Weeks, as the State of the Disease shall require.

V.

There is great Hope of curing a *Gutta Serena*, which seizes young Girls and Children after the Small-pox, the Measles, and other eruptive Disorders; for as the Years of Maturity approach, and the Menstrual Discharges begin to appear, it either quits the Patient of its own Accord, or is surprisingly lessened; and at this Season there is particular Occasion for proper Means to assist and promote the Menstrual Discharge, a singular Example of which Case I have given, *Syst. Tom. 4. P. 1. Cap. 8.*

CASES stated, and Answers.

A Man, thirty Years old, about six Years ago, exposed his Body to a sudden Cold, after he had been over-heated by hard Labour, and violent Exercise; hence he felt a heavy Pain in his Head, and happening, at the same time, to get a Contusion of his Right Eye, he perceived the Sight of it to be very weak; whilst at the same time no Fault or Defect appeared externally: He therefore had recourse to various Remedies, Vesicatories, Fontanels, Collyriums, and Purgatives, but all to no Purpose. Before he had remained two Years in this Condition, he was seized with the Itch, after which the Disorder was also conveyed to his other Eye; the Sight of which was not only weak, but he also perceived Sparks and Atoms dancing before it, and saw every Object double with it. He was besides harassed with a prodigious Ringing of his Ears, great Weakness of the Stomach, Eructations, and Flatulencies, Costiveness, and spasmodic Pains in his Joints; his Complexion was of a livid Colour, and he still continued to live a sedentary Life, which called for a frequent Exercise of the Mind, and much Writing.

REFLECTIONS.

This Indisposition deserves the Name of a beginning, and, as yet, imperfect *Gutta Serena*, and has its Seat in the Optic Nerve, and in the Brain; for which Reason, no Fault appears externally.

externally. It arises from the cacochymical Impurity of the Blood and Humours; for daily Experience teaches us, that People of scorbutic, cacochymic, and cachectic Constitutions, are much subject to Disorders of the Eyes from an internal Cause, and that in them the Distemper is convey'd from one Eye to the other. The Itch of the Patient now under our Consideration, his bad Digestion, his Flatulencies, the Pains in his Joints, and the Singing of his Ears, all concur to prove the bad and corrupted State of his Fluids, which was originally brought on by his sedentary Life, as well as the exposing of his Body, when hot, to a sudden Cold: By this means also, a Foundation was laid for the Weakness of his Sight; for, in Consequence of this, the repressed Humours flowed more plentifully to the fore Parts of the Brain, and his Right Eye happening to be contused, obstinately crowded upon its Nerves, which were now weakened by the Contusion. It had been easier to have removed this Disorder, in its Infancy, by proper Medicines; but now it is become inveterate, and has gained so much Ground, the Task is altogether difficult. But I am not of Opinion, that we are, for this Reason, to lose our Courage, or give way to Despair: It is our Business, rather, first to attempt the rendering the Juices mild and balsamic, and then to set about strengthening and invigorating the nervous Parts which have been weakened. The former of these Intentions is answered by Decoctions of the Woods, antimonial Tinctures, absorbent and diaphoretic Powders, Purgatives made up of the Gums, and a proper Regimen, with regard to the Non-naturals. The latter is answered by Plasters, made with cephalic and aromatic Oils, liquid Balsams, and resinous Gums, applied to the Forehead and Temples: Spirit of Wine also, strongly impregnated with Camphire, and mixed with Essence of Peruvian Balsam; and, last of all, my *Balsamum Vitæ*, are proper in this Case. If these Means, for a considerable time persisted in, do not answer the Intention; and if the vital Juices are not, by them, rendered sufficiently sweet and balsamic, it will not be amiss to raise a gentle Salivation, which is most conveniently done by Preparations of Cinnabar, or Æthiops Mineral: However, after sufficiently purging the first Organs of Digestion by the Cephalic Pills, or any other proper Purge, let the Æthiops Mineral be given every Morning, to the Extent of ten Drams, with half a Dram of Sugar, and two Drops of the Oil of Turkish Balm, for three or more Weeks, as Circumstances require; and let the Patient have, for his Drink, a Decoction of China Root, with Raisins and Cinnamon; and use, at the same time, a proper Diet and Regimen. By this Method I have known Persons happily recovered, who, by violent Contusions of the Head, have been in imminent Danger of becoming blind, but yet not without the Use of Externals.

C A S E II.

A Girl, seven Years old, of a weak and tender Constitution, and of a livid unwholesome Complexion, which often assumed a yellowish Cast, fell into a slight Fever, attended with a Pain of her Back and Head, and with a Vertigo when she stood up. On the third Day, after the Fever seized her, her Skin was all covered over with little red Eruptions; to prevent the farther spreading of which, temperating and gently expelling Medicines, together with a low Regimen, were prescribed. Notwithstanding which, these Eruptions sometimes disappeared; upon which Occasion she complained of Shiverings, and sometimes broke out again, with an intense Heat of the Skin: Besides she complained, especially about the seventh Day, of an intolerable Pain in her Head and Eyes; and when she was afterwards cured of this Disorder, she was, all on a sudden, so effectually deprived of her Sight, that she could see nothing at all: No Fault or Defect appeared externally in her Eyes, unless that the Pupil seemed to be a little larger, and more dilated, than usually.

R E F L E C T I O N.

This Disease, which brought on the *Gutta Serena*, was the Purple Fever, a Disease much incident to Children, especially those of cachectic Constitutions, who, thro' the Weakness of their Stomach, and the Want of Energy in the Bile, contract a great deal of impure Serum; for the Purple Fever is occasioned by an impure and acrid Serum, stagnating in the small glandular Ducts, which Serum is, by the feverish Commotion, protruded into the Habit. If the Quantity of this Serum is greater than it should be, or if the Constitution is weak, or, which amounts to the same, if the Patient be destitute of such Motions as are necessary for expelling it, hence it happens, that a Taint is even communicated to the solid Parts by the corrupt Juices, which stagnate here and there, and vellicate them. For this Reason we observe, that lingering Coughs, Consumptions, slow Fevers, Diarrhoeas, Head-achs and Megrims, not only accompany, but also succeed this Disease. Hence 'tis pretty plain, that in the present Case, this Serum falling upon the Head, and especially

on the Optic Nerves, brought on the *Gutta Serena*; the Cure of which consists chiefly in purging the Body of the corrupted Mass of serous Humours, which have received a Taint from the Purple Fever, and in draining them from the Head. For which Intention, besides internal Purifiers of the Blood, diluting Decoctions, Diaphoretics, and Laxatives, I say besides these, Vescicatories are of singular Service, provided only they be applied betimes; for by drawing the acrid Serum to the Skin or Surface of the Body, they rid the Head of it. Besides, we are to endeavour by mild and balsamic Stomachics, to restore Strength, and a vigorous digestive Faculty, to the Stomach, that so a generous Chyle, and laudable Juices, may be generated.

C A S E III.

A Girl nine Years old, who during the whole Course of her Life had been troubled with Defluxions of Rheum, Achors, and Tumours of the Glands of her Neck, her Nostrils being sometimes extraordinarily dry, was seized with a Vertigo, and so great Pains in her Back, and Hypochondria, that a Vomiting and Head-ach coming on at the same time, she was oblig'd to keep her Bed. Growing better in a few Days, she again expos'd herself to the open Air, which was then very cold; but relapsing, she was seiz'd with a prodigious Vertigo, a Swelling of her Face, and a slight Fever, attended with the Purples. Soon after, being heated by a strong Commotion of Mind, she fell into an epileptic Fit, during which her Teeth ground strongly upon each other, her Eyes were fixed and staring, her Senses lost, and her Pulse vehement and unequal. About an Hour after she had recover'd from this Paroxysm, she became quite blind, and amidst the exquisite and racking Pains of her Head, threw up, by a Vomit, a considerable Quantity of bilious Filth. By injecting a Clyster, and administering antispasmodic, absorbent, and diaphoretic Medicines, her Vomiting and Head-ach were render'd less, but her Blindness remained the same for four Days; on every one of which the above-mentioned Paroxysms return'd. When her continual Watchings bore hard upon her, and her Pains began again to rack her vehemently, in the Evening a few Grains of the *Pilulæ de Cynoglossa* were prescrib'd, upon which she had an easier Night than usual; and when next Morning, she took in an Infusion, by way of Tea, a little of the *Oleum Cajaputi*, her whole Body was cover'd with a plentiful Sweat; and she all on a sudden recover'd her Sight: But an Hour after the Head-ach returning, she was seiz'd with a total Blindness; and next Day all her Spasms and Pains being less'n'd, her Sweat return'd with so much Success, that the Patient by means of its long Continuance, was, in sixteen Days time, restored at once to her Sight and Health.

R E F L E C T I O N.

1. This Case shews us what terrible Mischief may be produced by the acrid Serum protruded to the Skin in the Purple Fever, when 'tis retain'd within the Body. It frequently happens, that it lies dormant in the Body for some time, and only by some accidental Cause begins to exercise its Tyranny. In the present Case, two accidental Causes concurr'd, the Commotion of her Mind, and her being expos'd to the Cold, by both which violent Spasms were brought upon the nervous System; and the Cold affecting the Skin, the noxious Humours were in too great a Quantity driven inwards, and especially towards the Head.
2. The Blindness which happen'd in this Case deserves to be call'd Spasmodic, since by Spasms of the external and lower Parts, the Humours, being driven forcibly upwards, affected not only the Membranes of the Brain, whence the Epilepsy proceeded, but likewise the nervous Membranes of the Eyes. Hence it happen'd, that plentiful Sweats coming on, the acrid Serum was evacuated, the Spasms banish'd, and all the other Symptoms remov'd.

C A S E IV.

An Infant, scarce yet a Quarter old, was seized with the Small-pox, which not suppurating, nor coming out as it should have done, disappear'd again in three Days time. After this, the State of his Health being bad and inconstant, he was frequently troubled with Defluxions of Rheum, and before a Year was expir'd, a kind of Hardness appear'd in his Abdomen. For removing this Symptom, besides other Medicines, he had a Vomit given him twice in one Week, by which spontaneous Vomiting, and a Looseness of his Belly, were brought on, and continued for ten Days. Then these Excretions ceasing, the Swelling of his Abdomen fell, but a great Weakness succeeded; notwithstanding which a good Appetite, and a Habit of sleeping well, continued long. Last of all, he was seized with a total Loss of Sight, his Eyes remaining, to Appearance, without any Defect; his Body, tho' sufficiently muscular for one of his Age, was yet so weak and languid, that when he was raised from his Bed, his Joints seem'd, as it were, to collapse and yield under him; a Trembling frequently seiz'd his Left Arm,

Arm, his Head swell'd, and it was with great Difficulty he could speak. His Belly was sufficiently loose, and his Appetite good; but his Nostrils were continually dry, and frequent Sweats broke out upon him.

REFLECTION.

The Cause of the Symptoms, which succeed the Small-pox, now at a Stand, is a *serous Plethora*, or a great Abundance of thick and impure Serum and Lymph in the Body, which is no uncommon Case with most Infants. Hence Defluxions of Rheum on the Ears, Nostrils, Eyes, and Head, are not more incident to Persons of any Age, than to Infants and Children. In our present Patient indeed, the stopping of the Small-pox laid the Foundation for the subsequent Train of Disorders; for the excrementitious Humours, which in other Cases use to be thrown off by this Species of Exanthema, being retain'd in the Body, corrupted the serous and lymphatic Juices; the Pustles not being duly thrust out, by reason, probably, of a natural Weakness of the Nerves: Hence arose the Catarrhs, and the Hardness of the Abdomen. And a Translocation happening of the serous Matter to the Brain, and spinal Marrow, hence sprung paralytic Relaxations of various Parts, as of the Eyes, the Tongue, and the Nerves, which go off to the Feet and Arms.

The Cure of this terrible Disorder consists almost wholly in the Use of internal Medicines, which must be calculated at once to remove the Viscidity, and lessen the Quantity of the Lymph. I therefore think it advisable to proceed in the following Method: After purging the Body with a sufficient Quantity of *Cornachinus's Powder*, let the Patient take every Morning of the Powder made of well prepar'd Cinnabar, five Grains; Crabs-eyes, eight Grains; and of *Mercurius dulcis*, half a Grain. After using this for six Days, let a Laxative be again taken. And then, after taking the Powder for six Days more, let the Laxative be repeated. Under this Course, let the Patient have for his Drink a Decoction of three Ounces of *Sarsaparilla Root*, of the Bark of *Sassafras Wood*, three Drams; of *Salt of Tartar*, half a Dram, boil'd in a close Vessel with twelve Pints of Spring-water, which let him also drink instead of Tea. Let his Food also be attenuating, and let him eat no Flesh, but what is roasted, and *fine Wheat Bread*, and these too in a very small Quantity. After this, for about eight Days, let his Body be put into a Bath of common Water, Wheat-bran, and Pot-ash; after which, let the Nape of his Neck, and his Os Sacrum, be anointed with *Unguentum Nervinum*. Internally, let him continue the Use of the above-mentioned Decoction; and a little before his Meals, let him drink, in order to strengthen his Stomach, an Elixir made of the Essence of white Burnet, and red Gentian, each half an Ounce; Sweet Spirit of Nitre two Drams; and Oil of Mace, Cedar, and Cinnamon, of each six Drops. Externally, let him apply to his Nostrils the dry volatile *Sal Ammoniac*, impregnated with the unadulterated Oil of *Marjoram*. I do not in the least doubt, but the Consequences of this Method will be very good.

CASE V.

A Boy twelve Years old, subject for some Years past to Catarrhs, Heaviness, and a Cough, a moist Season and Northerly Winds coming on, was seized with a Fever, attended with a Catarrh, which on the ninth Day was followed with a grievous Pain of the Head and Eyes; and at last, a total Blindness. No Defect appear'd in his Eyes, unless that the Pupil contracted itself, and the Boy could but just distinguish Light from Darkness; his Appetite was good, and his Stools were regular enough. After, therefore, he had laboured a whole Fortnight under this Disorder, various kinds of Medicines being used to no Purpose, he was committed to my Care; and I made use of nothing but my balsamic Pills to be taken once a Week, and Linen Cloths soaked in my Balsam of Life, apply'd twice a Day to his Forehead and Temples; by which means, accompany'd with the Blessing of Heaven, he in a few Weeks recovered his Sight entirely.

REFLECTION.

This Gutta Serena seems to be only a Bastard one, which arises from a Defluxion of Serum surrounding the nervous Parts, which serve for the several Purposes of Sight and Vision; for the Optic Nerve, inasmuch as 'tis contain'd in the Brain, is in such a Case almost free from all Hurt, and as yet brings a most subtil Fluid to the nervous Parts of the Eye, which being nevertheless compress'd on all Sides by the serous Filth, become scarce fit for receiving the Rays of Light, and answering the Purposes of Vision. Hence, we frequently observe, that Infants and Children, who are of too phlegmatic Constitutions, or who are troubled with Defluxions of Rheum, labour under such Defects both of Seeing and Hearing, in which Case we prescribe Medicines against the Catarrh; but since such were in our present Case used to no

Purpose, nothing remain'd for us to do, but by corroborating and nervous Medicines, such as my Balsam of Life is, to discuss the stagnating Juices, and strengthen the weaken'd Parts. *Hoffman, Vol. 3. Cap. 4.*

Some Cases referr'd to in the preceding Dissertation.

CASE I.

A Man thirty seven Years old, of a sanguine melancholic Constitution, had from his Infancy been addicted very much to study, and reading in the Night; but had applied himself that way in an uncommon Degree, for the last two Years, having the Education of Youth committed to his Care: For then he study'd till late at Night, and rose again by four next Morning. As he took nothing till Dinner-time, except a Glass of burnt Wine, and as he used very little Drink at his Meals, he was always inclinable to be covetous. Having liv'd in this way for about two Years and an half, upon a violent Fit of Anger, he was seiz'd first with a Head-ach, accompany'd with a Sensation, which is usually call'd Formication. After which he became suddenly blind, with a Dulness of Hearing; faltering in his Speech, and tenseive Pains in his Right Leg and Arm. Baths for his Feet were immediately order'd; and a Vein was open'd in the Left Foot, from which, as well as from that open'd in his Left Arm about a Fortnight before, no Blood was discharg'd: Upon this, Scarification upon the Nape of his Neck, and the Crown of his Head, which he had formerly been accusom'd to, but which had been omitted for the last two Years, were prescrib'd; and for removing his Costiveness, emollient Clysters were injected: Then his Sight return'd in some Degree, so that he could see better by a lighted Candle than one sees by the Light of the Moon; however he could not as yet read, but still complain'd of small Clouds before his Eyes.

I being call'd to a Consultation, prescrib'd this Powder first of all:

Take of Native Cinnabar prepar'd, Crabs-eyes, and prepar'd Amber, each two Drams; of volatile Salt of Amber, and Hartshorn, each ten Grains, and mix them up into a Powder. Let a Dram be taken for a Dose.

Then I prescrib'd the following Pills:

Take of *Mercurius dulcis*, and of my Pills, each one Dram; of the Extractum Panchymagogum of *Crollius*, half a Dram; of Extract of Castor, four Grains: Mix; and out of each Scruple make twenty Pills.

The Patient took twenty of these Pills every Morning for three Days successively; then for five Days successively, in the Morning and at Night he took the Powder: Then the Pills for three Days more; then again the Powder; and thus he us'd them alternately.

I also order'd him the following Decoction:

Take of Valerian-root, one Ounce; Balm, one Handful; Fennel-seed, two Drams: Cut and bruise them together. This Powder is to be us'd like Tea: The Patient is to receive the Steam of it into his Eyes in the Morning; and after taking the Medicines prescrib'd, he is to drink eight or ten Cups of the Infusion itself.

I also prescrib'd him my Balsam of Life, and desired him to apply it to his Nostrils, and anoint his Temples with it. I also order'd him to take eight Drops of it in the Morning, in the before-mention'd Infusion. Lastly, he daily us'd Baths for his Feet, which reach'd as far as the Calfs of his Legs, made with Wheat-bran and Chamomile-flowers; and by this Course duly persisted in, he in a few Weeks recover'd the perfect Use of his Sight.

REFLECTION.

Blindness which comes on suddenly, seems to be a Palsy, and is occasion'd principally by the Separation of the Serum from the Blood, and its Stagnation about the Thalami of the Optic Nerves, the Compression of which thinders the free Influx of the Animal and Nervous Fluid into the Optic Nerves: Hence arises a Loss of Sight, the Structure of the Eye remaining at the same time, to all Appearance, unalter'd; for outwardly no Fault or Blemish can be discovered in them. This Stagnation of the Serum proceeds principally from the Weakness of the Brain, and too great a Relaxation of its Fibres, which renders the Course of the Blood thro' this Part somewhat more difficult: The Blood, in Consequence of this, remaining as it were pent up in the Vessels of the Brain, lets fall its serous Parts, which being thrown together pretty plentifully in some Place at the lower Part of the Brain, compress sometimes one, and sometimes another, Pair of Nerves; and either deprave

deprave or quite destroy the Functions of those Parts, to which the said compress'd Nerves are branch'd out and extended. In the Case now under our Consideration, too intense Application of Mind, frequent and too long protracted Watchings, together with long and obstinate Grievs, had greatly weaken'd the Brain, and the Pairs of Nerves arising from it; for such is the Nature and Tendency of these Things, that when they concur and meet together, they render the Patient subject to grievous Head-achs, Melancholy, the Palsy, the Apoplexy, and Drowsiness; to this End contributed also the Thickness and Impurity of his Blood, together with its Congestion in the Brain, all which Circumstances are to be ascrib'd to his too great Abstemiousness in point of Drink, his Use of Wine in the Morning, the stubborn Costiveness of his Belly, and his intermitting his usual Evacuations of Blood by Venesection or Scarification. We need not therefore wonder, that in such a State of the Humours and Brain, the Blood being, by the strong Commotion of Mind, thrown upon the Brain with an uncommon Force, and remaining there, should excite not only the heavy Pain in his Head, and Blindness, but also the pungent and darting Pains in his Right Foot and Arm. But since the Disorder was not inveterate; but as yet of a short standing, we may easily conceive, that there still remain'd some Hopes of restoring the Patient's Sight, provided only proper Medicines should be prescrib'd, and duly and seasonably administred.

For answering which Intention, besides Venesection, Scarification, and Purgatives, those Medicines are most proper which attenuate and discuss the stagnating Humours, and derive them from the Head, and upper Parts, to those that are lower, and less noble, and which invigorate and restore the whole System of weakened Nerves. But as right mercurial Preparations, and especially those of the cinnabarine kind; duly and seasonably administred, are very effectual for removing the stagnating Lymph, and putting it in a proper Motion, even in the remotest Parts; and as this Truth is sufficiently confirm'd, from their Use in Venereal Cases; I have, on this Account, us'd them, and that too with remarkable Success, in long and grievous Head-achs, Palsies, and Epilepsies, not only with an Intention to purge, but also to promote a Diaphoresis, which is the more easily brought about, by the Patient's drinking at the same time warm Infusions impregnated with some Substance of a diaphoretic Quality. Having therefore remov'd the Causes, and attenuated the Humours stagnating about the Thalami of the Optic Nerves, nothing is more proper than to strengthen and corroborate the Brain, and nervous System, by the Use of the richest Balsamics, as well externally as internally, and to restore their pristine Tone, and Strength, to the relax'd and weaken'd Fibres; for which Purposes my liquid Balsam is greatly to be commended. From the History, and successful Cure of this Disease, we may infer, that Mercurials, and Preparations of Cinnabar, together with the Use of Balsamics, are extremely efficacious for removing Blindness, or the *Gutta Serena*, when not old and inveterate; nor is it to be doubted, but the like Practice would be attended with Success in other terrible Disorders of the Head and Brain, which proceed from the Extravasation and Stagnation of any Quantity of the serous Part of the Blood, provided only such Disorders are taken in time. *Hoffman, Consult. Med. Cent. I. Sect. I. Cas. 42.*

C A S E II.

A certain Gentlewoman forty nine Years old, who had in her Constitution a Mixture of Choler and Melancholy, having liv'd sixteen Years without a Husband, and had always enjoy'd a perfect State of Health, except from her Infancy, she was troubled with a small Difficulty of Breathing. This Gentlewoman, happening to be expos'd to Colds and Hardships, had her menstrual Evacuations very irregular, for the Space of two Years; sometimes they were too copious, sometimes suppress'd for three Months, and during the last Year they ceas'd entirely. Upon this, being often troubled with Inflammations of her Eyes, she always found means to remove them, till in the Month of December 1726, they return'd with double Force, accompanied with pungent Pains, and seiz'd first her Right, and then her Left Eye. Upon this, there ensued a kind of Dilatation of the Iris, and a Dimness of Sight, which by Degrees increas'd to such a Degree, that she became quite incapable of discerning any Object. Her Eyes indeed were free from Pain, but not altogether without Inflammation; and the crystalline Humour of the Right Eye appear'd whiter than in its natural State it ought to do; nor was it as yet plain, whether a Cataract, or a Glaucoma, threaten'd the Patient. In the Left Eye the Pupil only appear'd to be dilated, and the Humours turbid. For removing these Symptoms, various Means were us'd, such as Bleeding in the Feet, as well as in the Arms, Vescicatories, Fontanels in the Nape of her Neck,

V O L. I.

and Arms, Baths for her Feet, Collyriums, Bags of discutient Ingredients apply'd to her Eyes, Purgatives, Mercurials, Sudorifics, Millepedes mix'd with native Cinnabar, and the Spawwaters: But the Symptoms were so far from being remov'd by these means, that they rather acquir'd new Force, and render'd the Patient very anxious and uneasy.

R E M A R K S.

If we look for the immediate Cause of this Disorder, it seems to consist partly in a Corruption and Disturbance of the crystalline and vitreous Humours of the Eye, which are naturally pellucid; which Corruption is occasion'd by an Afflux of thick and impure Lymph, and partly in the Optic Nerves being hurt and injur'd; for these, I mean the Optic Nerves, being compress'd by the Load of impure and stagnating Humours thrown upon them, on that very Account the Access of the nervous Fluid to the Retina is prevented; and the Sight being by this means destroy'd, a *Gutta Serena* is brought on, of which we may be convinc'd by the too great, and almost paralytic Dilatation of the Pupil and Iris. Since therefore these Symptoms are brought on by too great an Afflux of Humours to the Head and Eyes, and especially to those Parts that are most contiguous to the Brain, which is plain from their Redness, Pain, and Inflammation; and since this Afflux was brought on, and is still encourag'd, partly by the ceasing of her menstrual Discharges; and partly by her Commotion of Mind, and her being frequently expos'd to Colds, great Care must, in the first Place, be taken to free the Eyes of the Humours which stagnated in them, and to prevent their flowing to the same Parts for the future; and then the nervous and membranous Parts of the Eye are to be strengthen'd, and the natural Transparency of its several Humours restor'd.

This is no easy Task in this inveterate Disorder; at least, the Means commonly prescrib'd in parallel Cases, such as Setons, Vescicatories, Fontanels, Mercurials, Collyriums, Discutients, Sudorifics, and Purgatives, will all be us'd to no manner of Purpose: But you ought not for this to lose all Hopes, nor lay aside all Thoughts of recovering the Patient, especially since I find, that such Medicines, as both from Reason and Experience I have found effectual in the like Cases, have not as yet been us'd. I would therefore advise, that the Patient should have a continual Seton in her Neck, and that her Belly should be kept open; for which Purpose, two Ounces of Manna, mixt with one Ounce of Cream of Tartar, and taken twice every Week, will be very proper. She must also carefully abstain from drinking any Wine or Ale, instead of which she must use the following Decoction:

Take of Vipers-grass, of Shavings of Hartshorn; and of Sarsaparilla, each six Ounces; of Fennel-seed; and of the stellated Aniseed, each three Drachms; of Liquorice-root, one Ounce: Let these be cut, and beat together into a Powder, of which an Ounce and an half is to be boiled in three Measures of Water; for Use.

A Bag fill'd with Valerian-root, Fennel-seed, Rose-leaves, and impregnated with the Water call'd *L'Eau d'Arquebuse*, is to be apply'd to her Eyes; and sometimes she is to snuff the following Powder up her Nostrils:

Take of the dry volatile Sal Ammoniac, one Ounce; Oil of Sage, Oil of Marjoram, and Balsam of Peru, each one Dram: Mix for Use.

She will also probably receive considerable Advantage from an Infusion, by way of Tea, made of one Ounce of Valerian-root; of the Herbs Balm, Betony, Sage, and Basil, each a Handful; of Fennel-seed, and Cubebs, each three Drams: The Steam of which is to be receiv'd into her Eyes every Morning; and ten Cups of the Infusion, but less saturated, are to be drank.

It will also be worth the Patient's while, to take a Dram and an half of the following Powder, when she is going to bed:

Take of Cinnabar duly prepared, of Piony-root, of Crabs-eyes, of diaphoretic Antimony, of prepar'd Amber, each two Drams; and of my Sulphur of Antimony corrected, one Scruple: Mix into a Powder.

She must persist in this Course for a Month, and every Night use a Bath for her Feet made of River-water and Wheat-bran; but if these things should not answer the Intention, I think it advisable, in order to excite a gentle Salivation, that her Ankles and Knees be twice a Week rubb'd with mercurial Ointment. She must also sit three Quarters of an Hour every Day in River-water boil'd up with Wheat and Barley-bran; after which, she is to proceed again in the

manner above directed. From this Course, if as yet a Possibility of restoring Health remains, I doubt not but the Patient will find the desired Effects. *Hoffman, Consult. Med. Cent. 1. Sect. 1. Cas. 44.*

Celsus, speaking of Venereal Commerce, gives this remarkable Advice: *Cavendum ne in secunda valetudine, adversæ præsidia consumantur*; that is, We should be cautious of consuming wantonly in a State of Health, what should be our Support during Sickness.

As I am afraid there are many who do not attend to this Rule so much as would be convenient for them, perhaps the following Case may be of some Importance to such as have not yet utterly destroy'd themselves by an immoderate Pursuit after Pleasure.

C A S E III.

A Weakness of Sight proceeding from an excessive Effusion of the Seminal Matter.

A Youth of twenty five Years of Age, of a phlegmatico-sanguine Habit, and who, from his very Infancy, had a tender Constitution, and a pale Complexion, happen'd in the seventh Year of his Age to fall into an Atrophy, and to appear consumptive; which Misfortune was, in all Probability, occasion'd by his beginning too soon to drink Wine: But getting rid of his Disease gradually, he began to grow apace; and when about fifteen Years of Age, learnt of a wicked School-fellow, the execrable Trick of Masturbation, a Crime not to be mention'd, much less to be practis'd, in a Country where Virtue, Decency, or Politeness, have the least Regard paid them. He indulg'd himself in this vile and unmanly Practice very frequently, even almost daily, from the fifteenth to the twenty third Year of his Age, and applied himself at the same time to writing in a very small Character; by which means he contracted such an excessive Weakness of his Head and Eyes, that these latter were frequently convuls'd during his preposterous Entertainment. About four Years ago, when he was wickedly employ'd in this manner, and his Design upon the very Point of being executed, some Person or other unexpectedly knock'd at his Chamber-door; which Accident put him in so much Confusion, that the ultimate Scene of his Diversion was left unaccomplish'd. Upon this, he immediately felt so exquisite a Pain, and so vehement a Tension in his Testicles, and Spermatic Vessels, that he could not walk without the utmost Difficulty. The Force of his Genius, and the Sight of his Eyes, seem'd at the same time to be diminished and impaired. Tho' he had the Danger, with which his execrable Practices threaten'd him, full in View, yet after the Pains of his Testicles were remov'd, he was so much infatuated, as to repeat his Crime, and begin afresh his former Course; but he was soon after seiz'd with the like Pain in his Genitals, and especially in his Testicles, where the Pain was accompany'd with a very considerable Tension. By the Use of external and internal Medicines, for about half a Year, he also got this Disorder remov'd, but with some Difficulty. Soon after he was seiz'd with a Swelling in those Vessels which go to the Left Testicle. This Swelling appear'd larger than ordinary after his Meals, but was not accompany'd with Pain, unless when by his Folly he brought a Stimulus on the Parts; but tho' it was void of Pain, it was attended with another unlucky Circumstance, for it remains with him to this very Day. To this was join'd so great a Weakness of his Head and Eyes, that when he was about to read any thing, he seem'd to be drunk, and flush'd with Wine. The Pupils of his Eyes were extremely dilated, his Eyes themselves rack'd with darting Pains, accompanied with some Degree of Tension. His Eyelids seem'd as it were loaded and oppress'd with a kind of Weight: in the Morning they were conglutinated together, and water'd very much: But this was not all, for both Corners of his Eyes, besides the violent Pains with which they were rack'd, were also clogg'd and stuff'd with a whitish kind of Matter. In this deplorable State he was oblig'd to give over Reading, and interrupt the Course of his Studies, for the Space of six Weeks; during which Time he only employ'd himself in Exercises and Recreation, and in taking the Medicines which were judg'd proper for one in his Condition: By which means he recover'd so far, as to be able to apply himself to his Studies, for two or three Hours a Day, which he can still do; but if at any time he should chance to protract his Application, and lengthen out his Studies, beyond their stated time, he is immediately seiz'd with the above-mention'd Symptoms. Besides, he was become so lean, that his Body was little more than a Skeleton; and tho' his Appetite was good, yet he was indispos'd after his Meals, and was affected with a kind of Drunkenness. But when he got a juster Sense of Things, and had, for almost the Space of two Years, abstain'd from his former Practices, and from all Commerce with Women, he began to be troubled with very frequent nocturnal Pollutions; by which he found his Body gradually more and more weaken'd,

and his Strength impair'd; so that now what seems principally to be regarded, is the Removal of this Imbecillity.

R E M A K K S.

We learn from this Account, that Venery, us'd either too soon, or too much, not only impairs the Strength of the Body in general, but also debilitates the noble Functions of the Brain and Eyes, to such a Degree, that the Loss becomes almost irreparable. But what deserves our principal Attention in the present Case, is the particular Time at which his Eyes more especially began to suffer from his continued, and almost daily, preposterous Venery. And indeed I have had an Opportunity of seeing a great many Cases where Persons well advanc'd in Years have by immoderate Venery, not only brought upon their Eyes Redness, darting Pains, accompanied with Tension, a heavy Sensation, as if a Weight was laid upon them, and a frequent shedding of Tears, but likewise such a Weakness of Sight, that they were render'd incapable either to read or write; and I have found, that in these very Cases, the Pupil was always dilated, as it is in a Gutta Serena, by reason of the weaken'd or lost Tone of the muscular and nervous Fibres which surround it: But why need I stop here? since I myself knew two Cases, in which a Gutta Serena itself was brought on by excessive Venery, and a long Series of Grief. Hence it appears, how great and surprising a Consent there is between the Seminal Parts, or rather the Spirituous Seminal Fluid itself, and the Fabric of the Eye, which is compos'd of the finest Membranes, Nerves, and Muscular Fibres, as well as the most clear and transparent Fluids. The Lymphatic Seminal Fluid is almost of the same Nature and Quality with that Fluid which is secreted in the Brain, and distributed through all the Nerves of the Body; for which Reason, the more plentiful the Evacuation of the former is, the more scanty and defective the Secretion of the other in the Brain must of course be. Hence also a Reason may be assign'd, why those Youths who begin too early to taste the forbidden Joys of *Venus*, sustain a considerable Loss of Memory, and are render'd unfit for Study; and likewise why Persons farther advanced in Years, who are excessively addicted to Venereal Pleasures, lose their Strength, and bring on a premature Death.

But to return to our Case: We find also another observable Circumstance in it, which is, that upon his leaving this monstrous Practice, the nocturnal Pollutions appear'd, the Reason of which is very plain; for the more copious and frequent the Afflux of the Humours, especially of the Seminal Matter, has been to the Organs destin'd for Generation, either by the Force of Imagination, or otherwise; I say the more frequent and copious such an Afflux has been, the more the Spermatic Vessels are dilated and relaxed, and the Seminal Juice, for that very Reason, flows into them in a greater Quantity, and lays a Foundation for those wanton Ideas, and Seminal Excretions, which even during Sleep affect People of a warm Imagination.

As for what relates to the Cure of the Disorder now under our Consideration, I prescrib'd the following Method, as most proper to be pursued:

First, let a Measure of Asses-milk, mixed with a third Part of the *Selter Waters*, be taken every Morning.

And at Night I prescribed a Dram of the following Powder:

Take of Hartshorn, philosophically prepar'd, and of Scuttlebone, each half an Ounce; of Amber prepar'd, by the Infillation of Oil of Tartar per Deliquium, two Drams; and of Cascarella-bark, one Dram: Mix up into a Powder, to be taken in Black-cherry Water.

Before and during this Cure, and after it was completed, I prescrib'd a laxative Potion, in the following Form:

Take of the best Rhubarb, one Dram; of Manna, one Ounce; of Nitre prepar'd with Antimony, five Grains: Boil and dissolve over a gentle Fire, in six Ounces of *Selter Water*; and to the strain'd Liquor add three Drops of the Oil of Cedar: Mix for Use.

Besides, I prescribed for the Patient's ordinary Drink, this Decoction:

Take of red and yellow Sanders, China-root, and Vipers-grass, of each four Ounces; of Succory-root, one Ounce; of Cinnamon, half an Ounce; and of Mastich, two Drams: Mix together, and beat into a Powder, of which two Ounces, together with a Handful of small Raisins, are to be boil'd for three Quarters of an Hour, in three Measures of Water.

Besides,

Besides, I ordered him to abstain from salt Aliment, and all aromatic Substances, as also from all Liquors of a hot Quality; but prescrib'd him Broths made of Veal, Vipers-grass, and Succory-roots; and in the Morning injoin'd him to use an Infusion, by way of Tea, made of the Herbs Mint and Balm. At last the Cure being completed, I order'd him for some time longer to persist in the Use of the above-mention'd Decoction; and of my balsamic Elixir for the Bowels; by which means I in six Weeks freed the Patient from all the Symptoms of his Disorder, and restor'd him to his usual Health. *Hoffman, Consult. Med. Cent. 2: Sect. 3: Cas. 104.*

C A S E IV.

A Gentleman's Daughter, of twelve Years of Age, complain'd of Lassitude, want of Appetite, Weakness, and darting Pains in her Legs and Arms; her Colour at the same time was livid, and somewhat resembling that of Lead. Eight Days after this she was seiz'd with a Shivering, which was succeeded by a scorching Heat, and an excessive Pain of her Head and Loins. The third Day after this the Measles, which then happen'd to be epidemical, appear'd. She was at the same time troubled with a most uneasy Cough; and by reason of the continual Pain in her Head and Eyes, could neither sleep, nor bear the now offensive Light. On the fifth Day the Eruptions disappear'd and vanish'd almost from all the Parts of her Body, but the Pain of her Head and Eyes remain'd; and she had been so coſtly from the very Beginning of the Disease, that she had no Stool, except when procur'd by a Clyster. When the Disease seem'd to be thus upon the Decline, she was unexpectedly seiz'd with a prodigious Pain in her Bowels, a scorching Heat all over her Body, Thirst, Weakness, and Difficulty of Breathing, upon which the Red-purple Fever, complicated with white or miliary Eruptions, appear'd, and the Pain of her Eyes and Head remain'd obstinate. The Removal of these terrible Symptoms was attempted by such Medicines as were judg'd proper to allay the Acrimony of the Humours, carry off the Spasms, and promote a gentle and natural Eruption: Her Head-ach gradually abating by this means, she recover'd her Health. The Force of the Disease being conquer'd, she suffer'd a Diminution of Sight, which gradually increasing, degenerated in a Month's time into a *Gutta Serena*; so that she was now incapable of discerning any Object whatever, tho' her Eyes seem'd to be in every respect entire, except that the Pupils appear'd as large again as they were in their natural State. Many approv'd Medicines were prescrib'd for carrying off this Disorder, but all to no Purpose. But her menstrual Discharges beginning to appear about the fourteenth Year of her Age, her Eyes again became capable of discerning a faint and glimmering Light. Upon this, I being consulted, advis'd, that her menstrual Discharges should be assist'd and promoted by mild Balsamics, that she should apply a gentle Veficatory for some time, that her Eyes should be frequently anointed every Day with the Fat of Vipers, and that a few Drops of my Balsam of Life should now-and-then be given her in her Aliment; by which means her Sight was not indeed totally recover'd, but yet so far restor'd, as that in a certain Attitude and Position of her Eyes, she was able to discern Objects, tho' in a very disadvantageous manner, for she only saw half of them. In every other respect her Health was good; and not long ago she entered into a married State.

R E M A R K S.

In the Small-pox and Measles, it is always a bad Prognostic, when the excessive Pain of the Head and Eyes, which usually leaves the Patient upon the Eruption, continues through all the several Stages of the Distemper; for it generally leaves terrible Disorders of the Head behind it, and in the Case now mentioned left the Patient afflicted with a *Gutta Serena*; which Distemper is, indeed, for the most part incurable; but in Infants it may be discuss'd and carried off, and especially in young Girls of tender Constitutions, upon the Appearance of their Menstrual Evacuations, which alter the State of their Solids as well as their Fluids, especially if Art be brought in to assist the Efforts of Nature. *Hoffman's Medic. Rational. Systemat. Sect. I. Cap. 8. Observ. I.*

C A S E V.

An Amaurosis, from a globous Tumour in the Brain pressing the Optic Nerves.

A Frenchman, twenty-four Years of Age, was taken with a Pain in the Head; a Fever soon followed, which being over, the Reliques of his Head-ach still remained, with Want of Sleep, and Weakness of the Head. At length, his Vision in the Left Eye began to be darkened, and a Month after in the Right Eye; and soon after he became quite blind, no Defect appearing in his Eyes. Some time after the poor Man was seized with Convulsions, which held him, with Intermittions, during the Winter: In the Spring they went off, and were succeeded by a Cough, hectic Fever, a Spitting of purulent Matter, and

a Phthisis, which, after long Molestation, brought him quite emaciated to the Grave.

The Body being opened, we discovered the Defect in his Lungs; but when we came to open the Skull, and examine into the Cause of his Blindness, by inspecting into his Brain, we found it moistened throughout with a copious watery Humour, and its Forepart, especially on the Left Side, swelled: When we had taken off Part of it, there appeared a globous Sort of a Tumour, like a Glandule, or Struma, included within the Substance of the Brain; yet separated from it, and contained in its proper hard Membrane, with capillary Veins dispersed through it. It was bigger than a Hen's Egg, uneven, and shaped like a Pine-nut; the inner Substance was white and smooth, resembling the White of an Egg, hardened by boiling: It was somewhat prominent upwards, in form of an obtuse Cone, but wider at the Base; by which it rested forwards on the Ventricle of the Brain, and pressed with its Weight, which was fourteen Drams, upon the Origin of the Optic Nerves, which were compressed by it. We concluded this to be the Cause of his Blindness, by intercepting the Passage of the Animal Spirits to the Eyes, since there was no visible Obstruction, or Defect, either in the Eyes, or Optic Nerves. *Bonetus, Lib. 1. Sect. 18. Observ. 1.*

C A S E VI.

An Amaurosis, caused by a Vesicle pressing upon the Optic Nerves, near the Place of their crossing.

In the Year 1590, I dissected the Daughter of a Burgo-master of Holland, aged eighteen Years. She had laboured under a Diabetes for some Years before her Death, and but a few Days before had been seized with this Sort of Blindness, in which both Eyes appeared clear; nor was there any visible Defect either in the Membranes or Humours, tho' the Patient could not so much as perceive the Light of a Candle, when held near her Eyes.

Upon opening the Cranium, I discovered a remarkable Vesicle, which pressed upon the Optic Nerves about the Place where they cross. Upon making an Incision in it, there issued about half a Pint of very limpid aqueous Matter; for when the Kidneys, through Weakness, were incapable of attracting what was drank, there commenced, by an *adspersion*, a Regurgitation to the Head, by which the Vesicle was formed. *Bonetus, Lib. 1. Sect. 18. Obs. 1.*

C A S E VII.

In July 1622, the Son of one *Nicolas Blewet*, a Peasant of the Village of *Rietzwyl*, in the Canton of *Soleure*, by Name *John*, about eight Years of Age, fell from a Tree, and received three Wounds in his Head, at the Concourſe and Connexion of the Lambdoidal with the other Suture, but without hurting the Cranium. Immediately he vomited up his Food indigested, and lost his Speech and Senses to such a Degree, that he was carried home for dead to his Father's House, and remained in that Condition for some Days, still vomiting whatever he received. A Barber was sent for from the neighbouring Town of *Biel*, who only took care to heal the Wounds, not troubling himself about Universals; however, he cicatrized them within three Weeks. For some time the Symptoms, as the Fever, the Nausea, and the Vomiting, were very grievous; but when after some Days they had remitted, and the Patient was restor'd to his Senses, it was discovered, that he was stark-blind; and on the twenty-seventh of August, the Father brought his Boy to me, imploring my Advice. His Eyes, as far as could be discerned by outward Inspection, had no manner of Hurt; for which Reason I signified to the Father, that the Fault lay in the Optic Nerves, which, from the very great Concussion of the Brain, and the Humours therein contained, were obstructed by some viscid Matter. I advis'd him, after sufficient Purging, and Application of Cupping-glasses, to apply a Seton to the *Nucha* (Nape of the Neck). The Man carried his Boy home, to consult with his Wife and Friends about it; whether he will return, I know not; but, to speak freely, I have but little Hopes of his Sight: For I doubt not but the viscid Matter, confluent about the Optic Nerves, which should have been purged out of the Head, or drawn off to other Parts, in the Beginning, while it was yet in Motion, is, by this time, so concreted as to be incapable of being removed. *Hildanus, Cent. 5. Observ. 8. P. 389.*

C A S E VIII.

In December 1689, I attended a Woman who had been happily enough delivered of a Child a Day and a half before; but had entirely lost her Sight twelve Hours after her Delivery. This Woman was of a very full Habit of Body, and had very inconsiderable Evacuations during her Travail, as her Midwife told me, and her Purgations were at this time but inconsiderable; besides she had a very great Pain in her Head. I therefore had her blooded in the Foot, as soon as I saw her in this Condition. This so seasonable a Remedy, in that urgent Necessity, proved so beneficial, that the Brain being discharged of the Plethora, which

which was the Cause of that surprizing Accident, the Woman recovered her Sight the very next Day. She told me, that a Month before she was brought to bed, she had laboured under some convulsive Motions, which probably rendered her more disposed to this last Accident, from which she was entirely delivered by this Bleeding in the Foot. But thirteen Months afterwards, being again big with Child, I had her blooded thrice in the Arm, in the Time of her going with Child, and once while she was in Labour, by which Precautions she was entirely preserved from the Return of that melancholy Accident, and I happily delivered her, on the twelfth of October 1691, of a large Male Child, which came the natural Way. *Mauriceau, Obs.* 568.

AMAZONUM PASTILLUS, *The Amazons Troch*, is thus prepared :

Take of the Seeds of Smallage and Anise, each six Drams; the Tops of Wormwood, four Drams; of Myrrh, Pepper, Opium, Castor, each two Drams; Cinnamon, six Drams; make them into Troches, of which give a Dram for the greatest Dose. *Galen* says, that he used to leave out the Myrrh, and instead thereof doubled the Quantity of Pepper.

In Pains of the Stomach it is taken in a Quarter of a Pint of Wine diluted; for bilious Vomiting; in cold Water; to those who throw up their Food, if they be thirsty, and have a Sensation of Heat about the Mouth of the Stomach, or were used to drink cold Water, when in Health, it is likewise prescribed in cold Water; if otherwise, in warm Water; for the Colic and Gripes, in a Decoction of Myrrh; and for a disorder'd Spleen, in a Quarter of a Pint of Oxymel. *Ætius Tetr. 3. Serm. 1. Cap. 11.*

AMBA, a Name for the **MANGA**, Mango-tree. See **MANGA**.

AMBAIBA. This is the *Ambaiba Brasiliensis* of **MARGRAV. Pison. Raii Hist.**

This Tree is of a beautiful Height, almost perpendicular, and in general without Branches, which, in those that have them, grow only at the Top.

The outward Bark resembles that of a Fig-tree, and consists first of a thin ash-colour'd Cuticle, under which lies a thick, clammy, green Bark. The Wood is white, like that of the Birch-tree, but soft, and easy to break.

The Trunk is of a moderate Thickness, and entirely hollow from the Root to the Top; and this Cavity is divided, or intersected throughout, at every half Finger's Distance, by a transverse Membrane, in the Middle of which is a round Hole, about the Bigness of a common Pea. It is of a Liver-colour, and red Ants are always found in it. Towards the Top grow the Leaves in a circular Order, as in the *Mamoeira* or *Papa-tree*, each on a thick Pedicle, two or three Foot long, of a Reddish-brown on the Outside, and spongy within. The Leaf itself is broad, round, and of the Bigness of a whole Sheet of Paper expanded, and sometimes larger, indented with nine or ten Laciniae or Jags, in whose Centre stands the Pedicle, from which a reddish-brown Rib runs lengthways thro' each of the Laciniae or Jags, and many prominent Veins obliquely. They are of a very deep Green on the Upper side, and of an Ash-colour underneath, and seem in the Whole, something of the Colour of Blood mixed with Water, rough like the Leaves of the Fig-tree, and have an ash-coloured Line or Border round the Edges of the Laciniae or Jags. The Cavity at the Top of the Tree contains a white, succulent, pinguious Pith, with which the Negroes are very successful in healing their Wounds.

The Tree receives its Increase in this manner: At the Top there is an oblong, foliaceous, hoary Capsule, which contains in it one Leaf, and two or three, or four lesser Capsules. When the outermost Capsule opens or unfolds itself, the Tree is augmented with a Leaf, and becomes sensibly higher. This Leaf, even when wrapt up in its Capsule, is of the Bigness of a Trencher; and when the Capsule opens itself, is discovered beautifully folded up, and upon its first Appearance, strikes the Eye of the Spectator very agreeably, being hoary and of a faint-green Colour at the Bottom, and at the Top red and shining like *Morocco* Leather. In the Centre of the Leaf, where the Pedicle is inserted in the superior Surface, something like a reddish Star appears, adorn'd with faint Streaks of Green and Yellow, and is probably the Centre of all the Nerves, which being shining and of a faint-yellow Colour, are longitudinally distributed thro' all the Jags. When the outer Capsule is open'd, the other lesser ones successively unfold themselves, and present us with Leaves of the same Kind.

The Flowers come forth on a short Pedicle from the upper Part of the Trunk where the Leaves grow, and hang four or five in a Cluster like so many Saucages. They are of a cylindrical Form, six, seven, or perhaps nine Inches long, an Inch thick, hollow within, and their Cavities stuffed with Down; they are soft, but towards their Surfaces have Kernels of a brownish Colour; the Flowers falling off, the Kernels grow

somewhat larger, and may be eat, when the Husks, in which they are inclosed, are taken off with one's Teeth. These Trees grow to great Height in a very short Time.

Without the Assistance of Flint and Steel, the *Brasilians* extract Fire from it in this manner: They take the Fruit, or rather a Piece of the Root of this Tree dry'd sufficiently for their intended Purpose; in this they bore a small Hole, into which they thrust a sharp-pointed Piece of hard Wood; and by giving this a quick and rapid Motion, resembling that of a Piercer, whilst they hold the Fruit, or Piece of the Root fix'd by their Feet, the Attrition of the Parts produces such a Degree of Heat, as is sufficient to kindle any combustible Matter that is apply'd to it, such as dry Leaves of Trees, or Cotton.

It is rarely found in Woods; but is for the most part to be met with in Fields, that have been formerly cultivated.

The fat Juice express'd from the Tops of this Tree, is of Use in the Cure of inveterate as well as recent Ulcers. Its Leaves, when fresh and tender, or the finer Part of its Bark, deterge the Part affected, and assuage its Pain.

The Juice express'd from its Buds, is of a cooling and astringent Quality; and when mix'd in a proper Quantity with a Mefs of Gruel made of a farinaceous Substance, which the *Indians* call *Tipioca*, stops such Fluxes of the Belly, as are occasioned by a Redundance of Humours preternaturally hot. It checks immoderate menstrual and seminal Discharges; and *Piso* asserts, that he has experimentally found it to be remarkably beneficial, apply'd by way of Cataplasm to the Navels of Women, who laboured under immoderate menstrual Discharges after Delivery. *Raii Hist. Plant.*

AMBAITINGA. The *Ambaitinga* of *Piso* and *Marggrave* has Branches of a reddish Colour; its Wood is of a pretty close Contexture, and its Leaves, towards their Tops, are of a bright, and, towards their lower Parts, of a languid Green, and at the same time so rough, that some Substances may be polished with them instead of a File. This Tree contains an oily Liquor of the same Use and Efficacy with the Juice of the *Ambaiba*. It bears a large but slender Fruit, about a Hand's-breadth in Length, and, when ripe, is sweet, and may be eaten. *Raii Hist. Plant.*

AMBALAM. This is the Name of an *Indian* Tree, call'd also *Mangæ affinis flore parvo stellato, nucleo majore osseo*. It is a high Tree, not stretching its Branches upwards, but spreading them out pretty far in a transverse Direction. It grows in sandy Soils. It has a long Root, from which many Fibres spring forth. Its Trunk is so large as to fill the Arms of a Man. The Wood of it is soft, and covered with a thick Bark. Its large Branches are of an ash, and its small ones of a green Colour, and besprinkled with a Dew of a Sky-colour. Its Leaf consists of a double Pair of lesser Leaves, terminating with an odd Leaf. These lesser Leaves are of an oblong-round Form, their Length is almost the double of their Breadth, and they terminate in a small contracted Point. They are of a close Contexture, soft, smooth, and both their Sides shining, with a lively Green on the superior Part, but somewhat fainter underneath. From the Middle-rib, the Nerves distribute themselves in transverse, strait, and parallel Directions. Many Flowers sprout forth at a time, from the tender Twigs, that spring from the larger Branches. These Twigs, as well as the Leaves, are of a bitterish acid Taste, somewhat resembling the Taste of the Fruit produced by the Mango-tree. Their Smell is likewise strong and acid. The Flowers are small and white, having the Appearance of little Stars, consisting of five or six slender, but pointed Petals, which towards their Extremities are contracted into small Points, and are somewhat hard and shining. In the Middle of the Flower, is a yellow little Heart, which is the Matter of the future Fruit, and is surrounded with ten, twelve, or more *Stamina*, according to the Number of the Petals. These *Stamina* are small, slender, white, and yellow at their Tops. From the very Middle of this little Heart five or six Points, or small Styles, arise. When the Buds of the Flowers begin to shoot forth, the Tree is stript of its Leaves, and remains destitute of them all the Time the Bud is flourishing, but reassumes its Foliage when the Fruit appears.

The Fruit hangs in Clusters from the Twigs and Stalks, which are long, thick, pliant, bended, and of a yellowish Ash-colour. It is of an oblong-round Shape, hard, and resembling the Fruit of the *Mango*. It is of a lively-green Colour, when almost ripe; then it becomes yellowish, and is gratefully acid both to the Taste and Smell. Its Pulp may be eaten, and contains in it a large hard Kernel, which almost fills the whole Cavity of the Fruit, has its Surface wove over in Form of a Net, with a whitish kind of woody Nerves, and under this Net is here-and-there soft, so that it will yield to any sharp Instrument; but 'tis hard within. This Tree flourishes and bears Fruit twice a Year.

Its Root, us'd by way of Pessary, promotes the menstrual Discharge when suppress'd. Its Bark, reduced to a Powder, and drank in acid Milk, is beneficial in *Dysenteries*, which Intention is also answered by its Juice mix'd with Rice, of which two Ingredients, that kind of Bread, commonly called by the

Natives

Natives *Apen*, is made. A Decoction of its Wood is given with Success in Gonorrhœas; and its Fruit, pounded, and mix'd with the Juice of its Leaves, asswages Pains in the Ears, if put into them.

The *Cat-Ambalam* so nearly resembles this Tree, that Botanists have scarce thought it worth their while to spend Time in enumerating the Particulars in which they differ: They only tell us, that the Leaves of the *Cat-Ambalam* are of a smaller Size, and less oblong; that its Fruit is less oblong, somewhat rounder and smaller; that it has a bitterish acid Taste, and is not produced in such Abundance as the former; for which Reason it is not so much used in Food.

Its medicinal Virtues are the same with these of the *Ambalam*. *Raii Hist. Plant.*

AMBAPALA, the Name of an Indian Tree, called also MAMOERA, which see.

AMBARE, *Ambare Indica*, Garc. Acoft. Trag. *Ambares*, Cast. *Arbor Indica*, foliis juglandis, fructu nucis magnitudine, C. B.

It is a large and thick Tree, growing in the *Indies*; its Leaves are as large as those of the Walnut, but of a clearer Green, beautify'd with many Veins or Nerves; it hath small white Flowers; its Fruit is as large as a Nut, green at first, having a strong Smell, and a rough Taste; but as it grows ripe, it acquires a yellow Colour, an agreeable Smell, and a pleasant acidish Taste; it is full of a hard cartilaginous Pulp, interwoven with many little Veins; they season it with Vinegar and Salt. It creates an Appetite, and precipitates the Bile. *Lemery de Drogues.*

AMBARVALIS, this is the Flower of an Herb, which flourishes at a particular Season, when Processions are made thro' the Fields. It seems to have received its Name from the *Latin* Word *Ambire*, *Blancard. Lexic.* The Author here means the Flower of the Herb called *Polygala*, or *Milkwort*. See *POLYGALA*.

AMBE, ἀμβη, a surgical Instrument, taken Notice of by *Hippocrates* in his Treatise *de Articulis*, Sect. 6. Of this I have given a Figure from *Heister, Tab. 31. Fig. 4, 5.*

This Machine consists of a Fulcrum A A, and a moveable Lever B C, which is brought under the dislocated Shoulder, and fitted to it by Deligation with several Fillets, as you see represented Fig. 5. This done, the Extremity B of the Lever is warily and leisurely to be pressed downwards, which causes the other Extremity C of the Lever to move upwards; by which means the dislocated Arm will be extended, and its Head, which had slipped out of Joint, will be gently forced up into its natural Place. This Operation has been so frequently successful, that the Machine acquir'd a great Name, and is to this Day called the *Ambe* of *Hippocrates*. But tho' in those Cases where the dislocated Arm is protruded downwards, it has oftentimes been eminently successful, and may still be so; yet when the Head of the Shoulder falls either on the Inside or Outside of the Scapula, as is generally the Case; and since this Machine only elevates strait upwards, it often fail'd of affording the Help required; nay further, if the aforesaid Head should, by the Strength of the Muscle, or the Violence of the Luxation, be protruded with uncommon Force to the hinder Part of the Scapula, it will not sufficiently extend, but violently compress the Head in its Motion against the lower Margin of the Pit of the Scapula, to the manifest Hindrance of its Restoration into its natural Place; and at the same time may bruise, and occasion acute Pains; for which Reason, to omit other Defects at present, it has long lain neglected by many, or rather wholly thrown aside. *Heister, P. 1. L. 3. Cap. 7. vi.*

Galen, in his *Exegesis*, explains ἀμβη by ὀπρωδὸς ἐκ τῆς ἀσπίδος, an Eminence like a Border; and says, that the whole Machine takes that Name, because its Extremity runs out with an Edge like the Lip or Brim of a Pot towards the interior Cavity, which, as well as the Edge or Border of any thing on the Top or Extremity, are signify'd by the Word ἀμβη, *Ambe*.

Of all the ways of restoring a Luxation of the Shoulder, the best is what follows: Let there be a Piece of Wood of the Breadth of four or five Fingers, and about two Fingers, or somewhat less, in Thickness, and two Cubits, or a little less, in Length, having one Extremity round, and very narrow and slender in that Part. From the Top of the round Extremity, let there be a Lip [ἀμβη] a little prominent on one Part, which must not be towards the Ribs, but towards the Head of the Arm, under which being placed, it may be fitted to the Armpit close by the Ribs. The Top of the Piece ought also to have some Linen, or soft Filleting, glued upon it, to render it more easy. Things being thus prepared, the Head of the Piece must be intruded under the Armpit, between the Ribs and the Head of the Arm, as far inward as possible; after which the whole Arm is to be extended on the Wood, and tied to it above the Cubit, at the Cubit, and at the Wrist, that it may rest thereon with the greatest Firmness. But we must principally endeavour to intrude the Head of the Piece as far as may be under the Armpit, and beyond the Head of the Arm. This

VOL. I.

done, a small Beam is to be firmly ty'd across two Posts, upon which Beam, the Arm, with the Wood to which it is fasten'd, must be laid in such a manner; that the Arm shall be on this Side, the Body on the other, and the Beam under the Armpit. Then the Arm with the Wood is to be pressed down on one Side of the Beam, and the rest of the Body on the other. The Beam is to be ty'd so high, that the Body may stand on Tiptoe.

This is by much the best way of setting the Shoulder; for the Operation is exactly by way of Lever, provided the Wood enters beyond the Head of the Arm, the Librations on either Side are very just, and the Bones of the Arm in perfect Security. Fresh Luxations are restored with a Quickness beyond Imagination, and hardly give room for Extension; and as for inveterate ones; this is the only way to cure them, unless thro' Length of Time, the Socket, that should receive the Head of the Bone, be filled with Flesh, and the Head of the Arm, by long Continuance under Luxation, has worn itself a Place. Yet I am apt to think, that an inveterate Luxation of the Arm will give way to this Operation; for what will the Power of the Lever not move? tho' I don't believe the Bone then restored would abide in its Place, but slip out again as usual.

The same Effect, after a like Preparation, would be produced by Depression over a Ladder, and the *Theffalian* Chair would serve very well for a recent Luxation. The Piece of Wood must be prepared as before, and the Patient placed sideways in the Chair, and the Arm with the Wood stretched over the Back of the Chair; then on one Side the Body is depress'd, on the other the Arm with the Wood; and the like may be effected over a folding Door; either of these Methods may be used as Occasion requires. *Hippocrat. πει ἀσθεν.*

AMBELA, the Name used by the *Turks* and *Persians*, for a Tree thus distinguished:

Arbor exotica, fructu racemoso, Charamais dicta, C. B. Charamei Aosta, folio pyri, J. B. Charamai. Purging corner'd Hazel-nuts.

There are two Kinds of this Tree, called *Charamei* by all the *Indians* generally; but the *Persians* and *Arabians*, *Ambela*. The one is as great as the Medlar-tree, with Pear-tree pale great Leaves, and yellowish Fruit; somewhat like to Hazel or Filberd-nuts, ending in sundry Corners, of the Taste of sour Grapes, yet more pleasant, which they pickle up as well ripe as unripe, and usually eat them with Salt. The other Kind is of the same Bigness, but hath lesser Leaves than the Apple-tree, and a greater Fruit, which the *Indians* use, being boiled with Saunders, and give the Decoction against Fevers. The Bark of the Root of the former Kind, which groweth by the Watersides, is chiefly used (so as it grow far from the Sea) which yieldeth Milk, by taking four Fingers Length thereof, which being bruised with a Dram of Mustard-seed, they give to those that are purfy and short-winded; for it purgeth mightily both upwards and downwards: But if a Super-purgation chance thereupon, they give one of the Fruits of *Curambolas* to help it, or else a Draught of the Vinegar of Canara (which is nothing else but the Decoction of Rice) set by for a Day, two or three, until it grow sour. The Fruit is familiarly eaten through all Parts, unripe as well as ripe, and pickled, or eaten with Salt and Vinegar to procure an Appetite, putting it to their Meat to give them a Relish, by reason of its Tartness. *Parkinson's Herbal, P. 1638.*

AMBERBOI, the *Turkish* Name for the *Cyanus Orientalis* Odoratus. *Sweet Sultan.*

Mr. *Vaillant*, in the *Memoires* of the Academy of Sciences for 1718, enumerates the following Sorts of Amberboi:

Amberboi flore purpureo odorato. Cyanus floridus odoratus Turcicus, sive Orientalis, major, Park. Theat. 481. The Purple Sweet Sultan.

Idem flore incarnato odorato. Cyanus floridus odoratus Turcicus, sive orientalis, major, flore incarnato. H. L. Bat. & J. R. Herb. 446. Sweet Sultan, with a pale Flower.

Idem disco candido, cum corona dilute lanthina, D. Lippi.

Idem flore albo. Cyanus floridus odoratus Turcicus, sive orientalis, major, flore albo. H. R. Par. The white Sweet Sultan.

Idem flore luteo odorato. Cyanus floridus odoratus Turcicus, sive orientalis, major, flore luteo. H. R. Par. The yellow Sweet Sultan.

Amberboi alterum, flore purpureo, cum corona amplissima. Cyanus orientalis alter, sive Constantinopolitanus, fistuloso purpureo flore. H. R. Par. & J. R. Herb. 446. Item, Cyanus peregrinus, Amberboi sive Emberboi dictus. Ambros. 187. & J. R. Herb. 446.

Idem flore candicante, cum corona amplissima. Cyanus orientalis alter, sive Constantinopolitanus, flore fistuloso candicante. H. R. Par.

Idem flore luteo, cum corona amplissima. Cyanus orientalis, flore luteo fistuloso. A. R. Par. 75.

Idem foliis magis dissectis. Cyanus orientalis major, foliis magis dissectis, flore luteo, ex Aleppo. Hist. Oxon. 3. 135. No. 8.

Amberboi erucæ folio, majus. Fœcæ foliis erucæ lanuginosus. J. R. Herb. 444. *Fœcæ major exotica, ad foliorum margines spinulis donata.* Pluk. Tab. 39. Fig. 3.

Amberboi erucæ folio, minus. D. Lippi.

Monsieur Lippi found this last Sort betwixt *Alexandria* and *Rosetta*. There is a Figure of it in the Memoires of the Royal Academ. of Sciences for 1719. with the following Description:

The lesser Rocket-leav'd Amberboi has a single Root a little bent, two or three Inches in Length, about the Thickness of two Lines at the Neck, insensibly diminishing till it comes to end in a Thread, and from Space to Space shooting forth capillary Fibres. The Bark is of a dirty White, covering a ligneous Substance of a whiter Colour.

From this Root arises a Stalk from nine to eleven Inches in Height, sending forth Branches at Intervals; it is about two Lines thick at its Origin, lessening by Degrees to the Extremities of the Branches and their Sprays, which have no more than a third, or a quarter of a Line in Thickness. This Stalk is solid and substantial, of a pale-green Colour, slightly striated in its whole Length, and bespread with dirty white Hairs, the longest of which don't exceed a Line. When cut, the Inside appears of a clearer Green, and whiter than the Bark.

The Leaves of this Plant are of a muddy Green, deeply enough colour'd above, but paler under. They are almost flat, thin, without a Pedicle, disposed in alternate Order, and covered with whitish Hairs. The great Leaves adorn the Bottom and Middle of the Stalk, and the principal Branches; the smaller Leaves set off the rest. All the Branches, and smaller Boughs, proceed from the Bosom of a Leaf. Among the great Leaves, which well enough resemble those of a kind of Rocket, some are three Inches or three Inches and a half in Length, and an Inch, or fifteen Lines in Breadth, being very deeply jagged on each Side, some into four, others into five Lobes, from six to seven Lines in Length, and from three to four in Breadth, each indented also in several Places, a little rounded, and terminating in a yellowish-green, and, as it were, dry Point, which is very short, and not prickly. The two great Lobes, which jointly terminate each Leaf, are also indented like the others. The wavy and indented Wings, which are observed in some Places of the Stem and the Branches, seem to belong to these Leaves, being nothing but Appendages to their Lobes. Most of the small Leaves keep well enough the Figure of the great ones, though their Lobes are not so much indented. Among the Leaves, that adorn the Tops of the Branches and Sprays, some are from two to nine Lines in Length, and from half a Line to a Line and half in Breadth; some of them also have a single Indentment, others have none, but are entire, resembling the Leaves of *Linaria* (Toad-flax).

The main Rib of all these Leaves, as well as the Fibres, which it communicates to their Lobes, are of a whitish Green; they form Ridges above, and rounded Ribs underneath.

The Flowers have hardly any Smell, are of a gridelin Colour, and are surrounded with hermaphrodite Fleurets. The Stalk, Branches, and Sprays, produce no more than a single Flower at each Extremity, which is distant sometimes six Lines, sometimes an Inch and half from the last Leaf.

The Diameter of each Flower is about nine Lines, of which the Disk commonly takes off two Lines and an half, or three Lines. The Disk consists of fifteen or eighteen regular and hermaphrodite Fleurets, three Lines long, standing out of the Calyx two thirds of a Line, which is nearly the Length of the Indentments of their Pavilion, and the half of their Depth; the other half, which is white, and their cylindrical Tube, which is about a Line and half long, and almost one fifth of a Line in Diameter, are sunk within the Calyx. The Pavilion is also cylindrical, cut with five equal Jags, of a gridelin Hue, opens very little, and is no more than about half a Line in Diameter. The Extremities of the five Cuts, or Jags, roll and curl up on the Inside. From the lower and inner Part of the Pavilion, arise five Stamina, whose Apices unite in one cylindrical striated Tube, a Line and half in Length, and a quarter of a Line in Thickness, sunk half a Line within the Mouth of the Pavilion: This last is white, but the rest, which appear above the Mouth, is of a purple Colour.

The Bottom of each Fleuret rests upon a white Ovary, about half a Line high, and a third of a Line thick, the Head of which is adorned with an antique Crown, which is much about the same Height. From the Head of the Ovary proceeds a capillary Trunk; which passing through the Fleuret, and the Tube, comes out at last from the latter about half a Line, including its two Horns, which are of a gridelin Colour.

Ten or a dozen barren and irregular Fleurets, resting each on a false Bud, commonly form the Crown of this Flower. The Tube of each Fleuret is white, cylindrical, of the Length of two Lines, and above one fifth of a Line in Diameter, wholly sunk in the Calyx, and terminating in a Pavilion, from three and a half to four Lines in Length, and two in Breadth in its Fore-part. This Pavilion is a sort of a Mouth, almost close,

whose upper Lip is regularly cloven on this Side the Origin of the Pavilion, into three Laciniae nearly equal, and sometimes into two. The lower Lip is entire, more short, though inconsiderably, than the upper, and a little wider than its Divisions.

The Placenta is cover'd with white Hairs, of the Length of two Lines, or two Lines and a half, amongst which the Ovaries are lodged.

All these Parts are contained in a scaly Calyx, shaped like a Pear, about four Lines in Length, and two and a half or three Lines in Diameter in its thickest Part, which is towards the Base. The Scales are oblong, entire, green on the Back, white on the Edges, covered with whitish Hairs, and terminating in a little dry Beak, about a Line in Length, and of the Colour of Wood, whose Basis is brown. These Scales shine like Silver, on the Side towards the Cavity of the Calyx. The largest are not above two Lines and a half in Length, from the Beak to the Unguis or Bottom, and almost a Line in Breadth.

The Ovaries, when thoroughly ripe, are of a conic Figure, of the Colour of Wood, hairy, channelled according to their Length, which is no more than a Line, and not half so much in Diameter at the Base, which supports an antique Crown. This Crown is open a Line and half; its Rays are white, shining, unequal, the longest being two thirds of a Line, and the shortest only a fourth Part. At the Point of the Ovary may be observed a small Cavity, in which was articulated a fistulous Nipple, whence proceeds an umbilical Cord, which affords Nutriment to the Seed contained in that Ovary.

This Plant is annual, flowers in *June* and *July*, and yields ripe Seed at the Beginning of this last Month.

Having chewed the Leaves, I found them at first of a disagreeable Taste, after which, they left somewhat of an acid Savour in the Mouth.

The Juice of the Root, Leaves, and Flowers, turns blue Paper red. *Memoires de l'Acad. Roy. des Scienc.* 1719.

AMBIA Monard. Is a yellow liquid Bitumen, smelling like *Tacamahaca*; it flows from a Fountain situated near the *Indian Sea*.

It is resolute, strengthening, and lenitive; it cures Tetters, and the Itch; they also use it against cold Humours; it has the same Properties as the Gums *Caranna*, and *Tacamahaca*. *Lemery de Drogues.*

AMBIDEXTER, ἀμριδξισ. It imports the being as strong, ready, and adroit, with the Left Hand, as with the Right, as if the Person had two Right Hands. This, *Hippocrates* pronounces, never happens to Women. *Aphor.* 43. *Seet.* 7.

AMBLOSIS, ἀμβλωσις, a Miscarriage. See **ABORTUS**.

AMBLYOGMOS, ἀμβλυογμός, from ἀμβλός, dull. Dimness of Sight.

This Word is frequently made use of by *Hippocrates*. Thus in his Book of Prognostics, he takes Notice of this Dimness of Sight, together with Coruscations of Light seeming to dart before the Eyes, amongst the Symptoms of an approaching Hemorrhage, in continual Fevers, and genuine Tertians. Again (*Prædict.* L. 1. r8.) he mentions a Noise in the Ears, accompany'd with Dimness of Sight, and a Sense of Heaviness at the Nose, as the immediate Forerunners of a violent Delirium in a burning Fever.

Sometimes this Author makes use of the Word ἀμβλυωσις, Amblyosmos, to express the same thing. *Galen* indeed explains ἀμβλωσις, a Miscarriage; but *Foetius* thinks it a Mistake for ἀμβλωσις, Amblosmos, in which he seems to be right.

AMBLYOPIA, ἀμβλυωπία, from ἀμβλός, dull, and ὤψ, the Eye. In *Hippocrates* it signifies that Dimness of Sight which old People are most subject to; and in this Sense it is used *Aph.* 31. *Seet.* 3.

But *Paulus* and *Aetarius* use this Word to express an Amaurosis, or Gutta Serena.

The ἀμβλυωπία, is an Hebetude, or Dulness of Sight, which has a manifest, but not visible Cause. For since neither the Tunics nor Humours of the Eyes appear to be alter'd, the Fault must necessarily lie in the Defect or Interception of the visual Spirits, caused either by a preceding Preclusion or Obstruction of the Nerve, that convey'd the Light, or the Brain being in part disorder'd; any of which Causes is sufficient to stop the Course of the Spirits: Whence the Eyes are in the same State as Candles, which are full and complete in all the necessary Requisites, and want nothing but Light to illuminate them. *Aetarius de Meth. Med. Lib. 2. Cap.* 7.

AMBON, ἄμβων the Edge, or Margin of those Cavities or Sockets, into which the prominent Parts of Bones are inserted in some Sorts of Articulation, as in that of the Femur into the Acetabulum. *Castellus.*

AMBRA is the common Name which the *Italians* and *French* have for *Succinum* or *Electrum*. *Ambra* also is the vulgar Word, which the same People use, to signify what the *Arabians* call *Ambar*; but this is a thing quite different from *Succinum*.

Therefore,

Therefore, though they would have the same Name to belong to them both, yet, for Distinction sake, they have of late called this latter Kind of Ambra, *Ambergriſe* (*Ambra grifea*).

Whence this Term *Ambra*, uſed by us for *Succinum*, is derived, I know not; for the *Arabians* call it *Karabe*, as you find it in an old *Latin-Arabic* Gloſſary, *Karabe Succinum*. A *Saracen* Lexicon in the *Vatican* has it, *Kāgbe*, τὸ πλεῖστον. But there it is alſo written *κέρμε*, and in another *κέρμε*. *Aviſena* affures us, that it is a *Persian* Word, which ſignifies an *Attractor of Straws*; ſo indeed it is in the *Latin* Translation: But *Aviſena*, ſpeaking in *Arabic*, does not ſay, that it is a *Persian* Word; and the *Arabic* Term in his Book is written *Kerabe*, with *Kef*, not *Kaf*, as it is in the old Gloſſary. He ſays, that it attracts *Straws*, and Bits of rotten Wood, and thence took its Name in *Arabic*, *Kerabe*, which ſignifies an *Attractor of Straws*.

The *Greeks*, however, 'tis certain, called *Amber* ἄμμιον, "*Harfax*," on the ſame Account. *Pliny*, *Lib. 37. Cap. 2.* ſays of *Amber*: "In *Syria* the Women make Whorles of it, and call it *Harpaga*, "*Snatcher*," becauſe it ſnatches to itſelf *Leaves*, *Straws*, and *Edges of Garments*."

That *Amber* is a Species of *Bitumen*, is generally agreed; and *Car* too by the *Arabians* is reckoned among the Kinds of *Bitumen*. *Alchar*, or *Alchir*, in *Alpagus*, is the Matter of a natural Vein, fluid, and like Pitch, which bubbles out of the Earth, like Water out of a Spring, in the Country of *Bagaded*; and as ſoon as it gets above Ground, becomes thicker than liquid Pitch, being condenſed by the cold Air; the *Arabians* commonly call it *Chur*. He plainly deſcribes to us ſome liquid *Bitumen*, or *Naphtha*. The ſame Author, under the Word *Kir*, or *Kar*, informs us, that it is ſomething which is like Pitch, that it flows from Springs in the Territories of *Bagaded*, and is the ſame as *Chur*, or *Kur*, to which Word he refers us. *Car*, or *Adkar*, is the *Naphtha*, which the *Antients* inform us, iſſued out of Springs in the Country about *Babylon*, after the manner of liquid *Bitumen*. In *Arabic* it is called *Kar*, or *Alkar*, and is the very ſame with *κάρδα*, (*Naphtha*) and called by the *Arabians* alſo *Nafth*. As to the Opinion of *Alpagus*, that *Kar* is the ſame with *Chur*, I don't doubt but it was commonly ſo pronounced. For after the ſame manner they ſay *uſſach* inſtead of *aſſach*, and *uſen* for *aſnan*, and ſo of an infinite Number of others. But under the Word *Chur*, to which he refer'd us for a fuller Explication of *Kar*, he expounds it, according to the Opinion of the *Arabian* Interpreters, to be the *Sordes*, that ſtick to the Walls of *Bee-hives*. This *Kur* is quite a different thing from the *Kar*, which is a kind of liquid *Bitumen*, and is written otherwiſe; viz. *Kaar*, with the middle Syllable *Ain*, not *Elif*. They call the *περίστασις*, (*Bee-glue*) of the *Greeks*, and *Wax* itſelf, by that Name, which may ſeem to be derived from *Κέρς*, or *Καέρς*, "*Ceros*," or *Caros*. "*Bellunensis*, at the ſame Paſſage, adds, that according to ſome Writers, *Kar* is to be taken for *Bdellium*, in the ſecond Canon of *Aviſena*, in the Chapter of *Dadi*, where he ſays, that in its ſtead, there were put two thirds of a Pound of *Kur*. But in the *Arabic* you don't read *Kur*, but *Luz*, or *Lauz*, that is, an *Almond*; inſtead of which, the Interpreter ſeems to have read *Kur*, which in that Place can ſignify nothing to the Purpoſe. *Kur* is a *Furnace*, or *Fire-place*, and ſome take it for a *Hive*; but a *Hive* is called *Kouvarab*, the Plural of which is *Kouvarath*; from whence perhaps, the later *Greeks* have uſed *Κυβέρη*, and *Κυβέρηον*, (*Kuberte*, and *Kuberton*) for a *Bee-hive*. *Hefychius*: *Κύβηλον*, *Κυβέρηον* μελισσῶν, "*Cypſelus*, a *Hive of Bees*." But the *Sordes* which ſticks to the Walls of *Bee-hives*, is not called *Kur*, but *Kar*. Some render it *Wax*. But the *Propolis*, or *Sordes of Bee-hives*, is by *Aviſena* called *Almum*, of which he makes two Sorts, the *Pure*, and the *Black*. The pure *Mum* is ſpoken of the waxen Cells in which the *Bees* ſtow their *Honey*; and this is the true *Wax*. Hence an ancient *Arabian* Author interprets the *Κέρς* of *Dioſcorides* by *Almum*. Others call *Wax* *Xemba*, which was the Name given by ſome to the *Propolis* of the *Greeks*, called by *Aviſena*, *Almum alaſnad*, "*black Mum*," that is to ſay, *black Wax*. This is a Subſtance found about the Mouths of *Bee-hives*, and may be ſaid to be *Κνεξιδής*, "*ſomewhat like Wax*," rather than *Κέρς*, "*Wax*."

To reſume our Diſcourſe on the *Karabe*, or *Succinum*, it has a great Agreement with *Bitumen*. *Serapion*, we know, ſpeaking the Opinion of ſome Authors, ſays, that the *Bitumen* *Judaicum* was called the *Karabe of Sodom*, and was the Gum of Funerals. This was the *Asphaltum*, or *Piſſaſphaltum*, which they uſed about the Bodies of the Deceased, and called *Mumia*. And becauſe Carcaſes, eſpecially thoſe of the poorer Sort, were embalmed with *Bitumen*, hence one Name came to ſerve both for the *Bitumen* and the Funerals, of which it was a principal Part of the Apparatus. *Strabo*, *Lib. 16.* *Χρῶſται δ' Ἀργυπύου τῇ ἀσφάλῳ πρὸς τὰς ταριχίας τῶν νεκρῶν.* "*The Egyptians uſe Asphaltus for embalming of the Dead.*" The *Mumia* of *Aviſena* is the *Piſſaſphaltus*.

I was once of Opinion, that the Word *Mumia*, for a Funeral thus prepared, was a Corruption of the *Greek* ἀμμία,

"*Amomia*;" for the *Antients* did, for the moſt part, embalm Carcaſes with *Amomum*. Hence we meet with *Trifte Amomum*, "*mournful Amomum*," in *Statius*; and *Craſſis lutatus Amomis*, "*bedawb'd with thick Amomum*," in *Perſius*, of the dead Body placed in order to be carry'd forth; and in *Ovid* we read *Oſſa Pulvere Amomi condita*, "*Bones ſeaſoned with the Powder of Amomum*." The old *Scho- liaſt* alſo, in a very antient Copy of *P. Ægineta*, at the Word ἀμμιον, "*Amomum*," remarks, that it is what the *Arabians* commonly call *Momia*, "*ἀμμιον ὃ λέγεται μίμις*. In *Myreſus* μίμια, "*Mumia*," ſignifies the Sanies of a human Carcaſe. In his *Antidote Athanaſia*, *αἷμα ἀνθρώπου τρεβνέσθαι ἐν δὲ κέ- κληται παρ' Ἱταλοῖς μίμια*. "*The Blood or Sanies of a dead Perſon is called by the Italians Mumia*."

But I have now another Notion of the Etymology of *Mumia*. *Mum* is a *Persian* Word, which ſignifies *Wax*. *Aviſena* diſtinguiſhes between the pure *Mum*, and the black *Mum*. His *Almum alaſaf*, is the pure bright *Mum*, and the *Almum alaſnad*, is the black and dirty *Mum*; ſo he calls the *Propolis* of the *Greeks*. His old Expoſitor interprets it by the *Sordes* which ſtick to *Bee-hives*, or rather are the Foundation of the Work, and the Rudiments of *Wax*. What is almoſt *Wax*, is called *Propolis*, and by *Aviſena*, *Black Mum*. The *κόμμοσις*, (*Commofis*) and *πιſſόκερος*, "*Piſſoceros*," is a ruder and more un- finiſhed Work. This latter is a kind of diluted *Wax*, with which the *Bees* overlay their Structures. The *Commofis* is the firſt Foundation and Cruſt, which is ſpread before all other things. *Pliny's* Words are to be read thus, partly from the Copies; viz. *Commofis cruſta eſt prima, ſaporis amari; Piſſo- ceros ſuper eam venit picantium modo, ceu dilutior cera e vitium populorumque mitiore commi*. "*The firſt Cruſt is the Commofis, which is of a bitter Taſte; over this comes the Piſſoceros, like a Layer of Pitch, being a more diluted kind of Wax, which the Bees make of a milder Gum of Vines and Pop- lars.*" *Κόμμοσις*, (*Commofis*) is ἀπὸ τῆς κόμμοσις, "*from Commis*." *Hefychius* interprets it διὰ χειρὸς τῶν σμύνης, "*the ſmearing of the Hive*." By *Ariſtotle* it is called κόννοις, (*Koneſis*) that is, *Pication*, (doing over with Pitch); for κόννη, or κώνη, ſignifies liquid Pitch. *Dioſcorides*: *Πίσα ὕγρον, ἢ ἐνίοις κόννον καλεῖται*, "*Liquid Pitch, which ſome call Conus*." Others name it κώνη, "*Cone*," by which Name it went among the *Greek Veterinarii*, or *Horſe-physicians*; as in *Cap. 176.* ἀσφάλην, κώνην, ἀμμιαντακῆ, and *Cap. 843.* ὄξος φοσφήματι, κώνης περιβά- νης, ἀμφοτέρω ὁμοίως συμβαλὼν χρῶ. "*Take Vinegar, of the Refin of the Pine-tree, and the liquid Pitch of the ſame, and apply them to Uſe*;" and in many other Places. Hence the κώνης οἶνος: "*Wine ſtopped up with Pitch*," of *Hippo- crates*, which *Galen* expounds by *πιſσίτης*. And hence alſo κώνηται πῖθον, "*to pitch a Hogthead*," and ἀκωνήσας ἀγρῶν, "*a Veſſel not pitched*."

To go on, what *Aviſena* calls *Black Mum*, is by other *Arabians* called *Car*, which ſome however interpret *Piſſaſphal- tus*, and *Bitumen*, as *Alpagus* obſerved. But it is written other- wiſe when it ſignifies *Bitumen*, as thus, *Kar*; and for *Wax*, and *Propolis*, *Kaar*. With the ſame *Arabians*, *Kefer* is *Bitu- men*; but moſt think *Charabe* a Species of *Bitumen*, and to flow out of Springs in the ſame manner.

Now from this *Mum* aforeſaid, I doubt not, but the Word *Mumia* is derived. For moſt Nations uſed *Wax* in embalming and medicating Bodies for Interment, eſpecially the *Babyloni- ans*, who in moſt things had the ſame Cuſtoms with the *Persians*. *Strabo*: *Θάπτουσι δ' ἐν μέλιτι, καὶ περικλάσαιτες*. "*They bury their dead Bodies in Honey, having firſt cover'd them over with Wax*." The ſame was practis'd in *Greece*: We read at leaſt, that the like Treatment was once uſed to the dead Body of a *Greek* Man. *Cornelius Nepos*, of King *Agſilaus*: *Ibi eum Amici, quo Spartam facilius perferre poſſent, cera circumfuderunt, atque ita domum retulerunt*. "*There his Friends, that they might the more conveniently transport his Body to Sparta, cover'd it all over with Wax, and ſo brought it home*." Moreover it was a cuſtomary thing with the *Arabians*, to uſe indifferently the Names of all Things which ſerved for the ſame Uſes, and to put one Name for another. Thus *Kitrān*, which properly ſignifies the Pitch of a Cedar, is by ſome interpreted *Bitumen*. Thus again, they made no Diſtinction in their Notions between the *Fucus-marinus*, the *Scarlet-worm*, and *Madder*. After the ſame manner *Bitumen*, becauſe it was uſed by various Nations, as well as the other, in ſeaſoning their dead Bodies, had by them the Ap- pellation of *Mumia* beſtow'd on it, which is a Word derived from *Mum*, that is, *Wax*; ſo they took *Karabe*, which properly is *Succinum*, to ſignify alſo *Bitumen*. The *Karabe of Sodom*, in *Serapion*, is *Bitumen*, or *Funeral-gum*, as he calls it, the *Almumiai*.

Some antient Authors affirm, that *Amber* works out of Springs, like *Bitumen*, the Truth of which is warranted by modern Discoveries, ſeveral Writers aſſuring us, that *Amber* is gotten out of the *German Sea*; and that it riſes from Springs in the Sea itſelf, after the manner of *Bitumen*.

But

But of all the Opinions of Antiquity about Amber, the *Arabians* seem to approve of that alone, which, deriving its Authority from the Fable of *Phaeton*, makes it to be the Tears of the Black Poplar. The Truth of this they every-where assert in their Writings. 'Tis certain, that the Black Poplar weeps a kind of Gum. *Pliny* says, that the Bees make their *Piscoceros*, (pitchy Wax) which is a clearer sort of Wax, of the milder Gum of Vines and Poplars. *Dioscorides* calls this milder Gum of the Poplar *Αἰγερὸν ῥῆσιν*, "the Resin of the Poplar." Most of the Antients believed, that the Tears of the Black Poplar falling into the *Po*, there concreted and made the Amber. *Dioscorides*, of the Black Poplars: *Ἰσχυρῶτα δὲ τὸ ἐξ αὐτῶν δάκρυον κατὰ τὸν Ἡεῖδανον πῶτα μὲν κατὰ χεῖμα πρὸς γῆναι, καὶ γίνεσθαι τὸ καλέμενον ἡλεκτρον*. "It is reported, that their Tears running into the River *Po*, condense, and become what they call Amber." All the Gum of the Poplar does not turn to Amber, but only that which falls into the River, and there concretes in the Water, and acquires the Hardness of a Stone, by virtue of the Cold. Whether the *Arabians* believed, that Amber was so generated, or confounded all the Gum of the Poplar and Amber together, they never speak of Amber, which they call *Karabe*, than as the Tear of the Poplar. The *Arabians* call the Poplar *Haur*, and sometimes *Haur Rumi*, that is, the Roman Poplar. The Latin *Avifena*, *Cap.* 349. renders *Haurus*, the Tear of the Poplar: *De Haur*, id est, *Populi Lacryma*. He takes the Name of the Tree for the Tear; as, on the other hand, *Cap.* 375. in his Translation, he makes *Karabe*, which is the Amber, or Tear of the Poplar, to be the Poplar itself: *De Karabe*, id est, *Populo*. So also the Translator of *Serapion*: *Haur Rumi*, id est, *Karabe*. So *χαλβάιν* (*Chalbaine*) signifies as well the Gum, as the Shrub from whence it is produced; and the same may be observ'd in other Particulars.

From the Premises, I can hardly make a Doubt, but that this *Haurus* was, by the barbarous People, first chang'd to *Habrus*, and afterwards corrupted into *Hambrus*, to signify Amber: So from the old Word *Abiga*, "Expeller," which was the Name by which the *Latins* call'd the Chamæpitys of the *Greeks*, because of its Efficacy in expelling the Foetus, the same Barbarians coin'd their *Ajuga*; but later Ages, instead of *Abiga*, pronounced *Aviga*. An old Expositor of the *Arabian* Nouns has it, *Aurum Romanum*, id est, *Archirosa*, *cujus Gummi dicitur Karaba*. Read, id est, *achiros*, or *acchiros*, from *αἰγερὸς* (*Aigirus*, a Poplar).

'Tis certain, that the Name *Ambri*, for *Succinum*, (Amber) is not of *Greek* nor *Arabic* Original. The *Arabians* call it *Karabe*, the antient *Greeks* *ἡλεκτρον*, "Electrum," the more modern *βερενίκη*, "Berenice." From this *Berenice* the Barbarians hammer'd out their *Vernix*, which is their Term also for another kind of Gum; for so they call'd the Gum of Juniper, because it was so much like Amber. *Avifena*, *Cap.* 273. says, the *Karabe* was like *Sandarach*; so they called the *Vernix*. Some even made *Karabe* the same with *Sandarach*, as *Serapion* assures us, *Cap.* 366. *De Karabe*. Hence the Barbarians, as I said, call'd the *Sandarach Vernix*, which was the Name the later *Greeks* used for *Electrum*. *Neophytus*: *Βαγύλιος λίθος, ὅστις ἐστὶ τὸ δένδρον, ἐστὶ δὲ τὸ λεγόμενον βερενίκη*. "The Beryl Stone is the Juice of a Tree, or what they call 'Berenice.'" The same Author, on the Word *ἡλεκτρον*: *Ἄλλαι δὲ φασὶν ὅτι τὸν αἰγερὸν ἐστὶ καλλώδες*. "Others say it is the 'Glue of the Poplar.'"

Perhaps, besides the Similitude of the Gums, the near Affinity of the Names in *Arabic*, was a Cause of their being confounded. For the Poplar is call'd *Raur*, whose Gum is the *ἡλεκτρον*, or *βερενίκη*; and the Juniper is call'd *Harar*, and its Gum *Sandarac*. And yet, which is strange, in the *Arabic* *Avifena*, we always read *Giauzi*, and not *Haur*, for a Poplar. *Giauzi* indeed with him signifies simply a Walnut-tree; but he always puts *Giauz Alrumi*, that is, the Roman Nut-tree, for the Poplar.

The Gum, commonly called *Vernix*, is written in *Arabic* *Sandarac*, in *Avifena* with the Letter *Sin*. And in the Chapter of *Karabe* it is call'd *Alсандάρυς*, which is also pronounced *Sandarac*; for *Elif* and *Vau* are often chang'd one for another in *Arabic* and *Hebrew*, for which Reason the Translators always render it *Sandarac*. The *Karabe*, that is, Amber, and this *Sandarac*, are so much alike, that they often exchange Names. *Avifena*, in the Chapter of *Caucamum*, writes the same things upon *Sandarac*, which he afterwards repeats almost *verbatim* of the *Karabe*, in his Account of *Lacca*. This, as I said before, is what the Barbarians call'd *Vernix*, by a Corruption from *Berenice*, which with the later *Greeks* signifies *Electrum*.

But the *Sandarac*, which is the Gum of a Tree, agrees in nothing but Name with the metalline *Sandarac*, which the *Arabians* call *Zarnig*; nor are we to suppose, that the *Arabians* made that Name, which with them signifies the Gum of a Tree, out of the Name of the metalline *Sandarac*.

The Antients had another *Sandarac*, which was the Food of Bees, and gather'd by them from the Juice of Trees, after the manner of Gums; of which *Pliny* speaks, *Lib.* 2. *Cap.* 7.

which Passage is thus to be read: *Præter hæc convexitur Erithace, quam alii Sandaracham, alii Cerinthum vocant. Hic erit Apium, dum operantur, Cibus, qui sæpe invenitur in Favorum Inanitatibus sepositus, et ipse amari Saporis: Gignitur autem Rore verno, et Arborum Succo, Gummi modo, Africæ minor, Austri Platu nigrior, Aquilonibus melior, et rubens, plurimus in Græciis nucibus. Menecrates Florem esse dicit, sed nemo præter eum.* "Besides these, they convey thither *Erithace*, which some call *Sandarach*, others *Cerinthus*. This is what the Bees feed on while they are at Work, being often found in the empty Spaces of the Combs, and is of a bitter Taste. It is generated of the Spring-due, and the Juice of Trees, after the manner of Gums; it is diminish'd by the South-west Wind, grows blacker with a South Wind, but is meliorated and redder'd by a North Wind, and is very plentiful on Almond-trees. *Menecrates* says it is a Flower, but he is the only Person who says so." This *Sandarac* is from Gum, and is a sort of Glue. *Varro*, we know, observes, that the Matter with which the Bees glew together the Extremities of their Combs, is call'd *Erithace*, and is a different thing from the *Propolis*, having the virtue of alluring the Bees. The *Greeks* expound it by *τροφή μελισσῶν*, "the Food of the Bees"; *σανδαράχην*, (*Sandarache*) is the same thing; and so is *κηρίθου*, (*Cerinthus*) which is as much as to say *Cerago* (a waxlike Substance). *Hesychius*: *Κηρίθου, ἡ λεγόμενη ἐριθάκη ἐστὶ δὲ τροφή, ἣν παρατίθενται ἐαυτοῖς αἱ μέλισσαι*. "Cerinthus, which is call'd *Erithace*, is the Food which the Bees lay aside for themselves." *Menecrates* rather fancies it to be a Flower, and is follow'd in his Opinion by *Virgil*, who describes *Cerinthe* as a Flower or Herb grateful and attractive to the Bees:

Trita Melisphylla, et Cerinthæ ignobile Gramen.

"Bruised *Melisphyllon*, and the ignoble Herb *Cerintia*." And *Pliny* himself, who here censures *Menecrates* on this Account, elsewhere enumerates *Cerintia* among those Herbs and Flowers which are grateful to the Bees; and *Lib.* 21. *Cap.* 12. gives a Description of it. *Theophrastus* likewise, *Lib.* 6. *Cap.* 7. reckons *κηρίθου*, (*Cerinthum*) among the Herbs used in Garlands (*Herbas coronarias*). Nothing hinders from bestowing the same Appellation on an Herb, and on *Cerago*, which others call *ἐριθάκην*, (*Erithace*). This latter is a gluey sort of Gum, with which the Bees conglutinate the extreme Borders of their Combs. Of this speaks *Virgil*, as follows:

----- *tenuia Cera*
Spiramenta linunt, Fucosque et Floribus Oras
Explent, collectumque hæc ipsa ad Munera Gluten,
Et Visco et Phrygia servant Pice lentius Ida.

"They besmear the small Spiracles with Wax, and fill up the Space between the Extremities of their Combs with Fucus and Flowers; and keep in Store, collected for these very Purposes, a Glue more tenacious than Bird-lime, or the Pitch of *Phrygian Ida*." That this Passage must be understood of the *Erithace*, we are taught by *Varro*, *Lib.* 3. where he thus speaks of Bees: *Extra Ostium Alvei obturant omnia, qua venit inter Favos Spiritus, quam ἐριθάκην appellant Græci.* "Without the Door of the Hive they close up all where-ever the least Breath of Air can come between the Combs, with what the *Greeks* call *ἐριθάκην*." With this *Erithace* they smear over and stop up the *Spiramenta*, that is, the small Holes by which the Air can come between the Combs. *Philargyrus* understands this Place of the Poet, as concerning *Propolis*, and takes the *Fucus* to be a kind of Wax, which the Bees use instead of Glue, and is call'd *Propolis*. But of the *Propolis* our Poet in the same Place thus sings:

----- *Et lentum de cortice Gluten*
Prima Favis ponunt Fundamenta, deinde tenaces
Suspendunt Ceras. -----

"They lay the first Foundations of their Combs with the slimy Glue of a Bark, and afterwards erect their tenacious waxen Structure." *Servius*: *Græci πρόπολιν vocant, duriores Cera, quæ vix potest Ferro frangi, quam colligunt de Gummi Arborum.* "The *Greeks* call it *Propolis*; it is harder than Wax, and can scarce be broken with a Hammer. The Bees gather it from the Gums of Trees." The *Sandarac*, or *Erithace*, is also a Glue, and comes from the Gum of Trees, and the red is the best. Thence, we may be sure, comes the *Sandarac* of the *Arabians*; for of *σανδαράχην*, (*Sandarache*) they made *Sandarac*, changing a into u, as they do in other Words. Thus of *σοιχάδου*, they made *Astuchudos*; of the *Greek* *τίμπανον*, they coined *Tambur*, for *Tambar*; for they commonly change n into r, and p into b: Thus they pronounce *φισήκ* (*Phistouk*) for *φισάκ*, (*Phistak*) from the *Greek* *πίσάκιον* (*Pistacion*).

Some will have this *Sandarac* of the Bees to be the *Vernix*, but they are wrong in their Etymology. The *Vernix* is the *βερενίκη* (*Berenice*) of the *Greeks*, by which Name they call'd Amber,

Amber, (*Succinum*) or the Gum of the Poplar. *Pliny*, we know, says, that the Bees gathered Piffoceros from the Gum of Poplars, but the Erithace, or Sandarac, from the Gum of the Almond-tree. I suppose it is called Sandarac for no other Reason but its sandarachine Colour. *Pliny* says, it is blacken'd by a South Wind; and perhaps this is the black Mum of *Avifena*, by which Name he expressed the Propolis of *Dioscorides*. But they confound Things; nor is it so strange, that there is a Permutation of Names in this Case. *Karabe*, as I said, with the *Arabians*, signifies Amber, or the Gum of the Poplar; and they say it resembles the Sandarac, or Veriix, which is properly the Gum of the Juniper. The Sandarac of the Bees is from the Gum of the Almond-tree. In an old Expositor of *Arabic* Names, *Karabe* is noted to be the Gum of a Tree called the *Roman* Walnut-tree. The Author followed the Reading which you every-where meet with in *Avifena*, of *Giauz* for *Haur*. But *Avifena* distinguishes that Tree from the Walnut-tree by the Adjective *Rumi*; for he calls the Poplar; not the Walnut-tree, *Giauz Alrumi*; tho' if it be render'd literally Word for Word, it signifies the *Roman* Walnut-tree, which was the Name he used for the Poplar. Others call it *Haur*, and, with the Addition of a *Nun*, *Hauron*, which is the Poplar.

This *Haur* and *Hauron* the *Barbarians* corrupted into *Abrum* and *Abrum*, and from thence, in a little time, into *Ambram*, to signify the Tear of the Poplar, or Amber.

As for *Hambar*, or *Ambar*, as it is a different Name, so it signifies another thing. The *Greeks* of the latter Ages, as *Nicetas Choniates*, *Simeon Sethi*, and others, write *Ἀμπαρ* (*Ampar*). *Aetius* also mentions it, and calls it *ἄμπαρ* (*Ampar*) in the antient Copies, not *ἄμπα*, (*Ampa*) as it is in the Editions. We call both sorts *Ambra*, but that which is not the *Succinum* we commonly distinguish by an Adjective signifying the Colour.

I don't remember, that I have read *Ambra* to mean *Succinum* in later *Greek* Authors, nor do the *Arabians* call it by that Name. For which Reason I can't but suspect a Remark of *Fuchsius*, in *Myrepsus*, on the Composition of the seventy-fourth Plaister, concerning the Difference of the *Ambra* and *Ambra*, in these Words, "*Ambaris*, *Exag.* 2. *Moschi* "*Scrup.* 2. *Ambrae*, *Exag.* 3." I don't find this Composition in the original *Greek*, and *Fuchsius* seems to have fallen upon a bad Copy, or not to have fully comprehended the Meaning of the Writing, which he had the Misfortune not to do in almost an infinite Number of Places. *Leo Africanus* tells us, That the Whale is called *Hambara* by the Inhabitants of *Fez* and *Morocco*; which perhaps gave Rise to a received Opinion among most of the *Greeks* and *Arabians*, that *Ambra* was the Dung or Spawn of the Whale. Hence it is, that in the Medical Glosses of the later *Greeks*, we every-where find it thus interpreted, *Ἀμπαρ μυρμηκίου κόπρος ἰχθύος*, "the odoriferous Amber is the Dung of a Fish;" and *ὀσμὴν ἀποδύμενη*, "the Excrement of a Whale." The same way of Reasoning induced Multitudes to believe, what many also wrote, that Frankincense grew on Mount *Libanus*, because the *Greeks* called Frankincense *λίβανος*, (*Libanos*) which is the Name of a Mountain in *Syria*; and some even at this Time would fain persuade us, that this Mountain is at this Day called *Lebnon*, from the *Syriac* Word *Lbunto*, which signifies Frankincense; whereas the *Syriac* *Lbunto* for Frankincense is plainly a Corruption of the *Greek* *λίβανος* (*Libanotos*). If Frankincense had been of the common Growth of *Syria*, the Antients had not differ'd so much about the Shape of that Tree, which was hardly known to them. 'Tis certain, that it grows no-where at this Day but in *Arabia*; and *India* does not produce it, though the Antients make mention of *Indian* Frankincense. *Συρίας λίβανος καπνός*, "the Smoke of Syrian Frankincense," is mention'd in the *Bacchæ* of *Euripides*, but after the same manner as *Malabathrum Syrium*, *Myrrha Syria*, and other things, which we are well assured, were never of the Growth of *Syria*.

Antient and modern Authors are not agreed about the kinds of *Ambar*, nor about its Colours, Differences, and Marks of Goodness. The *Portuguese* Writers make three Species; the *Porabar*, which is the white; the *Puabar*, which is white mix'd with black, or, the brown; and the *Minabar*, or Black, which, they say, is devour'd by the Whale. The first kind is the best, the second next, and the third worst of all. *Simeon Sethi* describes the best Sort as red and fat, the next in Goodness is the brown, and the worst Characteristic is that of the black, which is gather'd of the Whales that have been sucking at the Springs of *Ambar*. *Καὶ τὸ μὲν κρεῖττον*, says he, *ἐστὶ καὶ κίρρον καὶ λιπαρὸς ἀναδιδέσθαι δὲ ἐν τινὶ πόλει Σιλαχὴν ὀνομαζομένην τὸ δὲ ὑπόλευκον ἐν τινὶ παραλίᾳ πολυχνίᾳ τῆς ἐνδ' αἰῶνος Ἀραβίας Σίχνη ὀνομαζομένην τὸ δὲ ὑποδύεσσον καὶ μέλαν συνάγεται ἐξ ἰχθύων ἀπογευσσάμενων τῶν τῷ ἄμπαρ πυγῶν.* "The best is the red and the fat, which is exported from a City called *Silachet*; the whitish comes from a little maritime City of *Arabia Felix*, called *Sichne*; and the poorest sort, which is the black, is gathered from Fishes which

"have been tasting of the Springs of *Ambar*." The best, he says, is brought from *Silachet*, a City of *India*, where it rises out of Springs. *Avifena* also calls the highest-prized *Ambar* *Alselebetii*, that is, which comes from the City, or Country, *Selebet*, which is the very same that the *Nubian* Geographer places in the ninth Parallel of the first Climate, calls *Selebet*, and makes an Island of *India*. This is *Simeon's* *Σιλαχὴν* or *Σελαχὴν*, (*Silachet* or *Selachet*) for the *Greeks* commonly express the *Arabic* He by X (*Ch*); as *Ταμαρχήσι* (*Tamarchenti*) in the *Græco-Arabic* Lexicons stand every-where for *tamar Hendi*. What bears a lower Rate, but next to the best, *Simeon* tells us, springs up in a City of *Arabia Felix*, called *Σίχνη* (*Sichne*). In other Copies I find it written *Σόχνη λεγομένη*, "called *Suchra*"; and some cite it, *ἐν Σενχρί Felicis Arabiæ*, "from *Senchri* in *Arabia Felix*." I know not whether it be the Place which *Serapion* calls *Zing*; only he places it in the West, far enough from *Arabia Felix*, viz. in *Terris Zing in Occidente*, "in the Territories of *Zing* in the West." He must not however be understood to mean *Africa* or *Barbary*, but a maritime Tract of *Ethiopia*, where *Mosambique* lies, which abounds with *Ambar*, and is situate West of *India*; now the *Arabians* call the *Ethiopian* *Zing*. *Simeon* calls the maritime City of *Arabia Felix* *Σίχνη* (*Sichne*); the *Zengi* in *Alpagus* are the western *Ethiopian*s. But *Serapion* differs from others in his Characteristics of the best *Ambar*, which, he says, is of a Sky-colour, and makes the white to be the cheapest and worst of all, tho' others prefer it to the rest. But, in Truth, there is no *Ambar* of a sky-blue or azure Colour; and it seems a Fault of the Translator. The *Arabic* is *azarac*, which they render sea-green, (*glaucus*) grey, (*cæsius*) and azure, (*cæruleus*) of the Colour of the Firmament. According to *Alpagus Zarach* is the Colour of the Heavens; however it can have nothing to do here, when we talk about the Colours of *Ambar*: They also take notice, that it signifies changeable and pale. Hence comes *zaracha*, *paleness*; and this is the true Signification of the Word in this Place. *Simeon* terms it *ὑπόλευκον* (*hypoleucon*); we commonly call it a grey or grizel. *Avifena* calls it *Alazarac*, which his Translator rightly renders of *Ash-colour*. *Avifena* gives the Preference to *Selebetican* *Ambar*, which has its Name from an Island of *India*, which *Garcias* wrongly supposes to be *Zeilan*. The second Place in point of Goodness, he says, belongs to the *Ambar alzarac*, that is, the *Ash-colour'd*. As to the *Selebetican*, which is most esteemed, he does not tell us of what Colour it was, at least in the *Latin* Edition. And it is observed by *Alpagus*, in his Exposition of *Arabic* Names, that the *Arabian* Interpreters are ignorant of the kind of the *Ambar* *Alseleheti*, as well as its Colour; at which I can't but wonder. If there were no more in the *Arabic* Copy, than in the *Latin* Version of it, yet it might easily be guess'd; from what others have related, that the *Selebetican* *Ambar*, to which *Avifena* assigns the Preference, was white, since most set the highest Value upon *Ambar* of that Colour, tho' *Avifena* does not mention it. We might also conjecture, that it was red, as well as *Simeon*, who makes the *τὸ κίρρον*, "red," the most valuable. Nor is *Avifena* against it; for he only assigns the third Place to the *Citron-colour'd*, which in *Arabic* he calls *Alasafar*, that is, *χαλκόχρουν*, *Copper-colour'd*. The *Citrine* is a very watery Colour, but the *κίρρον* (*cirrus*) is ruddy or red. *Avifena*, among the Characteristics of the best and choicest *Ambar*, does not only name *Selebetican*, which was all that his Translator observ'd, but prefix'd two other Words expressing the Properties it ought to have, viz. *alasciheb*, and *alkavi*, to which he adds as a third *Alseleheti*. This last Epithet is taken from the Country, the two former signifying other Qualities which belong to it. *Alkavi* imports firm and robust, which I understand of that *Ambar* which is least friable, and most resists a Separation; such is that which is endu'd with a fat sort of Viscidity. This is the *λιπαρὸς* (*lipodes*) of *Simeon*, which he sets down as a Mark of the most valuable *Ambar*. *Garcias* commends that for the best, which, pierced with a Needle, sheds out a good deal of an oily Liquor; this is the *λιπαρὸς*, "fat;" what is easily broken cannot be such. I take *alasciheb* for ruddy, according to the same *Simeon*, who calls it *κίρρον* (*cirrus*). The Word is derived from *Seiheb*, which signifies a Flame or Lamp, and in the *Alcoran* is put for a Star. It might also be taken for white, as it expresses the *τὸ λευκόν*, "lucid," which the *Greeks* also put for white. But *Simeon* has handsomely expressed *Avifena's* two Epithets of the best *Ambar* by those other two, *κίρρον* καὶ *λιπαρὸς*, "ruddy and fat." If he took them from the *Arabians*, 'tis plain that he understood *alasciheb* to signify *rutilus*, "ruddy." Among modern Writers, *Manardus* informs us, that in chusing the best *Ambar*, we are to take such as borders a little upon the red, and that the white is not so good. But I suppose he had this from *Simeon*, whose *ὑπόλευκον*, whitish or grey, *λευκόφατον*, (*leucophæon*) he did not rightly express by *album*, "white." This is the *azarac* of the *Arabians*, which properly signifies party-colour'd, or sprinkled with black and white, and is from the *Hebrew* זר, *Zarac*, "to sprinkle." So the *τὸ ποικίλον*, (*various*)

(various) is by the Greeks called *παρσέν*, ἀπὸ τοῦ παρσέν (sprinkled, from the Verb signifying to sprinkle). The Latins say *sparsum*, (sprinkled) whence *Sparso ore* in the Comic Poet. And in the Glosses: *Aspersus*, ἐξ ὧν καὶ ἀσπίς (the *Aspersus* is a kind of a spotted Fish); and *sparsa Tempora*, *sparsum Caput*, "sprinkled Temples, sprinkled Head," denote τὸν μισοπέλιον (a Man whose Head is sprinkled with grey Hairs); in which Sense also we read the Verb *zarac* in *Hosea*: They are mistaken then, who render it azure or green.

Serapion taken Notice of but two Kinds of Ambar, viz. that which his Translator calls sky-colour, (*cælinus*) and the white, of which the first was the best. Perhaps the Word in *Arabic* for Sky-colour was *alaxiheb*, as it is in *Avifena*, and the old Translator rendered it *stellinum*, from the Colour of the Stars, or *cælinum*, as we have it. As for the white, I doubt not but it was the same with what *Simeon* calls *Hypoleucum*, (*ὑπόλευκον*), and *Avifena* *azarac*, that is, an ashy white; for *Garcias* is mistaken, when he writes, that the whitest Ambar is condemned by *Serapion*, who says simply white, not whitish, or inclining to white.

But we are, in a manner, forced to render the *Arabic* Word *alaxiheb* white, by the later Accounts of three different Species of Ambar, under as many different Names, viz. *Perambar*, *Puambar*, and *Penambar*. The first of these is the white, and the best of all; the second is the ashy-coloured, which is next in Goodness and Price; and the third Sort is the black, which is the cheapest, and worst of the three.

We meet with *candida Sidera*, and *candida Flamma*, "white Stars, and white Flames," whenever we read the Poets; and this is literally true. But *candens*, "shining," for *candidus*, "white," is also usual, and from thence *Candela*, ἡ λαμπάς, (a Candle) takes its Name. So also, in the Greek, λαμπρὸν (*lucid*, or *shining*) is used for *candidum* "white," as λαμπρὰ εἶδος, (a shining white Garment) and λαμπροίμοις (*Candidates*). The *Arabic* Word signifies a Star, or Lamp, from whence comes the Term for a white Colour. They who understood it, as *Simeon* did, of a ruddy, (*rutilus*) presented us with an Ambar dressed up in Red, of which there is none extant at this Day, from a Misunderstanding of the Word.

Brassavolus takes the yellow Amber, out of which Handles for Knives are made, for *Succinum*. Another learned Physician, in his Definitions, under the Word ἤλεκτρον, (*Electrum*) cites *Serapion*, where he treats of Ambar, as tho' there were no Difference between this Ambar and the *Electrum*, which they call the Ambra of the Shops. *Scaliger* also, in his Notes upon *Garcias*, does not scruple to call *Ambarum* by the Name of *Succinum*.

They are all of them most grossly mistaken: The two Ambras are both of a different Nature, and derive their Names from a different Original. In one thing they agree, viz. in that they are said to rise out of Springs after the manner of Bitumen. The *Succinum* also is of a fragrant Smell, and the white Sort extremely fragrant, according to *Pliny*; for there is the white, the yellow, and the waxen: Yet, for all this, the *Ambarum* is a quite different thing from the *Ambra*, which is called *Succinum*. Nor must we imagine, that *Avifena* and *Simeon Sethi*, when they mention the yellow or citron-coloured *Ambarum*, confound it with the common *Ambra*.

We have already shewn, that the Name *Ambarum*, to signify *Succinum* or *Electrum*, is not extant in any Greek or Arabian Author of considerable Antiquity. Moreover, all the Moderns, who have given us Relations of Voyages to the new World, mention only three Sorts, and as many different Colours of *Ambarum*, or *Ambar*, which are, the white, the ashy-colour'd, and the black; of these the white is the most valued, and the black the least esteemed. *Simeon Sethi*, instead of the white Ambar, makes the *ρίππος*, (ruddy, or gold-coloured) to be the most precious; as to the rest, he agrees with the others; for his second Sort is the *ὑπόλευκον*, (whitish) and his third and last Sort is the *μέλαν* (black). *Ferdinand Lopez*, as well as the rest, reckons three Sorts of Ambar, but differs a little in their Names, of which he gives an Explication. They are the *Ponahambar*, the *Coambar*, and the *Maniambur*; the *Ponahambar* is the white, which is in highest Esteem; the *Coambar* is the ashy Ambar, and this Sort bears a greater Price than the others, being very scarce, and gathered with much Difficulty: This is plainly the *Κίρρον ἄμπαρ* (the red Ambar) of *Simeon*, and is called *Golden*, I suppose, not from the Colour, but the Price, as *Lopez* clearly hints, and as it is expressed in the Language of the Natives by *Ponambar*; and perhaps this deceived *Simeon*, who might understand *Golden* to mean the Colour: Some call it *Porambar*, and interpret it of white Ambar: So, again, what others call *Puambar*, is by *Lopez* called *Coambar*, which he interprets *Water-Ambar*; because, by its long and violent Agitation on the Waters, it has lost much of its Virtue; this is of an Ash-colour. The third is the *Maniambur*, which signifies *Fish-Ambar*; for it is devoured by Whales, and after some time brought up again by them, unconcocted, whence its Blackness is contracted: And this agrees also with *Simeon's* Opinion, who

says, that the Fishes which drink of the Fountains of Ambar, cast it up again coloured black.

There is mention made of *κακάμπαρ* (*Cacampar*) in *Myrrisus's* Plaisters, *Compos. 3.* *ἐνλαλὴς, κακάμπαρ, ἐνλεβαλοαίμα, ἐνλονασίας, &c.* — of *Lignum Aloes, Cacampar, Xylabalsamum, Cassia Lignea, &c.* What Reason *Fuchsius* had to translate *Cacampar*, *Betony*, I cannot so much as guess; but how is it likely, that the Author would put *Betony* among exotic Aromatics? But I have observed of *Fuchsius*, that he every-where takes the Liberty of changing what he does not understand; which is a Practice scarce tolerable in a Man of Letters, but most unpardonable in a Physician, on account of the Mischief which usually result thence to the infirm Part of Mankind. I am apt to suspect, that we are to understand by it some kind of Ambar; and perhaps it is what *Lopez* tells us the Natives called *Coambar*. The Greeks seem to have pronounced *κακάμπαρ*, (*Cacampar*) instead of *καάμπαρ*, (*Caambar*) or *καάμπαρ*, (*Coambar*). We must, however, acknowledge, that *κακάμπαρ* (*Cacamparis*) is a Word that often occurs in *Myrrisus*, with an Interpretation that will hardly agree with any Species of Ambar: For in his Antidote *ἐκ τοῦ ὀνίου*, (of Quinces) *Cap. 37.* he explains it by *δρυσόβοτανον*, (*Drosibotanon*) *κακάμπαρ* ἢ οἱ δρυσόβοτανον (*Cacampar* or *Drosibotanon*); and *Cap. 79.* in his Antidote against the Dysentery and Colic, *γαστρούλλαν, κακάμπαρ* ἢ οἱ δρυσόβοτανον (*Cariophylli, &c.*) In the Antidote of *Castor*, which is the twentieth in *Fuchsius's* Edition, and the same with the above quoted, *Cap. 27.* we read, in *Fuchsius's* own Version, *Lauriola Campi, id est, Betonica* (of Laureola of the Field, that is, *Betony*): He had as good have said nothing. The Greek reads, *λαυριόλη, ἢ οἱ κακάμπαρ, ἢ οἱ δρυσόβοτανον* (*Laureola, or Cacampar, or Drosibotanon*). The Word *Laureola* wants to be explained in the Greek: Some take it for the Mezereon of the Arabians, which is something very different from *Betony*: *Drosibotanon* is, properly, the Herb of Dew; for Dew, in vulgar Greek, is called *δρυσία* (*Drosia*). I find, indeed, *Betony* so called and explained in medicinal Lexicons; and a very antient Copy of *Dioscorides* informs us, that it was called, by the Romans, *ροσμαρίνα* (*Rosmaria*). The antient Greeks called it *ψυχροτρόφος* (*Psychrotrophos, nourished with Cold*); because it loves to grow in cold Places: Later Ages called it *δρυσόβοτανον*, from Dew, whence came the Latin Name *Rosmarinus*. But why the same later Greeks gave it also the Name of *Cacampar*, I know not; and it seems to be an Arabic Word. However, it does not appear worthy of a Place among the Aromatics and Exotics in Plaister the third; and it stands there without any Exposition, which *Myrrisus* never omits; for where-ever you read *κακάμπαρ* (*Cacampar*) in him, you meet with its Explication adjoined, with an ἢ οἱ δρυσόβοτανον (that is, *Drosibotanon*).

There is, in the same Author, another Word, which is *κικέμπαρ*, or *κικέμπαρις* (*Cicampar, or Cicamparis*); which is always mentioned among the Aromatics, as in the first Antidote of *Castor*: *στύραμιθ, καλαμίτη, κικέμπαρ, κινάμων* (of *Styrax Calamita, Cicampar, and Cinamon*); and so, also, in his Antidotus plenus Archenticus, *κινάμων, γαστρούλλαν, ἐνλαλὴς, κικέμπαρις* (*Cinamon, Cariophyllum, Xylaloes, Cicampar*). The same Author often uses *ἄμπαρ* for Ambar. The Question now is, What is meant by this *Cicampar*?

As for *Fuchsius*, he always passed over what he did not understand, with great Assurance: But, concerning the Original of Ambar, *Simeon* speaks thus, *τὸ ἄμπαρ ἐκ διαφόρων βλάσκει τόποις, καθάπερ πηγαὶ ἐλαίου τε καὶ ἀσφάλτου* (*Ampar gushes out in several Places, like Springs of Oil, (ἐλαίου) or Asphaltus*). The Passage is commonly cited, *πηγὴν ἐλαίου καὶ ἀσφάλτου*. Hence a learned Author took Occasion to augment his Lexicon with the Addition of the Græco-barbarous Term *Πηγέλιον*, (*Pegelium*) of which he gives no Explication, and 'tis no Wonder he did not. In some Copies I found it written *καθάπερ πίστις, ἐλαίου τε καὶ ἀσφάλτου* (like Pitch, Oil, &c.). The Greeks often called liquid Bitumen by the Name of Oil; yet I don't doubt but the Place might be better read *πείρελαι τε καὶ ἀσφάλτου* (*Petrelæum and Asphaltus*). The later Greeks called *Naphtha* by the Name of *Petrelæum*, of which there are Springs as of the *Asphaltus*, which is a Sort of liquid Bitumen.

The Nubian Geographer is of the same Opinion concerning Ambar, who says, that under the seventh Parallel of the first Climate there lies a native Vein of Ambar, which bubbles up from Springs in the Bottom of the Sea, as the Naphtha does in the Country of *Babylon*; and that they sometimes find Fragments of it a hundred Pound Weight, which is the Import of the Arabic Word *KINTHAR*, from the Latin *Centarius* for *Centenarius*. *Garcias* relates, that they once found a Fragment that weighed three thousand Pounds.

The aforesaid Geographer calls the Fountains, whence the Naphtha works out, *Hit*, and says it is a Place in the Territory of *Babylon*. Here, by the way, we may take Notice of a Mistake of *Avifena*, in translating *Dioscorides*: The Greek Author defines *Naphtha*, *βαρυλάνης ἀσφάλτου πρεσβύτημα, τὸ χεράμει λένον* (a Percolation of Babylonian Asphaltus, of a white Colour). He

He adds, that they find also a black Sort: Here *Avifena* makes strange Interpolations, for want of taking the true Sense of his Author. "The white Naphtha, he says, is a Species commonly known; but the black is the *Babylonian*; or some other Sort of Pitch, passed through a Strainer." But the Meaning of the Greek Author is, that the Naphtha is a *Babylonian* liquid Bitumen, melted down in a manner, and strained through the secret Canals of the Earth, and flowing out of Fountains, Wells, or Caverns. *Avifena* himself expressed the same thing, when he said, that the black Naphtha was *Sasua albor alabeli vageirohe*; which the Translator rightly rendered, a Percolation of Babylonian; and other Sorts of Pitch. But this cannot be the Meaning of *Dioscorides*, who, by περιεθνημα ἀσφαλτος, simply intended liquid Bitumen; as Things which are squeezed and passed through a Strainer, become the more liquid; for nothing goes through but the most liquid Part, the thick and feculent remaining behind. This the Greek Author affirm'd as well of the black as the white. Besides, it is to be observed, that *Dioscorides* did not say διαθνημα, (*Diathema*) but περιεθνημα (*Periethema*). Things which are simply transmitted through, are said περιεθνημα (*Periethema*); but περιεθνημα (*Periethema*) is another Thing: That whole Country was bituminous; he would therefore indicate, that this Bitumen was dispersed all around that Territory, in a loose and indeterminate manner, and strained through the Veins of the Earth; and in some certain Places was liquefied, and did bubble and work out; and this was the Naphtha. Thus we are to suppose, as I may say, a *Periethema*, (a straining all around) or Vent-holes all over the Country for this *Babylonian* Bitumen.

But *Avifena* thought, that the white Naphtha proceeded from a natural Vein; but the black was the *Babylonian*, or some other kind of Pitch, defecated by passing through a Strainer: Whereas *Dioscorides* spoke this peculiarly of the white Kind, that it was a *Periethema* of the Asphaltus, and particularly of the *Babylonian*. The Greeks called this Sort of Bitumen ἐλαϊον Μεδέας (*Oil of Medea*). *Socion*, on Fountains, says, Τὸ δὲ κατὰ τὴν Σουανὴν ὕδωρ φασὶν εἶναι Μεδέας, ἢ περὶ ἀπὸ τῶν ναυσιπόρων φασφάκων; ὃ δὲ μὲν ἐν τῇ τῆς τινος (They say, that about *Sufiana* is the Water of Medea, which is medicated with caustic and inflammable Drugs; it flows out of a Spring). He says it is called ἀφθα (*Aphtha*); and so it is read in the Epitome of *Strabo*, comprised in *Constantine de Imperio*, viz. πρὸς αἰσθῆς (Springs of *Aphtha*).

Most of the Antients were of Opinion, that there are Springs in the Bottom of the Sea, like those of Naphtha, which throw up Ambar; and this, as it is the most common, is also the most probable Opinion, and best accounts for those Fragments of the Shells of Oysters, and other testaceous Fish, which are so often found inclosed in it, having stuck to it before its Humour was condensed, just after the same manner that you see Ants, and other Reptiles, in Succinum, which were caught and detained by the tenacious Humour before it was congealed; for this also is found to rise out of Springs, as well as the Naphtha, Bitumen, and Ambar. And so much for the Difference between Ambar and Ambra, which does not consist in Names, (for we call them both Ambra) but in the Things themselves, which both differ in their Natures, and derive their common Name from different Originals. *Salmasius de Homonymis Hyles Iatricæ*, Cap. 101.

Of AMBERGRIFE. — Ambra Grisea.

We see, by the preceding Dissertation, that, with respect to Ambergrife, as it has also happened in most other things, the Antients have made few Mistakes, but what have been adopted by the Moderns, and broached with an Air of discovering something new, with very little Variation. Thus Ambergrife is, in an Account from *Batavia*, printed in the *Philosophical Transactions*, said to be the Product of a certain unknown Tree, from whose Roots it flows into the Sea. In another Dissertation it is said to be the Combs of a Sea Insect, somewhat like a Bee. Nor is the Supposition of its being produced by a Whale so modern as the Author of the following Memoir seems to imagine.

It is now found out, that this Ambergrife is an Animal Production, and bred in the Body of the *Sperma-Ceti* Whale, analogous to what is found in some Animals of the Land, as the Musk-hog, or *Taiacu*, the Musk-deer, the Bezoar-sheep, and some amphibious Animals, as the Musquash, &c. who have their valuable Scent in a particular *Cystis*, or Bag. I am apt to think, that which first gave Occasion to the Notion of Ambergrife being the Production of the Whale, was, because it was found in considerable Quantities on the Shores of the *Summer-Islands*, and among the *Bahama's*, where the dead Whales are frequently wrecked and broke up with the Sea, and the Ambergrife found floating, or on the Shore; but here again, the Ingenious, until very lately, were at a Loss, and divided in Opinion; for though they agreed it to come from the Whale, yet some took it to be the true and proper Semen, being found only in the Bull, at the Root of the *Penis*, near the Testicles; others again thought it was the Ordure or Excrement of the Whale.

The best and most exact Account of Ambergrife, that I have been able to procure, I very lately received from one Mr. *Atkins*, now an Inhabitant of *Boston* in *New England*, who used the Whale Fishery for ten or twelve Years together, and was one of the first that went out a-fishing for the *Sperma-Ceti* Whales, about the Year 1670, and then began to discover the Ambergrife; and being a sober ingenious Man, what he says may safely be depended on; though, for Substance, I have had it from several of the Whale-men.

His Relation, which was taken a few Days since from his own Mouth, is as follows:

The Ambergrife is found only in the *Sperma-Ceti* Whales, and consists of Balls, or globular Bodies, of various Sizes, from about three Inches to twelve Inches Diameter, and will weigh from a Pound and an half to twenty-two Pounds, lying loose in a large oval Bag, or Bladder, of three or four Foot long, and two or three Foot deep and wide, almost in the Form of an Ox's Bladder, only the Ends more acute, or like a Blacksmith's long Bellows, with a Spout running tapering into and through the Length of the *Penis*, and a Duct, or Canal, opening into the other End of the Bag, and coming from towards the Kidneys; this Bag lies just over the Testicles, which are above a Foot long, and is placed lengthways at the Root of the *Penis*, above four or five Foot below the Navel, and three or four Foot above the Anus. This Bag, or Bladder, is almost full of a deep orange-coloured Liquor, not quite so thick as Oil, and smelling strong, or rather stronger of the same Scent with the Balls of Ambergrife, which float and swim loose in it; the Inside of the Bag is very deeply tinged with the same Colour as the Liquor, which may also be found in the Canal of the *Penis*; the Balls seem to be pretty hard while the Whale is alive, inasmuch as there are many times found, upon opening the Bag, large concave Shells, of the same Substance and Consistence, that have scaled off from them, and the Balls themselves seem to be composed of several distinct Coats, inclosing one another, something like the Coats of an Onion.

As to the Number of Balls, Mr. *Atkins* never found above four in a Bag, and in the Bag, where he found one that weigh'd twenty-one Pounds, which was the largest he ever saw, there was no other.

He further says, that to one *Sperma-Ceti* Whale that has any of these Balls, there are two that have nothing but the deep orange-coloured Liquor, aforesaid, in their Bags. This Remark confirms what another Whale-man told me, That the Ambergrife was found only in such *Sperma-Ceti* Whales as are old and well-grown. It is the general Opinion of the Whale-men, that the Ambergrife is produced only by the Male, or the Bull *Sperma-Ceti* Whale. As to this Particular, Mr. *Atkins* says, he never saw, nor certainly heard of, a *Sperma-Ceti* Female taken in his Life, the Cows of that Species of Whales being much more timorous than the Males, and almost impossible to be come at, unless when haply found asleep on the Water; or detained by their Calves. This is certain, the Boats can never come near them, when they are awake, they are so very shy and fearful.

Mr. *Atkins's* Method of getting the Ambergrife out of the Whale, was thus; after the Fish is killed, he turns the Belly upwards, and fixes a Tackle to the *Penis*, then cuts a Hole round the Root of the *Penis*, thro' the Rim of the Belly, till he comes to the Entrails, and then searching for the Duct or Canal at the further End of the Bag, he ties it pretty near to the Bag, and cuts the Duct off beyond it; upon which he draws forth the *Penis* by the Tackle, and the Ambergrife Bag entirely follows it, and comes clean and whole out of the Belly.

The Rev. Mr. *Prince* of *Boston*, who took the preceding Relation from Mr. *Atkins*, apprehends the Bag aforesaid to be the urinary Bladder, and the Ambergrife Ball to be a certain Concretion, formed out of the greasy odoriferous Substance of the Liquor aforesaid contained within it. As for my own Part, I dare not pretend to give any Opinion upon the Point, but content myself with relating Matter of Fact. *Phil. Transf.*

This Account embroils the Origin of Ambergrife very much; for it makes it nearly certain, that Ambergrife, or something very like it, is an Animal Substance; and yet, by the best Inquiries that have been made, it appears; that Ambergrife must belong to the Mineral Kingdom, which the following Observations from *Hoffman* put beyond Dispute.

The Origin of Ambergrife is a Point that has been long debated amongst Physicians and Naturalists, some maintaining it to be the Product of the Animal, others of the Vegetable Creation.

Some assert that it is the Dung of some Oriental Bird; and as a demonstrative Proof of their Opinion, shew the Claws and Fragments of the Beaks of Birds, that are often found inclosed within its Substance, which, being committed to the Fire, emit the Odour of an empyreumatic volatile Salt; which Sort of Smell is almost peculiar to Bodies that derive their Origin from the Animal Kingdom.

Others, on the contrary, attempt to prove, that Ambergrife is a kind of Honey, which is made by the Bees in the Rocks by the

the Sea-side; and being afterwards attenuated and digested by the Heat of the Sun, becomes a Substance of that Fragrance as we find it.

But these Errors may be soon detected by plain chymical Experiments; for all Dung of Animals, and Honey too, admit of a Solution in aqueous Menstruums; but obstinately resist the most highly rectified Spirit of Wine.

Some of the Moderns have thought it to be a peculiar kind of Resin, or Tear, distilled from some Tree, as yet unknown to us, in the *Eastern* Parts of the World, and afterwards transferr'd to the Sea, where, acquiring a more perfect Digestion by the Heat of the Sun, and by the Sea Salt, it constitutes a resinous Body of that Nature.

But, besides many other Reasons, what directly thwarts and overthrows this Opinion, is, that all resinous Bodies of Vegetables will admit of an easy Solution and Extraction, in the highly rectified phlogistic Spirit of Wine; whereas the contrary is true of Ambergrise, which is very difficult to be dissolved in such a Spirit. Besides, it is observed, that inflammable Bodies, produced from the Earth, as Amber, Bitumen Judaicum, and Sea Coal, are also difficult of Solution, and are by no means readily united with a very spirituous Liquor.

These things considered, we agree in Opinion with those who hold, that *Ambergrise* is to be reckoned among the Species of Bitumens, and owes its Rise to the Earth, out of whose Bowels it is torn, and washed away by the Violence of the Waves, and carried into the Sea; for it is found in greatest Quantities in the Sea about the Island of *Madagascar*, where the subterranean Parts are believed to be pregnant with that kind of Bitumen.

Since it is so difficult, as we have observed, to make a Solution of Ambergrise, for this Reason we have never yet met with any genuine Solution of it in the Shops; for it is generally prepared with Musk, or Oil of Cinnamon, or Oil of Roses, or even with Civet; by which means we are, indeed, furnished with an Essence of a very grateful Smell, which also has its Virtues and Use; yet participates but little of the Ambergrise, which remains in a manner untouched: For these Reasons we think ourselves obliged to lay down some Characters of the genuine Essence of Ambergrise, as follows:

First, It ought to be prepared only of Ambergrise, and not mixed with the Solution of any other thing.

Secondly, It must undergo an almost entire Solution by the Menstruum.

Thirdly, If this Essence be dropped into an aqueous Liquor, it will, of necessity, turn milky, after the manner of all Oils and Refins that have been dissolved.

Now it is prepared in the following manner: Let the Spirit of Roses, perfectly dephlegmated, be, not only once, but twice at least, drawn off from Salt of Tartar, which is burnt and calcined in a vehement Fire. By this means there is produced a Spirit, which, by its penetrating Quality, enters into the inmost Substance of the Ambergrise, and so separates and resolves its oleous Contexture.

This Solution, or Essence, of Ambergrise, is deservedly placed at the Head of strengthening Remedies, and such as corroborate the debilitated System of the Nerves; and, of consequence, has the Preference of all such Medicines as are appropriated to Distempers which proceed from a Decay of Strength in the nervous Parts. For it does not so fill the Head with Vapours, or excite Commotions and Agitations in a weak Body, as does the common Preparation of Ambergrise, which is made with a Mixture of Musk or Civet, whose Fragrance is found, by Experience, to be of such a Nature as to incommode weak Persons of both Sexes, who are subject to spasmodic Affections. *Hoffman. Observat. Physico-Chym. Lib. 1. Cap. 18.*

This has the Appearance of being, by much, the best Preparation of Ambergrise I have met with, and is very likely to be possessed of the Virtues which the illustrious Author attributes to it.

It is observable, that as Ambergrise and Amber have much the same Origin, and are both remarkable for their friendly Influences upon the Nerves, it is possible they may be nearly allied to each other.

Ambergrise is thus distinguished:

AMBRA-GRISEA, Offic. Mer. Pin. 219. Park. Theat. 1566. Sibb. Phalain. 42. *Ambra*, Aldrov. Musf. Metal. 430. Wormi. Musf. 33. *Succinum griseum*, *Ambra-grisea vulgo*, Charl. Foff. 15. *Ambra-grisea*, seu *ex albo grisea*, Dougl. Ind. 6. *Ambra-grisea*, Monf. Exot. 12. *Ambra cinerea*, Ind. Med. 7. AMBERGRISE. Dale.

It is a solid, sebaceous, or fat Substance, not ponderous, of an Ash-colour, variegated like Marble, and marked often with white Specks.

There are two Kinds of Ambergrise, the Ash-colour and Black. The first is to be preferred, when cleared of all Filth, with a strong Smell, and light, and which, being pricked with a hot Needle, drops a fat odorous Juice. The Black is less esteemed, as being mixed with Earth or Mud, or adulterated, according to some.

The Glebes of Ambergrise are sometimes found so big, as to weigh above two hundred Pounds. It is gathered in great Quantities about the *Molucca* Islands, in the *Indian* Sea, and is frequently found on the Shores, both in the *East-Indies*, and in *Africa*. Pieces of it are likewise met with on the Northern Coasts of *England*, *Scotland*, *Norway*, and *Ireland*, being thrown ashore by the Tide.

Ambergrise melts by Fire into a gold-colour'd or yellow Resin.

In distilling Ambergrise, we get first an insipid, then an acid Liquor or Spirit, and a yellow Oil of a most penetrating Smell, with a small Portion of acid volatile Salt, like Salt of Amber, a black, shining, bituminous Matter remaining in the Retort. From whence it is plain, that Ambergrise consists of fine volatile Parts, intangled in other thicker Parts, both saline and bituminous.

This Drug is very much used by Confectioners and Perfumers, in giving a fine Smell to their Preparations; and is recommended by Physicians as proper to raise the drooping Spirits, to supply the Defect thereof, and to accelerate their Motions. Hence it is both a cephalic and cordial Medicine, enlivens the Senses, and is very effectual in Faintings, and all other Affections of the Head and Nerves. It is thought to be very instrumental in prolonging Life, and in producing such Effects, as are necessary for Generation. This Opinion prevails chiefly among the Eastern Nations.

It is used both outwardly and inwardly. The Dose, in Substance, is from one to four Grains, taken in a poached Egg, or in a Glass of Wine with Sugar and Spices. The Tincture, extracted with Spirit of Wine, is given from one to ten Drops. This Tincture is either simple or compound. The simple Tincture is made by only dissolving the Ambergrise in Spirit of Wine, and then separating the Solution from the Fæces. The compound Tincture is very fragrant, and is prepared in this manner:

Take Ambergrise and Sugar-candy, of each two Drams; Musk, twelve Grains; Civet, two Grains; Spirit of Wine, four Ounces: Digest them in a Glass Vessel for some Days, and then decant the Liquor, and keep it for Use. The Dose is from one Drop to eight or ten, taken in *Spanish* Wine, Cinamon-water, or any other Liquor.

Riverius commends Ambergrise as a Strengtheners of the Stomach, and as a Specific in the *Fames Canina*; and he likewise orders it in hypochondriacal Melancholy, after Purging, and a due Use of diluting Liquors, for reviving the native Heat, and exhilarating the Spirits. It is however to be observed, that all Perfumes, and strong Smells, are hurtful to hysterical Women, and those in Child-bed; and the same thing is remarked in many hypochondriacal Men; for at this time, few People can bear Perfumes, or strong fragrant Smells; and for that Reason, the Compositions used by former Physicians, in which Ambergrise was an Ingredient, either alone, or joined with Musk, are now almost quite laid aside. Sweet Smells, though offensive to hysterical Women, are, nevertheless, of great Service to them, applied by way of Fumigation to the Uterus. Ambergrise is an Ingredient in the *Pulvis Diambrae* of *Mesue*, the *Pulvis Aromaticus Rosatus* of *Gabriel*, the *Pulvis Latificans* of *Nicolaus Praepositus*, the *Pulvis contra Pestem*, or *Bezoarticus*, of *Renaudus*; in the *Electuarium Diasatyrion* of *Cbaras*, in the *Tabella Magnanimitatis*, and *Apepleetic Balsam* of that Author, and in the *Confectio Alkermes* and *Hyacinthi*, when they are complete; for in these Compositions, both the Ambergrise and Musk, are often ordered to be left out. *Geoffroy*.

Ambergrise is sometimes counterfeited by mixing a little Musk and Civet, with Storax, Labdanum, and Aloe Wood.

And sometimes it is adulterated, by mixing with it some of the above-mentioned Perfumes; and a great deal of Bull's Blood dried.

Of AMBER, properly so called.

The Accounts we find of the Origin of Amber in the Memoires and History of the Royal Academy of Sciences, are thus:

'Tis commonly believ'd, that the yellow Amber, found in the Sea of *Dantzic*, [the *Baltic* Sea] is the Gum of some Trees, that grow on the Shores of that Sea, from which it falls into the Water. But *M. Tournefort* has a Letter from *Aix*, with an Account, that yellow Amber is found in the Clefts of the most naked and barren Rocks in *Provence*. This gives us Reason to believe, that this Gum is not a Vegetable, but a Mineral; and that the Amber of the Sea of *Dantzic* does not fall from Trees, but is carried thither by the Torrents. *Histoire de l'Acad. Roy. des Scienc. 1700.*

M. Galland, of the Academy of Inscriptions, confirms the foregoing Account. For he found yellow Amber at *Marseilles*, on the Sea-shore, in a Place where nothing of a Tree grows, and where the Sea is bounded by nothing but very steep Rocks, which are dash'd upon the Sea in foul Weather. This yellow Amber then must have been loosen'd from the Clefts of these Rocks, and so have fallen into the Sea. *Ibid. 1703.*

The Marquis of *Bonnac*, the French Envoy extraordinary to the King of *Sweden*, having seen, in a Piece of Ground near *Dantzic*, belonging to M. *Grata*, Post-master General of *Prussia*, some fossile yellow Amber, of the same Nature with what is found on the Sea-shore, began to consider it more attentively than before, and to question whether it were formed of the Froth of the Sea, as it was commonly thought. The Cardinal Primate of *Poland*, who was with him, had the same Curiosity, and told him, it would be good to know the Opinion of the Academy of Sciences upon the Matter. M. *de Bonnac* wrote to *Paris*; and immediately the Academy took care to collect all the Discoveries, that had been made in the Affair; and after they had done all that lay in their Power, sent the Result of it in the following Memoire.

Memoire concerning yellow Amber.

As the finest yellow Amber, and in the greatest Quantities, comes from the two *Prussias*; the Academy Royal of Sciences may possibly be less acquainted with the Subject than they who do them the Honour to consult them. They will, however, communicate what they know, and add thereto some Reflections: They won't trouble themselves with what Authors have written about it; supposing it to be well known, and that it is not a Compilation which is requested of them.

Mess. *Cassini* and *Maraldi*, having in 1700. travell'd into the Southern Provinces of *France*, in order to employ themselves about the Prolongation of the Meridian of *Paris*, discovered some Mines of Jet, and a kind of yellow Amber, in a Mountain of *Languedoc*, called *Bugarach*, distant from the Sea twenty-seven thousand six hundred Toises, [about two and thirty Miles] and separated from it by other very high Mountains. Some take Jet, as well as yellow Amber, to be a Species of *Succinum*. The Inhabitants of *Bugarach* use their yellow Amber to burn in their Lamps. It is pretty like a Refin, and not so hard as that of *Prussia*. Near the Mines of *Bugarach*, are Springs of Salt-water, which form a little River. We are very credibly assured, that yellow Amber is also found in *Sicily* on the Sea-shores, along the Coasts of *Agrigentum*, *Catania*, and *Leocata*; and in the Isle of *Corfica*, and also at *Bologna* in *Italy*; about *Ancona*, and in *Umbria*, in the open Fields, and at a great Distance from the Sea.

This, consider'd with what the Marquis has written, that he has seen himself taken up, on the Grounds of M. *Grata*, which are separated from the Sea by great Woods and Heights, Amber in all respects like that which is found on the Sea-shore, seems decisive in the Case, and a sufficient Reason to conclude, that this Substance is always produced by the Earth.

Besides this, we see small Animals inclosed in Amber, and these are always terrestrial Animals, as Flies, Ants, &c.

However to be better assured, it might be proper to examine, whether the terrestrial Amber have all the Characters and Perfection of the Amber found on the Sea-shore; for it might not be impossible, that the Sea, by its Salt, might give a finishing Stroke in the Formation of this Matter, and lend it the last Degree of Concoction.

Supposing then, that Amber was always produced by the Earth, the Question is, Whether it be a vegetable or a mineral Substance.

We never heard it said, that in *Prussia* there are any Trees from which *Succinum* distils in form of a Refin, or something like it. And yet it seems more natural, that Ants and Flies, which are sometimes seen in it, and are a certain Sign, that it was once liquid, should be inclosed in a Refin, that distils from a Tree, than in a Mineral formed in the Earth. To solve this Difficulty, we must suppose, that *Succinum*, like Petroleum, trickles from a Rock, or at least, that the Amber in which these little Animals are envelop'd, has continued liquid for some time upon the Surface of the Earth.

Whether we believe Amber to be a Vegetable or a Mineral, we have none to attest, that ever they saw it liquid, or so much as soft. It must however have been in that State, and even exposed to Sight, at the time when these little Animals were caught in it.

The Analysis of this Compound by the Chymists of the Academy, does not entirely determine to what Kind it belongs. They always find a very small Quantity of aqueous Liquor, which smells like Amber when 'tis rubbed, a good deal of acid volatile Salt, and the like of Oil, which is partly white like the Water, partly red, and partly very black, according to the Degrees of Fire given it in the Distillation. The Caput Mortuum is light, spongy, black and shining, which being calcin'd in an open Fire, goes away almost entirely in Smoke, without affording any fixed Salt.

The only Difference in the various Kinds of Amber is, that the most transparent, or the whitest, afforded more Oil, and volatile Salt, and a less Caput Mortuum, than the muddy or black; but these last never afforded any fixed Salt, tho' they left more of a Caput Mortuum.

The Oil of Amber smells like a bituminous Oil, which seems to shew, that Amber is a Bitumen; but there are Resins which

have the same Smell, and some, as Benzoin, which yield an acid volatile Salt; but we know of none from whence we can, at the same time, obtain a fixed Salt, and an Oil of a bituminous Odour. Hence the Academy is inclined to believe, that Amber is a Bitumen, and consequently a Mineral.

It appears from what has been said, how far the Academy stands in need of Information, before they can presume to determine more precisely in all that respects Amber. It will be proper to know in particular,

1. Whether there be any Salt-water, or vitriolic Water, near the Places where they take up Amber.

2. Whether it be usually envelop'd or mixed with any Earth, or particular Substance.

3. If there be any Marks to distinguish the particular Places in the Earth, where the Amber is to be found.

4. Whether the fossile Amber be any way different from what is taken up on the Sea-shore.

5. Whether they gather white from the Earth as well as yellow; and, whether it be the Air, or the Heat of the Sun, that changes the Yellow into Black.

6. Whether black and yellow Amber are ever both found in the same Place.

7. Whether we can be certain of what we are told by *James Hartman*, in his Account of the Amber of *Prussia*, and by *Bartholinus* concerning that of *Denmark*, that it is found under a kind of foliated Earth, like the Barks of Trees, and is accompany'd with a sort of fossile Wood, in which, however, neither Pith nor Fibres, Joint nor Bud, can be distinguished. *Histoire de l'Acad. Roy. des Scienc. 1705.*

But the following Observations on Amber from *Hoffman*, a Physician who had very good Opportunities of examining the Subject, put the Origin of Amber beyond Dispute.

The Earth, that rich Storehouse of Nature, contains in its Bowels not only Metals, Minerals, Stones, Earths and Salts of various Kinds, but also cherishes within its Bosom Bodies of a sulphureous, fat, unctuous, and tenacious Substance, which pass under the general Name of *Bitumen*.

The Nature of Bitumen does no way belong to the common and mineral Sulphur; for this will by no means be resolved into Oil or Spirit, by Distillation; but Bitumens distilled in a Glass Vessel afford Oil and Spirit, besides an exhausted and sluggish Earth. Even the Vapour, as well as the Smell, emitted by mineral Sulphur, are manifestly unlike the Exhalations from bituminous Bodies.

The principal Distinction of Bitumens is into the noble and ignoble Kinds, and both these are either dry or fluid. Within the Class of the noble Kind, are comprehended *Ambergrise*, and *Succinum*, or Amber; among those of the other Kind, are Stone-coal, Pit-coal, Terra Ampelitis, and Asphaltum, which however are very different from one another, both in Consistence and Goodness. To this Class also belong Naphtha and Petroleum, which are a fluid Substance, by which Property they are distinguish'd from the rest, which form a solid Mass.

As to Amber in particular, it is produced plentifully in *Prussia*, which is famous for being the proper and native Country of it. Though this Bitumen be generated in the Earth, there is plenty of it found in the *Baltic* Sea, by the Shore of *Sudwic*, where it swims on the Water, and is carry'd along by the Waves, whence it is taken up in Nets. The Places most remarkable for Amber, are the Villages of *Fisch-hausen*, *Gross-duckstein*, *Wernichen*, and *Palmoniet*. Nor even is this Amber produced from the Sea, but, in tempestuous Agitations of the Waters, is washed out of the Bowels of the Earth by the Waves, and at last thrown towards the Shores. Very properly then may this bituminous Body be reckon'd in the Class of Minerals; for it is a Product of the Earth, and is contained within its proper Veins, as well as Pit-coal, or other Minerals.

The Courses of these Veins were discovered some Years ago, by Order of King *Frederic*, in the following manner: In digging they first met with Sand, which being removed, the next thing that offer'd, was a Stratum of white Clay; digging under this, they opened a ligneous Stratum, that seem'd to be compacted of old Wood, which, however, could be set on flame. Under the Bottom of this Stratum, in most Parts, they found Ore of Vitriol, which being exposed to the open Air, shot forth in Flowers of Vitriol, free from the least Tincture of Copper, and like those which proceed from the *Hessian* Iron Ore.

At last digging still deeper, they came upon a Stratum of Sand, which proved very fortunate; for out of this, in several Places, with convenient Instruments, they extracted Abundance of choice Amber. For it is a thing worthy Observation, that Sand is usually the Matrix of Amber; so that where they find a great Bed of Sand in the Bosom of the Earth, they are not without Hopes of meeting with Amber. After the same manner do they get it out of the Sand in the Marquisate, near *Kustrin*; and in the Territories of *Stolpen* and *Dantzic*, it is also found in Lumps.

Hence appears the Falsity of the old Fable, which would have us believe, that Amber is the Refin of Trees, which distils from their

their Bark into the Sea, and is there digested by the Heat of the Sun into a Body of that Kind.

The Manner in which this Bitumen is generated, seems to be this: From that bituminous fossile Wood, which we just now mentioned, by the Accession of the subterranean Heat, there distills an Oil much like Naphtha or Petroleum, which in penetrating the subjacent Strata, passes through the Vitriol Ores, where by mixing with its Acid, it is coagulated into a Substance of a resinous Form. The Reasonableness of this Opinion will appear from the following Considerations:

1. That Amber at its first Growth was liquid, may be proved from its being often seen conglobated by Nature itself into a round Form.

2. Sometimes Insects of various Kinds stick and are included in Pieces of Amber, which they could never have been, if the Matter in which they are circumvolved, had not been liquid.

3. We may conclude, that Amber is a Concretion of an Oil much like Petroleum, because Oil of Amber comes near to Petroleum, both in Smell and Virtue, and both of them are equally difficult to be dissolved by the most rectify'd Spirit.

4. *Charlton*, a very sagacious Observer of Nature, in his Treatise of Fossils, affirms, Pieces of this Bitumen have been frequently found, which have held Naphtha and Petroleum included within them.

5. The acid Salt of Amber is of a very fixed Nature, and not inferior in Virtue to the Acid of Vitriol.

6. What will afford great Light in this Affair, is that physical Experiment, in which it is observed, that all distilled Oils, scarce one excepted, and amongst them aromatic Oils, being mixed with Oil of Vitriol, or pretty strong Aqua-fortis, condensate into a resiniform Mass, which, held to the Fire, is readily set on Flame.

7. Besides, fossile Woods and Coals, by Distillation and Rectification, yield an Oil, very like Oil of Amber and Petroleum.

8. Lastly, the very Disposition of the Strata, which we have related, is a good Proof in this Matter. The first of these is ligneous, the second vitriolic, and the last composed of Sand, at the Bottom of which lies the Amber, scattered here and there in Bits.

There is most Plenty of Amber along the Shore of the *Sudwic* Sea, especially when a tempestuous North Wind blows; for it seems probable, that the Sea penetrating by some secret Passages into those subterranean Places where the Amber is nourished, by violent dashing and breaking against them, separate from time to time Pieces of this Bitumen, and carry them away with it.

Amber is of various Colours; the best is reckon'd the pellucid, quite free from Spots, and which bears the highest Price. For this the *Chinese* give its Weight in Gold, and make their Idols of it after an elegant and master-like Manner. I lately saw a convex burning Speculum, made of this pellucid Amber, in the manner of one made of Glass, which the Landgrave of *Hesse* keeps in his Cabinet of Curiosities. Next to the pellucid is the white, after that the yellow, and lastly, the brown, which is the worst Amber of all. No less various are the Prices; for the larger and purer, so much the dearer are the Pieces; and the more pellucid they are, the more are they valued.

They talk much of a black Sort of Amber, which yet is no-where to be met with, and so is only believed upon common Report. Instead of this, they sell a black and solid Fossile, which is a kind of Asphaltum, and dug out of the Coal-mines in *England*, and made into several Utensils for the Use of the Inhabitants.

If Amber be pulverized, and mixed with an equal Quantity of Sand, it will afford by a Sand Distillation, in a Glass Retort, an extraordinary Quantity of Oil, inasmuch that at least six Ounces of Oil may be had out of one Pound. If the Fire be augmented to an intense Degree, towards the End of the Operation, a Salt of an acid Taste will be left in the Neck of the Retort, which being separated from the Oil, and again sublimated, is what we commonly call the volatile Salt of Amber, tho' it be not of a remarkably volatile Nature, since it cannot be raised but by a vehement Fire. Perhaps it obtained that Name from its Subtlety, which it has in common with the volatile Salt distilled from the Parts of Animals, by augmenting the Fire, after the Oil has been exhausted.

It is observable of this Oil of Amber, that it does not so intimately unite with the most rectify'd Spirit, as do other distilled Oils, since it is never entirely dissolved, but only some of the more subtil Parts of the Oil pass off into Spirit, which is a Sign of its being mixed with a good deal of mucilaginous Substance, which after a gentle Evaporation, and stirring with a Stick in an open Vessel over the Coals, presents itself in View. If Oil of Amber be mixed with Water, and distilled over again in an Alembic, it becomes much more penetrating; and being made into a Plaster with other Ingredients, has been more than once, by our own Experience, found efficacious in discussing hard and inveterate Tumours of the Glands. What

remains in the Vessel after Distillation, is a crude and mucilaginous Mass.

We ought to say something too of the Solution of Amber. Indeed I could wish, that we knew a Method, which some boast of, to reduce small Pieces of it by Melting, to a bulky Mass, without destroying its Contexture. But since I have Reason to doubt, whether there be any such Method of Preparation, I shall here endeavour to explain what we know by Experiment, with respect to this Solution.

In the first place, Amber is almost totally dissolved by a strong Lixivium boiled with it. This Lixivium is prepared of the caustic Salt of Regulus of Antimony, which is made by melting two Parts of Nitre with one Part of Regulus of Antimony, in a Crucible over a strong Fire. This Salt mixed with Amber in equal Quantities, by a moderate Decoction in a sufficient Quantity of Water, almost entirely dissolves it; and, what is worth Observation, the Lixivium, which was before of a very caustic Savour, loses much of its Acrimony, and becomes more temperate; the Reason of which perhaps may be, that the lixivious Salt is broken and tamed by the Acid lodged within the Amber, which, being by this means reduced to a Liquor, becomes an excellent Medicine in Obstructions of the Viscera, and for Promoting Excretions of all Kinds, and consequently for chronic Disorders.

Some Notice must also be taken of the Solution of Amber for mechanical Purposes, that is, for preparing a most excellent Vernish, which the Artificers make a great Secret of.

They take one Pound of powder'd Amber, which they melt in a proper unglaz'd earthen Vessel over a Charcoal Fire, and pour it, whilst fluid, upon an Iron Plate; then they powder it again when concentered, and afterwards dissolve it entirely in an unglaz'd earthen Vessel, adding to it first Linseed Oil, prepar'd and boil'd with Litharge, and afterwards Spirit of Turpentine. With this they incrust Vessels of Wood and of Metals, and afterwards polish them, being first carefully and artfully dried.

From this Process it readily occurs, that Amber contains much aqueous and mucilaginous Humidity, of which it must be depriv'd by Liquefaction; and after this, the Linseed Oil and Spirit of Turpentine find an easy Ingress into the Gum-resinous Mixture remaining. Nor is a subtil distill'd Oil alone adapted to dissolve the Amber, without being temper'd with an express'd Oil, which evidently shews, that the Substance of Amber, besides its resinous Particles, has some which are mucilaginous.

Lastly, I cannot excuse myself from relating a very curious Experiment, which I some Years ago made with Amber. I put some powder'd Amber in a Glass Vessel, and pour'd upon it twice the Weight of Oil of Almonds; I then placed the Glass in one of *Papius's* Digestors accurately made, which was one third full of Water, and placed on its Cover very exactly, and then put under it a moderate Fire for above an Hour; I took the Vessel out, when it was cool, and found the Amber dissolved into a gelatinous, pellucid Mass, with a small Quantity of fluid Oil upon it.

By this Experiment we discover clearly, that express'd Oils can do a great deal towards dissolving the firm Texture which we find in Amber; and this is principally brought about, when the Elasticity of the included Air is increased, and the Corpuscles of Oil are violently forced into the smallest Pores of the Amber, by the Heat of *Papius's* Machine. *Hoffman Observat. Physico-Chym. L. 2. Obs. 23.*

Many great Virtues are ascribed to Amber, especially when taken inwardly, in a cold State of the Brain, and in Catarrhs, in the Head-ach, sleepy and convulsive Disorders, in a Suppression of the Menfes, hysterical and hypochondriacal Affections, in a Gonorrhoea, Fluor Albus, and Hemorrhages. The Dose is from a Scruple to a Dram, in a poached Egg, or any other proper Vehicle.

Take, for Instance, of Amber finely powdered, or reduced to an Alcohol on a Porphyry, Conserve of red Roses, and Rosemary Flowers, of each half a Dram; Syrup of Stoechas, a sufficient Quantity for a Bolus; to be taken in the Morning, to check the Flux of Rheum, and blunt its Acrimony in Colds in the Heads, Catarrhs, and Running at the Nose.

Take prepared Amber, Camphire, and Dragon's-blood, of each a Dram; Syrup of dry'd Roses, a sufficient Quantity to make an Opiate; of which, the Quantity of 2 Dram is to be taken every Morning, in a Gonorrhoea, after due Preparation of the Body.

Take prepared Amber, and prepared Millepedes, of each two Drams; Myrrh, half a Dram; Conserve of the Flowers of white Dead-nettle, one Ounce and half; Syrup of common Yarrow, a sufficient Quantity for an Opiate; to be taken in the Quantity of two Drams twice a Day in the Fluor Albus.

Take

Take of prepared Amber, a Scruple; Sperma-ceti, and Terra Japonica, of each fifteen Grains; Syrup of Ground-ivy, or of Diacodium, a sufficient Quantity to make a Bolus, in a Spitting of Blood, or an habitual Cough, proceeding from an acrid Phlegm.

Take of Amber, half a Dram; Castor and Myrrh, of each twelve Grains; Saffron, six Grains; Conserve of Wormwood, or Extract of Rue, a sufficient Quantity to make a Bolus, in hysterical Suffocations, and in a Suppression of the Menfes.

Externally, Amber is used as a Fumigation, in Cataplasms, and Cucuphæ, in Disorders of the Head or Brain. The Fumes of it, received at the Mouth, are often found successful in beginning Quinsies, a Falling-down of the Uvula, or Swelling of the Tonsils from a Catarrh.

PREPARATIONS OF AMBER.

The Preparations of Amber are, first, prepared Amber, properly so called, which consists in reducing it to an impalpable Powder upon the Porphyry; and this Powder is much preferable to the Magistery of Amber. Secondly, the Tincture of Amber, with tartariz'd Spirit of Wine, which may be taken from a few Drops to a Dram. With this Tincture is made the volatile oily succinated Salt; by mixing equal Parts thereof, and of the common volatile oily Salt, and then digesting them in a gentle Heat. This new Tincture is cordial and diaphoretic, and of surprising Efficacy in sleepy Affections, Catarrhs, hysterical Disorders, Palpitation of the Heart, Fainting, Obstructions of the Menfes, and Palsies. The Dose is from a few Drops to a Dram, in Tea, Wine, or any other convenient Liquor.

Externally, the Sutures of the Cranium, the Nares and Temples, are anointed with it, in Catarrhs; the Scrobiculum Cordis, in Faintings and Palpitations; and the umbilical Region, in hysterical Affections. *Geoffroy.*

Hoffman's TINCTURE of AMBER.

The fragrant Oil of Amber, which is very agreeable and friendly to Nature, and endued with a strengthening and balsamic Virtue, is so firmly and closely united and connected with its terrestrial and acid Parts, as it is a subterraneous Resin, that it cannot, without great Difficulty, be separated from them. We have need then of a Key to open those Cloisters, in which the sulphureous Parts are confin'd, and to release them from these heterogeneous Corpuscles with which they are fetter'd. And the most convenient Instrument for this Purpose is an alkaline Salt strongly calcin'd.

Mix therefore, very exactly, Salt of Tartar, with an equal Portion of choice Amber reduced to a very fine Powder, and pour thereon a sufficient Quantity of Spirit, to the Height of four Fingers above it. After a previous Digestion, let a Distillation be made out of a Glass Cucurbit with a Sand Heat, and there will be drawn off a Spirit impregnated with the most subtle and fragrant Oil of Amber, which, though it be in itself endued with an extraordinary strengthening Virtue, will yet serve to much better Purposes, by contributing towards furnishing us with an excellent Tincture.

The transparent Amber is to be chosen before that which is brown, or dark-colour'd, as consisting of a softer sulphureous Matter. Let this be bruised and levigated in a Mortar to a very fine Powder, into which, being placed on a Marble Stone, drop Oil of Tartar per deliquium, and mix them very carefully till they come to a Paste, which must be dry'd gently. This done, pour thereon a sufficient Quantity of the Spirit prepared as above, and then digest them in a Glass Vessel, or Vial close stopp'd with a gentle Heat.

By this means we obtain the most generous and efficacious Essence of Amber; a Remedy highly to be valu'd, were it only on account of its most grateful Taste and Smell.

The most convenient way of taking it is by instilling some Drops of it into Sugar, or Syrup of Pink, or of the acid Juice of Citrons. The Morning is the usual time when Persons take it, for corroborating the Stomach, Head, and a weak nervous System, drinking afterwards some Cups of warm Liquor, as Coffee or Chocolate; it may also be taken at Dinner in sweet Wine. It provokes the Menfes, but restrains the Fluor Albus, and is an excellent Medicine in rheumatic Disorders.

It is remarkable, that this Essence dropp'd into Water, is not precipitated like other Essences or Solutions of Oils and Resins; and, that a few Drops of it, instill'd into a large Quantity of Water, impregnate the Whole with the grateful Odour of Amber; which is a strong Proof, that a Medicine of this Nature, which so amply diffuses itself through the least Corpuscles of Water, is of very fine Parts, and by Consequence can make its Way into the very innermost Fluids and Solids of our Bodies; so that a small Dose may be expected to produce a considerable Effect. *Hoffman. Observat. Physico-Chym. Lib. I. Obs. 17.*

Somewhat different from this is Boerhaave's Tincture of Amber.

Reduce the best transparent yellow Amber to fine Powder, in order to increase its Surface; grind this Powder in a Glass Mortar, with the alkaline Oil of Tartar per deliquium, the longer the better, that it may become a thin, well-wrought Paste; put it into an urinal Glass, dry it in a warm Furnace, and resolve it in the open Air for several times; for it is hard to be penetrated. At length the Matter being well dried, put it into a tall Bolt-head, with a very long and slender Neck; pour pure Alcohol thereon, to the Height of three Inches above it; shake them together, and simmer them on the Furnace for some Hours, as may thus be commodiously done. The Tincture will become red, and when cool, and grown clear by standing, should be carefully decanted from its Fæces, into a clean Glass, kept close stopp'd. In other respects proceed as before, till almost the whole Body of the Amber be taken up in the Tincture. This may also be prepared in the same manner by the means of Alcohol alone, without Alkali, though to better Advantage with it.

REMARKS.

Hence we see, that Alkalis have a Power of gaining Entrance for Alcohol, into a Body brittle like Glass, whose wonderful, resinous, and particular Nature, no one has hitherto particularly explained; but in the Composition thereof, a fossile Acid, and a Petroleum, or something like them, seem to concur; whence it is difficult to dissolve. Its Tincture, however, is neither acid, alkaline, nor oily, but holds the whole Substance of the Amber dissolved. It is of a bitterish aromatic Taste, wonderfully refreshing, having a perfectly restorative Fragrance, and some Degree of Stypticity. When well made, it in the Winter-time grows thick, and deposits a kind of mealy or somewhat resinous Substance, which shews how richly impregnated it was with the dissolved Amber; but when warm Weather returns, it again grows clear, and takes up the Powder it had let fall. If one half of the Alcohol be drawn off from this Tincture, the remaining thick Part deposits a kind of powdered Amber, which, being collected separate, is of a highly aromatic Taste, and Odour. It is very surprising, that this Substance should be so equally, and almost totally, dissolved in Alcohol, without any observable Separation of its Principles; yet at the same time acquire such noble medicinal Virtues, as were not before found in the entire Amber; especially, as by Distillation it is divided into such different Parts, each of them of a different Virtue and Nature, as we find by its Analysis.

And hence again we see, by a manifest Example, that chymical Productions may differ incredibly, as they are obtained or prepared with a different Menstruum, or in a different Manner. And hence also we see how very different Principles may lie concealed in a certain Compound, without giving any Sign of their being there, or of manifesting their own Nature; and this, though the Compound be very subtilly divided, either by Trituration, or a Menstruum. And hence again it appears, how much a simple Division, made by a Menstruum, without any Extraction of the Principles, may produce new Virtues.

This Tincture has an incredible Efficacy in all those Distempers, which proceed from too great a Mobility of the immediate Instruments of the human Affections, Spirits, and nervous System; and particularly from a Relaxation of the Parts, through Weakness. And hence it proves of wonderful Service in hypochondriacal, hysterical, languid, cold, watery Cases, and Convulsions often proceeding from them. So that Mr. Boyle and Helmslet have for this Reason placed it among the noblest Anti-spasmodics, and Anti-epileptics, when the Disorder proceeds from those Causes. The Dose is from ten to eighty Drops, three times a Day, in Spanish or Canary Wine.

The Method of making the Oil, volatile Salt, and Spirit of Amber.

Take of coarse Amber in fine Powder, one Pound; of Tobacco-pipes, Bricks, Sand, or Bole, also in fine Powder, three Pounds; mix them well, and with the Mixture fill a Retort half full, set it in a Sand Furnace, fit to a Receiver, (not luted) make to it a Fire of the first Degree for one Hour, increase it to the second; and so keep it two Hours; then to the third, in which keep it four Hours. In the first Degree, some of the acid Water, we call Spirit, with a little of the finest Oil, will distil. In the second, the Spirit and Oil will continue dropping, and some of its volatile Salt will rise into the Neck of the Retort. The third will elevate more Salt, with a grosser Oil; and if the Fire be enlarged to the fourth Degree, it will raise a thick Balsam. As the Salt rises into the Neck of the Retort, it ought to be scraped out with a clean flat Stick, and put upon brown Paper to suck up the

A M B

the Oil: The Salt by this means will be white; and if it be desired more fine, it may be dissolved, filtered and evaporated, and it will leave a very white Salt. When the Distillation is over, and all cool, separate the Oil and Spirit by a Funnel, or other separating Glass. If the Oil is desired to be rectified, it may be put into a long-bodied Retort, and placed in Sand, and by gradually raising the Fire to the second Degree, there will distil a fine yellow, and clear Oil: But if a pure white and ethereal Oil be desired, it must be put into a Cucurbit, with three times the Quantity of Water to that of Oil (with which the Vessel must not be quite half full); and then fit on the Head and Receiver, and gradually bring the Fire to the second Degree, or so as to make the Oil and Water bubble; and there will distil a pure ethereal Oil, which must be separated as before. Separate the Water from the Oil that is left in the Retort; and because it will be impregnated with some Salt, put it into the Receiver, into which was made the first Distillation, and shake it well to rinse out the Salt. Then pour all into a Cucurbit, fit to it a Head and Receiver, give a gentle Fire to evaporate the Water, till the Drops fall a little acid; then let it cool, and put to it the Spirit, which, separated in the first Distillation, rectify them together, and there will be a Spirit of Amber.

We have included three Medicines in one Process, because they so naturally arise out of the same. The rectified Oil is sometimes internally prescribed in nervous Cases, joined with Spirit of Sal Ammoniac, or of Lavender, or other Liquors, from five to fifteen Drops. The thicker Oil is most used externally in fixed rheumatic Pains and Aches, as also to paralytic Limbs; but some commend it inwardly in old Gleet, and say it answers even when the best Turpentine Balsams fail. The Spirit is used much to the same Purpose, both internally and externally, from ten Drops to one Dram in any convenient Vehicle, inwardly; and outwardly, rubbed in by itself, or mixed with other suitable Liquors. But the volatile Salt is the main Part, and so much in use, that the other are of little Value with respect to it; the Demand for this being vastly greater than for the other, in proportion to what every Process necessarily produces of each. This is a most admirable cephalic Detergent. It extremely attenuates, cuts and penetrates into the most remote and minute Recesses, whereby the whole nervous System is, as it were, new scoured. Its chief Tendency in Secretion, and what it carries along with it, is by Urine. In the convulsive Deliriums of Fevers it is mightily prescribed, and is reckoned not inferior to any thing in such Intentions; because, besides its peculiar Efficacy upon the Nerves, it also conduces much with Alexipharmacs to promote a Diaphoresis: In all chronic Cases likewise, as Epilepsies, Palsies, and the like, it is scarce ever left out of Prescription: The Dose is usually from three Grains to fifteen. This Salt has further one useful Property, which seems attended to but by few, and that is, quickening the Operation of some Cathartics, especially of the aloetic and resinous Kind. A few Grains, with any of the milder officinal Pills, as Ruffi, and the like, will make them brisker by much in Operation, and yet rather milder; and this it seems to do, by dividing the Parts of those Medicines so readily in the Stomach, that they begin to exert themselves sooner than they otherwise would.

The great Consumption of this Medicine, in Comparison to what the Amber produces of it, and the Price, upon that account, it bears, is so tempting to the Avarice of the present degenerate Race of Chymists, that it is most abominably adulterated; and therefore not to be trusted to from any Hands, but those who make it for their own Use. Some of these, once otherwise inspired Philosophers, sophisticate it with Sal Ammoniac, with Nitre, some with Cream of Tartar, and others, with Salt of Coral.

The first of these Cheats may be discovered by a strong urinous Scent, if it be rubbed with Salt of Tartar; the second by its nitrous Taste; the third by Solution in clear Water: For the Salt of Amber will much sooner dissolve than the Tartar, and therefore manifestly leave that behind to View; and the last is discoverable by trying it upon a red-hot Iron; for the genuine Salt will fly away, the Vinegar, which the Coral had absorb'd, will be destroy'd, and nothing but an insipid Earth be left upon the Iron.

This Salt much best fits the Forms of Boles, Pills or Electuaries for taking; because in Juleps and Draughts, in which sometimes it is inadvertently order'd, it is extremely nauseous; the genuine Salt having a mixed Relish of Salt and Sulphur, which in a liquid Form lies so naked to the Palate, that it often urges the Patient to reject it by Vomit immediately after taking. *Quincey's Dispensat.*

Many Chymists endeavour to recommend their Salt of Amber, by its extraordinary Whiteness, and this is generally a Sign of its being adulterated; but if genuine, it is much the worse for being depriv'd of all its Oil, which makes it look brown.

A M B

The volatile Salt is diuretic, and esteemed a Specific in hysterical, convulsive, and spasmodic Complaints, taken from ten Grains to half a Dram; and with that is prepared the succinated Liquor of Hartshorn of *Michael*, very much recommended in the epileptic Fits of Children. This Liquor is made by dissolving as much Salt of Hartshorn and Salt of Amber in Spirit of Hartshorn, as the Menstruum will take up. The Oil is useful in hysterical, cephalic, and nervous Complaints, taken inwardly, from two to twenty Drops. Externally, it is used in the Gout, Palsy, and Catarrhs, by rubbing it into the Part affected; with it is prepared the succinated Balsam of Sulphur; and it is an Ingredient in the *Emplastrum Magneticum* of *Angelus Sala*.

Amber is an Ingredient in the *Trachisci de Carabe*, in *Crato's Pilule de Succino*, in *Charas's Stomach Plaster*, and in his diaphoretic and styptic Plaisters. *Geoffroy*.

Succini Potestates. Powers of Amber.

Take Oil of Amber, one Ounce; volatile Sal Ammoniac, half an Ounce; grind the Oil and Salt well together in a little Mortar; pour to them Spirit of Wine tartarized, half a Pound; and put them afterwards into a Bolt-head; invert a little Glass to make it fit for Circulation. Lute well the Joint, and put it in warm Sand, to stand in Digestion for four or five Days, shaking it two or three times every Day, in which time the Spirit of Wine will have imbibed the Oil and Salt; set it by, and when it is cool, put it in a Phial well stopp'd, for Use.

This has the Virtues of the Oil, and is fitter for Prescription internally, because it better mixes with any Vehicle for the Convenience of taking. Its Dose is from ten Drops to thirty or forty. *Quincey's Dispensat.*

Boerhaave's Analysis of Amber.

Take a capacious Glass Retort, with its Neck cut off, so as to leave an Orifice two Inches wide or more; put into it Pieces of common Amber, well cleansed from Sand, Dust, or other Foulness, so that it may fill two thirds of the Cavity. Apply a large Receiver, and lute the Juncture with the common Luting; distil in a Sand Furnace, with a Degree of Heat a little greater than that of boiling Water; thus there will come over a copious, thin, limpid Oil: Continue this Degree of Heat, so long as any Oil comes over, and keep it separate. Then apply the Receiver again, and cautiously raise the Fire, till a second Oil begins to rise, which will be yellow, large in Quantity, and still transparent: Proceed patiently with the same Degree of Heat, so long as this Oil comes over, which it continues to do for a considerable time; but for the Elegance of the Operation, this also might be kept separate. Now, again, raise the Fire gradually, till a white, saline, woolly Matter appears in the Receiver, but particularly in the Neck; then gradually raise this Fire a little, and continue it increasing, till no more of this Matter comes over; but the Fire must not be increased too quick, otherwise the volatile Salt would mix with the gross Oil, that should follow after, and thus be in a great measure lost therein. It is best to remove the Receiver, take out the Productions, and keep them separate; but during the whole time, that this volatile Salt runs, a red Oil also comes over, still almost transparent. The Fire being now increased to the utmost, there comes over a gross, viscous, fat Oil, thick like Turpentine. When this is risen, if a Fire of Suppression be given, the whole black Matter now becomes stultent, rises into the Neck of the Retort, and thus comes into the Receiver, in form of a hard, black Mass; so that if the Neck of the Retort is not left wide, it will be thus blocked up, and the Glass be burst in a dangerous manner, with a loud Noise, and often a firing of the Matter. But if, before the Fire of Suppression was used, a large Quantity of Sand were thrown upon this last Remainder, it will divide the Matter, and cause it to come over, without Danger, in a black and dry Form. There remains at the Bottom of the Retort, a very small Quantity of brittle Fæces, of scarce any Significance, so that the whole is volatile. If the Operation be carefully performed, so many different Productions are obtained, which may be purified by a new Distillation, and be rendered thin and limpid; but the volatile Salt, collected by itself, is perfectly acid. And this is the only Method, that I know, whereby a true Acid is obtained in a solid saline Form; for we have no Instance thereof in any other vegetable, animal, or fossil Substance. Tartar indeed is acid, but as it is scarcely dissolvable in Water, does not deserve the Name of a Salt. Oil of Vitriol, brought to an extreme Degree of Purity, shoots, in Winter-time, into transparent solid Crystals; but immediately dissolves again, and appears fluid as soon as the Cold is a little diminished; but the Salt of Amber long continues the same.

R E M A R K S.

Amber thus appears to be a very particular Body; its Oil resembles the fossil Oils of Petroleum, Naphtha, and the like; Parts,

but the Remainder, after the first or second is come over; nearly resembles Jet, and the acid Salt seems somewhat vitriolic. But the same thing, concreted, wonderfully differs from those Parts, into which Chymistry resolves it. Who would think, that Amber, its Powder, its liquid Solution in Alcohol, the Powder precipitated from its Tincture with Water after Distillation, and then washed; the Oils, Salt, and Colophony after Distillation, proceeded from the same Matter? Who could know the proper Virtues of each; and who, by joining them together again, could recombine Amber? The Oils, being purified by a repeated Distillation, have a sharp, balsamic, exciting, diaphoretic, diuretic, emmenagogic, and anti-hysterical Virtue, and when externally used, by way of Liniment, are very serviceable in restoring contracted, weak, paralytic, torpid Limbs: The volatile Salt is gratefully acid, balsamic, unctuous, penetrating, preservative, and stimulating to the Nerves and Spirits, being a true, volatile, acid, oily Salt, and therefore a capital Anti-hysterical and Diuretic; especially, if purified by a second Distillation. *Boerhaave's Chymistry.*

There is a Drug very different from those above-mentioned; which is called *Liquid-Ambar*. It is thus distinguished:

LIQUID-AMBAR, *Offic. Clus. Exot. 302. Jonsf. Dendr. 353. De Laet. Ind. Occid. 222. C. B. Pin. 502. Park. Theat. 1509. Raii Hist. 2. 1848. Liquid-ambar refina arboris Ocofolt dicta, foliis hederæ, odore Styracis liquidæ, J. B. 1. 323. Liquid-ambari arbor fructu Styracifera, aceris folio, fructu tribuloide, (i. e.) pericarpio orbiculari ex quamplurimis apicibus coagmentato semen recondens, Pluk. Almag. 224. Phytog. Tab. 42. Xochicotlzo Quahuil, seu arbor Liquid-ambarum Indicum, Hern. 96. Styrax aceris folio, Raii Hist. 2. 1848. Styracem fundens, vel Styrax arbor Virginiana, aceris folio, Breyn. Prod. 2. 84. Platanus arbor Virginiana, aceris folio, potius Platanus Virginiana Styracem fundens, Ejusd. 2. 1799. Platanus Virginiana Styracem fundens, Herm. Par. Bat. Prod. 366. Acer Virginianum odoratum, Herm. Cat. Hort. Lugd. Bat. 641.
LIQUID AMBER.*

It grows in *Virginia*, *New-Spain*, and other Places of the *West-Indies*. The Part used is the Resin, which is a fat liquid Substance, of the Consistence of *Venice Turpentine*; yellow inclining to red, of an acrimonious Taste; aromatic and fragrant.

It heats and moistens, resolves and opens Obstructions, and is an Emollient and Ripener. Its principal Use is in Obstructions and Hardness of the Womb; in hard Tumours, &c. in Suffumigations, and the like.

Hernandez says, that this Balsam distils from a Tree, either spontaneously, or from a Wound. Some break up the Branches into small Bits, and, boiling them, skim off the Oil that rises on the Liquor, which they sell for the true Balsam; and this Liquor is thought by some to be the liquid Storax commonly sold by the Apothecaries and Druggists.

AMBROSIA. The Ambrosia, which some call Botrys, others the Artemisian Botrys, is a small Shrub, three Spans high, very much branched, with small Leaves at the Bottom of its Stem, like those of Rue, and its Sprays thick set with small Seeds, like little Clusters, which never flower. The Plant has a vinous and grateful Smell. The Root is slender, and two Spans in Length. In *Cappadocia* they weave it into Garlands.

It has the Virtue of restraining and repelling the Course of the Humours from any Part; and, used in a Cataplasm, is a good Astringent in the like Case. *Dioscorides, Lib. 3. Cap. 129.*

The Ambrosia of the later *Latins* is different from the Ambrosia of Antiquity, as *Strabus* himself acknowledges in those Verses of his *Hortulus*:

*Haud procul Ambrosiam, vulgo quam dicere mos est,
Erigitur, laudata quidem; sed an ista sit illa,
Cujus in antiquis celeberrima mentio libris,
Fit dubium ex multis.*

“Not far off is erected Ambrosia, as 'tis commonly called, an Herb of good Value; but whether it be the same with the Ambrosia so much celebrated in antient Books, is doubtful on many accounts.”

Pliny says, that Ambrosia is a Name of no fixed Signification; but applicable to more Plants than one. Some called the Botrys (Oak of Jerusalem) by this Name. *Dioscorides* reckons Ambrosia among the *σεφανομαλινά* (*Coronarian*) Plants; and writes, that the *Cappadocians* used it to make themselves Garlands; *καταπλέσαι δὲ ἐν Καππαδοκίᾳ σεφανούς* (in *Cappadocia* they weave it into Garlands). But *Nicander* tells us, that the Appellation of *Coronary Ambrosia* was by some bestowed on the Lily, thus:

*“Α κρίνα, λείρα δ' ἄλλοι ἐπιθέσθοντες αἰνέων,
Οἱ δὲ τὴν ἀμβροσίην.”*
Vol. I.

“Lilies, which some of our Poets call *Liria*, and others “*Ambrosia*.”

Athenæus himself puts the same Interpretation upon ἀμβροσία (*Ambrosia*) in the historical Commentaries of *Carystius*; thus: *Καὶ ἀμβροσίαν δὲ ἀνθὸν τι ἀναγράφει Καρύσιος ἐν ἱστορίᾳ ὑπομνήμασι γράφων ἔτως. Ὁ Νικάνδρος φησὶν ἐξ ἀνδριᾶτος τῆς κεφαλῆς Ἀλεξάνδρου τὴν καλεσμένην ἀμβροσίαν εὐεσθαι ἐν Κῷ* (*Carystius, in his historical Commentaries, makes Ambrosia to be a Sort of Flower, when he writes, that Nicander affirms, that what they call Ambrosia grows out of the Statue of Alexander's Head in the Island of Coos*). The *Coronarian Ambrosia* of *Nicander*, in the *Georgics*, is a Lily; but I don't know whether we ought to understand the fore-mentioned Passage as relating to the same Flower.

The greater House-leek, or *Sempervivum*, is also called Ambrosia, as *Dioscorides* assures us in the following Words, which, on the Authority of a very antient Manuscript, are thus to be read, rejecting all other homonymous Terms, which are certainly spurious: *Ἀεὶ ζῶον μέγα ἀνθάσσει διὰ τὸ ἀειθαλὲς τῶν φύλλων οἱ δὲ βυθθαλμὸν, οἱ δὲ ζωεθαλμὸν, οἱ δὲ ἀμβροσίαν καλεῖται* (The great *Sempervivum* is so called because its Leaves are always green; some call it *Buphthalmus*, some *Zoophthalmus*, and others *Ambrosia*). *Salmasius de Homonym. Hyl. latr. Cap. 62.*

The modern Ambrosia is thus distinguished:

AMBROSIA, *Offic. Ger. 950. Emac. 1108. Raii Hist. 1. 164. Chab. 376. Ambrosia hortensis, Park. 88. Ambrosia hortensis lanuginosa, Hist. Oxon. 3. 4. Ambrosia maritima, C. B. 138. Tourin. Inst. 438. Boerh. Ind. A. 2. 102. Ambrosia quibusdam, J. B. 3. 190. Ambrosia foliis Absynthii odoratis, humilior, Herm. Hort. L. Bat. 32. OAK OF CAPPADOCIA.*

It is a Plant which puts forth a single Stalk about a Foot high; dividing itself into many Branches; in form of a little Shrub: Its Leaves are cut like those of Wormwood; and are whitish; its Flowers are ranged along the Branches; every one of them is a Sort of Noddy, consisting of many yellowish Florets; which produce no Seed; the Fruit grows upon the same Footstalks as the Flowers; but separately; and every one of them contains an oblong blackish Seed: Its Root is as long as one's Hand; woody and small. All the Plant yields a sweet Smell, and an aromatic Taste; a little bitter, but agreeable. They cultivate this Plant in Gardens; it contains a great deal of exalted Oil; and but little Salt and Phlegm.

It revives the Heart and Brain; it stops Fluxions, it resolves and fortifies; it is prescribed internally and externally. *Lemery de Drogues.*

The Herb is in Use, which is of a repelling and restraining Quality, *H. Ox.* It has an astringent Virtue, says *Galen*. It is a Plant of a very fragrant Scent; hot and aromatic. *Boerh. Hist. Plant. 569.*

The Shortness of the Description *Dioscorides* has left us of Ambrosia, has given no small Occasion for Dispute and Controversy among Authors. *Nicander*, as is observed above, takes it for a Species of Lily; *Coradus*, for Southernwood; *Tabernaemontanus*, for Mugwort; *Matthioli*, for a kind of Nasturtium; *C. Bauhin*, and his Followers, with whom we agree, to the Plant above-mentioned. *N. B.* The Catalogue prefix'd to the *London Dispensatory*, does not distinguish Ambrosia from the Botrys, but makes them both Synonymies of the same Plant. *Dale.*

Ambrosia, with the Antients, was called τὸ τῶν θεῶν βρῶμα (the Food of the Gods); either because Mortals did not eat of it, or by eating became immortal; its extraordinary Fragrance recommending it to the Gods themselves. *Raii Hist.*

Besides the common Sort described by *Lemery*, *Ray*, in his Appendix, mentions a second Sort from *Herman. Cat. Lugd. Bat.* which he distinguishes by the Denomination of,

Ambrosia foliis Artemisiæ inodoris, elatior, and gives it the following Description:

It shoots up with Stalks, three or four Feet high; bearing Leaves less than those of the common Sort; and nearly resembling the Leaves of Mugwort, deeply jagged, green on the upper Part, but pale on the lower; and of no sensible Smell. The Flowers on the Tops of the Spikes, or Ears, appear very small, are greenish on the Outside, but blackish within; and are, every one, succeeded by a single striated Seed, very like that of the common Sort. It is propagated by Seed sent from *Venice*. *Raii Hist. Append.*

Another Plant also called Ambrosia is the following, which happens to be an Ingredient in *Mrs. Stevens's Remedy* for the Stone.

AMBROSIA CAMPESTRIS, *Offic. Ambrosia campestris repens, C. B. Pin. 138. Coronopus Ruellii, Ger. 346. Emac. 427. Mer. Pin. 30. Raii Hist. 1. 843. Coronopus recta vel repens Ruellii, Park. Theat. 502. Coronopus sylvestris, fructu Nasturtium verrucarium, Cod. Med. 41. Coronopus Ruellii, seu Nasturtium*

sturtium verrucosum, J. B. 2. 919. Rupp. Flor. Jen. 67. *Coronopus Ruellii*, *Cornu cervi alterum vulg.*, Merc. Bot. 1. 31. Phyt. Brit. 31. *Nasturtium verrucosum*, *Coronopus Ruellii*, Chab. 290. *Nasturtium verrucosum*, *capsula bivalvi, aspera, seu hirsuta*, Hist. Oxon. 2. 302. *Nasturtium sylvestre, capsulis cristatis*, Tourn. Inst. 214. Elem. Bot. 183. Boerh. Ind. A. 2. 12. *Nasturtium supinum, capsulis verrucosis*, Raii Meth. A. 98. Synop. 3. 304. Dill. Cat. Giff. 162. *Nasturtio affinis monospermos, capsula verrucosa*, Pluk. Almag. 262. SWINES CRESES. Dale.

Ruellius's Buckthorn, or Swines-creffes, hath many small and weak straggling Branches, trailing here and there upon the Ground, set with many small cut or jagged Leaves. The Flowers grow among the Leaves, in small rough Clusters, of a whitish Colour; which being past, there come in its place little broad and flat Pouches, in which the Seed is contained. The Root is white, thready, and in Taste like the Garden-creffes. *Gerard.*

AMBULATIO, Walking. Reckoned by *Celsus* among other Exercises which are serviceable in an Imbecility of the Stomach, such as reading with an audible Voice, Exercises at Arms, or with the Ball, and Running. Concerning Walking, he says it is better when diversify'd by ascending and descending, than in a smooth and even Plain, because it stirs the Body more, except it be very weak. It is better also to walk in the open Air, than under Piazzas; and better in the Sun, if the Head will bear it, than in the Shade; better in the Shade of Walls and green Hedges, than under a shady Roof; and, lastly, better strait forward, or in a right Line, than winding about. *Celsus*, Lib. 1. Cap. 2. Elsewhere (Lib. 6. Cap. 6.) he recommends much Walking in Dimness of the Sight.

It is generally said, that Riding is a more healthful Exercise than Walking, which appears to me an Assertion a little too general. For Walking is much more effectual in promoting an Increase of muscular Strength, and in imparting to the Fibres a due Elasticity, than Riding. But where any of the Viscera are much obstructed, and a Patient is too weak to support sufficient walking Exercise, there Riding may be more beneficial. Upon the Whole, it may be said, that Walking is best for the Preservation of Health, but Riding for the Cure of Chronical Distempers; for in those that are acute, neither is advisable.

AMBULO. This is the Name of a Disease, which has the Epithets *Flatulentus* and *Furiosus* bestowed upon it. It is likewise called *Flatus furiosus*. It is an Inflation or Distention, attended with Pain, and variously periodical. It takes its Rise from subtile Vapours, forcibly shooting themselves up and down through the various Parts of the Body, as it is described and proposed, in a particular Case, by *D. D. Job. Michael, Prax. Clinie. Special. Case 19. Castellus.*

AMBULON, called by *Ray*, in his History of Plants, the *Ambulon* of *Scaliger*. This is the Name of a Tree growing in the Island *Aruchit*, the Bark of which sends forth a Fruit resembling Sugar, and of the Bulk of a Coriander-seed. *Raii Hist. Plant.*

AMBUSTA, Burns. These require Remedies that are detersive, in a moderate Degree, without a manifest heating or cooling Quality. For this Reason, Earth of Chios, white Lumberstone, Earth of Candy, and any Sort of light Earth, moistened with Vinegar, not very acrid, or Water, and applied to the affected Part, are very proper Medicines, and prevent the Eruption of Pustules. A whole raw Egg, immediately applied, is also very good in such a Case; for it moderately refrigerates, and dries without Mordacity. Anoint also the Place with Ink, (it is not known what Sort of Ink the Author means) or Frankincense, diluted with Water, or spread it over with boiled Lentils bruised, or bitter Vetches.

For Burnings by hot Water, before Blisters arise, wash them with the Water of pickled Olives, and apply the Olives themselves, bruised, with Polenta; or anoint the Place with plums Alum pounded with Vinegar, or with Bull's Gall infused in much Water; or wash it with Lye, Garum, or Brine; or anoint the same with the Roots of Lily, Hyacinth, or Narcissus, bruised with Oil of Roses, and reduced to a strigentitious Consistence.

Marcellus has left us the following Prescription for such Cases:

Dip a Woollen Rag in Honey, and, covering it with Barley, burn it; then, with eight Drams of the Ashes, mix four Drams of Cerufs, eight Drams of Butter, of Wax, Fat of a Goat, and Oil of Roses, each sixteen Drams. But if the Blisters are risen, apply Sumach, and Polenta bruised; or Quick-lime, mixed with Cerate, and tied up in Linen. If the Part be ulcerated, cover it with bruised Leeks, or apply Parslane bruised with Polenta; or burn Pigeons Dung, wrapped in Linen, and use the Ashes diluted with Oil; this is an admirable Remedy. The Bark of the Pine or Fir Trees, dried Maidenhair, and burnt Myrtle-leaves, pulverized, are good to strew on the Place.

Either of these is proper also, in Composition with Cerate.

The following are good Remedies:

Take of the dried Root of Alkanet, pulverized, four Ounces, white Wax nine Ounces, Oil of Roses eighteen Ounces; mix them. Or, prepare Cerufs, with a moderate Quantity of Stags Marrow. *P. Egineta, Lib. 4. Cap. 11.*

A Cerate for Burnings and Erysipelas is prepared of four Ounces of white Wax, three Ounces of Oil of Roses, and four Ounces of Pellitory of the Wall. After the Inflammation is gone, or, if it continues long, before the Part becomes livid, apply a Cataplasim of crude Barley-meal. If the Place be turn'd livid, let it be scarified, and the Cataplasim the longer used, and the Part washed with fresh Water, and sometimes with Sea Water, and Brine; and these may be sometimes mixed with the Cataplasim. *Idem, Lib. 4. Cap. 21.*

Whenever this Misfortune happens make no Delay, but take the first Earth that comes to Hand, and apply it moistened with Water, and afterwards wash the Place with warm Posca; then take Verdigrise, and Spuma Argenti, of each an equal Quantity, bruised, with Wine and Oil, and anoint the Part with a Feather, not touching it with your Hand, but laying over it a Piece of fine Linen Cloth. If Blisters arise, break them in the Beginning; but if they have been suffered to harden, break them, and apply a Cerate. For this Purpose, the following Pastil may be prepared, and reserved for Use on Occasion:

Take of Alum four Drams, Frankincense two Drams; bruise them, and make them up with Water into Pastils: Or, take of white Lumberstone two Ounces, Bark of Frankincense, burnt Misy, each six Drams; make them up as the foregoing, and use them both with Posca. If Blisters arise, apply Sumach and Polenta, bruised in Vinegar, or Hog's Gall boiled; or anoint the Place every Day with the Juice of Henbane, and the Blisters will wither away. If the Part be exoriated, and ulcerated, apply the Leaves of Beet, boiled in Wine and bruised, or infill the Juice of Beet into liquid Cerate of Oil of Roses, as much as it will imbibe: The just Proportions are, three Parts of Oil to one of Wax, and as much Juice as is sufficient. Use this, and you will admire the Effects.

The following speedily cicatrizes the Sore:

Take of Cerufs, Spuma Argenti, Barley burnt and bruised, each one Ounce; Wax four Ounces, Oil of Roses, or Oil of Myrtle, nine Ounces; mix the Barley with the liquid Cerate, and add thereto the Spuma Argenti, and Cerufs, bruised in a Mortar with Wine. *Aetius, Tetrab. 4. Serm. 2. Cap. 64.*

To make Hair grow on the burnt Place,

Roast Fig-leaves in an earthen Pot, and apply them with Cerate, in the manner of a Plaister. *Aetuar. de Meth. Med. Lib. 6. Cap. 8.*

It may not be thought improper, that we account Burns, or Ambustion, a kind of Inflammation; for not only the same Signs and Symptoms, but generally the same Events, attend on both. We call that Hurt which the Body receives, either from Fire itself, or from Bodies put in a violent Heat and Effervescence by the Fire, *Ambustion*, *Ustion*, or *Adustion*; so that among the Causes of Ambustion, we are to reckon not only Fire itself, but every heated Body, as well hard Bodies, for Instance, glowing Coals, hot Iron, or other Metals, heated and liquified by the Fire, as Gunpowder, and fervid Liquids, such as hot Water, Beer, Wine, Oil, Spirit of Wine, and the like.

As soon, then, as any thing of this Nature is applied to the Body, there follows of necessity a Corrugation and Rupture of the Fibres and little Veins, with an Effusion of the Blood and Humours into the adjacent Parts, where they stagnate and corrupt. But as Ambustions, caused by solid Bodies, are almost constantly more grievous than what are received from Liquids; so the Mischief is universally proportioned to the Degree of Vehemence of the Combustion, just as it is in all Inflammations.

Now Burns may, not improperly, be divided into four Kinds: The first and least seems to be, when the Part affected feels a Pain attended with Heat and Redness, and succeeded in a short time by a Pustule. The next Degree is, when, after Ambustion, there is an immediate Eruption of Pustules, with a grievous Pain. The third Degree is, when the Skin and subjacent Fat are burnt in such a manner, that they presently turn to a Crust. The last is, when the Ambustion is so vehement, that it penetrates and destroys almost every thing before it, to the very Bone. The third Degree resembles a Gangrene, the last

last a Sphacelus: Whence it also appears, that Ambussions very much resemble Inflammations, and are known, in their respective Degrees, by nearly the same Signs.

The Event of Ambussions depends partly on the Degree, partly on the Use and Excellency of the Part affected. For the more grievous the Ambussion, or the more noble the suffering Part, the more is the Danger to be apprehended. Therefore it is thought a lighter Evil, if the Hand or a Finger contract a Pustule from a Scald by Fire, than if the Eye be thus affected, tho' in a slighter manner; for so tender and noble a Part of the Body can hardly bear Ambussion, without Danger of losing the Sight. We are, besides, to estimate the Mischief by the Inveteracy and Extent of the Ambussion; for the deeper the Fire has penetrated the Body, or any Part of it, or the wider its Compass, the greater is the Evil to be accounted. Thus when the whole Body has, tho' but slightly, felt the Flame of a Fire, or of Gunpowder, or boiling Liquor, it is a very bad Misfortune; for the miserable Patients being unable to sit, or lie, or sleep, by reason of their most acute and intolerable Pains, a Weakness must necessarily come on, with a febrile Disorder, succeeded at last by a Sphacelus, which terminates in Death; and this so fatal an Event is rather to be expected in Infants than Adults; for the first are destitute of Strength and Patience, as well as Sagacity to chuse the most commodious Situation. Moreover, the deeper the Ambussion reaches, the more threatening is the Danger. Ambussions of the Face are very much to be dreaded, not only on account of Deformity by Eschars, but principally as they often cause the Eyelids to grow together. If the Neck happens to be burnt, the Patient is almost sure to come off wry-necked, without convenient Assistance. As to other Ambussions, it will be easy to pass a Judgment on them from what has been said, after thoroughly considering the Nature of the affected Parts.

As an Ambussion is not unlike an Inflammation, with respect to Degrees, so the Method of Cure in both is much the same. When there happens a slight Ambussion, or one of the first Degree, the most proper Medicines, on all accounts, are Resolvents; of which there are two Kinds principally to be observed, the *astringent*, and the *emollient*. Mild Astringents are, Spirit of Wine, either the common Sort, if good, or rectified, or also camphorated; let the Part affected be immersed in this Spirit, or be carefully fomented with Linen Cloths, wet therein. This is much recommended by Sydenham.

Of almost the same Efficacy are Vinegar lithargirised, and Brine of pickled Cabbage, or Oxycras boiled with Salt, and used warm in the same manner as Spirit of Wine, before directed. Oil of Turpentine also is to be had in Readiness, with which the Part is to be timely and frequently anointed. In short, it would not be improper, in such a Case, to hold the burnt Part, suppose a Hand, or a Finger, to the Flame of a Candle, or to the Fire, and to keep it as near, and as long, as the Pain can be suffered; or alternately to present and remove it, till the Sense of the Pain and Heat be remitted. For by this means not only the stagnating Blood, by the mere Vehemence of the Fire, is reduced to its former State, but also Pustules, and other grievous Symptoms, are very seasonably prevented; and so the first Degree of Ambussion is, for the most part, with no great Difficulty, healed; especially if the Medicines above advised are, at the same time, applied.

Contrary almost to this, but equally proper and efficacious, is the Method of Cure by *Emollients*. By this means whatever is contracted, or corrugated, among the smaller Veins and Fibres, is mollified, and consequently the natural and free Circulation of the Blood through the same is restored, and thereby those grievous Symptoms, which might otherwise have happened, are prevented. Water of a moderate Degree of Heat, and accommodated to the Sensation of the afflicted Part, is of no small Service in this Case, by dipping a folded Linen Cloth therein, and applying it to the Place, and now-and-then moistening it afresh, till the Sensation of the Heat and Pain wears off by Degrees; but this warm Water uses to be more effectual when boiled with Marsh-mallows, or Mallows, or Mullein, Linseed, Fenugreek, Seeds of Quinces, and other such emollient Medicines. After this, some of the most proper emollient Cataplasms, which are either prepared with the before-mentioned Herbs, or made up of any other common Pulp, are to be provided, and frequently applied as hot as the Patient can bear; for most Pulp have a mollifying Virtue. Besides these, there are emollient Oils (a) of known and sufficient Virtue; such as Oil of Linseed, Oil of sweet Almonds, of Olives, of white Lilies, of Henbane, and others of the like Kind. These are spread upon Linen, and so applied; or by frequently anointing the Place by means of a Feather, when they grow dry. And, lastly, we must not omit taking Notice of *Mynsicht's* Ointment for Ambussions, which is an excellent Lenitive, and prepared of the Oil of Olives, or Linseed, mixed with the White of an Egg, and applied in the same manner as the rest; the Mucilage of Quinces is very good also in this Case. But it is to be observ'd, once for all, with respect to the Medicines hitherto pre-

scribed, that they are of little or no Service, unless frequently renewed: And if the Burn happens to be in the Face, it will be convenient to wear a Sort of Linen Mask, well fitted, for the more commodious Application and Retention of the Medicines upon the Part, and to keep it always moist. If the Misfortune happens in the Neck, to prevent a Wryneck, you must have recourse, by way of Precaution, to a peculiar Sort of Bandage, called by the Surgeons *FASCIA DIVIDENS*. See *FASCIA*.

In the second Degree of Ambussion, which is attended with a Blister, it seems improper to open the Vesicles, or cut the Skin already lacerated, because of the vehement Pain to which it usually puts the Patient: But the best way, in these Cases, for the most part, is, with all the Haste possible, to apply one or other of the before-mentioned Medicines, which of them comes first to Hand, as warm Water, burnt Wine, or Spirit of Wine, and to be very frequently renewing of the same. For by this means not only the Heat and the Pain are mitigated, but the Skin, tho' separated from the Cuticula, or Scarf-skin, is preserved almost without any Blemish. If the Pain continues, lenitive Remedies are to be used: Here the most celebrated Topics are Oil of Linseed, *Mynsicht's* Ointment for Ambussions, Unguentum Nutritum, Ointment of Litharge, or Diapompholyx; with these you must very often anoint the Place, or spread them on Linen, and bind them to the Part affected. As the Pain and Heat gradually decrease, some proper Plaster, as that of red Lead, ought to be applied, in order to smoothe the Skin, and restore the Cuticula. If this second Degree of Ambussion be more intense than ordinary, and affects a great Part of the Body, it will be necessary forthwith to take away some Blood, in proportion to the Measure of the Ambussion, even till the Patient faints, in order to prevent Exulcerations, Deformities by Seams, and perhaps a Gangrene; after which a strong Cathartic must be administered. Outward Topics are such as have been already prescribed: For Infants, where Bleeding is not so convenient, Purging must be iterated, for the sake of Revulsion. As to the rest, a very strict Regimen of Diet is to be observed in Ambussions, as well as in other painful or dangerous Wounds and Inflammations; wherefore the thinnest and smallest Drinks, and forbile Liquors, are highly proper in such a Case; for whatever is heating, or taken to Intemperance, has very pernicious Effects, as it increases the Pain and Heat. The celebrated *Digby* thought nothing more effectual in asswaging the Heat arising from Ambussion, than Spirit of Salt, taken to the Quantity of ten or fifteen Drops, either alone, or instilled in some Liquor. All these Things being readily and carefully provided and administered, as before directed, it is surprising with what Success the affected Parts are comforted, cherished, and restored, and all the mischievous and threatening Consequences avoided.

As to the third Degree of Ambussion, in which a Crust or Eschar immediately overspreads the burnt Part, it can hardly, or rather not at all, be cured without a Suppuration. If the Misfortune happens to the Face, our principal Care and Concern should be to preserve that Part from unseemly Blemishes remaining after the Cure. In this Circumstance, therefore, we are to avoid almost all Kinds of Ointments and Plaisters, however they come recommended as the rarest Secrets, and the most powerful Medicines for Ambussions. For it is to be fear'd, that, while they dry the Wound more than is requisite, they should contract the Skin and Fibres, and by that means induce a very deforming, or, at least, an unseemly Eschar. Wherefore there is nothing for which we should be more careful, than, with all the Speed we can, to remove that corrupt Crust, and the Matter included under it; but how to effect this, in the most commodious way, is a difficult Point to hit. To tear them off by Violence with the Hands, or cut them away, is far from being beneficial to the poor Patient: But if there be any Remedies at all, which are qualified to work a happy Cure upon an Ambussion, there are none, within the Compass of my Observation, that are more proper for the Purpose than such as are composed of Emollients. Whatever therefore of this kind, among those we have advised, can soonest be got ready, is to be spread upon folded Linen, and applied hot to the Place, and very often renewed, till the hard Crust, loosening by Degrees, be at length severed from the quick Flesh. If any thing be separated, and lie loose, it must be removed and taken off by the Volsella, as often as the Place is dressed, which must be two or three times a Day, and the remaining Part of the Crust must be anointed with Butter: Fomentations also are, upon no Account, to be omitted. This Part of the Cure takes up two, and sometimes three or four Days. All the Crust being resolv'd in the manner prescribed, our next Care is to cleanse and agglutinate the Wound. The first Intention is answered by some mild digestive Ointment, together with Honey of Roses; and the agglutinative Part is performed by the Ointment of Diapompholyx, or of Litharge, or the Emplastrum ad Ambusta, which are the most common and celebrated Medicines for this Purpose. But if any Plaisters, or Ointments, are applied upon

(a) Pliny, Lib. 23. Cap. 4. recommends Oil of Myrtle for Ambussions.

pretty hard Crusts, it is very much to be feared, that, by reason of the Constriction of the adjacent Parts, and an Exasperation occasioned by the Acrimony of the Matter, or Sanies, some considerable and deforming Eschar will remain. However, if any Person shall undertake the Cure after this Method, which is the common way of Surgeons, he ought to be advised, that, except the Crust shall fall off the second or third Day, he is to make frequent Incisions in it, as in Gangrenes, in order to let out the Matter that lies under it; and, after Bleeding and Purging, which are necessary in the first Place, the Fomentations, before recommended, are to be carefully used, in order to mollify and totally resolve the Crust. An exact Regimen of Diet is found to be more necessary in this than in the former Method of Cure. To restore the Skin to its pristine State, there is no Remedy to be compared with frequently fomenting the Part affected, as it grows well, with the Steam of hot Water. If the Restoration of the Skin goes on but slowly, it will not be amiss to promote the same by the Application of Wax, and the Oil of Eggs.

As to the fourth, which is the highest and most desperate Degree of Combustion, where the Burning has penetrated to such a Depth as to corrupt and mortify all before it, almost to the very Bone, all Remedies are vain and useless; and there is no way left to assist the Patient, but by speedily cutting off the affected Limb, as is done in a Sphacelus. *Heister, Lib. 4. Cap. 15.*

The following Method of curing Burns is recommended in the *Philosophical Transactions*.

I can affirm, that in all Burnings, by Fire or otherwise, and the Pains occasioned thereby, I have not yet met with any better and surer Medicine than this following:

Take Spirit of Earth-worms, with rectified Spirit of Wine, twelve Ounces, mixed with two Ounces of Camphire.

No sooner is a Bandage, or Compress, dipped into this Spirit, applied to the affected Part, but it will give instant Relief, and so effectually check the Inflammation, that it will creep no farther: But the Application of it must be continued till the Pain is quite gone, and the Ulcer, if there hath been any, is dried up. If the Exulceration is got deeper, and the Wound must be kept open, two Ounces of Camphire, dissolved in Oil of St. John's-wort, mixed with a Pound of the common Unguentum Cerussæ, applied according to Art, will quickly and effectually heal it, as I have often experienced.

There are, in the *History of the Royal Academy of Sciences*, two remarkable Instances of Cures performed by accidental Burns, which must not be omitted.

Of Cures performed by Burning.

CASE I.

Some violent Pains of the Head have been suddenly and unexpectedly cured. A Lady of thirty-five Years of Age, and of a good Constitution, laboured under a continual Head-ach, and was seized with severer Paroxysms, which returned regularly once in eight or ten Days, and lasted ten or twelve Hours with such Violence, that she sometimes appeared stupid, and sometimes furious. The Seat of her Pain was principally in her Forehead, and her Eyes, which were now become very red and sparkling. Her grand Paroxysms were accompanied with a Nausea, and terminated by vomiting up a viscid Matter, white, soft, and insipid, which, in the very Conclusion of the Fit, was followed by a green, but very bitter Water. During the Paroxysms she could eat nothing, but had a very good Appetite at other times; and had not lost her natural good Plight of Body, notwithstanding the long Continuance of her Indisposition.

Mr. Homberg, in vain, prescribed a vast Quantity of Medicines for three Years successively. Opium was the only one which could, for a few Hours, relieve her ordinary Head-ach; but her Paroxysms were entirely Proof against its Virtues.

One Night, when she felt a Fit coming upon her, and was going to Bed, she had an Inclination, before she lay down, to see whether her Eyes were much inflamed or not. Accordingly as she was looking at herself in a little Pocket Looking-glass, the Flame of a Wax-candle, which stood by her, set Fire to her Night Head-dress, which was made of pretty thick Cloth; being all alone, and not adverting to what had happened, the Fire burnt all her Forehead, and a Part of the Crown of her Head, before she could call People to extinguish it. Mr. Homberg, who was forthwith called, ordered some Blood to be instantly taken from her, and treated the Burn in the ordinary manner, the Pain of which ceased in a few Hours: But the Paroxysm, which was expected, did not seize her; even the ordinary Pain of her Head disappeared almost from that very Moment, without the Help of any other Medicine than the Burning; and ever since that Accident happened, which is now about four Years, the Lady has enjoy'd a perfect State of Health.

CASE II.

A Physician of Bruges has communicated to Mr. Homberg a Case of the like Nature, of which he himself was a Witness. A Woman who, for many Years, had her Legs and Thighs extraordinarily swelled, and very painful, found Ease by rubbing them with Brandy before a Fire, every Night and Morning: One Evening the Fire accidentally caught the Brandy, with which she had rubbed the Parts affected, and burnt her very superficially; upon which she applied some Ointment to the Burn, and all the Waters, which distended her Legs and Thighs, discharging themselves by Urine in the Night-time, the Swelling returned no more. 'Tis great Pity that Chance should not more frequently act the Part of a Physician (and I may add, still a greater, that Physicians will not attend to the Lessons taught them by Chance). Accident has, undoubtedly, taught this Sort of Remedy to many barbarous Nations, who use it with Success; and, perhaps, the rather, that being severe, it affords them an Opportunity of shewing their Courage. Mr. Homberg, who was born in the Island of Java, says, he remembers that when the Javans were afflicted with a certain Colic, or painful Flux of the Belly, which ordinarily proved mortal, they used sometimes to cure themselves by burning the Soles of their Feet with hot Irons. If they have a Panaris, which is a Species of Paronychia, a Disease incident to the Fingers, they cure themselves by soaking the Finger affected in boiling Water several times, and letting it remain in the Water for an Instant only at each Immersion; and Mr. Homberg himself, following in some Cases the Customs of his native Country, cured himself of a Panaris in this very manner. In the Relations of Travellers, we have Accounts of a great many Maladies which the Savages cure by Burning; and, without going so far, we ourselves apply this Remedy to Horses, Hounds, and Birds of Prey, &c. But it must be owned, our Delicacy will not allow us to use it on ourselves, which is perhaps the Reason why we labour under lasting Disorders, which, by this means, might become very short.

The Delicacy of the Europeans could not long permit them to use that kind of Down, brought by the Spaniards from America, which cured the Gout when burnt on the Part affected. Mr. Homberg, nevertheless, saw a Burgess of Amsterdam, who, by the Use of this Medicine, freed himself of a Fit of the Gout in seven or eight Days, which used to last two or three Months, and the Returns of his Paroxysms were rendered less frequent.

Mr. Homberg thinks, that Burns may perform Cures in three different manners; either by putting the peccant Humours into a quicker Motion, which makes them fly off through new Roads; or by rendering them more fluid, which, in Effect, is the same with the former; or, thirdly and lastly, by destroying a Part of the Canals which bring the Humours, in too great Abundance, to the Part affected. *Hist. de l'Academie Royale des Sciences, An. 1708.*

AMEDANUS. The *Alnus vulgaris* is thus called by *Crescentius*.

AMELANCHIER, a Name for a sort of Bilberry, call'd by *Parkinson, Vitis Idæa tertia Clusii*. THE FRENCH HONEY SWEET WHORTS. See VACCINIUM.

AMELLUS: This is the Name of an Herb which takes its Name from the River Mella in France, on the Banks of which it grows in great Plenty.

Virgil numbers this amongst the Plants which are very agreeable to Bees. *Georg. 4.*

*Est etiam flos in pratis, cui nomen Amello
Fecere agricolæ, facilis quærentibus herba.
Namque uno ingentem tollit de cespite sycom
Aureus ipse: Sed in foliis, quæ plurima circum
Funduntur, violæ subluet purpura nigra.
Sæpe Deum nexis ornata torquibus aræ.
Aper in ore sapor: Tonsis in vallibus illum
Pastores, & curva legunt præpe flumina Mellæ.
Hujus odorato radices incoque Baccho,
Pabulaque in foribus plenis appone canistris.*

Some Botanists say, it is the *Caltha Palustris*. Others, that it is a Species of the CONYZA, or of the ASTER MONTANUS. According to *Dale*, it should be the *Aster Atticus*.

AMELPODI, a Name given to four different Trees, which grow in the Indies.

The first is the *Amelpodi*, H. M. or *Arbor Indica ἀναρτος, floribus umbellatis tetrapetalis*.

The Root of this is esteem'd by the Inhabitants of Candanate where it grows, to be an Antidote against the Bites of Serpents, if worn about them.

The second is the *Belutta Amelpodi*, or *Frutex Indicus ἀναρτος, foliis binis adversis, floribus pentapetalis candidis, unguibus luteis*.

The Root of this, bruised, and taken with Water, is good against the Bites of Serpents; and is esteem'd a good Topic in the Gout.

The third is the *Sjouanna Amelpodi*, or *Frutex Indicus Pentapetalos, gemina Bacca, Calyce excepta*.

The Root of this is recommended against the Bites of Serpents and Scorpions.

The fourth is the *Karetta Amelpodi*, or *Baccifera Indica floribus umbellatis, Fructu rotundo tricoeco*.

A Decoction of the Leaves of this Tree are esteem'd a Remedy for the Colic.

The Root, if only worn in a Purse, is said to be an Antidote against the Bites of Serpents.

From the Leaves and Roots boil'd in Oil of Olives, a Liniment is prepar'd, which is said to be excellent for resolving large Tumours. *Raii Hist. Plant.*

AMENE, common Salt. *Rulandus*.

AMENENOS, ἀμενεος, from α Negative, and μεν Strength, weak, feeble. It is frequently us'd by Hippocrates in this Sense.

AMENTIA, Madness. See MANIA and DELIRIUM.

AMENTUM, Scissile Alum. *Rulandus*.

AMERI, Indigo. See ANIL.

AMETHODICUM, Immethodical. *Blancard*.

AMETHYSTA PHARMACA, ἀμethystα φάρμακα, from α Negative, and μεθυ Wine. Medicines which either prevent, or take away, the inebriating Effects of Wine. *Galen de Compositione Pharm. L. 2.*

AMETHYSTUS, a precious Stone, thus distinguish'd:

Amethystus, Offic. Kentm. 48. Boet. 162. Charlt. Foff. 35. Worm. 99. De Laet. 24. Aldrov. Mus. Metall. 966. Schw. 362. Calc. Mus. 189. Geoff. Praelect. 84. Mont. Exot. 14. THE AMETHYST.

It is a precious Stone, of a violet Colour, which arises from a Mixture of red and azure; and it is found in India, Arabia, Armenia. *Dale*.

A hard, beautiful, shining, transparent, precious Stone, of which there are several Species; some are white, others red, others of a violet Colour: It comes from the Indies. 'Tis pretended, that it prevents Drunkenness, being worn on the Finger, or bruised and drank in Powder; but this Virtue is only imaginary. However, hence it receives its Name. See AMETHYSTA.

It is good to stop a Looseness, and to absorb the acid Particles when too much abounding in the Stomach, which Virtue it has in common with other alkaline Substances.

Geoffroy adds, that the Chymists have endeavoured to extract Tinctures from these coloured Gems; but it is not certain whether ever they succeeded; or if they did, what the Use of these Tinctures is. *Geoffroy*.

AMETRIA, ἀμετρία, among the Greek Physicians, was used in the same Sense with the Latin Words *Immoderantia*, and *Immoderatio*. It is in general a Receding in any Degree from a due Temperament. *Galen*.

AMIA, the Name of a Fish, reckon'd by *Aetius* among such as are of a hard Flesh. *Aetius, Tetr. 1. Sermon. 2.*

Pliny says, it grows so fast, that you may perceive it every Day. *Nat. Hist. Lib. 9. Cap. 13.*

AMIANthus

Offic. Boet. 382. Gesn. de Lap. f. 6. Aldrov. Mus. Metall. 657. *Amianthus*, Worm. 55. Calc. Mus. 286. Schrod. 346. Charlt. Foff. 23. *Lapis Amianthus*, Matth. 1387. Laet. 118. *Amianthus, sive Asbestus*, Ind. Med. 8. EARTH-FLAX. *Dale*.

The Amiantus Lapis is generated in Cyprus, and is a Stone like Scissile Alum. As it may be drawn into Threads fit to be woven, they work it into Cloth, only fit for Show, which, cast into the Fire, takes indeed the Flame; but instead of being consumed, comes out the purer and brighter. *Dioscorides, Lib. 5. Cap. 156.*

It is used as an Ingredient in Psilothra, [Medicines to take off Hair] *Paul. Aeginet. Lib. 6. Cap. 3.* And *Myrseus* makes it enter the Composition of his Citron-ointment for Blemishes of the Skin. *Seft. 3. De Unguentis, Cap. 42.*

It is believed to be effectual against all manner of Witchcraft, especially such as proceeds from Women. *Schroder in Dale*.

Pliny says it has a particular Prevalence against the Sorceries of Magicians. *Lib. 36. Cap. 19.*

It is also said to resist Poisons, and to cure the Itch.

The Nature of the Amianthus will appear from the following Dissertations, collected in the Abridgment of the Philosophical Transactions.

Signior Marco Antonio Castagna, Superintendent of some Mines in Italy, hath lighted, in one of them, upon a great Quantity of that lanuginous Stone called *Amianthus*, which he knows so to prepare, as to render it like either to a very white Skin, or to a very white Paper, both which resist the most violent Fire. The Skin was covered with kindled Coals, whence it took Flame; but being taken out, after it had been left there a while, the fiery Colour presently disappeared, and

VOL. I

it became cold and white again as before; the Fire, it seems, passing only through, without wasting or altering any thing of it; whereas some of the hardest and solidest Metals, as Iron and Copper, reduced to very thin Plates, and kept as long in the Fire as this Substance was, would cast Scales. Again, this Skin, being made as thin as Paper, doth not only yield that ancient and so much admired *Amianthus*, but is also perfecter than that which comes from Cyprus, and not inferior to that which sometimes, though but seldom, comes out of China. This Paper was also try'd in the Fire, and there it remain'd likewise without any visible Detriment, or without the least Change of its first Whiteness, Fineness, or Softness. Of the same Matter this Artist hath wrought a Wick, never to be consumed as long as 'tis fed, nor altering its Quality after the Aliment is wait'd away.

The *Lapis Amianthus*, or *Linum Fossile Asbestinum*, is found in no small Quantity in *Llan-Fairryg-Hornwy*, in the Northern Part of *Anglesey*; where it runs in Veins through a thick Stone, in Hardness and Colour not unlike Flint. These Veins are generally a Quarter of an Inch deep, which is the Length of the *Amianthus*; and is seldom longer, but often shorter. It is composed of a lanuginous Matter, exactly resembling that of pappous Plants; but so closely compact, that till you draw a Pin, or any such sharp thing, cross the Grain of it, it appears only a shining Stone, there being not the least Filament of Lint to be perceived in it. In its natural Form, some of it looks whitish, and some straw-coloured, but all shining; but if pounded in a Mortar, the Brightness disappears, and the Whole becomes whitish. Note, that above and beneath the Veins there is a very thin Septum of terrene Matter, betwixt the *Amianthus* and the Stone whereto it adheres. I put a small Quantity of the Lint in the Fire, which grew red-hot; but tho' it remained there a Quarter of an Hour, I could not perceive that it was any thing consumed. I twisted also some of it in the Form of a Wick, and dipping it in Oil, it gave as good a Flame as other Wicks, till the Oil was consumed; the Wick remaining of the same Proportion as at first. Being satisfied it was incombustible, I pounded some Quantity of it in a stone Mortar, till it became a downy Substance; then I sifted it thro' a fine Searce, by which means the terrene Parts (being reduced to a Powder) came thro' the Searce, the *Linum* remaining. I then brought it to a Paper-mill, and putting it in Water, in a Vessel just capacious enough to make Paper with such a Quantity, I stirred it pretty much, and desired the Workmen to proceed with it in their usual Method of making Paper, with their Writing-paper Mould, only to stir it about ever before they put their Mould in, considering it as a far more ponderous Substance than that they used; and that consequently, if not immediately taken up after it was agitated, it would subside. Paper thus made of it, proved but very coarse, and too apt to tear. But this being the first Trial, I have some reason to believe it may be much improved.

I here send you the Account of the incombustible Linen-cloth, which I received from one *Conco*, a natural Chinese, resident in the City of *Batavia*, in the North-east Parts of *India*, who by means of *Keayarear Sukradana*, (likewise a Chinese, and formerly chief Customer to the old *Sultan* of *Bantam*) did, after several Years Diligence, procure from a great Mandarin in *Languin*, (a Province of *China*) near three Quarters of a Yard of the said Cloth; and declared, that he was credibly informed, that the Princes of *Tartary*, and others adjoining to them, did use it in burning their Dead; and that it was said; and believed by them, to be made of the under Part of the Root of a Tree growing in the Province of *Sutan*; and was supposed, in like manner, to be made of the *Todda-trees* in *India*; and that of the upper Part of the said Root near the Surface of the Ground, was made a finer Sort, which; in three or four times burning, I have seen diminish almost half. They report also, that out of the said Tree there distils a Liquor, which not consuming, is used with a Wick made of the same Materials with the Cloths, to burn in their Temples to Posterity.

A Handkerchief, or Pattern of this incombustible Linen, which was shewn the *Royal Society*, was a Foot long; and just half a Foot broad.

There were two Proofs of its resisting Fire given at London; one before some of the Members of the *Royal Society* privately, Aug. 20. 1684. when Oil was permitted to be poured on it whilst red hot, to enforce the Violence of the Fire. Before it was put into the Fire this first Trial, it weighed one Ounce six Drams sixteen Grains; and lost in the Burning two Drams five Grains.

The second Experiment of it was public Before the *Society*, November 12. following, when it weighed (as appears by the Journal of the *Society*) before it was put into the Fire, one Ounce three Drams eighteen Grains: Being put into a clear Charcoal-fire, it was permitted to continue red-hot in it for several Minutes: When taken out, though red-hot, it did not consume a Piece of white Paper, on which it was laid. It was

X x x x

presently

presently cool; and upon weighing it again, was found to have lost one Dram six Grains.

December 3. Mr. Arthur Baily, one of the Fellows of the Royal Society, presented them with a Piece of this Linen, in the Name of Mr. Waite. At the same time, the same Mr. Baily presented Dr. Plot with another Piece of it, which being brought to Oxford, the Experiment was again repeated on it, December 16. it being put into a strong Charcoal-fire, in the Natural History School, in a full Meeting of the Philosophical Society of that University; where after it had continued red-hot for some considerable Time, it was taken forth again little altered when cold, saving that it seemed a little whiter and cleaner than before.

This kind of Linen-cloth was esteemed by the Antients, though then more common, and perhaps better known, than 'tis yet amongst us, equally precious with the best of Pearls.

Nor is it now of mean Value even in the Country where made, a China Coveit (that is a Piece twenty-three Inches and three Quarters long) being worth eighty Tale, that is thirty-six Pounds thirteen Shillings and Four-pence.

The Reality of such a Being has been doubted or deny'd by very good Authors; who, though they owned such a Mineral as *Amianthus*, out of the woolly Part whereof this sort of Linen was always antiently said to be made, yet questioned the Possibility of its having been actually done. But *Pliny* says expressly, (and I dare believe him in any thing he speaks of his own Knowledge) that he himself had seen Napkins thereof, which being taken foul from the Board at a great Feast, were cast into the Fire; by which means they were better scoured; and looked fairer and cleaner, than if they had been wash'd in Water.

And besides the Testimony of several curious Persons in all Ages, we have now seen a Piece of this Linen pass the fiery Trial both at London and Oxford.

This lanuginous Mineral is called from its strange Qualities, sometimes *Amianthus*, quod in Ignem injectus non uritur; the Fire being so far from defiling it, that it rather gives it a Lustre.

It is called *Asbestos*. And, *Salamandra*; in English, Salamander's Wooll. I suppose from the *Thryalides*, or Candle-wicks, said to be antiently made of it, which being put into Lamps of incombustible Oil, would never waste, or go out; which I take to be the true Reason of the Imposition of these Names upon it, whether there ever were any such Lamps or not.

From a pungent Quality, *Agricola* says, it has on the Tongue without Astringency, it is called *Alumen*, having the distinguishing Epithet *Plumeum* added to it, taken from its downy Filaments, to discriminate it from all the rest of the *Alums*. This is however a Mistake; for the *Alumen Plumeum* is a very different thing.

From the light-grey Colour of its lanuginous Parts it is called by some *Polia*; by others *Corfoides*; and, from its Likeness to the hoary Fibres of some sort of Matweed, *Spartapolia*.

From the Capacity it has of being spun into Thread, it is also called *Linum*, with some distinguishing Epithet taken either from its Quality, such as *Asbestinum*, or *Vivum*; or from the Place where found in general or particular: It being called in general *Linum Fossile*; in English, *Earth-flax*; and in particular, *Linum Indicum*, *Creticum*, *Cyprium*, and *Carpasium*, or *Carystium*. But beside the Places that have given these Epithets to it, it is also found in *Tartary*, at *Namur* in the *Low-Countries*, at *Eisfeld* in *Thuringia*, amongst the Mines in the old *Noricum*, somewhere in *Egypt*, and in the Mountains of *Arcadia*; also at *Puteoli*, and lately in some other Mines in *Italy*; and it has been yet lately met with in a small Island, and belonging to *William Robinson*, Esq; called *Ynis Molromiad*, that is, the Island of *Sea-Calves*, in the Parish of *Llanfairing Hornwy* in *Anglesea* in *Wales*.

It is commonly by the *Lithographers* reckoned among Stones; but I rather should judge it a *Terra Lapidosa*, or middle Substance between a Stone and an Earth. But whether the one or the other, it is made of a Mixture (I guess) of some Salt or other, a pure Earth without Sulphur, coagulated in the Winter, and hardened to Perfection by the Heats in Summer; which Salt *Johannes Hessler* proves by a very cogent Argument to be *Alumen Liquidum*, describing it, as *Matthioli* also does, to be of a whitish lacteous Substance, somewhat inclining to yellow, that sweats out of the Earth, and smells like rotten Cheese; whereof having gathered a Quantity at *Puteoli*, together with the other Species of *Alum*, and kept it a while by him, when he came to look on it again, he found it to have lost the Smell, and a great Part of it changed into *Alumen Plumeum*, the saline Part, I suppose, shooting into Threads, and the pure Earth uniting them, as found in the Places where-ever generated, whether sweating from the Earth, as *Pliny* and *Matthioli* would have it, or percolated through Rocks, as we find it in *Wales*, the Veins of it there running through a Rock of Stone, in Hardness and Colour not unlike Flint, and

yet seems to be made of such *Alum*, as that of *John Hessler* at *Puteoli* was, some of it being straw-coloured, as if it still retained the Yellowness that his liquid *Bitumen* was said to have, which is a Colour not given to it by any Author, most of it being said to be white, or cineritious, some of it red, and some of an iron Colour, as *Agricola* tells us; and I have some of the *Cyprian* by me, sent from *Aleppo*, by Dr. *Robert Huntington*, whereof some is of a light-blue or pearl Colour, and some of it has a Cast of Sea-green.

But however the whole mineral Substances found at several Places may differ in Colour, yet I do not find but the woolly Part of them all seems to be much the same, viz. of a white silver Colour, the Threads very fine and slender, yet very ponderous, the smallest Particles of them thoroughly wet, sinking in Water, as I also found a very slender Thrum of the incombustible Linen given me by Mr. Baily, which Mr. Waite brought from *India*, would also do; which renders it very probable, that it is not a Vegetable, but a mineral Substance, notwithstanding the Informations of *Conco* and *Keayarear Sukradana*, mentioned in Mr. Waite's Letter; I say, render it probable, there being several Woods, such as *Box*, *Red Wood*, *Perjain Wood*, &c. that will sink in Water.

Marcus Paulus Venetus acquaints us, that it is found in *Tartary*, in a certain Mountain, in the Province of *Chinchimbals*, and made into Cloth, as he was informed, by one *Cursicar*, a Turk, who was Superintendant of the Mines in that Country; after this manner: The lanuginous Mineral, or *Amianthus*, being first dried in the Sun, is next pounded in a brass Mortar, and the earthy Part separated from the woolly, which is afterwards washed from all Filth whatever, that may stick to it; so, being thus purged, is spun into Thread like other Wool, and after wove into Cloth, which, if foul or spotted, they cleanse, he says, by throwing it into the Fire for an Hour's time, whence it will come forth unhurt, as white as Snow: Which very Method (as *Strabo* describes it) seems also to have been used in ordering the *Cretan Amianthus*; only with this Addition, that after it was pounded, and the earthy Part shook from the woolly, he says it was combed, and so does *Agricola*, which argues there was some of a greater Length than any I have yet seen.

Of this Linen, as *Pliny* informs us, Shrouds were antiently used at the Royal Obsequies, to wrap up the Corps in, so that the Ashes of their Bodies might be preserved distinct from those of the Wood, which made the Funeral Pile: And the Princes of *Tartary*, as *Keayarear Sukradana* was credibly informed, (and I have it well confirm'd from other Hands) do use such at this Day for burning their Dead. It must be acknowledg'd, it must diminish every time it undergoes the Violence of the Fire; yet this hinders not, but it may and will do that Service divers times before it be render'd altogether useless. Some of the Antients are said to have made themselves Cloaths of it, particularly the *Brachmans* amongst the *Indians*. The Wicks for the perpetual Lamps of the Antients were also made of this Substance; and we are told, that *Septella*, Canon of *Milan*, had Thread, Ropes, Net-works, and Paper, of it. *Marcus Antonio Castagna*, who lately found this Mineral somewhere in *Italy*, knows how to prepare and render it tractable and soft, which he can thicken, and make thin, to what Degree he pleaseth, and maketh it thereby like either to a very white Skin, or a very white Paper. We have also made Paper of our *Welsh Amianthus* lately here at *Oxford*, which will both bear Fire and Ink well enough, the Ink only turning red by the Violence of the Fire.

Signior *Campani*, after some Account of the Name of the *Asbestos* Stone, mentions four Sorts, of which he has Specimens in his Museum. The first sent from *Corfica* or *Corfu*, long, of a woody Form, of half a Palm Length and more, of a whitish Colour, something inclining to a reddish. The second of a silvery lead Colour, softer, and shorter about three Inches; this was from *Sestri di Ponente* in *Liguria*. The third (which is the worst of all) is like Scales or *Laminae*, one upon another, (as he represents it like an Onion) of a blackish Earth-colour, with some white, black, and dark-red Veins interspersed, scarce two Parts of an Inch Roman long, therefore fitter for making of Paper, than spinning or weaving. The fourth Sort, giving him by Signior *Boccone*, found in the *Pyreneans*, some whereof were a Roman Palm long; its Filaments, tho' longer, were yet thicker and rougher: He says also, That he heard of another sort in the *Volaterranean Mountains*. Next he tells us, He kept it for three Weeks in a Glass-house Fire, but found it unaltered; but it would not preserve a Stick wrapt in it from the Fire; whence he concludes the *Amianthus* loses nothing in the Fire, because it does not burn nor flame; but in the handling it wastes, though not much, as he found by an exact Balance. Lastly, He proceeds to shew the manner of spinning it, which he tried thus: First he laid the Stone in Water (if warm the better) for some time to soak; then it is opened and divided with the Hands, that the earthy Parts may fall out of it, which are whitish like Chalk, and hold the thready Parts together; this makes the Water thick and milky; this

this is repeated six or seven times with fresh Water, where it is again opened and squeezed, till all the heterogeneous Parts are washed out, and then the flax-like Parts are collected, and laid in a Sieve to dry.

Of his four Sorts of *Amiantus*, he found that from *Corsica* best; being long and soft; and the *Cyprian* worst; where, by the way, he doubts whether his was of the best Sort, since the *Cyprian* was commended by *Pancirollus*, and others which he quotes. But to come more close to the way of spinning it; he first shews a Method discovered to him, which was thus: Lay the *Amiantus*, cleaned as before; between two Cards, such as they card Wool with; where let it be gently carded, and then clapt up in between the Cards fast upon a Table or Bench; take a small Reel, made with a little Hook at the End, and a Part to turn it by, so that it may easily be turned round; this Reel is to be wound over with fine Thread; then having a small Vessel of Oil ready, with which the Fore-finger and Thumb are constantly to be kept wet, both to preserve the Skin from the corrosive Quality of the Stone, and render the Filaments thereof more soft and pliant: Thus by twisting the Thread upon the Reel about, with the *Asbestos* hanging out of the Cards, some of it will be worked up together with it; by little and little, this Thread may with Care be woven into a coarse Sort of Cloth; and by putting it into the Fire, the Thread and Oil will be burnt away, and the incombustible Cloth remain. But finding this way of uniting the Stone with the Thread very tedious, instead of the Thread he put some Flax upon a Distaff; and by taking three or four Filaments of the *Asbestos*, and mixing them with the Flax, he found they might easily be twisted together; and the Thread thus made much more durable and strong; so that there is no Need of carding, which rather breaks the Filaments, than does any good: Open only, and separate the Filaments, after washing, upon a Table, and take them up with the Flax, which is sufficient. As to the making of Paper, he says, in the washing the Stone, there will remain several short Pieces in the Bottom of the Water; and of these, after the common Method, Paper may be made. He concludes with the best way of preserving the Cloth, or any other thing made of the Stone, when made; for by reason of its exceeding Dryness, it is very apt to break and waste; this is by keeping it always well oiled, which is the only Preservation for it; and when the Cloth is put in the Fire, the Oil burns off, and the Cloth comes out white and purified.

In the Ground of *Francis Gordon of Altundore*, in the Shire of *Aberdeen*, near the *Highlands*, on the Side of a Hill of a Heath-kind of Ground, somewhat inclining to what we call Moss, in a very small Brook, and hard by it, in the Bounds of ten or twelve Yards, I found a great many of these Stones, some a Foot in Length, which appeared plainly like Wood; but because I could not perceive any Foot-steps of Wood thereabout, neither could any of them be found, except in that very Spot of Ground, I could not be persuaded they were petrified Wood. Then I went to cut up the Ground about the Place with my Knife, where I found likewise some Pieces of the Stone; and, very near the Surface, I got several Pieces of a fibrous Matter, which my Knife could not cut; this I immediately judged to be an incombustible Matter, as it proved afterwards, when I tried it by the Fire. And, because I thought it had been always esteemed certain Filaments that came off the *Lapis Amianthus*, I resolved to observe more narrowly the Production of it.

When I found some Pieces of the Stone very hard in the Middle, and the fibrous Matter on the Out-sides and Ends, I was inclined to believe, that the Flax came from the Stone; but then finding several Pieces of the Flax so condensed and pressed together, that, at first, they appeared to be hard Stones; but being a little wet, the Filaments were easily parted from one another; many more I got, some less, and some more, condensed into the Nature of a Stone; and all of it, both that which was condensed together, and what was not, was lying about an Inch within the Ground, parallel with the Surface, so interwoven with the Fibres of the Roots of the Grass, that it seemed to me much more probable to believe, that the Lint turned into the Stone, than the Stone into the Lint; especially seeing most Part of the Stones appeared so tender and brittle on the Outside, that it's hard to believe how they could turn into that tough Substance of Flax. The Stones are of different Sorts; some are white, the Colour of the Lint, and of a very soft Substance, so that they may be easily cut with a Knife without blunting it; others are much mixt with a whitish Talc; but most of them are of a greyish Colour, and very hard.

As for the Production of the Flax, I think it's hard to determine in this Place; because the greatest Quantity I found of it, was lying, as I said before, about an Inch at most within the Ground, parallel with the Surface, interwoven with the Roots of the Grass, without any Root of itself, but alike at both Ends, as if it were cut with a Knife. The Ground wherein it is found is of a greyish Colour, about one Inch or

two thick; under which there is a black Earth, for a Foot in Depth: So that I could find nothing, in the Places where most of it was got, that I could rationally conclude to produce it. But in some other Spots I found much of a talkish Sand, and some Pieces of Flax near to it; as also Pieces of the Stone much whiter than the rest, and very like Talc; which would incline one to believe, that it was produced of it: Yet there being no Appearance of any Talc in the other Places, where most of it was found, I can scarce conclude any thing about the Production of it.

But whatever way it is produced; though I have not examined what has been writ and said of that *Linum* by many, yet it seems to me, by what *Pliny*, *Aldrovandus*, and *Olaus Wormius* write concerning it, that this which I found in *Scotland*, is not inferior to any they speak of; for, generally, they make it very short; whereas some of this I found five, six, seven, and some eight Inches long.

As for the making of it into Cloth, they all conclude it very hard, which I confess is true; yet it may be seen, by the Experiment I have shewn, in making Yarn of it, that Cloth may be made of it also; for the Difficulty is much greater in one than the other.

A singular kind of Stone was dug out of a Quarry in the *Highlands* of *Scotland*, which, after the Rubbish, which lies not very deep, is done away, lies horizontally in a Bed endued with parallel Fibres; with few Interstices, soft at the Beginning, and easy to be smoothed and polished without any Tool, but rather with Sand, or another hard Stone of a bluish Colour, which afterwards hardens so, that it resists the Injuries of the Air, or Prejudice of Fire. When first the Quarrier began to dig it, he was at a mighty Loss; for endeavouring to cut and raise it, after the ordinary manner, with Wedges, and other usual Instruments, it broke and crumbled all to Pieces: But afterwards observing more narrowly the Duct of its Fibres, so to speak, he endeavoured to cut it with Spades lengthwise; and by this means he procured Stones as big as he had a mind, which smoothed very easily along the Tract of their Fibres; but when cut transverse, no Means nor Methods could render them smooth, but their Surface remain'd unequal as the Extremities of a Piece of Wood. Altho', as I said, this Quarry has but few Interstices, yet in those it has the true *Asbestos*, of a whitish silver Surface, consisting of several *Fasciculi* with parallel Fibres, like to those of the muscular Fibres of salted Beef, easily separable from each other, pure white, till it becomes so small as the finest Flax, and so ductile, that it may be spun into the finest Thread, wherof it were easy to make the incombustible Cloth, so famous for Shrines among the Antients: In other Places of those Interstices, was likewise to be observed a reddish Substance, near to the Colour of *Sanguis Draconis*; but whether fibrous or not, I cannot inform you, since the Gentleman could not shew me any of it; but added, he believed it might be good for Dying. I got a small Parcel of the *Asbestos* from him, and he told me, if he had known its Value, he could have preserved some Pounds of it. I am ready to think the second Kind was fibrous too, which might make a very beautiful Cloth, being striped with the other. This whole Quarry may be said to be *Asbestos* of different Colours, the bluish being of a much coarser, and the white and red of a finer Grain. *Phil. Transf. Abr. Vol. 5.*

AMICULUM, this was a kind of Covering used by the Boys for concealing their *Pudenda*, when going through their Exercises naked in the *Gymnasium*, or Place appointed for that Purpose, *Rhodius Dissert. de Acia*. It is also used in the same Sense with the Word *AMNIOS*, which see.

AMIDUM, the same as **AMYLUM**, which see.

AMINÆUM VINUM, Wine of *Aminæ*, called afterwards *Falernum*, in *Italy*. Polenta, prepared of roasted Barley, and drank in austere *Aminæan* Wine, is said by *Ætius*, to dry the Belly. *Tetr. 1. Serm. 1.*

Among Wines, the *Aminæan* claims the Preference, on account of its Strength, and the Spirits and Generosity it acquires by Age. *Pliny Nat. Hist. Lib. 14. Cap. 2.*

Columella says, the *Aminæan* Vines were the most antient, that is, the first taken Notice of; and the *Italians* were probably first acquainted with these Vines; for *Italy* did not originally produce Vines; the Inhabitants were therefore obliged to transplant them from the Country of the *Ammineî*, a People of *Thessaly*. According to *Macrobius*, the *Falernum* was antiently called *Aminæan* Wine; but it should rather seem, that the *Falernum* was of the Vintage of a particular Place; and that the *Aminæan* Wine was that made from the *Aminæan* Grape, in whatever Part of *Italy* it was produced; though the *Falernum* seems to have been made from this Sort of Grape, which the Soil of that Place might probably agree with better than any other. In Confirmation that the *Aminæan* Wine was not the Produce of any particular Place, but a Wine made of a particular Sort of Grape, it must be remark'd, that *Galen* takes Notice of *Aminæan* Wine, which was produced in *Naples*, in *Sicily*, and in *Tuscany*.

It was the Character of the *Aminæan* Wine, that it was, when new, austere, acid, and rough, but that it improv'd prodigiously by Age; for, when old, it was remarkable for its Spirit, Strength, and Generosity; and consequently, it was then excellent in Imbecilities of the Stomach, as *Galen* observes.

Virgil distinguishes the *Aminæan* Wine from the *Falernum*, in the second *Georgic*:

--- Quo te Carmine dicam,

--- *Rhetica*? Nec cellis ideo contende *Falernis*.

--- *quæ sunt etiam Aminææ Vites, firmissima Vina.*

This Sort of Wine and Grape, were by most of the *Latin* Writers called *Aminæa* and *Amminium*, as in *Virgil*, not *Aminæa* and *Aminæum*.

AMINÆUM ACETUM. *Rulandus*, and his Transcriber *Johnsin*, seem to think this White-wine Vinegar; but it should rather be Vinegar made of the Wine described above, or strong Vinegar in general.

AMINIA, the Name by which the Natives of *Brasil* call the *Hylon Brasilianum* of *J. B.* and which the *Portuguese* call *ALGODON*. *Margrav.* It is a Species of Cotton-tree.

AMMA. See **HAMMA**.

AMMI, Bishops-weed, of which there are two Sorts, the Modern, and the Antient. The Modern is thus distinguish'd:

Ammi vulgare, Offic. Ger. 881. Emac. 1036. Raii Hist. 1. 455.

Ammi vulgatus, Park. Theat. 912. *Ammi majus*, C. B.

Pin. 159. Tourn. Inst. 304. Elem. Bot. 254. Boerh. Ind. A.

57. *Ammi vulgare majus, latioribus foliis, semine minus odorato*,

J. B. 3. 27. Hist. Oxon. 3. 295. *Ami*, *Ammi*, *Amium* &

Amminium, Chab. 285. **COMMON BISHOPS-WEED.**

Dale.

This Plant grows about two or three Foot high, with strait, round, channel'd Stalks, on which grow long-winged Leaves, encompassing the Stalk at Bottom, composed of three smaller Divisions, of long, narrow, crenated *Pinna*; on the Tops of the Stalks grow pretty large Umbels of small white Flowers, consisting of five Leaves apiece, whereof two or three are usually bigger than the rest. The Seed is small, about the Bigness of Parsley-seed, of a hot fragrant Taste. It grows not wild with us, though *Parkinson* affirms, that it grew wild about *Greenbith*, in *Kent*; but it has been found by nobody since his Days: In the warmer Countries it is common enough, flowering in the Summer, and dying after it has perfected its Seed, which is the only Part of the Plant in Use.

The Seeds of Bishops-weed are of a drying warming Nature, good to expel Wind from the Stomach and Intestines, and prevent the Colic; they are diuretic, provoke Urine and the Menfes. *Mill. Bot. Off.*

It is cultivated in Gardens, and flowers in *June* and *July*. The Seeds are small, striated, less than those of Parsley, of a light Red inclining to an Ash-colour; of a bitterish, acrid Taste, and of a fragrant Smell; they are sold in our Shops instead of those of the true Bishops-weed. It is one of the four lesser hot Seeds. *Dale.*

The *Ammi* of *Dioscorides*, and the antient Authors, is thus distinguished:

Ammi verum, Offic. *Ammi Creticum*, Ger. 881. Emac.

1036. Park. Theat. 912. *Ammi alterum, semine apii*, C. B.

Pin. 159. *Ammi odore origani*, *J. B.* 3. 27. Raii Hist. 1. 455.

Hist. Oxon. 3. 295. Chab. 385. **TRUE BISHOPS-WEED.**

Dale.

Ammi is by some called *Ethiopian Cummin*, by others *Royal Cummin*; but some tell us, that *Ethiopian Cummin* is of a different Nature from that of *Ammi*. The Seed of this Herb is well known to be much less than Cummin-feed, and of the Taste of *Origanum*. Chuse what is clean, and free from Bran.

It is of a heating, caustic, and drying Quality. Drank in Wine, it cures Gripings of the Intestines, Difficulty of Urine, and the Bites of venomous Creatures; it also provokes the Menfes. It is mixed with Vescatories of *Cantharides*, in order to prevent the Strangury. Apply'd in a Cataplasm with Honey, it takes off the livid Marks of Blows in the Face. Drank, or the Skin anointed with it, it causes a pale Colour. Used in a Suffumigation with dry'd Raifins, or Rosin, it purges the Uterus. *Dioscorides*, Lib. 3. Cap. 70.

Pliny says the same, and adds, that *Hippocrates* called it *Royal Cummin*, because he thought the best grew in *Egypt*. The *Alexandrians* used it in their Bread, and in Sawces. It asswages Inflammations of the Eyes. Mixed with Linseed, and the Quantity of two Drams drank in Wine, it cures the Sting of a Scorpion; and taken with an equal Quantity of Myrrh, is particularly serviceable against the Bite of the *Ceraftes*. They say the Smell of it, at the time of Coition, promotes Conception. *Nat. Hist. Lib. 20. Cap. 15.*

This is rarely to be met with in the Shops, the former supplying its Place: It used formerly to be brought from *Turkey*; the Plant which bears it is smaller, the Leaves narrower, and more divided; it bears Umbels of white Flowers, and Seed

somewhat like the common, but less; of a more pleasant and aromatic Smell and Taste, somewhat like *Origanum*; and is esteem'd to have greater Virtue and Efficacy than the former. *Miller. Bot. Off.*

It is brought from *Alexandria* in *Egypt*. The Seeds are small, striated, less than those of Parsley, of a Yellow inclining to Red, of an acrid aromatic Taste, and of a fragrant Smell. It is seldom or never found in our Shops. It is Incisive, Aperient, and a Drier; is effectual in Pains of the Colon and Uterus, Inflation of the Stomach, and Obstructions of the Urine and Menfes. *Dale.*

These Seeds afford a great deal of essential Oil, and volatile Salt.

They are Anti-hysterick, Carminative, and Cephalic; resist Poison, and are one of the four lesser hot Seeds. *Lemery des Drogues.*

AMMION, *ἀμμιον*, Cinnabar. See **CINNABAR**, and **MINIUM**.

AMMITES, *five* **AMMONITES**, is a sandy Stone, which is found in different Sizes; for there are some as large as a Nut, some as big as Peas, some the Size of Vetches, and others of the Seeds of Poppy or Millet. These little Stones resemble the Eggs or Spawn of Fish; some are called *Cenchrites*, and others *Meconites*. Those which are as big as a Pea, are called by some *Mineral Bezoar*, because they are formed in Shells, or little *Lamina*, like the Bezoar; and they are of the same shining Colour, or a little redder; they are found upon the Mountains near *Bern*, in *Switzerland*.

They are soon resolved into Sand, of which they consist: They are called *Ammites*, from *ἀμμς*, Sand. *Lemery des Drogues.*

AMMOCHOSIA, *ἀμμοχυσία*, a kind of Remedy for drying the Body, which, for that Purpose, must be laid upon the Sand, which must be heaped upon it. The Sand ought to be very hot, and of the Sea; if it can be had; for River-sand is more humid.

But Salt is more efficacious for the same Purpose than Sand, and better for the Patient to lie down in, with some thin Substance spread under him. But the Salt must be no less than three Palms in Depth; for otherwise its Virtue would easily be dispersed.

It has also the same Effects as *ἀλυσία*, **INSOLATION**, which see.

Oribasius, Lib. 10. Cap. 8. *Coll. Med.* tells us, that this Fomentation with Sand is accommodated to such as labour under the Colic, Asthma, Gout, Cachexy, Dropsy, and all those who are afflicted with chronical Distempers; and that all, except Infants, are fit Subjects of this Fomentation: He says further, that it ought to be administer'd in the hottest Days of the Summer, at Sun-rising, on the Shore, in the most fervent Sand, which has deep Pits sunk in it, where the Patient may roll himself, and lie with his Head covered from the Sun-beams, a Covering before his Eyes, and a Sponge, dipp'd in cold Water, held to his Face.

Ætius also mentions this *ἀμμοχυσία*. *Tetrat. 1. Serm. 3. Cap. 9.* as does *Celsus*, Lib. 3. Cap. 21. for the Cure of a Dropsy. *Dioscorides*, Lib. 5. Cap. 167. says, that the Sand on the Sea-shore, heated with the Sun, dries the Bodies of those who are hydropical, if they are covered with it, all but the Head.

Galen made use of this *ἀμμοχυσία*, for the Wife of *Boethus*, labouring under a Fluor Albus, as he writes, *Lib. de Præcog. ad Posthumum*. And *Pliny*, Lib. 22. Cap. 25. tells us, that *Sextus Pompeius* used the same kind of Remedy for the Gout. "He stood, says he, above his Knees in Wheat; and his Feet being thus dried, he found himself wonderfully relieved; from which time he used no other Remedy."

Hen. Stephanus, instead of *ἀμμοχυσία*, reads *ἀμμοχυσία*: it is also called *λαμμοχυσία*. *Goræus.*

AMMOCHRYOSOS, *ἀμμοχρυσός*, from *ἀμμς*, Sand, and *χρυσός*, Gold.

AMMOCHRYSUS, is a Stone sometimes hard, but which generally crumbles betwixt the Fingers like Sand; its Colour is sometimes red, sometimes yellow, intermixed with Spangles of Talc, the Colour of Gold; so that it seems to be mixed with Gold in Powder. This Stone is found in *Bohemia*, and in many other Places. It is only used to put on Writing. *Lemery des Drogues.*

AMMOCHRYSOS is also a Name given to a kind of Mud of a golden Colour, found in the Chanel of certain warm mineral Waters, in *Friseland*. *Castellus.*

AMMODITES, a venomous Serpent, a Cubit in Length, which is its utmost Size, being never described larger. It is of a sandy Colour, and marked all over the Body with black Spots; its Tail is extremely hard, and divided in the upper Part. Some give it the Name of *Cenchria*, that is, *Millet*, because its Tail is hard like Millet. It has wider Jaws than the Viper, and though it resembles that Reptile in many other respects, is easily distinguished by the Colour; for the Viper is yellowish.

The Bite of the Ammodytes is generally followed by speedy Death; but if this does not happen, Blood comes from the Wound, and the Part swells. Soon after Sanies works out, which is succeeded by Heaviness of the Head, and Swooning. Where the Symptoms are most favourable, the Patient does not live above three Days, tho' there are Instances of some who have survived till the seventh Day. The Bite of the Female causes the quicker Death.

Help, in such a Case, is to be sought, first, from the common Remedies, as Cupping and Scarifying the Places all about the Wound; Constriction of the Parts above it, and laying open the Wound with the Knife. Proper Medicines are, Mint drank in Hydromel; Castor, Cassia, and the Juice of Mugwort, taken in Water. Theriaca also is to be taken, and applied to the Hurt; drawing Plaisters are to be used; and after these, such Cataplasms as are proper for the Cure of eating and spreading Ulcers. *Etius, Tetr. 4. Serm. 1. Cap. 25.*

AMMONIACUM, ἀμμωνιακόν. Ammoniac.

The *Arabians* call the *Chrysocolia*, *Lezac Aldeheb*, which signifies the same as the Greek χρυσόκολλα, that is, a Ferrumination [Soldering] of Gold. They gave this Name also to Gum Ammoniac, as *Avicenna*, on the Word *Affac*, assures us; the Reason he shews for it is, because Books and Papers are gilt with it; for it gives a gold Colour to Books and Papers on which it is laid, or is useful in the gilding or laying on of Gold upon the same. This is *Avicenna's* Sentiment; the Gum itself, or Drop, of Ammoniac, he calls *Affac*; or *Azac*. *Alpagus* observes, that among the vulgar *Arabians* it goes by the Name of *Uffac*; and indeed, an antient *Arabian* Botanist, in an old *Dioscorides*, renders the Tree of Ammoniac *Seggar Aluffac*, that is, the Tree *Aluffac*. In *Serapion*, *Raxach* is read, by Corruption, for *Haxach*; the *Spaniards* call it *Aguaxaque*.

Avicenna calls the Tree *Altartub*, or *Altartbut*; the *Greeks* say it is called *Agasyllis*; καλεῖται δὲ ἀπὸ τοῦ ὅτι ὁ ἄμυς ἀγασυλλίς, "the whole Shrub that bears it is called *Agasyllis*." *Dioscorides*, *Pliny*, tho' by Mistake, says it is called *Metopium*. Some other of its Names in *Neophytus*, are νεῖος, and ἡλὶς εἰς; the first of which is an Epithet of *Jupiter Ammon*, to whom they gave the Name of νεῖος; "Ram-horned;" and the Reason of its other Appellation, he says, was because its Tear was much exposed to the Influence of the Sun. We commonly call it *Armoniac*, instead of *Ammoniac*. Some learned Physicians have doubted, whether we have the true Ammoniac of the Antients, and not without Reason; for our Ammoniac has not the Characters by which the Antients describe theirs; and 'tis certain, that Kind of it which they call θραύσμα, or θραυσόν, "such as is in Lumps or Fragments," is scarce to be met with in our Days. The Reason of the Name was, because it was broken after the manner of dry Sorts of Gums, whose Parts did not consist of a tenacious Glue. *Dioscorides*, amongst its Characters, would have it to be "like grumous Bits of Frankincense," λιβανίζον τοῖς χόνδεσις, which *Serapion* erroneously understands with respect to Smell. It was pure and dense, without Sordes; and of a yellow Colour; *Dioscorides* says, ὡχρὸν, "of a good Colour." They called another Sort of it οὖμα, of οὖσις, "mixed or blended;" because it was fat and resinous, easy to be made into a Mass; and full of Impurities from Earth or Sand. This is what we now commonly meet with in the Shops, and the *Greeks* had no other in the Time of *Neophytus*, who accommodating the Words of *Dioscorides* to the Age in which he lived, makes two Kinds of one, speaking thus, Ἐγχεῖται δὲ τὸ ἔυχρον καὶ ἄχυρον, λιβανίζον τοῖς χόνδεσις, καθαρόν καὶ πυκνόν, μηδὲμίαν ἔχον ρυπαρίαν. "Chuse what is of "a good Colour, without Chips, &c." This is the θραυσόν Ἀμμωνιακόν, "the brittle Ammoniacum," of the Antients. He immediately adds, καὶ τὸ ψύγιον, τῇ ὁσμῇ σφοδρὸν, πικρὸν δὲ τῇ γεύσει καλεῖται δὲ τὸ τοῖστον ἐρυμαῖδες. "and the "resinous, of a strong Smell, and a bitter Taste; this Sort is "called the *tractile*." He thought that the Ammoniacum of his Times, because it was resinous, and of a viscous, ropy Fatness, was the same as that of *Dioscorides*, which he would have to be λιβανίζον τοῖς χόνδεσις, "in Lumps like Frankincense;" but this is far from being true; for it is one thing to be ψύγιον, "resinous;" and another thing to be λιβανῖδες, "like Frankincense." This is dry and brittle, the former fat and juicy. Such Bodies as have a Ropiness, and can be drawn out like Pitch or Birdlime, may be called ἐρυμαῖδες, "tractile;" but the θραύσα, "the brittle," are properly such as, being broken, are shivered into small Bits and Fragments, and cannot be drawn into Threads. Thus he made one of two very different things; and, on the contrary, made a Distinction where was no Difference; for he immediately subjoins λεῖωδες ἢ γεῖωδες οὖμα, "the Mixed has Earth or Stones in it." The Ammoniacum of *Dioscorides*, which, he says, is called οὖμα, is the same with the fat and resinous, which, on account of its Viscosity, may be easily worked up into a Mass. *Pliny* has it, *Genera ejus duo*, Thrauston masculi Thuris similitudine, quod maxime probatur; alterum pingue ac resinofum, quod Phyrma appellatur. "There are two Kinds of it, the Thrauston, [brittle] which "is like Male Frankincense, and most valued; the other a fat

VOL. I.

and resinous Substance, which they call *Phyrma*, [a Mixture]. The Tear, which is of a pinguious Ropiness like Rosin, being too liquid to stick to the Tree, falls to the Ground, and there gathers Filth, by taking hold of Bits of Woods, and Sand, and incorporating with them into one Mass. This is the λεῖωδες, "stony," and γεῖωδες, "earthy," Ammoniacum of *Dioscorides*, and the fat and resinous Ammoniacum of *Pliny*, which is called *Phyrma*. What concretes on the Tree, like Frankincense, is not only dry, but pure, and free from Filth. *Neophytus*, who saw no other Drop of Ammoniacum used in his Time, more than what we see now, thought the liquid and the resinous were the same with the concrete, and again separated the viscous and fat from the resinous, which was a Complication of Absurdities. The *Greeks* universally call it Ἀμμωνιακὸν θυμίαμα, "Ammoniac Perfume," because it serv'd them for that Use, tho' it be of a strong and rank Scent. *Dioscorides* says, κασέζον τῇ ὁσμῇ, "smelling like Castor;" *Neophytus*, τῇ ὁσμῇ σφοδρὸν, "of a strong Smell." *Galen* says it has καὶ τὴν ὁσμὴν, "the Smell of Coriander." But I think it should be read κασέζον, "of Castor," instead of which they wrote by way of Compendium, καὶ τὴν ὁσμὴν, "of Coriander." *Pliny*, amongst Odours and Spices, reckons Ammoniacum, with the Juncus, and Calamus Aromaticus, and sweet-scented Moss. But 'tis no more strange, that this Gum should have a Place amongst sweet Odours appointed for Perfumes, than that Galbanum should be reckoned among the Spices, that composed the sacerdotal Perfume, *Exod. xxx. 31.* which consisted of Staete, aromatic Onyche, and Frankincense. In *Hebrew* it is called חלבנה, *Chelbena*, whence comes the Greek χαλβάνη. Galbanum was also an Ingredient in Ointments, and especially in the Ointment of Almonds used among the *Egyptians*, which for that Reason was called μετόπιον, "Metopium," a Name for Galbanum. Of the Ointment of Almonds, the *Greeks* thus write: Ἀργύσιον τὸ τοῦ ἁλίου ἐξευκατέτος μετόπιον ἀπὸ πέντε, ἡγρευσαν, ὅτι χαλβάνην λαμβάνει τὸ δὲ οὖλον ἐξ ἑνὸς καὶ χαλβάνη καλεῖται μετόπιον. "The *Egyptians*, who invented "this Oil, called it *Metopium*, because it contained Galbanum; for the Plant whence Galbanum is generated is so "called." Now the Scent of Galbanum is not much different from that of Ammoniac, if it be true, as *Dioscorides* says, that Galbanum uses to be adulterated with Rosin, husked Beans, and Ammoniac. So that *Pliny* changed Names, when he said, that the Tree of Ammoniac was called *Metopium*, which, according to others, is a Name for Galbanum. Some will have the Tree, that sweats Ammoniac, to be an Herb. The Author of *Actuarius* upon *Dioscorides* has it, Ποῦ ἐστὶν, ὅθεν Ἀμμωνιακὸν θυμίαμα. "It is an Herb which produces the Ammoniac "Perfume." This is rashly offering Violence to the Words of *Dioscorides*. *Serapion*, quoting *Dioscorides* by Name, and seeming to speak his very Words, relates, that they make an Incision in the Root of this Plant, and so extract the Tear; where 'tis plain he took it for an Herb. *Pliny* calls it a Tree, and says; that the Tear distils from it after the manner of Rosin; by which he must mean, that it flows spontaneously. *Dioscorides* calls it; δένδρον γαβνικουίδης, "a ferulaceous Tree," and ἄμυς, "a Shrub;" nor indeed do Frankincense and Myrrh distil from great Trees. There is no mention of a Root in a very antient Copy, tho' the Editions have it thus: Καλεῖται δὲ ἅλς ὁ ἄμυς ὅν τῇ ρίζῃ Ἀγασυλλίς, "the whole Shrub, "with its Root, is called *Agasyllis*." There is no need of a Root here, and no such thing is authorized by this excellent Manuscript. And 'tis downright false, that Ammoniac sweats from the wounded Root of an Herb, as *Serapion* maintains. Authors of the greatest Antiquity declare, that it flowed spontaneously.

In the medicinal Lexicons of the *Greeks*, I find γομφίτην and γομφίον, [Compacter or Fastener] to signify this Ammoniac sweet Gum, in the same Sense perhaps with the *Arabic* Appellation, *Lezac Aldeheb*, which, according to *Avicenna*, belongs to Ammoniac, and is properly that, by which Gold sticks to Gold. Now γομφῶσαι, is "to compact," and γομφῶσι σύνδεσμοι, "Gomphi are the Ligaments," by which Wood adheres to Wood. Wooden Pegs were also called by this Name [Gomphi]. The Glossaries, or Lexicons, have it; γομφίτην, λιβανὸν θυμίαμα, "Gomphites is the *Libyan* sweet Gum;" and γομφίον τὸ θυμίαμα, "Gomphiton signifies the sweet "Gum."

Nicander, in his *Alexipharmacs*, puts Ἀμμώνιον, [Ammonium] for Ammoniacum, in the following Verses:

— ἐν τῷ ἐπαρεῖς

Θάλασσαν βαλὼν χύτρω Ἀμμώνιον.

"Throw into the Pot a sufficient Quantity of Ammonium, "and let it heat." It is corruptly read σκαμμώνιον, [Scammonium] and wrongly understood to be Scammony, that is, the Juice of Scammony; but this the same Author a little before called δάκρυ κάμων, "the Tear of Kamon, [Scammony];

— τὸ τε δάκρυ νεοῦ δάκρυ κάμων.

"and the fresh-expressed Tear of Scammony." Κάμων is put

Y y y y

put for σμάμων, as μάργος for σμάργος, [Maragdas for Smaragdus]. The Juice is σμάμωνιον, "Scamonium," the Herb σμαμόνια, "Scamonia." Therefore Ἀμμώνιον, [Ammonium] and Σκαμμώνιον, [Scammonium] are two different things.

Sal Ammoniac, ἄλας Ἀμμωνιακόν, took its Name from the same Place. The Greeks, especially the more modern ones, in their medicinal Lexicons, are very much divided in their Opinions upon this Subject. The *Saracenic Glossary* of Ephodius renders the Arabic ملح, [Milch] by Ammoniacum. ملح, τὸ Ἀμμωνιακόν ἄλας, "Milch is Sal Ammoniac." Milch is an Arabic Word, which signifies Salt. The Greeks change the Arabic Aspiration into a stronger, and express it by their χ, ch. Thus they say, ἀλχάννα, "alchanna," for alhanna, &c.

Some there are who seem to have appropriated the common Appellation of Salt, ἄλ' ἐξοχὴν, "by way of Eminence," to Ammoniac; of which the old Interpreter of *Avicenna* gives a Hint, by thus expressing his Title: *Of Sal Ammoniac, that is, of Salt*. In the Arabic 'tis *Nuxader*, a Word that has its proper Meaning, and is remote from all Signification of Salt. Of all Kinds of Salt, *Dioscorides* approves of the Fossile [Rock-salt] as of most Efficacy, and among the Fossile, of Sal Ammoniac; so that 'tis no wonder it took the proper Name of Salt on account of its Excellency. Others of the more modern Greeks call it ἄλας τζαπαειδόν, "that is, fossitious Salt;" for τζάπα [tzapa] and τζάπιον [tzapium] signify with them an Instrument to dig with, τὸ ὀρύγιον, [Orygium]; with the *Latins*, *Sappa*, which is a Word we yet retain; and hence comes the Verb *Sappare*, "to sap." *Nicomedes*, the Iatro-sophist, in his Lexicon, has: "ἄλας ἐρυλὴν τὸ γαγχευόν. ἄλας Ἀμμωνιακόν τὸ τζαπαειδόν. ἄλας Καππαδοικόν τὸ Ἀρμένιον. ἄλας ταρχευλὸν τὸ θαλάσσιον." The fossitious Salt is "the same as the Gangrinum, Sal Ammoniac is the Tzapiaricum, the Cappadocian Salt is the same as the Armenian, and the Salt for seasoning is the Sea-salt." You see he distinguishes the fossitious Salt from the tzapiaricum, such as he makes Ammoniac to be; tho' *Dioscorides* makes Ammoniacum to be a Species of fossitious Salt; and, to speak the Truth, the Tzapa of the Greeks is not properly an Instrument with which they dig the Earth, but such as they cut Stones with in Quarries. Sal Ammoniac, we are told by *Serapion*, is pulled out of hard and transparent Stones; for which Reason there is need of a Sappa, [a sort of Pick-ax] to get it out, and to cut it, which Instrument the old *Latins* called *Upupa*, because it has a sharp End like the Beak of a Lapwing. The Glossaries have it, *Upupa*, ὀρύγιον [Orygium]. A very celebrated Physician, and well exercised in these Studies, rejects the Opinion of *Serapion*, principally, on account of his making Ammoniac derive its Name from the Sands out of which it is digged, being concreted into Crufts and Laminæ. The Absurdity of this Opinion may be evinced several ways: First, no considerate Person would derive Ammoniacum, ἀπὸ τῶ ἀμμου, "from Ammos," [the Sand] but ἀπὸ τῶ Ἀμμων, "from Ammon," for the same Reason as Gum Ammoniac, which cannot be thought to takes its Name from Sand, tho' *Pliny* be also of that Opinion. Ἀμμων, "Ammon," himself indeed, took his Appellation from the Sands; but *Regio Ἀμμωνιακή* took its Name from *Ammon*, who had a very famous Oracle in those Parts; and whatever was discovered therein worthy Observation, was called Ἀμμωνιακόν, "Ammoniacum." *Pliny* tells us, that the Ammoniac was dug out of large Caverns. *Levisimus intra specus suos, in Lucem universam prolatus incredibili Pondere ingravescit*. "Though it be very light within its own Caverns, it increases in Weight after a surprising manner when it is produced in open Light." And he gives us his Opinion why it was called Ammoniacum: *Nam & Cyrenæici Tractus nobilitantur Ammoniaci, & ipso, quia sub Arenis inveniuntur, appellato*. "The Cyrenean Territories are celebrated for producing Sal Ammoniac, so called, because it may be found under the Sands." A ridiculous Reason! No, it has its Name from being found in the Ammoniac Region, ἐν τῇ κατ' Ἀμμωνα Λιβύῃ, "in Libya, about Ammon," which was a Part of the Country of Cyrene. Nay, sometimes, not only the inland Parts, but all Libya come under this Denomination. Thus *Stephanus*: Ἀμμωνία ἡ μεσόγειος Λιβύη, καὶ ἀπὸ τῆς πᾶσα ἡ Λιβύη ἕως ἐκείνου τοῦ ἀπὸ Ἀμμων, "Ammonia is midland Libya, and sometimes the whole Country of Libya is so called from Ammon." We may conclude then, that Sal Ammoniac has its Name from the Country *Ammonia*, and not from the Sand; for then it would be called ἀμμικὸς or ἀμμίτης, "ammicus or ammites." *Pliny*, in the same Place, tells us: *Quo Exemplo postea inter Egyptum & Arabiam, etiam squalentibus Locis, ceptus est inveniri detractis Arenis, qualiter & per Africa sitientia usque ad Ammonis Oraculum*. "In which manner they began afterwards to discover it in the Deserts between Egypt and Arabia, by removing the Sands, as they do also in the dry and barren Parts of Africa, as far as the Oracle of Ammon." 'Tis certain, that in the Country of Ammon, where the Soil was all sandy, the Caverns, that were dug under the Sands, yielded

Sal Ammoniac; but in other Places, where was no Sand, it was probably dug out of the Earth, or even from Hills. *Pliny*, Lib. 31. Cap. 7. *Effoditur & à Terra, ut palam est Humore densato in Cappadocia. Ibi quidem cæditur Lapidum specularium modo. Pondus magnum Glebis, quas Micæ vulgus appellat*. "It is dug out of the Earth in Cappadocia, as it is well known, being a condensed Humour. They cut it after the manner of the Lapis Specularis. The Lumps, which they call Micæ, are very ponderous." You will say the Cappadocian is not of the same Kind with the Ammonian. I answer, both are reduced under the Kind ἐρυλὴν ἀλόν, "of fossile Salts," which is *Pliny's* Opinion. *Dioscorides* makes three Kinds of Salt, τὸ ἐρυλὸν, τὸ θαλάσσιον, καὶ τὸ λιμναῖον, "the fossile, [Rock-salt] the Sea-salt, and what comes out of Marshes." But this last may be included under the Denomination of Sea-salt. He comprehends Sal Ammoniac under the fossile Kind, tho' it be in some respects a proper Kind of itself, and of a peculiar Nature, according to the Diversity of Sun and Soil. Observe the Words of *Dioscorides*: *Τὸν δὲ ἀλὸν ἐνεργέστερον μὲρ ἐστὶ τὸ ἐρυλὸν τῷ τε καὶ κινῶς μὲρ τὸ ἀλὸν καὶ λευκὸν καὶ διαφανές, πυκνὸν τε καὶ σμικρὸν τῇ συγκρίσει ἰδίᾳς δὲ τὸ Ἀμμωνιακὸν τὸ γένει, ἐρυλὸν δὲ, καὶ εὐθείας τὰς διαφύσεις ἔχει*. "Of Salts, the fossile is of the greatest Virtue, and of this Kind, in general, what is free from Stones, white and pellucid, and of a dense and equable Substance; in particular, that Sort of it called Ammoniac, which is easy to cleave, and has strait Fissures." Amongst the proper Characters of the best fossile Salt, it is requir'd, that it be white and pellucid. Sal Ammoniac had both these. *Pliny* says of Sal Ammoniac: *Similis est colore Alumini quod Schiston vocant, longis Glebis, neque per lucidus, ingratissimus sapore, sed Medicinæ utilis*. "It is like the scissile Alum in Colour, and is in long Pieces, not pellucid, has an unfavourable Taste, but is useful in Medicine." As to its not being pellucid, I question, whether he is to be credited. *Dioscorides* makes Whiteness and Transparency two Properties of the best fossile Salt, and seems to ascribe them both to Ammoniac. And *Pliny* himself, a little after, says, that the perspicuous, [perspicuum] that is, the pellucid, is the most valued: *Probatur quæmaxime perspicuum, rectis Scissuris*. "The most perspicuous, with strait Scissures, is in Esteem." By perspicuous, we understand the τὸ διαφανές, "Pellucidness," as when we say, perspicuus Amnis, perspicuum Vitrum, "a perspicuous Stream, a perspicuous Glass." Thus the Glossaries: *Perspicuum, διαφανές, διαγυγές*. "Perspicuous, that is, diaphanous, pellucid." Whatever transmits the Image, and can be seen through, as was the way of speaking among the Antients, is perspicuous; so that *Pliny* contradicts himself. He dressed up his Account from several Authors; in one he found, that Ammoniac was like scissile Alum in Colour; this is white indeed, tho' not pellucid, nor appears divided into Fragments like grey Hairs. Hence he imagin'd, that it was in long Pieces, but not pellucid. In another Author he read, that τὸ διαφανές, "the diaphanous," was most valued; this he here renders perspicuous, which is the same as pellucid.

Avicenna gives us three Characters of the best Sal Ammoniac, which are, τὸ ἐρυλόν, "Readiness to cleave," τὸ διαφανές, "Pellucidness," and a Colour like Crystal; which last is so render'd by the Translator, from the Arabic *Albeluri*: *Et melior ex eo, qui est ut Borax, clarus, crystallinus*. "The best of it is like Borax, clear, crystalline." There is nothing of Borax in the Arabic, which is the Word the Barbarians use for *Chrysocola*, a Substance which has no Relation or Similitude to Sal Ammoniac.

In the Arabic Edition, there are three Epithets which *Avicenna* gives to the best Sal Ammoniac. The first answers to the Greek ἐρυλόν, easy to be divided; the second is the Word by which *Avicenna* always translates the διαγυγές, diaphanous, of *Dioscorides*; the third is *Albeluri*, which the Interpreter translates *Crystallinum*, with better Reason than others interpret the Arabic *Belur*, *Beryl*.

But they were led into this Opinion by the mere Sound of the Word, as tho' *Belur* was made out of *Beryl*, by a Transposition of Letters; but the Use of the Word shews the contrary. The best Beryls are of a pure sea-green Colour. The *Chrysoberylli* are another Sort, of a glittering Brightness, that has a Cast of the Colour of Gold. *Bilur*, in Arabic, must signify a white Gem; for the Ammoniac λευκὸν and διαφανές, "white and pellucid," is compared to a bilurine Colour; yet it cannot be crystal; for no such thing is generated in India; but the Nubian Geographer writes, that *Bilur* is found in many Places of India; for Instance, in *Sarandib*, an Island of India, under the eighth Parallel of the third Climate, where he says, they find the best and largest *Albilur*. I am not for rendering this Word *Beryl*, as a learned Translator has done, for the Reasons above-mentioned. I rather incline to the Opinion of those who interpret the Hebrew סבא *Sobam* by *Albilur*, which almost all the Interpreters take to be the Onyx Gem, that takes its Name from its Whiteness, resembling that of a human Nail, though it is said to be of several Colours.

There

There is a sort of Marble also, which goes under that Name for the same Reason. *Paulus Sibentarius* :

Ὅσα τ' ὄνυξ ἀνέκε διαγυζομένη μέλαλλον
Ὀχρεῶν ἐστὶ τιμα.

“Such [Rays] as the Onyx, precious in its Paleness, emitted
“from its splendid Body.”

An antient *Arabic* Version renders βήρυλλον “Beryl,” in the *Apocalypse Bilur*. Certainly if *Bilur* be a Beryl, it must be understood of that kind of Beryl, which is one of the last enumerated Stones, and said to be like Crystal. It can be no other than a crystalline and white Gem, that goes by this Name among the *Arabians*; for that kind of Salt which is commonly called *Sal Gem*, is said, by *Avicenna*, to be like *Albilur*. 'Tis certain that this was white and pellucid; for which reason the *Barbarians* called it *Salem Gemma*, “the Salt of the Gem,” whereas they should rather have called it *Salem gemmeum*, “a Gem-like Salt;” so *gemmeus Miles*, “a Gem-like Man,” in the Play of *Chiefs*, in *Martial*; is put for *vitreus*, “one of ‘Glas,’” which Poet often calls *Glas* by the Name of Gem, on account of its Brightness and Transparency. The Word for *Sal Gem* in the *Arabic* Text; according to the Translator of *Avicenna*, is *Darani*; in which Term I see nothing that answers to the Notion of *Sal Gem*. Does it not come from the *Hebrew* דָּרָה *Dar*, which signifies a *Parian* Stone, and white Marble? Indeed this fofile Salt, which they call *Sal Gem*, is of a Marble-like Whiteness and Splendor. In *Myrepsus* you find σαλιζέμε (*Saltzeme*) for the *Latin Sal Gemma*.

In an antient *Arabic* Glossary I find *Callastica*, which I read *Chalastica*; ὁ χαλαστικός. We know what the Physicians mean by *Chalastica*, which are such Medicines as have a mollifying, relaxing, dissolving, digesting, and resolving Virtue. *Avicenna*, in that Place, seems to enumerate and distinguish the Kinds of Salts by their proper Virtues and Faculties, rather than from any other Difference in Nature, or Place of Growth. The first he mentions has an astringent Virtue, such as is in Nitre: Another, he says, (as he is rendered by the Translator) is of a thin brittle Contexture; and a third excavated; these I don't understand, tho' he uses the same Word *excavated* for a kind of Salt throughout the Chapter. *Apagius*, in his Lexicon, interprets it *Imperial Salt*: What it is I can't say: Perhaps it should be an *Arabic* Word which implies a Faculty of seizing and carrying off, from a Verb of the same Import with the *Hebrew* חָטַף *Hhataph*, which signifies to snatch and carry away by Force. By this, perhaps, he understands τὴν σμυκτικὴν δύναμιν, “the absterfve Virtue,” which exerts itself in carrying off, by deterring and absterfing. An antient *Arabian* Interpreter renders the λίθος μολεβδαέντης, *Lapis Plumbarius* of *Dioscorides*, by a Word which leaves us in doubt whether he meant a Salt of an azure Colour, or the *Armenian* Colour, which he had somewhere read was reckoned; by the *Greeks*, among the Kinds of Salt. Indeed *Zosimus Panopolitanus*, by his ἄλσος κυανὴ Ἀρμενικὴ, “of an *Armenian* azure Salt,” seems to speak of a sort of Paint of that Colour: So *Serapion* informs us, that *Chrysocola* was a kind of Salt. There are also purple Salts, and yellow Salts: Let us suppose then, that *Avicenna* calls the azure Salt by this Name; yet I cannot be dissatisfied with my Conjecture, that the Place should be read by a Word implying the σμυκτικὴν δύναμιν, “absterfve Faculty.” What immediately precedes confirms me in it; for what the Translator renders *rare and brittle*, I would have interpreted *biting*, from a Verb which signifies to bite and corrode. *Pliny* says of Salt: *In medendo verò mordens, adurens, repurgans, extenuans, dissolvens*: “In Medicine it is of a biting, caustic, cleansing, attenuating, and dissolving Quality.”

Avicenna next mentions another kind of Salt, which he calls *Darani*, or *Drani*. The Author of the old *Latino-Arabic* Dictionary, renders it χαλαστικός, “relaxing:” Therefore *Avicenna* gives this Name to a Salt that is endued with an emollient and dissolving Virtue, which *Dioscorides* calls διαχυτικὴ δύναμις, “a dissolving Power;” *Pliny*, *dissolvens*, “dissolving;” such especially is the fofile Salt, or *Sal Gem*; for the bitterest is most effectual in dissolving, which is the Opinion of *Avicenna* himself. He goes on to tell us, that there is another Sort, which he calls *Naphthi*: By this is understood *Naphthi* Salt, which takes its Name from *Naphtha*, a kind of liquid Bitumen; the same, they say, which *Galen* calls *Sodomitic* Salt: I question whether they are in the right; and we are to examine if the Words may not bear another Sense. Perhaps the Author intended that kind of Salt which *Dioscorides* calls ἐσχαραστικός, “escharotic;” *Pliny*, *adurens*, “caustic.” The *Arabians* also call by the Name of *Naphtha*, a Vesicle, Bladder, or Tubercle, from the *Greek* ἀφθα, “*Aphtha*,” which is explain'd τὰ ἐν στήθεσι ἔλκυσ, and φθοῖν, “Ulcerations in the Mouth.” 'Tis certain that the *Greeks* put *Aphtha* for Bitumen; as in *Constantius de Imperio*, πηγὰς ἀφθὰν ἀναδιδέσθαι, “Springs yielding ‘*Aphtha*.’” This a learned Gentleman renders Springs which cause Ulcerations; whereas it means Springs running with liquid Bitumen, or *Naphtha*. So then *Aphtha* is put for *Naph-*

tha; and the *Arabians*, on the contrary, put *Naphtha* for *Aphtha*, which signifies the Vesicle, or Bladder of an Ulcer. Hence *Sal Naphthi*, ὁ ἐσχαραστικός, “escharotic,” which by its caustic Quality raises Ulcers and *Aphthæ* on the Skin; and induces Eschars. *Avicenna* observes nearly the same Order with *Dioscorides*, in assigning proper Qualities to the different Kinds of Salt: Δύναμιν δὲ ἔχουσιν οἱ ἀρρετηνόμενοι ἅλεις πολλὰ χρεῖσεν, συλλήνην τε καὶ σμυκτικὴν, καὶ ἀποκαθαριστικὴν, καὶ διαχυτικὴν ἐπὶ δὲ καλαστικὴν, καὶ ἰχθυώτικὴν, καὶ ἐσχαραστικὴν, τῷ μέλλον καὶ ἡπὶον διαφύεσθαι. “The fore-mentioned Salts have many useful Qualities, being indued with an astringent, absterfve, cathartic, “and discussive Virtue; together with a Power of repressing, “attenuating, and raising an Eschar, being more or less efficacious according to their different Kinds.” The escharotic Salt, then, of *Dioscorides*, is the *Naphthi* of *Avicenna*, render'd literally *Vesicatory*. Tho' the modern Physicians call those scorching Medicines *Vesicatories*, which they will have to be of a milder Kind than Escharotics and Caustics; yet the *Greeks* often confound them, and call those Topics, which raise Vesicles on the Skin, and induce a Crust over the scorched Part, by the general Name of Caustics and Escharotics. 'Tis certain that there is to be found a Salt indued with a Faculty of scorching the Skin, causing an Itching, and raising Pustules. *Strabo* calls such Salts κνησμώδεις ἅλεις, “Itching Salts,” some of which Kind, he says, are to be found in a certain Lake of *Atropatene*, a Province of *Media*, which burns the very Clothes that are washed in it: Λίμνην δὲ ἔχει τὴν Σπᾶντα, ἐν ᾗ ἅλεις ἐπανθενεῖς πηλοῦσιν· εἰσὶ δὲ κνησμώδεις καὶ ἐπαλγέες ἔλαιον δὲ τῆ πάθους ἁλός, ὅδωρ δὲ γλυκὺ τοῖς καλαστωμένοις ἰματίοις, εἰ τις κατ' ἀγροίαν βάλῃσιν εἰς αὐτὴν πλύσας χάρην. “It has a Lake called ‘*Spanta*, in which are Salt Springs, which concrete. These “Salts raise a troublesome Sort of Itching, which is cured by “Oil. The Water burns Clothes that are inadvertently “plunged in it, in order to be washed; in which Case they “have recourse to fresh Water.” *Strabo*, *Lib. II.* That Salt must needs be very scorching and escharotic, or, at least, as the Physicians speak, *vesicatory*. *Vesicatories* are properly such Topics as do not only raise a Redness, but Ulceration of the Skin; with Vesicles and Pustules, in *Arabic*, as I said, call'd *Naphthi*. The *Arabians* commonly insert an N in the Middle of Words; but to this Word, which is taken from the *Greek*, they have prefixed it, saying *Naphtha* for *Aphtha*. *Avicenna* says that *Sal Naphthi* is black, which is the Colour of Gunpowder, in a *Greek* Epigram called *Ethiopian Powder*, which is nearly the Name commonly given to *Naphthi* Salt. *Avicenna* informs us, that it is of that Colour on account of the *Naphthi*-city which is in it: He calls it, in *Arabic*, *Naphthia*, by which I understand a Faculty of burning, and raising a Blister: Thus, in the same Author, *Nitrofa* is Nitrosity; and there are other Words of a like Turn. He says, that it contracts this black Colour from its fiery and adust Nature; and that it loses this Quality when it is burnt; and returns to the Nature of *Sal Gem*. Indeed all Salts, when burnt, lose their Acrimony, and rather acquire a diaphoretic Quality; which is accounted a principal Property of *Sal Gem*: Οἱ δὲ κεκαυμένοι διαφορεῖται μέλλον “Salts, “when burnt, are the more diaphoretic.” *Paulus Aegineta*, *Avicenna*; in the same Place, adds, that the *Indian* Salt was black, not on account of its *Naphthi*-city, like the *Naphthi* Salt, but in its proper Substance. 'Tis doubtful what Sort he here calls the *Indian* Salt: The antient *Greeks* called their *Sugar Indian* Salt, because they found it in Canes, concreted after the manner of Salt. The same Author, *Lib. 4. Cap. Of the Roughness of the Tongue*, in *feverish Patients*, mentions a Salt which was brought from *India*; this appears to be the *Sugar* of the Antients; nor is it strange, that *Avicenna* should reckon this among the other Kinds of Salt, tho' it be of a very different Nature; for thus, under the Head *De Atramentis*, “Of Inks,” he speaks of the *Indian* Colours, because the *Greeks* called them μέλαν Ἰνδικόν, “*Indian Ink*.” Most of our later Writers seem to understand the Passage of *Avicenna*, where he treats of the Differences of Salt, and, among the rest, mentions *Indian* Salt, to be meant of this Salt. For *Brassavolus* writes; that the *Sugar* of the Antients, which themselves inform us was a kind of Salt found upon Canes, was not imported to us at this Time; but that the *Sugar* commonly called *Canduin*, “*Sugar-candy*,” supplied its Place; and that the *Druggists* commonly used, instead of it, I know not what Sort of Drug, which was black on the Outside; because, it seems, the *Indian* Salt of *Avicenna*, as he informs us, was black. But this very thing is the clearest Proof, that the *Indian* Salt, of which *Avicenna* treats in that Chapter, is different from that *Indian* Salt which he mentions in another Place, on the Authority of the Antients, and is no other than *Sugar*: For that *Indian* Salt has the Colour of common Salt, as *Avicenna* himself, in his Chapter *De Asperitate Linguae*, expressly says, And the *Greeks* also tell us, ἅλς ὁ Ἰνδικὸς χρεῖσται μὲν καὶ σφραδίζει ἡμῶν τῷ κοινῷ ἔλκι, γούσσει δὲ μέλιωδους. “The *Indian* Salt, for Colour and “Substance, is like the common Salt, but tastes like Honey.” But the common Salt is not black, but rather white. *Pliny* also tells us, that *Sugar* (which is the *Indian* Salt of the Antients)

rients) was white, and concreted after the manner of Gumis. Therefore *Avifena*, in his Chapter of the Kinds of Salt, must be understood to mean the true *Indian Salt*, not the Sugar of the Antients, which was, 'tis true, a kind of Salt; for Sugar is white, but this Salt of *Avifena* black. *Mesue* also mentions this Salt, and tells us, that the Naphthie and *Indian Salts* are to be preferred before all others. *Strabo*, Lib. 5. relates, from *Clitarchus*, that in *India* there are Quarries of native Salt, where the Salt grows again, like Stones, in many Places. Speaking of the remarkable Things of the Island of *Ilva*, *Τὸ δὲ παρὰ δόξαν ἢ νῆος ἔχει, καὶ τὰ δρυγμάλα ἀναπληρῶσαι πάλιν τῷ χεῖρῳ τὰ μελαλευθέντα, καθάπερ τὸς πλασμαμένους οἰασι τὸς ἐν Ῥόδῳ, καὶ τὴν ἐν Πάρῳ πέτραν τὴν μαρμαρεν, καὶ τὸς ἐν Ἰνδοῖς ἄλλας, ὡς οὐκ κλείεται*. "There is one Thing very remarkable in this Island, which is, that the Pits which are digged are fill'd up again in time; as they say the Canals are in *Rhodes*, and the Marble Quarries of *Paros*, or those of Salt in *India*, as *Clitarchus* relates." *Pliny* writes, that the same Sort of Salt is found in *Oromenus*, a Mountain of *India*, which he seems to take from *Clitarchus*: *Sunt & Montes nativi Salis, ut Indus Oromenus, in quo Lapidinarum modo ceditur renascens; majusque Regum Vestigal ex eo est quam ex Auro atque Margaritis*. "There are also Mountains of native Salt, like *Oromenus* in *India*, where they cut it like Stones out of Quarries, and it grows again; and it yields a greater Revenue to their Kings than Gold and Pearls." But, perhaps, the *Arabians* called this Salt *Indian*, not from the Country, but the Colour; as they say *Indian Myrobalans*, because that Sort is black; and *Indicum Colorem, τὸ μέλαν*, "Ink, *Indian Colour*." However, there are two homonymous Kinds of *Indian Salt* of a different Nature; namely, the Sugar of the Antients, which is the *Indian Salt* of the *Greeks*; and the *Indian Salt* of the *Arabians*.

To return to *Sal Ammoniac*; the *Barbarians* put *Armoniac* for it, as they do *Gum Armoniac* for *Ammoniac*. Hence *Pandectarius* calls this Salt *Armeniac*, as if it came from *Armenia*. I don't doubt that they dig Salt in *Armenia*, but then it is different from *Ammoniac*. At present we don't know what *Sal Ammoniac* is: Some conjecture that it is made of Camels Urine, concreted by Art. This seems probable to a very learned Man, because, as he says, it is imported at *Venice* from the *Eastern Countries*, where are innumerable Herds of Camels: This deserves to be laughed at; true *Ammoniac* comes rather from the *Western* than the *Eastern Parts* of the World; for they dig it in *Ammonia*, a Country of *Cyrenean Africa*. It is of the same Kind, indeed, as *Rock-salt*, and *Sal Gem*; but is supposed to have a peculiar Property from the Nature of the Place. *Sal Gem* is as white and transparent as *Sal Ammoniac*. *Herodotus* says, there are Mountains or Hills of Salt beyond the Country of *Ammonia*, whence they dig Salt, Lib. 4. *Μετά δὲ Ἀμμωνίας, διὰ τῆς ἐξέρους τῆς ἡάμεης δι' ἀλλήων δέκα ἡμερῶν ὁδῷ, κοινῶς τε ἀλλὰ ἐστὶν οὐκοῦν τὸ Ἀμμωνίον*. "Ten Days Journey beyond *Ammonia*, upon the Edge of the Sands, runs a Ridge of Hills of Salt, which is like the *Ammoniac*." Hence it appears, that *Sal Ammoniac* does not take its Name from the Sand, but from the Country *Ammonia*. *Serapion* tells us, that it is extracted from hard and clear Stones; which Expression has been criticized by a very learned Physician, though without Reason; when he informs us, in the same Place, that it is imported from the Country of *Corasan*; this must not be accounted the true *Sal Ammoniac*, which can only be brought from the Country of *Ammonia*, where it is produced, and whence it takes its Name. The *Corasan Salt* is of the same Kind, but not the same with *Ammoniac*. He tells us, in the same Place, that it is of several Colours, as black, white, and party-coloured; but the ancient *Greeks* describe an *Ammoniac* of but one Colour, which is white, and pellucid like Crystal; and in this they are followed by *Avifena*, who reckons but one kind of *Ammoniac*; of which Kind, and of this perhaps the blackest, is what the *Arabians* called *Milch hendi*, *Indian Salt*. *Salmasius de Homonym. Hyl. Iatr. Cap. III.*

Of GUM AMMONIAC (or HAMMONIACUM).

AMMONIACUM (*Gum Ammoniac*) is the Juice of a ferulaceous Plant, (*νάρθηξ*) which grows in that Part of *Libya* which lies about *Cyrene*. The whole Shrub and Root together are called *Agafyllis*.

Chuse what is of a good Colour, free from Chips and Gravel, in small Lumps like *Frankincense*, pure and dense, clean from Dross, smelling like *Castor*, and of a bitter Taste. This sort is called *Thrausma* (Lump or Fragment); but that which is mixed with Earth or Stones, *Phyrama* (*Miscellany*). It is generated in *Libya*, near the Temple of *Ammon*, being the Juice of a ferulaceous Tree.

It has a mollifying, drawing, heating Quality, discutitive of Hardnesses and Swellings. Being drank, it loosens the Belly, and brings away the Fœtus. A Dram of it, taken in Vinegar, wastes the Spleen, and helps the Gout and Sciatica. It gives Relief also in the Asthma, Straightness of Breath, (*ἁρμονιακοῖς*) Epilepsy, and Humidity of the Thorax, if made into an Ecleg-

ma with Honey, or taken in the Juice of *Puisan*. It expels bloody Urine, absterges white Specks in the Eyes, (*τὰ ἐν ὀφθαλμοῖς λευκώματα*) and takes off the Roughness of the Skin. Levigated in Vinegar, and applied, it mollifies the Hardness of the Liver and Spleen. Applied in a Cataplasm with Honey, or mixed with Pitch, it dissolves Tophi generated about the Joints. Mixed with Vinegar, Nitre, and *Cyprine Oil*, for an Acopon, and the affected Parts anointed therewith, it relieves those who labour under Lassitudes, or the Sciatica. *Dioscorides, Lib. 3. Cap. 98.*

Pliny gives much the same Account of it as *Dioscorides*.

In that Part of *Africa* which borders on *Ethiopia*, amongst the Sands, distils the Tear of *Hammoniac*, taking its Name from the Oracle of *Hammon*, near which grows the Tree call'd *Metopion*, whence it flows in manner of a Gum or Resin. There are two kinds of this *Hammoniac*, one called *Thrausma*, like *Male Frankincense*, which is most valued; the other is fat and resinous, and named *Phyrama*. It is adulterated with Sand, as if it were contracted in its Growth; for which reason, that which is in the smallest and purest Lumps bears the highest Price, which is forty Asses (about three Shillings) the Pound. *Pliny, Nat. Hist. Lib. 12. Cap. 23.*

Hammoniac mollifies, heats, discutifies, dissolves. Mixed in Collyriums it clears the Sight, and takes off the Itching, Specks, and Albugines of the Eyes, easeth the Tooth-ach, especially if burnt. Drank, it is good for the Asthma, Pleurisy, Infirmities of the Lungs, Bladder, bloody Urine, Spleen, and Sciatica; and, prepared with an equal Quantity of Pitch, or Wax, and Oil of *Roses*, is a proper Medicine for the Joints and the Gout. Applied with Honey, it ripens Pani, draws out Corns, and mollifies Hardnesses. Prepared with Vinegar and *Cyprian Wax*, or Oil of *Roses*, it is very successfully applied to the Spleen; and with Vinegar, Oil, and a little Nitre, is effectual in Lassitudes, the Parts being thoroughly anointed therewith. *Idem, Lib. 24. Cap. 6.*

Directions for the Management of Gum Ammoniac in Plaisters.

Ammoniac is put in when the Boiling is half over. If the Plaister is prepared for bleeding Wounds, the *Ammoniac* is to be macerated in Wine or Vinegar. If it be a soft Plaister, such as is prepared for the Anus, levigate the Gum in Water, and add it to the other Ingredients, after they are boiled. *Oribasius from Antyllus, Synop. Lib. 2. Cap. 61.*

Ammoniac is to be added in the midst of the Boiling, and if it can be pounded and sifted, put in the finest Powder; if not, let it be macerated in some Liquor, as Wine and Vinegar, if it be to make a Plaister for bleeding Wounds; if for Strumæ or Fistulas, with Vinegar only; if it be for a soft Plaister, such as is prepared for the Anus, let it be in Water, and poured to the rest when they are cooled, to prevent an Effervescence, and then boil them again together. *Aetius, Tetr. 4. Serm. 2. Cap. 25.*

Gum Ammoniac is thus distinguished amongst the Moderns: **AMMONIACUM**, Offic. C. B. Pin. 494. *Raii Hist. 2. 1844.* *Chomel. Plant. Usu. 182. Math. 2. 803.* *Ammoniacum*, Mill. Bot. Offic. 30. *Gummi Ammoniacum*, Schrod. 4. 184. *Gum Ammoniacum*, Park. Theat. 1544. *Ger. 898. Emac. 1056. Dale.*

AMMONIACUM is so called, because the Plant which produced it, was supposed to grow about the Temple of *Jupiter Ammon* in *Libya*. It is a Gum brought to us from *Turkey* and *India*, and is thought to be got from a Species of *Ferula*, there being often Seeds and Pieces of a ferulaceous Plant found amongst it. The best is that which is in little Lumps, yellowish on the Outside, and white within, apt to clog together, free from Dross, and easily dissoluble.

This Gum is opening, attenuating and cleansing, good to clear the Lungs of viscid Phlegm and Stuffings; and therefore of great Service in Asthmæ, and Shortness of Breath; as also in nervous, hysseric, and hypochondriac Disorders; outwardly applied, it is suppurating, ripening, and dissolving, and good for hard Swellings, and scrophulous Tumors. Official Preparations from it, are *Pilule de Ammoniaco magistrales*, and *Emplastrum ex Ammoniaco*. *Miller Bot. Off.*

This Gum contains Plenty of essential or volatile Oil, some Phlegm and Earth.

It resolves, digests, and is aperitive; proper for Hardness of the Spleen, Liver, and Mesentery; opens Obstructions, provokes the Menfes, and is used both internally and externally. *Lemery de Drogues.*

Geoffroy adds it as a good Emmenagogue, when given from a Scruple to half a Dram, and is very proper to be mixed with Preparations of Steel, and Flowers of *Sal Ammoniac*, in Pills or Boles. *Geoffroy.*

Preparations of Gum Ammoniac.

Pilule de Ammoniaco Magistrales: Magisterial Pills of *Ammoniacum*.

Take of *Gum Ammoniacum*, prepared with the Vinegar of Squills, two Ounces; of *Succotrine Aloes*, one Ounce and

an half; of Myrrh, Mastich, and Benjamin, each half an Ounce; of Saffron, and Salt of Wormwood, each two Drams; of Syrup of Wormwood, a sufficient Quantity to make them into a Mass for Pills.

These were not received into any of the Dispensatories of the College before, but seem to be taken from the *Augustane Dispensatory*, where they are ascrib'd to *Querietan* for their Author; the Variation here from that is very little. *Zwelfer* orders so much Vinegar to be used in the Dissolution of the Gums, as not to want any Syrup to bring it to a due Consistence. He also greatly blames the Lixivial Salt in this Composition, not only as foreign to the Intention of the Whole, but because it spoils its due Consistence for Pills, by taking away its Tenacity, and making it crumble, as all such Salts will do, to adhesive Substances. This Composition is given by *Scroder*, much in the same manner as it is continued here.

Emplastrum ex Ammoniaco. The Ammoniacum Plaster.

Take of the strained Gum Ammoniacum, six Ounces; of yellow Wax, and Resin, each five Ounces; of the simple Melilot Plaster, Ointment of Marshmallows, of the Oils of Bays and Orrice, and Venice Turpentine, each one Ounce and an half; of Goose-fat, one Ounce; of Sal Ammoniac, of Briony-root, and the Root of Orrice, each half an Ounce; of Galbanum, and Bdellium, each two Grains: Let them boil together, so as to make into a Plaster.

This hath passed through all the Editions of the *London Dispensatory*, without any great Alterations. It requires a good deal of Care and Skill to compound it well. All the things capable of melting should be so managed together and strained, and the other things sifted in, in fine Powder. But this is not much used, and but rarely made.

Lac Ammoniacum. Milk of Gum Ammoniac.

Take of the purest Gum Ammoniac, three Drams: Dissolve it in six Ounces of Hyssop-water cold, in a cold Mortar.

A Spoonful of this is to be taken frequently in Difficulties of Breathing. *Bates.*

Somewhat different from this is the *Lac Ammoniacum*, or *Emulsio Ammoniata*, Ammoniac Milk, or Emulsion of *Quincy*.

Take fine Gum Ammoniac, three Drams: Dissolve in distill'd Vinegar, half an Ounce; Rhenish Wine, two Ounces; and Hyssop-water, four Ounces: Strain it for Use.

The Dose of this is a Spoonful three or four times a Day, according to the Exigency of Symptoms. It not only expectorates and relieves the Breath that way, but is also good in the Asthma Siccum, or Spasmodic Asthma, where common Pectorals avail nothing, as it has peculiar Influences upon the Nerves themselves.

Of Sal Ammoniac, from the Memoires of the Academy of Sciences.

There is not a Drug more common than Sal Ammoniac; and it is pretty surprising, that we do not exactly know from what Parts it comes, nor after what Manner it is made. Formerly we had it by the Way of *Venice*, which made it believ'd, that it came from thence; but now we know the contrary. It comes from the *Levant*, and probably a great Part of it from *Egypt*; but we do not know from what Province of the *Levant*, nor from what Part of *Egypt*.

Every Chymist knows, that it is an urinous volatile Salt penetrated by an Acid, and he knows how to imitate it. For this there are different Processes, of which *M. Geoffroy* the younger has given a particular Account. 'Tis usual to put one Part of common Salt to five Parts of Urine; most add thereto half a Part of Soot. *Mr. Lemery*, and the late *Mr. Homberg*, put no Soot. This Mixture being put in a Vessel, there is sublimed a white, rarefy'd, farinaceous Substance, of a loose and brittle Contexture, which is the Sal Ammoniac. The Matter which rises by Sublimation under that Form, they call Flowers. But *M. Lemery* asserts, that this is not the Way of making Sal Ammoniac in the Places from whence it comes.

It is form'd into round flat Cakes larger than an ordinary Plate, and three or four Fingers thick, consisting of Crystals like Columns, which are dispos'd in the Direction of its Thickness. This Figure and Disposition are manifestly those of a saline Matter infus'd in Water, and after Evaporation crystallized, and remaining at the Bottom of the Vessel, where it assumes its Figure, which is directly contrary to Sublimation. Besides, the Sal Ammoniac which we make is not dispos'd to take the Figure of the Vessel into which it is elevated,

because it is in farinaceous Flowers, which have very little Cohesion; whereas the Cakes which are sent to us are very hard and compact. In short, if Sal Ammoniac were made in the *Levant* as it is made here in our Furnaces, a vast Quantity of Salt, of urinous Matters, of Wood, Coals, Utensils, and Workmen, would be necessary; and all this, added to the Charge of transporting it, would make this Commodity, which is dispersed over all *Europe*, very dear, whereas it is sold at a moderate Price. For this last Reason *M. Lemery* believes, that Sal Ammoniac is made in the *Levant* with as little Labour and Cost, as Salt in our Salt-marshes, which is as much as to say, that it is made by a simple Evaporation preceded by some Lotions, which serve to purify the Matter. It is possible, that there may be Mines of Sal Ammoniac, as well as Sal-Gem; and there is found some Sal Ammoniac form'd in Mount *Vesuvius*. If there are Earths naturally impregnated with common Salt; and at the same time well water'd with the Urine of Animals, and the Heat of the Sun be very great, it is easy to conceive, that the Fermentation caused by the fervent Heat will unite the Acid of the common Salt with the urinous Salt, and so produce Sal Ammoniac. That of the Antients was probably formed after this manner in *Libya* and *Arabia*. But these Places are not frequented enough at present; so that there is no Care taken to collect the Sal Ammoniac. It was always certain, that several Earths, and old Plaster, have afforded Signs of Sal Ammoniac; and so much the more as these Earths were more smoaky, and the Plaster the older. 'Tis true there is but little Salt to be got out of them, but there is a great Difference betwixt our Sun and that of *Egypt*. Perhaps too it is necessary, that the Earth, which yields plenty of Sal Ammoniac, should be barren, and incapable of producing any Plants which might attract that Salt for their Nourishment. This last Thought gave Occasion to a Notion of *M. Lemery* for making this Salt common in any Country; which is, that it may be extracted from Plants: Some Plants in these Parts are, without all Question, full of it; others are replete with Vitriol or Saltpetre, and, in a Word, with all the Kinds of concrete Salts.

Whatever Truth there may be in these different Conjectures, 'tis very certain, that in those Places whence we have the Sal Ammoniac, the Materials of which it is made must be very plentiful; and it is more than probable, that if it be made by Art, the Operation is very simple and easy. *Hist. de l'Acad. Roy. des Scienc. 1716.*

Of all known Substances there is not one, in my Opinion, that affords so much volatile Salt in a Body as Sal Ammoniac. They mix this Salt with Salt of Tartar, or with Lime, and distilling them with a moderate Fire, extract thence, as every one knows, the Spirit, and the volatile Salt; for the Lime, or the Salt of Tartar, detaining the acid Part of the Sal Ammoniac, give Room for the volatile Part to disengage itself, and to be sublimed. Fifteen Ounces of Sal Ammoniac, mixed with twenty Ounces of Salt of Tartar, afford ten Ounces of volatile Salt, which are two thirds of the Sal Ammoniac analysed; besides which, they extract three Ounces and an half of Spirit. The Caput Mortuum weighs twenty Ounces and an half; that is, half an Ounce more than the Salt of Tartar which was used. Hence it appears very probable, that the three Ounces and half of the Spirit of Sal Ammoniac proceed partly from the Phlegm in the Salt of Tartar, which Phlegm dissolves as much as possible the volatile Salt of the Sal Ammoniac united with a very penetrating Sulphur; for it is not probable, that fifteen Ounces of Sal Ammoniac analysed contain but half an Ounce of Acid. The Salt of Tartar always retains a great deal of Phlegm. How dry soever it appears, it grows very humid; and if it be placed over the Fire in an iron Kettle, in order to be dry'd anew, and used quite hot as it comes off the Fire, before the Air has penetrated it, the volatile Spirit of the Sal Ammoniac can scarcely be disengag'd. *M. Tournefort, Mem. de l'Acad. Roy. des Scienc. 1700.*

Spirit of Wine poured on Spirit of Sal Ammoniac, or Spirit of Silk, immediately produces a very considerable saline Concretion, which in the latter is manifestly separated into thick Concretions of Salt; but in the Spirit of Sal Ammoniac the volatile Salt is extremely divided, so that it is somewhat difficult, at first Sight, to know whether it be a saline or sulphurous Mass: This gave Occasion to name it *Offa Helmontii*; but 'tis soon prov'd to be all saline, for it entirely dissolves by an Affusion of Water: It seems manifestly to discover itself by the intolerable Smell. — *M. Tournefort, Memoires de l'Acad. Royal. des Sciences, 1700.*

Of all Salts Sal Ammoniac most intensely cools the Water in which it is dissolved, whose Coldness equals that of Water ready to freeze. And once indeed it happen'd, while I was dissolving a considerable Quantity of this Salt in Water, that some Drops fell out of the Matrass in which I made the Dissolution, and froze, so that the Straw on which the glass Vessel was placed, being wet, stuck to it for some time: This was in the Summer, when the Weather was pretty hot.

The great Coldness of the Solution of Sal Ammoniac does not proceed from the Difficulty of dissolving it, for it is dissolved with more Ease than other Salt; and Sea-salt, whose Solution is difficult, and very slow, least of all cools its Dissolvent. It seems, on the contrary, as if the Readiness of the Dissolution were the Cause of that exceeding Cold.

Sal Ammoniac is known to consist of a sea Salt, and an urinous Salt, one very easy, the other very difficult to be dissolved.

Among cold Solutions may be reckon'd the Experiment made by the late M. Homburg before the Company, which serves to prove, that the Coldness of Sal Ammoniac is perform'd as follows:

They take a Pound of corrosive Sublimate, and a Pound of Sal Ammoniac; they pulverize them apart, and then mix the two Powders very carefully; after this they put this Mixture in a Matrafs, and pour upon it three Pints of distilled Vinegar. After well stirring it, the Mixture becomes so exceeding cold, that you can hardly hold the Vessel in your Hands for any considerable time in Summer. When M. Homburg made a great Quantity of this Mixture, it was sometimes frozen.

We see in this Experiment a greater Cold produc'd than by a Distillation of Sal Ammoniac in common Water; this Excess of Cold is caused by the corrosive Sublimate, which by itself is not at all, or very little, dissoluble in distilled Vinegar. Hence it happens, that the fluid Parts of the distilled Vinegar having readily penetrated the Parts of the Sal Ammoniac, and having already lost much of their Motion, coming afterwards to engage in the Pores of a Body which they cannot dissolve for want of sufficient Action, soon lose that little Activity which they had left, and fix themselves, if not all, at least the greatest Part of them; and this Inaction of the Liquid excites excessive Coldness.

If on a Mixture of four Ounces of Oil of Vitriol, and one Ounce of Sal Ammoniac, you cast a Spoonful of common Water, at the time when the Fermentation is at its Height, and the Cold the greatest, and the Thermometer descends quickest, the Fermentation ceases, and the Cold very speedily changes to a very considerable Heat, which considerably raises the Liquid in the Thermometer. *M. Geoffroy, Mem. de l'Acad. Roy. des Sciences, 1700.*

M. Lemery had a Salt taken from Mount Vesuvius, which they call natural Sal Ammoniac. It was of a compact Substance, pretty ponderous, and very white, the Inside crystalline; it would not attract much Humidity from the Air, had no Smell, was of an acrid saline Taste, and very like that of Sal Ammoniac. He made several Experiments with it; among the rest, he mix'd it with three times as much Spirit of Nitre, and made an Aqua Regia of it, exactly like what is made of the common Sal Ammoniac. He found it to have several Effects of Sal Ammoniac, and also of Sea-salt. He supposes that his Salt of Vesuvius is no other than a fossile Salt, which is dissolv'd by the Sea, and sublimed to the Top of the Mountain by subterraneous Fires. *Hist. de l'Acad. Roy. des Scienc. 1705.*

A Memoire address'd to the Academy concerning Sal Ammoniac, and by M. Lemere, Consul at Grand Cairo, June 24. 1719.

Concerning Sal Ammoniac, I shall observe, 1. The Matter. 2. The Vessels that contain it. 3. The Disposition of the Furnaces. 4. The Manner of working. And, 5. the Quantity and Use of that Salt.

1. The Matter is pure Soot, and nothing else; but such a Soot as is swept from Chimnies where they burn Turfs of the Dung of Animals fed with Straw, which is the common Fuel in this Country, where they have no Wood. These Turfs, which are impregnated with alkaline and urinous Salts, communicate to the Soot certain Properties which it could not be expected to receive from the Smoke of Wood and Coal, and yet are absolutely necessary for the Production of Sal Ammoniac.

2. The Vessels which contain the Matter are exactly of the Figure of Bombs. They are great round glass Bottles, a Foot and half in Diameter, with a Neck two Fingers in Height. They case over these Bottles with a fat Earth, and fill them with Soot to four Fingers short of their Neck, which continues void and open. They contain each about forty Pounds of Soot, which at the End of the Operation yield six Pounds of Sal Ammoniac. Soot of an extraordinary Quality affords above six Pounds; what is worst, affords least.

3. The Furnaces are built like our common Ovens, except that their Vaults open with four Clefs in a Row lengthwise; upon each Cleft are four Bottles, which are placed in such a manner, that the Bottom of the Bottle being sunk in, and exposed to the Action of its Flame, only the Neck of the Bottle remains exposed to the Air; the rest of the Cleft is stopped up, and well cemented. Every Furnace then contains sixteen

Bottles; and every great Laboratory consists of eight Furnaces, disposed in two Rooms, so that it employs at once a hundred and twenty-eight Bottles.

4. In each Furnace, for three Days and Nights together, there is kept up a constant Fire made of the Dung of Animals mix'd with Straw. The first Day the gross Phlegm of the Soot exhales in a thick Fume by the open Neck of the Bottle. The second, the acid and alkaline Salts, being sublimed, associate towards the Top of the Bottle, where they touch the Neck, and, uniting, coagulate. The third Day the Coagulation continues, depurates, and is perfected. In the mean time the Master makes a little Hole in the Side of each Bottle, a little below the Neck, to see if the Matter be bak'd enough, and if there be nothing more to be sublimed. After he has made his Observations, he stops the Hole carefully with the fat Earth, and opens it from time to time. At last, when the Work is brought to the Point at which it ought to stand, he takes away the Fire, breaks the Bottles, shakes off the Ashes from the Bottom, and takes the round, white, and transparent Mass, of the Thickness of three or four Fingers, that adheres to the Neck, which is what they call Sal Ammoniac.

5. In two Towns of Delta, near one another, a League from the City of Mansouré, there are twenty-five great Laboratories, and some small ones, which make every Year fifteen hundred or two thousand Quintals [Hundreds] of Sal Ammoniac. In all Egypt besides there are but three Laboratories more, two of which are also in Delta; and one in Grand Cairo, which do not produce above twenty or thirty Quintals of this Salt.

Sal Ammoniac is principally used by Whiteners of copper Vessels, Goldsmiths, Casters of leaden Shot for Game, and is a noted Drug with the Chymists and Physicians. Father Sicarà, a Missionary, and an Eye-witness, says they add a little Sea-salt and Urine of Beasts. *Mem. de l'Acad. Roy. des Sci. 1720.*

The Plague at Marseilles having interrupted all Commerce to the Levant, obliged us to have the Drugs we wanted from Holland, among which was the Indian Sal Ammoniac, imported by the Dutch East-India Company. This Sort is made in the Figure of a Sugar-loaf, with the Top cut off; the largest of these Loaves are nine Inches in Diameter at the Base, and three Inches and a Quarter at the Top, and eleven Inches and an half in Height. They are not one solid Mass, but hollow on the Inside towards the Base, and this Cavity forms a Cone seven Inches and an half in Diameter, and about five Inches and an half in Height.

It appears by the Largeness of these Loaves, compared with those of Egypt, that they work up this Salt in much greater Masses in the Indies; for these last weigh fourteen or fifteen Pounds, whereas the others weigh but four or five.

Their Consistence is nearly the same, which shews, that they are produc'd by a Sublimation not much different; and indeed the Difference lies only in the Figure which they take from the subliming Vessel. The Indian Loaf is made in the Shape of a Cone, and it appears to be adapted to the Vessel which contains the Matter, both at Top and by the Sides. There is also Reason to believe, that this Salt is sublim'd after this Form, as the most commodious for so heavy a Mass. We find, in subliming Sal Ammoniac in our Retorts, that it rises in the same manner along the Neck, and there disposes itself in the Form of a Cone.

From the Manner in which I conceive these Vessels are adjusted, it is easy to imagine how it is possible to work a Quantity of Matter in them sufficient to afford fourteen or fifteen Pounds of sublimed Salt; for one might fill the Retort several times during the Sublimation, by an Aperture made on Purpose at the Top, as it is in our tubulated Retorts.

The Loaves of Sal Ammoniac made in Egypt owe their Smallness to their being sublim'd to the very Top of the Vessel that contains the Matter, which is of a Capacity too much limited. The same also gives them the Figure of a Cup turn'd upside-down, for that is the Shape of the Ball or Bomb in which they are sublim'd.

Another Advantage that arises from the Figure of the Indian Sal Ammoniac is, that its Superficies is cleaner, and freer from Impurities, because all the fuliginous Vapours, which rise during the Operation, have a freer Passage to the Top of the Cone, and are readily separated by cutting off that Top when the Loaves are formed.

Around the Circle which terminates the Loaves are the Marks of five or six Holes which were made during the Operation, by way of Precaution, to afford means for the Salt, in subliming, to arrive at the Top, and there solidly to condense, by letting out the rarefy'd Air and Fuliginosities, which might hinder the Sublimation.

The Vessels in which this Salt is sublim'd are of Glass; for I have found Bits of it sticking on the Surface of the Loaves, as I have observ'd them also on the common Sal Ammoniac.

The outer Surface of the Indian Sal Ammoniac consists of a solid Crust, five or six Lines thick in the strongest Part, and insensibly

insensibly diminishing to an Inch and an half from the Base, where it unites with that which immediately encompasses the Hollow of the Loaf. Both the internal and external Crusts are composed of Laminæ, which are transparent, horizontal, and lie very close one upon another. The interior is the most transparent, as being most exposed to the Action of the Fire, which confounds two or three Laminæ together; but in proportion as these Laminæ are distant from the Crust, they lose of their Transparency, and 'tis easy to observe the Number of Strata which constitute the Body of the Loaf.

One may readily know by the Gradation of these Strata after what manner they are formed, and united together by the Sublimation. The first which arise stick to the Sides of the Vessel, where they are harden'd by the Heat of the Reverberatory which covers the subliming Vessel; they afterwards close and thicken by the Accession and Union of saline Laminæ. After this manner is formed the crystalline Crust which covers the whole Loaf on the Outside.

The saline Mass, which is elevated in a great Quantity by the Violence of the Fire, disposes itself all around this Crust like Needles; these are much obstructed in their closing and condensing by the Thickness of the Mass; which being considerably augmented covers the intermediate Laminæ from the Action of the Fire. At last the Point of the Cone is clos'd by the Quantity of Matter which sublimes very briskly; so that the Fire then acts with Vigour on the last Strata that were elevated, and presses and hardens them extremely. And this is what forms the interior Crust, and the void Space about the Centre of the sublim'd Cone. This Space takes also the Figure of a Cone, because the Fire drives the Matter with its utmost Force upwards, and disperses it on all Parts towards the Sides of the Vessel. As it is thinner, and lies closer towards the Base, a Cavity is form'd, which lessens continually as it rises towards the Top, where it ends in a Point, because the Parts could be remov'd no farther.

If you cut a Loaf of Sal Ammoniac in Quarters; you may reckon between the interior and exterior Crusts no less than seven or eight Strata of different Degrees of Density.

As the greatest Thickness is towards the Top of the Loaf; there is Reason for making Holes, as I said, in order to clear that Part, which would otherwise be filled too soon.

To make a Comparison between the *Indian* and *Egyptian* Sal Ammoniac, it appears, that they are of the same Composition; and as to their Qualities, and the Uses to which they are apply'd, there can be no great Difference between them.

That of the *Indies* has the Advantage of being pretty clean from Impurities on the Surface, and having only its Top of worse Alloy than the rest; so that upon the whole Mass there must be less waste than in the *Egyptian* Loaves, which are charged with more Impurities in proportion to their Bigness.

Having been already particular on the Composition of this Salt, I shall now speak of its Decomposition, and first give my Observations on the manner of taking from it the volatile urinous Salt, so well known by the Name of *English Salt*.

'Tis the same Salt which is the Basis of the Sal Volatile Oleosum of *Silvius*, and therefore was always known to the Chymists. It was not call'd *English Salt* because the *English* were the Inventors of it, but only because they made the Use of it more frequent, and, as I may say, brought it into Fashion. Indeed its penetrating, tho' not disagreeable, Smell; besides, its being corrected by different Perfumes, extracted from odoriferous Plants, whence it took their Names, as tho' it really proceeded from them; its dry Form, which render'd it the fitter to be carry'd in the Pocket in little Bottles, with its Use in Vapours and Faintings, brought it in Vogue among the *French*, who are Lovers of Novelties, and especially of what comes from foreign Countries.

In 1700. M. *Tournefort* published in the Memoires of this Academy, that it was possible from fifteen Ounces of Sal Ammoniac to extract ten Ounces of volatile Salt, besides three Ounces of Spirits; but I have found by working on the same Salt, that it contains a much greater Quantity, which I have found means to disclose, and to sublime in the Form of a Salt, hard, thick, and transparent; in Fact, I extract from one Pound of Sal Ammoniac above thirteen Ounces of volatile Salt in a dry Form, that is, above Three-fourths; whereas M. *Tournefort* from fifteen Ounces did not extract above Two-thirds, which yet is more than any Chymist did before him.

It passes for certain Matter of Fact, that Salt of Tartar and Sal Ammoniac, mixed together, emit an urinous Smell; but if you take care first to dry them well, there will neither urinous nor volatile Vapour exhale from them. The Humidity of the Air is enough to moisten the Salt of Tartar, and make it fit to act upon the Sal Ammoniac, which it is then known to do by its Smell. If you take care then to secure this Mixture under Covert from the Moisture of the Air, you may keep it fifteen Days in a Vessel well stopped, and yet no urinous Spirit shall fly off from it; so that to extract the volatile Salt of

a good Dryness from Sal Ammoniac, you must avoid as much as possible too much Humidity.

M. *Lemery* was in the Right to say, that Spirit of Wine was so far from dissolving the volatile Salt, that it contributed much to its Preservation, whereas Water did nothing but resolve it into Spirit. I don't say, that in order to extract the volatile Salt dry as it ought to be, we must absolutely reject every Kind of Humidity; for then we should obtain nothing but simple Flowers, which can never make a solid Mass.

The Method in which I best succeeded was as follows: First, I took Sal Ammoniac the most purify'd, and pulverized very fine; then I took some alkaline Salt, as Salt of Tartar, Salt of Ashes of old Lees of Wine burnt, or some other like it, which have been purify'd by Calcination, Lixivation, and Evaporation; after this I calcined it again, in order to take away its Humidity as much as possible; then I pulverized it, and pass'd it hot through a Sieve. I took care likewise to dry the Sal Ammoniac very well, even till it smok'd. I then weighed Part of it, and three times as much of alkaline Salt, while it is yet hot: In this State the two Salts can perfectly mix without discovering any Volatility; they are put into the Retort, which is stopped very carefully, and there left twenty-four Hours, without any Emanation from them, like what usually proceeds from a Mixture of Sal Ammoniac with Salt of Tartar. I pour into the Retort, for every Pound of Sal Ammoniac, two Ounces and an half of Spirit of Wine, taking care immediately to stop up the Retort very closely, to retain the volatile Salts, which are sure to fly off, as soon as the Humidity, which the Spirit of Wine brings with it, diffuses itself among the Salts.

It is advisable to leave the Whole in a sort of Digestion, tho' in the Cold, and to stir the Salts in the Retort, in order to make way for the Spirit of Wine to diffuse itself, to penetrate, as much as possible, the saline Parts, and to excite a sort of Fermentation. After twelve Hours of Digestion, I unstop the Retort, and adapt to it two Receivers, the first of which has an Aperture at each End, in order to preserve a Communication between the Retort and the second Receiver: The Joints are well luted; and while the Lute dries there is an additional Time for Digestion. Then you put Fire by Degrees, in order to make a very gentle Sublimation by the Heat of the Reverberatory. At first there exhales a little of the Spirit in Vapours; which it almost immediately condenses against the Surface of the first Receiver; what passes into the second remains liquid; and at last all the first Receiver becomes furnished with volatile Salt, which sticks firmly to its Surface in Form of a Crust, and is more or less thick in proportion to the Quantity of Salt which is sublimed.

When no more comes off, the Vessels are unluted, and a Separation is made of the Liquor contained in the last Receiver, and that which may perhaps remain in the first. The Whole together gives back very nearly as much Spirit of Wine as was used. All the volatile Salt takes a dry Form, very solid; except a small Portion of it, which appears like Snow, because found in the Receiver mix'd with Spirit of Wine. There remains yet some volatile Salt in this Spirit; for after some Days it deposits the same in the Form of Needles, as it happens in Crystallizations of Salts under the common Operations. And if this Liquor be again emptied in another Bottle, it will in Length of Time deposit still more Salt like solid Crystals of different Figures; but the first are very fine.

This Salt, as well as other volatile Salts, is capable of Rectification. The most convenient Method for all Sorts of volatile Salts is to rectify them in the same sort of glass Vessel, set in Balneo Mariæ, where the Heat is very gentle and equal; and, on that account, preferable to a Sand-heat.

In making this Rectification, it will be proper to mix with this Salt those essential Oils, with which we would have it perfumed, because by this Method none are communicated but the most subtil and most fragrant Parts.

The Method I have described is also the most proper to determine, to the greatest Nearness, how much of the volatile is contained in Sal Ammoniac, and the Portion of acid Salt, by which this volatile is retained. This will now appear, by comparing the Matter which I used, with the Product of my Operation.

I took three Pounds of alkaline Salt, one Pound of Sal Ammoniac, and two Ounces and a half of Spirit of Wine; the Whole made together a Mass of four Pounds two Ounces and a half.

From this I extracted, in a dry Form, thirteen Ounces and three Drams of volatile Salt, and one Ounce five Drams and a half of Spirit, besides one Ounce and half a Dram imbib'd in the Papers, that I put about the Joints of the Vessel. This makes in all sixteen Ounces one Dram of volatile Salt, from which must be deducted two Ounces and a half of Spirit of Wine, which I used, and there will remain thirteen Ounces five Drams of volatile Matter, which one Pound of Sal Ammoniac yielded by my Operation.

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The Caput Mortuum, which remained in the Retort, weighed three Pounds one Ounce, tho' I had used but three Pounds of alkaline Salt for a Medium; hence I had Reason to conclude, that this Ounce of Overplus was the Weight of acid Salt contained in a Pound of Sal Ammoniac, and which separated from it, in order to unite with a fixed alkaline Salt. Now the sixteen Ounces one Dram of volatile Substance, found in the Receivers, with the three Pounds one Ounce, that remained in the Retort, make but four Pounds one Ounce and one Dram; and all the Matter which I used, weighed four Pounds two Ounces and a half.

Here then I fall one Ounce three Drams short of my Weight. A Waste which must needs arise from the volatile Matter that evaporated; the Loss of which I could not prevent with all my Precautions.

Adding this one Ounce three Drams, to the thirteen Ounces five Drams of volatile Salt; found as well in a dry Form as otherwise, the Sum is fifteen Ounces of volatile Salt sublimed by my Operation. I may then conclude; that in one Pound of Sal Ammoniac there are fifteen Ounces of volatile Salt, united and incorporated by Sublimation, and only one Ounce of acid Sea-salt. This great Quantity of volatile Matter contained in Sal Ammoniac, will perhaps appear a Paradox in Chymistry.

M. Tournefort, who went farther than others, extracted, as I observed, from fifteen Ounces of Sal Ammoniac, but ten Ounces of Salt, and three Ounces of Spirit, which could scarce contain above six Drams of volatile Salt. But besides his not extracting as much volatile Salt as he might have done by his own Method, for want of using a sufficient Quantity of Medium, he took no Account of what volatile Matter might be lost in the Operation.

It might be objected, that this extraordinary Quantity of volatile Salt which I extract from Sal Ammoniac, was not absolutely contained in it, and that it might possibly proceed from the alkaline Salt, which served as a Medium, and was partly volatilized in the Operation.

But since it is impossible to extract the Ammoniac volatile Salt, without an alkaline Medium, must only what is extracted by other Methods, tho' in less Quantities, pass for the Sal volatile of Ammoniac?

Besides, by verifying my Weights, in which I used the utmost Exactness, I found in the Retort the Weight of the Alkali, which I used for a Medium, and one Ounce over and above for the acid Salt, which might be contained in the Ammoniac. There is no Appearance then, that the alkaline Medium was volatilized, because in that Case I should have found the Weight diminished in the Residuum. I cannot think then; that any one will say, that this Diminution was supply'd by the acid Salt of the Ammoniac, which ought to be supposed more than an Ounce to the Pound, since M. Tournefort, who in his Operation extracted much less volatile Matter, found the Weight of the acid Salt to be but half an Ounce, which certainly is not enough for fifteen Ounces of Sal Ammoniac, as he was well convinced; accordingly I obtained almost twice as much from the same Quantity. It is half a Dram of acid Salt for an Ounce, and by the Observations which I have made, it does not appear, that any more can be separated.

For Proof hereof, the Calcination of my Mixture of Salt of Tartar with Sal Ammoniac, afforded me precisely the very Proportion of the same acid Salt, as I had found after Sublimation, as you shall see by what follows:

That I might take all manner of Precautions, I chose two Crucibles exactly alike, in each of which I put three Drams of Salt of Tartar, with one Dram of Sal Ammoniac, such as I had used in my Sublimation, and a proportionable Quantity of Spirit of Wine. I urg'd them with an open Fire, in order to force from them their volatile Salt. Upon weighing the Residuum, I found it, both in this and the other Crucible, augmented exactly three Grains.

On the other hand, I had put in a third Crucible six Drams of the same Salt of Tartar by itself; and after giving them the same Calcination as I did to the others, for it was done at the same Time, and by the same Fire, I found the Residuum diminished just three Grains, that is, a Grain and half for three Drams.

But in the Calcination before-mentioned, of the Mixture of Salt of Tartar with Sal Ammoniac, instead of diminishing a Grain and a half, I found it augmented by three Grains; therefore the Residuum of this Calcination is, in reality, augmented in Weight four Grains and a half.

Now these four Grains and a half can be no other than the Weight of the acid Salt contained in the Body of the Sal Ammoniac, of which it made exactly the sixteenth Part. I can assure you, that Sal Ammoniac is a Compound of such a Nature, that of sixteen Parts there is but one detained in the Medium, and the other fifteen consist of Volatiles, as I had already proved by my Sublimation.

I took but a small Quantity of Matter for Calcination; that I might have the Weight more exact; and the Residuum of this Operation agrees, you see, to the utmost Nicety, with the Weight produced by the Residuum of the Sublimation of a considerable Mass.

This Augmentation of Weight in the Intermedium proceeds from a Portion of the Acid of the Sea-salt contained in the Sal Ammoniac, since from the Residuum of this Calcination, we extract by Lotion a crystallized Salt of a cubic Figure, which is a Shape peculiar to the Crystals of Sea-salt.

If any one now should object, that this Sea Acid, which was mixed with the Ammoniac, might itself, in part, be volatilized, I shall appeal to my Observations, which assure me, that in analysing Sal Ammoniac, every thing becomes volatile, except a sixteenth Part, which is retained by the Medium. M. Geoffroy, Cadet, Mem. de l'Acad. Roy. des Scienc. 1723.

These are the Accounts we have of the Origins of the different Species of Sal Ammoniac. But it is scarcely credible, that so prodigious a Quantity of Soot, as to make fifteen hundred or two thousand Quintals a Year, can be furnished by one Country, especially Egypt, which is a very warm Country, and where they only use Fires for culinary Uses, and at their Bagnios.

We must therefore surely conclude, that the Egyptians, who make Sal Ammoniac, have had the Address to keep their Method of doing it a Secret from the Europeans; and that they make use of some other Ingredients besides Soot.

Very good Sal Ammoniac is certainly to be made without any Soot at all. For I am well informed; that at the Sal Ammoniac Works, carried on some Years ago at Newcastle, the Rule for making it was thus:

Take of the Bittern, that is, the Liquor which drains from common Salt whilst making, one Gallon; and of Urine, three Gallons; let them stand together forty-eight Hours to ferment, and subside; then draw off the clear Liquor, and evaporate in leaden Vessels to Crystallization. Sublime these Crystals, when dry, in proper Vessels, and a very good Sal Ammoniac will be produced.

I am farther informed, that from one hundred Weight of Salt made from the Bittern, commonly sold under the Name of Epsum Salt, and three Hogheads of Urine, fifty-six Pounds of Sal Ammoniac may be procured.

From all these Accounts of Sal Ammoniac, it appears to be a neutral Salt, consisting of a volatile alkaline Salt, and an Acid. The Native seems to be thus generated: When Camels, or other Animals, deposit their Urine in the barren Sands of Africa, the Heat of the Sun, during the Day, makes all the Humidity evaporate; in the Night, the Acid of the Air is attracted by the alkaline urinous Salt, till it is perfectly neutraliz'd, and forms the antient Sal Ammoniac, or Sal Cyreniacus, which would be wasted in Vegetation, if the Soil was not utterly barren.

In Imitation of this, all the different Sorts of Sal Ammoniac are made, by uniting an urinous Salt with some sort of Acid.

But it must be remark'd, that Sal Ammoniac is a very different Substance from most of the Preparations made from it; for as alkaline Salts are mixed with the crude Sal Ammoniac, they absorb the Acid, which renders the Sal Ammoniac neutral; and then the volatile urinous Salts, set free from the Acid, rise in Distillation.

Boerhaave's Character of Sal Ammoniac is, that it preserves all animal Substances from Putrefaction, and its Brine penetrates into the most intimate Parts, and is the noblest Aperient, Attenuant, Resolvent, Stimulant, Errhine, Sternutatory, Diaphoretic, Sudorific, Antiseptic, and Diuretic.

Processes upon Sal Ammoniac from Boerhaave. Sal Ammoniac is neither Acid nor Alkaline.

Into a clean Glass put some very pure Sal Ammoniac, dissolved in three times its Weight of the purest Water, and filtered till it becomes a limpid Brine, and heat it to an hundred Degrees. Into different Portions of this, pour successively Vinegar, Spirit of Nitre, and Spirit of Sea-salt, and there will not appear the least Sign of Effervescence, nor does the Liquor grow turbid. In the Sal Ammoniac, therefore, there is no Alkali. Upon pouring in Oil of Vitriol indeed, there arises some Fume, and some degree of Motion; but this is owing to another Property of it, which will be more conveniently explain'd hereafter; for whilst the Oil of Vitriol lays hold of the latent Alkali of the Salt, it renders the acid Spirit of the Sea-salt volatile. Upon the same Brine, in another Vessel, pour a fix'd Alkali, and there no Effervescence will be excited; but there immediately arises from it a very penetrating, volatile, alkaline Smell. This Salt, therefore, is neither alkaline nor acid.

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REMARK.

Sal Ammoniac agrees with the Salt of our Humours, because it causes no Effervescence, either with an Acid, or an Alkali, tho' upon the Effusion of a fixed Alkali, it presently gives out its volatile alkaline Part, with a very pungent Smell. Nor does this Salt act in the human Body, or any-where else, with an acid or alkaline Virtue, but with the more penetrating one of common Salt. That this is the Case, appears by all its Effects; but by this in particular, that if *Sal Ammoniac* is mixed either with Spirit of Nitre, or *Aqua fortis*, it will communicate to it a Power of dissolving Gold, or convert it into *Aqua Regia*, which nothing can effect but Fountain-salt, *Sal Gem*, and Sea-salt: In this respect, therefore, it is a semi-volatile Sea-salt.

Sal Ammoniac sublimed into Flowers.

Take some *Sal Ammoniac*, reduce it to Powder, dry it, and put a Pound of it into a Cucurbit made of *Hessian Earth*, and almost of a cylindrical Figure. Fix on a very large Head, and close the Joints with Clay and Sand work'd together in equal Quantities. Place them in a Sand Furnace in such a manner, that the Beak of the Alembic may decline a little downwards, that if any Water should come off first, it may run out of the Head into a Bottle applied to the Beak. Let the Cucurbit be covered with Sand, almost to the lowest Limb of the Neck of the Head, and let there be raised under it a Heat of a hundred and fifty Degrees, to be continued till all the Moisture is distilled into the Bottle. Then changing the Bottle, gradually increase the Fire till the Alembic begins to be clouded with a white snowy Substance, and keep it up in that Degree, without suffering it to diminish, for the Space of eight or ten Hours. Let all grow cold, remove the Sand, and take out the Cucurbit and Alembic very gently, lest the Salt in the Alembic should be shaken out. Lay the Cucurbit in an horizontal Position upon a Table; with a Knife take the Lute clean off; wipe off the Sand, Dust, and Lute from the Cucurbit and Alembic; and then whilst they continue in this Situation, very gently draw off the Alembic, and it will be full of a fine, light, sublimed, snowy Salt, of which too there will be a good deal upon the upper Rim of the Cucurbit. All this Salt being removed, and put into a very dry, clean, hot Glass, with a wide Mouth, you will find about the upper Part of the Cucurbit, a white, thick, dense, compact Crust, of the same Salt, but which did not ascend into the Cavity of the Head, but stopp'd and fix'd here. Take this off with the sharp Edge of a Knife, and put it into a Bottle as before. Then very gently turn the Cucurbit upside down over a clean Paper, and there will fall out a pretty deal of the first white Flowers, which dropped off in moving the Vessels, and which, if they are perfectly pure, may be added to the former. At the Bottom of the Cucurbit, there will then appear a few black, saline *Fæces*, which may be shook out, but are of no great Use, yielding only a bitter, black, feculent Matter. When the first Part is pure by itself, it is called the true Flowers of *Sal Ammoniac*, the *Aquila alba Philosophorum*; and the *Aquila Ganymedem in cælum Jovis rapiens in sublime*. The other Salt, which was at the upper Part of the Cucurbit, goes by the Name of *Sublim'd*, or *Rectified Sal Ammoniac*. If the Flowers, or sublim'd Salt, are dissolved in Water, they excite Cold, like the Salt itself. If you dissolve them, heat the Solution, and mix Acids with it, there is no Effervescence produced, except upon pouring in Oil of Vitriol. Nor does it cause any Effervescence with a fix'd Alkali, but immediately emits such a Vapour, as is described above. If you repeat this Sublimation of *Sal Ammoniac*, it gradually rises with more and more Difficulty, till at last it becomes almost fixed, tho' it still retains its former Qualities.

REMARK.

Here we have a Salt of the Nature of Sea-salt, but semi-volatile; for it is not so volatile as to rise with the Heat of boiling Water, nor yet so fixed as Sea-salt. When it is thus purified, it loses that Clearness which appeared, in some measure, in the common *Sal Ammoniac*. By Sublimation, it does not acquire an alkaline Quality, in which Particular, it differs from Salt of Urine; but it remains just as it was, only of a more beautiful Colour. It has this wonderful Property, that whilst it thus rises dry in a close Vessel, it carries up with it almost all fossile, vegetable, and animal Substances; and by this Sublimation, surprisingly attenuates them. Hence it is called the *Pistillum Chemicorum*, as the same Attenuation can scarcely be accomplished by any other means. And if these are sublimed with *Sal Ammoniac*, a considerable Number of times, they at last become fixed with it, and thus often give Rise to the

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finest Medicines, as *Paracelsus* found in Colcothar, rendered very pure by Water, and then rubbed with Sulphur, and sublimed with this Salt.

Sal Ammoniac with Quick-lime, yields a fiery Spirit.

Take some very dry Flowers of *Sal Ammoniac*, put them into a clean hot glass Cucurbit, and pour upon them an equal Quantity of Lime reduced to Powder, as expeditiously as possible, in a dry, hot, iron Mortar, taking care that the Flowers are well covered with the Lime. At the same time have by you a clean dry Alembic, properly fitted for this Purpose, so that the fine exhaling Corpuscles may be immediately confined; for the very Moment, that these two Bodies come to touch one another, though they were at Rest, and inodorous before, there instantly arises a Vapour from them, than which perhaps there is not one more acrid, or violent in Nature. Fixing on the Alembic then, and luting it close, distil this Mixture, with a gentle Sand Heat, into a Bottle, applied to the Beak of the Alembic, and you will by this means have a very small Quantity of a Liquor the most volatile and acrid of any yet known, though not alkaline. If you then increase your Fire to a considerable Degree, the *Sal Ammoniac* will not be sublim'd; but by means of the Lime, the whole Mixture will become fixed; and if it should be afterwards put into a Crucible, and urg'd with the strongest Fire, it will not leave the Vessel, and become volatile: But when it comes to be cold, if it happens to be broken in the Dark, whilst it continues dry, it will emit a Light like Phosphorus.

Dissolve some pure powder'd *Sal Ammoniac* in triple its Weight of Water; then take Quick-lime, triple the Weight of the *Sal Ammoniac*; put it into a large glass Cucurbit a little heated, and pour upon it the Brine of the *Sal Ammoniac*, and clap on your Alembic, and lute it as expeditiously as possible with a thick Lute, made of Linseed-flower, and apply a very large Receiver to be luted with the same. There will suddenly be excited a Heat, Estivation, and most violent Ebullition, diffusing an incoercible Spirit, which would burst the Vessels, unless the Lute a little gave way; for the Impetus of it is so great, that it hisses and blows like a Wind through the Lute, dispersing a Smell all round; and at the same time a Liquor in great Plenty, and with surprising Speed, distils into the Receiver. When this spontaneous Heat of the Mixture is abated; let the Vessels be luted closer, raise a little Fire under them, and gradually distil to a Dryness. Let the Spirit thus produced be stopp'd up very close in a Bottle, and kept under its proper Title. In the Bottom there will remain a new and surprising kind of Body, which being dried with a strong Fire, appears almost of a glassy Nature, but gradually puffs up in the Air, tho' it does not dissolve like *Sal Ammoniac*, but is resolv'd into sandy Grains.

REMARK.

Here is another Instance of an Agreement betwixt the proper Salt of the human Body, and *Sal Ammoniac*; you see a Liquor produced from dry inodorous Bodies, that affects the Organs of Smelling, more than any thing else; you observe also the Generation of Spirits, which are vastly, and, as it were, spontaneously active, in the greatest Degree of Cold; and here you have a Spirit not alkaline, but extremely acrid, and next to Fire in Acrimony. It must be confess'd however, that if this Spirit, as it exhales through the Air, meets with a volatile Spirit of Nitre, they will in Conjunction produce white Fumes. This Process also furnishes us with a new Species of Phosphorus; and here you see a Fixation, in some measure, of *Sal Ammoniac*.

Sal Ammoniac, distill'd with a fix'd Alkali, yields alkaline Spirits, and a volatile alkaline Salt.

Take of the driest Flowers of *Sal Ammoniac*, ten Ounces; place them in a glass Retort, mix therewith of the purest dry Salt of Tartar, reduced to a fine Powder, three Ounces; and shake them well to mix them perfectly: Immediately there will arise a very acrid, alkaline Vapour, for which Reason you must immediately apply a large clean Receiver. Place the Retort in a Sand Furnace, and gradually raise the Fire to the greatest Degree. There will be sublimed a very pure, white, simple, volatile, alkaline Salt, which being impatient of Rest, will fly off as soon as exposed to the Air, and make its way out of Vessels, through almost every thing they are stopp'd with, except Glass. With all Acids, it causes a most violent Effervescence, and combines with them into a neutral Salt of a particular Kind, according to the Nature and Origin of the Acid. This Salt, on account of its prodigious fugacity,

A M M

city, can scarcely be manag'd or restrain'd; nor is it easy to take it out of the Receiver in a solid Form. At the Bottom of the Retort will remain a fix'd Salt, which cannot be sublim'd with the greatest Degree of Fire.

Or, To ten Ounces of the Flowers, add three Ounces of Salt of Tartar; pour thereon nine Ounces of Water, shake them, and distil them immediately through various Degrees of Heat, into a Receiver, accurately luted on to the Retort. Immediately a fine moist Vapour will ascend, which will be quickly congealed on the concave Surface of the Receiver, into a solid Salt, and will proceed in this manner every Moment. When the principal Part of the Salt is thus come over, it will begin to be dissolved by a Liquor less volatile, and more watery, than the former Salt. Then remove the Receiver, and applying another, urge the remaining Salt in the Bottom with a stronger Fire, till it becomes quite dry. This done, take the Liquor, and put it into the former Receiver, and shake it till the Salt is attenuated, and almost dissolved; then put them into a clean glass Vial, which stop very close with a glass Stopple. By this means you will have a Salt at the Bottom, and a Liquor at the Top, which is a true, moist saturated, volatile, alkaline Spirit: But if there remains no solid alkaline Salt at Bottom, it is a Sign that the Spirit is not very much saturated, but watery, and in a great many Experiments will not answer. At the Bottom of the Retort will be left a fixed Salt.

R E M A R K.

The *Sal Ammoniac*, as soon as it comes in Contact with the fixed Alkali in this Operation, is, from the Disposition of its own Nature, and the Assistance of the Fire, divided into two Parts, perfectly distinct, though both saline; one of which constitutes a very acrid, alkaline, igneous, volatile Salt, which is the purest that can be prepared by Art, and at the same time the most simple, and therefore reckoned the Standard of volatile Alkalis; under which the other Kinds may be reduced, and accordingly distinguished. The true volatile alkaline Spirit of *Sal Ammoniac*, therefore, is a Water containing in it as much of the purest alkaline Salt as it is capable of dissolving. To this too, as their Head, may be referr'd all other volatile alkaline Spirits. No other volatile alkaline Salts or Spirits are so pure and simple as these, being all tainted with an Oil, on which account they act in a very different manner. But, in this Property, *Sal Ammoniac* agrees with the Salt of Urine; for that Salt and Spirit cause a sudden and violent Effervescence with all Acids. If a Vessel, containing this Salt or Spirit, is left open, and another set by it, full of strong acid Spirit of Nitre, there is presently excited in the Air a pretty considerable Effervescence, arising from the Concurrence of the volatile Alkali, and Acid, exhaling from the Vessels. If this Salt is applied to the Skin, and so covered with a Pitch Plaister, that it cannot fly off, as soon as ever it comes to be heated, it causes an intolerable Pain, and produces the highest Inflammation, with a black Gangrene of the Part, so that no Poison acts with more Violence. Do those Physicians, therefore, act wisely in recommending this Salt or Spirit to be attracted, by full and free Smelling, to the olfactory Nerves, the *Membrana Pituitaria* of the Nose, and the extremely tender Vessels of the Lungs? A topical Inflammation and Corrosion seem, in such Cases, much to be feared. Both this Salt and Spirit become still more acrid and fiery, if they are sublimed again from a fresh, pure, dry Alkali. *Boerhaave's Chymistry*.

The dry Salt of this Process, is what we usually call

Sal Ammoniacum Volatile: Volatile Sal Ammoniac.

Some, instead of Salt of Tartar, put Lime; and others Chalk, or common Whiting. It is used for Pocket Smelling Bottles; but *Boerhaave*, as we see, with the greatest Appearance of Reason, condemns the Custom of smelling to these Salts, as highly pernicious. Some put Aromatics into the Retort, which gives it a more agreeable Smell. It is prescribed in malignant Fevers as a Sudorific, in the Form of a Bole, with other convenient Ingredients; for it is not fit for Powders, its Volatility soon wasting it: In Pills it will ferment, and it does so in Boles; but there it does not destroy the Form and Conveniency of taking. The Dose is from five Grains to ten.

Ten or twelve Grains of this Salt will saturate half an Ounce of distill'd Vinegar; which, with some simple and compound Water, and a little Syrup, make a Draught not disagreeable, and very useful in Fevers.

The first Process, directed by the College to be made with *Sal Ammoniac*, is the

Flores Salis Ammoniaci: Flowers of *Sal Ammoniac*.

Equal Quantities of *Sal Ammoniac*, and common Salt, are

A M M

decrepitated together, and then sublimed into Flowers, which are very volatile.

The Dose is from six to sixteen Grains.

The *Flores Salis Ammoniaci Martiales*, (chalybeated Flowers of *Sal Ammoniac*) are to be made thus:

Take of *Sal Ammoniac*, one Pound; of the Filings of Steel, ten Ounces: Let them be rubbed together, and distilled in a Retort with a large Neck, in a reverberatory Fire raised by degrees. When the Vessel is cold, sweep out the sublimed Flowers, and keep them in a Bottle for Use. The Dose is from six to sixteen Grains.

These, thrown into *French Brandy*, or common Proof Spirit, make the *Tinctura Martis Myrsiciti*, as now directed by the College; and the *Ens Veneris* is much the same thing, being usually Colcothar and *Sal Ammoniac*, sublimed together.

The *Spiritus Salis Ammoniaci*, "Spirit of *Sal Ammoniac*," is thus made:

Take of Salt of Tartar, and *Sal Ammoniac*, each three Pounds: Powder these separately, and when they are mixed, put them into a large Cucurbit, pouring upon them six or eight Pints of Water: Then distil in a Sand-heat, and the pure Spirit will come over, with a gentle Fire. If this Spirit be rectified in an higher Cucurbit, a most fine volatile Salt will sublime into the Receiver. The Dose is from ten to sixty Drops.

This is also directed various ways, but none easier and better than this: It is also made the Basis of many other medicated Spirits, described at large by some Writers, tho' none of them thought worth Insertion here, because quite out of Use.

Some, to add a greater Quickness of Scent, use Lime for Salt of Tartar, which in external Applications, particularly to the Nose in Swoonings, may be preferable to the other; but in internal Uses cannot be so good. The latter may be known from the former, by its leaving upon the Vessel, in which it is kept, a white Coat. Some (it is said) make it likewise, for Cheapness sake, with Brine, Urine, and Lime; and adding thereto a small Portion of a fetid Oil, which comes over in the making the *Spiritus Cornu Cervi per se*, they sell it for genuine Spirit of Hartshorn.

The Aqua Regia, with which so many Experiments are made, particularly in dissolving Gold, is from *Sal Ammoniac* and Nitre together; tho' it is most expeditiously made, by digesting, in a Sand-heat, *Sal Ammoniac* in Spirit of Nitre, or the double Aqua-fortis, till it be dissolved; but it hath so little Concern in Medicine, as not to require any farther Notice here.

But the most celebrated Medicine now in the Shops, from this Foundation, is the

Spiritus Salis Volatilis Oleosus: The oily Spirit of volatile Salt, generally called *Sal Volatile*:

Which is thus prepared:

Take of Cinnamon two Ounces; of Mace half an Ounce; of Cloves one Dram; of Citron-peel one Ounce and an half; of *Sal Ammoniac*, and Salt of Tartar, each four Ounces; of Spirit of Wine twelve Ounces: Mix and distil in a Sand-heat. The Dose is from ten to a hundred Drops, or more.

This is now become one of the most common Medicines of the Kind; its Invention is not older than *Sylvius de la Boc*, to whom it is ascribed. But though *Sal Ammoniac*, and a lixivial Salt, are the principal Ingredients, yet the Aromatics are so much varied at Pleasure, that very few make it alike: However, now a Standard is given by proper Authority, it ought to be kept to; that a Physician may know what to trust to, when he prescribes it.

But one great Rule, in a Composition of this Intention, seems not to be duly attended to; and that is, in Choice of Aromatics, which should be not only fragrant, but light and volatile in their natural Production; so that such things as the *Marum Syriacum*, Marjoram, Thyme, and the like, seem more suitable Ingredients than Cloves or Mace, whose Oils are too heavy, gross, and adhesive, to rise so conveniently with the *Sal Ammoniac*. The Goodness of this Medicine is judged by its Fragrancy and Quickness of Scent, and Softness to the Taste; for these Properties arise from the Goodness of the Aromatics, and the volatile Salts being covered with them; whereas when they are not good, or not in a sufficient Quantity, the Composition will be urinous, and very disagreeably pungent to the Taste. In making this Medicine with a slow and easy Heat, a great deal of Salt will harden to the Top of the Receiver, which may be scraped off, and preserved for Smelling-bottles, or any internal Uses, where Medicines of such Properties are required;

required; it is both much less caustic, and more cardiac, than the volatile Salt of Hartshorn, which is commonly directed.

The Spirit of Sal Ammoniac is now but little used internally, because the Gratefulness of the Sal Volatile Oleosum gains it the Preference; and this is commonly ordered with Spirit of Lavender, or of Castor, to be dosed out by Drops into ordinary Liquors: And when this is sent in Draughts or Juleps to a Patient, a very necessary Caution is to be observed, which is, not to order it in Company with any red Syrups or Tinctures; because it changes them into a very unsightly green Colour.

These Things are sometimes externally directed in Embrocations; they suit also well enough in unctuous Substances, provided too much Warmth is not given them before they are used, because that will exhale them; and this way they give a more penetrating Quality to Compositions, and agree well with warm Discutients, and such things as are commonly prescribed in Pleuritic and such-like Affections. *London Dispensatory. Quincey's Prelections.*

The *Spiritus Salis Ammoniaci succinatus*, "Spirit of Sal Ammoniac, with Amber," is made several Ways.

Either digest a Pound of Spirit of Sal Ammoniac with an Ounce of Amber; or,

Take Sal Ammoniac, and Amber, each five Ounces; Salt of Tartar, six Ounces; Spirit of Wine, and Spring-water, each eight Ounces.

This is reckoned to be cephalic, and exceedingly well suited to all nervous Indispositions; but it is something unpleasant. Its Dose is from ten Drops to forty.

AMMONIS CORNU, *Ammon's Horn*. A Fossile of an Ash-colour, found in the Shape of a Ram's Horn. *Rulandus* enumerates fifteen Sorts of it.

AMMONITRUM, *ἀμμόνιτρον*, from *ἀμμος*, Sand, and *νίτρον*, Nitre, that is, in *Pliny's* Sense, the lixivious Salt of a burnt Vegetable. *Pliny*.

This is a Mass compounded of Sand, and a fixed alkaline Salt, for making Glass. The Moderns call it *Frit*.

AMMONIUS, a Surgeon surnamed *Lithotomus*, from his inventing a way to cut the Stone, when it was too big to be extracted without Danger of a Rupture of the Neck of the Bladder. His Method was to grapple the Stone, with a Hook, so firmly as to hold it fast, that it might not roll back; then he took a Steel Instrument, of a moderate Thickness, slender, but blunt in its Fore-part; and bringing the Stone to bear in a right Posture, cleft it with a Stroke of his Instrument, being very cautious of wounding the Bladder, either by the Instrument or splintered Stone. *Celsus, Lib. 7. Cap. 26.*

AMMONII COLLYRIUM, otherwise called **COLLYRIUM HYGIDIUM**.

Take of Cadmia, washed, sixteen Drams; Cerufs, washed, a like Quantity; Castor, six Drams; *Indian Nard*, four Drams; Stibium, washed, forty Drams; burnt Copper, washed, fifteen Drams; Roses, twenty Drams; Squama *Aëris* burnt, five Drams; Aloes, six Drams; Cassia, four Drams; Myrrh, six Drams; *Indian Thorn*, three Drams; the Lapis Schistus, four Drams and a half; Saffron, six Drams; Lead, burnt and washed, eight Drams and a half; Opium, three Drams; Acacia, forty Drams; Gum Arabic, forty Drams. Make them up with Water: It is one of the most celebrated Remedies.

It is proper to be used in the Beginning of a Cataract, or Inflammation, and for all kinds of Exulcerations and Purulencies of the Eyes; for a *Conjunctio* and *Chemosis* (see the Words); for a Dislocation of the Bulb of the Eye; for an inveterate Myoeshalon, (a growing of the Tunica uvea over the Sight) and Staphyloma (see the Word); it deterges, incarnates, and heals an Unguis (a Collection of Pus in the Black of the Eye, in the Figure of a Man's Nail). It is an excellent Promoter of Sleep to such Persons as, through Pain of the Head or Eyes, or some other Cause, want that Benefit, supplying the Place of a Paregoric Medicine. It may be used with an Egg, or with Milk, or Water, and made thinner or thicker, as the Patient is more or less delicate of Sensation. *Aetius, Tetr. 2. Serm. 4. Cap. 113.*

AMNA ALCALIZATA, in the Phrase of *Paracelsus*, is Water which runs through Lime-stone, and is consequently impregnated with some of its Particles. *Paracelsus de Tartaro Tractatus C. 2.*

Rulandus calls it **AMNIS ALCALISATUS**.

AMNIOS. The internal Membrane which surrounds the Foetus. It will be impossible to form a competent Idea of the Amnios, without knowing at the same time the Nature of the other Membranes; and their contained Fluids: For, as *Needham* observes, these Subjects are so closely connected, that it would be difficult to treat of them separately: For who could give an Account of the Membranes, or discourse of their Uses, with any manner of Accuracy, if he were not to describe the

Humours contained in them? Or, what better Way can there be to discover the Nature of the Humours, than by a diligent Examination into the Figures, the Vessels, and Connexion of the Membranes?

The Membranes are very different in various Animals, in Number, Figure, and Situation. In some there are three, in others four, and in an Egg we can reckon six; for after we have opened the outer Membrane, which adheres to the Shell at the blunt End of the Egg, we find another of the same Colour and Consistence, which subtends the Cavity, and very freightly embraces the Egg: I doubted a long time whether this latter Membrane was a new one, or a Duplicature of the first; but, at last, I found it was a new one, and might be separated throughout the whole Compass of the Egg. This then being cautiously removed, there immediately appears the Membrane of the thinner Albumen, conspicuous for its Veins and Arteries, if inspected some Days after Incubation. This Liquor being let out, we meet with the Membrane of the Colliquamentum, or Amnios of the Chick, in which the Chick swims. After this come the thicker Albumen, and the Vitellus, invested with their peculiar Membranes; these are under the Chick, in the Bottom of the Egg.

In cotyledoniferous Animals, which may more properly be called glanduliferous, there are three Membranes; and so there are in Sows and Mares: The same Number are in placentiferous Females, and, among the rest, in Woman. All these have only two Humours, which gave Occasion to the great *Harvey* to mistake, in asserting, that the Allantois was nowhere to be found. For my own Part, after I have taken off the Chorion, which immediately contains no Humour, but serves for the Distribution of the Vessels, and for supporting and strengthening the other Membranes, I immediately find what may very truly be called an Allantois; and I have often taken it from the Foetus of Cows, Deer, Swine, and Sheep; and blowing it up like a Gut, have hung it up in my Chamber, to be seen and handled at Pleasure. It was therefore owing to the Imperfection of human Nature, that so great a Man should labour to banish out of all Belief, and the Nature of Things, a Membrane that was viewed, described, and delineated by so many Anatomists. As for *Everhard*, besides his being prejudiced by the Authority of *Harvey*, he had the Misfortune to be concerned with none but those little Animals called Conies; in which, tho' there are four Membranes, as will by-and-by appear, yet they do not readily offer themselves to Sight, except to those who, from beholding the like in larger Creatures, know where to look for them.

In Dogs, Cats, Conies, and perhaps other placentiferous Creatures, there are four Membranes, and three Humours; for I have always hitherto observed, that the Number of Membranes exceeds that of Humours.

In our Account of these Matters, we shall begin with Sheep and Oxen, and other glanduliferous Creatures, as well because the Art itself took its Origin from them, as appears by the Writings of the Antients; and thence the Names were transferred to other Animals, by too strained a Catachresis, as because they are most easily procured, and especially near Shambles, always ready for Inspection.

In these Animals then, we first meet with the Chorion, which, when you have separated the red fleshy Caruncles from the uterine Glandules, appears all over variegated with these Caruncles as with so many Roses. Besides, a great Part of the umbilical Vessels spread themselves over it, and are continued to the before-mentioned Caruncles. These Vessels also scatter Plenty of Capillaries throughout the Chorion, which probably imbibe the Humour, at least secondarily, and for the proper Use of the Chorion; that is, to maintain its Softness and Humidity, without which it would adhere to the Uterus. For tho' in Cows and Ewes, those little Placentas are copiously distributed all over the Membrane, yet, in Does, there are commonly but ten; that is, five in each Wing, which are situated in the lower and narrower Part of it; tho' there are considerable Branches of Veins and Arteries, which proceed as far as the opposite Region of Conception; where, by their Structure, Situation, and Magnitude, they seem to imbibe a Humour. And, in Sows, the Chorion does the Office of the Placentulae before-mentioned, during the whole time of Gestation; for there appears no other way of conveying nutritious Juice to the Foetus. In Mares also, during the first Month, this Membrane is single, and serves for the aforesaid Uses; but in Process of Time, it considerably thickens, and forms fleshy Caruncles of the Size of a small Pea; but these, at last, run together, and are conjoined in such a manner, that the whole Chorion seems to have degenerated into a very broad Placenta, interwoven with Millions of Vessels, which send forth innumerable Capillaries to the internal Membrane of the Uterus, which however remains single. In a Woman also this Membrane is, at first, without a Placenta, which yet soon grows, and connects the Conception to the Womb: When the Placenta is grown, the Chorion itself is best discovered by slightly wounding it with the Hand near the Placenta, and then pulling it off with

With the Fingers; it will appear thick, soft, and interspersed with small Veins; but all the larger Vessels end in the Placentas. The Case is the same in Conies; in Dogs and Cats the Foetus is divided in the Middle, as it were with a Girdle, in such a manner that we must look for the Chorion on both Sides of it, as tho' it were double.

The Use of the Chorion is easily understood, from what has been said: It sustains the umbilical Vessels, and the Caruncles aforesaid, in glanduliferous Animals; and both in these, as well as others who are without Glandules, imbibes a nutritious Juice, in these immediately, in the other secundarily. But in the placentiferous, almost all the greater Vessels direct their Course to the Placenta, and only some minute Vessels disperse themselves in this Membrane; so that the alimentary Liquor it may possibly receive, seems only sufficient for its own Moistening and Nourishment. However, the Chorion, both in these and other sorts of Animals, includes within its Compass all the other Membranes, as well as the Humours, and the Foetus itself, and defends them; but contains no Liquor of its own within its Cavity.

In stripping off this Membrane, you are to be very cautious, that you do not wound the subjacent Membranes. The safest way is to take hold of one of the Caruncles with your Hand, and, lifting it up, cut a small Hole in the adjacent Chorion, large enough to receive two Fingers; then, laying aside your Knife, tear it gently by degrees with your Fingers; carefully observing, all the while, whether any thing of a Duplicature, or a very fine whitish Membrane, offers itself, tho' in an obscure manner, to your Sight; for if there does, it is the Allantois, which it highly concerns you to preserve entire: But when you have proceeded a little farther, it will appear turgid with its own Humour, and render the Operation more easy; but if any Liquor should happen to run out, you may be sure, that there is a Rupture, either of this Membrane, or the Amnios. The Chorion being thus skillfully taken off, the Allantois is, at the same time, in a manner, separated from the Amnios, which may easily be perfected whenever you please, if you have divided them as far as the Cord; but there it is to be left alone with its Urine, till the Amnios and Foetus being opened, you may have Access to the Bladder.

The Amnios is interspersed with Vessels, almost in the same manner as the Chorion, and receives all the umbilical Branches, which do not pass into the Chorion. This being opened, shews you the Liquor in which the Foetus swims; which our famous *Harvey* proved to be absolutely nutritious, both from its Taste and Consistence, and from its being the same as is found in the Ventricle of an Embryo. This Membrane is often over-run with pinguious Concretions, which seem to be gathered from the Liquor within it; and, in a Cow, the Cord of the Embryo near its Root swells with a sort of glandulous Asperities. This is meant of Females with Cotyledons; as for the placentiferous, there is another Method of Dissection, of which by-and-by.

We are now come to the Foetus; and upon opening the Abdomen, we may take a View of the Umbilical Vessels. Here we shall only take Occasion to observe, that the Bladder, being wounded, discharges the same Liquor, in every respect, as is contained in the Allantois; and you may, at pleasure, force this Liquor, by Pressure, from the Allantois into the Bladder; or by fitting a Pipe to the Bladder, blow into the Allantois; nay, even before the Foetus is opened, if you raise the Membrane a little, and squeeze it in your Hand, it will emit the Humour through the Bladder and the Penis; which is enough to prove the Communication between them.

The Allantois deserves a particular Notice, as well because its Existence has been hitherto controverted, as for its remarkable Variety in different Animals. For in the glanduliferous Kinds, as Ewes, Cows, Does, it grows to the End of the Cord, and seems to be a sort of an Elongation and Dilatation of the Urachus, of the Figure of a Gut, and reaching, on both Sides, to the Extremities of the Uterus within the Chorion, and filling the Cornua. In Sows, which are multiparous, and have an Egg appointed for each Foetus, this Membrane reaches to the Extremities of that Egg, and, on both Sides, is shaped like a Gut; whence it took its Name *Allantois*, or *Allantoides*.

In Mares the Case is somewhat different; for this Membrane, in them, is every-where connected with the Chorion, and contains, within itself, the whole Foetus with the Amnios: It shews plain Marks of an Urachus, which seems rather to proceed from the Amnios, and to be a sort of Duplicature of it, folded outward, as far as the Bladder; to which it will easily transmit a Breath, or the Point of a Bodkin. You must look for its Perforation in the Cord, which twisting itself to a remarkable Degree, is, Part of it, dispersed over the Amnios; the rest, united, passes through this Cavity, and is, at last, inserted in the Chorion, and there divided into innumerable little Branches, by which the Chorion is so increased in Thickness, that it seems to deserve the Name of a Placenta. In this Animal also, as well as in glanduliferous Kinds, the frequent Concretions which swim in the Liquor of this Membrane, are worth Observation, which seem, at first Sight, to be Fat, or little Bits of Flesh;

but, pulled abroad with the Fingers, are dilated into a sort of membranaceous Substance, and seem to be Coagulations of a kind of soft and glutinous Urine.

We proceed now to placentiferous Animals, in whom the urinary Membrane is of quite another Figure. In these Kinds then, the urinary Membrane varies according to the Animal: In a Woman it furrounds the whole Foetus, almost after the same manner as in a Mare, growing every-where to the Chorion: In Dogs and Cats it is the same; but its Duplicature, near the Divarication of the Cord, constitutes a Cavity between it and the Girdle, which is designed for the fourth Membrane. Indeed, I judge a Mare to be a middle sort of Animal, between placentiferous and glanduliferous Animals; she agrees with the former, in that the Urine quite furrounds the Foetus, and tho' there be no Placenta in the Beginning, yet, in Process of Time, there grows one to such Dimensions as to embrace the whole Foetus: And, indeed, that thick Chorion almost deserves the Name of Placenta, barely on account of the Veins, which are dispersed over its Substance in as plentiful a manner as in the human Placenta. To this I add, that there is nothing which answers to it on the Part of the Dam, as is usual in the glanduliferous Kinds. However, this it has in common with those of ruminating Creatures, namely, to be connected to the Uterus by carneous Ligaments; and that this Thickness is not considerable before the sixth Month. But this, by this way. The Allantois in Conies is of another Figure, that is to say, pyramidal, and has a Placenta for a Base; whence it grows narrower by degrees, till it comes to the first Parting of the Umbilical Vessels, where it ends in the Urachus; for the larger Membrane, in which the Amnios swims, does not seem to be the urinary, as we shall see by-and-by.

It may be inquired, concerning this Membrane described in placentiferous Animals, whether it be really urinary, since the Perforation of the Urachus is less manifest in them, than in the glanduliferous Kinds. And as to the human Conception, I freely own, that I could never discover the least Sign of such a Canal in the Cord, by any transverse or oblique Section, or torturing it a thousand Ways. But the very same things happen in a Dog, where, tho' I could by no means find out the Duct, I was convinced, that there was a Passage, by frequently transmitting Wind through the same. I confess, that I could never obtain a human Foetus inclosed in the Uterus, tho' I have dissected the Secundines very frequently, and not a few Embryos, where I don't, in the least, doubt but blowing would have succeeded as well as in the others. For I look upon, as Demonstration, that Argument of *Spigelius*, which asserts, that Man must needs be furnished with an Urachus and Allantois, for this Reason, namely, that he is under an equal Necessity with other Animals, of having a Repository for his Urine; this cannot be otherwise than true, as to all Animals provided with a Bladder.

But *Courvoisier* has invented a pretty subtle Distinction, and imagines, that the Allantois belongs only to such Animals as have a large *Intestinum Cæcum*, because of the Compression of their Bladder, which he supposes insufficient to contain its Liquor, the Space being taken up by the Largeness of the *Cæcum Intestinum*; but in other Animals, where that Intestine is but small, there is no need of any such Membrane.

Now, I would advise *Courvoisier* to look upon the Allantois once more, and to measure the Quantity of Liquor contained in it, where he may see whether the *Intestinum Cæcum*, even in Subjects where it is largest, be of Capacity sufficient to contain such a Collection of Waters. 'Tis certain, that the Allantois of a Cow, at the End of Gestation, contains some Gallons of Urine. Let him view the Bladder, either the human or that of a Dog, and consider well with himself, whether it be more distended in these than in other Animals: His Eyes will convince him of the contrary. Therefore if there be any Collection of Urine during the Time of Gestation, it is necessary, that there should be another Reservoir for it; and yet, in a Bitch, not only the *Cæcum* is very small, but the Colon is wanting, that the Bladder may have still farther room to swell, and does not require an auxiliary Membrane to discharge Part of its Office: But since we meet with an urinary Membrane, not only in these, but in other Animals, which have a large *Cæcum*, and a Colon, we have no Reason to believe, that their Presence or Absence has any Influence towards causing any Alteration in the Structure, either of the Bladder or Allantois. Other Arguments may be drawn from the Liquor itself, which shall be reserved for another Place.

To conclude this Head, I shall add, that it is peculiar to this Membrane to have neither Vein nor Artery, that is visible, in its Substance: This I lay down as its Characteristic; for these Vessels disperse themselves either into the Amnios or the Chorion, having nothing to do with this Membrane, or at least are inserted into the Placenta, or Glandules: And in a Mare, tho' some Thousands of Vessels, both great and small, are seen creeping towards the Chorion, and imprint their Traces on it, not a single Branch can we discern to be directed to the Allantois, or there to end; but whatever it contains, is acquired from the Bladder. And tho' in the Foetus of a Cow, it is here and there interspersed

interspersed with a few Capillaries near the Urachus and the Cord, this does not always happen, nor do they ever proceed the Breadth of three Fingers, but vanish in a very short Space. The great *Harvey* writes, that this Liquor belongs to the Chorion, and is, at first, a hundred times the Quantity of the Liquor of the Amnios, but decreases by degrees. But I cannot forbear declaring, that I have observed the quite contrary, and know that this Liquor, which belongs to the Allantois, and not at all to the Chorion, increases every Day, and acquires a more and more urinous Colour, Smell, and Taste, to the very End of Gestation; at which time the Liquor of the Amnios, as he confesses, is almost consumed.

The Use of this Membrane is evident from the Premises, namely, that it is a Reservoir for the Urine; nor can it be of any other Service in an Embryo. But if any one be solicitous about the Nutriment of the Allantois, because I just now said, that it was destitute of Veins and Arteries, he must understand, that this is an Accident common to it, with many other Parts; for the same may be said of the outer Membrane of the Uterus, as well as of the like Membranes of the Intestines, the Stomach, and Œsophagus; as also of the Pleura, and the proper Integuments of the Muscles; which, tho' they have no conspicuous Veins, must be supposed to be furnished with Canals, reaching from the very Orifices of the Veins, since, when they are inflamed in Diseases, the Blood-vessels manifestly shew themselves; as, for Example, in a Pleurisy and Ophthalmy; and these Vessels furnish Nutriment enough for that peculiar Part, being not appointed for any public Office, distinct from the same.

Having finished the Description of the Allantois, it will be proper to take some Notice of another Membrane, which resembles it in Figure, but is appointed for a very different Use. You meet with it in Dogs and Cats, situated under the Girdle, near the Divarication of the Umbilical Cord, where the Vessels begin to separate, and to take their Course towards the Placenta: It stretches itself out in Length in a sort of Cavity, formed by other Membranes meeting there for that very Purpose, and is tied, or in a manner buttoned, to them at its Extremities, by a very white cartilaginous Ligament. As to its other Parts, it no-where closely adheres to the Sides of its Cavity, but hangs almost loose. In the Beginning of Gestation it is large, and full of Humour, containing more than all the rest of the Membranes taken together. It is very plentifully furnished with Veins and Arteries; but, in Process of Time, it decreases by degrees, till, being exhausted of all its Moisture, it becomes so exactly like the little Membrane in the Brain, called the Choroides, as to pass upon the Unwary for the same, when taken out. The Humour here reserved has nothing of Urine, but is something very noble, which is spent upon the Fœtus in the first Weeks, by means of peculiar Vessels: And this is observable of the Dog-kind, and many others, to whom Nature has added a Membrane for Services of the like Kind; tho' it be not always of the same Figure. For,

In a Coney this Membrane is large, and surrounds the whole Fœtus, almost in the same manner as the urinary Membrane in a Bitch; and, at last, forms a Cavity under the Placenta, which seems appointed for the Urine. 'Tis almost in the Form of a Half-moon, and, being inflated, resembles the human Kidney, both in Shape and Size: It is variegated with Vessels, which, if accurately traced, will be found not to meet in a Collection at the Placenta, but to descend to the Cord; and from thence, perforating the Abdomen, to proceed to the Mesentery.

But there is a Question, of no less Difficulty than the former, concerning the Ingress of the Humour into this Membrane, which coinciding with another like Difficulty, usually started about the Amnios, we shall treat of them both together.

Our Account of the Amnios has been almost anticipated in our Discourse on the Allantois, and needs no other Description than saying, that it belongs to all, as well oviparous as viviparous Animals, and is always supplied with Vessels from the Umbilicals; the Liquor it contains is nutritious, and sucked by the Embryo, as was said before. It remains only to inquire by what means it is convey'd thither, as into a Reservoir, in order to supply the future Necessities of the Fœtus; a Controversy sufficiently perplexed, and which *Harvey*, as *Courvaus* writes, quite neglected; either because he saw too much Difficulty in it, or none at all. *Courvaus* himself, and *Everhard*, account for it by a Filtration through the Pores of the Membranes, and tell us, there is a Transudation of the Humour, first into the Chorion, and from thence into the Amnios. But these learned Men should have considered, that there is not the least Humour to be found between the Chorion and Amnios; but whatever there is of liquid in these Parts, is all contained in the Allantois; and if there should be any Filtration from thence, through the Membrane of the Amnios, it is but reasonable, that there should be first a Collection of the same within the Chorion. This Argument is very well urged by *Wharton de Gland.* to which I will subjoin another, that shall amount to a plain Demonstration, as follows: In a Fœtus of the Horse-kind, the Urinary Membrane is every-where firmly connected to the Cho-

tion, and even contains in itself the whole Fœtus, with the Amnios, so that the Amnios swims in the Urine. I prove it to be Urine by the Smell, Colour, Taste, and its Communication with the Bladder by the Urachus. The Case is the same with respect to Dogs and Cats. Now I would ask of *Courvaus* and *Everhard*, whether the nutritious Liquor must pass through the Urine, and so be mixed with it. If they will not grant this, there is scarce any other way but by the Umbilical Cord; for in the Instance alledged, all other ways of Filtration are excluded.

But as to the Umbilical Cord, it is doubted, whether this Humour be convey'd through its Veins into the Blood of the Embryo, and afterwards deposited by the Arteries in the Amnios; or, whether it descends by the Jelly-like Substance of the Cord, and distils through the minute Papillæ, or Asperities, into the Amnios. *Wharton* is for the latter way, which, indeed, seems very probable to one who considers the Fœtuses of the Cow-kind, in which there is a copious and thick Jelly, and whose Cord is turgid, with a kind of glandulous Asperities, in that Part which swims in the Liquor of the Amnios; so that one might readily conjecture, that this Colliquamentum was squeezed from these Glands. But when I consult comparative Anatomy, and examine the Structure of this Cord in other Animals, I am persuaded the thing is quite otherwise. For in the placentiferous Kinds, there is no such Plenty of Jelly growing to the Cord, which, in Man, is thin, and runs out in Length; and must be judged very unfit for any such Use, by every one that sees it. In oviparous Kinds there is no Cord at all, but Vessels which spread over different Parts of the Fœtus, and enter it; some near the Anus, others near the Liver, and the usual Place of the Umbilicus: Nor do they ever gather into a Cord; but when the Time approaches for Exclusion of the Chick, the Left Artery, and Hepatic Vein, perishing, the rest of the Arteries, with the Mesenteric Vein, and the Intestinal Duct, are taken into the Abdomen, to supply the Vitellus: Now that the Colliquamentum of the Chick, with its Membrane, answers to the Amnios of viviparous Animals, is not at all doubted; so that we may reasonably conclude, that they have but one and the same way of receiving the Humour.

It will, therefore, be proper for us to inquire, in what manner the Liquor enters the Cicatrix in an Egg, and extends the fine little Membrane by degrees, till, at length, it becomes capable not only of a good large Fœtus, but also of a considerable Quantity of Liquor.

Whoever views this Cicatrix in the Egg, before Incubation, will perceive it very minute, and suspended in the Membrane of the Vitellus; yet this so small a Tenement entertains an Embryo, and becomes every Day more spacious, till an entire Animal arises thence, and shews itself. After two Days Incubation, as *Harvey* observed it, there will appear in it large conspicuous Circles, as big as the Nail of the fourth Finger: Within these Circles, as the same Author assures us, is contained a Liquor, extremely clear and refulgent, purer than any crystalline Humour, and appearing to be included within its own very fine Membrane, like a Part of the Albumen melted and clarified. He calls it, by a very significant Name, *Colliquamentum*. It increases continually; and on the fourth Day presents you with the Phenomenon of a purplish Border, with a small Line of a Blood-colour, which is continued to the *Punctum saliens*, situated in the Centre. The latter Augmentations are the most conspicuous; but the manner how it increases, is a profound Secret.

Whoever believes it done by Transudation, would do well to consider, besides the Arguments which are brought against this Opinion, from viviparous Animals, and which prove, that there is an Analogy between the Motions of their respective Liquors; I say, besides these Arguments, he would do well to consider, how carefully kind and indulgent Nature has provided for the Secretion of these Humours; and how circumspectly and warily she has, every-where, wrapt them up in fit and proper Coats: So that if, at any time, a Transudation was to happen, it must be made, not thro' a single Coat, but the Humour must break out from its Inclosures, and make its way into the Interstices of two Membranes; and then, at last, enter the Pores of another Covering. But who ever saw any Liquor between these Interstices? Or, to what Purpose did Nature use so much Care and Caution in separating these Humours? Would it not, at least, have been sufficient, that they should have been separated by single Coats, thro' which they might have easily afterwards pass'd? Besides, I would have the Abettors of this Opinion to consider, that when Nature allows an Ingress into a Membrane, thro' Pores of this Kind, she does not permit the Egress thro' the same Pores; so that the Humour which entered one way, must go out by another, and pass forward to another Membrane, which would render the thing void and ineffectual: The Ducts, all this while, which lead from Membrane to Membrane, are not as yet conspicuous; nor are there sufficient Reasons suggested for suspecting them; 'tis therefore incumbent upon us to cast about, and look out for some more rational and satisfactory Hypothesis.

What my own Sentiments are, I shall now inform the Reader: That minute Animalcule, which I imagine is generated in the first Conformation of the Egg, and lodged in the Cicatricula, contains a spirituous Liquor in its Vessels. This Liquor is precisely the same with that which *Glissoni* so often distinguishes by the Name of *Spiritus Vitalis*, or the vital Spirit. This Liquor, upon the Approach of Heat, takes up more Space than it did before, and so passes off through the Extremities of the Vessels; and whatever Part either of the White or the Yolk it falls upon, it colliquates and melts it. By this means the Part on which it falls, is render'd so fluid, that it is easily incorporated with the above-mentioned Spirit, and together with it received into the Mouths of the Veins, which are not as yet red, and so passes to the Fœtus in greater Abundance than is requisite, either to nourish its Body, or to saturate the Blood; by which I mean the fore-mentioned Liquor. The Blood being thus impregnated with this Spirit, deposits it in the Arteries, which are inserted into the Coat of the Colliquamentum, after the same manner as the Arteries are inserted into the *Amnios* of viviparous Animals; so that the Coat of the Colliquamentum is not only distended with this Juice, but deposits and lays up within itself the far greater Part of it as proper Store for the Fœtus. These things appear very plainly in an Egg, and unless there be some Foundation for a different Set of Occurrences in viviparous Animals, I see no Reason why they should not likewise happen in them. It is not at the same time to be deny'd, but this Hypothesis stands chargeable with many Difficulties, and lies open to some considerable Objections; two of the principal of which I shall only consider, since I imagine the rest so nearly link'd to them, that they must stand or fall according to their Fate.

The first concerns the Mixture of the nutritious Juice with the Blood, which yet must be separated from it, and afterwards received into the Stomach, in order to be reunited with the Blood.

The other Objection respects that *elective* Motion of the Liquor, which carries it to make its Ingress by the Vessels dispersed in the Albumen and Vitellus, but its Egress by those which are distributed over the Membrane of the Colliquamentum.

To the first it may be answer'd, That the very same Juice which serves for Nutriment in the Fœtus, was once intimately united with the Mother's Blood at least, after it had undergone the first Concoction in her Stomach; which granted, I don't see what Inconvenience will follow, if it should pass from the Mother's Blood into that of the Fœtus, and there leave whatever is fit to be immediately converted into Blood, without any farther Concoction or Fermentation. The rest may be repositied within the *Amnios*, as Matter for future Nutrition, to make its Passage through the Stomach, and there to be digested. This will appear the more probable, if we consider, that here is no Retrogradation of Nature, or Degeneration of Blood into a chylous Matter, but a Transfusion of alimentary Liquor for the Support of an Animal; which is no more than what happens in the Mother, both with respect to the Humours of the Uterus, and the Matter which forms the Milk.

To the second Objection I answer, That such elective Motions are found every-where in the animal Economy, with regard to the Distribution of Aliments as well as Excrements. So Milk always flows to the Breasts, the Humour we speak of, to the Uterus, Bile to the Liver, Serum to the Kidneys. The Reasons for this similar Attraction, I am incapable of giving, but believe they are to be reduced to Pulsion; but it is sufficient for our present Purpose, that such a Motion there certainly is, whatever be the Cause.

From what has been said, we may draw a Solution of another Question, which has been lately started, concerning the Use of the fourth Membrane belonging to the Dog-kind. The Answer is, That the Liquor there collected is deposited in that Place, as in a Reservoir for the Use of the Fœtus.

So much for the Membranes and Ducts. We shall add a few Words concerning the Humours.

All the Humours, let them be as many as they will, or in whatever Animal found, are nutritious, except only the Liquor of the Allantois. A great Part of viviparous Fishes emit an Egg of only one Colour, and including, as far as can be discern'd in so minute a Body, only one Humour. But the Method of Nature in their Generation, I confess, is unknown to me. But there are some Fishes which lay an Egg of two Colours, and consisting of a single Albumen and Vitellus; as the Ray. The Eggs of Birds, for the most part, include within their Shells three nutritious Substances, conspicuous to the Eye, for the Use of the Chick, that is to say, a Vitellus, and a double Albumen inclosed in Membranes. But after Incubation, we meet with a fourth, formed from a Colliquation of the others; and, by *Harvey*, very properly called *Colliquamentum*. I say nothing of the Chalaza, which is not properly a Humour: much less are the Seed of the Cock, or the Principle of the Chick, to be so accounted, but only Props to the Vitellus, which is suspended in the Centre of the Egg. But the Colliquamentum, though it appears to Sight as if it were

transferr'd thither from some other Place, most certainly owes its Original to the Liquor contained in the Cicatricula. I don't here inquire, whether this be the Liquor which forms the Chick, or rather the Blood of the Chick already formed; but we know, that from hence are extended Vessels, which being affixed to the other Parts, especially the Albumina, attract the attenuated Humour, and refund it into the common Receptacle, in the manner just now explained. So the tender Embryo goes on waisting his Provisions, till the Albumina being consumed, the Vitellus comes to be included in the Abdomen of the Chick, just before its Exclusion; and from thence by a peculiar Duct is carried into the Intestines, where it supplies the want of Breasts to those little Creatures, and affords them all their Nourishment till the twentieth Day.

In viviparous Animals there are sometimes two, sometimes three Humours. The first is immediately received from the Placenta into the Veins, and forthwith goes to the Use of the Fœtus. The others are also received into the Veins, but are afterwards distributed by the Arteries into the Cavities of peculiar Membranes. In glanduliferous Animals, as also in the Swine, and the human Species, there is but one Humour, which is lodged in the *Amnios*: That this Liquor is nutritious, has been proved from its being the same as is found in the Stomach. It is thin at first, but in Length of Time grows remarkably thick, especially in the larger Kinds. Besides, there is found in all of them an Urine in the Allantois, of which I have given an Account.

Besides these, there is in Dogs, Cats, and Conies, and perhaps in some other Kinds, a third nutritious Liquor. I have already described the Membranes in which it is included, and now come to speak of the Thing itself. Indeed the admirable Variety in which Nature sports, surpasses our Understanding, nor can I find out a probable Reason why a third nutritious Liquor should be more necessary for these Animals than for others. Rumination affords no Help in this Controversy, for a Horse is as much destitute of it as ruminating Creatures; nor is eating of Flesh to be regarded, for a Coney has it, while the Swine and the human Kind are without it, if Man is really to be accounted among carnivorous Animals, which is to be doubted; for tho' after the Deluge he obtained a Licence for eating of Flesh, he seems naturally constituted for living upon the Fruits of Vegetables, as appears from sacred History, and the Structure of the human Body. He has neither Teeth nor Nails like those of voracious Animals, nor any thing else in common with them. And as for the Swine, tho' he loves well enough to feed on Flesh, yet he is naturally more intent on turning up of Roots, and consuming of Fruits. But what shall we say of the Coney, a Creature that feeds on Grass and Herbs? I know not, for my part; and yet it might be suggested, that the Male Coney would almost constantly devour the young ones, if the Dam did not hide them; and, in reality, if the Coney be compared with the Rat or Mouse, both of them carnivorous, there will be found no great Dissimilitude as to their Membranes and Placentæ. But this is merely problematic, and too slight a Foundation for an Hypothesis. However it may be safely affirmed of these Animals, that they are next akin to oviparous ones, in which an Artery and Vein proceed from the Mesentery, and are appropriated to a particular Humour. But there is this Difference, namely, that the Vitellus, to which these Vessels belong, is consumed in the last Place, whereas, on the contrary, this Liquor in Dogs, &c. is the first that passes into Nutriment; and though it be copious in the Beginning of Gestation, yet before the Birth it is all gone, and not a Drop of it left in the Membrane. Hence, upon a right Computation, we shall find, that these Vessels answer to those of the Vitellus, and the Humour contained in them to the thinner Albumen; for the first Humour serves for Nutriment to the Embryo, and to increase and strengthen its tender Stamina, till it becomes more firm, and able to digest a thicker Juice.

However this be, we shall proceed in our Discourse on this and the other nutritious Liquor, and say somewhat also concerning the Urine. This last is known to be separated thro' the Kidneys and the Bladder. The others proceed also from the Blood, and very much resemble its Serum. And yet they are so far remote from the Nature of the sanguineous Serum, that being held over the Fire in a Spoon, they will not coagulate, as the other constant does. Nor will even the Colliquamentum of the Egg itself concreate by this means, though constituted of Juices evidently liable to Coagulation: So much do the Humours differ from themselves, when consider'd before and after Digestions, Percolations, and other Ways of Nature's Cooking. All these Liquors, in Distillation, afford a soft, smooth Water, very like distilled Milk; and this Property belongs to the Liquor of the Allantois as well as the rest; for as yet it remains in the mild State of the Serum of Blood, not having its Salts exasperated and exalted, nor betraying any Marks of a tartareous or saline Quality; even the very Nurfes observe, that the first Urine of Infants is not in the least salt. But in the larger Kinds of Animals, while I was passing this Juice through an Alembic, there seem'd to me to appear a small

small Quantity of volatile Salt in the Head. Coagulations attempted by Acids, succeed variously according to the Variety of the Humours. The Liquor of the Amnios of the Neat-kind, after a Decoction of Alum injected, exhibited but few Coagulations, and those very tender, but of a remarkable Whiteness. The Juice of the Allantois only became turbid like Urine; Spirit of Vitriol and Vinegar had less Effect on both of them, than Alum.

There are also spontaneous Concretions in the last Months, which are found in both the Humours, but larger and more frequent in the urinary Membrane; which was the very thing that formerly suggested to me an Occasion for reckoning this Juice among the nutritious ones, as tho' it did not pass from the Bladder to the Allantois, but from the Allantois to the Bladder, and from thence through the Penis into the Amnios. But after long and various Contemplations on its Colour, Consistence, Smell, and Taste, in different Animals, I am convinced, that it is nothing but Urine, in all of them. But it seems to be consequent from the Nature of Concretions, that the Urine of sound Persons brings off with it some of the nutritious Juice, which the famous Willis very ingeniously conjectures to be the Matter of the Hypostasis. This is done much more copiously in an Embryo, where the Blood is full of such Corpuscles, and consequently sends off more with the Urine, which, after long Maceration in the Urine, concrete, and represent such a sort of Substance.

This more frequently happens in the Urine than in the Liquor of the Amnios, because this latter undergoes continual Alterations, Part of it being still consumed by the Fœtus, and the rest mixed with new, so that the whole Juice is renewed in a short Space of Time; whence it appears, that it does not stay long enough to form Concretions.

But even here are also found adipous Coagulations, which, for the most part, adhere to the Membrane itself. Urine, on the contrary, tho' it has fewer Particles of this Kind, which are the Matter of the solid Parts; yet it preserves them from their first Entrance to the Birth, and by a continued Concoction at length condenses them.

Nor are these Membranes the Receptacles only of Liquors, but contain also a good Quantity of Air. This is abundantly evident to those who are accustomed to dissect these Parts, and frequently lift those soft Membranes with their Hand, whilst not at all distended, and find considerable Cavities between them and the Humours they contain, which must not be supposed to be a mere Vacuum. Besides, the Crying of the Child declares the Presence of the uterine Air, without which it seems impossible for a Sound to be excited. Indeed I could hardly be persuaded of the Truth of these Cryings, before I had the following Relation from a very noble Lady in *Cheshire*. This illustrious Person sitting with her Husband, the Chaplain, and other Company, in her Parlour, after Supper felt a strange Commotion in her Belly, which shook her Cloaths to such a Degree, that it was perceived by the Attendants. She was with Child, and in the eighth Month of her Term. On a sudden a Voice was heard; but whence it should proceed, having no Suspensions of the Unborn, they were at a Loss to conjecture. Soon after, the Lady was seized with a second Disorder, and a visible Concussion of her Belly and her Cloaths, and a Cry was heard as if it proceeded from thence. While the Company stood wondering, and talking to one another about this strange Event; the same was renew'd the third time with all its Circumstances, and the Crying heard so plain, that the People, who were now very attentive, could no longer doubt whence it should proceed. The young Lady, who was so audible in the Womb, is now living, and in a good State of Health. I could not but believe a matter of Fact so well attested, nor avoid publishing it, especially since it is of so great Moment in the present Controversy. Granting this to be true then, I know not how to account for it, without admitting Air to swim on the Liquors within the Membranes, when they were raised by the Head of the leaping Fœtus, and separated from the Superficies of the Humour.

But why should we account the Crying of the Child in the Uterus a Prodigy, when we so frequently hear the Chick peeping in the Egg, as well before the Shell is broken, as afterwards, the Membranes still remaining entire? *Needham de formato Fœtu.*

Monroe in the *Edinburgh Medical Essays*, has a long Dissertation of the Nutrition of the Fœtus, wherein he endeavours to prove, that none of the Liquor of the AMNIO enters the Stomach of the Fœtus for its Nutrition.

From the Memoirs and History of the Royal Academy of Sciences.

The Amnios is a very fine, transparent, and soft Membrane, of an uneven Surface on the Outside, but sleek and smooth on the Inside. It incloses the Infant, the Navelstring, and the Waters, is one of the Membranes that covers the Placenta, and ends at the Navelstring, near the Place where the Vessels separate. *Memoirs de l'Acad. Roy. des Scienc. 1714.*

With regard to the Waters inclosed in the Amnios, it is impossible for the Child to suck them in for want of Respiration; besides, they are too clear, and too like Urine, to serve for its Nourishment. They are of Use in preventing the Weight of the Child, and the Inequalities of its Body from bearing hard on the Neck of the Uterus, in its Situation in the Uterus. They defend the Child from receiving Hurt when it moves, and also prevent it from adhering to the Amnios. *Ibid.*

Some experienced Anatomists have taken great Pains, tho' to little Purpose, and stretched their Imaginations to discover by what ways the Liquor of the Amnios is conveyed over the urinary Membrane.

M. Tawry had recourse to a new Expedient. He supposes, that the Cavity of the Amnios was full at the very Beginning of the Formation, when as yet the Fœtus had no Urine to transmit to the urinary Membrane.

The Amnios being full, and the Fœtus grown stronger, the urinary Membrane begins to fill in its Turn; and the Amnios receives no fresh Supply, but keeps what it has in Reserve, dispensing by little and little what is necessary for the Nourishment of the Child till the Time of its Birth. An Observation which confirms this Conjecture, is, that the Amnios is less full, and the urinary Membrane fuller, in proportion to the Advancement of the Fœtus. If this be not a Contrivance of Nature, it is mysterious and fine enough to deserve it should be so. *Hist. de l'Acad. Roy. des Scienc. 1699.*

Over the middle Membrane comes the Amnios, which adheres to it in all its Extent, and in so close a manner, as to require some Pains to separate them. This makes me believe, that there is no such thing as Urine between the two Membranes, as some Authors have imagin'd; for if there were any Urine, which is dissipated at the Birth, there could be no such Adhesion between these two Membranes. The Cavity form'd by the Amnios contains a Liquor, in which is the Fœtus with its Cord; so that the Amnios does not immediately inclose the Child, as some have asserted. *M. Roubaux in Mem. de l'Acad. Roy. des Scienc. 1715.*

AMNIS. See AMNIA.

AMOIE, ἀμοιή. *Galen* explains this moderate. But *Hesychius* says, that ἀμοιή, amongst the *Sicilians*, signified bad.

AMOLYNTON, ἀμόλυντον, from α Negative, and μόλυνω, to pollute, or make dirty. *Cælius Aurelianus, Acut. Lib. 2. Cap. 27.* informs us; that this Name is given to a topical Application, which, if handled, will not defile the Fingers.

AMOMI. *Jamaica* Pepper is thus called by the *Dutch*.

AMOMIS, a Fruit somewhat like the AMOMUM. It is called also PSEUDAMOMUM. See AMOMUM.

AMOMUM. Tho' *Dioscorides* has been very particular in his Account of the Amomum, the Moderns have not only been much perplexed in determining what the true AMOMUM was, but are not certain, that any such thing as the Amomum of the Antients is now existing, or, at least, known to us.

The Account which *Dioscorides* gives of it, is thus:

Amomum is a small Shrub, that grows twisting its woody Stem into the Form of a Bunch of Grapes. It bears a small Flower; like that of the Leucoium, and Leaves like those of Bryony. The *Armenian* is esteem'd the best Sort, which is of a Colour inclining to Gold, of a yellowish Substance, and remarkably fragrant. The *Median* is weaker, as growing in flat and watry Places. This is a large Sort, of a greenish Colour, soft to the Touch; of a fibrous Substance, and smells like Origanum. What comes from *Pontus* is of a yellowish Colour, short, and not difficult to break, clustered like a Bunch of Grapes, full of Fruit, and very odoriferous.

Chuse what is new, and white or reddish, not the close and connected, but what is of a loose and diffused Substance, full of Seed, and like small Clusters of Grapes, ponderous, extremely fragrant, free from Worms or Mouldiness, acrid, and biting upon the Tongue, of one simple Colour, not parti-coloured.

It is of a heating, drying, astringent, hypnotic and anodyne Quality, if apply'd in manner of a Cataplasim to the Forehead. It ripens and dissolves Inflammations and Melicerides. Used in a Cataplasim with Ocimum, it helps those who are stung with Scorpions. It is good for gouty People, and helps and mitigates Inflammations in the Eyes, and also in the Bowels, if taken with dry'd Raisins. It is of Service in Womens Infirmities, used either as a Pessary, or by way of Inseffion. The Decoction of it is very proper to be drank by such as labour under Infirmities of the Liver, or Kidneys, or the Gout. It is also an Ingredient in Antidotes, and the most costly Ointments.

Some have got a way of adulterating Amomum with what they call *Amomis*, which is a Plant, that resembles Amomum, but has no Smell, and bears no Fruit. This grows in *Armenia*, and produces a Flower like Origanum.

In chusing such Kinds of Simples as this, be sure to avoid Pieces or Fragments, but take the whole Plants as they spring from one Root, entire with all their Branches. *Dioscorides, Lib. 1. Cap. 14.*

From

From *Pliny's* Account of the AMOMUM, we can only infer, that the Berry-bearing Ever-green, which commonly goes by the Name of *Amomum Plinii*, is neither the true Amomum, nor the Plant which *Pliny* alludes to; and that *Pliny* did not know himself, what the Amomum really was.

The Grape of Amomum, he says, is in Use, which grows on the Indian wild Vine, or, as others have imagined, on a Myrtle-like Shrub, an Hand's Breadth in Height. It is gathered with the Root, and packed up in small Parcels in a gentle manner, being extremely brittle. The most valuable is, what has Leaves nearest resembling those of the Pomegranate-tree, not wrinkled, and of a russet Colour. The next in Goodness is, the pale-coloured; the herbaceous is worse, and the white worst of all, which Colour it also takes with Age. It grows in that Part of *Armenia*, which is called *Otene*, and in *Media*, and in *Pontus*. They adulterate it with Pomegranate-leaves, and liquid Gum, to make it stick together, and roll itself up in the Form of a Cluster of Grapes.

There is also what is called *Amomis*, which is less veiny, but harder, and less fragrant; whence it appears to be another thing, or to be gathered before it is ripe. *Pliny*, *Lib. 12. Cap. 13.*

Amomum is endued with the same Virtues as the *Acorus*; only the *Acorus* is drier, and the Amomum the better Digestive. *Oribaf. Med. Coll. Lib. 15. Cap. 1.*

Salmasius has, with a great deal of Learning, endeavoured to shew the Difficulty of knowing what the true AMOMUM of the Antients was; and to prove, that none of the different Plants which have been taken for it, was the ancient AMOMUM.

Concerning Amomum, says he, there is much Dispute; for it is not only doubted what it is, but whether it be really existing; for the old Plant of that Name, which we are satisfy'd was formerly in Being, has been eagerly search'd after by our modern learned Botanists, but not found. In so doubtful a Case, it is however certain, that the true Amomum is not what is sold under that Name in the Shops. I should much wonder, that an Aromatic, so noted and celebrated in former Times, should be now out of Knowledge, did not I find, that several others of the spicy Kind, which were formerly of equal Use and Esteem with Amomum, lie conceal'd at present under the same Obscurity. It is much easier to tell what it is not, than what it is; for the latter is out of our Power, since nothing in our Times appears any-where which we can call Amomum, whatever may be pretended to the contrary. *Julius Scaliger*, in his Notes upon *Theophrastus*, confidently affirms it to be what they commonly call the *Rose of Jericho*, whose Want of Fragrance must be imputed to the Nature of the Place where it grows. Many, before and since his Time, who were of the same Opinion, have been exploded by others; for, besides other disagreeing Characters, this *Rose of Jericho* is tough and flexible; but the Amomum, as *Pliny* assures us, is extremely brittle. Hence there were two Sorts of it sold at the Spicery-shops; one whole, or in the Cluster, the other crumbled into small Bits and Dust. And they bore a different Price; for, as the same Author affirms, the Price of the former was sixty Denarii, of the other but forty-nine. *Andromachus* the elder, in the Composition of the *Theriaca*, calls it *βόλβον ἀμώμου*, "the clustered Amomum," in this Verse, which I read thus:

Καὶ σύεχα, μύουτ', ἰδὲ βόλβον ἀμώμου

"And of *Styrax*, and *Meum*, and Amomum in Clusters; and so *Damocrates*, in many Places of his Iambics, as he is quoted by *Galen*, has *βόλβον τ' ἀμώμου*, that is, *Uva Amomi*, "the Grape-like Cluster of Amomum." So in the Author of the Poem upon the Phoenix:

---- *Uvamque procul spirantis Amomi,*

"The Grape of the Amomum diffusing distant Odours."

The Words of *Pliny* are to be read, *Amomi Uva in Usu, ex Indica Vite labrusca; ut alii existimavere, Frutice botruso.*

"The Grape of the Amomum is in Use; it comes from the Indian wild Vine, or, as others imagine, from a Cluster-bearing Shrub." But none ever said, that Amomum was the Grape of the wild Vine, or was of the Kind of the Indian Vine. *Dioscorides* indeed says, that it had Leaves like Bryony, that is, the white Vine; but none ever heard or read, that it was the Grape of a Vine. What they call the Grape in Amomum, is nothing but the little Branches of the Shrub, twisted and interwoven in the Figure of a Cluster of Grapes, and, as *Dioscorides*, *βόλβος ἐκ ἑύλας ἀντεμπεπλεγμένης εὐαλῆς*, "a wooden Cluster, complicated and rolled up within itself." Such exactly is the Shrub of the *Rose of Jericho*, which is actually botryous, or shaped clusterwise, the slender Branches being twisted up in Folds one against another, in manner of a Bunch of Grapes. But, for all that, the *Rose of Jericho* is not Amomum; it should rather be *ἡ ἀμώμης*, "the Amomis," which was harder than Amomum, had no Smell, and, according to *Dioscorides*, was used in adulterating Amomum; to which *Pliny* adds, that it was not so full of Veins as Amomum,

but harder; and *Dioscorides* makes it have a Flower like *Origanum*. Nor indeed is the Flower of the *Jericho* Rose much unlike it in Figure; but then the Rose of *Jericho* has a Seed, whereas the Amomis, according to *Dioscorides*, has none. *Pliny* gives the Amomum the Leaf of the Pomegranate-tree: *Quam maxime laudatur Punici mali Foliis simile.* "They set the highest Value, says he, on what has Leaves like the Pomegranate-tree." Why does he reckon this among the good Properties of the best Amomum, if Nature gave it such a Leaf? All the Greeks tell us it had a Leaf like Bryony: *Isidore*, one of them, says, *Flore albo veluti Violæ, Foliis similibus Bryoniæ.* "It has a white Flower like the Violet, but Leaves like Bryony."

Pliny was deceiv'd by his own Ears; for when his Anagnostes [Reader] happen'd to be reading *καλλίστον ἐστὶν Ἀρμένιον χρυσεῖον τῇ χροῇ*, "the best is the Armenian, which is of a gold Colour," he wrongly fancy'd, that he heard *ἁμώιον* or *παράπλησον τῇ ῥοῇ*, "like, or much resembling the Pomegranate-tree." Hence he came to render it, *Laudatur quam maxime Punici mali Foliis simile.* "The most valued, &c." He says nothing of the golden Colour of the Leaf; which is at Argument, that the Words founded in his Ears like *ἰσάζον* or *ἰσίζον τῇ ῥοῇ*, [*isazon* or *isizon te roa*] "resembling the Pomegranate-tree," instead of *χρυσίζον τῇ χροῇ*, [*chryszon te chroa*] "of a Colour like Gold." Of this I don't in the least doubt.

It is a long time since the genuine Amomum began to be missed. The *Arabians* write nothing about it but what they transcribe Word for Word from the *Greeks*. They call it *Hamama*, a Word plainly deflected from *Ἀμώμου*, "Amomum." *Serapion*, in the Description of Amomum, quotes no *Arabian* Authors, but only *Dioscorides*, whose Words he transcribes; and *Avicenna* says no more of it than is in *Dioscorides*. But as to that Passage in *Dioscorides*, where he says, that Amomum has a small Flower *ὡς λευκοῖα*, "like the *Leucoium*;" the *Arabians* seem to have follow'd another Reading, or not to have understood what was the *λευκοῖον*, "*Leucoium*." The Translator of *Serapion* gives us a monstrous Version, without any Explication: *Habet. Florem parvum, similem Flori Plantæ dictæ Locadan.* It has a small Flower, like the Flower of the Plant called *Locadan*. *Cremonensis*, the Translator of *Avicenna*, seems to have follow'd another as bad a Copy, when he renders, *Et habet Florem similem Flori Indo.* *Bellunenſis* indeed made a Correction of it in the Margin, by *similem albæ Violæ*; but this he took rather from *Dioscorides*, than from any *Arabian* Author; for the *Arabic* Words of *Avicenna* sound nothing like it, but, according to the Edition at *Rome*, are to be render'd, *Et ei Folium magnum Hared*; "And it has the great Leaf of *Hared*," the *Arabic* Word signifying not a Flower, but a Leaf; and is soon after taken in that Sense, where the Leaf of Amomum is compar'd to those of the *Vitis Alba*. *Avicenna* says nothing of the Flower of Amomum in that Place, nor is *Hared* the Name of any Flower or Herb that I know of; but comes from a Verb that signifies to dilate and extend, whence *hared* is broad and extended. Wherefore I suppose, that *Avicenna* says, that the Leaf of Amomum is great and broad, and like the Leaves of the white Vine; for that is the plain Meaning of the Passage in the original *Arabic*, which ought to be thus render'd, Word for Word, *Et ei Folium magnum, latum, et in similitudinem Foliis Vitis albæ*, "And it has a Leaf, &c." There is no mention here of a Flower, for this was omitted by *Avicenna*. I wonder therefore whence the Translator could fish out his *Indian* Flower, to be compar'd with the Flower of Amomum. Besides, there is not the least Syllable said in the *Arabic* of the white Violet, which the *Arabians* call *Cheiri*. The Translator of *Serapion* also renders the Word *Hamama*, deriv'd from Amomum, by *Pes Columbinus*, "Doves Foot," which some were so fond of, that they did not scruple to affirm, that the Amomum of the Antients was the same with the Herb commonly called *Pes Columbinus*. This, among the rest, was the Opinion of *Garcias*, a Man very little skill'd in *Arabic*, tho' he conversed all his Life-time with *Arabians*. He tells us, that he was informed by a certain *Jew* Apothecary, that Amomum was called in the *Arabian* Tongue *Hamama*; but this Word signifies, when interpreted, no other than *Pes Columbinus*; nothing can be more wrong. A Dove, 'tis true, is called in *Arabic* *Hamam*, but Amomum has nothing to do with a Dove, or Dove's Foot. *Garcias* adds an Argument to confirm his Interpretation, which is, that he was presented with a Branch of Amomum by the *Persian* and *Turkish* Physicians, who officiated about the King *Nizamoxa*, which to the Life resembled the *Pes Columbinus*; and besides exactly agreed with the Description of Amomum, which is in *Dioscorides*. Mere Fables! and all that is said about the *Pes Columbinus* no more than Trifling, and nothing to the Purpose. I am at a Loss, I confess, to imagine how the vulgar Herbalists came to hammer out this Word. I have heard, indeed, that so they call a Species of the *Geranium*, which has the Leaf of the *Mallow*. But the Herb to which the *Arabians* give this Name is quite another thing; for they bestow it on the *περιερίον*, or *περιερίον* of the *Greeks*. This is called by them *rigel alhamam*,

mam, that is, the Foot of Doves, because of the Greek Name *Peristerion*, ἐκ τῆς τῆς περιστερᾶς πόδος ἐνδ' αἰσθῆναι ἐν αὐτῇ. "from the Doves delighting to be much about it." Hence it came to be call'd by the *Arabians* Doves Foot. *Apuleius Pseudonymus* also calls it *Columbina*, "Columbine," and says it is pleasant Food for Doves. Indeed an *Arabian* Botanist renders the τὸ περιστερίον, [*Peristerium*] in an old *Dioscorides*, by *rbai alhamam*, that is, the Food of Doves. There is mention made of this Herb in *Avicenna*, *Lib. 11.* which he imagines to be also called *rbai alabil*, that is, the Food of Camels. An old Interpreter renders it *Chaff*, for what Reason I know not. *Avicenna* himself, I am sure, says it is an Herb that has Seeds like Grains of Myrtle: He uses the *Arabian* Word *baxis*, which signifies *Chaff*, *Stubble*, or *Hay*. However this Herb is not absolutely to be called *Palea*, "Chaff;" for the Word in *Arabic* signifies any Herb. Whether it be the *Peristerium* of the *Greeks*, I know not. It has a Virtue of mitigating Ulcers that are subject to spread, if apply'd with Vinegar; but more properly it is not the same. There is another Herb, which, among the same *Arabians*, is called the *Pabulum Cameli*, or *Pastus Cameli*, "the Food of the Camel." *Garcias* writes, that the *Juncus Odoratus* is so called. *Scaliger* on that Passage observes, that it is named in *Arabic* *halaf algemali*; but I fancy he rather imagin'd that it was so from the Words of *Garcias*, than read the same in the Writings of the *Arabians*. The same *Garcias* informs us, that this *Juncus* was called by the same *Arabians* *Palea*, "Chaff," or simply the Herb, in *Arabic* *halaf*. As for the *Peristerium*, the *Arabian* Herbalist is in the wrong to make it the same with that Herb which *Avicenna* points out to be the Food of Doves, or of Camels; for this is the *Verbenaca*, "Vervain," of the *Latins*; and is called *Columbaria*, and also *Columbina*, "Dovefoot," by the *Latins* of later Ages. The *Arabians* also said *hamama*, and a very good *Græco-Arabic* Glossary has *χάμαμα, περιστερίον*, "Chamama, Peristerium." This Paragoric Form is to be found in many other Words; as *Curcum*, Saffron, *Curcuma*, Turmeric, a Saffron-colour'd Root; *Selach*, the Bark, *Selicha*, ἡ συγγυῖς κασία, "Cassia cover'd with the Bark." So *Hamama* is the Herb *Columbaria*, not a Dove, as is generally thought by the Learned. This Noun differs not in Pronunciation from *Hamama*, which signifies *Amomum*, but very much in the manner of Writing; for this latter is written with an *Elif* in the last Syllable, but the other with a *He* marked with two Points, which carries the Force of *Th*. Hence then proceeded the Mistake of those who by *Amomum* understood to be meant *Pes Columbinus*.

In the same *Græco-Arabic* Lexicon or Glossary, you may read various Expositions of *Amomum*, which are a full Confirmation of its being unknown even at that Time. "Ἀμώμων ἡρίζα τῆς πενταφύλλου." "Amomum is the Root of the Cinquefoil." Also "Ἀμώμων ἑτέρον Ἰνδίων, οἱ κλάδοι τῆς κιννάμωμου." "Another Kind of Amomum is the Indian, which is the Branches of the Cinamon-tree." This is an old Interpretation; for *Avienus Festus* understood τὸ κιννάμωμον, "Cinamon," in *Dionysius Periegetes*, to signify *Amomum*.

Alas amica Deo largum concessit Amomum.

"The Bird beloved by the God piled up a large Quantity of Amomum." The Greek Poet has it,

Ἦλθον φύλλα φέροντες ἀκηρασίαν κιννάμωμον.

"They came bringing Leaves of pure and unmixed Cinamon." *Hesychius*, in his Lexicon, observes, that *ἀμώμων*, "Amomum," signify'd also Frankincense. "Ἀμώμων ἐν ταῖς ὀνομασίαις ὁ λιβανός." "Amomum, in the Lexicons, is Frankincense." The same Author expounds κιννάμωμον, "Cinamon," by τὸν λιβανόν, τὸ λιβάνιον, two Words signifying Frankincense.

Some are of Opinion, that the *Amomum* of the Shops is the Seed of an Herb, which in the Editions of *Dioscorides* is called by Mistake *Σίσων*, [*Sison*] instead of *Σίνων*, which is the Word in all the antient Copies. *Σίνων* σημαίνει εἶναι ἐν Συρίᾳ, γινώμενον. "Sinon is a small Seed that grows in Syria." The Glossæ Iatricæ on this Passage say *Σίνων* εἶδος ἀρωματικόν, εἰκὸς ἀνίσω. "Sinon is a Species of Aromatic like Anise."

Lucan, *Lib. 10.* joins Cinamon with *Amomum*; and in so doing, confutes those who make *Amomum* to be the same with Cinamon.

*Cinnamon infundunt, quod nondum evanuit Aura,
Advectumque recens vicinæ Messis Amomum.*

"They infuse Cinamon unexhausted of its Odours, and Amomum fresh gather'd, and brought from the neighbouring Harvest." What, was it gather'd in such Plenty, as to deserve the Name of a Harvest? Or does he allude to the Etymology of *Amomum*, as tho' it took its Name ἀπὸ τῆς ἀμῆς, ἀ μετέδο, "from reaping?" Neither of these Conjectures, to me, seems probable: But it was usual with the Poets thus to speak when they talked of Spices, as *Quicquid metunt Arabes benevolentibus Arvis*. "All that the *Arabians* reap from their fragrant Fields." And in *Propertius*, *odorata Cultor Arabis Segetis*, "the *Arabian* Cultivator of the

"scented Crop." For they take their Spices to be their Harvest; whence *Pliny* says, that the *Arabian* Fruits consist of Spices, and even calls the gathering in of their Frankincense a Harvest, *Lib. 12. Cap. 14.* where speaking of Frankincense he says, *Meti semel Anno solebat minore Occasione vendendi*: "They used to reap it once a Year, when there was less Opportunity of selling it." And by-and-by he calls it *Vindemiam*, "a Vintage." The same Author says of Cardamom, *Metitur et eodem modo in Arabia*, "They reap it after the same manner in Arabia." *Meleager* of the *Juncus Odoratus*:

Ἐνδὴν σχοῖνον ἀμώμωνος.

"Having reap'd the fragrant Rush." But this is by-the-by. To return,

Virgil seems to have taken *Amomum* for a Grape, and the Fruit of the Vine, in this Verse:

---- ferat et Rubus asper Amomum.

"And let the prickly Bramble produce Amomum." The Bramble bears its Fruit in Clusters, and the Poet would have the Bramble for its Fruit produce Amomum. 'Tis plain, that he intended the Amomum should be taken for a real Grape and Fruit; but it is a Shrub, which, by the Implication and Convolution of its small Branches represents the Figure of a Cluster of Grapes, and is gather'd with its Root. In another Place he calls it *Affyrium Amomum*. *Servius* in one Place calls it a Flower, in another an Herb of a most pleasant Scent. By *Affyrian* the Poet means *Median*. *Pliny* says, that it grows in a Part of *Armenia* called *Otene*, and in *Media*, and in *Pontus*. Ὀτρη, "Otene," is that Part of *Armenia* which lies about the River *Cyrus*. What grew formerly in so many Places, is now no-where but in Name.

Theophrastus says, That *Amomum*, in the Opinion of some, was also brought out of *India*: Τὸ δὲ καρδάμωμον καὶ ἀμώμων οἱ μὲν ἐκ Μυθίας, οἱ δὲ ἐξ Ἰνδῶν καὶ ταῦτα καὶ τὴν νάρδα. "Cardamom and Amomum, some say, are brought out of Media; others affirm, that we have both these and Nard from the Indians." *Ovid*, like a Poet, says, that the Bird Phoenix lives on dry Amomum; therefore it must be a Native of *Arabia* or *India*. But *Dioscorides* makes no mention of the *Indian* Amomum, nor does any other of the Antients besides. *Dioscorides*, among other Characters by which the *Pontic* Amomum is distinguished from the rest, describes it as εὐσθραύστον, "not difficult to be broken." Therefore the other Sorts of Amomum are δύσθραυστα, "difficultly broken." This is directly contradictory to *Pliny*, who says, that it is *protinus fragile*, "very soon broken;" for which Reason it is gently and leisurely made up with the Hands, that it might not be broken; for the Passage must be read thus: *Carpiturque cum Radice, manu paulatim leviter componitur protinus fragile*. "It is gather'd with the Root, &c." Mention is also there made of the *friatum Amomum*, "the crumbled Amomum," which also was valuable. It was so brittle, it seems, as to be crumbled. But *Dioscorides* writes of the *Pontic* Amomum, Τὸ δὲ Πόντιον ὑπόκρητον, εὐμακρόν, εὐδὲ δύσθραυστον, βέλτερον δὲ, πλῆρες καρπῶ. "The *Pontic* is reddish, not long, brittle, cluster'd, full of Fruit." Wherefore the two former Sorts, the *Median* and *Armenian*, are δύσθραυστα, "not brittle." *Ovid* speaks of the Powder of Amomum,

---- et Amomi pulvere conde,

"and lay him in Powder of Amomum." But the Question is, whether this Powder was made of Amomum by pounding or crumbling. Cassia and Cinamon were also pulverized, but by means of pounding only, not by crumbling [*trita tantum, non friata*].

Amomum was sold by the Colour-sellers not only in the Grape, but, as it appears, also in Powder. And perhaps *Pliny* imagin'd, that this Powder was the Produce of the crumbling of Amomum, from whence he conjectur'd, that it was very brittle, or rather friable. *Dioscorides* does not say so much as this even of the *Pontic*: He says that it was not δύσθραυστον, "hard to break;" but it does not follow, that it was easily friable, because it was not difficult to be broken. Many things which are brittle, are not friable. The εὐσθραύστον, "easy to break," of the *Greeks* is different from their εὐθραύστον, "easy to crumble." I have no Faith in *Pliny*, being certain, from an infinite Number of Places besides, that he is not to be depended upon for one single Matter. From a preconceived false Opinion, that the Leaves of Amomum were like those of the Pomegranate-tree, he says, in the same Passage, that it was used to be adulterated with Pomegranate-leaves, and liquid Gum, that it might stick together, and roll itself up in the Form of a Bunch of Grapes. According to this Opinion, Amomum might be no more than a Parcel of Leaves conglobated and convolv'd, or rolled up. Yet *Dioscorides* has nothing about the Leaves, and 'twas the Shrub itself, not the Leaves, that composed the Cluster, βέτερος ἐκ ξύλων, "the Cluster consists of the woody Substance." And as *Avicenna* says, speaking of this same Amomum, *bunkud min chikeh*, "the

“the Cluster or Bunch is of Wood.” So that this Cluster consisted of the small ligneous Branches roll’d up within themselves.

On the same Authority depends the Assertion in the same Place, that the Cardamom was like the Amomum, both in the Name, and in the Shrub. He might as well have said, that the Cinamon too was like Amomum. For as to the Name, Cinamon [*Cinnamomum*] is as much like Amomum as is Cardamom, but neither is the Shrub of Cardamom at all like that of Amomum. Indeed if the Smell answer’d, and the Shape of the Leaves, there would be nothing wanting in the *Jerusalem Rose* to make it pass for the true Amomum. The Shrub is about a Hand’s Breadth in Length, shoots forth several Branches from its Root, which are reflected and conglobated in such a manner as to represent a Cluster, which incloses a Multitude of Seeds, as in a Spike, that stick to the small Branches or Sprays, like Grapes in a Cluster. *Isidore* says, *Amomum Frutex est in Syria et Armenia nascentis botrosus Semen reddens sibi connexum*. “Amomum is a Shrub that grows in Syria and Armenia, and bears a Seed connected in manner of a Cluster of Grapes.” I have two of these Roses now by me, which being compared with the Description of Amomum, seem, to me, to represent it in a lively manner. ’Tis certain, that of all the Things obtruded upon us for Amomum, there is nothing that agrees better with it. As to the Smell, it might be answer’d, that this is a Quality which depends on the native Soil: So the common Oenanthe, and the Attic itself, have no Smell; ’tis only the Cyprian Oenanthe, of which they make the Unguentum Oenanthium, that carries a Fragrancy. Yet the Country of Pontus, which is colder than Judaea, produces the most fragrant Amomum, *ἡ ἄριστη ἀνέστην*, “and that strikes the Sense of Smelling.” But this perhaps is not to be regarded; for the Median Amomum, tho’ the Country be hotter, yet; because it grows in Fields, and watery Places, is of less Virtue and Fragrancy, as *Dioscorides* informs us. As to the Leaf’s not answering the Description, the Fault perhaps might lie in the first Reporters. How many things do we find related in antient Authors, which are now discover’d to be false! For Instance, the Malabathrum, according to *Dioscorides*, is a Leaf that floats on Pools, and standing Water, like an aquatic Plant. We have observ’d more such Mistakes elsewhere.

It would be Folly to affirm the Rose of *Jericho* to be Amomum, especially since there are so many things that might induce us to believe the contrary. Those Antients would not have been at the Trouble to search in Armenia, Media, and Pontus, for a Plant which every modern Traveller brings home with him from Judaea. They would, at least, have inform’d us, that it grew also in Judaea, but without Smell. *Theophrastus* brings it from India. *Isidore* writes, that it is found in Syria; but none of the Antients agree with him. *Avicenna* has Egyptian instead of Pontic Amomum, by a Mistake of the Translator; for what he renders, *Est species Egyptiaca*, “And there is the Egyptian Species,” in the Arabic is no more than, *Est species alia est*, “and there is another Kind.” It is not improbable, that this Rose was seen by the Antients, and described for the Amomum. It would be Amomis; but that it has Seed, which Amomis wants, according to *Dioscorides*.

In so great a Variety of Opinions, one knows not how to determine, nor where to fix. *Pliny* tells us, that Amomum is extremely brittle and friable: *Dioscorides*, that it is soft to the Touch. The former gives it the Leaves of the Pomegranate-tree, the other those of Bryony. *Salmasius*, *De Homonym. Hyl. Iatr. Cap. 91*.

The most probable Account, however, of the true Amomum, is that given by *P. G. Camelli*, as follows, from the *Philosophical Transactions*.

After I had seen the cluster’d Bunch of Flowers of the *Tugus*, which some call *Birao*, others *Caropi*, and tasted the Kernels of the Grape, or the oblong Seed, and compar’d them with the Descriptions which the Botanists give us of Amomum, I became of Opinion, that the *Tugus* was the genuine Amomum of *Dioscorides*.

This *Tugus* is a Plant, sometimes above a Cubit high, with Leaves like the Plant *Tagbac*, or *Bagongbonque*, except that its under Part is cover’d with a delicate Down; and that it is more fibrous, longer, and fragrant. At the Root of the Plant, or Body of the Stalk, from the very Middle or Heart of a foliaceous Stem, sprouts forth a Parcel of floriferous and graniferous Leaves, an Hand’s Breadth and half in Length, in the Figure of a Cluster of Grapes, having some Resemblance to the Pistil or Bunch of Flowers of the *Amomum*, adorn’d with very red small Flowers, which are succeeded by Grapes, that run out in Length with a Neck, as tho’ they were the Reliques of the Tube of the Flower, and are inclosed in a thin sweet Rind, whence they are mostly, together with the Seed, or Kernels, devour’d by the Mice and the Birds, so as that it can be had only in very small Quantities. That it was not common in former Ages, nor grew in every Country, *Virgil* seems

to insinuate, by his promising, that *Affyrium vulgo nascitur Amomum*, “the Affyrian Amomum shall grow every-where.”

These Grapes commonly contain five or six reddish, oblong, unequal, aromatic, fragrant Kernels, or Stones, less acrid than *Amuyong*, or the *Cubebs* of the Shops. Some of the Indian young Women use to thread them, sometimes by themselves, and sometimes intermixed with Pearls and Coral, and so make them serve for *Caropi*; that is, Bracelets and Necklaces. Others make these Kinds of Ornament of these Kernels, and the Seeds of *Bolmusci*, by them called *Maricom*, or of the *Arundo Lithospermus*, which they call *Tigbi*, or of the *Canna Florida*, which is their *Ticaffias*, or of the *Pisum Coccineum*; by them called *Saga*; and also of the Seeds of *Amomum*, *Radiang*, and *Calanos*. But they wear the Kernels of the *Tugus* about their Neck on account of their Fragrancy; besides, they are found by Experience to preserve from Infection in corrupt Air, and to heal the Sting of the *Scolopendria*, [a venomous Insect] if chew’d and apply’d to the grieved Place. The Root is like the Root of *Tagbac*, or *Calamus odoratus*, being insipid, and white in the inner Substance, but wrapt up in cepaceous [Onion-like] Coats of a very red Colour, and endu’d with some Fragrancy. I had an Account, by a Letter from *Borongam*, that this Plant bore another Fruit on the Tops of the Stalks, which had no Smell; but this I never saw. The Indians of *Indostan* assured me of the same, but I fancy they mistook the *Tagbac* [Tagbac] for the *Tugus*.

It grows in *Borongam* and *Paranäs*, in *Samar* the chief of the other Islands, and in *Loyte*. And I don’t doubt but it may be also found in *Luxon*, especially at *Silanium*, in the deep Places worn by the Torrents.

N. B. The young and tender Buds of the Flowers of the *Tugus* have some Resemblance to the Pseudo-Amomum of *Garcias*, which expresses a Dove’s Foot. But that nothing may be wanting to clear up the Matter, I have sent with these Advices the Figure of the Plant. Some will object, I know, and say, that a Chestnut is better like an Egg, than the Leaves of the *Tugus* are like those of the Pomegranate-tree, which I freely allow. But all that *Dioscorides* and *Pliny* have related of the Amomum, I think, should be understood only of the floriferous Cluster of the *Tugus*, when turgid with Seed, because the entire Plant itself was unknown to them. For this *Thyrus* of the *Tugus* will be found to be the little Shrub [the *baupicus*, “Thamnisus,” of *Dioscorides*] about an Hand’s Breadth in Height; to consist of reddish-coloured Wood, or a ligneous Sort of Substance; that its Leaves and Flowers are like those of the Pomegranate; that it rolls itself up in the Form of a Cluster of Grapes, or, as *Barth. Merula* translates the Expression of *Dioscorides*, has a Fruit like *Botruon*; is full of Seed like small Grapes, contained under a carnosous Tegument; is very fragrant, of an acrid Taste, and of an astringent, heating, and drying Quality; with other Characters of the true Amomum, besides the Resemblance of the *Pes Columbinus*. It grows in *Turcomania*, a Province of *Armenia*, as *Joh. Botero Benes* writes. *Philos. Transact.*

There are three different Plants to which the Moderns have affix’d the Name of AMOMUM. The first is the *Amomum*, Offic. *Sison*, Mor. Umb. 14. *Sison* *Dioscoridis*, Hist. Oxon. 3. 283. *Sison vulgare* sive *Amomum Germanicum*, Park. Theat. 914. *Sison sive officinarum Amomum*, J. B. 3. 197. Mer. Pin. 113. Bot. Monsp. 242. Raii Hist. 1. 443. *Sison Cordi*, Merc. Bot. 69. Phyt. Brit. 114. *Sison*, *Quind*, *Simson*, sive *officinarum Amomum*, Chab. 308. *Sison quind Amomum officinis nostris*, C. B. Pin. 154. *Stium aromaticum*, *Sison officinarum*, Tourn. Inst. 308. Boerh. Ind. A. 57. Raii Synop. 3. 211. Dill. Cat. Giff. 139. *Petroselinum Macedonicum Fuchsi*, Ger. 864. Emac. 1016. BASTARD STONE-PARSLEY. Dale.

The lower Leaves of this *Amomum* are long and pinnated, or having small Leaves growing opposite to one another on a common long Stalk, being about an Inch long, and not above half the Breadth, broader at the Base, and ending sharper-pointed, cut in on the Edges, having a single Leaf at the End of the Foot-stalk. They are of a bright-green Colour. The Stalk arises to the Height of two or three Feet, finely chanell’d, and divided into several Branches, on which grow the like Leaves, but much less and finer; on the Tops grow small Umbels of white five-leav’d Flowers, producing little striated Seed, about the Bigness of Parsley-feed, of a pleasant, hot, spicy Smell and Taste, something like a Nutmeg. It grows in Ditches and Banks, and moist Places, flowering in Summer; its Seed, which is the only Part used, being ripe in August.

The Seed is hot and dry, attenuating, and good to open Obstructions, to cleanse the Reins of Gravel; it is diuretic, and promotes the *Menstrua*, and is esteemed to be *Alexipharmic*, and as such is put into *Theriaca Andromachi* for a *Succedaneum* to the true *Amomum*. *Miller, Bot. Off.*

The second is the *AMOMUM*, Offic. Comm. Flor. Mal. 14. Plant. Ufu. 88. Barr. Icon. 571. Obs. 1393. 27. *Amomum verum*, Ger. Emac.

Emac. 1548. Raii Hist. 2. 1697. *Anomum genuinum*, Park. Theat. 1567. *Anomum racemosum*, C. B. Pin. 413. Jons. D. *Anomum novum Cardamomi vulgaris facie, sive Indicus racemus*, J. B. 2. 195. Chab. 127. *Eleitari*, 1. Hort. Mal. 11. 9. Tab. 5. TRUE AMOMUM. Dale.

This Fruit is an Ingredient in the *Theriaca*, and is sometimes mixed with strong Purgatives, to qualify them a little. Each Fruit is divided into three Cells, and is of a very pungent Taste: It is brought from the *Philippine Islands*, and is reckon'd carminative, alexipharmic, stomachic, &c. *Geoffroy*.

It is incisive, and digesting; it resists Poison; it disperses Wind; it strengthens the Stomach; it creates Appetite and Strength; and it provokes the Menstrues. *Lemery de Drogues*.

The Amomum which is reckoned amongst medicinal Drugs, and which is a principal Ingredient in the *Venice Treacle*, grows on a Tree which bears the same Name with itself, the Leaves of which are long, strait, and of a pale-green Colour; and its Flowers resemble those of the white Stock-gilly-flower: Its Fruit is pretty like the *Muscadine Grape* in Colour, Bulk, and Shape; but it is not quite so full of Grains, and is less juicy. Its Pods, which have no Pedicels, are crowded together, and glued, as it were, on a long Nerve, which they surround to the very Top; and which serves as a Support to them: In the inner Side of these Pods are found purple-coloured Grains, of an almost square Figure, distinct, and covered with slender white Membranes. The Taste of these Grains is sharp and acrid, and their Smell extremely piercing and aromatic.

The newest Amomum is always the best; it ought to have its Pods round, of a whitish flaxen Colour, weighty, and well-filled: That, on the other hand, the Pods of which are black and shrivelled, are very little, or not at all, esteemed.

A great many People confound the Amomum with the greater Cardamoms, tho' they do not resemble each other in one single Circumstance. *Savary Dictionnaire de Commerce*.

The third is called,

AMOMUM PLINII, Offic. Ger. 289. Emac. 361. *Solanum fruticosum bacciferum*, C. B. Pin. 166. Raii Hist. 1. 673. Tourn. Inst. 149. Elem. Bot. 124. Boerh. Ind. A. 2. 67. Rupp. Flor. Jen. 37. *Fruticosum Americanum, dictum Amomum Plinii*, Park. Theat. 352. *Anomum Plinii, seu Pseudocapsicum*, ejusd. Parad. 431. *Strychnodendros*, J. B. 3. 614. *Apollinaris Solani species ex Apennino*; *Strychnodendros, Solanum arborecens*, Chab. 523. TREE NIGHT-SHADE. Dale.

Its medicinal Virtues are esteemed to be much the same as the common SOLANUM, Night-shade, which see.

AMONGABRIEL, according to *Rulandus*, AMOGABRIEL according to *Johnson*, is *Cinnabar*.

AMONGEABA. This is the Name by which *Piso* calls a kind of Grass which grows three, four, or five Foot high, from Roots consisting of small Filaments, much after the manner of a Reed. The Leaves are about a Foot long, beautifully twisted, green, almost of the Figure of the Leaves of the larger Nut-bearing Palm, and a considerable Number of them on one Stalk. The Stalk at the Top bears an Ear a Foot and an half long, like in Bulk and Shape, to the Ear of the *Milium*, or *Wild Panicle*.

It is of an emollient Nature, either internally or externally applied: It supplies the Place of Mallows, and is beneficial in a TENESMUS, used by way of Fomentation.

AMOR, Love. It is no Wonder that Love has been esteemed a Distemper, as it is productive of many Disorders, especially Madness, as *Caelius Aurelianus* observes very judiciously; for as Madness is generally caused by thinking too much of one thing, nothing is more likely than Love to fix the Attention upon one Object.

Besides Madness, Love may, and certainly does, produce every Distemper which arises from a too great Laxity or Stricture of the Animal Fibres: For Anger, Envy, and Jealousy, the usual Attendants on Love, brace up the Fibres, and render them too tense and rigid. Again, Joy, Complacency, Fear, and Grief, relax the same Fibres, enervate the Solids, and impair the Actions, whether Animal, Vital, or Rational.

The Seeds of Love are, no doubt, planted in the Constitution of every Man; and of every Woman; for Purposes conducive to the Designs of the Creator, and extremely beneficial to the Creature. For, besides the great End of supplying the World with People, Love incites Mankind to Action; and perhaps the little Difficulties with which it is attended, stimulate the Mind, and, in Consequence thereof, the Body: Inasmuch, that if the Desire, implanted in each Sex, of being agreeable to the other, was removed, perhaps no other great Incitement to Action would remain, except Hunger: So that what *Virgil* says of Agriculture, is applicable to Love:

Pater ipse colendi

*Haud facilem esse Viam voluit, primusque per Artem
Movit agros, Curis acuens Mortalia Corda;
Nec torpere gravi passus sua Regna Venerio.*

Upon the Whole, if it was not for Love, Mankind would soon degenerate into Brutality; and it only becomes criminal

or pernicious, when so excessive as not to be guided and directed to a proper Object, and with Moderation, by Reason.

It is no absurd thing to reckon Love among the Affections of the Brain, since it is a kind of Solicitude; and Solicitude is an Affection of the Mind, when Reason is employed in a tiresome Motion or Pursuit.

Love is attended with the following Symptoms: The Eyes are hollow, and weep not, but appear as if they were replete with Pleasure. The Eyelids often twinkle; and tho' the other Parts of the Body maintain their Plumpness, the Eyes of Persons in Love are contracted and sunk. There is no Pulse peculiar to Lovers, as some have thought, but it is like that of the Careful and Solicitous. When the Remembrance of the beloved Object is excited, either by the Hearing or Sight, and especially if it be sudden, the Spirits are all in Confusion, and the Pulse changes, and neither beats equal Time, nor with equal Force. Some are sad and wakeful; others, who are not conscious of their Affection, pine away in Sloth and Slovenliness, and a low Diet. But the wiser Sort, when they find themselves in Love, divert their Thoughts, and relieve themselves by going to the Baths, drinking of Wine, Gestation, entertaining Sights, and pleasant Conversation. Some Lovers ought to be terrified; for they who are always at Leisure to indulge their amorous Thoughts, will hardly get rid of that troublesome Passion. It would also be very proper to enter into a Controversy, or commence a Suit against such a Person in Love, which may affect that State of Life, or Way of Business which he has chosen; for all Means must be tried to divert his Cares and Pursuits into another Channel. *Eginet. Lib. 3. Cap. 17. Oribas. Synop. Lib. 8. Cap. 9.*

This Method of curing a Person in Love, by stirring up a Law-suit against him, is likely enough to have its Effects; but I should doubt whether a Cure of this Sort would be consistent with the old Maxim, which requires it to be performed *tuto, cito, & jucunde*.

Dr. James Ferrard published a Treatise of Love, as a Distemper, which was printed at Oxford, 1640.

AMORIS POMA, Offic. Ger. 275. Emac. 346. *Poma majora amoris, fructu rubro*, Park. Parad. 379. *Solanum pomiferum, fructu rotundo striato molli*, C. B. Pin. 167. Raii Hist. 1. 675. Hist. Oxon. 3. 520. *Mala aurea, odore satido, quibusdam Lycopersicon*, J. B. 3. 620. *Mala aurea*, Chab. 525. *Lycopersicon Galeni*, Tourn. Inst. 150. Elem. Bot. 125. Boerh. Ind. A. 2. 69. Rupp. Flor. Jen. 37. LOVE APPLES. Dale.

AMORIS POMUM. This is a Species of *Solanum*, bearing many large winged Leaves, divided into several Segments, of a yellowish-green Colour; the Stalk is branched into many Divisions, on which, at the setting on of the Leaves, grow the Flowers, several together, each consisting of a single Flower, divided into five Parts like a Star, of a yellow Colour, with a deeper Umbo in the Middle. Each Flower is follow'd by a round Fruit as big again as a Cherry, green at first, and of a yellow Red when full ripe; in which are contained a great many flat whitish Seeds, in a juicy Pulp. It is sown in Gardens, and flowers in July; the Fruit is ripe in September, and perishes with the first Frosts.

In Italy they eat these Love-apples with Oil and Vinegar, as Cucumbers are eaten here; but they are seldom eaten with us, being of the Nature of the other *Solanums*; and therefore only used outwardly, in cooling and moistening Applications, in Inflammations, and Erysipelas; and its Juice especially is commended in hot Defluxions of Rheum upon the Eyes. It is but seldom used. *Miller Bot. Off.*

AMORGE, ἀμόργη, the Fæces or Recrement of Oil. See AMURCA.

AMPANA. This is the Name in the *Hortus Malabaricus* for the *Palma Coccifera, Folio flabelliformi*, Mas. The Portuguese call it *Palmeiro Bravo Macho*.

AMPAR, Amber is sometimes thus called.

AMPELION, ἀμπέλιον, Vines Leaves, or Tendrils. *Hippocrates* recommends these bruised, and mixed with Honey, and made up, with Wool, into the Form of a Pessary, in order to promote the Menstrual Discharges, or the Lochia. *De Natura Muliebri*, and *de Morbis Mulierum*, L. 1.

AMPELIS, a Bird described by *Aldrovandus*, and said to be delicate Food. I take it to be the *Beccafico*.

AMPELITES TERRA, a Sort of black Earth, thus distinguished.

TERRA AMPELITES, Offic. Worm. *Ampelitis terra sive Pharmacitis*, Ind. Med. 8. 31. Agric. 595. *Aldrov. Mus. Metal.* 260. *Terra Ampelites sive Pharmacitis, qua Medici utuntur*, Kentm. 3. *Lapis Ampelitis Galeni*, Charit. Foss. 14. *Lapis obsidianus*, Mer. Pin. 217. *Carbos Theoph. Succinum nigrum*, Swenckfeld Cat. Foss. 394. *Terra Ampelitis*, Calc. Mus. 128. Gæbal. 28. CANNAL COAL. Dale.

I believe Cannal Coal will not dissolve when Oil is poured upon it, which is one of the Characteristics that *Dioscorides* gives to the TERRA AMPELITIS: This, therefore, seems different from what we usually call CANNAL COAL.

The Terra Ampelitis, by some called Pharmacitis, is found in *Seleucia*, a City of *Syria*. Chuse what is black, resembling small (*Oribasius* reads *μαρσις*, long) Pitch-tree Coals, that will cleave, in some measure, into thin Bits, and shines alike in every Part; that, moreover, being levigated, will readily dissolve upon the Affusion of a little Oil. The white, cineritious, and what can't be liquefied, is to be rejected.

It has a discussive and refrigerating Virtue; is an Ingredient in Cosmetics for the Eyelids, (*καλλυβλάφας*) and to colour the Hair. It is also used to anoint the Vines, at the time of their Budding, in order to kill the Worms which breed in them. *Dioscorides*, Lib. 5. Cap. 181.

The Terra Ampelitis is more medicinal, drying, and digestive, has more of a biting, and less of a mitigating Quality, than the Terra Chia, Samia, or Selinusia. *Oribasius*, *Med. Coll.* Lib. 15. Cap. 1.

The Ampelitis Terra is also called Pharmacitis, because it is more medicinal than the other Earths; and because the Country Farmers, when the Spring comes, dilute it with Water, and so rub it about the Roots of those Vines which have sent forth Buds, that no noxious little Animals might approach to touch them. It sufficiently shews its medicinal Virtue in killing the Cnipes (Worms) which infest the Vines. No mitigating or lenitive, but a drying Quality belongs to it; for which Reason it is an usual Ingredient in drying and discussive Compositions. *Actius*, *Tetr.* 1. *Serm.* 2. *Cap.* 9.

To supply the Want of Terra Ampelitis, you are directed to take a little more than half the Quantity of *Brutian Pitch*, by *Marcellus Empiricus*, *Cap.* 7.

AMPELITIS *sive* Pharmacitis, is a very bituminous Earth, as black as Jet; it is divided into Scales, and is easily reduced into Powder; it is taken from a Quarry near *Alenon*; there are two Sorts of it, one of them tender, the other hard; when growing old, it pulverizes of itself, and they get from it some Saltpetre.

It is proper to kill Worms, being applied to the Belly; it dyes the Hair black.

Some call it Earth of Vine, because, being in the Vineyards, it kills the Worms which creep up the Vines. *Lemery de Drogues*.

AMPELOPRASON. See ALLIUM.

AMPELOS, ἀμπελος, is Bryony, according to *Oribasius*, *Med. Collect.* L. 13.

AMPHARISTĒROS, ἀμφαριστερός. It signifies the Reverse to AMBIDEXTER, that is, having two Left Hands; which means being clumsy, or having a perfect Use of neither. Figuratively, it imports *unlucky*, *unfortunate*.

AMPEMERINOS, ἀμπεμερινός πυρετός, a Quotidian Fever; that is, a Fever which brings on a Paroxysm, or Fit, every Day. It is derived from ἀμπερ, a Greek Preposition, which imports a kind of Revolution, and ἡμέρα, a Day.

AMPHIBLESTROIDES, from ἀμφιβλεστρον, a Net. The same as RETIFORMIS, which see.

AMPHIBRANCHIA, ἀμφιβράγχια, from ἀμφι, about, and βράγχια, properly the Gills of Fishes; but sometimes taken for the Fauces. The Parts about the Tonils.

AMPHICAUSTIS, ἀμφικαυσίς. This imports a Sort of wild or mountain Barley; and, in some Writers, it signifies the PUDENDUM MULIEBRE; but I don't know that it is used in this Sense by any medicinal Author.

AMPHIDEON, ἀμφιδέων, the Orifice of the Uterus, call'd the Os Tincæ.

AMPHIDEXIOS, ἀμφιδέξις, the same as AMBIDEXTER.

AMPHIMETRION, ἀμφιμέτρειον σημεῖον. *Galen* in his Exegeſis, says *Hippocrates*, in his second Book of Epidemics, means by this a Sign which manifests the Condition of the Uterus. But the Word is neither to be found there, nor in any other Part of *Hippocrates*. *Foſſius* thinks that the Word ἀμφιδύμιον, in the sixth Book of Epidemics, *Seſt.* 8. *Aph.* 38. should be ἀμφιμέτρειον, and that *Galen* alludes to this Passage.

AMPHIPLEX, ἀμφιπλήξ, according to *Ruffus Ephesus*, is the Part situated betwixt the Scrotum, Anus, and internal Part of the Thighs.

AMPHIPNEUMA, ἀμφιπνεύμα, from ἀμφι, about, or around, and πνεύμα, Breath. It signifies an extreme Difficulty of breathing, in *Hippocrates*, *Epidem.* L. 4.

AMPHIPOLOS, ἀμφίπολος, a Maid-servant. This Word has no other Right to a Place in a Medicinal Dictionary, but that it is used by *Hippocrates* *Epidem.* Lib. 5. But the Case he relates in this Place is very remarkable. The Servant of *Dyseris* in *Larissa*, whilst young, felt extreme Pain in Coition, but at other times was very easy. She was never with Child. When she was about sixty, she used to be seized with excessive Pains, like those of Labour, after Noon. One Day, having eaten in the Morning a large Quantity of Leeks,

she was seized with more severe Pains than usual; and upon Examination, she felt something rough at the Orifice of the Womb; soon after this she fainted, and, during her Fit, another Woman took from her a rough Stone, as large as the Spondyle of a Distaff. After this she was well, and continued so ever after.

AMPHISBÆNA, a venomous Serpent. The Amphisbæna and Scytala resemble one another; for they are not shaped with a thick Body, tapering into a slender Tail, but are of equal Thickness throughout their whole Length; so that a Spectator is puzzled to find at what End the Head or Tail are situated. The Amphisbæna differs from the Scytala, in that it moves with either End forward, whence it takes its Name [ἀμφι either way, and βαίνα to go]. *Galen* says, the Amphisbæna is an Animal with two Heads. They say, if a big-belly'd Woman steps across this Serpent, she falls in Labour and miscarries.

The Bites of these Creatures are hardly perceptible, and much like the Punctures of Flies; wherefore they are not mortal, but cause an Inflammation like what arises from the Sting of a Bee or Wasp, tho' in a more intense Degree; so that what is good for the Stings of these Insects, will be of Service here. *Actius*, *Tetr.* 4. *Serm.* 1. *Cap.* 30.

The Colour of the Amphisbæna is a shining White, distinguish'd with reddish Spots; its Cheeks are so large, that they conceal his Eyes; and this Circumstance hath made it said, that it is blind.

It is found in the Isle of *Lemnos*; its Bite is dangerous, and requires the same Remedies as that of the Viper. It contains a great deal of volatile Salt and Oil. Its Flesh, Liver, and Heart, are proper to excite Sweat, to take away bad Humours by Transpiration, and are a good Antidote against Poison. *Lemery des Drogues*.

AMPHISMILA, ἀμφισμίλα, from ἀμφι, on each Side, and σμίλα, an Incision Knife. A dissecting Knife, with an Edge on each Side. *Castellus* from *Galen*.

AMPHISPHALSIS, ἀμφισφαλισίς, from ἀμφι, and σφάλω, to wander. *Foſſius* translates this by the Words, *Oberratio*, *Circumductio*, *Circumactio*, *Circumagatio*. This Word, I believe is peculiar to *Hippocrates*. He uses it in his Book of *Articulis*, to express a Circumaction, or turning of the Leg, in order to replace the Head of the Femur, when slipp'd out of the *Acetabulum*.

AMPHITANE, the same as CHRYSOCOLLA, which see. *Castellus* from *Fallopius*.

AMPHODONTA, ἀμφόδοντα, from ἀμφι, on both Sides, and ὀδών, a Tooth. This Word is used by *Hippocrates* in his *Treatise de Arte*, as an Epithet of Animals, to express their having a Row of Teeth in both Jaws.

AMPHORA, is a Roman Measure for Liquids. It is originally a Greek Word ἀμφορεύς, *Iliad.* 23. *Odyss.* 9. by a Syncope, ἀμφορεύς; it is so called from the two Ansæ or Handles for Carriage. It is the twentieth Part of the Culeus. It contained seven Gallons one Pint English Measure. *Arbuthnot of Antient Measures*.

AMPLEXATIO, or *Basiatio*. The Alchymists call thus a kind of Union betwixt their Philosophical Mercury, which they call the *White Female*, and by which they mean *Regulus* of Antimony, and the *Red Husband*, by which they mean Gold. This Embracing some of them express in Terms, not very decent.

AMPOTIS, ἀμποίς. It signifies properly the Recess or Ebb of the Tide. But *Hippocrates*, who was of *Cos*, one of the Grecian Islands, and must have had many Opportunities of observing the Tides, very elegantly applies this Word to the Recess of Humours, from the Circumference of the Body, to the internal Parts.

AMPULLA, a Vessel of an indeterminate Capacity, and a particular Form; for it must have a Belly like a Bottle, Jug, or Crewet, in order to be an Ampulla.

In Chymistry, any Vessels are called *Ampullæ*, which have large Bellies, as Cucurbits, Boilheads, and Receivers.

Hildanus calls the first Appearances of the Heart, Liver, and Brain, in a Fœtus after Conception, *Ampullæ* from their Shape.

AMPULLASCENS. The Alveus Ampullascens is the most tumid Part of *Pecquet's* Ducts, which convey the Chyle from its Receptacle, to the Subclavian Vein.

AMPUTATIO, Amputation.

Celsus, who lived more than an Age before *Galen*, is the first Author who gives us a Description of Amputation; and tho' his Surgery be, as is said, taken from *Hippocrates* and *Asclepiades*, he quotes neither of them with respect to that Operation.

Hippocrates treats of a Gangrene and a Sphacelus; what is putrefy'd, he says *, must be cut off, but he does not describe the Amputation of a Member. *Asclepiades* lived an Age before Christ †; we have nothing of him concerning this Affair, and do not know whether he ever performed the Operation. As

* De Articul. 4. Observ. 17. de Morb. Vulg. Lib. 2. Sect. 7. *Epidem.* Lib. 7.

† Daniel Le Clerc, in his History of Physic, Edit. 1723. p. 392. says, that this Physician was in great Reputation at Rome, during the Life of *Mitridates*, that is to say, about the Middle of the thirty-ninth Century.

much might be said of *Herophilus* and *Erasistratus*, who acted as Surgeons †. We find then no Description of this Operation before *Celsus*; however, we cannot doubt, but it was performed before his Time, and that, even the Manner of it was described in some Authors, whose Works are lost. In all Probability, the Operation was never performed in those Times; nor ever since, till the fifteenth Century, but on occasion of an Arm or a Leg affected by a Sphacelus. It seems to have been done but very seldom; because the Patients were always in imminent Danger of their Lives, or, according to *Celsus* ‡, died; for the most part, of an Hemorrhage, under the Operation.

We are not to wonder at this; for *Celsus* made no Ligature above the Place of Amputation, to compress the Vessels, and prevent an Hemorrhage; at least, he does not mention it in the Description of his Operation, which is as follows, *Lib. 7. Cap. 23.* "An Incision is to be made with the Knife in the Flesh, between the sound and the corrupt Part, as far as the Bone, in such a manner as not to do it against a Joint, and rather to cut off a sound Part than leave any thing unsound. When you come to the Bone, the sound Flesh is to be drawn back; and the Bone is to be cut upon quite round it, that it may be perfectly bare (of the Periosteum). This done, the Bone itself is to be amputated with the Saw, as near as is possible to the sound Flesh; then the Face of the Bone, which was exasperated by the Saw, is to be smoothed, and the Skin is to be brought over it; in order to which, and that it may the better cover it on every Side, it ought to be lax. Where the Skin cannot reach, the Place must be covered with Lint, and a Sponge dipt in Vinegar must be bound upon it. The Cure must afterwards be managed as a Wound in which a large Suppuration is to be prevented."

In this Description we see no Means to prevent an Hemorrhage; and this is the very Reason why the Patients often dy'd by the Loss of Blood under the Operation. But, what is surprising, we find no Method for that Purpose, in any Author who has described that Operation, till the sixteenth Century. *Paulus Aegineta*, *Avicenna*, *Guido de Cauliaco*, say not a Word of it. This last, who lived about the Middle of the fourteenth Century, made two Ligatures, one above, and the other below the Place of Amputation; but he does not say, that he made them to prevent an Hemorrhage, or so much as to take away the Sense of Feeling from the Part. We may well imagine, that he did it only to keep down the Flesh tight and firm; that the Incision with the Knife might be made with the greater Ease and Smoothness. We know not whether *Vesalius* used a Ligature to stop an Hemorrhage or not; because we do not well comprehend his Description.

Bartholomæus Maggius, who wrote about the Middle of the sixteenth Century, and whose Works are collected by *Gesner*, made a Ligature upon the sound Part, above the corrupted. They drew this Ligature very tight, to deprive the Part, in some measure, of Feeling; but there is not a Word said throughout the Whole, concerning Means to prevent an Hemorrhage during the Operation. He says, that *Celsus* made a Ligature above the corrupted Part; but *Celsus* has not describ'd his Operation in the same manner that *Maggius* reports it; and you see, by the Quotation above, that he says nothing of that Ligature. *Botallus*, Physician to *Charles IX.* says, that in his Time they made three Ligatures; one, doubtless, to take away the Feeling, tho' he does not expressly say so, and the two others above and below the Place of Amputation; but not a Word is said of the Means to prevent an Hemorrhage.

Paré, Surgeon to *Charles IX.* tells us, that when we are determined to make an Amputation, we must draw the Skin and Muscles towards the sound Part, and make a Ligature just above the Place that is to be cut, with a strong and thin Fillet, which, he says, serves, first, with the Help of the Assistants, to keep up the Skin and Muscles in a raised Posture; secondly, it prevents an Hemorrhage; thirdly, it takes away the Sense of Feeling from the Part. This is the first Author, that I find, who talks clearly of the Manner of preventing an Hemorrhage during the Operation.

Pigra, *Fabricius ab Aquapendente*, *Hildanus*, and all the Surgeons who came after him, put his Method in Practice. 'Tis true, this Ligature did not constantly and totally suppress an Hemorrhage; for the Vessels bled more or less in Spite thereof, which was an Inconvenience, that sometimes endangered the Life of the Patient.

The *Sieur Morel*, a Native of *Franche Comté*, who was a Surgeon in the Army, and a very ingenious Person, discovered a surer Method of stopping the Blood. In 1674. he invented the Tourniquet, as it is now used, by means whereof, the Operator has it in his Power, either wholly to stop the Blood, or let

it run more or less, as he thinks fit to compress the Part. It takes away the Sense of Feeling, so that the Patients feel none of those acute Pains when the Flesh is cut, and the Ligature of the Vessels is perform'd, which makes them support that cruel Operation with the more Patience; an Advantage to be reap'd but in an imperfect manner from the Method of *Paré*.

One Defect of the Tourniquet, 'tis said, is, that it pinches the Skin, and causes very acute Pains. This is true, when the Surgeon has not the Address to accommodate it in a right manner; but with a little Care and Attention, and placing a Piece of Paste-board at the Side of the Stick, that Accident is avoided.

Another Defect imputed to the Tourniquet is, that, tho' it prevents an Hemorrhage after the Operation, we dare not leave it on the Part, because it entirely suppresses the Circulation of the Blood below the Place where it is apply'd, by which means that Part is in Danger of a Mortification. *Monsieur Morel* did not pretend to make any other Use of his Tourniquet, than as a sure means for preventing an Hemorrhage during the Operation, and till he had secured the Patient from such an Accident by the Ligature of the Vessels, which none had ever been able to do before. Besides, it is very rare to see an Hemorrhage break out afresh, when the Ligature is made according to the manner, of which we shall speak in the Course of this Memoir; after we have taken a View of the Methods formerly used in cutting the Flesh.

Neither *Hippocrates* nor *Galen*, as I said, have given us any Description of Amputation; it would be in vain then to search in these Authors for the Manner in which they cut the Flesh, or how they stopp'd the Blood in the Vessels. They have only left us, in general, their Method of stopping Hemorrhages; but have not told us a Word, in particular, of the Means of stopping the Blood in an Amputation.

I have been surpris'd not to find the Operation of Amputation in *Galen*, who describes the Operations of Surgery in so clear a manner. He wrote of a Gangrene and Sphacelus*; he says, after *Hippocrates*, that the corrupt and putrid Flesh must be cut away; but says no more of it. It appears however, that this Operation was practis'd at *Rome* in his Time; for *Celsus*, who was a *Roman*, and lived about a hundred Years before *Galen*, has described it, and practis'd it himself, or saw it done by others. *Galen* cites neither Physician nor Surgeon who performed that Operation: He ought, at least, to have cited *Celsus*, who must have been in great Reputation for Surgery; but I do not so much as find the Name of *Celsus* in any Place of *Galen's* Works.

We have inserted, in the Beginning of this Discourse, the Description which *Celsus* has given of the Operation. We have seen, that he cuts the Flesh to the very Bone, and does it in the quick; rather than in the mortified Part. He saws off the Bone, and brings the Skin over the Stump, and no doubt over the Mouths of the Vessels, tho' he does not say so. But how can that Skin be brought to cover the Bone and the Vessels? We don't find, that he takes the Precaution to draw up the Skin and the Flesh above the Part, unless we are willing to suppose; that he would be so understood. Besides, it does not appear, that he form'd a Label of Skin, as some Surgeons did at the End of the last Century; the thing is so remarkable, he would not have fail'd to speak of it. He cut very near the mortify'd Flesh, *inter sanam vitiatamque Partem*, which was not the way to facilitate his leaving a Label of Skin. He did not pass a Thread across the Flesh; and into the Skin, as it has been the Practice since his Time, in order to keep down the Skin tight upon the amputated Part. And yet it is plain by the Description, that he intended the Skin should cover the Bone, and reunite with that and the Flesh; and in order that this might be done with the greater Facility, he left the Skin to hang loose; but this could not be effected without drawing up and raising that Skin above the Amputation. But he does not say so much; his Words are only these; *Supraque inducenda Cutis, quæ sub ejusmodi curatione laxa esse debet*. He took care to clear the Face of the Bone from those Asperities which the Teeth of the Saw might have produced on it, and which require Exfoliation; and, in the last place, he applies an Astringent to the Vessels, but mentions nothing of a Cautey, or Ligature of the Vessels. Such a Proceeding would be contrary to his Design, which, in all Probability, was to close up the Orifices of the Vessels, with the Skin and the Flesh brought down along with it; and by that means to prevent an Hemorrhage, and unite them all together. He thought it sufficient to put some Tow or Lint to the Part where the Skin could not reach, and over all to apply a Sponge dipt in Vinegar. By this Method he avoided a Suppuration, and healed up the Wound with great Expedition. This is exactly the Method

† Mem. Acad. An. 1725. p. 11.

‡ Lib. 7. cap. 33. *Sed id quoque cum summo Periculo fit; nam sæpe in ipso Opere, vel Profusione Sanguinis, vel Animæ Defectione moriuntur.*

"But this too is not performed but with the utmost Danger; for the Patients often die under the Operation, either of an Hemorrhage, or fainting."

* Lib. 2. ad Glauco. cap. 9. In Lib. Hippocr. de Fruct. Comment. 11. De Meth. Med. lib. 2. cap. 9.

of Verduin and Sabourin, one a Dutchman, and the other of Geneva, who, towards the End of the last Century, did both at one time set up the Practice of this Operation, with leaving a Part of the Skin and Flesh in Form of a Label, for the more easy covering of the Bone and the Mouths of the Vessels, which they call'd the Operation of Amputation with a Label [*Operation de l'Amputation à Lambeau*]. By this way they avoided a Suppuration, and also shortened the Cure of the Wound:

It were to be wish'd, that *Celsus* had explain'd himself more clearly on the Means he us'd to keep the Skin loose. We find in our Times, that whatever Endeavours are us'd to draw back the Skin and Flesh before they are cut, we are not able to bring back the Skin over the Bone after the Amputation, at least, not to keep it there with any manner of Facility; which obliged several celebrated Surgeons to retain the Skin and Flesh upon the Wound, by means of a Thread pass'd across them. We shall take Notice of this, when we come to speak of those Surgeons, who have described this Operation at the End of the sixteenth and in the seventeenth Centuries.

It appears, from all that I have just now said, that there are abundance of Obscurities in the Description of *Celsus's* Operation.

Paulus Aegineta, who, according to Dr. *Freind*, lived in the seventh Century, is the first, that I can find, who, since *Celsus*, has described this Operation, *Lib. 6. Cap. 84*. He does not want Obscurity any more than *Celsus*, and 'tis not easy to discover whether he cuts in the sound or sphacelated Part. He relates the Manner in which *Leonidas* perform'd that Operation, and says, that before sawing the Bone, it was necessary to put a Linen Cloth, or broad Fillet upon the Part that was cut, to hinder the Saw from touching it, and so putting the Patient to Pain; which shews, in some manner, that he cut in the quick Part; and to stop the Hemorrhage, he seared the Orifices of the Vessels, with an actual Cautery.

Avicenna, who lived in the twelfth Century, advises cutting in the Sphacelus, to avoid an Hemorrhage, and to apply heated Irons to the mortify'd Part, that is left under the sound.

Guido de Cauliaco cut the Flesh between two Ligatures, and, after the Example of *Paulus*, apply'd a Linen, or broad Fillet upon the cut Part, to defend it from the Saw: He then saw'd off the Bone, and cauterized the Flesh with hot Irons, or boiling Oil.

Vesalius, who wrote in the sixteenth Century, has given a Description of this Operation, in a manner which is a little confused. He speaks of a Ligature, but 'tis impossible to discover how or for what Purposes he us'd it. It appears, that he cut the Flesh with a hot Knife; but we can only guess whether it were in the quick or in the dead Part. At last he applies hot Irons to the large Vessels, and to the Flesh, which he cauterizes till the Patient feels the Pain. This makes it conjectured, that he cut in the mortify'd Part, and that the Vessels did not bleed afterwards; then he cauterized the Fore-part of the Bone, to make it exfoliate the more readily.

Bartholomæus Maggius, Cotemporary with *Vesalius*, cut the corrupted Part, and separated it from the sound; and after he had saw'd off the Bone, applied hot Irons to the Vessels, and the Flesh that was half corrupted, or dipp'd the Member in boiling Oil, alone, or mix'd with Sulphur, till it penetrated to the quick; and this was very near the Method of *Guido de Cauliaco*.

Botallus relates the Operation in the same Manner as *Maggius*, only makes no mention of the boiling Oil. But this Gentleman found it took up too much Time to perform the Operation this way; and besides, in his Opinion, it put the Patient to too much Pain in sawing of the Bone, from which it was impossible to take off all the Flesh that stuck to it, but that some would be mangled with the Saw, especially when there were two Bones to be saw'd. He contriv'd therefore a Method to cut off a Limb with one Stroke; a Method, he says, the surest, easiest, and quickest, that can be imagin'd. For this Purpose he made use of two large Knives, like Butchers Cleavers, one of which was fastened in a Block of Wood, and placed between two wooden Posts; the other was fixed in a Piece of Wood, that slid up and down between the Posts by means of Grooves, after the manner of the Machine us'd for drawing Piles. The Member was placed between the Posts upon the under Cleaver, and the Piece of Wood, which was rais'd aloft, and charged with Lead to make it the more ponderous, being let fall, the Limb was cut off in an Instant, by the Meeting of the two Knives, with very slight Pain to the Patient. A Cautery was immediately applied to the Vessels, and the Hemorrhage was very inconsiderable.

This Method has been censured on account of the Contusion which the Flesh suffer'd; but principally for fracturing the Bones, which broke into several Splinters, and rendered the Cure difficult. It was for this last Reason, I suppose, chiefly,

that this Practice was not at all followed. *Botallus* cites one Mr. *Jaques*, surnamed *Regius*, a Surgeon, who practis'd this Operation with Success. *Hildanus* strongly oppos'd this Method.

Paré, Cotemporary with *Botallus*, cut the Flesh in the quick with a crooked Knife, and made use of 2 broad Fillet, cut in two, like *P. Aegineta* and *Guido de Cauliaco*, to raise and cover the Flesh, and defend it from the Saw. He then cut with an Incision-knife, a little crooked, the Flesh between the two Bones, when an Amputation was to be made of the Leg. After this he saw'd off the Bones, and then took hold of the Vessels with the Forceps, called the *Crow's-bill*, stretch'd them out, and ty'd them up with a double Thread together with the Flesh, if any happen'd to be in the way. He then took off the Fillet, that bound the Limb above the Amputation, and, passing a Needle and Thread through the Lips of the Wound, making four Holes crosswise, he drew over the Bones the Skin and Muscles that were cut, tho' only so far as till they were extended to the same Length as before the Amputation, not drawing the Threads too close. If the Ligature of any Vessel unloos'd, *Paré* did not trouble himself to search for it with the *Crow's-bill*, for so he would never have found it; but, without tying up the Member with a new Ligature, ordered it to be grasp'd by a strong Man, who press'd hard on the Part where the Course of the Vessels lay; then he took a square Needle well edg'd, four Inches long, and threaded with a good Thread three or four times doubled, and pass'd it into the Flesh at half a Finger's Breadth from the Orifice of the Vessel, and above it; then, carrying it round the Vessel, he repass'd it below the same, and drew it out an Inch from where it enter'd. Between the two Ends of the Thread, he placed a small Bolster, and upon this he made a Ligature. After this, he apply'd Astringents to the Wound, and dress'd it on the fourth Day.

Paré makes us observe, that in an Amputation of the Leg, he causes the Member to be held bended, because after the Section of the Bone, it must be extended, that the Vessels, which are to be ty'd, may the better appear. He says, he is the first who found out this Expedient. I could never conceive how it should produce the Effect which he ascribes to it: For as the Vessels are united with the Flesh which surrounds them, they stretch or contract together with it by the same Springs. *Paré*, however, made Discoveries of greater Importance; for he was the first who practis'd Ligatures of the Vessels in Amputation; and notwithstanding the Fury of *Gourmelen* against them, this Method has been found very serviceable, and has been followed.

I find yet more new Inventions of *Paré*; he does not indeed claim them for his own; but I have met with them nowhere else. One is, that he is the first who introduced the Use of the crooked Knife for cutting the Flesh. It does not appear, that *Maggius*, who wrote but a little time before *Paré*, us'd it; he says nothing of it in his Description. I would not however pretend to be sure, that it was never made use of before *Paré*; there is a Place in *Botallus* which may make us suspect the contrary. In the Description he gives of the Manner of operating in his Time, he uses only the Word *Culiro* * in the Ablative Case, without saying whether the Knife was crooked or not; but his Commentator *Van Horne* says, *Cultrum intelligit instar corniculatæ Lunæ falcatam*, "He means such a Knife as is falcated like the horned Moon." *Botallus* makes use of the Term *Novacula*; but *Hildanus*, who us'd a crooked Knife, calls it also *Novacula*.

The other new Invention, or Improvement, which I have observed in *Paré's* Description, is, that he cuts the Flesh between the two Bones of the Leg; for this Purpose he made use of an Incision-knife a little crooked. It is not certain, that *Paré* was the Author of these two last Inventions; he would not have fail'd, it is probable, to have valued himself on their account, as well as the preceding, since they were of great Service, and have been constantly us'd since that Time.

There is still another thing, which I don't find in any before him, and which he does not ascribe to himself any more than the two last; it is this: After he had ty'd the Vessels, he brought the Skin and Flesh over the Bone, and held them there, by running two Threads crossing one another over the Lips of the Wound. This Expedient was doubtless practis'd in his Time, but it was of no Use, and even impracticable on some Occasions. It was of no Service, first, when the Flesh was cut in the mortify'd Part, because the putrid Skin and Flesh would not bear Perforations of the Needle, but must easily break away. Secondly, they who cut in the quick, and applied hot Irons over all the Surface of the Amputation, could make no use of it, because of the Crust form'd there, and because the half-roasted Flesh would easily break out: And even they who made no use of Fire at all, found themselves oblig'd to disuse it, because, when the Threads were drawn tight, it caus'd much Pain, and excited an Inflammation in the Part,

* De Vuln. Sclop. cap. 22. *Duplici modo Chirurgica Ars, dum fas est, amputare solet, nempe Serra & Culiro*. "The Surgeon's Art is exercised in Amputation, when the Case requires it, two ways, that is, with a Saw or a Knife."

which obliged them to cut the Threads sooner than they intended. It could do no Service, if the Threads were not drawn somewhat close; and Bandage alone was sufficient to answer the Intention proposed by this Method.

Daniel Sennertus has described Amputation after the same Manner as *Paré*.

Pigray differs not from *Paré*, but in that he says; when he could not easily take hold of the Vessels with the Crow's-bill, his Manner was to cauterize them with an actual Cautery.

Guillemeau is of the same Opinion; but besides, he makes a Ligature of the Vessels after a particular Manner: He pierces the Skin above the Amputation with a good Needle and Thread, which he carries above and beyond the Vessel, and brings it out under the Skin a Finger's Breadth from where it entered, and by this means takes in the Vessel and the Flesh, which he binds tight by tying the two Ends of the Thread upon a small Bolster, put there to hinder the Thread from cutting the Skin. This Method does not appear to have been followed by any but *Dionis*, who too has made some Alteration in it.

Fabricius ab Aquapendente, who wrote in the Beginning of the seventeenth Century, cut the Flesh an Inch within the Sphacelus, after the Manner of *Avisenna* and *Vesalius*. By this Method, he said, he avoided the Hemorrhage and the Pain. Afterwards he apply'd Fire to the Place till the Patient felt the Heat, and a Crust was formed upon the Mouths of the Vessels.

The Practice of this Method has at last been quite abandon'd, because it is subject to several Inconveniencies. The first is, that whatever Precautions you take to burn away all the mortify'd Part which is left under the quick, 'tis to be feared there will remain enough to produce a Corruption in the sound Part. A second Inconvenience is, that the sphacelated and cauterized Part being separated from the quick by Suppuration, there remains a long Stump of a Bone, that sticks out, and very much retards the Cure of the Wound, which is not easily consolidated.

Marcus Aurelius Severinus gives the same Description of the Operation as *Paré*, but differs from him, in that he makes no Ligature of the Vessels, but only brings the Skin over the Wound. He covers the Vessels, and retains the Skin over them, by passing the threaded Needles across. The Inconveniencies of this Method have been made to appear.

Gulielmus Fabricius Hildanus, after tying the Limb very tight, to suspend the Circulation of the Blood, binds it down to a Bench with a Fillet, and draws over it a sort of a leather Sleeve, which may be closed at the End like a Purse. He then cuts the Flesh in the quick home to the Bone, either with a Razor, or a crooked two-edged Knife; he lays the Bone bare of the Periosteum, and when there are two Bones, he cuts the Flesh between them with an Incision-knife bent a little crooked; after which, he envelopes the cut Flesh by drawing the Strings of the Sleeve, and by that means pulls it back, and raises it; he lays the Bone bare, and prevents the Blood that comes out of the Vessels from covering the Place where he is to apply the Saw. Then he saws off the Bone, and, taking off the Sleeve and Fillets, applies an actual Cautery to the Vessels, till there is a Crust form'd for stopping of the Blood.

What is peculiar in *Hildanus* is, first, the making use of a Bench, to which he binds the Member that is to be amputated. But this appear'd to be very useless, and might, possibly, be troublesome; which was the Reason, that he was not follow'd in this Particular. In the second place, he uses a sort of Sleeve of Leather, which is also more troublesome than useful, since a wide Linen Fillet, cut in two at one End, would with greater Ease and Readiness answer the Purpose. *Hildanus* also sometimes made use of a red-hot Knife to cut the Flesh, and of an actual Cautery for stopping the Hemorrhage from the Vessels, especially when the Member was sphacelated. But, according to him, a Ligature would be sufficient, if the Patient were young, robust, and plethoric, in which Case he makes his Ligature like *Paré*. He is wrong in quoting *Celsus*, *Galen*, and *Avisenna*, for the Ligature of Vessels in Amputation; for they never used any but for Vessels that were opened by Wounds, as I observed before.

Hildanus brings the Skin and the Flesh, as far as possible, over the Bone, without keeping them there by a Thread passed through the Skin and Flesh crosswise, which he disapproves for the Reasons above-mentioned.

Vigier, who published his chirurgical Works about the Middle of the Century, made an Amputation, after the same Manner, and with the same Precautions, as *Pigray*. *Barbette* did the same; he wrote a little later than *Vigier*.

Nuck closely followed their Steps: He is the first who speaks of the Tourniquet, which Mr. *Morel* invented for preventing the Hemorrhage; but he found the Ligature so painful, that he chose rather to make use of an actual Cautery. In this Point he is mistaken; for a Ligature of the Vessels well made is less painful, and surer, than an actual Cautery. *Nuck* advises us to use a sort of Mush-room, which he calls *Bovist*, and we *Puff-balls*, which is commonly used in *Germany* and *Holland* for stopping of Hemorrhages.

Charrierre, *John-Baptist Verduc*, and *Dionis*, have done nothing but copy preceding Authors in their Descriptions of Amputation. But *Dionis* gives us two new ways of stopping the Blood by a Ligature of the Vessels. In the first, he ties up the Vessels with a Needle and waxed Thread, and makes use of a *Valet à Patin*, [Nippers with a Ring] with which he takes hold of the Vessel, and pulls it out from the Flesh; he winds the Thread about the Vessel, and after passing the Needle through the Extremity of the Vessel, ties the Thread, and fastens it in such a manner as not to be thrown off by the Pulsation of the Artery. In the second Method, he takes two Needles threaded in like manner with waxed Thread; with one of them he pierces the Flesh above the Vessel, and having passed it through the Flesh and Skin, he draws it out two Fingers Breadth above the Amputation. With the other Needle he enters the Flesh and Skin below the Vessel, and pulls it out half a Finger's Breadth from where the other Needle came forth; he then lays between them a little Bolster, on which he ties the two Threads with a Knot, and so closes the Vessel. This second way differs not from what *Guillemeau* speaks of, except in that the latter uses but one Needle.

The *Valet à Patin* is a sort of Nippers, invented about the Middle of the last Century, and not much used at present. *M. Garangeot*, Master Surgeon at *Paris*, gives a Description of it with a Figure. When that Instrument began to be used, there went over it a Thread with a sliding Knot. They drew out the Artery with the *Valet à Patin*, and ty'd it with the Thread in a Knot, that could not slide. This Invention was subject to two Inconveniencies: First, If the Thread was drawn a little too tight, to prevent its slipping, it would cut by degrees the Artery, which being ty'd at its Extremity, would separate too soon, and be followed by a new Hemorrhage, more dangerous than the former. Secondly, If the Ligature was made a little too loose, the continual Pulsation of the Blood would by degrees push the Thread to the Extremity of the Vessel, where it would slip off. *Dionis* was willing to remedy this Defect by passing a Thread through the Vessel, in the way that he first proposed; but this was too troublesome a Method to be followed, and his second was more so, and besides put the Patient to greater Pain. At present, they tie the Arteries after the Manner of *Paré*, which is the most simple Method, and followed by all good Artists. They pass the Needle, as I said before, through the Flesh which surrounds the Artery, and fasten the two Ends of the Thread with a Knot upon a small Linen Bolster. *Dionis* tells us also, that he could stop the Blood with a Button of Vitriol, which was practised and recommended by several Surgeons of the last Century.

Cyprus Vitriol, which is what is used to cauterize the Orifices of the opened Arteries, and raises a good Eschar on the Place, does not so readily stop the Blood as an actual Cautery and Ligature. It must liquefy, in order to insinuate into the Pores of the Flesh; so that this Remedy works but slowly. The Blood would soon break through the Barrier opposed to it, if we did not take great Precaution. They who used this Method, laid graduated Compresses on the Button of Vitriol, and other long Compresses on the Course of the Vessels, in such a manner, that by the Help of a pretty tight Bandage, the Flesh might be compress'd upon the Vessels.

A Servant must be sure to attend, in order to keep his Hand continually upon the Stump. We ought indeed to take the same Precautions in all other Methods of Amputation; but this, in particular, requires the most careful Attention.

As to the rest, we must avoid making use of strong Suppuratives, for fear of making the Eschar separate too soon, and fall off before the Mouths of the Vessels are entirely closed, and quite stopp'd up.

Here it will not be foreign to my Purpose, to explain the Action of Escharotics. I shall give you my Conjectures about the Matter, which is full of Difficulties, as well as many others. I am always for running this Hazard of exposing my Sentiments, because it will doubtless engage some able Naturalists to examine them with Attention, and perhaps propose such as are more probable, which will be received with Pleasure.

We make use of two sort of Cauteries or Cauterics in general, which are, the actual and the potential Cautery. The actual Cautery is Fire, and all burning Bodies, as heated Iron, very hot Water and Oils, &c. When these are apply'd to any Part, their Heat penetrates the Flesh, where the Air is included in the circulating Liquids. This Air is rarefy'd and expanded to an extraordinary Degree by the great Heat. This violent Expansion separates and disunites all the Parts in which the Air is contained, and so destroys their Structure. The expanded Air easily escapes through the Pores and Interstices of the Flesh, whose Contexture it has thus destroy'd; and carries with it, at the same time, all the aqueous Particles contained therein; which is the Cause of the drying up of the cauterized Part, and the forming of a Crust upon it.

Melted Lead, melted Sulphur, and very hot Oils, which some make use of, act after the same Manner.

I make three Sorts of *potential* Cauteries, according to the Parts on which they act. The first act only on the Flesh uncovered of its Skin, the second on the Skin and the Flesh, and the third only on the Skin.

The Cauteries of the first Sort are *Cyprus Vitriol*, *Arsenic*, the *Sublimate Corrosive*, &c. These make no Eschar but in the Flesh, and make none at all when apply'd upon the Skin. *Cyprus Vitriol* is what is commonly used to cauterize the Vessels, because *Arsenic*, and the *Sublimate Corrosive*, act too slowly, tho' otherwise they make a good Eschar. These Salts absorb the Humidity which dissolves them, by means of which they are introduced into the integral and extremely sensible Parts of which the Flesh is composed. The Blood, which circulates in those Parts, continually supplies them with new Humidity, which probably unites with the saline Particles in proportion as they arrive, which occasions these Particles to penetrate more and more into the Flesh, where they still find new Humidity, which gathers about them; hence the Pores, which contain them, must be considerably enlarged, and the solid Particles, which compose the Partitions between them, are obliged to give way, and separate; by which means the Texture of the Fibres, which compose the Vessels and the Flesh, is quite subverted, and forms a Substance which is no longer Flesh, nor capable of receiving Nourishment.

The potential Cauteries of the second Sort are of several Kinds; some of them are liquid, others solid. The liquid cauterize the Skin and the Flesh, at the Instant they are apply'd; such are Oil of Vitriol, Spirit of Nitre, Aqua Regia; their Action is very quick. Spirit of Salt, and Spirit of Vitriol, cauterize but slowly, and are seldom used alone, but in Conjunction with some metallic or saline Particles. Butter of Antimony, Butter of Arsenic, the Oil or Liquor of Mercury, which proceeds from the Washings of Turbith Mineral, are more frequently used.

Solid Caustics are either metallic or saline. The metallic are *Lapis infernalis*, made with Silver or Copper, dissolved in Spirit of Nitre, or Aqua-fortis.

Saline Caustics are in common Use, and properly called *Cauteries*. They are made of Lime and Ashes of Tartar, &c. They prepare them also from the Lye of the Soap-houses, which is composed of Kali, Quick-lime, and Copperas, &c. But these are not so good Cauteries as the preceding.

These Caustics burn and cauterize the Skin and Flesh, and produce an Eschar, without causing any great Pain.

In order to explain the Action of these Caustics, you must observe, that generally, all Bodies which have endur'd a strong Fire, are Caustics. Some of these lose that Causticity in cooling; such are all actual Cauteries. Others preserve their Causticity in cooling, which is the Case of potential Cauteries.

Caustics of the third Sort act upon the Skin. These are improperly called *Escharotics*, for they make no Eschar; it does not so much as appear, that they act upon the Epidermis, which remains whole and entire. I would not place them in this Rank, did they not work very nearly the same Effects as are produced by very hot Bodies, which remain but a very short time on any Part. They produce nothing but Vesicles on the Skin, and for that Reason have the Name of *Vesicatories*.

In the Number of Vesicatories are rank'd,

Cantharides, which are of most frequent Use.

The *Ranunculus Tuberosus major*, *J. B.*

The *Flammula Ranunculus*, *Dod.*

The *Flammula*, *Dod. pempt.*

The *Flammula altera*, *Dod.*

The *Flammula Jovis Surrecta*, of *Ger.*

Fabricius ab Aquapendente chose rather to make use of this Herb than Cantharides, because it occasions no Disorder in the Bladder, as Cantharides sometimes do, in his Opinion. For my part, I never knew any ill Accident happen from the Use of them, tho' I have ordered their Application a vast Number of times.

They also use very often the Root of *Thymelæa* [Flax-spurge]. *Petit* in the *Memoirs of the Royal Academy of Sciences* 1732.

Having given the History of Amputation, I shall proceed to specify the Operations requir'd for the Amputation of particular Parts, as now practis'd, from *Heister*.

Amputation of supernumerary Fingers.

Children are sometimes born with supernumerary Fingers, which are generally mis-shapen, and inconveniently placed. These Fingers are not all of the same Nature. Some have Bones and Nails; others want them, and appear to be nothing but carnosus Excrescences. If any of these are troublesome, or deform the Hand, they ought to be cut off. If there are no Bones in them, the Knife is most convenient; but if there are Bones, a strong Pair of Sheers will better do the Business, by taking off all together. Sometimes more than one of these Fingers are found upon the Hands of Infants, who are too infirm and tender to bear immediately the Repetition of such an

Operation, and the Pain attending it. In this Case it is safest, after the Excision of one Finger, to allow so long an Interval, that the Wound shall be entirely heal'd before you proceed to amputate the other. The Flux of Blood is easily stopp'd with Lint and Compresses, either dry; or wet with Spirits of Wine, and the Wound is readily healed with a Vulnerary Balsam, as other Wounds. It will not be foreign to the Purpose to mention here, in few Words, a Case of this Kind, which I myself was concerned in. An Infant about three Months old had a very long preternatural Finger growing to the Thumb, (See *Tab. 33. Fig. 15.*) and had a strong Bone in it; but instead of a Nail at the End, a Substance like a Cock's Spur protruded: I made an Incision quite round the Integuments, and then with a Pair of Sheers took off the Bone; this done, I stopp'd the Bleeding with Lint, and Compresses wetted with Spirits of Wine, and dress'd the Wound with a Vulnerary Balsam, which soon heal'd it. I could here produce many Instances of Cures of this Kind, which I have performed both in the Hands and Feet; but one Case is sufficient, as the others are much of the same Kind, and the same Method of Cure was observed in all.

Amputation of the Fingers.

The Fingers require Amputation, when they are so lacerated or bruised by Bullets, or other hard Bodies, that they cannot be restored to their former State; or are totally mortified; or being indurated, or affected with a Caries, or Cancer, cannot be cur'd by other Treatment.

But Surgeons should be very careful not to cut off any bruised or fractur'd Fingers, whilst there remain any Hopes of saving them: Therefore if the Fingers are only moderately broken, or gangren'd, let some spirituous and resolving Fomentation be judiciously apply'd, in order to prevent their farther Corruption; and let the Fragments of the Bones be carefully replac'd, and treated in the manner directed for Fractures.

If any Parts of the Fingers are so much fractur'd as to be almost entirely divided from the rest of the Hand, in this Case they may immediately be separated from it with the Knife or Sheers. The same Rule is to be observ'd when a Finger is totally mortified; for a Delay, at such a Juncture, would be attended with great Danger.

But if a Finger should be cut, by a sharp Instrument, almost off, if the Wound is fresh, however bad, it will be then better to replace it in its former Situation, than wholly to divide it; and even if the Part is quite divided from the Hand, provided the Wound is oblique, it will be prudent to fix it in its proper Situation, and to try by Degrees to unite it: For it is better to attempt a Union of the Parts this way, tho' your Labour may sometimes be in vain, than rashly to destroy all Hopes, by cutting off the Finger, which perhaps might have been sav'd.

Heister gives an Instance of a Butcher's Wife, who entirely cut off a Finger, by an oblique Wound, with a Cleaver; she immediately replac'd it, and secur'd it with Bandage, and it united without farther Applications.

Amputation of the Fingers is perform'd three ways: First, With the sharp Forceps, or, which is preferable, especially in Children, with a strong Pair of Sheers.

Or, secondly, with the Chisel and Mallet, by which the Part is very readily cut off at one Blow (See *Tab. 33. Fig. 17.*): This Operation I have performed several times in cancerated and cariated Fingers; and also when the Bone has been corrupted. *Roosbuisen*, in a Spina Ventosa, also has done the same upon a scirrhus great Toe with Success, whatever some People may think to the contrary.

Or, thirdly, a mortified Finger is to be taken off with a Knife at the Joint, leaving Skin enough to cover the End of the Bone. This Method of Amputating is preferable to both the other, as the Work is done without any Danger of splintering the Bones, and thereby causing another Caries. By this Method I have frequently cut off the Fingers, Thumbs, and Toes, even of old and decrepit People, where the Bones have been wholly carious, at their Articulations with the metacarpal or metatarsal Bones, and have made a perfect Cure. However inconvenient this way of Amputating may seem to some, who imagine the Skin will not grow over the Cartilage without a great deal of Difficulty, if at all, yet I have never found it so. But this Inconvenience may be avoided, by not only drawing back strongly the Skin before you make the Incision, but by taking off with a Knife the Cartilage at the End of the metacarpal or metatarsal Bones; for by so doing, they will more easily unite and grow together. The Finger being cut off, the Wound must be dress'd with Lint, and bound up with Compress and Roller. If the Patient is full of Blood, let a few Ounces run from the Wound before you bind it up; for after this there will be little Danger of a fresh Hemorrhage, and indeed I never remember one to have happen'd after it. If two Joints of the same Finger are mortified with Part of the third, it will then be better to cut away with a Chisel the corrupted Part only, than by a more painful Incision to divide the

Whole

Whole with a Knife from the metacarpal Bone. But if a Mortification has seiz'd the whole Finger, or Toe, it must be amputated in the Joint, leaving a sufficient Portion of the Skin:

Of the Amputation of the Hands, Arms, and Humerus.

Amongst chyrurgical Operations the Amputation of the Arms and Feet appears the most cruel and terrible, and this not without Reason; notwithstanding, in some Cases, it is found necessary for the Preservation of the Patient's Life. For when a Mortification has seiz'd upon the whole Member, and destroys even the Muscles; or when both Bones and Muscles are corrupted; after a Fracture; or when an incurable Caries, or Spina Ventosa, affects the Member; or when the Brachial, or especially the large Crural Artery, is so much wounded, that the Blood cannot be stopp'd: In these Cases you will scarcely be able to save the Patient's Life without taking off the Limb; nor will that always do it. Lastly, it must be perform'd in Limbs, especially the Hands, when render'd monstrous, by a Spina Ventosa, or any other Cause, especially if they are very painful. *Marcus Aurelius Severinus*, in his *Treatise de Abscessibus*, *Bidloo*, in his *Exercitationes*, and *Ruyfch*, give some Cases of this Kind. In the mean time let me seriously admonish the Surgeons, never to undertake an Amputation of this Kind rashly, and without the Counsel and Assistance of other prudent Physicians and Surgeons, lest perhaps they should afterwards be accus'd of Cruelty, Rashness, or Imprudence.

But that it may appear more plain how Operations of this Sort must be perform'd, it will not be amiss to treat them in a regular Order. I will therefore begin with the Hand.

The Hand may be amputated at one Blow, as was formerly practis'd, by placing a strong and sharp Chisel near the Wrist, and with a heavy Mallet driving it through. But this way of Amputating is not only very hazardous, but also very pernicious. For there is always Danger, lest the Bones of the Wrist or Cubit, by the Violence of the Blow, should be shivered or broken, and the Patient thereby expos'd to very great Inconveniences.

Fabricius Hildanus is of the same Opinion, and says farther, it is an Operation too violent and cruel, and consequently unbecoming a rational Surgeon.

The modern Surgeons therefore act very reasonably in substituting the Knife and Saw in the Place of the Mallet and Chisel. But here great Care must be taken, that the Saw be not apply'd to the Carpus or Metacarpus; for should the Ligaments, and those little Bones, be lacerated and divided with the Saw, a great deal of Pain and Danger would arise. It is better therefore, according to the present Method, that the Hand be amputated with the Knife and Saw, apply'd to the Bones of the Cubit, in the manner I shall describe; and at the same time it will appear how we are to proceed in amputating the Arm, or Cubit, and the Humerus. *Heister*, however, thinks, that the Hand may be amputated at the Articulation with the Cubit, with the Knife only, tho' he has never made the Experiment.

In cutting off the Hand, or Arm, whether on account of a Mortification, incurable Caries, or any other Cause, two things seem principally necessary to be regarded. The first is the Place where the Operation must be performed, which is at least a Finger's Breadth, or two, above the dead or corrupted Part, but never upon the sphacelated or corrupted Part. Moreover an Amputation of a large Limb must not be performed in the Joint, on account of the extreme Thinness of the Flesh in those Parts, which cannot, in the Opinion of Surgeons, cover the Bones, and heal over them; from whence a Caries may arise, with many other Inconveniences.

Notwithstanding, if a sufficient Portion of Skin on both Sides be saved, I imagine the Wound may be heal'd in the same manner as it is in a Finger cut off at the Joint.

The Place for Amputation being determin'd, that the Operation may succeed the better, it is necessary, in the next Place, that the Instruments and Apparatus, both for the Amputation, and Dressing afterwards, should be ready beforehand, and placed regularly in two Dishes, or on two proper Tables, but not in the Patient's Sight, lest he should be terrified by seeing them.

But lest any one should be unacquainted with the Instruments and Apparatus necessary in this Operation, it will be worth while to enumerate them all in this Place. We will begin with the Torcular or Ligature, with the Turn-stick, call'd by the French Tourniquet. There are various ways of making it, but this is the readiest.

Take a Fillet, about an Inch broad, and a Yard and a Quarter long; then provide a cylindrical Piece of Wood, or Stick, of about a Finger's Length; and then a Fillet roll'd up two Fingers thick, and four long; longer Cloths or Compresses must also be provided to encompass the Limb, which must be three or four Fingers broad, over which the Fillet is to be apply'd; and lastly, a Piece of Pastboard, or thick Leather, about four Fingers square.

The Method of using the Torcular or Tourniquet is thus: Let the Fillet roll'd up be plac'd lengthways upon the large Artery of the Limb, the Situation of which is known from the Anatomy of the Part, and upon this let Compresses be plac'd transversely, so as to encompass the Limb like a Ring; then wind the long Fillet twice round these, but loosely, so that the Hand may easily pass betwixt it and the Limb, and then fasten it with a Knot; then upon the Side of the Limb, opposite to the roll'd Fillet, place the Pastboard or Leather under the long Fillet, upon which let the Fillet be twisted with the Stick, till the Circulation is wholly stopp'd; the Stick must be held fast, lest it should give way before the Limb is amputated, and the Profusion of Blood stopp'd, either by astringent Medicines, by Ligature, the actual Cautery, or by any other Art whatever; which being performed, the Torcular may be loos'd, and entirely remov'd. See the long Fillet, with the cylindrical Stick, *Tab. 24. Fig. 2.* and the Manner of placing it, *Tab. 24. Fig. 1. K L N.*

Mr. Petit, a celebrated Surgeon at *Paris*, has invented another Sort of Torcular, which is called by his Name, and is preferable to the other, as its Pressure continues without any Assistance; whereas, when the common Torcular is us'd, an Assistant is oblig'd to hold and manage it: And again, because if Necessity requires, it may remain upon the Limb, as long as may be judg'd proper, without Impediment to the Circulation of the Blood in the affected Part; whereas by the common Torcular the Blood is wholly intercepted, insomuch that in a little time it must be taken off again. These are Advantages in Hæmorrhages from Wounds, or otherwise, where the Torcular is sometimes us'd; but Disadvantages in Amputations, where the Circulation ought to be stopp'd in the whole Limb for some time.

I have endeavour'd to alter and improve *Petit's* Torcular. See *Tab. 26. Fig. 6.* where A A denote the superior Part, B B the inferior, and C the Screw, all represented in their proper Size, and made of some strong and durable Wood. Towards the Extremity at D are inserted two lesser Screws, made of Iron, to which a strong filken Fillet is to be fix'd, which must be as wide as the Torcular, and twenty Inches long, that it may the better reach round the larger Members; the other End is to be fix'd to the small Hooks represented at E; in the Extremities F F, F F, both Parts, both above and below, are a little excavated, that the Fillets may rest the firmer in them, and may not be so easily mov'd, or slip quite out. At the Letter G is an iron Plate, to render the Machine stronger, lest it should give way to the Force apply'd to it. Thus when an Artery is to be compress'd, either on account of an Hæmorrhage from a Wound, or to prevent one during Amputation, the inferior Part of the Torcular B B, cover'd with a good many Folds of Cloth, is laid on that Side of the Member which is opposite to the Artery; the Fillet is lightly wrapt about the Member, and the Ends of it are fixed to the Hooks E; then by means of the Screw C, the Cords are drawn to such a Degree of Tension, as is necessary for stopping the Blood, and are allowed to remain in that Degree of Tension upon the Part as long as the Surgeon shall think proper.

Garengot describ'd and delineated another Torcular of the same Nature, invented by that celebrated Surgeon *Morand*, which indeed agrees with the former in many Particulars, but differs from them principally in this, that instead of a simple Screw, *Morand*, for the sake of a quicker Action, made his with a compound one, and had it made of Iron; so that in his, one Turning of the Screw wound up the Cords more, and compress'd the Artery better, than two or more Turnings of the Screw in other Torculars. But *Garengot* makes some Objections against this Machine, and prefers that of *Petit* to it.

Some Years ago, when I was call'd to *Berlin*, to attend a certain General Officer of the *Prussian Army*, I there saw a Species of the same Torcular, made of Iron, very heavy, and much resembling that of *Morand*, but alter'd in some Particulars, by whose Directions I know not. As I have not as yet seen it delineated, I have given a Representation of it in *Plate 26. Fig. 7.* A is the inferior Plate, with many little Holes towards its Circumference, that so a small Cushion, or Foldings of Cloth, may be more conveniently be put under it, and sew'd to it. B is an excavated or hollow'd-End, for receiving the Screw. C is the upper Plate. D the Hollow in the upper Plate for receiving the Screw. E E the Extremities of the upper Plate, one of which is furnish'd with Hooks, the other with Hooks, and a sort of Bow, so that the Fillet design'd for embracing the Member may not slip. F is a Sort of Ring incircling the Cavity of the Screw in the upper Plate. G is a square or cubic Part, hollow'd in Form of a Screw, fitted for the Reception of the small Screw H, and contrived in such a manner, that the large Screw I K, which would otherwise easily yield and slip out, may be the more conveniently fixed and retained in the Cavity D. L is an iron Cylinder, firmly fixed in the inferior Plate, but free in the upper, that so the upper Plate may be made to approach the under at Pleasure, again

again recede from it at Discretion, for stretching the Fillet, and compressing the Artery, and keep the upper Plate in the same Posture with the under, that so it may not be distorted or driven awry, and the Action of the Machine by that means prevented.

For preventing this Inconvenience, I took care to have a Torcular made of Copper in another manner, a Representation of which may be seen in *Plate 27. Fig. 1.* where the superior Lamina is much shorter than the inferior, and has a Fillet fix'd at one of its Extremities, which, being wrapt about the Member, is to be fasten'd to the Hooks in the other Extremity; and the Fillet passes thro' the Holes of the inferior Lamina, and by that means keeps them in a perpendicular Situation, and prevents moving any way when the Screw is turn'd. A Surgeon may make Choice of any one of these he pleases; they all answer the End, only some do the Business much sooner than others; but in this Case, the Surgeon may proceed upon that common and well-known Maxim, *Sat cito, si sat bene*; the Operation is soon enough, if it is well enough perform'd.

The first Part then of the Apparatus for Amputation, is the Tourniquet.

The second is a smooth Fillet of Linen, near an Inch in Breadth, and about half an Ell long.

The third is a small Knife for dividing the Skin, of which see a Figure, *Tab. 34. Fig. 1.*

The fourth is a great crooked Knife for dividing the Flesh. See *Tab. 34. Fig. 2.*

The fifth is a small double-edg'd Knife, for the separating the Flesh between the Radius and Ulna, *Tab. 34. Fig. 3.*

The sixth, a linen Cloth, about three Spans long, and six Fingers broad, slit lengthways half thro'. See *Tab. 23. Fig. 17.*

The seventh, a good Saw for dividing the Bones. See *Tab. 34. Fig. 4.*

The eighth, a Pair of Forceps to lay hold of the Arteries. See *Tab. 34. Fig. 5. and 6.*

The ninth, a crooked Needle, with a strong Thread.

The tenth, vitriol Buttons, wrapt up in Lint or Cotton.

The eleventh, little four-square Compresses. *Plate 23. Fig. 21.*

The twelfth, great Plenty of Lint.

The thirteenth, a Powder for stopping the Blood; but as it often causes Inflammations, and prevents Suppuration, Spirits of Wine, or Oil of Turpentine, is better. However, we easily do without any Astringents at all.

The fourteenth, a large and round Compress of Tow, or a great Piece of the *Crepitus Lupi*, or Puff Ball, for covering the rest of the Cloths and Compresses.

The fifteenth, a Calf's or Hog's Bladder, or instead of it, either a large sticking Plaster, in the Shape of the *Maltese Cross*, (see *Tab. 23. Fig. 15.*) for covering the Trunk with the preceding Apparatus; or three Plaisters about two Spans long, and three Fingers broad.

The sixteenth, a Cloth in the Shape of a *Maltese Cross*, but larger than the Plaster.

The seventeenth, a thick four-square Cloth for covering the End of the Stump.

The eighteenth, three Compresses two Spans long, and two Inches wide.

The nineteenth, a Roller five Ells long, and three Fingers broad, for binding up the Limb.

Lastly, Wine, and other internal Medicines, as well as external, for raising the Spirits of the Sick, when inclin'd to faint.

It remains next, to shew the proper Situation of the Patient, the Surgeon, and his Assistants, when the Operation is to be perform'd. The Patient then must be plac'd in a low Chair, and set almost in the Middle of the Room, that free Access may be had to him all round, and that the Assistants may be plac'd more commodiously about him.

The Surgeon himself must stand in the Middle, between the Patient's Feet; but the Assistants, six of which at least ought to be present, must help the Surgeon in this Manner: One of them should stand behind the Patient, and hold his Body; another, standing at the Patient's Side, should clasp the upper Part of the Arm which is to be amputated, near the Elbow; a third should hold the Hand; a fourth should assist at the Side with the Instruments, so that when they are wanted by the Surgeon, they may be given commodiously; the fifth must deliver the Dressings in regular Order; and the sixth must be ready to give the Patient a Cordial, and to do such other things as the Surgeon may perhaps direct.

After that, the Surgeon, who ought to have a Towel before him, in order to wipe his Hands, if it should be necessary, must moderately twist the Torcular about the Arm to be amputated, in the manner, and at the Place represented, *Tab. 24. Fig. 1. K.* For by so doing, not only a too great Flux of Blood from the great Artery of the Arm is prevented, but the Nerves also being moderately compress'd, the Patient feels the

less Pain from the Operation. But lest the Torcular should give way, the Stick ought to be held carefully by the Assistant who stands behind the Patient's Back; but if the other Torculars are us'd, they stand of themselves, without any Assistance. Then the Servant, who holds the upper Part of the Arm, must draw the Skin back as much as possible, whilst the Surgeon himself binds the Fillet; about half an Ell long, and an Inch broad, several times about the Part where the Operation is to be performed, the End of which is to be sew'd fast; this is to serve him, not only as a Guide for the more regular Division of the Flesh with the Knife, but to keep the Flesh so firm, that it might not give way to the Knife. Some do the same with a leathern Thong and Buckle. But before we proceed any farther, the Patient ought to be comforted, not only with Words, but with Wine, or some other spirituous Liquor, lest he should sink under the Operation.

These things being done, the Operation must be hasten'd; in which the Surgeon's first Business is, to place the Arm in a strait Line, which being held by two Assistants, he is then to make an Incision with the lesser Knife through the Skin all round; which being perform'd, the Assistant who holds the upper Part of the Arm, must draw the divided Skin back as much as he can; then near the Edges of it, either with the same Knife, which here will do very well, or with the large crooked Knife, the whole Flesh must be divided all round the Bones. By this Method of Amputating, the Bones are much sooner and easier cover'd, and the Healing of the Wound much forwarded. This being perform'd, the Flesh between the *Ulna* and *Radius* must be divided with a small two-edg'd sharp Knife, and the *Periosteum* from the Bones must be scrap'd off, where the Saw is to be apply'd, lest being tore by the Teeth, violent Pains and Inflammation should be excited; then the Assistants holding the Arm, should strongly draw back the divided Flesh, that the Bones may appear the more fairly in View, in order to be saw'd off. And that the Flesh may the better be drawn back in the upper Part of the Wound, and the Bones cut off very high, it is convenient to apply a Cloth slit in the Middle, in such manner, that the Bones only should come through; and that the whole Parts of the Cloth resting upon the Flesh, may, by being drawn back by the Assistant who holds the upper Part of the Arm, draw back the Flesh also along with it: For in Cases of this Kind, the Bone must always be cut off as near as possible to the Flesh which is drawn back, that, as we said before, the Bones may be sooner cover'd, and the Wound much sooner heal'd. But the Surgeon ought so to apply the Saw, that both the Bones may drop together. For the Danger is, that if they should not be cut equally alike, either one or the other on which the Saw presses alone, not being strong enough, would be split, and thereby the Patient would be expos'd to many Inconveniencies in the Cure. In the Beginning, the Saw ought to be moved lightly; afterwards, when it is well fix'd in the Bones, it must be moved a little faster, but carefully. And lest it should by any Chance be stop'd in its Motion, or squeez'd between the Bones, the Assistant holding the upper Part of the Arm should raise it a little, whilst he who holds the lower Part depresses it, so as to make way for the Saw, for about a Minute or two; in which time the Hand, and part of the Arm, will be entirely taken off.

The Hand and Arm being now amputated, the Surgeon's immediate Care must be to suppress the Hemorrhage from the divided Arteries; and after that to dress, and bind up, the remaining Stump: That the Mouths, therefore, of the Arteries may the more easily be found, let the Assistant, who holds the Torcular, loosen it gently, by untwisting the Stick a little; or if the Torcular is of the other Kind, the same is done by turning back the Screw; for the Blood bursting out, as from a Siphon, will directly shew the Mouths of the Arteries. If the Patient is full of Blood, it will be much the best to keep the Torcular loose a little, and let the Blood run gently into the Vessel underneath; but if he is very weak, and has but little Blood, the Torcular ought then to be twisted again immediately, as soon as the Orifices of the Arteries are discovered. And if the lower Arm is cut off near the Hand, it will not be very necessary to tie the Arteries there; for as the Arteries in these Parts are small, the Blood is easily stopp'd, by applying to the Apertures of the larger Bits of Vitriol, with a great deal of loose Lint, or square Compresses. Chabert is of Opinion, that Vitriol is unnecessary; because Lint, with Compresses, and proper Bandage, will be sufficient to stop the Hemorrhage. And this, says Heister, I have found true, especially where the Patient has not been over-robust, and full of Blood. Others esteem acrid and caustic Applications very pernicious, or, at least, uncertain Remedies; because, when the Eschar made by them drops off, there is great Danger of the Hemorrhage being renew'd. But to the Bones and Flesh, Dressings made of loose dry Lint, or Rags, are to be applied, and laid on thick: Upon the Dressings a large Piece of the *Crepitus Lupi* must be laid, either with or without a large Bolster of Tow; and the Whole must be firmly secured, either by a wet Bladder, or large Plaster, in the Form of the *Maltese Cross*, brought over the Stump. Instead of this large Plaster, two small

small ones in the Form of a Cross, or three in the Form of a Star, may be applied with better Effect; with which the Skin may be drawn down, that the Wound may be the sooner cover'd by it, and healed: Upon the Plaisters a large Compress, in the Form of the *Maltese Cross*, is to be placed, in such a manner, that its extreme Parts may be held, and turned round the Arm, by an Assistant: Then a thick four-square Compress, and over it three long thin Compresses, are to be applied, in the Form of a Star, in such manner, that their extreme Parts should be brought up the Arm, and fixed there: Lastly, the Whole is to be secured by proper Bandage: See *FASCIA*.

It was customary amongst a great many of the antient, as well as modern Surgeons, to stop the Flux of Blood from amputated Members, by burning the Arteries with a Cautery, or hot Irons; but this Practice the Surgeons of our Age forbid; as being not only uneasy and terrible to the Patients, but at the best dubious, and often dangerous, especially in an Amputation of the Thigh or Arm. For, almost always, after the third Day, the Crust made with the hot Irons loosens, and causes a fresh Hæmorrhage: But if any one has an Inclination to use them, they may be applied in the lower Arm, or Leg; not altogether without Advantage; but it is better to follow the Method described before, and not to burn, unless in case of Necessity. But if, as modern Surgeons advise, you should be willing to tie the wounded Arteries, either in the Arm or Leg, which, nevertheless, is scarcely necessary in the lower Arm, they must be laid hold of, and held with the Crow's-bill, Forceps, (see *Tab. 24. Fig. 4. and Tab. 34. Fig. 5. and 6.*) or any other convenient Instrument, and tied by means of a crooked Needle, and strong waxed Thread, past round them.

When the Humerus requires to be amputated, the Operation is almost the same as in the Arm, except that the Brachial Arteries, of which there is sometimes only one, sometimes two, and sometimes three, are always to be held with a convenient Forceps, and tied, by means of a crooked Needle and strong Thread. Cauteries and Astringents are here of no Service: The extreme Parts of the great Arteries being tied, the Torcular must be loosened a little; and if any small Arteries bleed, they may be secured in the same manner. There are some Surgeons who, with a somewhat less Needle, pass the Thread through the End of the Artery itself, whilst held by the Forceps, before they tie the Knot; for by doing so, they imagine the Ligature to be the stronger, and that it will not easily give way. Others, instead of the Forceps, use a very crooked Needle, threaded with a strong waxed Thread; this they pass twice thro' the Flesh, almost round the Orifices of the Arteries, and then tying the Thread, they inclose the Arteries, together with a Portion of the Flesh, in order to secure the Stitch from breaking out. But nevertheless, if I am not deceived, it is better that the Arteries should be held by the Forceps, and afterwards tied, as is said above: For otherwise there would be some Danger, lest either the Thread should miss the Branch of the Artery, or the Artery slip from under it again.

Our Surgeons differ in their Opinions from Heister, in this respect.

The Dressing of the Stump being finished, it remains, that a little Wine, or some cordial Potion, is to be given to the Patient; who must then be laid upon the Bed, and the Stump of the amputated Arm must be placed in the Hand of an Assistant, and held some Hours. For, by this means, the Dressings and Bandage adhere more firmly, and the Hæmorrhage ceases sooner, and with more Certainty. Then the Torcular may be loosen'd by degrees, as much as may be thought necessary for carrying on the Circulation in the Part: And upon this, if no more Blood bursts out, it is then a Sign the Operation is well performed. The Patient therefore must be enjoined to rest, and, instead of Potions, should take sometimes a strengthening and anodyne Emulsion; by which Sleep being procured, the Pains may vanish by degrees, and his lost Strength be restored. The next Day the Torcular may be either a little more loosened, or even wholly taken away; and the strictest Regimen must be directed. And if Powders, and small temperating Potions, be ordered, and, if the Patient be very hot, he loses some Blood, these will contribute to prevent Accidents; but where there is no Heat, nor Fulness of Blood, it is unnecessary to bleed, as it weakens the Sick, who is already much reduced. But if a fresh Flux of Blood should happen, which cannot be stopp'd, either by the Application of the Hand to the Stump, or by binding a thick Cloth upon it, somewhat tighter, with a fresh Roller, which is generally sufficient, the Method is to apply the Torcular again, and having loos'd the Bandage, let the Arteries be tied afresh; or, if they cannot be laid hold of, the actual Cautery must be used; or it may be stopp'd with a large Quantity of loose Lint, the Wound being again accurately bound up, and the Stump gently compressed, till the Bleeding ceases.

But the first Bandage ought never to be taken off before the third or fourth Day, unless great Pain, Inflammation, Loss of Blood, or some such Accident, should happen, that the Orifices of the divided Arteries may be the more firmly and surely closed. Neither will it be amiss for a Servant to attend by the Patient's

Bed for eight Days; who should be very watchful, that he may apply the Torcular immediately, if the Blood should chance to burst out again; and, in the mean time, he should take care to send for the Surgeon to make a fresh Bandage. If all things proceed successfully, as often as the Wound is dress'd, every thing should be taken off separately and gently; but what is next to the Wound must not be touched, much less violently pull'd off, lest a fresh Hæmorrhage should ensue: For it is better to leave them for some time upon the Wound, and at every Dressing to soften them with warm Wine, or Spirits of Wine, till a Suppuration being made, they loosen or fall off of their own Accord; after which, it will be sufficient to dress but every other Day, or once a Day, unless the Suppuration be very great, especially in Summer-time, and then it may require twice.

At every Dressing one Caution is carefully to be observed, which is, that the Wound is, first of all, to be gently cleansed with Lint, and fresh Pledgets of Lint must then be applied, the undermost of which, or that which is next to the Wound, must have some digestive Ointment spread upon it; but 'tis proper to apply all the rest dry: Over the Dressings of Lint, three, four, or six Pieces of Plaster, about a Foot long, and an Inch broad, spread with Diapalma Plaster, that of *Andreas a Cruce*, or some other of a glutinous Consistence, are to be applied in the Form of a Star: Last of all, a thick square Compress of Linen, and three long narrow ones disposed over it, in the Form of a Star, are applied over the Plaisters. The Application of Bandage being continued in this manner for about fifteen Days, so great a Quantity of Lint, or so many Compresses, are no longer requisite, since the Danger of an Hæmorrhage is then over. The Surgeon, in the mean time, must proceed in the Cure of the Wound by a digestive Ointment, or Vulnerary Balsam, laying upon it only a small Quantity of Lint, and Plaisters, with some Compresses over all; and, last of all, dry Lint is used with a Plaster upon it; and the Wound itself is, by this means, dried and agglutinated, in the same manner as other Wounds: But this Agglutination almost always requires two Months before it is perfected. 'Tis here necessary to give Surgeons a short, but necessary Caution, which is, that they never apply the first Bandages, especially in case of an amputated Humerus or Thigh, till the Torcular is applied, in order to check the Motion of the Blood; and prevent an Hæmorrhage; or at least when the Operation is performed in the Arm, till the Artery is strongly compress'd by the Thumb of an Assistant.

When, after the Amputation, a pretty violent Motion, or Fervour of the Blood ensues, which is generally the Case with sound robust Bodies, and such as abound in Juices, 'tis necessary to let Blood very plentifully, and prescribe temperating and refrigerating Medicines; together with a very strict and exact Regimen. If this should be neglected, 'tis to be dreaded, lest a very terrible Fever, commonly called the Vulnerary Fever, or a Sphacelus, or some other Disorder of that Nature, should destroy the Patient.

AMPUTATION of the FEET and LEGS.

When the antient Surgeons intended to amputate a Foot that was corrupted in the Tarsus, or Metatarsus, that is to say, in any Part that lay below the Tibia, they used a Chisel of a large Size, and a Mallet made for the Purpose: They sometimes also made use of a Pair of very large, strong, and sharp Sheers, with which they cut off the corrupted Part; and then applying proper Bandage to the Wound, healed it with balsamic Medicines. This Operation is fully described by *Scultetus*, who had often seen it performed: But as this Method of going to work was very painful in itself, and likely to lay a Foundation for future Danger, by the Collision of the Bones, and the Laceration of the Nerves and Tendons, the more modern Surgeons, for very good Reasons, chose with a Knife to divide the Bones of the Toes from those of the Metatarsus; and, in like manner, those of the Metatarsus from those of the Tarsus; and when the Corruption happens to reach a little higher, they even venture to divide the first Bones of the Tarsus from the remaining and posterior Bones, where they are joined to each other; after which they proceed, as the Antients did, to agglutinate the Wound; for, by this means, the Patient is able to walk better upon the remaining Part of his Foot, than on a Wooden Leg or Foot. But because many have, in this Case, dreaded the Difficulty of Agglutination, or the Impossibility of again covering these Bones; or because they have, perhaps, known this Operation to be very troublesome in itself, they have therefore rather chose to cut thro' the Tibia itself, and that not towards its lower Extremity, but in its upper Part, about four Inches below the *Patella*; for tho' by this means a sound as well as a large Portion of the *Patella* is cut off, yet, by following this Method, the Deformity of the Foot, and the Difficulty of walking, are more effectually prevented; for since no one can either stand or walk well upon a long Stump, and since an artificial Foot, or other Support, cannot be commodiously fixed to it, it is much more convenient to cut the Tibia in its upper Part, and that four Inches below the *Rotula*; since if the Incision was made

made higher, its Flexor Muscles might be hurt by that means; and by this Method the Deformity of the Part is concealed, and a way paved for adapting and accommodating to the Knees artificial Legs, either of Wood or Silver. I am not ignorant, that there are, even in our own Days, some Surgeons who think with *Solingen*, *Verduin*, and *Dionis*, that the corrupted Part is only to be taken off; but I see no Reason why, in this Case, we should pay any Veneration to their Authority, or be sway'd by their Judgment; for besides that in the inferior Part of the Tibia, that is, under the Calf of the Leg, it is very difficult to fix any artificial Foot or Support; if an artificial Leg is fastened to the Knee, and the remaining Stump is bent backwards, it causes not only a great Deformity, but a considerable Inconvenience in Walking.

With respect to the Apparatus, Manner of Operation, and Bandage, nearly the same Rules must be observed, as in Amputations of the Arm. There are, however, some Cautions necessary to be regarded, which relate particularly to Amputations of the Leg. As first, the Patient may either sit in a Chair, or lie upon a Bed, or on a Table, so that the Feet may be stretched out. Secondly, the Hairs about the Part, which is to be amputated, must be shaved off, lest the Plaisters afterwards should stick to them, and cause great Pain when taken off. Thirdly, after Amputation the Arteries in the Legs are very difficultly closed, without the actual Cautey, or tying their Orifices by means of a crooked Needle and Thread; for altho' they appear not very large, yet, without these Assurances, they almost always, after dressing up, bleed for some time, especially if the Crural Artery is not, at the same time, well compress'd with narrow Compresses, and the Fillet. Fourthly, before the Operation, it is necessary, that either the common Torcular with a Stick, or the new one with a Screw, should be fixed above the Knee, so that the Fillet, roll'd up in the Form of a Cylinder, may lie under the Ham, and compress the Artery there descending, as is express'd *Tab. 35. Fig. 4. D.* Tho', to me, it seems much better that the Artery should be compressed by a Torcular, placed at the upper Part of the Thigh, especially if the Leg is to be cut off near the Knee; for so the Bandage, after Amputation, may be made more commodiously than when the Torcular is applied so near the Knee. See *Table 24. Fig. 1. L. M.*

Petr. Adrian Verduin, a celebrated Surgeon, formerly at *Amsterdam*, and my Friend when living, acquaints the World with a new Method of amputating the Legs, different from the other, in a particular Treatise wrote in *Dutch, German, French, and Latin*, tho' he was not the Inventor of it. There are many who ascribe the Glory of the Invention of this Operation to *Sabourin*, a *Geneva* Surgeon, as the History of the Royal Academy of Sciences, *Garengot*, and others. This Man is said to have performed it at *Geneva*, and after at *Paris* also, at the same time *Verduin* did it at *Amsterdam*. However, long before this time, I find this Operation was known, performed, and described by some *English* Surgeons, *Lowdham* and *Young*, as may be seen in a little Book intituled, *The triumphant Chariot of Turpentine; or, An Account of the many admirable Virtues of Oleum Terebinthinae, particularly in Wounds and Hemorrhages, a new Way of Amputation, and speedier curing Stumps*, London, 1679. *Koenerding*, Surgeon to the great Hospital at *Amsterdam*, and my Friend also, mentions it in a Book wrote in *Low Dutch*, intituled, *A Treatise of the Gangrene and Sphacelus, and of the old and new Method of amputating the Legs*, Amsterdam, 1698. who also performed this new Operation twice, in the same Year that *Verduin* did it. The Whole of this new Method amounts to this: That the Calf of the Leg is to be divided with the Knife, represented *Tab. 34. Fig. 3.* at the Tendo Achillis, and then cut upwards again, according to the Length of it, and separated from the Bones to the Place where they are to be taken off with the Saw (see *Tab. 35. Fig. 5. 6. 7.*). Then the Flesh of the Calf hanging down, must, by an Assistant, be drawn upwards with a Cloth to the Ham, *Fig. 6. A.* Afterwards the Skin on the fore Part of the Leg, and the Flesh between the Bones, must be divided, as in the common way, with a proper Knife, as those represented *Tab. 34. Fig. 1. and 3.* and the Limb must be taken off with the Saw, as is said above. The Calf, first clean'd with a Sponge moistened with Spirits of Wine, must be brought down to the Stump, and spread over it like a Pledget; and if there should be too much, or it should be unequal, it must be cut off, and the Remainder must be secured by adhesive Plaisters, or even with a Stitch or two. Lastly, Compresses, with the wet Bladder and Bandage, must be made use of, as is before directed in general Amputations; or the Dressings may be secured by a particular Machine of Leather, described by *Verduin* and *Garengot*, with Buckles and Straps, which are to be fixed upon the Stump of the Leg; mean time, the Trunk of the Leg must be compress'd by the Hand of an Assistant some Hours, till the Danger of an Hemorrhage is over; and, at the same time, the Torcular with a Screw, represented *Tab. 26. Fig. 6.* or that delineated *Tab. 27. Fig. 1.* is to be applied for the same Purpose. From this Method the before-mentioned Authors ima-

gine many Advantages accrue to the Patient. For, first, the Flesh, by compressing the Arteries, stops the Hemorrhage without astringent Applications, the actual Cautey, or tying up the Arteries: Secondly, a Caries cannot easily happen, the Bones being immediately covered again with the Flesh, but which often is the Consequence of the other Methods, and exceedingly protracts the Cure. Thirdly, by the Use of Vulnerary Balsams, in the succeeding Dressings, the Flesh and Stump will unite together, and the Cure will thereby be much accelerated. And, fourthly, the Flesh lying upon the divided Bones, like a Pillow, will be extremely commodious to the Patients in Walking, especially as there is no Necessity to bend the remaining Stump backwards, as is generally done in the common Methods: But a hollow Machine may be made of a light Wood, so that the Patient may walk, in some degree, as with a natural Leg. This Flesh, every time the Bandages are loosed, must be held and press'd close, by an Assistant, to the Bones, lest it should fall from them, and retard their Union. *Verduin* has explained all these things more fully in his Treatise above-mentioned, and has represented them in a great Number of Copper-plates.

But tho' not only *Verduin*, but other Surgeons also, have successfully performed this Operation many times, yet there are very few who approve of it, or who have endeavoured to introduce it into Practice instead of the other Methods. For, besides that neither the *English*, *Verduin*, nor *Koenerding*, ever used it afterwards, and *Sabourin's* Patient at *Paris* died, Instances are not wanting at *Amsterdam*, where, during the Cure, and even after the Part has been quite healed, some sharp Fragments of the Bones protuberated, and, by pricking the tender Parts, have caused intolerable Pain, and many other Disorders; not to mention, that *Sabourin's* Patient lost more Blood than is usual in the other way of Amputating, and other Inconveniencies which often succeed this Operation; and on which Account *Koenerding* prefer'd the old Method before it, as he declares freely in his Book. But, however this may be, 'tis certain *Garengot*, a modern *French* Surgeon, to whom the Writings of *Young* and *Koenerding* seem to be unknown, praises this Operation, and makes no Question but to bring it into Practice again. For there have been Men in *France*, as he reports, who have been so well cured by this Method, as not only to walk commodiously, but also to dance very readily; but if we would hope for such good Success, the Patient must be healthy, and the Causes, which require the Amputation, external.

Lastly, it is to be remarked, that this Operation is not confined wholly to the Leg, as many imagine, but it also may be performed in the Arm, by leaving Part of the Flesh and Skin for covering the Bones after the Limb is taken off, and which may be done with Success; as may be seen not only in *Young's* and *Koenerding's* Treatises, but also in *Ruyssch's Epist. Problem. 14. de nova Artuum decurtandorum Methodo*; where he accurately describes an Operation of this Sort, performed by *Verduin* and *Bortell*, the Son-in-law of *Verduin*, himself and others being present.

AMPUTATION of the FEMUR.

Whenever the Leg is corrupted as far as the Knee, or Thigh, or the inferior Part of the Thigh itself is affected with a Caries, Sphacelus, or incurable Fracture, or the Crural Artery is much injured, the Thigh itself must generally be amputated. The Danger and Hazard attending this Operation can scarcely be express'd, especially when it is performed in the superior Part of the Femur: For, besides that a violent Hemorrhage is sometimes caused by a Division of the great Arteries, the Strength of the Patient is so perpetually wasted by the constant Discharge of too great a Quantity of Matter, from so large a Wound, that the Patient frequently sinks under the Cure. Therefore, whenever the Thigh is to be cut off, the Surgeons ought, by all means, to take care, that it is done, if possible, in the smallest Part, about three Fingers Breadth from the Knee, and that as much of the Flesh and Skin is saved as possible; for by so doing, this violent Operation will be supported the better, and the Cure will be completed with more Ease and Safety.

The Fillet roll'd up in Form of a Cylinder must, by means either of the common Torcular, or one of those with a Screw, compress the Crural Artery, by being placed upon the highest and inward Part of the Thigh, that is, where the Head of the Vastus Internus Muscle, and the Triceps, meet; see *Tab. 24. Fig. 1. L. M.* for there is the greatest Danger otherwise, lest, as it often happened before the Torcular was invented, a very large Hemorrhage, from that great Artery, should suddenly destroy the Patient, even during the Operation.

With respect to the Amputation of the Thigh, very little is to be said here, the same Method being to be observed as in cutting off the Arms or Legs. But this, however, must be particularly taken Notice of, that, in the first Place, the Hairs are to be shaved off the Part; secondly, that as soon as the Skin, with the Fat, is divided all round with the lesser Knife, *Tab. 34. Fig. 1.* they are to be drawn upwards as much as is possible, before the Muscles, or Flesh, are divided. Afterwards these Muscles,

Muscles, near the upper Edges of the divided Skin, a little higher than the first Incision, must be cut through all round to the Bone, either with the same smaller Knife, or that represented *Tab. 43. Fig. 7.* or with the large crooked Knife, *Tab. 34. Fig. 2.* By this means, as was before observed, after the Bone is saw'd off, the Trunk of the Bone will be the sooner covered with the Flesh, and Integuments that are left; a Caries will be prevented, and the Cure of the Wound much accelerated. But if this Method is not carefully observed, but the Muscles are divided, together with the Skin at the same time, as is sometimes done, these strong Muscles, being cut through, contract so much upwards, as I have often seen, that the Thigh Bone, after the second or third Dressing, has stood out beyond the Flesh two or three Fingers Breadth, like a Stick: In which Case a long time is required for the Flesh to grow, and extend itself, so as to cover the Stump, which alone is sufficient to debilitate the Patient, and give him much Uneasiness. Add to this, that the Wound cannot be expected to heal before the Trunk of the Bone is covered.

Then, as to an Hemorrhage, because of the remarkable Largeness of the Artery, it can scarcely be stopp'd otherwise than by Ligature, which is therefore ordered here to be done with the greatest Care, the Artery being first taken hold of by the Forceps, or Tenacula, *Tab. 34. Fig. 5.* or 6. and tied well with a strong Thread pass'd round it. If more Arteries bleed, if they are large, they must be tied, but if small, there is no Occasion, as Dossils of Lint, or a Bit of Vitriol, very often do the Business. The Bandage is the same as we mentioned above in an Amputation of the Arm; only there should be greater Plenty of Lint and Puff-ball, a larger Bladder, and also larger Compresses and Plaisters; and lastly, longer and broader Rollers are here necessary, and the Crural Artery must be compress'd the whole Length of the Thigh, with a narrow and thick Bolster, and a particular Roller, or the Torcular itself, *Tab. 26. Fig. 6.* or *Tab. 27. Fig. 1.* is to be kept on for some time. Then, the Patient being put to Bed, it is proper to place a Pillow under the Thigh, by which it may be well elevated, that the Force of the Blood, against the Mouths of the Arteries, in the elevated Limb, may be more gentle; for this contributes much to the preventing an Hemorrhage. Then the Stump must be compress'd for a considerable time, with the Hand of an Assistant, and every thing else must be done as is directed in the Cure of an amputated Humerus.

But if any Part of the Foot, or Arm, should be taken off by a Bullet, or Cannon Ball, or should be torn off, or broke to-pieces by a Wheel, or any such Machine, the Surgeon must consider, that the first thing to be done is to apply the Torcular immediately, to check the Hemorrhage. Secondly, that the Parts of the Bones standing out of the Flesh, if there are any, be taken off, either with a sharp Pair of Pincers, or a Saw, so that the End of the Bone may be rendered even and smooth, and that no pointed Fragments may appear above the Flesh; but if the Bones do not protuberate, then nothing is to be taken away. And, thirdly, that the wounded Arteries be either compress'd with thick Dossils of Lint, or small Compresses, or be tied up; or even, in Cases of Exigency, as the Nature and Situation of the Wound, or other Circumstances, seem to require, with the actual Cautery, and afterwards carefully bound up. And, as to the rest, he must proceed in the Manner laid down before in other Amputations of the Limbs.

But tho' *Botallus*, a celebrated French Physician, formerly invented a new, and, in Appearance, wonderful and expeditious Method of amputating the Limbs, by a Machine, furnished with a very large and sharp Iron Instrument, which being very heavy, and falling suddenly from a considerable Height upon the Place where the Limb was to be amputated, cut it off without either Knives or Saw, most expeditiously, and at one Stroke; and tho' *Hildanus* has also imitated this Method of Amputating, nevertheless the more prudent Surgeons, and that not without Reason, have abandoned this Contrivance; for it is greatly to be feared, that, left from the excessive Violence of the Blow, the Bones themselves should be splintered, and very much shattered. See above.

After the Stump is perfectly healed, it may not be amiss to make an artificial Leg, either of Silver for Gentlemen; or, for the poorer Sort, of Wood; which, being properly fitted to the Part, either with Buckles and Straps, or even by Springs, the Deformity may be concealed, and the natural Use of the Limb, in some measure, restored. Not only *Paré*, *Hildanus*, and *Solingen*, but some modern Mechanics, have curiously shewn, in what manner it should be made; but if Circumstances are very narrow, then only the common wooden Leg, hollowed in its upper Part, so as to fit the Knee, may be bound on, so that the Patient may walk with it tolerably well.

Lastly, if the Ends of the Bones should prove carious, as is very often the Case, whatever Care the Surgeon may take to prevent it, it is certainly necessary (altho' many Surgeons are silent upon this Subject, because it impedes the Cure) to dress the Caries with Powder of Euphorbium, or to touch them with the actual Cautery; or, which appears to me better, the rotten

Part may be scraped off with the Rugine; for, by so doing, in a little time the Flesh will unite with the scraped Bone, and the Wound will be healed, which could not be done whilst the Caries continued.

AMPUTATION of the whole ARM, at the Joint of the HUMERUS.

I myself have never performed an Amputation in the Joint of the Humerus, nor have read of its being done by any other Surgeons, except *Le Dran*, and *Garengot*, after his Example, tho' he does not name him; nevertheless, it will not be improper to shew briefly here, what they have specified concerning it.

There are two Cases, in which they tell us this painful Operation ought to be performed. The first is, if the upper Part of the Arm is broke to-pieces by a Bomb-shell, Hand-granado, or by any other Violence is excessively bruised and shattered. The other Case is, if the Head of the Humerus, by any internal Disorder, suppose either by a Tumour, a Spina Ventosa, a Caries, or even an Abscess, is found to be rotten; to which perhaps may be added, a Sphacelus of the Arm, which extends itself to the Joint.

But before so dangerous and difficult an Operation is attempted, the several things are to be provided, which may seem necessary to the Accomplishment of it. First, the Patient is to be placed in a convenient Chair, with his Face covered: But in this Operation the Torcular must not be applied, as in other Amputations, because it cannot be well fixed; but the Brachial Artery must be tied, as soon as the Flesh is divided, which, they inform us, is to be done in the following manner:

As soon as the Patient is properly seated, the affected Arm must be extended, and held strongly by an Assistant, and the true Situation of the Brachial Artery must be traced from the Axilla; in doing which, Anatomy will greatly assist the Surgeon: But if, from the Largeness of the Tumour, it cannot be found, it is necessary to make an Incision through the Flesh, on both Sides of the Arm, lengthways, so that the Bone may be touch'd by the Surgeon's Fingers, that from hence he may judge of the Situation of the Artery. The Brachial Artery being thus found out, a Needle, threaded with strong Thread, six or eight times doubled, and waxed, must be pass'd through the Flesh, about two Fingers below the Armpit, near the Os Humeri, between the Bone and the Artery, taking care the Artery is not wounded by the Needle in its Passage, holding down the Arm, that the Skin may be the more lax; the Thread then, being brought round, must be secured by a firm Knot. This being done, it is to be considered, whether the Pulse of the Artery, in the neighbouring Part of the Arm, is ceased or not: For if it is not perceived, it is a Sign the Artery is sufficiently compress'd by the Ligature; but if any Pulsation of the Blood remains, the Thread must be drawn tighter, till the Pulsation entirely ceases: And then a second or third Knot, with Bows, must be made, lest the Ligature should be too easily relaxed. For this Purpose, *Le Dran* proposes a strait Needle; but *Garengot* recommends one that is crooked, such as is represented *Tab. 35. Fig. 10.*

With respect to this Operation, three Cautions are principally necessary. For, after the Artery is tied in the manner before-mentioned, and secured from an Hemorrhage, great Care must be taken, first, that sufficient Skin and Flesh is left at the Shoulder; secondly, that the Flesh is properly cut thro'; and lastly, that the Ligament itself, in the Joint of the corrupted Bone, is divided; then let the Bone be loosed from the Sinus of the Scapula, and at last entirely removed. But that these things may be happily accomplished, it ought to be the Surgeon's Care to find out, carefully, the true Situation of the Acromion; then that the Skin should be drawn back sufficiently; and lastly, that the Knife, for dividing the Flesh, be introduced two or three Fingers Breadth under the Acromion; for by so doing, a great Part of the Deltoid Muscle is saved, by the Assistance of which, not only the hollow Sinus of the Humerus may be filled up, but the healing of the Wound may be surprisingly hastened.

These things being well considered, the Skin, with the Fat and Deltoid Muscle, must, in the Place specified above, be cut through with a sharp Knife, such as that represented *Tab. 34. Fig. 1.* or *Tab. 33. Fig. 14.* Afterwards the Arm must be gently raised, that the Heads of the Biceps Muscle may be the more easily found and divided. If, by Accident, a Flux of Blood from the lesser Arteries and Veins should perplex the Operation, an Assistant must apply either his bare Finger, or Dossils of Lint, or hard and small Compresses, to the Mouths of the bleeding Vessels; but if the Flux be from a large Artery, it must be tied by means of a small Needle and Thread: Then the Ligament, first in the superior Part of the Joint, and afterwards on both Sides, must carefully be divided, and the Head of the Bone of the Arm must be taken away, with the Left Hand; then all the other Parts which surround the Head of the Arm on every Side, must be loosened and divided; but with the greatest Caution, lest the Brachial Artery itself should

be cut. In this way of Operating, it may be readily perceived, whether the Arteries are exactly enough secured. We must also take great Care afterwards, that the Skin and Muscles which are tied together with the Artery, are not rashly divided: Therefore the Skin must be so divided from the Bone, that an almost triangular Piece may remain near the Armpit, the broadest Part of it next the Armpit, the lower or outward Part somewhat narrower, and accommodated to the Shape of the Deltoid Muscle; and thus the whole Limb is, at last, entirely taken off.

The Arm being amputated, as above-mentioned, it remains, that the Artery tied with the Flesh should be found, and another Ligature made above the former, by passing a Thread, by the Help of a smaller Needle, *Tab. 27. Fig. 5.* betwixt the Skin and the Artery, which must be tied very securely: Then the other Ligature, which bound the Skin also, must be cut, lest a painful and dangerous Inflammation should be excited.

The Manner of binding up the Wound, after the Operation, is thus directed: Immediately a Pledget of Lint must be applied to the Trunk, and a small Compress upon the Arteries, to secure the Ligature. *It is, however, Heister's Opinion, that it would be a better way to apply the Flesh immediately to the Sinus of the Scapula, and upon that the Pledgets and Compresses; for he thinks, by this means, the Flesh would sooner unite with the Bone, than if they were at first separated by the Interposition of the Lint and Pledgets.* Then the lower Part of the Skin must be drawn upwards, and the upper Part, together with the Deltoid Muscle, drawn downwards; and a great Quantity of dry Lint must be laid upon them, which must be secured upon the Parts by a Plaister, in the Shape of the *Maltese Cross*. Over the Plaister a thick and large four-square Compress must be applied, and a round Bolster to the Armpit, by which the Pulsation of the Arteries will be the better secured from breaking the Ligature. All these must be covered with a double Compress in the Shape of the *Maltese Cross*, and in such a manner, that two or three more Compresses, of about two Thirds of an Ell long, and four Fingers broad, may be laid upon it. These two Compresses are to be placed thus: The first must be applied obliquely upon the Trunk, so that the anterior Part of it may rest upon the sound Shoulder, and the posterior Part about five Fingers below the sound Armpit: The second should be placed upon the Trunk, cross-ways, over the first; and the third, broader than the other, must be applied over them both, so as to cover them, and be pass'd cross-ways upon the sound Shoulder; then with the Bandage, which the Surgeons call *Spica descendens*, (see *FASCIA*) the Whole must be firmly secured, placing first a thick Compress or Bolster under the sound Armpit, lest the Veins there should be too much press'd, and that the Roller may the more conveniently be pass'd round.

This Operation *Le Dran* the younger, and *Garengot*, report was performed with good Success upon a French Nobleman, in the Presence of, and with the Consent of *Mareschall, Arnold, Lapeyron, Petit, Merry*, and other noted Surgeons at *Paris*, on account of a Caries, or rather a Spina Ventosa, in the upper Part of the Arm. But *Garengot*, in his second Edition of *Chirurgical Operations*, adds, that the same Nobleman died of a Plethora, six Months after the Cure was completed. He also orders this Operation to be performed, in an Abscess, near the Joint of the upper Arm; but whether a simple Abscess can call for so dangerous and difficult an Operation, I leave to the Judgment of more prudent Surgeons.

The Opinion of our own Surgeons, relative to Amputations, is much to be regarded; and this we may learn from the Practice of the Hospitals, which (according to Mr. *Sharp*) is as follows:

A spreading Mortification has been always looked upon as so principal a Cause for Amputation, that it is a Fashion with all Writers to treat of a Gangrene, previous to the Description of this Operation; and, I think, they have all agreed, that whatever the Species of it be, if the Remedies they prescribe do not prevent its Progress, the Limb must be amputated: However, this Operation is spoken of as frequently unsuccessful; and, in Length of Time, its want of Success has been so unquestionably confirmed, by repeated Experiments, that some of the most eminent Practitioners here in *England*, make that very Distemper an Exception to the Operation, which so few Years since was the great Inducement; and the Maxim now is, never to extirpate till the Mortification is absolutely stopp'd, and even advanced in its Separation.

Gangrenes may be produced two Ways, either by Indisposition of Body, or by Accident in a healthful State; for, as the Life of a Part depends upon the Circulation of its Fluids, whatever shall make the Circulation cease, will inevitably occasion a Gangrene: Thus a mere Compress, preventing the Course of the Blood, as effectually causes a Mortification, as any Indisposition in the Fluids or Vessels.

It frequently happens in old Age, that the Arteries of the lower Extremities ossify, which destroying their Elasticity, must, in Consequence, produce a Gangrene in the Toes first, and afterwards in the Limb, nearly as high as where the Ossifi-

cation terminates; so that, in Mortifications arising from this Cause, we at once see why Amputation, during their Increase, is of so little Service, unless performed above the Ossification; but we have no way to judge where the Ossification ends, but by the Inference we make from the Gangrene's stopping: Hence we may learn the Propriety of our modern Practice in this Case.

If, by any Accident, the Limb has been injured to that violent Degree as to begin a Mortification, it will be no more fit to operate here, till it stops, than in the other Instance; because all Parts that are mortified, have had the Disposition to become so, before the Effect is produced; and cutting off a Limb half an Inch above the absolute dead Skin, is generally leaving a Part behind, with the Seeds of a Mortification in it; so, unless we can be sure the Vessels are not affected in the Place of Amputation, which will be hard to know but from the Consequence, the Operation will be useless.

Sometimes the Fluids of the Body are so vitiated, as to lose their proper nutritious Qualities, and the Limb becomes gangrened, not from any Alteration in its Vessels, but chiefly from its Situation; which being at a great Distance from the Heart, will be more subject to feel the ill Effects of a bad Blood, than any other Part, as the Circulation is more languid in the Extremities. When therefore a Gangrene, arising from this Cause, is running on, Amputation above it will, for the most part, be useless; since it is only removing one of the Effects of the bad Juices, and leaving them in the same State, to produce the like Mischief in other Parts: Thus we see, after Amputations on this Account, the Gangrene sometimes falls on the Bowels, or the other Extremities; from which Observation, I think, we may conclude it not safe to amputate, till the Fluids are altered, and this Alteration will presently discover itself by the stopping of the Mortification.

I have laid it down as a Rule, that the Mortification should not only be stopp'd, but advanced in its Separation; the Reason of which is, that tho' the Blood is so much altered for the better, as to occasion a Stoppage of the Gangrene, yet at this Point of Alteration 'tis still in a bad State, and should be left to mend, with the utmost Tranquillity of Body, and Assistance of cordial Medicines, till such time as Granulations of Flesh, upon the living Part of the Extremity, shew the balsamic Disposition of the Blood: In the mean while, to take off the Stench of the Gangrene, it may be wrapt up in spirituous or odoriferous Applications. I have seen some Limbs taken off immediately upon the Mortification's ceasing, when afterwards the Patients have sunk, from frequent Effusions of Blood, not discharged by the great Vessels, but the whole Stump. These Hemorrhages, I conceive, were owing to the Thinness of the Blood, which hardly gave a reddish Tincture to the Cloaths and Bandages; on the other hand, upon waiting a considerable time after the ceasing of the Mortification, I have taken off some myself with as good Success as for any other Disorder.

Gun-shot Wounds, compound Fractures, and all sudden Accidents requiring Amputation, are attended with the best Success, if immediately performed. Disorders of the Joints, Ulcers of long standing, and all scrophulous Tumours, do sometimes return on other Parts, after the Operation. When a Leg is to be amputated, the Manner of doing it is this:

Lay your Patient on a Table, three Foot four Inches high, which is much better than a low Seat, both for securing him steady, and giving yourself the Advantage of operating without stopping, which is not only painful, but inconvenient, in the other Situation. While one of the Assistants holds the Leg, you must roll a Slip of fine Rag, half an Inch broad, three or four times round it, about four or five Inches below the inferior Extremity of the Patella: This being pinn'd on, is to serve as a Guide for the Knife, which without it, perhaps, would not be directed so dexterously: The Manner of rolling has always been perpendicular to the Length of the Leg; but having observed, that tho' the Amputation at first be even, yet afterwards the Gastrocnemius Muscle, contracting, draws back the inferior Part of the Stump more strongly than the other Muscles can do the rest of it; I have lately, in order to preserve the Regularity of the Cicatrix, allowed for this Excess of Contraction, and made the circular Incision in such a manner, that the Part of the Wound which is on the Calf of the Leg, is farther from the Ham, than that on the Shin is from the middle of the Patella.

In the mean time, one of your Assistants must carry a strong Ligature round the Thigh about three or four Inches above the Patella, which passing through a couple of Slits in a square Piece of Leather, he must twist with a Tourniquet till the Artery is sufficiently compress'd, to prevent any great Effusion of Blood; and to do it more effectually, he may lay a Bolster of Tow or Linen under the Ligature, upon that Part where the Artery creeps.

The Course of the Blood being stopp'd, you must begin your Incision just below the Linen Roller, on the under Part of the Limb, bringing your Knife towards you, which at one Sweep may cut more than the Semi-circle; then beginning your second Wound

Wound on the upper Part, it must be continued from the one Extremity to the other of the first Wound, making them but one Line. The Incisions must be made quite through the Membrana Adiposa, as far as the Muscles; then taking off the Linen Roller, and an Assistant drawing back the Skin as far as it will go, you make your Wound from the Edges of it when drawn back, through the Flesh to the Bone, in the same manner as you did through the Skin. Before you saw the Bones, you must cut the Ligament between them with the Point of your Knife; and the Assistant, who holds the Leg while it is sawing, must observe not to lift it upwards, which would clog the Instrument.

In amputating below the Knee, it is of Advantage to stand on the Inside of the Leg, because the Tibia and Fibula lie in a Position to be saw'd at the same time, if the Instrument be apply'd externally: Whereas, if we lay it on the Inside of the Leg, the Tibia will be divided first, and the Fibula afterwards; which not only lengthens the Operation, but is also apt to splinter the Fibula, when it is almost saw'd through, unless the Assistant be very careful in supporting it.

When the Leg is taken off, the next regard is to be had to the stopping the blood, which must be effectually done before the Patient is put to Bed, or there will be great Danger of Bleeding again, when the Fever is excited, and the Vessels of the Stump dilated, both which happen a very little while after the Operation. There is no Method for this Purpose so secure, as tying the Extremities of the Vessels with a Ligature, which with a crooked Needle pass'd twice through the Flesh, almost round them, will, when the Knot is made, necessarily inclose them in the Stricture; and to discover the Orifice of a Vessel, your Assistant must every time loosen the Tourniquet: This is a much better way than using the Artery Forceps, where the Vessels are apt to slip away out of the Ligature; and as to Astringent Applications, their want of Safety is so well known now, that the Use of them in Hemorrhages from large Vessels, is almost universally rejected.

It sometimes happens in a large Stump, that ten or more Vessels require tying; which done, you must apply loose dry Lint to the Wound, or in case the small Vessels bleed plentifully, you may throw a Handful of Flower amongst the Lint, which will contribute to the more effectual stopping up their Orifices. Before you lay on the Pledget, you must bind the Stump, and begin to roll from the lower Part of the Thigh down to the Extremity of the Stump. The Use of this Roller is to keep the Skin forwards, which, notwithstanding the Steps already taken, to prevent its falling back, would in some measure do so, unless sustained in this manner. The Dressings may be secured by the cross Cloth, and gentle Bandage; and the Method of treating the Wound may be learn'd from what has been said, with respect to recent incised Wounds.

Before the Invention of making the double Incision I have just now described, the Cure of a Stump was always a Work of Length of Time; for by cutting down to the Bone at once, and sawing it directly, the Consequence was, that the Skin and Flesh withdrew themselves, and left it protruding out of the Wound two or three Inches in some Cases; so that it rarely happened, that an Exfoliation did not follow; which, besides being tedious, also frequently reduced the Wound to an habitual Ulcer, and at best left a pointed Stump, with a Cicatrix ready to fly open upon the least Accident; all which Inconveniences are avoided by this new Method, and I know not of any Objection to it, unless that the Pain of making the Wound is supposed to be twice as much as in the other, because of the double Incision; but when we consider, that we only cut the Skin once, and the Flesh once, tho' not in the same Moment, I fancy, upon Reflection, the Difference of Pain will be thought inconsiderable.

In amputating the Thigh, the first Incision is to be made a little more than two Inches above the Middle of the Patella; after the Operation, a Roller should be carried round the Body, and down the Thigh, to support the Skin and Flesh. This is also the most proper Bandage, as Abscesses will sometimes form in the upper Part of the Thigh, which cannot discharge themselves so conveniently with any other, it being almost impracticable to roll about the Abscess, unless we begin from the Body.

The Amputation of the Arm and Cubit differs so little from the foregoing Operations, that it will be but a Repetition to describe it. However, it must be laid down as a Rule, to preserve as much of the Limb as possible, and in all Amputations of the upper Limbs, to place your Patient in a Chair.

There are, in Armies, a great many Instances of Gun-shot Wounds of the Arm, near the Scapula, which require Amputation at the Shoulder; but the Apprehension of losing their Patients on the Spot by the Hemorrhage, has deterred Surgeons from undertaking it. I have heard of its having been done once, but though it had never been perform'd, we might learn it is practicable from the Case of a poor Miller, whose Arm and Scapula were both torn from his Arm by a Rope which was accidentally twisted round his Wrist, and suddenly drawn up by the Mill. Almost every one in London knows the Story, and

that he recovered in a few Weeks: It is very remarkable in this Accident, that after fainting, the Hemorrhage stopp'd of itself, and never bled afresh, tho' nothing but Lint and Turpentine were laid on the great Vessels. In case therefore of a Wound or Fracture near the Joint, or incurable Fistulas in the Joint, not attended with much Caries, I think the Operation may be perform'd safely in this manner:

The Patient's Arm being held horizontal, make an Incision through the Membrana Adiposa, from the upper Part of the Shoulder, across the Pectoral Muscle, down to the Armpit, then turning the Knife with its Edge upwards, divide that Muscle, and Part of the Deltoid; all which may be done without Danger of wounding the great Vessels, which will become exposed by these Openings; if they be not, cut still more of the Deltoid Muscle, and carry the Arm backward; then with a strong Ligature, having tied the Artery and Vein, pursue the circular Incision through the Joint, and carefully divide the Vessels at a considerable Distance below the Ligature; the other small Vessels are to be stopp'd as in other Cases.

In doing this Operation, regard should be had to the saving as much Skin as possible, and to the Situation of the Processus Acromion, which projecting considerably beyond the Joint, an unwary Operator would be apt to cut upon.

The Amputation of the Fingers and Toes is better performed in their Articulation, than by any of the other Methods: For this Purpose, a straight Knife must be used, and the Incision of the Skin be made not exactly upon the Joint, but a little towards the Extremity of the Fingers, that more of it may be preserv'd for the easier healing afterwards: It will also facilitate the Separation in the Joint, when you cut the Finger from the Metacarpal Bone, to make two small longitudinal Incisions on each Side of it first. In these Amputations, there is generally a Vessel or two that require tying, and which often prove troublesome when the Ligature is omitted.

It may happen, that the Bones of the Toes, and Part only of the Metatarsal Bones, are carious, in which Case the Leg need not be cut off, but only so much of the Feet as is disordered; a small Spring-saw is better to divide with here than a large one. When this Operation is performed, the Heel and Remainder of the Foot will be of great Service, and the Wound heal up safely, as I have once found by Experience, Sharp.

AMPUTATION of the BREAST.

The Extirpation of a Cancer is an Operation of such Importance, that it cannot be performed with too much Caution: Before 'tis therefore attempted, the Surgeon ought carefully to examine, whether the neighbouring Glands under the Armpit, are already indurated; and whether the Cancer is entirely adherent to these indurated Glands. If it is, the Cure, for the most part, does not succeed so happily as could be wish'd, because the cancerous Disposition, or the Poison of the Disease, seems now to be lodged in other Parts, besides the Breast; and for this Reason, when the Breast is taken off, the Disorder uses in a little time to shew itself afresh. There are, in the mean time, some few Instances, where the Patients have been recovered by extirpating the Cancer, together with the indurated Glands under the Armpit; but when the Surgeon inclines to undertake the Extirpation of this Sort of Cancer, the Patient must be duly and skilfully prepared for the Operation by proper Management, and a due Regimen. After this Course of Preparation is at an End, if the Cancer is as yet moveable, and not immoderately large, but only possessing a Part of the Breast, [vid. Tab. 43. Fig. 1. A. B.] the Patient must be placed upon a pretty high Chair adapted to that Purpose, and the Arm next to the affected Breast, must be either well extended, or even held backwards and downwards, or tied in a proper manner to the Chair; for by these means the Pectoral Muscle is strongly expanded, and the corrupted Part of the Breast may, by means of that very Expansion, be more easily and more thoroughly loosened from it. Then 'tis customary with many, in the very Middle of the Tumour, to make pretty long crucial Incisions into the Skin and Fat, which cover the Cancer; which having done, they with an Incision-knife separate the Lips of the Incisions, and so proceed to the Separation and Extirpation of the Cancer itself. To do which with the greater Accuracy and Dexterity, some use to raise and free the corrupted Part with a flaxen Chord pass'd thro' it, by means of the large Needle delineated in Tab. 27. Fig. 5 or 6. or with such a Hook as may be seen in Tab. 29. Fig. 2 or 3. But I have several times happily cur'd Cancers of this Kind, which were larger than the Fist, and reached from the very Nipple to the Humerus, as may be seen in Tab. 43. Fig. 3. A. B. and yet made only one Incision, and with the Help of no other Instrument than an Incision-knife, delineated in Tab. 33. Fig. 14. separated it entirely from the sound Parts, and agglutinated the Wound, of which there is a Representation in Tab. 43. Fig. 2. But where the Skin itself is corrupted, or closely adherent to the Cancer, a Cure can scarce be expected in any other way, than by cutting out the Cancer, and

and together with it the Skin, which, for the most part, may be very soon done by a skilful Surgeon; and I myself have performed Cures of this Kind, without leaving any considerable Cicatrix.

After the Extirpation, unless the Patient is already too much weakened, it is very proper to take as much Blood from her, as her Strength and Condition will allow; for by this means an Inflammation, a Fever, and a fresh Effusion of Blood, may most probably be prevented. Nor indeed is there in this Case any great Necessity for a hot Iren to stop the Hemorrhage, as the Antients imagined; for proper Bandage will sufficiently answer the Intention, by the Application of a good deal of fine Lint, some Folds of thick Linen Cloth considerably broader above it, and a Roller of a sufficient Length above all. And indeed *Bidloo*, once my Master, and a Man very much conversant in Operations of this Kind, affirms, that the Blood, in Cases of this Nature, may most advantageously be stopp'd, by a Mixture of Plaister of *Paris* (Gypsum) with the Lint [*Exercit. Anat. Chirurg. p. 157.*]. Some again apply various Styptic Powders, and others tie up the larger Arteries. But *Garengot*, agreeably to that Method of Cure proposed by Mr. *Petijt*, a famous Surgeon in *Paris*, maintains not only that the Blood will soon stop, but that the Incision will soon heal, and the Cancer return no more, if without the Use of any Lint and Styptic Medicines, the Lips of the Wound be carefully and speedily brought into Contact by means of Suture. I myself made a Trial of this Kind of Cure; but tho', upon cutting out the Cancer, there was a very small Effusion of Blood, and the Patient was soon recovered; yet her Disorder soon return'd, and she herself at last died of a Cancer, formed a second time after the Extirpation of the first, even though the Wound was perfectly agglutinated: I therefore think it incumbent on me, in Wounds of this Kind, where a vehement Effusion of Blood happens by the Extirpation of a Cancer of the Breast, and where it is to be fear'd, that it cannot be stopp'd by Lint alone; I say, in this Case, I think it incumbent on me to use either the best rectify'd Spirit of Wine, or some Powder fit for stopping Hemorrhages, made of Bole, Dragonsblood, Colophony, and Mastich, together with Lint, and the Crepus Lupi. When the Patient is weak, but little or no Blood should be designedly allow'd to flow from the Wound; but we ought, immediately after the Extirpation, to proceed to Bandage. But in changing or renewing our Bandages, we are to proceed according to the general Rules for dressing Wounds. See VULNUS.

I have learn'd from Experience, that it was no bad Method proposed by *Helvetius* [*Traité des Pertes de Sang*] to lay some broad thick Compresses of Linen Cloath, well soaked in warm Ale and Butter, over the first Dressings, in order to prevent Inflammation; but yet Matters proceeded well enough, when I apply'd all my Compresses dry.

But if a Cancer or Scirrhus possesses the whole Breast, in this Case, whether the Cancer should happen to be broke, or as yet remains covered, the whole Breast is to be cut off. Of this Kind was that large Cancer, which in the Year 1720. I myself very successfully extirpated, and described in a Treatise by itself; nor had it, as appears from *Tab. 43. Fig. 3. A. B.* only possessed the Whole of the Breast, but it was at the same time so large, that it weigh'd above twelve Pounds. In this Case likewise, we are carefully to examine, as I before cautioned, whether the Cancer is adherent to the Glands below the Armpit, or the Pectoral Muscle, because in both these Cases, most Authors maintain, that the Operation is performed to no manner of Purpose. But, not to repeat what I have already said of these Glands, *Bidloo*, as he himself affirms, [*Exercit. Anat. Chirurg. p. 168.*] more than once, successfully treated Cancers of this Kind, where, at the same time, a corrupted Part of the Pectoral Muscle was to be cut off. The same Author also affirms, that the Case is not always desperate, even when a certain Degree of Caries has seiz'd the Ribs; and, that he himself has sometimes known such a Caries carried off by scraping, or even by the yellow Ointment of *Wurtzius*. But when the Cancer neither adheres to the Glands nor Muscles, the Hopes of a happy Cure are far better founded.

Having thus shewn in what particular Cases the whole Breast, in which a Cancer is lodged, is to be cut off, it now remains, that we point out the proper Method in which this Operation is to be performed. But since different Surgeons have gone to work in different Manners, it will not be amiss here to enumerate some of the principal Methods: First then, let the Patient be placed on a Chair, in the manner described above; then, according to the Directions of *Scultetus*, a large Needle, represented in *Tab. 39. Fig. 12.* with a large Thread or Chord in its Eye, is to be pass'd thro' the lower Part of the Breast. Then the Extremities of this Thread or Chord are to be brought together in such a manner, as to be a kind of Handle for raising the corrupted Breast. Sometimes, when one of these Threads or Chords does not seem sufficient for the Purpose, two of them are pass'd through the Breast in a crucial

Direction, as may be seen in *Tab. 43. Fig. 4* and *5.* After this, the whole corrupted Part is to be carefully cut out, not by passing the Knife downwards, as *Scultetus* in his thirty-sixth Plate directs, but upwards, as is represented in *Tab. 43. Fig. 5.* lest perhaps an Effusion of Blood should either put an entire Stop to the Surgeon's Proceeding, or at least prevent his performing the Operation with that Accuracy he could wish. If the Breast is large, a proportionably large Incision-knife is to be used, that so the Operation may be the sooner performed. In a small Breast, on the other hand, a small Knife is sufficient. Another Method of performing this Operation was principally used by *Solingen* and *Bidloo*, and it only differs from the former in this; that instead of Threads or Chords, a kind of Fork, delineated *Tab. 43. Fig. 6.* is used. This Fork is pass'd in such a manner through the corrupted Breast, beginning at its lower Parts, as that the Knife, represented *Plate 43. Fig. 7.* may be strongly pass'd under it. If the Cancer should only possess a small Space, *Bidloo* did not in that Case use the Fork for supporting the Breast, but an Instrument, not unlike a small Sword, which you may see represented *Plate 43. Fig. 8.* All these Instruments must have proper Handles. But because, in our Days, these two Methods of performing the Operation, seem'd too barbarous and cruel, and could not be accomplished without the most exquisite Pain and Horror of the Patient, *Helvetius* made an Attempt not at all inconsistent with the salutary Art of Surgery, when for this Purpose he invented a kind of Forceps; one of which, represented *Plate 44. Fig. 1.* embraces, as it were, in its Arches, the upper Parts of the affected Breast; and the other, represented *Plate 44. Fig. 2.* lays hold of its superior and inferior Parts; so that betwixt them both, they embrace the Whole of the Breast, to the end that it may be the more easily rais'd, and thoroughly extirpated with the Assistance of a large Knife. But the fourth, and, in my Opinion, the best Method of performing this Operation is; when the Surgeon, without any other Instrument than a large Knife, lays hold of the Breast with one Hand, and elevates it, and with the other cuts out the Parts, over which the Corruption has spread itself. When the corrupted Breast is so large, as that the Surgeon cannot elevate it with one Hand, an Assistant is to do this Office with both his Hands, and the Surgeon is to separate it thoroughly, but at the same time cautiously, from the sound and subjacent Parts. And in this manner, without any other Steel Instrument than a Knife, did I cut off that great Breast weighing twelve Pounds, represented in *Plate 43. Fig. 3.* and that too very expeditiously and successfully. Examples of Cancers cur'd by this Method of Operation may be seen in the forty-fourth Observation of *Scultetus*.

The last Method of performing this Operation is that used a few Years ago by a Dutch Surgeon, and illustrated in a Dissertation wrote by my Townsman Doctor *Tabor*, who also describes an Instrument fitted and adapted to that end; a Representation of which may be seen *Plate 44. Fig. 3.* The corrupted Breast is embraced by the Arches A A, B B, of this Instrument *Plate 44. Fig. 3.* as may be seen in *Fig. 4.* of the same Plate. The Extremities of these Arches C C, *Fig. 3.* are shut with the Left Hand, that so the Root or Basis of the corrupted Breast may be pretty strongly compressed. Then by a sharp crooked Instrument represented by E F, and which should pass through the Cleft of the other Arch D D, the Breast is very diligently to be cut off. But however curious this Method of Operation may seem, or however specious and ingenious, that the plain and simple Method, directed above, is preferable to it; but as it is a late Invention, I chose to pass it over in Silence. A fuller Explication of the Figure will be given in the Description of the Figures of *Plate 44.*

When the Breast is cut off, in whatever Method it has been done, it is proper, if the Patient's Strength will admit of it, to take away some Ounces of Blood even before the Application of the Bandage, for preventing, as we already hinted, Inflammation and an Hemorrhage. The Opinion of some Surgeons, who imagine, that by this means the vitiated or cancerous Blood is quite drawn away, seems to be a Matter of no Consequence. But when the Patient is weak, it is more adviseable, immediately after the Operation, to apply a proper Bandage, than by an unseasonable and ill-tim'd Bleeding, to render her more and more weak. I am not indeed ignorant, that *Bidloo* and *Garengot* imagine, that in this Case there is no Danger of an Effusion of Blood, but that it is easily stopp'd and repress'd; but Experience has taught me the contrary; for I have often observed large Quantities of Blood break through thick Dressings and Bandage, by which means the Patients were considerably reduced. 'Tis therefore absolutely necessary in this Case, carefully and cautiously to apply Bandage.

In what manner Bandages may be most advantageously apply'd, we have already directed. I must only here give a Caution not to remove them before the third Day, and even then they are not to be violently torn away, but allow'd to fall off of their own accord. Besides, the less frequently, and the more circumspectly, the Dressings are renewed, the Agglutination suc-

succeeds proportionably the better. But if, in the Course of the Cure, too great a Quantity of purulent Matter should happen to flow from the Wound, in that Case the Dressings are to be frequently renew'd; and lest the Patient should be too much reduc'd, or even quite destroy'd, by a copious Discharge of the purulent Matter, the digestive Ointment will be more properly omitted, and Lint either dry, or slightly soak'd in Essence of Myrrh, and Amber, substituted in its Place. A certain Surgeon told me, that in Cases of this Nature, he us'd with Success burnt Alum, with the Addition of a small Quantity of red precipitate Mercury; and that by this very Means, a firm Cicatrix was very soon brought over the Parts.

That the Patient's lost Strength may be gradually restor'd, she must be careful to use not only Foods that are of good Nourishment, and easy Digestion, such as Broths, Jellies, soft Eggs, and other Aliments of a like Nature, but also cordial Medicines, and especially grateful and palatable Emulsions. Great Care on the other hand is to be taken, lest the Wound agglutinate too soon; for in this Case, as some Authors have observed, the Malady gathers fresh Strength, and returns with greater Violence. For which Reason, if there is any apparent Danger of this Misfortune, Honey of Roses is now-and-then to be used in the Dressings, that so a due Suppuration may be kept up for a sufficient time; but when the Cancer is once cured, the Patient must take great Care always to observe a strict and proper Regimen, and to shun the Exorbitancies of the tumultuous and ungovern'd Passions. She is likewise at stated Seasons of the Year, especially in the Spring and Autumn, to use purgative Medicines, and to have as much Blood taken from her, as her State shall require.

When in the Course of the Cure, a vehement Fever, accompany'd with violent Pains about the *Præcordia*, and a Difficulty of Breathing seize the Patient, certain and unavoidable Death is generally the Consequence. That this may not therefore prove the Patient's Fate, Blood is to be taken from her in time, and Medicines preventive of these Disorders prescrib'd. There are indeed some Women, who bear this Operation with uncommon Fortitude, and more than heroic Bravery of Mind; whereas others of their Sex, lose their Courage so far, as to shriek and cry in a manner so terrible, as is sufficient to shock and confuse the most intrepid Surgeon, and disconcert him in his Operation. 'Tis therefore absolutely necessary in this Case, that the Surgeon, as *Celsus* directs, be intrepid, and acquit himself in all the Steps of his Operation, in such a manner, as if he was deaf to the moving Groans, and piercing Shrieks, of the tortur'd Patient.

Mr. Sharp's Observations on this Subject must not be omitted, as they acquaint us with several Particulars of Importance.

The Success of this Operation is exceedingly precarious, from the great Disposition there is in the Constitution, after an Amputation, to form a new Cancer in the Wound, or some other Part of the Body. When a Scirrhus has admitted of a long Delay before the Operation, the Patient seems to have a better Prospect of Cure, without Danger of a Relapse, than when it has increased very fast, and with acute Pain. I cannot, however, be quite positive in this Judgment; but upon looking round amongst those I know, who have recovered, find the Observation so far well grounded. There are some Surgeons so disheartened by the ill Success of this Operation, that they decry it in every Case, and even recommend certain Death to their Patients, rather than a Trial, upon the Supposition it never relieves; but the Instances where Life and Health have been preserved by it, are sufficiently numerous to warrant the Recommendation of it.

The Scirrhus may be distinguished by its want of Inflammation in the Skin, its Smoothness and Slipperiness deep in the Breast; and generally by its pricking Pain, which, as it is more or less, increases the Danger accordingly, though there are some few with little or none in the Beginning. As the Tumour degenerates into a Cancer, which is the worst Degree of Scirrhus, it becomes unequal and livid; and the Vessels growing varicose, at last ulcerates.

In extirpating the Scirrhus, if it be small, a longitudinal Incision will dilate sufficiently for the Operation; but if too large to be dissected out in that manner, an oval Piece of Skin must be cut through first, the Size of which is to be proportioned to that of the Tumour: For Example; if the Swelling is five Inches long, and three broad, the oval Piece of Skin cut away must be nearly of the same Length, and about an Inch and an half in Breadth. In taking off the whole Breast, the Skin may be very much preserved, by making the Wound a great deal less than the Basis of the Breast, which must be carefully clear'd away from the Pectoral Muscle. This is not difficult to do, because all these Scirrhi, being enlarged Glands, are encompassed with their proper Membranes, which make them quite distinct from the neighbouring Parts, and easily separable; at least this is the Case when the Tumour is move-

able; for sometimes it adheres to the subjacent Muscle, and that Muscle to the Ribs; in which Circumstance the Operation is impracticable. When it is attended with Knots in the Armpit, no Service can be done by Amputation, unless the Knots be taken away; for there is no sort of Dependence to be laid on their subsiding by the Discharge of the Wound of the Breast. The Possibility of extirpating these Knots, without wounding the great Vessels, is very much question'd by Surgeons; but I have done it when they have not lain backwards and deep.

The Bleeding of the large Arteries is to be stopp'd by passing the Needle twice through the Flesh, almost round every Vessel, and tying upon it, which will necessarily include it in the Ligature. In order to discover the Orifices of the Vessels, the Wound must be clean'd with a Sponge wrung out of warm Water.

The scirrhus Tumours that appear about the lower Jaw, are, generally speaking, scrophulous Disorders, that distinguish themselves almost by the Circumstance of fixing on the Salivary Glands. These are very stubborn of Cure, but not so bad as the Scirrhus, since they frequently suppurate, and heal afterwards. If they imposthume again after healing, 'tis for want of a good Bottom, which may sometimes be procur'd by destroying their bad Surface with a Caustic, and is a Method I have often practis'd with extraordinary Success. Besides these, there is another Species of Scirrhus in the Neck, that succeeds better after Extirpation than either of the former Kinds; this is an Enlargement of the Lymphatic Glands, that run close up by the Jugular Vein; and is distinguishable from Cancers of this Part, by its Moveableness, want of Pain, the Laxness of the Skin covering it, the small Degree of Pressure it makes on the Oesophagus and Trachea; and lastly, the good Habit of Body, as it seldom affects the Constitution, which Cancers here do very early after their first Appearance. This Tumour, from its Situation, requires great Exactness in the cutting off. The last I took away of this Kind, I separated from the Jugular Vein near the Length of an Inch and an half; they sometimes extend up the Chin towards the Mouth, and occasion a Division of the Salivary Duct in operating, which proves very troublesome to heal; but when all other Methods have fail'd, may be cur'd by a Perforation into the Mouth, through that Part of the Cheek where it is wounded, which by a Tent, or small Seton, may be made fistulous; then by dressing upon the Outside, the ouzing of the Saliva that way will be prevented, and the external Orifice healed without Difficulty.

The Treatment of all these Wounds may be with dry Lint first; and afterwards, as in the common incised Wounds. *Sharp's Surgery.*

As Accident sometimes, but more frequently Lewdness and Debauchery, lay People under a Necessity of having the Whole, or a Part of their Penis amputated, I must not omit the Method of performing the Operation.

Amputation of the Penis.

If at any time a Gangrene should happen in the Penis, in Consequence of an Inflammation, a Phimosis, or Paraphimosis, then the same Method of Cure is to be pursu'd, which is laid down under the Article PHIMOSIS.

But if a Sphacelus, or a Cancer in Consequence of a scirrhus Gland should appear in the Penis, then every Part, to which the Contagion has reach'd, is with all Expedition to be extirpated, lest the Taint diffuse itself farther, and the Patient's Misery be produced by the Surgeon's Negligence. The most convenient and proper manner of performing the Operation is this: A small Tube of Silver or Lead, a little longer than the Part affected, is inserted into the Urethra, and pass'd a little farther than the Extremity of the corrupted Part. Then the sound Part of the Penis, which next adjoins to the corrupted Part, is to be tied with a strong linen or ilken Ligature, in the same manner as when Tubercles or Excrescences of Flesh are to be taken off by Bandage. Then the Tube inserted into the Urethra is carefully fix'd, that it may not slip out, but afford an easy and open Passage for the Urine. The Ligature is left upon the Penis; and if Necessity require it, may be made tighter next Day, by applying another above it; and by this means, after some Days, the corrupted Part falls off where the Ligature was made. I am not ignorant, that some Surgeons forthwith cut off the corrupted Part, and that the Blood is sometimes stopp'd, and the Wound happily and thoroughly agglutinated by actual Caustery, or styptic Medicines: An Instance of which may be seen in the fifty-sixth Observation of *Scultetus*. But as this Method of Cure seldom succeeds well, and for the most Part draws a Train of dismal Consequences after it, I cannot help preferring the way by Ligature to it. Besides, when there is only a part of the Penis taken off, there remains, after the Cure, a certain Power of Procreation, which bears a Proportion to the Size of the remaining Part.

Whoever is desirous of seeing Cases of this Nature, let him consult, besides *Scultetus*, *Hildanus*, *Observat.* 60. and 65. *Ruyfchius*.

Ruyfchius, Cont. 3. Observat. 88. and Doebelius, Observat. 30. for he has written a Treatise upon this very Subject. Heister, Tom. 2.

C A S E S.

One *Peter Perrod*, a Blacksmith, in a small Village near *Lausanne*, of forty Years of Age, of a melancholic Constitution, and who led a Country Life, had from his Infancy been troubled with a Wart on the Top of the Glans Penis, not exceeding the Size of a Lentil. Before Marriage he felt no Pain from it, unless upon some accidental Collision; but when he chang'd his Condition of Life, and enter'd into the Marriage State, by the Attrition of the Parts, during his Embraces, he began to feel a Pain so intense and uninterrupted, that he was forc'd for thirteen Years to part Beds with his Wife. But in Process of Time, the Pain increas'd, and the Wart degenerated into a monstrous Cancer, as large as a new-born Child's Head. His Penis was in a manner transform'd into a Mass of Flesh of a livid Colour, and uneven on its Surface. The Smell it exhald was so rank and disagreeable, that his Friends and Acquaintance could no longer endure to be in the Place where he was. A great many Ulcers, thro' some of which his Urine came, surrounded this cancerous Fungus. The Disease growing daily worse and worse, Physicians of all Characters were consulted, but all in vain. When the Patient's Case was by them all pronounc'd desperate and incurable, when his Life was in imminent Danger, and the Excess of his Misery mov'd the Compassion of all about him, he implor'd my Assistance; and that worthy old Clergyman *Parus Pagesius*, who was at once a venerable Model of Piety and Erudition, prevail'd upon me to undertake the Cure, which I did, after I had declar'd my Sentiments to his Friends, and the rest of the Company present. When I had diligently examined his Case, I found it to be very terrible; for the Cancer had by this time thrust its Roots as far as the Abdominal Vessels, and fix'd them there: For this Reason I judg'd it more adviseable to try the last Remedy, or in other Words, to cut off the Member, than to leave a Man, who had already suffer'd so much, in such Excess of Agony and Pain.

As for the Cure itself, I proceeded in it after this Manner:

After prescribing the Regimen I thought most proper, I purg'd him with this Potion:

Take of the Herbs Fumitory, Scabious, Dodder, and Spleenwort, each half an Handful; of Anise-seeds, half an Ounce; of Sena-leaves, three Drams: Boil all together in such a manner, that the Liquor to be strained off amount to no more than three Ounces, in which dissolve three Drams of the Confection of Hamech, a sufficient Quantity of the solutive Syrup of Roses, made with Rhubarb, Agaric, and Sena; to which add one Ounce of Cinamon-water distill'd without Wine: Mix all up together into a Potion, to be given pretty early in the Morning.

Next Day I open'd a Vein in his Left Arm, and took six Ounces of Blood from him. Then, for the better Preparation and Evacuation of the Humours, I prescribed the following Apozem:

Take of the Roots of Succory, with the whole Herb, the Roots of sharp-pointed Dock, Purslain, Polypody, the greater Figwort, Tamarisk Bark, and the inner Roots of black Alder, each one Ounce; of the Herbs Agrimony, Speedwell, Scabious, Dodder, Spleenwort, golden Maiden-hair, Crane's Bill, of each a Handful; of the three cordial Flowers, Broom, and Elder-flowers, of each one Pugal; of Liqueice, and ston'd Rafins, each an Ounce: Boil in a sufficient Quantity of Water to a Consumption of a third Part. In a Pint and an half of the strain'd Liquor infuse and macerate according to Art, two Ounces of pick'd Sena-leaves; of the Roots of Bastard Hellebore, that is, the Root of the Female Sanicle of Fuchsius, and of Polypody, each one Ounce; of Agaric newly reduced into Troches, three Drams; of the best Rhubarb, three Drams: Make a Potion, according to Art, for four Mornings.

Having with the above Medicines purg'd his Body, and ordering him to discharge the Contents of his Bladder, upon the tenth of July 1601. I plac'd him in a Seat, and in the Presence of that renown'd and learned Gentleman *Johannes Rhetorius*, Professor of Hebrew in the School of *Lausanne*, *Claudius Mariones*, a most knowing Apothecary, *David Clerk*, and some others who are still alive, I extirpated his Penis in the very Abdomen itself; then I apply'd my styptic Powder upon Stupes dipt in Whites of Eggs; and with Cloaths folded, and dipt in Oxycrate, I wrapt up his Scrotum and Groins, and apply'd proper Bandage; which being done, I appointed Servants, who, in their Turn, should, with their Hand wet in

Oxycrate, press gently upon the Stupes, lest an Hæmorrhage should happen; for in this Case the actual Cautery is highly dangerous, both because it may obstruct the urinary Passage, and bring on an Inflammation of the Bladder, and adjacent Parts. The Wound being dress'd in this manner, I allow'd it to remain untouch'd till next Day. Then by the Use of Digestives for some Days after, anointing his Belly, and the Parts adjacent to the Wound, with Oil of Roses, and Myrtles, and by applying a defensive Plaster to the lower Part of his Belly, I cur'd the Wound in my ordinary manner. By the Use of these Means, accompany'd with the Blessing of God, he recover'd his Health perfectly.

For a Conveyance to his Urine I order'd him a very simple Instrument, not unlike a human Penis, which he us'd immediately after the Cure, with little or no Degree either of Difficulty or Pain. Besides, he enjoy'd such a good State of Health, and perform'd the several Branches of his Profession, with such Ease and Freedom, that all who had an Opportunity of knowing his deplorable State, were struck with Surprize at so complete and so unexpected a Cure.

Besides, since some imagine, that a Cancer extirpated in one Part never fails to appear in another, 'tis worth while to observe, that this Man liv'd for many Years without the least Symptom of that Kind; enjoy'd so good a State of Health, that he followed his own Trade, and other Parts of Country Labour, without the least Impediment, and even without the Instrument he us'd at the Beginning, discharg'd his Urine as freely, as if he had an entire and sound Penis, since he was able to throw it out a considerable way; and which is still more surprizing, he several times told me, that he was very often tantalized with a Stimulus to Venery. At last, however, he died, about the End of the Year 1611. when I was in the *Netherlands*; but what the Disorder which prov'd fatal to him might have been, I cannot tell.

During the War between the Duke of *Savoy*, and the Inhabitants of *Geneva*, a Soldier happen'd in a Skirmish to have his Penis struck off by the Shot of a Musket. Being brought to *Geneva*, he was happily cur'd by that skilful Surgeon Mr. *John Griston*; but in this Patient the Hæmorrhage was not great, otherwise the Cure had been difficult and dangerous, as might be confirm'd from many Instances.

In the last Observation but one, I gave an Instance of a Penis cut off, and cur'd with Success. I shall now shew, from two Instances, that Operations of this Kind are highly dangerous, unless when perform'd with Skill, Dexterity and Caution.

In the Year 1581. a poor Countryman went out a begging; and having a pretty weighty Bag hung about his Neck, he had the Misfortune to attract the Eyes of a Cut-purse, who, while he was deliberating about the most proper Expedient for getting it into his Possession, observed, that when the poor Man bend'd his Body forwards, the Bag hung down between his Thighs; and that when he recovered his Body from that Posture, the Bag was again rais'd to his umbilical Region. When he had thus taken his Observations as accurately as he could, and saw the poor Man standing before a Shop, and gazing on the Commodities, he secretly came behind him, and seizing at once his Penis and the Neck of the Bag, he cut both off at one and the same time. But the miserable Countryman, falling upon the Ground, expired upon the Spot.

In the Year 1582. a Man of about forty Years of Age, labouring under a malignant Ulcer in the Glans of his Penis, had the Misfortune to fall into the Hands of a Surgeon who was none of the most skilful: He having cut off the Glans, and not being furnish'd with styptic Powders strong enough for stopping the Blood, set about heating the first Piece of Iron that presented itself to him in the Kitchen, during which time, so terrible an Hæmorrhage happened, that the Patient died a few Days after; for so great an Hæmorrhage had impaired his Strength so entirely, that it was impossible to restore it. Hence young Surgeons ought to learn, that the greatest Skill, Diligence, and Caution, are necessary for cutting off a Penis in a proper manner. *Hildanus, Cent. 3. Observ. 88, 89.*

The human Penis may be successfully enough extirpated, provided the several Steps necessary be carefully and faithfully taken.

A Countryman had for two Years been troubled with a scirrhous Swelling on the Glans of his Penis, which at last degenerated into an exulcerated Cancer, and became as big as a Person's Fist. *Joachim Schrader*, a skilful Surgeon, who had the Cure entrusted to his Care, call'd that experienced Physician Dr. *Hiddingh*, myself, and *Andrew Boekelman*, together with his Son *Cornelius*, to a Consultation. We unanimously approved of Extirpation, which was accordingly set about next Day, and that, Thanks be to Heaven, with such Success, that tho' he lost his Penis, he returned home with his Health, which he still continues to enjoy. The Operation was performed in this manner: Having pass'd a Catheter up his *Urethra*, into the Cavity of his Bladder, we made a strong Ligature

Ligature upon his Penis, just behind the affected Part, with a Cord, which was indeed small, but capable of making a very great Compression. The Patient bore the Agonies of the Operation with such a manly Courage, as surpris'd all the Spectators; for he was only heard to utter a few Complaints. After we had apply'd this Ligature, we so fixed the Catheter with Thread, that it could not slip out of the Urethra. Next Day we apply'd a fresh Ligature, that the Part affected might mortify the sooner. In the mean time we wrapt up the Whole of his Penis in a wet Bladder, for the Reception of his Urine, and preventing a bad Smell. Upon the fifth Day, if I rightly remember, the mortified Part was cut off with a Knife, without any Hemorrhage ensuing, because it was totally mortified. We still left the Catheter in his Urethra for a Day or two, till the Ligature should come off of its own Accord, and the Patient stand no longer in Need of it. Being now recovered, he discharged his Urine thro' an ivory Instrument; for that Part of his Penis which was left, had wholly shrunk back into his Abdomen, so that he was oblig'd to use this Instrument to prevent his Cloaths being made wet. *Ruyssch, Vol. 1. Obser. 30.*

AMPUTATIO is used by *Caelius Aurelianus* in a Sense different from that already explain'd. Thus *Acut. L. 2. C. 6.* and *10.* VOCIS AMPUTATIO imports a Deprivation of Speech, or Inability to speak. And the same Words are also used by this Author, *Chronic. L. 4. Cap. 7.* in exactly the same Sense.

In this Author also *amputare Vires* signifies to render weak, or take away Strength.

Nervus amputare also in this Author signifies to take away the Strength.

AMUETICA, *ἀμυντικά*, from *ἀμύνω*, to vellicate. *Caelius Aurelianus, Chron. L. 2. Cap. 6.* uses this to express Remedies, which by vellicating and stimulating the Bronchia, raise a Cough, and by that means contribute to the Discharge of whatever is offensive to the Lungs. These Medicines are the same as those call'd ARTERIACA.

AMVETTI, or Vetti-Tali, otherwise distinguished by the Name of *Arbor Indica, Floribus spicatis, Seminibus parvis in Vascularibus siccis*.

It is the Name of an Indian Tree; but I don't find any medicinal Virtues attributed to it.

AMULETA, Amulets. As these and Charms are nearly ally'd together, I shall treat of them under the same Article.

As we learn from sacred History, that Idolatry had diffus'd its baleful Influences over the Minds of Men long before the Days of *Moses*, 'tis probable, that Magic, and the ridiculous Attempts to prevent Diseases, and restore Health, by the Use of Charms and Amulets, are as old, since they seem to be closely connected, and nearly ally'd to each other. As this is the Case, it must be as difficult to trace the Origin of Magic and Amulets, as of Idolatry itself: But as Disquisitions of this Nature are foreign to our present Purpose, we refer the Curious to those Authors who have wrote expressly upon that Subject.

That we may deviate from our Subject as little as is possible, it is sufficient for us to know, that these illicit Methods of procuring Health, which were founded on a false Religion, and supported by the Credulity of a giddy and unthinking Multitude, were not only practis'd, but in a manner incorporated with Physic, long before the *Greek Æsculapius*, who in all Probability practis'd them himself.

As to the Manner in which this Abuse crept into Physic, and the Motives that have induc'd Mankind to prostitute their Understandings, and affront their Reasons, so far as to countenance it, 'tis probable, that Men seeing the natural Means of preserving Health, and preventing Death, frequently unsuccessful, grasp'd at every thing that first presented itself, and believ'd the first Impostor, who had Confidence and Wickedness enough to impose upon them. They allow'd themselves to be so much the more easily decoy'd in this Particular, because they imagin'd, that tho' these superstitious Practices should happen to do no Good, yet at least they could not possibly do any Harm; and though they were of themselves without Virtue, and without Efficacy, yet to authorize and establish their Use, it was sufficient, that some Persons believed, that they reap'd Advantage, and received Ease, from them. It is even possible, that the Relief afforded by these Charms might have been real, since the Force of Imagination in the Patient might have supply'd the Defect of medicinal Virtue in the Amulet; and the Impression made upon the Mind by it, might have communicated itself to the Body, and chang'd the State and Condition of its Parts. If to what has been said we join these two Considerations; that these Amulets were not, like other Remedies, ungrateful and painful; and that Religion, or rather Superstition, which has too great an Influence over all Mankind, join'd her sacred Sanction, and pronounc'd them lawful. I say, if we reflect upon these things, we shall not be surpris'd, that Men fell into the Mistake, embraced the agreeable delusive Error, and justified their Prostitution of Sense and Reason, by an Allegation of imaginary good Effects produced by them.

Whether besides the Craft and Artifice of Men, there was any thing more in the Matter, is a Point, the Decision of which I leave to Divines. But whatever the Case be, certain it is, that Charms and Incantations have been so effectually introduced into Physic, that all the Nations of the World have used them Time out of Mind. The *Pagans* are not the only People who have fallen into this Folly. Those who have been honour'd with the Knowledge of God, have allow'd themselves to be corrupted and carried off by the bad Example of their idolatrous Neighbours; and some even of those who have been accounted the wisest of Men, whatever the Religion they profess'd was, have been so weak and superstitious as to split upon this Rock, as well as the Vulgar; tho' there have been in all Ages, even among the *Pagans*, some free unfetter'd Souls, who nobly dar'd to think for themselves; who look'd thro' the Mask, and sneer'd at the wild Delusion.

Sometimes People charm'd by single Words, or by certain Sentences, whispered in the Patient's Ear, or even pronounced at a Distance from him, with an Intention to cure him; and this Form was always accompany'd with various other Ceremonies. These Words or Sentences were called by the *Greeks* *ἐναιδαι*, by the *Latins* *Incantamenta*, or *Carmina*, which Words correspond precisely to our English Words *Incantments* and *Charms*, as being a sort of Song pronounced over any one; for the Words were generally in Verse, or at least pronounced with the Air and Spirit of a Song; not but that they also made use of Prose for this Purpose, and even employed barbarous and insignificant Words, which neither he that performed the Ceremony, nor he for whose sake it was performed, understood.

At other times they wrote these Words or Sentences on certain Substances, which they tied to some Part of the Patient's Body, or made him carry about him. These are what the *Latins* call *Amuleta*, probably from the Verb *amovere*, to remove or take away; they call them also *Proëbia* or *Proebra*, from *prohibere*, to guard or defend. The *Greeks* have with a like Propriety and Significancy call'd them *Apotropæa*, *Phylacteria*, *Amynteria*, *Alexiteria*, and *Alexipharmaca*, because they imagin'd, that these Remedies could defend them, not only against such Diseases as proceed from natural Causes, but also against the Charms or Incantations which might have been used by others, with a View to hurt or destroy them.

These Amulets were made of Stone, Metal, Simples, Animals, and in a Word, of every thing their Fancy suggest'd, or their Caprice directed them to. Upon Stone, Metal, and Wood, they engraved Characters, Figures, or Words, which were to be disposed and ranged in a particular Order, as well as those delineated on Paper. Such is that prescribed by *Serenus Samonicus*, for the Cure of a certain Species of Fever, call'd by Physicians *Hemitritæa*. The Cure consists in writing the Word *Abraquadabra* in a certain manner upon Paper. See *ABRACADABRA*.

The *Jews* have attributed the same Virtue to the Word *Abracalan*, pronounced in the same manner. See *ABRACALAN*.

We find in *Marcellus Empericus*, in *Trallian*, and other Authors, several Examples of Amulets made by Characters, rang'd in a certain Order, and engraved upon Metal, Wood, or Stone.

Sometimes they neither wrote nor engrav'd any thing upon the Substances intended for the Amulets, but used a great many superstitious Ceremonies in preparing and applying them. Not to mention the Pains they were at in observing, whether the Stars were favourably dispos'd, or not. The *Arabians* have given this last Species of Amulet, the Virtue of which depends principally upon the Influence of the Stars, the Name of *Talisman*, which in their Language signifies an Image.

Amulets were made of all Forms, and tied to all Parts of the Body; for which Reason they were also call'd *Periaptæ*, and *Periammata*, from a *Greek* Word which signifies to tie about any thing. Some of these resembled a Piece of Money, thro' which they bor'd a Hole, and with a Piece of Thread hung it about the Patient's Neck. Others of them were in the Form of Rings, which were put upon the Fingers, or other Parts of the Body. Others of them were contriv'd in the Form of Bracelets, or Necklaces, which were wore upon the Arms, and about the Neck; and some of them resembled Crowns, with which the Patient's Head was incircled.

We may join in the same Class with Amulets and Charms, all the other superstitious Remedies, in which the Antients reposed so much Confidence, and of which they used to great a Number. There were, for Instance, certain Simples, which they could neither gather, prepare, nor apply, without at the same Time performing some Ceremonies, which, consider'd in themselves, could neither facilitate the Operation of the Medicine, nor augment its Virtue, and seem'd altogether of an indifferent Nature, but without which it was pretended that the Remedy was useless. The Writings of the ancient Physicians abound with Descriptions of Remedies of this Nature, which are still used by Quacks, old Women, and others.

others who have the Misfortune to be under the Influences of Credulity and Superstition. See BARA.

There are also a kind of Amulets, in which neither Charms nor Superstition had any Share, tho' no Person could account for the Effects attributed to them, nor comprehend the Manner in which they acted. These are, at this very Day, approv'd of by some Physicians, and as industriously ridiculed and despised by others. *Le Clerc. Hist. de la Medicine.*

Amongst Amulets and Incantations, none seems to have gain'd so great a Reputation as the Royal Touch for the King's Evil, which has the Appearance of being a Mixture of both. There is scarcely a Royal Family in Europe, which does not pretend to inherit from some of their pious Ancestors, the Power derived from Heaven, of charming this Distemper. This Claim would be more justifiable, if most of their Thrones had not originally been gain'd by Rapine and Violence, and supported by an almost continual Series of Oppression and Injustice, which are not likely to draw down from Heaven any extraordinary Benediction. If, however, we look upon this sort of Incantation as a Piece of political Craft, we shall have Reason to believe it has its Origin more in Villainy than Folly: For Miracles are very proper to extort a Veneration from the Vulgar, and impose upon Minds furnish'd with little Sense, and much Credulity. I am sensible, that many grave Authors have treated this miraculous Method of Cure as a Reality, and that there are not wanting Persons, who at this Day, pretend to produce Instances of People who have been healed by the Royal Touch. But, at the same time, I can produce as good Evidence of Tricks play'd by Witches, Spirits, and Fairies, which however I cannot implicitly believe. I should therefore think it more probable, that those who relate and assert Stories either of Witches, or Cures by the Royal Touch, have suffered themselves to be imposed upon through a little Enthusiasm, and a Fondness for the Marvellous, or intend to impose upon others, than that such Relations should be true. I will not deny, that the Solemnity of the Ceremony, and the Presence of a crown'd Head, may possibly strike the Person touched with an Awe and Surprise, which may induce some Alteration in the Circulation of the Blood, and consequently upon the Solids and Fluids of the Body; but this Cause does not appear adequate to the Effects attributed to it. It is possible also, that the Gold worn about the Neck may have some salutary Influence, if it can attract to itself, and draw out of the Body the Matter, which is the immediate Cause of the King's Evil, as it does Mercury, which however is not so certain as to be depended upon.

AMURCA is the Fæces which subsides to the Bottom of the Vessel, where the Oil of Olives newly express'd is put.

It is emollient, lenitive, and resolute, and proper to ease Pains in the Head, being applied to the Forehead, and to stop Fluxions. *Lemery de Drogues.*

The medicinal Virtues of Amurca, as related by some of the Antients, are somewhat different from those mentioned by *Lemery.*

AMURCA, ἀμύρκα, is the Lees or Sediment of the pressed Olive.

Boiled in a copper Vessel to the Consistence of Honey, it becomes an Astringent, and is serviceable in the Tooth-ach, and for Wounds, being mixed with Vinegar, Wine, or Wine and Honey, [ἀνόμελιν] and the Parts anointed therewith. It is also an Ingredient in Collyria and Plaisters. The older it is, the better. Administered in a Clyster, it is good for Exulcerations of the Anus, Pudenda, and Uterus. Boiled with Omphacium to the Consistence of Honey, it draws out rotten Teeth, that are anointed with it. A Decoction of it with Lupines and the Chamæleon, cures the Scab in Cattle, being rubbed over with it. Crude and new, it makes a good Fomentation for those who are afflicted with the Gout in their Feet or Joints.

Being spread upon a Sheep-skin with the Wool, and apply'd to hydropical Persons, it represses the Swelling. *Dioscorides, Lib. 1. Cap. 138.*

Amurca is of an earthy Substance, hot, but not sensibly acrid. When boiled, it becomes of grosser Parts, and more dry. *Orib. Med. Coll. Lib. 14. Cap. 1.*

By reason of its heating and intensely drying Qualities, it cures Ulcers in Bodies that are of a dry Temperment; but in all others increases and exasperates them. *Actius Tetr. 1. Serm. 1. Eginet. Lib. 7. Cap. 3.*

AMYCHE, ἀμύχην, a superficial Exulceration, Laceration, or Scarification of the Skin.

It is derived from ἀμύω, to scratch, and is sometimes used by *Hippocrates.* Hence AMYCTICA, Stimulating, Vellicating, used by *Cælius Aurelianus, Lib. 2. Cap. 6.*

AMYDROS, ἀμυδρὸς, somewhat obscure, scarcely to be seen. It is used by *Hippocrates* in his Treatise de Insomniis.

AMYGDALÆ, Almonds, the Fruit of the AMYGDALUS, which see. It also sometimes signifies the TONSILLÆ, which see.

AMYGDALIA; ἀμυγδαλία, Almonds. *Hippocrates de Morbis, Lib. 2.*

AMYGDALATUM, an artificial Milk made of Almonds, usually called an Emulsion.

AMYGDALOIDES, a Name by which *Oribasius* calls the Tithymalus, which, he says, goes also by the Names of *Tithymalus Mas, Characias, Cometes, and Gobius.* See TITHYMALUS.

AMYGDALOPERSICUM, the Almond Peach. It is also called *Persea Amygdaloides.*

AMYGDALUS *amara, & dulcis, Offic. J. B. 1. 174. Mont. 36. Jonf. Dendr. 122. Amygdalus sativa, C. B. Pin. 441. Raii Histor. 2. 1519: El. Bot. 497. Amygdalus sativa, fructu majore, T. Inf. 627. Boerh. Ind. A. 2. 245. Amygdalus, Chab. 12. Ger. 1256. Emac. 1445. Parkinf. Theat. 1515. The ALMOND-TREE. Dale.*

The Decoction of the Roots of the bitter Almond-tree, bruised, clears the Face of Freckles; and a Cataplasim of the Almonds has the same Effect. Apply'd by way of Pessary, they provoke the Menfes; and made into a Cataplasim with Vinegar and Oil of Roses; and apply'd to the Forehead or Temples; they ease Pains of the Head; with Wine they cure the Epinyctides [Pustules arising in the Night]; and with Honey are properly apply'd to putrid and spreading Ulcers, [σπινθηρὰς καὶ ἐσπινθας] and the Bites of Dogs. Being eaten, they ease Pain, loosen the Belly, incline to Sleep, and provoke Urine. Taken with Amylum, they help such as vomit Blood; drank in Water, or made into an Eclegma with Refin of Turpentine, they relieve those who are afflicted with Diseases of the Kidneys, or labour under a Peripneumony. Taken in Raisin-wine, [γλυκὴν] they relieve such as are troubled with a Difficulty of Urine, or the Gravel. Made into an Eclegma with Honey and Milk, and taken to the Quantity of a Hassle-nut, they cure Diseases of the Liver, Coughs, and Inflations of the Colon; eaten before drinking, to the Number of five or six, they prevent Drunkenness. They kill Foxes, being mixed with their Food. The Gum of the Tree is astringent and heating; and, drank, relieves those who bring up Blood. Mixed with Vinegar, and the Parts anointed therewith, it takes off Tetters that affect only the Superficies of the Skin. Drank in Wine and Water, it cures an inveterate Cough; and drank in Raisin-wine, it relieves those who are afflicted with the Gravel.

The sweet and esculent Almond is much inferior in Virtue to the bitter one, though it attenuates, and provokes Urine. Green Almonds, eaten with their Shells, amend the preternatural Humidity of the Stomach. *Dioscorides, Lib. 1. Cap. 176.*

Oil of bitter Almonds, which some call *Metopium*, is thus prepared:

Take of bitter Almonds, clean'd and dry'd, six Pints; bruise them gently in a Mortar with a wooden Pestle, till they come to a Paste, and thereto pour two half Pints of boiling Water. Let it alone for half an Hour to imbibe the Moisture, after which beat it again more strongly, and pressing it, put what sticks to the Fingers into a Muscle-shell. This done, pour again half a Pint of Water to the Mass, and suffering it to imbibe the same, do as before. Every six Pints of Water will produce half a Pint of Oil.

It is effectual against Pains and Strangulations of the Uterus, and against Contortions and Inflammations of the same Parts; also for Pains of the Head, and Pain and Noise, or Ringing in the Ears. It helps those who are afflicted with Diseases of the Kidneys, a Difficulty of Urine, the Stone, the Asthma, or Disorders of the Spleen. Mixed with Honey, Root of Lilly, and *Cyprian* Cerate, or Cerate of Roses, it clears the Face of Spots and Freckles, from Sun-burning, and smooths it from Wrinkles; it also rectifies a Dimness of Sight, and deterges Achors, and Scald Heads. *Dioscorides, Lib. 1. Cap. 39.*

Troches of bitter Almonds are thus prepared:

Take of Anise, the Seed of Smallage, Asarabacca, bitter Almonds, the Tops of Wormwood, of each an equal Quantity, and make them up with Water into Troches of the Weight of a Dram. To a Patient in a Fever give them in Hydromel; to one without a Fever give them in Wine and Water [ἀνόμελιν]. *P. Egineta, Lib. 7. Cap. 12.*

Oil of Almonds is prepared after the following manner:

Take clean bitter Almonds, and pound them, instilling now-and-then a little Water; this done, to the Quantity of four Ounces put a Pint of sweet Oil; let it stand forty Days in the Sun, or let it boil three Hours in a double Vessel, and then strain it for Use. Some put two Ounces of bruised Almonds to an Italic Pint of Oil, and boil it in a double Vessel.

An Oil of Almonds, called also *Metopium*, prepared differently from that described by *Dioscorides*:

Take of Oleum Omphacinum, [Oil expressed from unripe Olives] twenty Pints; of bitter Almonds, two Pounds; of

of Cardamoms, one Pound; of the Flowers of Juncus Odoratus, Calamus Aromaticus, Carpobalsamum, each one Pound; of Myrrh, Galbanum, each half a Pound; of Turpentine, two Pounds; of sweet-scented Wine, to macerate the dry Ingredients in, four Pints; of Attic Honey, three Pounds. Bruise and dissolve the Galbanum and Turpentine in Part of the Oil, and mix them with the rest of the Ingredients after they are boiled, and then add the Honey. When all is thoroughly mixed, take it off the Fire whilst it is in a gentle Warmth, and strain it; for when cold, it is thick.

The Egyptians, who invented this Oil, called it *Metopium*, because it had Galbanum for an Ingredient, which was the Produce of a Plant called *Metopium*. *P. Aeginet. Lib. 7. Cap. 20.*

AMYGDALIS AMARA ET DULCIS. This Tree is so much like the Peach, both in Leaves and Blossoms, that it is hard to know them asunder, but by their Fruit, which is less in this, containing little or no pulpy Flesh, but a tough cottony Skin, under which is the Stone, which is smoother and more pointed at one End, but full of little Hollownesses. The Kernel of this is the Almond, not distinguishable whether bitter or sweet, but by the Taste.

The Almond-tree grows only spontaneously in the warmer Countries, as Spain, and particularly Barbary: It flowers early in the Spring, and the Fruit is ripe in August.

Sweet Almonds are accounted nourishing, but if eaten too much, are hard of Digestion, and very stuffing; of these, with Sugar, are made several Sweet-meats, as *March Panes*, and *Maccaroons*. But it is the Oil drawn from the sweet Almonds that is most in Use, and is an useful and excellent Medicine. It is of great Service in Affections of the Lungs, as Coughs, Shortness of Breath, in Soreness of the Stomach, pleuritic Pains. In the Stone, Gravel, and all Diseases of the Kidneys and Bladder, it is of singular Use, by its softening and lubricating Quality. It very much corrects the bilious Salts in the Stomach and Bowels, and is of great Advantage in the Colic, and helps a costive Habit of Body. It is commended to be given to Women with Child, to take freely of it for some time before they expect their Delivery. It is very useful for Childrens Gripes, and to purge them gently, mix'd with any opening Syrup.

The bitter Almonds are more used outwardly as a *Cosmetic*, being cleansing and beautifying. The Oil dropp'd into the Ears, is good for Deafness; and is frequently put among *Anodyne* Liniments.

The only officinal Preparation is, the expressed Oil of bitter and sweet Almonds. *Miller Bot. Off.*

Sweet Almonds contain a great deal of Oil, and a little Salt and Phlegm.

The bitter Almonds contain a great deal of Oil, more Salt than the sweet Almonds, and but little Phlegm; it is for that Reason, that the Oil of the bitter Almond will keep a longer time without growing musty, than the Oil of sweet Almonds. *Lemery de Drogues.*

Pomet adds, that the Oil of bitter Almonds, outwardly apply'd, softens hard Nerves, takes away Spots in the Skin, and brings down the great Bellies of Children. Some say, that the Oil of sweet and bitter Almonds both may be preserved from growing rancid, by the Help of Spirit of Wine tartarized.

Sweet Almonds cause Sleep, and increase the feminal Powers.

Both the one and the other agree at all times to every Age, and all Sorts of Constitutions, provided they be moderately used.

After your sweet Almonds are bruised and steeped in Water, they squeeze a milky Juice out of them, which is given to lean, consumptive and pleuritic People, and does them a great deal of good; the Reason of which is, because the Milk contains a great many oily, balsamic, and embarrassing Parts, fit for nourishing and restoring the solid Parts, moderating the violent Motion of the Humours, and allaying their Sharpness.

The Difference of Taste between the sweet and bitter Almonds proceeds in this, that there is less Salt in the sweet ones, and that this Salt is perfectly confined and cooped up by the rosy Parts, insomuch that it can make but a very slight Impression upon the Tongue.

The bitter ones, on the contrary, contain much sharp Salt, which being but half embarrassed with the oily Parts, cause a stronger, but a more disagreeable Sensation.

Plutarch tells a Story of a certain Physician, who lived with *Drusus*, the Son of *Tiberius*, and who by the Use of bitter Almonds became so great a Drinker, that he was never made drunk, and out-did all that lived in his Time that way. *Lemery on Foods.*

Some Years ago there happened a remarkable Case in this Part of the World. Ten young Gentlemen, descended of illustrious Families, used some Water-gruel, in which more than two Ounces of Arsenic, mixed with an equal Quantity of Sugar, had been put. Soon after, they were racked with great

Disquietudes, and Gripes in their Bellies; but, by the Blessing of God, I removed all their Symptoms, and put them out of Danger, by Oil of sweet Almonds and Milk. *Hoffman.*

Oil of sweet Almonds well prepared, and taken to the Quantity of some Spoonfuls, in a little Broth, is a most effectual Medicine in all Pains and Spasms; even in such Spasms as shake the most remote Parts of the Body: For this Reason, it is very properly prescribed in convulsive Coughs, spasmodic Asthmas, Fits of the Stone, Stranguries, and Colics. *Hoffman de Consensu Partium Nervosarum.*

There are certain Poisons which prove noxious to particular Animals, and yet produce no poisonous Effects upon Men: Thus, for Instance, bitter Almonds are pernicious to Fowls, and excite Convulsions in the Stork and Dove particularly. The same Almonds, as well as the Nux Vomica, when given to Cats and Dogs, throw them into such violent Convulsions, as put an End to their Lives. *Hoffman Medicin. Rational. Systemat. Vol. 1.*

AMYLEON, or AMYLION, ἀμύλεον, or ἀμύλιον, from a Negative, and μύλη, a Mill, because made of Corn without grinding. Starch. See AMYLUM.

Hippocrates in his Treatise of the Diseases of Women, L. 2. recommends this, roll'd up in Wool, as a Pessary, good against a Discharge of Water from the Uterus.

AMYLUM, Starch.

AMYLUM is so called, because it is prepared without the Help of a Mill (from a Neg. and μύλη, or μύλιον, a Mill). The best is what is made of Sitanious Wheat, (such as is sown and reaped in three Months) in Crete or Egypt. It is prepared of this Kind of Wheat, cleansed, in the following manner: They water it five times in the Day, and, if it may be done, in the Night also; as soon as it is soften'd, they gently let the Water run off, without stirring it, for fear the best Part of the Grain should flow off with it: When it appears to be thoroughly soft, they pour off the Water, and tread it with their Feet; then pouring on it fresh Water, tread it again. After this, they take off the husky and branny Parts, that swim on the Top, with a Skimmer, and pass the rest through a Strainer; and as soon as this is done, they lay it upon new Tiles to be dried and condensed in the burning Sun; for if it should, in the least, continue moist, it would contract a Sourness.

It is good for Rheums in the Eyes, hollow Ulcers, and Pustules. Drank, it stops vomiting of Blood, and mollifies the Parts about the Aspera Arteria; it is usually mixed with Milk, and other Food.

Amylum is also prepared of Zea, (Spelt) macerated a Day or two in Water, then kneaded with the Hands into a Mass like Dough, and afterwards dried in the fervent Sun as before. But this Sort of Amylum, tho' very good in other respects, is unfit for medicinal Use. *Dioscorides, Lib. 2. Cap. 123.*

Amylum is made of all Kinds of Wheat, but best of the common Sitanious. It was invented in the Island of *Chios*, and the finest still comes from thence: The Name was given it on account of its being prepared without a Mill. The next in Goodness is made of a sort of very light Sitanious Wheat: It undergoes a Maceration in fresh Water in wooden Vessels, so as to be covered with the Water, which is changed five times in the Day; and it would be better, if the same were done in the Night, that it might be thoroughly mixed and softened alike, before it grows four. When it is dried enough in Bags and Baskets, they shoot it out upon a Tile smeared with Leaven, and let it condense in the Sun. Next to the *Chian* Amylum, for Goodness, is the *Cretan*; and after these the *Egyptian*. It is valued by its Lightness, Smoothness, and Newness. *Pliny, Lib. 18. Cap. 7.*

The forbile Liquor of Amylum is proper in Fevers attended with a Diarrhoea; and, upon account of the Belly, Lentils may be mixed with it. The same may also be used in Milk, or mixed with Water, or be used alone; in which Circumstance it is fittest in Dysenteries, and Fluxes excited by coughing. In boiling put ten Drams of Amylum to four half Pints of Water. *Oribas. Med. Col. Lib. 5. Cap. 7.*

Starch is esteemed drying and astringent.

Starch, boiled with Milk, is a famous Empirical Remedy for a Diarrhoea, which happens in a Fever, or in Child-bed, and is not a bad one. Mr. *Clutton*, in a Treatise he published some time ago, lays great Stress upon a Solution of Starch, given by way of Clyster, in a Diarrhoea, either accompanied with a Diarrhoea or not; and, if the Stools are bloody, and the Intestines very much relaxed, he advises to make the Confection of Starch, as he calls it, very thick, and to add, to four Ounces of this, an Ounce of French Brandy.

Modern Method of making STARCH of Wheat.

The Grain, being well cleaned, is put to ferment in Vessels full of Water, which they expose to the Sun, when in its greatest Heat; changing the Water twice a Day, for the Space of eight or twelve Days, according to the Season. When the Grain bursts easily under the Finger, they judge it sufficiently fermented.

fermented. The Fermentation perfected, and the Grain thus softened, it is put, Handful by Handful, in a Canvas Bag, to separate the Flour from the Husks; which is done by rubbing and beating it on a Plank, laid across the Mouth of the empty Vessel that is to receive the Flour.

As the Vessels are filled with this liquid Flour, there is seen swimming at the Top a reddish Water, which is to be carefully scum'd off, from time to time, and clean Water put in its Place; which, after stirring the Whole together, is all to be strained through a Cloth or Sieve; and what is left behind, put into the Vessel with new Water, and exposed to the Sun for some time; and as the Sediment thickens at the Bottom, they drain off the Water four or five times, by inclining the Vessel, but without passing it through the Sieve. What remains at Bottom is the Starch, which they cut in Pieces to get out, and leave it to dry in the Sun: When dry, it is laid up for Use.

Castellus, from Libanius, informs us, that AMYIA, in a general Sense, is used to express any Sort of Chymical Fæcula.

AMYOS, ἀμῶς, from α Negative, and μῦς, a Muscle. Hippocrates, in his Treatise de Arte, applies ἀμῶς to the Leg, to express its being so emaciated, as to appear as if it had no Muscles.

AMYTHAONIS EMPLASTRUM, Amythaon's Plaster for Convulsions and Distortions of the Joints; it is also a Drawer.

Take of Gum Ammoniac, Wax, Bdellium, each eight Drams; of Turpentine, Illyrian Orris, Galbanum, each twenty Drams. P. Æginet. Lib. 7. Cap. 17.

AN-PATER, Sulphur. Rulandus.

AN-FIR, Filius, Mercury. Rulandus.

AN-FIRARTO, Spiritus, Salt. Rulandus.

ANA, ἀνά, a Greek Proposition much used in Prescriptions. It is explained under the Article A. which see. Ana is also used by some enthusiastic Writers to signify the Mind; and Castellus tells us it is the Name of a certain Idol.

ANABASIS, ἀνάβασις, from ἀναβαίνειν, to ascend, signifies the Augmentation or Increase of a Fever in general, or of a particular Paroxysm. Hence ANABATICA is synonymous to EPACMASTICA, both being Epithets of Fevers, which, in their Progress, continually increase or grow more violent.

ANABOLE, ἀνάβολη, from ἀναβάλλω, to cast up. The discharging any thing upwards, as by Vomit.

ANABROCHISMOS, or ANABRONCHISMUS, ἀναβροχισμός, or ἀναβροχισμός, from βροχέω, a Noose. An Operation performed upon the Hair of the Eyelids, when they are offensive to the Eye. It consists in engaging the offending Hairs in a sort of Noose, by means of a Needle, threaded with a fine Thread doubled, or a Woman's Hair, after passing the Needle thro' the external Part of the Eyelid, near the Hair. Celsus takes Notice of this Operation, Lib. 7. Cap. 7. in these Words:

Quidam aiunt, acu transsui juxta pilos exteriorem partem palpebræ oportere, eamque transmissi duplicem capillum muliebrem ducentem; atque ubi acus transiit, in ipsius capilli sinum, qua duplicatur, pilum esse injiciendum, & per eum in superiorem palpebræ partem attrahendum, ibique corpori adglutinandum, & imponendum medicamentum, quo foramen glutinetur: sic enim fore, ut si pilus in exteriorem partem postea spectet.

Paulus Ægineta confines the Operation to Cases where only one or two, or at most three, Hairs irritate the Eye. He describes the Operation, Lib. 6. Cap. 13. but somewhat obscurely.

ANABROSIS, ἀνάβρωσις, from ἀναβρόσκειν, to devour. A Corrosion or Exesion of the solid Parts by acrid Humours. It means the same as DIABROSIS.

ANACAMPSEROS, Anacampseros vulgo Faba crassa, J. B. Pit. Tournes. Telephium vulgare, C. B. Telephium alterum sive Crassula, Dod. Cotyledum alterum, Dioscor. Col. Scrofularia media vel tertia, Brunf. Fabaria, Matth. Acetabulum alterum, Cord. in Diosc. Faba inversa, Ad. Lob. Crassula sive Faba inversa, Ger. ORPINE, or LIVE-LONG.

It is a Plant which grows to the Height of one Foot, or more; its Stalks are strait and round, clothed with thick Leaves, and full of Juice like that of Purslane, but longer, of a pale-green Colour, often intermixed with a little Red; some are notch'd at their Edges, others entire; of an insipid viscous Taste. The Flowers grow on the Tops of the Stalks in large Bunches, and almost like an Umbrella, of a white or purplish Colour; every Flower is composed of five Leaves, disposed like a Rose, which, falling, are succeeded by a Fruit composed of many Husks, which forms a sort of Head full of small Seeds. The Root is glandulous, and formed of many white Bulbs like Turneps, of an insipid Taste. This Plant grows in uncultivated, stony, and shady Places. It contains a great deal of Phlegm and Oil, and but little Salt.

It is drying, cooling, resolute, deterfive, vulnerary, and consolidating, proper for Ruptures, and to take out Spots in the Skin. Lemery de Drogues.

Columna has confounded his *Rapuntium umbellatum*, with the *Telephium floribus purpureis*, Lob. C. Baubine is guilty of the same Fault; but it is easy to see, by Columna's Description, and by his Figure of the Flowers, that he has given a good Design of the *Trachelium azureum umbellatum* Pona. Bald. Ital. 44.

The Leaves of the Orpine have a glutinous Acidity, and give a strong red Tincture to the blue Paper. This Plant, being analysed, yields a good deal of Acid; a moderate Proportion of Earth and Oil, and a pretty deal of volatile concrete Salt. Thus there is room to believe, that it contains an aluminous Salt, mixed with Sal Ammoniac, and wrapt up in a little Sulphur. It is deterfive, astringent, and vulnerary: Being applied externally, it hastens the Suppuration of Tumours. Martyn's Tournefort.

ANACAR, ἀνάκαρ, a Greek Adverb, sometimes used by the Greek Medicinal Writers, to express upwards, or towards the superior Part.

ANACARDIOS ANTIDOTOS THEODORETUS, the Antidote of Anacardium, a divine Gift.

Take of Spikenard, Malabathrum, Cloves, Saffron, Cassia, Epithymum, Flowers of Schœnanth; Myrobalans, each three Drams; of yellow Aloes, twelve Drams; of Chestnut, Ginger, Mastic, each one Dram; of Illyrian Orris, six Drams; of Anacardium, Agaric, each one Dram; of Asarabacca, six Drams; of Seed of Smalage, one Dram; of Costus, one Dram and a half; of Pepper, three Drams; of Fennel, and its Juice, of each eight Drams: Beat the Fennel in a Mortar, and macerate it in Vinegar three Days; then boil it well, and carefully strain it. Add of a sufficient Quantity, Attic Honey, or Sugar, and boil it again to the Thickness of Honey. Let the several Ingredients be pounded together, and well levigated: If there be Plenty of Fennel, press out the Juice, and the Antidote will be the better.

It is good in all obstinate and dangerous Diseases, for epileptical Persons, and Demoniacs; for Pains in the Head, Disorders of the Thorax, Pleurifies, Asthmas, Peripneumonies, and such Stomachs, as turn the Food sour; and for any malignant Distemper of the Belly or Stomach. It wonderfully revives and restores those who are just got over a tedious Distemper, and have not yet recovered their Colour. It helps the Yellow Jaundice, Anasarca, Consumption, Distempers of the Kidneys; and does Service to those who are continually subject to Colic Pains: It corroborates those who have a Sense of Weight all over their Bodies: It is beneficial in inveterate Distempers, and intermittent Fevers, given in the Intervals; and helps the Gout, if given before the Fit. It is excellent in Womens Distempers, and in particular the Strangury, Difficulties in Menstruation, and Suffocation of the Uterus. It helps those who, by their Habit of Body, are subject to miscarriage, and gently loosens the Belly: It cures Inflammations of the Womb, and the Furor Uterinus. To say all in a Word, it is a divine Gift; and whoever uses it once or twice in the Spring and Autumn, and is not very faulty in his Diet, shall live free from Diseases. It is to be taken to the Quantity of a Hazle-nut, in the Morning. Myrepsus, Sect. 1. Cap. 218. Actii Tetrabib. 4. Serm. 1. Cap. 122.

Another Preparation:

Take of yellow Aloes, an Ounce and a half; of Orris, Cassia Lignea, each seven Drams; of Ginger, Anacardium, Carpobassum, each four Drams and a half; of Malabathrum, Spikenard, Myrobalans, Spignel, Epithymum, each three Drams one Scruple; Cloves, Flowers of Schœnanth, Pontic Rhubarb, Mastic, each one Dram three Grains; the Bark of the Root of Fennel, washed, one Pound: Macerate them in two Pints of good Vinegar for seven Days; then boil them and strain them, and add two Pounds of pure Attic Honey, or a sufficient Quantity of Sugar, and boil it to the Consistence of Honey. In this put the Ingredients well beaten, and, after well working them together, set them aside, in a proper Vessel, for Use.

It is good against Epilepsies, Apoplexies, and Paraplexies, that owe their Rise to Phlegm and Melancholy; and is excellent in Female Disorders. Myrepsus, Cap. 219.

ANACARDIUM, a sort of Fruit, of which there are two Sorts, the Oriental and Occidental. The Oriental is thus distinguished:

ANACARDIUM, Offic. Ger. 1360. Emac. 1544. Mont. Exot. 15. Commel. Flor. Mal. 15. Park. Theat. 1563. C. B. Pin. 511. J. B. 1. 334. Anacardium vel Anacardus, Chab. 24. Anacardium Orientale, Jomf. Dendr. 156. Pluk. Almag. 28. Oepata, Hort. Mal. 4. 95. Tab. 45. Arbor Indica, fructu conoide, cortice pulvinato nucleum unicum, nullo officulo tectum, claudente, Raii Hist. 2. 1566. THE ANACARDIUM, or MALACCA-BEAN-TREE.

The Oriental Anacardium is a Seed growing at the Top of a conical Fruit in the *East-Indies*. It is, in Shape and Colour, like a Bird's Heart; covered with a tough Skin, including a spongy Substance, full of an hot caustic Oil underneath; in which, inclosed in another Skin, lies the Kernel, in Taste like an Almond. It is said to be hot and dry, to comfort the Heart and Vitals, and to excite Venery: It is rarely to be met with, and now never prescribed, the *Mel Anacardium* being left out in the three last Editions of the *Dispensatory*. They say that the *Indians* use the caustic Oil of this Fruit, in staining their Chints and fine Callicoes, which sets the Colours so in, that they are not to be washed out. *Miller Bot. Off.*

They contain a great deal of Oil and Salt.

They rarely and purge the pituitous Humours, are resolving, refresh the Brain, and strengthen the Memory, being taken in Decoction. *Lemery de Drogues.*

In some old Dispensatories we find a Composition named *Confectio Anacardina*, which is not now in Use. *Hoffman*, in his Treatise of *Officinal Medicines*, tells a very surprising Story concerning this Confection; which is, that by the Use thereof a young Man, who was before so dull and stupid, as not to be capable of learning any thing, became in a short time a very great Genius, and comprehended every thing that was taught with Ease. It was thought very proper to quicken the Motion of the Blood; and, on some Occasions, is said to cause a Fever; which shews that the whole Nut, not the Kernel only, was an Ingredient in this Confection. *Geoffroy.*

I find the ANACARDIUM recommended by *Schroder*, and most other Writers on the *Materia Medica*, for quickening the Senses, and strengthening the Memory. As very few Drugs have such useful Virtues attributed to them, I shall give the Preparations of Anacardium, as delivered by *Arnaldus de Villa Nova* and *Zwelfer*, in the *Pharmacopœia Augustana*.

Take of Anacardium, bruised, three Drams and an half; or Honey of Anacardium, two Drams; these Remedies are endued with a natural Property of restoring a lost Memory.

Confectio Anacardina, a Confection of Anacardiums, which helps the Memory, restores lost Reason, removes a Lethargy, and cures the Gout, Hemorrhoids, and those who are oppressed with Melancholy or Phlegm.

Take of Emblic, and Belleric Myrobalans, long Pepper, and white Pepper, each twelve Drams; Ginger, Honey of Anacardium, each eight Drams; Castor, Storax, Cloves, each five Drams; Camomile Flowers, Bay-berries, Cypereus, each three Drams; Sugar, twenty Drams; Honey, a sufficient Quantity. The Dose is the Quantity of a small Nut in Whey, warm Wine, or a Decoction of the Seeds of Anise and Fennel; and the Patient is to avoid the Cold, and to abstain from phlegmatic Meats, as well as from Anger, Venery, and Drunkenness.

This Remedy quickens the Wit and Senses, brightens the Understanding, and is a proper Confection for wife Persons, and such as desire to be so.

The Anacardiums, before they are fit to be used in Medicine, are to be thus prepared:

Bruise them very well in a Mortar, and then put them in the strongest Vinegar, where let them macerate for seven Days. After this, boil them over a gentle Fire to a Consumption of two Thirds of the Vinegar; then strain off the rest from the Dregs; and keep it for Use.

To make Honey of Anacardiums.

Mix, with the Vinegar aforesaid, an equal Quantity of clarified Honey, and boil them together to a proper Consistence. *Arnaldus de Villa Nova, Lib. 1. Cap. 28.*

MESUE'S CONFECTION of ANACARDIUMS.

Take of Chebul, Emblic, Belleric, and Indian Myrobalans; of black Pepper, of long Pepper, and of Castor, each two Drams; of Costus; of prepared Anacardiums, of white Sugar, of the Seeds of Rocket or Fennel, of Bay-berries, each six Drams; and of Cypereus four Drams.

Let the Anacardiums be pounded by themselves; and when the other Ingredients are pounded, mix all together, and beat up into an Electuary, with new unsalted Butter, and pure Honey, each five Ounces and an half.

This Medicine is good against all cold Disorders of the Brain; and lower Belly; purifies the Blood, and rendering the Animal Spirits pure and fine; thereby invigorates all the Senses, the Apprehension, the Intellect, and the Memory; for which Reason *Mesue* dignified it with the specious Title of the *Confection*

of the *Wife*, and, by its means, confidently promised Assistance to those who were desirous of acquiring Knowledge. It also warms the whole Vascular System, and imparts a lively Heat to all the Body. But this Medicine is to be used cautiously, and not till a Fortnight after the Fermentation is over. After taking it, the Patient is to beware of Labour, Anger, Venery, and Drunkenness. *Pharmacop. August.*

CEPHALIC CONFECTION of ANACARDIUMS.

Take of the Waters of Marjoram, Orange-flowers, and Clove Gilly-flowers, each six Ounces: These being pour'd into a glass Cucurbit, immerse in the Liquor three Ounces of prepared Anacardiums: Let them macerate for twenty-four Hours, the Vessel being closed all the while; then strain off, and in the strained Liquor dissolve two Pounds of the best Sugar; by the sole Dissolution of which, reduce it to the Consistence of a Syrup; to which add, while it is still warm, that so they may, as it were, dissolve in it, one Dram of Ambergrise, one Dram of Lemon-seeds, with their Husks taken off, two Drams of the Resin of Storax, well pounded, and one Dram of Gum Labdanum: To all these, when dissolved, add the following Ingredients; one Ounce of the Powder of prepared Anacardiums, an Ounce and an half of the true Leopard's-bane Root, an Ounce of the Powder of Aloes Wood, full of its Gum; of the lesser Cardamoms, of Cubebs, and Coriander-seeds, each two Drams; of Nutmeg, half an Ounce; of Mace, three Drams; of Cloves, two Drams; of Indian Nutmeg, preserved and beat to a Pulp, three Ounces; of distilled Oil of Cinnamon, one Scruple, mixed with half an Ounce of Sugar of Roses.

Mix all up into an Electuary, which is a precious and excellent Medicine for a cold and weak State of the Brain, and Animal Faculty; for strengthening the Stomach, preventing Apoplexies and Epilepsies, recruiting old Age, strengthening the Memory; and, lastly, excellent for all such Disorders of the Brain and Stomach as proceed from Cold. Its Dose is from two Drams to half an Ounce. *Pharmac. August.*

The Occidental Anacardium is thus distinguished:

ANACARDIUM OCCIDENTALE, *Jonst. Dendr. 156. Anacardium Occidentale, Cajou, Mont. Exot. 9. Anacardium Occidentale Cajou dictum, officulo reni leporis figura, Herm. Cat. Hort. Lugd. Bat. 36. Comm. Flor. Mal. 15. Anacardii alii species, C. B. Pin. 512, Herm. Mus. Zeyl. 37. Anacardus Zeylanica, folio nucis Juglandis Cajou, Kagbu, Ejusd. 55. Cajou, Ger. 1360. Emac. 1544. Park. Theat. 1658. J. B. r. 336. Chab. 24. Laet. 606. Acajou, Tourn. Inst. 658. Boerh. Ind. A. 2. 262. Arbor Acajou, vulgo Cajou, Pif. Mant. Arom. 193. Acajaiba, Pif. (Ed. 1658) 1120. Acajaiba, & Acajaiba Brasiliensis, Marceg. 94. Kapamara, Hort. Mal. 3. 65. Tab. 54. Pomifera seu potius Prunifera Indica; nucis reniformi summo pomo innascente, Cajou dicta, Raii Hist. 2. 1694. Cat. Jani. 187. Sloan. Hist. 2. 136: THE CAJOU; or CASSU-TREE. Dale.*

This grows at the End of a Fruit, in Shape and Colour like a small ripe Apple; in Form and Bigness it resembles a Hare's Kidney; only the End next the Fruit is bigger than the other. The Outside is covered with a tough, ash-coloured Bark, under which is a spongy Substance like the former; it contains a larger Quantity of caustic burning Oil; and under that, in a soft Shell, a white pleasant Kernel. It grows both in the *East* and *West Indies*, on a large Tree; having pretty big, stiff, oval Leaves, with several hard Veins, running almost directly across from the middle Rib. It bears Tufts of five-leaved white Flowers. In *Jamaica* they eat the Kernel of this Fruit, after it has been roasted in the Embers till all the caustic Oil is consumed. They bring them to Table as a Desert: They are much of the Nature of the *Eastern Anacardia*. The caustic Oil is very good for Corns and Warts. *Millar Bot. Off.*

Geoffroy adds, that the Fruit of the Tree is called, in *Brasil*, *Acajaiba*. It is proper to take Freckles or Sun-burn from the Face; but Women ought never to use it in the time of their Menses; because, in that Case, it often causes an Erysipelas; though even that may be cured by a Wash made of Brandy and Water. *Geoffroy. See ACJAIBA.*

ANACATHARSIS, *ἀνακαθάρσις*, from *ἀνακαθαίρειν*; to purge upwards. A Purgation of the Lungs by Expectoration. I don't know that it is used by Authors in any other Sense; tho' *Blancard* says it includes Vomits, Sternutatories, Errhines, Masticatories, and Medicines that promote the Discharge of Saliva. Hence

ANACATHARTICA, Medicines which promote Expectoration:

ANACESTOS, *ἀνάστος*, incurable, from a Negative, and *ἄστος*, a Remedy. It is sometimes wrote *ἀνάστος*.

ANACHMUS, an incorporeal Spirit: *Dornerus* from *Paracelsus*.

ANACHREMPISIS,

ANACHREMPIS, ἀνάχρεμις, from ἀνά, for ἀνω, which imports upwards, and χρέπτομαι, to hawk. The bringing up from the Lungs, by hawking, any viscid and tough Matter, which adheres to the Inside of the Bronchia.

ANACINEMATA, ἀνακινήματα, from ἀνακινέω, to agitate, or toss, literally to move upwards. This is a Species of Exercise taken Notice of by Hippocrates, in his second Book, περὶ διαίτης; but he does not explain what it consists in. Gorræus takes no Notice of it; Boesius only says, ἀνακινήματα are Com-motions of the Body, which are reckoned amongst Exercises.

Dacier however, from a parallel Passage in Plato, concludes these Exercises to be those Gesticulations and Motions, which the Combatants used before they entered the Lists. By the Derivation however, ἀνακινήματα, Anacinemata, should signify Leaps.

ANACLASIS, ἀνάκλασις, from ἀνακλάω, to bend upwards, or elevate. It is used by Hippocrates, περὶ ἀγμάτων, Sect. 3. to express the Elevation of the Left Arm altogether, whilst the Joint at the Elbow is not at all bent; but the Humerus, together with the Arm, appear as one strait Bone. This Situation the Left Arm is in, when it supports and elevates a Bow, in order to resist the Right Hand, which draws the String. I know this is not the common Explication of the Word, but it seems to be the Meaning of Hippocrates.

ANACLINTERIUM, ἀνακλιντήριον, from ἀνακλίνω, to recline. A sort of Chair, made in such a manner, that a Person may recline or lie upon it; a Couch or Settee.

ANACLISIS, ἀνάκλισις, from ἀνακλίνω, to recline. Hippocrates, in his Treatise περὶ εὐχρησίου, uses this Word to express the Decubiture of the Sick, which, he says, is to be regarded, both on account of the Season of the Year, and because it makes some Difference, with respect to the Cure, whether the Patient lies upon an elevated Place, (βέβητος) as a Bed or Couch; or upon the Ground, and in a dark Place.

ANACLISMOS, ἀνακλισμός, that Part of a Chair on which the Back of the Person, who sits in it, leans. Hippocrates περὶ ἀφθέρων.

ANACOCK, the Name of an American Species of Phaseolus, in the Opinion of Ray. It is called by J. Bauhine, *Pisum Americanum aliud, magnum, bicolor, coccineum et nigrum simul; sive Phaseolus bicolor Anacock dictus*. By C. Bauhine, *Phaseolus peregrinus ex rubro et nigro distinctus*. By Gerard, and Parkinson, *Phaseolus Ægyptius*. Raii Hist. Plant.

I don't find any medicinal Virtues particularly attributed to it.

ANACŒLIASMUS, a sort of Remedy used by Diocles, according to the Report of Cœlius Aurelianus, Chron. Lib. 2. Cap. 14. for the Cure of a Phthisis. His Words are, *Utitur etiam anacœliasmis, quorum qualitates non memoravit, adjiciens verrendum sive deducendum a Pulmonibus Humorem, quando fuerat mitigandum potius Ulcus quam repurgandum*.

It does not appear, by this, that the Author knew himself what Diocles meant by Anacœliasmus. If, however, we consider the Derivation, which must be from κοιλία, Abous, the Belly; and reflect upon the Effects which the Anacœliasmis are expected to produce, *deducendum a Pulmonibus Humorem*, we may perhaps find Reason to believe, that Anacœliasmis were frequently repeated gentle Purges, or Medicines which kept the Patient perpetually laxative, especially as these are found of the utmost Importance in the Cure of a Phthisis, or pulmonary Consumption.

ANACOLLEMA, ἀνακόλλημα, from ἀνακόλλω, to agglutinate. A Name for certain Topics apply'd to the Forehead to prevent Defluxions of Humours upon the Eyes. Galen de Comp. Medic. S. Gen. Lib. 6. Cap. 8.

It is much the same as FRONTALE; (which see) except, that an ANACOLLEMA was usually made of astringent Powders, as Bole, or Dragon's-blood, or Acacia, made up with Vinegar, or the White of an Egg, whereas FRONTALE signifies any sort of Application to the Forehead.

ANA-COLUPPA, the Name of a Plant mentioned in the Hortus Malabaricus, called also *Ranunculi Facie INDICA spicata, Corymbiferis affinis, Flosculis tetrapetalis*.

The Juice of this Plant, with a little Pepper bruised in it, is recommended as a sovereign Remedy in an Epilepsy; and is said to be the only Preservative against the Effect of the Bite of the Cobra-Capella. Raii Hist. Plant.

ANACOMIDE, ἀνακομιδή, from ἀνακομιζω, to repair or recover the Strength of a Person after Sickness. This is a Word which frequently occurs in Hippocrates. It imports the Restoration of Strength to a Patient after an Illness, or the Recovering of Health.

ANACONCHYLISMOS, ἀνακογχυλισμός, or ἀνακογχυλισμός, a Gargle, from ἀνακογχύλλω, to gargle. Both these are much used by Galen, and the later Greek Writers; but I don't remember to have met with it in Hippocrates.

ANACOS, ἀνακός, an Adverb used by Hippocrates. It imports carefully, prudently; with Circumspection.

ANACOUPHISMATA, ἀνακουφίσματα, from ἀνακουφίζω, to lift up, or elevate. This, in Hippocrates, (περὶ διαίτης, L. 2.) joins with ANACINEMATA (which see). Dacier translates and explains it by Sauts, Leaps. But some others have thought, that all those Exercises which the Antients called Gestations, are included in ANACOUPHISMATA.

ANACTESIS, ἀνάκλισις, from ἀνακλίνω, to recover Health. The Restoration of Strength to a Person recovering of a Distemper, which has render'd him weak.

ANACTORION, according to Blancard, a Name of the Gladiolus, Corn-flag.

ANACYCLEON, ἀνακυκλῶν, from κυκλῶ, to wander about. It answers to the Word Circulator, Mountebank. Castellus.

ANACYRISIS, ἀνακυρσις, from κύβηξ, Authority. Hippocrates, in his Treatise of Decency, giving Advice to Physicians as to their Conduct towards the Sick, advises them, amongst other things, to remember to support their Authority, and the Dignity of their Profession, which he expresses by this Word.

ANADENDROMALACHE, ἀναδενδρομαλάχη, a Name for the ALTHÆA. Galen says it is the vulgar Name for the ALTHÆA, Marsh-mallows.

Blancard says ANADENDRON signifies the same.

ANADIPLOSIS, ἀναδίπλωσις, from διπλῶ, to redouble. It is the same as EPANADIPLOSIS, which is the Reduplication of the Paroxysm or Fit, in a semi-tertian Fever; that is, a Renewal of the cold Fit, before the preceding Fit is entirely ended. Galen de Typis, Cap. 4.

ANADOSIS, ἀνάδοσις, from ἀναδίδωμι, to distribute. The Distribution of the Aliment over all the Body.

ANADROME, ἀναδρόμη, from δρέμω, an old Greek Verb, which signifies, to run. It imports a Recess, or a Removal of Pains from the inferior to the superior Parts of the Body, in the Sense of Hippocrates. This is always esteem'd an unfavourable Circumstance, and of bad Prefage, because acrid Humours, or whatever causes Pain, cannot do so much Hurt in the Extremities, as in the vital and more noble Parts.

Hippocrates in his first Book of Predictions informs us, that a Distortion of the Eye, consequent upon a Recess of Pain from the Loins or Hip, is bad. And in the Coacæ Prænotiones, he says, that a Recess of Pain from the Hips or Loins to the Head, whilst the Hands are affected with a Torpor, and the Patient feels a Cardialgia, (Heart-burn) is a Sign of a copious Hæmorrhage from the Nose, and Plenty of Stools; mean time People thus affected, are generally delirious.

ANÆDES, ἀναδῆς, an Adverb used by Hippocrates, in a Sense somewhat different from the common Significations; for in this Author it imports continually, perpetually, whereas the natural Meaning is, impudently.

ANÆDROMOS, ἀναδρόμος, of the same Derivation as the former. It is used as an Epithet for those Fish, which at certain Seasons ascend from the Sea into Rivers.

ANÆSTHESIA, ἀναίσθησία, Insensibility. A kind of Resolution of the Nerves, accompany'd with an Abolition of the Sense of Feeling. Aretæus περὶ συμ. κ' ἀσθ. νεφρ. νῆς. L. 1. C. 7.

ANAGALLIS, the Name of a Plant.

There are two Kinds of Anagallis, which differ in Flower. That with the blue Flower is called the Female, the other with the scarlet Flower the Male Anagallis. They are small Plants, that spread themselves on the Ground, with small, roundish Leaves, like those of Pellitory on the Wall, set on little square Stalks; the Fruit is round.

Both Kinds are lenitive, cure Inflammations, extract sharp-pointed things, which have pierced the Body, and restrain phagedenic Ulcers. The Juice of them, gargarized, purges the Head of Phlegm, and, instilled into the Nostrils, easeth the Tooth-ach, provided it be into the Nostrils opposite to the aking Tooth. Mixed with Attic Honey, it deters an Albugo, and helps Dimness of Sight. Drank in Wine, it relieves those who are bitten with a Viper, or are diseased in the Kidneys or Liver. Some say, that the Anagallis with the blue Flower, apply'd in a Cataplasm, restrains the falling down of the Fundament; but that with the red Flower, thus apply'd, on the contrary, provokes the Disease. Dioscorides, Lib. 2. Cap. 209.

Some call the Anagallis *Corchoron*; it is of two Kinds, which grow no higher than a Hand's Breath; they flourish in Gardens and watry Places. What is strange, Cattle avoid the Female Kind; but if, being deceived by the Likeness, for they differ only in Flower, they happen to taste it, they presently seek out an Herb called *Asyla*, as a Remedy, the same which we call *Ferus Oculus*. Some advise those who have a mind to dig it up, to salute it thrice in the Morning, before they have spoken a Word, and then to take it up, and press it; for so it will have the more Virtue. Pliny, Lib. 25. Cap. 13.

Both Kinds of Anagallis are very deterfive, and have somewhat of a heating and drawing Quality, whence they extract Splinters out of the Flesh, and upon the Whole have the Virtue of Drying without Mordacity; for which Reason they conglutinate Wounds, and help putrid Ulcers. Oribas. de Virtut. Simpli. Lib. 2. Cap. 1.

The *Anagallis* of the Greeks is the *Macia* of the Latins; the Juice of it is recommended to be poured on the Head. *Marcellus Empiric. Cap. 1.*

There are three Sorts of *Anagallis* commonly used in Medicine, the *Mas*, *Fœmina*, and *Aquatica*. The first is the

ANAGALLIS TERRESTRIS MAS, Offic. *Anagallis Mas*, Ger. 494. Emac. 617. Raii Hist. 2. 1023. Mer. Pin. 7. *Anagallis flore Phœniceo*, C. B. Pin. 252. Tourn. Inst. 142. Elem. Bot. 119. Boerh. Ind. A. 204. Hist. Oxon. 2. 568. Raii Synop. 3. 282. Dill. Cat. Giff. 126. Rupp. Flor. Jen. 14. Park. Theat. 558. *Anagallis Mas, flore Phœniceo*, Merc. Bot. 1. 19. Phyt. Brit. 7. *Anagallis Phœnicea Mas*, J. B. 3. 369. *Anagallis Phœnicea*, Buxb. 19. *Anagallis*, Chab. 452. **MALE PIMPERNEL**. Dale.

This is a small low Plant, not above a Span high, having a great many square smooth Stalks, with small Chick-weed-like Leaves, set one opposite to another, without Foot-stalks, full of small, round, blackish, red Spots underneath: The Flowers spring from the setting on of the Leaves, and grow singly on long Foot-stalks, being a Flower of one Leaf, divided into five Partitions, of a beautiful scarlet Colour. The Seed-vessel is round, opening horizontally in the Middle when the Seed is ripe, which is small and round, of a dark-brown Colour. The Root is small and thready, perishing every Year. It flowers in May and June, and grows in Corn Fields. *Miller Bot. Off.*

The second is the

ANAGALLIS TERRESTRIS FŒMINA, Offic. *Anagallis Fœmina*, Raii Synop. 3. 282. Ger. 494. Emac. 617. Raii Hist. 2. 1024. Mer. Pin. 7. *Anagallis Fœmina, flore cœruleo*, Merc. Bot. 1. 19. Phyt. Brit. 7. *Anagallis cœrulea*, Buxb. 19. *Anagallis cœruleo flore*, C. B. Pin. 252. Rupp. Flor. Jen. 15. Dill. Cat. Giff. 132. Hist. Oxon. 2. 569. Boerh. Ind. A. 204. Tourn. Inst. 142. Elem. Bot. 119. Park. Theat. 558. *Anagallis cœrulea fœmina*, J. B. 3. 369. Chab. 452. **FEMALE PIMPERNEL**. Dale.

This differs in nothing from the former, but in the Colour of its Flowers, which in this are blue; and it is more rarely to be met with.

The Virtues of both *Pimpernels* are much the same: It is a Plant moderately warm and dry, with a little Stypticity, and is therefore accounted by some a good Vulnerary. The Juice, being given inwardly by itself, or mixed with Cow's Milk, is useful in Consumptions, and Distempers of the Lungs; it is often put in cordial Waters, as an Alexipharmic; and is good against malignant Distempers: It has been commended by some Writers of Note, as of singular Advantage in maniacal Cases, and in delirious Fevers. The whole Plant is used: *Miller Bot. Off.*

Both these contain a great deal of Salt, and a moderate Quantity of Oil and Phlegm.

They are deterfive, vulnerary, and good against the Bite of a mad Dog, internally and externally applied. *Lemery de Drogues.*

This, however common in foreign Countries, is very rare in England. Dr. Fysher has found it near Peckham.

John Baubine took the Flower of this Plant to be pentapetalous, and its Fruit to be like that of the Chick-weed: But *Cæsalpinus* knew the Structure of its Parts better, for he affirms (not without Reason) that the Flower of the Pimpernel is only divided into five Segments; and that its spherical Fruit loses half its Shell when the Seed is ripe.

The Pimpernel has an herby, styptic, saltish Taste, and gives a deep Tincture of Red to the blue Paper: The Fruit gives it a deeper; so that it is probable, that its Salt may very much resemble the *Terra foliata Tartari Mulleri*. *Tragus* says, a Glass of the Decoction of Pimpernel in Wine, is a potent Sudorific, if the Patient lie still in Bed, so as not to interrupt the Sweat. In pestilential Cases he also advises to wash the Wound with it, upon the being bitten by a Viper or mad Dog, drinking a Glass of it at the same time: Instead of the Decoction of Pimpernel, the Juice may be used, which he commends for the Dropsy, and for Obstructions of the Liver and Kidneys, out of which it expels the Stone, without any ill Consequence. *Hartman, Mynsicht, Rolfincius, Michael, Willis*, and several others, very much commend the Decoction of this Plant, or its Tincture, in Spirit of Wine, for Madness, or the Delirium that attends continued Fevers: The Extract has the same Virtues; it may be mixed with that of St. John's-wort for the Epilepsy. *Simon Paulli* mentions a Cataplasm of Pimpernel, boiled in Urine, and applied to the Feet of those who have the Gout, as a Remedy very much used in his Country. *Martyn's Tournefort*.

The third is the

ANAGALLIS AQUATICA, BECABUNGA, Offic. *Anagallis Aquatica vulgaris, sive Becabunga Officinarum*, Merc. Bot. 1. 19. Phyt. Brit. 7. *Anagallis sive Becabunga*, Mer. Pin. 6. Ger. 496. Emac. 620. *Anagallis Aquatica minor, folio subrotundo*, C. B. Pin. 252. *Anagallis Aquatica, flore cœruleo, folio rotundiore, minor*, J. B. 3. 790. *Anagallis Aquatica*, Chab. 568. *Anagallis Aquatica vulgaris sive Becabunga*, Park. Theat. 1236. *Becabunga major & minor Officinarum*, Chomel. 537. *Beccabunga*, Rivin. Irr. M. 100. *Beccabunga Officinarum*, Rupp. Flor. Jen. Vol. I.

199. Buxb. 332. *Veronica Aquatica rotundifolia Becabunga dista, minor*, Raii Synop. 3. 280. *Veronica Aquatica major, folio subrotundo*, Hist. Oxon. 2. 323. Boerh. Ind. A. 225. Tourn. Inst. 145. Elem. Bot. 122. Raii Hist. 1. 852. *Becabunga major Officinarum*, Volck. 58. **BROOK-LIME**. Dale.

The Stalks of Brook-lime are thick, round, and smooth, shooting out fibrous Roots at the lower Joints, by which it easily propagates itself; the Leaves come forth at the Joints, on very short Foot-stalks, one opposite to another, fat, succulent; and round, little or nothing serrated about the Edges, somewhat more than half an Inch broad; the Flowers come forth at the Joints, growing in long Spikes, each Flower being made of a single Leaf, divided into four roundish Segments, and standing on a short Foot-stalk, of a fine blue Colour, and is succeeded by a flattish Seed-vessel, in Shape like a Heart, full of very small Seed. It flowers in June, holding the Leaves all Winter. It grows in Rills and running Ditches. The whole Herb is used.

Brook-lime is a good Deobstruent and Antiscorbutic, abounding with volatile Parts, very good for the Scurvy, being an Ingredient in the antiscorbutic Juices, and Diet-drinks, for that Distemper. It is also deterfive and cleansing, and useful in Obstructions of the Kidneys, by Gravel or slimy Humours; as also for the Stone and Dropsy. *Miller Bot. Off.*

Besides these, Ray mentions the following:

Anagallis omnium minima, Moris. Prælod.

Anagallis lutea, Ger. *Flore luteo*, Park. *Lutea nemorum*, C. B. *Lutea*, *Nummularia similis*, J. B. **YELLOW PIMPERNEL**.

Anagallis cœrulea, foliis binis ternisque ex adverso nascentibus, C. B. *Tenuifolia*, Ger. Emac. *Tenuifolia flore cœruleo*, Park. *Tenuifolia Monelli*, Clus.

ANAGARGALICTA, ἀναγάρλικτη, Gargarisms. Medicines with which the Fauces are washed; from γαργαρεύω, the Throat. *Hippocrates de Affectionibus*.

ANAGARGARISTON, ἀναγάργειον, of the same Derivation as the preceding: A Gargarism to wash the Fauces with, in a Quinsey. *Hippocrates de Morbis, Lib. 2.*

ANAGLYPHE, ἀναγλυφή, from ἀναγλύω, to engrave. A Name given by *Herophilus* to a Part of the fourth Ventricle of the Brain. It is called by Anatomists at this time **CALAMUS SCRIPTORIUS**, from the Resemblance it bears to a Pen, preserving the Analogy of the Greek. *Galen. de Anatom. Administ. Lib. 9. Cap. 5.*

ANAGNOSIS, ἀνάγνωσις, from ἀναγνώσκω, to read or persuade. It signifies, strictly, Reading; or Persuasion, or Conviction. But *Foësius* thinks, that in the Treatise of *Hippocrates*, intituled *παραγγέλαι*, it imports frequent visiting a Patient, and examining the Case.

ANAGRAPHÉ, ἀναγραφή, from ἀναγράφω, to prescribe.

Hippocrates, in his Treatise of *Dæmony*, advises Physicians to have, in Readiness, Portions capable of inciding, prepared ἐξ ἀναγραφῆς, according to stated Prescriptions. In this Sense all the Official Medicines may be said to be made ἐξ ἀναγραφῆς.

ANAGYRIS, the Name of a Plant.

Anagryis, which some call *Anagyros*, others *Atopos*, is a Shrub, in Leaves and Branches like the *Vitex*, of a very strong Smell, bears a Flower like that of Cabbage; and produces a parti-coloured solid Seed, in the Shape of a Kidney, and contained in long Pods; this Seed hardens about the Time that Grapes ripen.

The young and tender Leaves, bruised, and applied as a Cataplasm, repress œdematous Tumours: Taken, to the Quantity of a Dram, in Raisin Wine, it helps the Asthma, promotes the Expulsion of the After-birth, the Menses, and the Embryo. For the Head-ach it is taken in Wine. It serves for an Amulet for Women who are subject to hard Labour; but it must be taken off, and thrown away immediately after Delivery. The Juice of the Root is diaphoretic and digestive. The Seed, eaten, is a powerful Emetic. *Dioscorides, Lib. 3. Cap. 167.*

The Anagryis is thus distinguished by modern Botanists:

ANAGYRIS, Offic. Chab. 78. Mont. Ind. 36. *Anagryis fastida*, C. B. Pin. 391. Ger. 1239. Emac. 1427. Park. Theat. 245. Jonsb. Dendr. 364. Raii Hist. 2. 1722. Tourn. Inst. 647. Elem. Bot. 507. Boerh. Ind. A. 2. 27. *Anagryis vera fastida*, J. B. 1. 364. **STINKING BEAN TREFOIL**. Dale.

It is a Shrub, very branchy; the Bark is of a greenish Brown, the Wood yellowish or pale; the Leaves are set in Order, three by three, oblong, pointed, green above, whitish underneath; of so strong and stinking a Smell, especially when they are broken, that they give the Head-ach. The Flowers are yellow, and resemble those of Broom; they are succeeded by Pods as long as one's Finger, like those of Kidney-beans, and cartilaginous; every one of them contains three or four large Seeds, like the Kidney-beans; white at first, afterwards purplish, and at last when perfectly ripe, blue and blackish. This Shrub grows in warm Countries. The Leaves are resolute, and the Seed emetic. *Lemery de Drogues.*

ANAIDES. See **ANÆDES**.

ANAISTHESIA. See ANÆSTHESIA.

ANALCES, ἀναλκεις, from α Negative, and ἀλκῆ, Strength, weak, effeminate. Hippocrates uses this as an Epithet for the Asiatic Nations.

ANALDES, ἀναλδεις, from α Negative, and ἀλδῆ, to increase. It imports Not receiving Nourishment, or Augmentation. It is apply'd by Hippocrates to the Fruits which grow about the River Phasis, de Aere, Locis, Aquis.

ANALENTIA, a Species of Epilepsy mention'd by Paracelsus.

ANALEPSIA. Johannes Anglicus calls by this Name, that Species of Epilepsy which proceeds from Affections of the Stomach.

ANALEPSIS, ἀνάληψις, from ἀναλαμβάνω, to recover, or regain Strength and Vigour, after Sicknefs. It signifies a Renutrition, or regaining Strength, after having been render'd weak by a Distemper. Hence

ANALEPTICA, Analeptics, Medicines destin'd to promote this Renovation of Strength, Restoratives.

Among all the several Classes of corroborative Medicines, those call'd *Analeptics* justly claim the first and highest Rank. Under this Denomination are included all such Remedies as restore impair'd Strength, raise depress'd Spirits, and possess what we commonly call a comforting Quality. Such Medicines are likewise known by the Names of *Cordials* and *Cardiacs*. The Parts of the vegetable Kingdom, which best answer this Intention, are the Flowers of Roses, of the Lemon-tree, of the Orange-tree, of Jessamine, and of Lillies of the Valley; the Herbs Baum, Origanum, Marum, Lemons, China Oranges; and of Spices, Cinamon; of resinous Substances, Amber; of Animals, Musk: And also the Preparations of all these, the Oil of Cedar, of Turkish Baum, the true Oil of Roses, the OLEUM CANANGE, Oil of Bergamotte, Essence of Ambergris rightly prepar'd, Oil of Cinamon made into an *Elæosaccharum*, Baum-water prepar'd with Lemons, Water of Lillies of the Valley, of Cinamon prepar'd with Quinces. Under this Class may likewise be reckon'd Strawberries, Currans, Raspberries, Cherries, and their Stones, Waters prepar'd of fresh Cherries, Lemon-juice, and Syrup of Lemons.

These Cordials act by their fragrant, sweet, subtile, and oily Principle, and very soon enter the Nerves, and communicate a mild and gentle Motion to the Fluid they contain; for such is the Nature of all sulphureous, subtile, and strong-scented Medicines, that they soon pervade the inmost Recesses of the nervous Parts, and quickly produce their Effects, which is evident from fetid Medicines; and even such as are of an agreeable Smell, especially in Constitutions, that thro' an Idiosyncrasy cannot bear them. Hence by their Smell alone, as in Faintings and Swoonings, they speedily exert their corroborative Virtues, and raise the drooping, languid Spirits of the Patient; and this because the Extremities of the Nerves, and small Blood-vessels, are in no Part of the Body less cover'd, or more immediately expos'd and naked, than in those large and capacious Ducts which we call the Nostrils, to which when fragrant Medicines are apply'd, they very quickly affect the Nerves and Spirits.

I.

Though we are not to deny the above-mentioned Analeptics their proper Share of Efficacy in cherishing Nature, and recruiting impair'd Vigour, yet it must be confess'd their Power that way is pretty much limited and restrain'd. It were indeed to be wish'd, that there were in Nature Medicines of this Kind, of a certain and infallible Virtue, which the Vulgar foolishly enough imagine, and as foolishly require at the Hands of the Physician, such as could effectually exert their restorative Powers, and recruit languishing Vigour in all Distempers, but especially those of the acute and malignant Kind. But as in all Diseases there is not a more rational, or a more certain way of restoring Strength, than by carrying off the morbid Causes, and banishing the noxious Principles of the Disorder from the Body; so unless the Physician effect this, the Use of ANALEPTICS is to no manner of Purpose.

II.

Nor is it to be thought, that a genuine, lasting, and uniform Restoration of Strength is to be procur'd only by Medicines which excite a Motion in the Spirits and solid Parts; for in many Diseases, especially in Fevers and Convulsions, there is a great moving Force and Power in the Heart, the Arteries, and nervous Membranes, and yet the natural Strength is weak and languid; so that a true and genuine Restoration of the natural Strength principally depends upon proper Aliments, both of the eatable and drinkable Kind, being converted into good Blood, and laudable Juices, which afterwards generate that subtile Fluid which is secreted in the Brain; and being carried thro' the Nerves to the Muscles, and muscular Coats, principally supplies the Body, and its several Parts, with Strength and Vigour.

III.

Those Nutritives therefore which afford a Matter most proper for this Purpose, are the best Analeptics, of which Kind are

gelatinous Broths of Fleish, Capons, and Bones with their Marrow, boiled in a close Vessel with Water, a little Wine, some Slices of Lemon, a little Salt, Powder of Mace, and Cloves. Broths also made of coarse Westphalian Bread, Water, Wine, and Eggs.

Chocolate, with or without Milk, Ass's Milk, Water distill'd from coarse Bread, and Lemon-peel, and Wine, especially rich old Rhenish Wine, and unadulterated Hungarian Wine; but these nutritive and strengthening Aliments are not to be used in the very Time of the Disease, nor when the whole Mass of Blood and Humours is very impure; but when the Distemper is over, and where, by a preceding Disease, or by Excess of Passion, long Watching, Fatigue and Labour of Body or Mind, or large Hæmorrhages, the Strength is wasted and impair'd, in these Cases such Medicines are very proper; but even then Caution is to be used, and a proper Moderation to be observ'd, and kept up to, because they pass very speedily into the Blood, and augment its Quantity. Hoffman, *Medicina Rational. Systemat.*

ANALGESIA, ἀναλγεία, from α Negative, and ἄλγος, Pain, or Grief. It signifies a State of Ease, without Pain, whether in a natural State of Health, or from some morbid Affection depriving any Part of Sensation.

ANALLIS, ἀναλλις. Erotian says this is the Name of a Plant; but neither he, nor any other Author I have met with, say what Plant it is.

ANALMYROS, ἀνάλμυρος, from α Negative, and ἄλμυρος, Salt, unfalted.

ANALOGISMOS, ἀναλογισμός, from ἀναλογία, Analogy. It signifies Ratiocination, or the Investigation of things not evident from the Analogy they bear, or are supposed to bear, to things well known.

ANALOSIS, ἀνάλωσις, from ἀναλίσσω, to consume, a consuming, or wasting.

ANALTHES, ἀναλθης, from α Negative, and ἄλθω, to cure. Incurable.

ANALTOS, ἀναλτος, from α Negative, and ἄλς, Salt, unfalted, insipid, not salt to the Taste.

ANALYSIS, ἀνάλυσις, from ἀναλύω, to resolve. The Resolution of any Substance into its first Principles, with a View of discovering its component Parts.

The Method of analysing mineral Waters has been delivered under the Article ACIDULÆ, which I would advise the Reader to peruse, because I have there specify'd the Nature of many Substances, some or more of which are found to exist in most compound Bodies; and in the same Place I have specify'd the general Methods of discovering them.

There is something very trifling in the common Analysis of Plants and Animals; the way is to distil them in proper Vessels, and examine what rises into the Receiver, and the Caput Mortuum, or what remains in the Vessel, and is too heavy to be rais'd by the Fire. But by this Method very little or nothing can be discovered, inasmuch that it is not possible from the common Analysis to discover even what the analys'd Plant or Animal was.

In the Analysis of Plants a large Quantity of Phlegm generally comes over first, then an acid Spirit; an alkaline or urinous Salt; and lastly, a black fetid Oil. From the Ashes of what remains, is obtain'd a lixivial Salt, such as Salt of Tartar, which runs *per deliquium* in the open moist Air; or a Kind of *Sal Salsus*, such as that of the common Wall-flower. Besides these Substances, which are got by Distillation from almost all Plants, there are others obtainable only from some of them. Thus from aromatic Plants, such as Lavender, Thyme, Sage, &c. a subtile, fragrant, essential Oil, generally rises first. From a few Plants, such as Hellebore, Helleborastrum, Speedwell, Cresses, and others, a very sharp, penetrating Spirit or Oil comes over with the first Degree of Fire, which is likewise obtain'd after the Plants have been fermented, but in a different Order. Sometimes the first Degree of Fire brings over an acid or urinous Spirit, sometimes an inflammable and very volatile Spirit.

These are the few Elements, or Principles, obtainable from Plants. We are not, however, to imagine, that those which go by the same Name are exactly alike in all Plants. The fix'd Salts, for Instance, got from their Ashes, being originally derived from some Acid, must differ from one another in various Plants, as much as Acids themselves do. For the same Reason the acid Spirits, volatile urinous Salts, and even essential Oil, must be different; and accordingly we observe, that the essential Oil of Thyme, digested with Spirit of Sal Ammoniac, gives a violet or purple Tincture, which many other essential Oils will not do. Wherein all these Differences precisely consist, has not hitherto been sufficiently clear'd up.

From animal Substances we obtain a large Quantity of volatile urinous Salt, a thick Oil, very little fix'd Salt, and still less acid Salt. The same Substances, being boiled in Water, yield a Mucilage, or Jelly, from which, by Distillation, the Principles already mentioned may easily be got. But as most animal Substances yield these in much the same manner, and as they appear very little, if at all different, in different Animals, nothing

nothing can be determined *a priori* concerning the medicinal Virtues of particular Animals from their Analysis.

The following Observation of *Homberg*, and *Lemery*, deserve Notice, as there is something extremely curious in them upon this Subject.

Observation on the ANALYSIS of Vegetables, by M. Homberg.

All the Chymical Analyses of Plants which have hitherto been made with a View to discover their Natures more perfectly, have been conducted and managed almost in the same manner; that is, by separating, by means of Fire, their constituent and component Parts. The principal Difference which has been observ'd in Separations of this Nature, is, that some have fermented the mix'd Body, before it is subjected to the Powers of the Fire; whereas others have began the Analysis without any previous Fermentation. The Principles produced or furnished by both these Manners of Separation, universally consist of certain Quantities of *Salts, Oils, Water, and Earth.*

It has, for very good Reasons, been doubted, whether what we here call *Principles*, are the true and real *Principles*, which constitute and make up the mixt Body, before it was subjected to the Analysis; or, in other Words, it has been doubted, whether these four Substances, into which the compound Body is resolv'd by the Force of Fire, were really to be found in that Body, when it was in its natural State.

The first Reason for our doubting of this, is, that two Plants perfectly differing in Taste, in Smell, in Figure, and in Virtues, *Cabbage*, for Instance, and *deadly Night-shade*, are, when subjected to an Analysis, reduced into Principles so similar, both with respect to Number and Quality, that a Person would take them for one and the same Plant analysed at different times; and nothing is more certain, than that the one is a Pot-herb, and the other a Poison.

The second Reason for our doubting of this, is, that one cannot make up the same compound Substance, by rejoining the Principles into which it has been resolv'd by the Analysis, whatever Fermentation they should undergo, or whatever Degrees of Fire should be employed for that Purpose.

I pass over other Difficulties, since they seem to be of less Consequence; but these I have now mentioned, certainly challenge some Attention. As for what regards the first Reason of Doubt, I shall only say, that we cannot absolutely deny, that these four Substances, Salt, Water, Oil, and Earth, enter the Composition of all Vegetables, since they are universally found in them; after whatever manner the Analysis is conducted or carried on; but the Difficulty only is, to know whether they exist after the same manner in the Plants, as they do when we have procured their Separation by Analysis; or whether the Powers of the Fire have not alter'd these Principles, and given them a quite different Appearance, from what they had in the compound Body.

I have made several Experiments, in order to satisfy myself with regard to this Point; but I shall only here give an Account of the Manner in which I performed one of them, since I intend to draw some Consequences from it.

The Juice of ripe Grapes, newly express'd, put into a Vessel, and distill'd, will first yield a large Quantity of an aqueous Liquor, of which, the Part that first comes over, is tasteless and insipid; and that which come last, acid, with some Marks of a volatile urinous Salt; then by augmenting the Fire, it will yield a small Quantity of a very foetid Oil; and that which remains in the Vessel, being incinerated and lixiviated, yields a lixivial Salt, and leaves a small Quantity of insipid Earth.

This same newly express'd Juice of Grapes being evaporated to about a third on a very slow Fire, and put into a cool Place, an essential Salt, somewhat acid, crystallized itself in it; and an oily Substance, very sweet and agreeable to the Taste, floated on its Surface; and the Liquor that remained was a little tartish, on account of some essential Salt, which still remained in it.

This same Juice of Grapes, having fermented, and become Wine, yielded in Distillation a pretty large Quantity of inflammable Spirit, afterwards a great deal of a purely aqueous Liquor; then the Matter, which remained in the Alembic, being evaporated to the Consistence of thick Honey, I took it off the Fire, and poured upon it the strongest Spirit of Wine well dephlegmated, which became charged with a reddish Oil, of an aromatic Smell; a little earthy Matter was precipitated, and an acid Salt, resembling Tartar, crystallized at the Bottom.

These three different Analyses, of one and the same mixt Body, yield us the same Principles, but very much alter'd by the great Fire in the first, and by the Fermentation in the third Analysis; so that the Principles yielded by the second Analysis, having neither suffered the Torture of a strong Fire, nor undergone a Fermentation, must least of all recede from the natural State which they retained in the Plant. We find the Sweetness of the Grape in the oily Matter which floats above the Crystallization, its poignant Taste in the tartish Salt which was crystallized, and its Fluidity in the aqueous Phlegm which was evaporated from it. The earthy Matter remain'd mixt with the Oil and Salt, and could not be separated but by a great Fire,

as happened in the first Analysis, in which we observe the same things with regard to the Salt of this Plant, as in strong Distillations we observe of fossile Salts, such as Saltpetre, and Vitriol, which we very well know to be acid volatile Salts, mixed with a proportionable Quantity of fixed Salt, and insipid Earth, which serve as a Kind of Matrix to them. But as the Salts of Plants are more compounded than fossile Salts, we accordingly find the Salt of our Plant divided into three different Parts; the first is that acid Salt which pass'd thro' the Neck of the Retort along with the last Parts of the Phlegm; the second is that volatile urinous Salt which passed partly with the last Drops of the Acid, partly alone, and partly with the foetid Oils; the third is the fixed Salt, which is separated from the earthy Parts by Lixivation; and these three Salts being naturally joined together in the Plant, compose its essential Salt, which, as we have seen, crystallized in the second and third Analyses.

The Oil of this Fruit, which in the second and third Analyses is sweet, and of an aromatic Smell, is in the first Analysis considerably changed into a very acrid and stinking Oil, probably on account of a Quantity of urinous and acid Salts contained in the Plant, which the Violence of the Fire has carried off at the same time, and mixed with the said Oil, which Salts, after passing thro' the Neck of the Retort, became volatile, whereas the Salts yielded by the other two Analyses were not so; and as Fermentation naturally disengages volatile from fixed Substances, we find in the third Analysis a great deal of a burning Spirit, which is the most volatile Part of the Oil of our Fruit, and which was separated from it by the least Heat.

We see by the Comparison we have made of the Principles yielded by one and the same mixt Body, in three different Analyses, that these Principles are always found in the same Number, but different only in Degrees of Volatility and Fixation, according to the Fermentation and Degrees of Fire these compound Bodies have undergone, during their respective Analyses. Besides, if to this we add the infinite Combinations of *more or less* of these Principles, the Differences of which may be imperceptible by us in the Analysis, we shall not be surpris'd to find two Plants so different in Taste, in Smell, and in Virtues, as the *Cabbage* and *deadly Night-shade* are, so much alike and similar in their Principles.

For these very Reasons we may likewise easily comprehend, why one cannot, if I may use the Word, *recompose* a mixt or compound Body, by rejoining the Principles into which it has been resolv'd by Analysis; because the Fire having changed their natural Arrangement, and respective Degrees of Volatility and Fixation, and having, even unavoidably, dissipated some Part of them, these Principles, being again join'd together, are neither found in the same Quantity, possessed of the same Quality, nor arrang'd in the same manner they were in the compound Body before it was subjected to the Analysis.

To convince myself still further of this Truth, I have mixt very simple Principles, in order to compose certain Bodies, which I afterwards subjected to Analysis, and which yielded the several Principles quite chang'd from what they were; for Instance, the fixed lixivial Salt, and the express'd Oil of Plants, mixed together on a Fire, compose a Soap, which, among other Principles, yields in its Analysis, an acid Liquor, an insipid Earth, and an urinous Salt, which do not at all appear in the Ingredients of which it is composed.

The Mixture of an acid Mineral, with the essential Oil of any aromatic Plant, composes a Resin perfectly resembling that which flows from certain Trees. This Composition is only made up of two very volatile Ingredients; and yet, upon an Analysis, it yields all the four Principles. It must indeed be own'd, that upon the Mixture of these two Substances, so sudden and violent a Fermentation arises, that a Flame is often thence produced; and as we know, that in all Fermentations a Separation is naturally made of the volatile from the fix'd Parts, there was no great Difficulty in separating the one from the other in the Analysis, tho' they did not appear such before the Fermentation.

All these Considerations and Remarks shew us, that those Analyses in which only a great Fire is employ'd, are not so proper to discover the Principles and Virtues of Plants, as when by a moderate Heat, and Fermentation, we promote the Separation of their component Principles. *Homberg, Mem. de l'Acad. Roy. A. 1701.*

Remarks upon the Usefulness and Deficiencies of the common Methods of analysing Vegetable and Animal Substances; by Mr. Lemery.

That I may throw a greater Light around what I intend to say upon this Subject, I shall make use of a Comparison, which, to me, seems very well calculated for the Illustration of the Subject.

Suppose then two Edifices, almost of the same external Form, but built of Materials different in themselves, and differently arranged and disposed with regard to each other. If, in order to discover this Difference of Materials, and their different Arrangements in each Edifice, one should destroy both, and make,

make, if I may be allow'd the Expression, a sort of Decomposition or Analysis, by means of an active and violent Agent, which, instead of sparing the Materials on which it was to act, and only separating them from one another, and leaving them entire after their Separation, should by the natural Force and Quickness of its Motion, in a short time, reduce them to a Dust; in such a Chaos, where every thing would not only be confounded, but even considerably altered and changed, would it be possible to know and distinguish the Difference of the several Materials, which had enter'd the Composition of each Edifice? Or might it not possibly happen, that the Dust, produced by the Demolition of the one, might resemble that afforded by the other? If this should happen to be the Case, People would not fail to conclude, that both Edifices were built of the same Materials, tho' in Reality it was otherwise.

This is a full Image and Representation of what happens in the ordinary Analysis of Plants and Animals: The Fire employ'd in Operations of this Nature is the quick and active Agent above-mention'd; for it spares none of the Substances submitted to its Action; it soon confounds and attenuates them; and, if I may so speak, reduces them to a kind of Dust. But, whether by the Confusion and Derangement of the Parts, or by the foreign and adventitious Parts conveyed to the different Substances of the compound Body, it lays a Foundation for the Production of new Compositions, which are often widely different from those which were naturally inherent in the Body itself. 'Tis probably for these Reasons, and on account of a certain Change induced by the Fire on the different Parts of Plants and Animals, that it often happens, that two Plants, one of which has very salutary, and the other poisonous Qualities, and whose natural Composition must be consequently very different, resemble each other so much both in the Substances they yield, and the Quantities of these Substances, that if their Qualities were not known before, we should be induced, in Consequence of the Analysis, to believe them one and the same Plant.

When I say, that the Fire produces such a remarkable Change and Alteration upon the Substances yielded by compound Bodies, I do not intend to represent these Substances as real Principles, nor to insinuate, that the Principles of compound Bodies are alterable by the Action of the Fire. What has laid a Foundation for this Opinion is, that some Substances, which commonly, but unjustly, receive the Name of Principles, actually undergo such a Change by the Fire; but I shall afterwards prove, when I come to examine what Bodies, in a truly Chymical Sense, deserve the Name of Principles, that we have all the Reason in the world to be assured, that these Bodies do not change their Forms by the Action of the Fire, or rather, that if they are susceptible of any Change by means of that Agent, the Alteration does not fall upon any of the Principles in particular, but only upon their Union, or the Manner in which they are united with one another; so that the Fire may well change the Form of the compound Body, by disuniting its Parts, and arranging them in a different Manner from what they were, but can produce no Change with regard to the Principle, the Solidity of which renders its Parts inseparable, and consequently its Form unalterable.

It may perhaps be said, that if People would make a just Estimate of the Advantages arising from Chymical Analysis, in acquiring the Knowledge of compound Bodies, before they engaged in them, the Fruitlessness of the Labour would make them drop the Project; by which means they should save a great deal of Labour, Expences, and Time, which might be more advantageously employ'd.

I answer, that we are not able to form a just Judgment of Chymical Analyses, till such time as they are made, and we ourselves put into a Condition of examining all their Circumstances carefully, and comparing them with one another. Since then a Knowledge of the small Advantage that attends them, must be the Result of a Trial made; it is requisite for Conviction in this Point, and to put us in a Condition to discover wherein their Defect lies, that such Trials and Experiments be first made; and even tho' one should foresee before the Experiment, all that is observed to happen after it is made, yet the Reasons alledged against the Attempt, amount only, at best, to bare Conjectures, incapable of procuring Assent, and unworthy to be laid in the Balance against the Advantages, which, 'tis pretended, the Public receives from Labours of that Nature. Besides, as these Conjectures could not have been confirmed, but by going thro' the Analyses themselves, there would have still been a Necessity for making them, but with this Difference, that in the one Case, the Analyses should have succeeded the Conjectures, and been a kind of Confirmation of them, whereas in the present Case, the Analyses are first made, and lay a Foundation for our future Reflections.

Besides, tho' all the Analyses which should have been made, should answer no other End, but to undeceive us with regard to themselves, and point out what we ought to think of them, this would still be an Advantage sufficient to balance the Time and Pains we have laid out in that way: But what still more

contributes to justify Labours of this Kind is, that in examining a long Train of Accidents that happen in analysing a great Number of compound Bodies, one discovers a great many curious Facts, which without Trial and Experiment had never been known, and which may, perhaps, prove of singular Use to Mankind.

The Execution of the Project having then sufficiently shewn the little Advantage to be reap'd from ordinary Analyses, that Point, as it is now no longer controverted, is not what I here propose to discuss and prove. I take the Fact for granted, and look upon it as certain and incontestable; but I search for the Reason or physical Cause of it, in the ordinary manner of carrying on Analyses, that is, in the Violence and Activity of the Fire, which is the Agent employ'd, and in the Disorder, Derangement, and Confusion, which it brings to all the Parts of the compound Body.

I have already given an Idea of this Disorder and Derangement, in the Beginning of this Memoir; but as this Idea is too general, and requires to be proved and illustrated by a more minute Examination of the particular Change which each Substance in the compound Body undergoes, I shall set about it so much the more willingly, since by narrowly considering wherein the Defect of the ordinary Analysis consists, we shall acquire more correct Ideas of the Matter, and, perhaps, be enabled by that means to contrive and carry on other Kinds of Analyses, longer indeed than these, but at the same time more exact, exempt from their Inconveniencies, and much better calculated for discovering the Principles of compound Bodies. In order to form a sound Judgment of the Change produced by the Fire, on the different Parts of a compound Body, analysed in the ordinary manner, we have only to consider each of its Parts in their natural State, and compare this State with that which succeeds it, after they have undergone the Action of the Fire: Two Kinds of Substances, in Plants and Animals, deserve our particular Attention; one is their saline, and the other their pinguious Parts.

I have already said, that I did not pretend to represent these Substances as Principles; and indeed to declare my real Sentiments with regard to Chymical Principles, I shall shew, that each of these Substances is capable of being resolved into different Parts, none of which are themselves Principles; but, compound as they are, 'tis of Importance for the Knowledge of the Nature of compound Bodies, to extract them, and to know them to be such as they are in these compound Bodies, that is, when they are entire, and no ways disfigured or changed; for it is in this Shape, that they act immediately upon our Fluids; and this Action does not depend upon any particular Part of which they are composed, but upon the general Union of all these Parts, whence certain Masses are produced, the Effects of which are often very different from those of each of the Parts, whether considered separately, and acting in this manner, or supposed simply mixed and blended, but not closely and intimately united, as they are in the compound Body. It is then plain, that one cannot be at too much Pains to know these Masses in their natural State, and to extract them as entire as the Nature of the thing will admit of: And if we incline afterwards to discover more perfectly the hidden Contents of these Masses, 'tis only then we can analyse them with Advantage, as I shall clearly prove, when I come to treat of Analyses of that Nature.

I compare these Masses to the very Materials of the two Edifices I have already proposed as an Example; for in order to know the interior Composition of these Edifices, 'tis not enough to destroy them by breaking the Union of their Materials; but these Materials must be separated in their entire State, at least they must not be unlike that which they were in the Edifice itself, or before the building of the Edifice; otherwise they will give us but a faint and obscure Idea of the interior Composition of the Building. This is what also happens in the different Substances extracted from Plants and Animals, in the ordinary Method of carrying on Analyses; for I shall shew by an Examination of each of these Substances, that after the Analysis, and their Separation from the compound Body, they are so far from resembling the exterior Form which they bore in it, that they become often so different from what they were, and acquire Virtues so opposite to those they had, that we should scarcely believe the Difference, if Experience did not in a manner force us to it.

The saline Parts of Plants and Animals are commonly lodged in them under the Form of a concrete Salt, of which they contain several Kinds.

I have observed, in examining a great Number of Animal Substances, on account of my Disquisitions into the Nature of Saltpetre, that these Substances contained a great Quantity of Sal Ammoniac, that is to say, a Salt of the same Nature with that which may be made by the Conjunction of an acid and a volatile Salt; Spirit of Salt for Instance, and volatile Salt of Hartshorn, or of Vipers. Besides, I have observ'd, that the Acid of the natural Sal Ammoniac, contained in these animal Substances, was nitrous, or like to that which is yielded by

by Saltpetre; so that one might, by a Train of Operations, so well purge this Acid of the pinguous Substances, which are naturally complicated with it in the Animal; that it should become a Spirit of Nitre, differing in nothing from the common Spirit of Nitre. Besides, the animal Substances, on which I made my Observations, left me no Reason to doubt of their containing a small Quantity of true Saltpetre, that is, of a Salt like to that which is produced by an Union of the Acid of Spirit of Nitre, and a fixed alkaline Salt. In a word, in these Substances, where the nitrous Acid is found in a large Quantity, tho' so much envelop'd, that one cannot discover it without a great deal of Pains and Industry, the greatest Part of this Acid is join'd with a volatile Matter, and forms a Sal Ammoniac; and a small Portion of this Acid is stopp'd by a fix'd Matter, and forms Saltpetre.

Besides the nitrous Sal Ammoniac, and the Saltpetre contain'd in all the animal Substances I have examin'd, I have also extracted from some of them, and that with a great deal of Ease, a considerable Quantity of true common Salt, entirely like the ordinary Sort; but I could never observe, that any of these Substances contained a Sal Ammoniac, produced by the Acid of that Salt. I do not, however, deny the Fact. I only think I have a Right, in Consequence of the many Experiments I have made upon animal Substances, to advance, that the greatest Part of the Sal Ammoniac contained in them, is nitrous; and that if any Part of it is produced by another Acid, that Acid is to be found in a much smaller Quantity than that of the Nitre. But whatever the Nature of the Acid contained in Animals be, it has been already observed, that the Difficulty of discovering it sufficiently proves it to be strongly envelop'd; and as the nitrous Acid there naturally forms a Sal Ammoniac, or a Saltpetre, according to the Nature of the Substances in which it is engag'd, we have Reason to believe, that all other Acids are conceal'd, at least the greatest Part of them, under the same Substances. This is sufficient for understanding what I am to say hereafter.

Sal Ammoniac is not so common in vegetable, as in animal Substances. They nevertheless contain some of it, but abound much more in a concreted Salt, the Matrix or Basis of which is a fixed Substance; and as there are in Reality many more fixed and earthy Parts in Plants than in Animals, and more volatile Parts in Animals than in Plants, that Acid which in Plants ordinarily produces a Salt of the same Nature with that which would be produced by the artificial Mixture of the said Acid with a fixed Salt, produces, on the contrary, in Animals, as I have already observed, a Salt like that, which would be produced by the Mixture of an Acid and a volatile Salt. As this is the Case, we need not be surpris'd, that some Plants should contain a great deal more of Saltpetre than is to be found in any animal Substance; and that there should be more nitrous Sal Ammoniac in animal Substances, than can possibly be found in any Plant.

It shall be shewn under the Article Nitre, how the Saltpetre of Plants becomes the nitrous Sal Ammoniac in Animals, and how the nitrous Sal Ammoniac may again become Saltpetre in Plants.

But the Saltpetre, and the nitrous Sal Ammoniac, are not the only Species of concreted Salts contained in Plants. There are other Sorts formed indeed by a like Matrix, that is either fixed or volatile, but by an Acid of another Nature, such, for Instance, as that which is yielded either by Vitriol, or common Salt; and all these Salts contained in different Plants, form different Classes of essential Salts, which have different Properties and Effects, according to the Species of that Acid which gives each of them its respective Form. I shall not at present enter deeper into this Subject, but only observe, that in some of these Salts, the Acid is so well envelop'd in its Matrix, that when the Salts themselves are apply'd to the Tongue, they only excite a Sensation of Saltiness, but not at all of any Acidity. I must also observe, that upon mixing some of them with an alkaline Salt, neither a Fermentation, nor a Coalescence of the two Salts ensue; such is the essential Salt of Borrage, and that of Purslane, which, to speak properly, are a true Saltpetre. But there are other essential Salts, the Acids of which, being less closely envelop'd in their Matrices, appear, as it were, on the Surfaces, and present the Extremities of their Points, which being free and disengaged at that particular Part, excite, by that means, the Sensation occasioned by an Acid, upon their being applied to the Tongue. By the same Principles of Mechanism these Salts ferment, and unite with alkaline Salts; an Instance of this Species of Salt, we find in the Crystals of Tartar.

Having examined the Character, the State, and the natural Composition of those Salts, which are ordinarily found in vegetable Substances, let us now inquire what becomes of them when they have been subjected to the Fire, commonly employed in the ordinary Analyses; and let us begin with the Sal Ammoniac contained in Plants and Animals.

As the two Parts of which this Salt is composed, are both of such a Nature, as that whether separately, or in Con-

junction, they may be elevated by the Fire in such a manner, as that after their Elevation they preserve the Union they had before the Operation; I say, as this is the Case, it should seem probable, that the Sal Ammoniac contained in Plants and Animals, should be raised in the same manner by the Action of the Fire, that is, entire. But yet it is not raised so; it first suffers a Disunion of the Parts which compose it, and each of these Parts rise separately by Distillation. We even observe in the ordinary Analyses of Animals, that all which rises in this manner is not, or, at least, does not appear to be any more than a volatile alkaline Salt, that is, the most volatile Portion of the Sal Ammoniac separated from the Acid, which is so little discoverable in the Substances raised by the Fire, that it has for a long time been thought, that animal Substances contained no Acid; and it is but lately, that the contrary has been found true, which is look'd upon as a Discovery so much the more curious, because it destroys a Prejudice founded upon the Analyses of a great Number of animal Substances. It is true, that by only considering these Analyses, one falls into two very palpable Errors; the one is, that there is no Acid in Animals; though there is in Reality a great deal; the other is, that their Salts are lodged in them under the Form of a volatile alkaline Salt, though from other Circumstances, we know very certainly, that these Sorts of Salts, like fixed alkaline Salts, have not been rendered alkaline; but by the Fire, which has in a manner half un-compounded them, by depriving them of a Part of their Acids; so that by restoring these very Acids to them, they are perfectly restored to the State and Condition in which they were in the compound Body, before it was subjected to the Action of the Fire.

I proceed to explain why an Analysis only discovers a Part of the Sal Ammoniac contained in Animals, what becomes of the acrid Part of that Salt, how the one is separated from the other, and why they do not rise with each other, as it usually happens in the ordinary Sublimation of Sal Ammoniac.

In order to solve all these seemingly perplexing Phenomena, I lay it down as a Maxim, that *When Circumstances vary, then, and in that Case, Effects must also be different*: For Instance, Experience teaches us, that volatile alkaline Salts are more volatile than the Particles of Water, that is, they are more easily raised by the Fire; and yet in the Distillation of the Viper, and a great many other animal Substances, the Phlegm, which is less adherent to the other Parts, mounts first, and before the volatile Salt; but when this same volatile Salt is once unfetter'd, and set at Liberty from the Bonds which, as it were, held it in the compound Body, and when the Business is to separate it from the Phlegm, with which it has mixed and blended itself in the Recipient, it is not the Phlegm, but the volatile Salt, which the Fire raises and sublimes first.

Something similar to this happens in Sal Ammoniac, when it is alone, adherent to nothing, and quite disentangled; for then the Fire surrounds it, and raises it entire, without any Difficulty, and without the Trouble of two Attempts. But when that Salt is in a compound Body, it is then intimately united with its earthy Parts, which fix it, render it heavy, and hinder it from yielding to the Action of the Fire so easily as in other Circumstances it would have done; so that the Fire not being able at that time to raise all the Salt, disengages and raises the most volatile Parts of it; which lays a Foundation for the acid Part to blend itself more and more with the earthy Part of the compound Body, in proportion as the volatile Salt quits and forsakes it. This Reasoning is sufficiently justified by Experience; since by mixing a sufficient Quantity of an alkaline Substance with common Sal Ammoniac, and subjecting the Whole to the Fire, that Salt does not in that Case rise entire, as it does when alone, and only its volatile and alkaline Parts yield first to the Fire, and fly off, whilst the Acid of the Salt deeply insinuates itself into the Pores of the alkaline Matter, from which it does not afterwards disentangle itself, but by an Effort of the Fire more considerable than that of which we now speak. This is precisely what happens in the ordinary Distillation or Analysis of an animal Substance; for the Fire used in that Operation is sufficient to disengage the volatile Salt, the Phlegm, and a considerable Part of the Oil; but 'tis not sufficient to produce such an Effect upon the Acid, especially since it is more deeply entangled in the earthy Part of the compound Body; and it is for this Reason, that one perceives none of it in the different Portions which are raised during the Analysis; or if these Portions contain any of it, it is in so small a Quantity, and so strongly envelop'd in oily Matrices, that it cannot be discovered; and what proves the Truth of this Reasoning is, that if the Matter is subjected to a more violent Fire than usual, there rises a Liquor which has manifest Marks of Acidity; and one may observe upon this Occasion a curious Phenomenon, which has already been taken Notice of by the late Mr. Homberg, which is, that the Acids we are now speaking of, after being obliged to yield to the Force of the Fire, return, and are again found in the same Liquor with the alkaline Salts, which were before united with them; and notwithstanding the

the new Mixture of these Acids with their alkaline Salts in the same Place, there is neither a sensible Fermentation raised, nor does there happen a Reunion of the two Bodies, which, on this Occasion, preserve their respective Properties, the one of an acid, and the other of an alkaline Salt.

Mr. *Homburg* is of Opinion, that we ought to ascribe the Peculiarity of this Circumstance, to the small Quantity of Phlegm contained in the Mixture; since in Cases of a like Nature, we often see Acids and Alkalies remain together in a State of Inaction; but I likewise think, that the oily Parts, which are scattered up and down in the Liquor, and which may have contracted a particular Union with the Acids during the Operation, which perhaps hinders us from distinguishing the true Character of them in the manner hereafter to be explained, I say, that these oily Parts, by enveloping the Acids, contribute very much to hinder their Action upon the volatile alkaline Salt. And indeed, if we were only to be swayed by the Reason which Mr. *Homburg* advances, we should be at a Loss to get over one Difficulty, which is, that there is often a Quantity of aqueous Parts in the Liquor, sufficient at least for a small Effervescence, which would very soon be succeeded by a sensible Reunion of the Acids and Alkalies.

As we have good Reason to believe, that in the Analysis of compound Bodies charg'd with Sal Ammoniac, the Decomposition of that Salt is not made, but in Proportion to the fixed and earthy Parts contained naturally in these Bodies, I cannot help imagining, that those animal Substances, which particularly abound in volatile Parts, may well be supposed not to contain a sufficient Quantity of earthy Parts for all the Sal Ammoniac contained in these Substances; and consequently, that all that Sal Ammoniac was not decomposed in the Analysis; but that Part of it either remained with the Caput Mortuum of the Substance, or lost only a moderate Quantity of its Acids; and becoming, by that means, less volatile than those volatile Salts which are better separated from their Acids, but at the same time more volatile than the Sal Ammoniac which has lost none of them, it was in a middle State betwixt the two, and might be said to be on the same Level of Volatility with the aqueous Parts in which it had sheltered itself during the Operation, and from which we cannot afterwards separate it by Distillation, because being neither heavier, nor lighter than the Water, it neither rises before it, as the ordinary volatile alkaline Salts do, nor after it, as the Sal Ammoniac, which is entire, does. And as that Liquor, which constitutes what we commonly call a Spirit, ferments with Acids, whether by means of some volatile Salts it has retain'd, or on account of the Acids, which the Sal Ammoniac of the Liquor has lost, in whose Place new Acids are lodged; I say, upon some of these Accounts, some have thought they had a Right to conclude from this Fermentation, that the Spirit was only a Phlegm impregnated with the same volatile Salts, which are drawn from the Substance under a concrete Form: But if this is the Case, why cannot we totally, or at least in a certain Degree, deprive this Spirit of its volatile Salts, by putting it into a Matraass with a long Neck, with a Head and a Recipient; and paving the way by a gentle Heat for these Salts, which should happen to be lighter than the Water, to separate themselves from that Liquid, and rise to the Top, as a volatile concreted Salt, dissolved in Water, or even in a Spirit, uses to do under such Circumstances? We may therefore believe, upon very probable Grounds, that in the ordinary Analysis of animal Substances, all the Quantity of their Sal Ammoniac is not equally decomposed; that is, in the different Portions of that Salt, an equal Separation is not made of the Acid from its alkaline Part or Matrix, which is what is commonly called the *Volatile Salt of Animals*; so that certain Portions of that Salt free themselves to a certain Degree from the Acids, which they contained in the compound Body; other Portions retain more of their Acids, and others perhaps lose still less; and, notwithstanding the Operation, remain almost under the same natural Form they had in the compound Body, as happens in certain Distillations of the volatile Spirit of Sal Ammoniac, where for want of a sufficient Quantity of an absorbent Medium, there is only a Part of that Salt from which the volatile alkaline Salts are detached, and rise at first, whilst the other Portion of the Sal Ammoniac remains entire at the Bottom of the Vessel; and being afterwards subjected to a greater Fire, it rises in the Form of Flowers, which are nothing but an entire Sal Ammoniac, or at least a Sal Ammoniac with the greatest Part of its Acids.

What seems to confirm this Opinion, that all the Sal Ammoniac of animal Substances is not equally decomposed during their Analysis, and that, because they do not naturally contain a sufficient Quantity of earthy Parts; what, I say, seems to confirm this Opinion is, that by supplying that Defect, that is, by mixing with these Substances a sufficient Quantity of fresh earthy Parts, to produce the Decomposition of a greater Quantity of Sal Ammoniac, we at last disunite, and set at Liberty, a great Number of Acids, and volatile Salts, the Union of which would have still subsisted, without such an

Addition; and by this new way of Proceeding, we not only obtain more volatile alkaline Salts, but also the Liquor, which towards the End of the Distillation, is carried up by a proper Degree of Fire, is much more sour, and more impregnated with Acids, than when we do not mix an earthy Medium with the animal Substances before Distillation.

'Tis then certain, that animal Substances contain a great deal of Acids, of which the ordinary Analyses do not discover the least Marks; and this Circumstance shews us how little Confidence is to be reposed in them: But we must also own, that the new Method of discovering the Acids of Animals, is not without its Defects, even with respect to the Acid discovered; for if, by disentangling this Acid, it discovers one where none was before perceived, then as the Disengagement of this Acid is carried on in the very Bosom of the compound Body, and in the very middle of the Parts of which it is composed, the Acid, after its Separation from the volatile alkaline Salt, which envelop'd it, is ever after confounded, and mixed with Parts of a different Nature, in the same Fluid, which indeed may permit it to be discovered an Acid in general, but, by their Mixture, prevent our knowing the specific and distinguishing Character of the Acid; so that we cannot ascertain the particular Class of Acids to which it belongs: a Circumstance, which is nevertheless of great Importance, when we want to know the genuine Nature of the saline Part of any compound Body.

I shall endeavour to remedy this Inconvenience, when I come to propose Processes for the Analysis of compound Bodies. *Memoires de l'Academie Royale des Sciences, 1719.*

Having now considered the Action of the Fire upon that Species of Salt, with which animal Substances are principally impregnated, I mean Sal Ammoniac;

We are now to examine the Alteration produced by Analyses in another kind of Salt, found particularly in Vegetables, and differing from *Sal Ammoniac* only as to its Matrix, which is fix'd. This Difference, with respect to the Matrix, does not hinder the Fire from producing, upon the greatest Part of the Salts of this kind, the same Effects which it usually does upon *Sal Ammoniac*; that is, it disengages a great Quantity of the Acids of those Salts from the Matrix in which they were lodged, and for the same Reason that *Sal Ammoniac* is reduced by Analysis to an acid, and an alkaline volatile Salt: That kind of Salt, of which we now treat, must be reduced, and in effect is reduced, the same way, to an acid, and to an alkaline fixed Salt: But as the fixed Salt, for that very Reason because it is fixed, makes infinitely more Resistance to the Action of the Fire than the volatile Salt, there occur two different Things in the Dislodgment of the Acids of each of these Salts from their particular Matrix; which are, first, that in the *Sal Ammoniac*, the Matrix being much more volatile than the Acid, it rises first, and leaves Part of the Acid disengaged from it at the Bottom of the Vessel; whereas, on the contrary, in the other Species of Salt, the Matrix being very fixed, and making much more Resistance to the Efforts of the Fire than the Acid, it of consequence remains at the Bottom of the Vessel, and the Acid quits it, and flies up, tho' not indeed so readily, and with such a Degree of Volatility, as the Matrix of the *Sal Ammoniac* leaves its Acid; and evaporates into the Air.

The other Difference, which merits a particular Attention in this Place, is, that the volatile Matrix rises pretty quick, and by no considerable Fire, and consequently is not much exposed to the Force of that Agent; but the fixed Matrix, on the contrary, remains always exposed thereto, because it is not elevated, and besides has need of a pretty considerable Fire, which must continue a good while, in order to separate from it a great Quantity of Acids, that it might become an alkaline Salt: These Things consider'd, the Fire has all the Time and Convenience of working a very considerable Alteration in the fixed Salt, while it cannot, and in fact does not, communicate the same to the volatile Salts. We shall in the Sequel explain wherein that Alteration consists, and what is the immediate Cause of it, in discoursing more particularly of alkaline fixed Salts.

Tho' the Salts which have a fixed Matrix for their Base, do all resemble one another in one Point, that is, in powerfully resisting, at least by their Matrix, the violent Efforts of the Fire, we ought not, however, to believe they are alike in all Things, and that the Fire produces the same Effect in every one of them; for tho' they agree in the common Circumstance of the Fixedness of their Matrix, they may yet greatly differ from one another, not only by the particular Character of their Acids, but even by the very Nature of their Matrices, which, tho' fixed, and consequently like one another in that respect, yet differ very considerably on other accounts, which is the Reason, that tho' the Action of the Fire, with respect to the different Salts we are speaking of, be always the same, yet as the different Particles, of which these Salts are composed, do not give way to that Action in an equal Manner, and are more or less susceptible of certain Modifications, there must result from thence as different Effects.

We know, for Instance, that different Acids, independent of any solid Matrix capable of detaining them, and swimming in an aqueous Liquid, have not all the same Degree of Volatility; that there are even some of them, such as those in Oil of Vitriol, and Spirit of Alum, which rise but very slowly, and with great Difficulty, by the Violence of a very strong Fire; whence we may judge, that if these Acids should take up their Residence in a fixed Matrix, and in Conjunction with it form a concrete Salt, they would in such a State make a yet greater Resistance to the Efforts of the Fire.

We are assured, on the other hand, that the Fire elevates with much greater Ease, and in a much shorter Time, the Acids contained in Spirit of Nitre and common Salt; and that it would also find a less Resistance from the Acids contained in the volatile Spirits of Vitriol, and those of common Sulphur, extracted by the Process described by Stahl; inasmuch that when, for Example, the Acids of the Spirit of Nitre, or those of Oil of Vitriol are united in the same Matrix, in Conjunction with which they form a concrete Salt, the Fire will with much more Ease dispossess the nitrous Acids than those of the Oil of Vitriol, provided that the Circumstances are all equal, and a due Medium is employ'd when necessary; for without that there are Instances, where the Fire would have no more Power to separate the nitrous Acid from its Matrix, than to separate the Acid of the Oil of Vitriol, as we shall see hereafter.

So much as to what regards the different Resistance of the concrete Salts to the Action of the Fire, with respect to the Acids of which they are composed: But what contributes infinitely more to diversify the Effect of this Agent upon each of these Salts is, the particular Nature of the Matrix with which these different Acids are united and combined, for the Formation of such or such a Species of concrete Salt; and we are convinced, that there are a very great Number of fixed Bodies capable of absorbing Acids, and forming with them a concrete neutral Salt, or *Sal Salsum*: Of this Kind are not only all the fixed alkaline Salts, but many of the different Kinds of Earth, as well as metalline Substances, and Metals.

Hence it appears, that Acids do not enter with the same Facility into the Pores of every one of those Substances; that they penetrate farther into some than into others; that the Pores of those different Substances embrace and retain them with more or less Streightness, according to their natural Capacities, and perhaps also according to the stronger or weaker Spring or Elasticity of their Strata; for I have observed, that when foreign Bodies enter with Violence and Difficulty the Pores of some Substances, there necessarily follows a Dilatation of these Pores produced by the heaving up of their Sides or Strata, which afterwards sink down again of themselves, by their proper Spring, as soon as the Body which kept them in that elevated State quitted its Place: Consequently, when the Acids, introduced into the Pores of different Alkalies, have dilated those Pores by elevating their Sides to a certain Point, as these Sides, by virtue of their Spring, make continual Efforts to lower themselves, and resume their former Situation, the greater the Spring, the greater is the Effort, and the more are the Acids contained in the Pores compressed and freighten'd by the Sides of these Pores, and the more Obstacles has the Fire, which afterwards acts upon the Composition of Acids and Alkalies, to surmount, in dislodging the Acids. Hence it follows, that the same Acid residing in different Matrices, be they purely terrene, metalline, or of other Kinds, will make a greater or less Resistance to the Action of the Fire, according to the particular Nature of each of those Matrices. It is also observed, that the same Acid which may, with more or less Facility, be dislodg'd from several Sorts of Matrices, will not be made to quit some certain Kinds, whatever Violence of Fire be used for that Purpose, at least, without having recourse to some proper Medium. We have a sensible Proof of this Truth in several natural and artificial neutral Salts, and, among others, in common Saltpetre, and in that Sort which we can make at Pleasure in an Instant, by the Mixture of a nitrous Acid with an alkaline fixed Salt; for it is certain, and I have several times had Experience of it, that how violent soever the Fire be which you use about each of these Salts, they will sooner be dissipated whole and entire, either into the Air, or through the Pores of the Vessel, than admit of Decomposition, or the Separation of their Matrix from their Acids, that is, a parting with their Acids, and remaining behind at the Bottom of the Vessel, in the Form of an alkaline fixed Salt, such, for Example, as that used in making the artificial Saltpetre. But when to the Action of the Fire we join the Assistance of a convenient Medium, the Separation of the Acid from the Alkali soon commences; and in this Operation there happen two different Effects according to the particular Nature of the Medium. If the Medium be purely sulphureous, and nothing is to be done but to assist the Exaltation of the nitrous Acid, without communicating any thing new to the Matrix of the Saltpetre, this Matrix, after the Operation, appears under the Form of an alkaline fixed Salt, such as that used in making artificial Saltpetre. We have an Example of this Truth in a very common Operation, which is the

Fixation of Saltpetre by Charcoal. But if the Medium itself contains a good Quantity of Acids more fixed than those of Saltpetre, and of a vitriolic Nature, it much contributes to the Separation and Exaltation of the nitrous Acid, but it substitutes other Acids in the room of the nitrous ones; in which Case, the Matrix of the Saltpetre, which after the Loss of its Acids ought to have appeared under the Form of an alkaline fixed Salt, always shews itself under that of a neutral Salt, which is no longer true Saltpetre, but is become a real vitriolic Tartar, wholly resembling that which may be made with an alkaline fixed Salt, and a vitriolic Acid.

In short, as the vitriolic Acid, such, for Instance, as that contained in Oil of Vitriol, in Spirits of Sulphur, or Alum, &c. considered independently of any Matrix, is the most fixed of all Acids, when it becomes united to one of these fixed and saline Matrices, which never let go a nitrous Acid, unless forced to it by an Intermedium, it must make a much greater Resistance to the common Efforts of the Fire and the Medium, than the nitrous Acid would do in the like Case. And this is no more than what really happens; for if you mix Tartar vitriolated and Powder of Charcoal in a red-hot Crucible, the vitriolic Acid will by no means fly off, as the nitrous Acid, join'd to the same Matrix, would not fail to do by a like Procedure. One might even totally consume all the oily Part of the Charcoal, mixed with the Salt, over the Fire, without separating the vitriolic Acid from its Matrix; in short, after the Operation, and the total Deflagration of the Oil of the Charcoal, we shall always find the vitriolated Tartar in the same State as it was before, and without any sensible Loss of its Acids. And, in fact, if we are resolved it shall lose them, we must, besides the Fire and sulphureous Medium, which are sufficient for the Acid of Saltpetre, make use of other Assistances both in proper Time and Place, and of another Method of Process; that is, when the oily Body has been mixed with the vitriolated Tartar in the red-hot Crucible, and, having closed with the vitriolic Acids, has not indeed been able to hurry them into the Air, but has always had Strength sufficient to disengage them in some Degree from the Pores of the alkaline Salt, (which produces a new Compound of a yellow or red Colour, and of the Smell of common Sulphur, that dissolves in Water, and in which the Acid lays hold, at the same time, of the fixed Salt of the vitriolated Tartar, and of the Oil of the Charcoal) we must then lay hold of the Opportunity, when these vitriolic Acids begin to be disengaged, to put a Stop to the Action of the Fire, without which Precaution the oily Part would be dissipated, and the Acid, being left to itself, would reunite, as before, by Help even of the Action of the Fire, to the interior Parts of the Alkali, whence the oily Body had begun to dislodge it: We must then dissolve the new Compound in Water; and since the vitriolic Acid, being united to an oily Substance, has not in that State so fast a Hold of its Matrix as before, because it has been half-disengaged by that Substance which absorbs it, and which envelopes it, at least in Part, we have no more to do but to pour upon that Dissolution a free Acid, which, in proportion as it insinuates into the fixed Salt, easily drives out and dislodges the vitriolic Acid, which being separated from its saline Matrix, and only attach'd at that Time to the oily Substance, forms a true common Sulphur, which is precipitated to the Bottom of the Vessel.

Thus much then we know in general, concerning the different Alterations which Fire produces in several Kinds of concrete Salts, which have for their Basis a fixed Matrix; at least it is what we have been able to learn of them from Experiments and Operations made upon a good Number of Salts of that Kind, as well natural, and extracted from several Earths, Stones, Marchasites, &c. as artificial, and form'd by the Union of different Acids with a very great Number of fixed Alkalies. But in order to be perfectly instructed, and to have an exact and complete Idea of the Confusion produced by Analyses in the different Parts of all these Salts, which have for their Base a fixed Matrix, and are contained in Animals and Vegetables, but especially the last, it is necessary to extract from every one of these Compounds the Salts which they contain, and to extract them entire, that is, such as they were in the very Compound; and after that to separate the Acid from the Matrix of these Salts, and upon every one of these Parts to make the necessary Experiments for knowing the particular Character both of the Acid and the Matrix; and, lastly, after we are come to understand the Nature of these Kinds of essential Salts, and the Form under which they reside in the Compound, we must compare them with what they are in the State to which they are brought, after they have passed through the ordinary Analyses.

This Undertaking, which is of a vast Extent, and requires a very particular Detail of the Experiments, is exactly what we have already spoken of in the preceding Memoir. Mean time, the great Number of Analyses which have been made, and the Reflections which naturally result from hence, the Discoveries that have been made, and the Knowledge we already have of several essential Salts of Plants, and the Comparison of those

Salts with such as are extracted from the Plants by the ordinary Analyses; and, lastly, the Experiments which have already been related upon several other Salts, which never lodg'd in the Plants, but which we certainly know are, several of them, analogous to those Salts which reside there, and susceptible of the same Alterations; all these Matters of Fact, of which we shall make a proper Use hereafter, will be more than sufficient to assure us not only that the Fire disguises and considerably alters the Salts we are speaking of, but also to instruct us in the Nature and Manner of this Disguisement and Alteration.

As the Salts we speak of reside principally in vegetable Substances, we shall mostly enlarge on the Analysis of these Substances, and the rather, because there are usually but small Quantities of these Salts in Animals, and the Alteration which they there receive by means of the Fire, is the same as they receive in Vegetables by the same Agent. Wherefore, what shall be said of this Kind of Salts which are contained in vegetable Substances, may be apply'd to the same Salts, consider'd as residing in Animals. But as the great Number of Observations I have made upon the Analyses of Plants afford too much Matter to be contained in this Memoir, I shall refer myself to these which follow. *Memoires de l'Acad. Roy. des Scienc. 1720.*

When we consider the Analyses of a great Number of Plants, and the different Particles which the *gradually increas'd* Fire in a Distillation raises from them, we observe that there are some Plants, which, besides their aqueous and oily Parts, afford sensible Proofs of a good Quantity of Acids, others promise less, some very little, and, in short, some there are, whose Number indeed is very small, which yield no more than an animal Substance, analysed according to the ordinary Method of proceeding, might be supposed to do. These Differences arise from several Circumstances; as, from the greater or less Quantity of Salt naturally contained in each Plant; for as this Salt is formed of Acids lodged in a fixed or volatile Alkali, the more a Plant contains of that Salt, the more Acids it contains, and consequently the more it can send off and elevate in Distillation, all due Allowances being made. Besides, these Acids are raised more or less easily and copiously in Distillation, according to their different Degree of Volatility, and the particular Character of the Matrix which contains and envelops them, as has been shewn in the preceding Memoir; and, in short, these Acids render themselves more or less perceptible by known Characters, as they are more or less cover'd and concealed by other Corpuacles which rise with them, and which are found with them in the Receiver. Having already spoken of the alkaline volatile Salts which rise in the Analysis of Vegetables and Animals, we shall only make this farther Reflection on them with respect to the Acids we just now spoke of, which is, that as they rise with these Acids, they more or less prevent them from appearing, or making themselves taken Notice of by their proper Characters, according as they are more or less strictly united with them; and as the Quantity of volatile Salts, with regard to that of the Acids, is more or less considerable in every Portion of the distilled Liquor: For tho' we, as well as others, have observ'd in the first Memoir, that it sometimes happen'd in the Analysis of several Substances, that Acids and volatile Salts, when driven by the Fire, were collected together in the same Portion of Liquor, without reuniting one with another, but there preserving each of them their particular Properties, one of an Acid, the other of an Alkali, of which they gave distinct and evident Marks; we did not, however, pretend to conclude from that Observation, that all the Acids and volatile Salts which rose together, or which were found again in the same Portion of Liquor, were or remained in the same Estate of Division. And, indeed, we made it appear, in speaking of the *Sal Ammoniac* contained in Animals, that the volatile Salt, which is separated from it by the Analysis, and is found in what they commonly call Spirit of Animals, had retained and carry'd up with itself a good Part of the Acid of the *Sal Ammoniac*; that this Acid did not render itself perceptible in that State, because it was surrounded on all Sides with a very great Quantity of volatile Salts; that, on the contrary, these volatile Salts, in spite of the Acids which they had retained, being by no means entirely saturated, were still proper for Fermentation with new Acids, and consequently made themselves known by that Character; and that, in short, if the Acid we speak of did not manifest itself by the ordinary Proofs, it might always be clearly perceived by means of an Analysis made with an earthy Medium; and that in another respect we were obliged to this Acid for the Degree of Volatility in the volatile Salt contained in the Spirit of Animals; for this Salt has one thing in particular, which is, that in point of Volatility it is perfectly on a Level with those Parts of Water from which it cannot be separated by way of Evaporation, and from which it is easy to separate the common *Sal Ammoniac* and volatile Salts; the former, loaden with Acids, being less volatile than Phlegm, and always rising after it; the others, on the contrary, which are depriv'd of their Acids as much as is possible, being by that means more volatile than Phlegm, rise, and are sublim'd before it, as it appears in the common Operation of the Rectification of volatile

Salts; or when, after dissolving volatile Salts in a certain Quantity of Water, we urge the Liquor with a proper Heat. Another thing which proves, that the volatile Salt contained in the Spirit of Animals is a Mean betwixt a complete *Sal Ammoniac* and the common volatile Salts, on account of the particular Quantity of Acids it retains, which renders it incapable of being separated by way of Evaporation, is, that if you add to this Salt a sufficient Quantity of new Acids to render it less volatile than Phlegm, you by that means revive it into what it was before, that is, into a kind of *Sal Ammoniac*, which, being urged by a gentle and convenient Heat, does no longer accompany the aqueous Particles as before, but lets them fly off, remaining itself at the Bottom of the Vessel under a dry Form; which it would not do, were it less charged with Acids.

In short, if we use the ordinary Methods of exactly depriving this new *Sal Ammoniac* both of the new Acids which it had received, and of those which it had retained in too great a Quantity before, there will result from that Operation a volatile Salt, whose Volatility will no longer be on a Level with the aqueous Particles as before, but will be sublim'd before them, and with a less Heat.

You see by this Example, and it will appear more clearly by what follows, that a Quantity of distill'd Liquor, which shews Marks only of an alkaline volatile Salt, may yet contain also a considerable Quantity of Acids. But it will be said, that the Acids in the Example propos'd are not intimately united with the volatile Salts, during or since the Operation of the Analysis; that they were combin'd in the Compound itself, where they made Part of its *Sal Ammoniac*; and that it is not at all surprising, that this Union, which always subsisted since the Operation, should be capable of keeping them under Covert, and in a manner remov'd not only from our Taste, but also from the Influence of some Chymical Essays; but this Difficulty, will it be added, does not concern these Acids, which never forsook their volatile Matrix, but the Acids that belong to the concrete Salts, which have a fixed Matrix: For when once the Acids of those Salts have been loosed from their Matrix, and carry'd off by the Fire, as they are then free, and without Covert, they may be easily known by different Proofs; and if they find any alkaline volatile Salts, either in their Way, or in that Part of the Liquor which is transmitted to the Receiver, there is Reason to think, that they will avoid being envelop'd by them; first, because we are assured, from the Analyses of a very great Number of Plants, that one and the same Part of these Analyses very frequently afforded sure Proofs of Acids and alkaline volatile Salts at the same time; which could never happen, if from any Circumstance, or the favourable Opportunity of being in the same Place, these Bodies had contracted some Union. Secondly, because in analysing some animal Substances with more than common Exactness, it is observ'd, that Acids, which were united in the Compound with volatile Salts, and being separated from them in the Analysis, were afterwards again found with them in the same Part of the Liquor, did not, however, reunite, tho' they were at least as fit to lodge themselves in their volatile Matrix, and to resume the Place which they possessed there before, as other Acids, which at first belong'd to a fixed Matrix, and were separated from it by the Fire.

In Answer to this Objection, which appears founded on an incontestable Observation, I shall give an Account of some other Observations, which will perfectly clear up the Difficulty propounded. Soon after the Academy had done me the Honour to receive me as a Member, I set myself to analyse a good Number of Plants, and made some of my Analyses in the Assemblies at that Time; but reflecting afterwards on the little Fruit I reap'd of my Labour, which besides had been undertaken before my Time in the same Place, I left it off, and did not then imagine, that some Remarks, which the Analyses had occasioned, would have been of Service in this Case. These Remarks regard the Alteration which happens to several Parts of analysed Plants, when these Parts have been kept a certain Time; for the ordinary Chymical Essays do then often work Effects in them quite different from such as they produce immediately after the Analysis has been made; and this Difference made me believe, at first, that I had been mistaken, and that I had been careless in examining for the first time the Part where I found nothing afterwards like what I had seen in the Beginning. But I was convinced of the contrary by several times repeating the same Observations upon different Plants; and besides, I found, a little while since, in some Manuscript Analyses of the late Mr. *Bourdelin*, that this worthy Member was well apprised, that some Sorts of analysed Plants did not always act after the same Manner, at different Times, under the same Chymical Essays.

I observed then, that in the Number of Plants which I analysed, there were many of them which in Distillation yielded some Quantities of Liquors, which shew'd, at one time, sensible and distinct Marks both of Acids, and of alkaline volatile Salts, but still more of Acids than Alkali; and that when these Liquors had been kept a certain Time, which was necessary for their volatile Salts, in some measure, to saturate themselves with the

Acids,

Acids, they shew'd no more Signs of volatile Salts, but still gave manifest Tokens of Acids, on account of the Redundancy of those which remained in the Liquor, or, if you will, on account of the Overplus of Acids, which had not been able to find out a *Sal Alkali* in which they might take up their Quarters, and so, remaining free and uncover'd, might easily make themselves perceptible.

In the second Place I observed, that there is requir'd more or less Time for the total disappearing of the Signs of the volatile Salts, of which we have been speaking, according to the greater or less Quantity of those Salts, and in proportion as the Acids of the Liquor have more or less Disposition to lodge themselves in those Salts.

Thirdly, This Disappearing proceeds by little and little, and by Degrees, and you may observe every Day the successive Diminution of the Signs of the volatile Salt, which disappear sooner or later, in proportion as they are more or less strong and vigorous in the Beginning. This may often be observ'd in the Analysis of a single Plant, which sometimes afforded two or three Parcels, which were of the Nature of those we have been speaking of, but had not the Signs of the volatile Salt equally strong and lively in all of them immediately after the Analysis. Whence these Signs often became annihilated in one Parcel, and still subsisted in the other, where, tho' diminished, they were still perceptible, either by an Ebullition caused in the Liquor by the Mixture of an acid Spirit, or by a white Precipitation resulting from the Mixture of that Liquor with a Solution of corrosive Sublimate.

Fourthly, When the same Parcel of distill'd Liquor, which afforded sensible and distinct Marks both of Acids and volatile Salts at the same time, contained a greater Proportion of volatile Salts than Acids, it often happen'd, that after a certain Time, that is, when all the Acid of the Liquor had been absorb'd by a sufficient Quantity of volatile Salts, the Liquor shew'd no more Signs of an Acid as before, but still gave Tokens of volatile Salts, in proportion to the Excess of these Salts, which remained free, and uncover'd, for want of finding a sufficient Quantity of Acids in the Liquor, with which it might unite; and it appeared to me, that in this Case the Signs of the Acids disappear'd after the same Manner, and with the same Circumstances, as did those of the volatile Salts in the preceding Observations.

Fifthly, In all the Portions of distill'd Plants which I have observed, and in which there becomes, in Process of Time, an Union of Acids and volatile Salts, which at first were lodg'd separately, I found none, which, after a Junction of the Acids and volatile Alkali, ceas'd to afford Marks both of the one, and the other; which is no more than what might seem necessary to happen on some Occasions, that is, when we find in the Liquor no greater Quantity of Acids than is requisite to saturate the volatile Salts therein contained. But as it is not impossible but such a just Proportion of Acids and Alkalies might meet together, I will not deny the Matter of Fact, which may possibly be observed hereafter by some others: I only made on this Occasion the following Experiment. In the Analysis of several Plants it is observed, that some Portions of the distill'd Liquor, and oftentimes all of them, except the last, or two last, of the Distillation, shew no Signs but of Acids, and those in Plenty; and that the last Portions, on the contrary, afford no Marks but of volatile Salt, which is there found in great Quantity. I mixed together Portions of Acids and Alkalies in different Proportions, and I found, that all these Mixtures, immediately after they had been made, shew'd Signs at once both of Acids and Alkalies; and that after they had been kept a sufficient Time, they gave Marks but of one, that is, either of the Alkali, or the Acid; but I never found out the Point necessary for the disappearing of both. I do not, however, pretend to conclude any thing from this last Observation.

Sixthly, In my Examination of the Portions of different analysed Plants, in which after an Union of the acid and volatile Salts contained in the Liquor, one of these two Bodies was still perceptible by its proper Marks, it seem'd to me, that the disappearing of the Signs of the volatile Salt happen'd much more frequently than that of the Acid. 'Tis possible that in the Number of Plants which I analysed, there might offer too many Cases of a particular Kind, which hinders me from concluding so strongly in favour of my Observation, as if I had made a much greater Number of Analyses. However, what, among others, may sometimes justly be drawn as a Consequence of my Observation, is, that, in general, the Sum of the Acids in Plants surpasses that of the volatile Salts, as we shall prove more particularly by what follows. Hence it appears, that Plants in general will afford more Acids than volatile Salts in Distillation, and that it is the Overplus of these Acids that renders them thus perceptible, as we have already explained. In that Case also, where no more Acids are elevated in Distillation than volatile Salts, it is possible, that after that Union the Acid should still seem to prevail; as the common *Sal Ammoniac* colours blue Paper with a dark Red, and after twenty-four Hours gives a reddish Brown to a Solution of Turnsole. But it

is easy to distinguish this Effect from that of an Acid when free and disencumber'd, at least to a certain Point, from other Bodies in which it may be engaged, as the Acid of *Sal Ammoniac* is in the volatile Matrix, which makes the other Part of that Salt.

Seventhly, I have often observed in examining some Parts of analysed Plants, that they contained an Acid more or less envelop'd with oily Particles, which sustained themselves in the aqueous Part of the Liquor by favour of that Acid; that these two Bodies rising together in Distillation, and remaining afterwards united, at least for a certain Time, it happen'd that the Acid in that State either did not appear at all, or render'd itself perceptible by very obscure Signs. But as the Liquors impregnated with different Particles are always subject to an internal Fermentation, this Fermentation, paving the Way for the Acid of the distilled Portion to disengage itself, makes it then manifestly appear, that the Inferences from this way of Reasoning are just; that is, that the Acid did not shew itself, because it was envelop'd with oily Particles. And that it is discovered afterwards only by getting rid of them, appears, if we observe, that during all the Time in which the Acid begins to shew itself, and continues more and more so to do, the Oil, which, separated from the Acid, and left to itself, can no longer, in such a State, support itself in the Liquor, but is precipitated commonly in the Form of a mucilaginous Substance, increases in Quantity always in proportion as the Acid of the Liquor makes the greater Appearance. One might also observe the same Effect in several distilled Waters, which at first, and even for a considerable time, remain of a limpid Clearness, and shew no Signs of Acids; but after being kept a sufficient time, not only grow sour, but also deposit at Bottom a slimy Matter, which is so thick, and in so considerable a Quantity, as would hardly be believ'd, did we not see it. See the Article ACETUM.

To proceed, We ought not to be surpris'd, that Acids, the most Part of which in a Plant belong to a fixed Matrix, being urged by the Fire, abandon their Matrix to enter into an intimate Union with oily Particles with which they rise, and by which they are envelop'd, as it has been said. For we have shewn in other Memoirs, and in the Beginning of this, that oily Substances have a Property of strongly seizing upon Acids that are lodged in fixed Matrices, by which means, when they rise in the Air they draw out and carry up with them the Acids in which they have fixed; and that they contribute infinitely to the Disengagement of a great Number of Acids, which without that Assistance, and with the bare Action of the Fire, would never be brought to quit their Matrix, or at least would not do it, but with a great deal of Time and Difficulty. Plants then actually containing Plenty of oily Particles, which have a Faculty of fastening themselves upon the Acids of their Salts, and acting upon them after the same manner, as we shall describe more particularly, when we come to speak of the saline Substance which remains in the Retort after the Distillation of the Plant, it will not at all seem surprisng, but is, on the contrary, very natural to think, that vegetable Acids always rise in Company with oily Particles, with which they afterwards remain more or less intimately united, according to the Diversity of the particular Circumstances which concurr'd to that Union, and which it is impossible to enumerate.

The Union of vegetable Acids being such as has been said, we may easily conceive why these Acids sometimes subsist for a considerable Space of Time in the same Liquor with alkaline volatile Salts, without penetrating and uniting with them, and how they came afterwards to do so. For, first, as long as these Acids are envelop'd, in a certain Degree, with oily Particles, they are incapacitated, by this Involvement, to pierce and open themselves a Way into the interior Parts of these Salts: One might even venture to say, that however free and bare vegetable Acids might become in general, they always preserve an Allay of oily Particles, which tempers their natural Vivacity, and thus prevents them from being so corrosive, and from acting with so much Force and Violence, as they would do without such a Mixture, and as mineral Acids do in fact, which contain fewer oily Particles. And it is really possible sometimes so well to disengage the Salts of Vegetables from their oily Particles, that the Acids which result from thence become infinitely more active and corrosive, than otherwise they would ever have been. If then but a small Share of oily Particles can so effectually diminish the natural Action of vegetable Acids on all alkaline Bodies in general, it is plain, that by increasing the Quantity you may at last render it sufficient for entirely preventing all Acids from entering into the Pores of volatile Salts; and that when afterwards this Quantity shall have had Time to diminish by the Assistance of a Fermentation, which shall occasion the Disunion of a certain Quantity of oily Particles, the Acids being more free and disclosed, and making a less Bulk, will in that State insinuate with more Force and Facility into the Pores, into which before they could not obtain a Passage.

All that we have just now said and observed is of great Use for the understanding of the following Observation, which I made.

made on the first Portions of some Analyses, in which, tho' immediately after the Distillation I had only perceived the Marks of volatile Salts, and no Sign of Acids, after they had been kept a sufficient Time, I could no longer perceive the Marks of volatile Salt, but only of Acids. The Reason of this, in my Opinion, was, that these Acids, tho' considerable enough for Quantity in the Parcel of Liquor, were yet in a manner, enveloped by the oily Particles, that in this State they could neither shew themselves, nor cause the volatile Salts to disappear by mixing with them. But when Fermentation has had Time to disengage the Acids from a certain Quantity of oily Particles, which in this as well as in the preceding Observation are commonly precipitated to the Bottom of the Liquor under the Form of a Mass of a greater or a less Thickness, these Acids being more free, and more developed, will not fail in that Condition to obliterate the Marks of the volatile Salt in the Liquor, by uniting itself to that Salt; and as the Quantity of Acids surpasses that of volatile Salts, the Overplus of those Acids, which, not being combined with volatile Salts, remains in this State of Developement, must under the Operation give evident Tokens of Acidity, which the Mixture of oily Particles hinder'd it from shewing before.

To conclude, I made one Observation more upon the first Portions of some Analyses of Plants, which was, that though neither the Acids nor the volatile Salts were perceptible in the Operation, they yet excited an acrimonious and pungent Savour upon the Tongue, which left no room to doubt but that these Portions contained a considerable Quantity of Salt. It appearing therefore by these Experiments, that this Salt was neither an Acid developed, nor an alkaline volatile Salt, it can be no other than a complete Sal Ammoniac; that is, it has undergone no such thing as a Decomposition by Analysis, but contains in itself the Acids and volatile Salts as intimately united together as they were in the Plant itself: For we cannot say, that this Salt was compounded of Acids, and a fixed Matrix, because this Matrix was hinder'd from rising with it, at least entire, in the Distillation, especially in the first Portions of the Analysis, where but a moderate Fire is used. There can be none then but a Sal Ammoniac that can rise in the Case before us, which consequently is the true Cause of that acrimonious and pungent Savour in the first Portions. It is true, and we have already observ'd it, that common Sal Ammoniac will in time dye a reddish Brown with Turnsole, which I never perceived in the Sal Ammoniac of our first Portions; but the oily Particles, which are always mix'd with the Salts of distill'd Portions, might on that occasion hinder the Sal Ammoniac from exciting that reddish-brown Colour, and so much the rather, because it does not excite this Colour but after a good deal of Time and Pains, even when it is in its natural State, that is, when it is free and disengaged from every oily Substance. *Memoires de l'Acad. Roy. des Scienc. 1720.*

It appears by the Observations already made, upon the Analyses of animal and vegetable Substances, and particularly from the Alterations, of which several Parts of analysed Plants are susceptible, that the volatile Salts, scattered in the different Portions of analysed Plants, may absorb, and keep conceal'd, those Acids which did not belong to them in the compound Body, as well as those which were naturally united to them before the Analyses, and which have risen along with them in Distillation. It appears also, that the Observation with respect to Acids, which on certain Occasions subsist together with volatile Salts, without being join'd to them, does not prove, that there are not other more disentangled Acids, which may sometimes be join'd to them; and that the less, because I have shewn that these very Acids, which had not as yet contracted an Union with these Salts, did not fail to do so afterwards, when they had arrived at the same Degree of Freedom and Disengagement. It moreover follows from what has been said, that independently of volatile Salts, which very often are not found in several Portions of distilled Liquors, a great many Acids may be sheathed up in the said Liquors by simple oily Particles: Consequently, if no Acids appear, or an inconsiderable Quantity of them, in certain Portions of analysed Substances, which are impregnated with volatile Salts, or oily Substances, we have not from thence a Right to conclude, either that such Portions contain no Acids at all, or that they contain none but such as appear. We should often fall into palpable Mistakes, if, in computing the Degrees of Acidity in a Plant, we should take our Estimate from those Acids discovered by the Analysis of that Plant; for Instance, the Leaves of Sorrel yield a very sour Juice, in which, if one was to judge by the Taste alone, he would conclude there was a great Quantity of Acid: Besides, when the essential Salt is drawn from that Juice, its Crystals are four, and resemble Cream of Tartar. In a word, every Circumstance declares, that this Plant yields Acids, and that in the different Portions of Liquor, raised by the Distillation of it, Acids will always be particularly discovered; yet as Sorrel also yields a great deal of volatile Salts, which diffusing them-

selves almost every-where, as I shall afterwards shew, cover and sheath up at least a large Share of the Acids, with which they ascend, if one was to over-look this Circumstance of the Salts, and allow one's self only to be guided by Appearances, we might possibly be induced to think in examining the different distill'd Portions of several Sorts of Sorrel analysed at different times, and at different Ages, that this Species of Plant contained fewer Acids, or yielded less of them in Distillation, than other Plants, which in reality contain a great deal less, and in Distillation yield a smaller Quantity, but in such a manner, that each Acid at that time finds nothing in the distill'd Liquor, which can hinder it from appearing what it really is: And what, in my Opinion, plainly proves that according as the volatile Salts of the Sorrel are more or less diffused and distributed with the Acids in the different Portions of the Analysis, so the fewer or more Marks of an Acid this Plant must afford; what, I say, in my Opinion, proves this, is a Reflection upon the two following Experiments; an Account of which will not perhaps be disagreeable. When we analyse the Leaves of Sorrel by means of a Retort, and a common Fire augmented by Degrees, after the first Portions are drawn away, the distill'd Liquor ordinarily has the Marks of volatile Salts, which rise at first, which continue to do so afterwards, and which towards the Close of the Distillation come in still greater Abundance, either under a liquid or a dry Form. As for the Acids, the first Portions of the distill'd Liquor have no Marks of them. The succeeding Portions have also very often but faint Marks of them, and, after they are kept for some time, none at all, and that for the Reasons already assign'd. But if instead of a common Fire we use a Bath-heat for the Distillation of the Leaves or Juice of Sorrel, the gentle Heat of it, sufficient for the first volatile Salts which have been mentioned, that is, for those which rise first, and with most Ease, but insufficient to disengage, and raise, at least to any considerable Degree, the Acids of the Plant, will by that very means lay a Foundation for both to rise at different times; for by still carrying on the Distillation with a stronger Fire, the Liquor which will next succeed, and contains fewer volatile Salts, because a great Quantity of them have already been raised in the first Portion of the Distillation will give more considerable Marks of Acidity, than if the Analysis of the same Plant had been carry'd on in the ordinary manner.

The other Experiment is this: If instead of analysing fresh Sorrel-leaves, we begin by allowing them to macerate for a considerable time, so that the Fermentation, which is often a sort of, or Beginning of, the Analysis, may have laid a Foundation for the Disengagement and Evaporation of a certain Number of volatile Salts; and if after this natural Operation we proceed to distil the Leaves of Sorrel, whilst they are in this State, in the ordinary manner; and if we compare this Analysis with that of the same fresh Sorrel which has suffer'd no Maceration, we must acknowledge, that the macerated Sorrel affords, both in the Beginning and whole Course of the Analysis, not only a great many more Marks of Acids than the other, but that it also affords fewer Marks of volatile Salts, and that only towards the last Portions; whereas without Maceration it would have yielded volatile Salts from the very first, as I have already observed. In a Word, these two Analyses of the same Plant resemble one another so little, that one would readily take them for the Analyses of two different Plants, which may indeed differ less from each other, than these different Analyses of the same Plant. We have still a great many more Plants naturally loaded with Sal Ammoniac, the Fermentation of which causes a great Quantity of volatile Salts to exhale, and by that means lays a Foundation for a great deal of the Acids of the Plants to be discover'd in the Analysis. This Fermentation also often is the Cause that a particular Plant analysed, gives some Marks of Acids, which without this Assistance would have afforded none, as I shall shew in another Place, where an additional Proof may be found, that there are a great many Acids so well wrapt up by the great Number of volatile Salts, which have ascended with them in the Distillation of the Plant, that one could not have suspected them to be lodged in the same Place without that Train of Reflections which naturally give Rise to the Experiments and Observations to be made in their proper Place.

The Case is not the same with the Juice of Lemon, as with that of Sorrel; for though they be both very sour, yet that of the Lemon differs from the other, as it affords very few Marks of a volatile Salt; from which Circumstance two very considerable Differences result, in the Analysis of each of the Juices. The first is, that, in the Lemon Juice, the Acids, rising alone, and without any Mixture capable of absorbing them, are infinitely better discovered, and, appearing from the very first Portion, continue to augment to the very last: Whereas Sorrel, when analysed, ordinarily gives no Marks of Acids, or very faint ones; but, in Recompence, it is richly impregnated with volatile Salts. The other Difference is this, that tho' the Lemon Juice has been left in Maceration for a considerable

derable time, yet the Acids, afterwards drawn from it by Distillation, do not, upon that Account, appear either more disentangled, or in greater Abundance, than those which come from it before it is subjected to Maceration; which is quite the Reverse of what we have observed in the Analysis of fermented Sorrel. This may be very well accounted for, from what has been said; for if it is true, that the Fermentation, preceding the Analysis of the Sorrel Juice, does not lay a Foundation for a greater Number of Acids appearing, but because it dissipates a great deal of the volatile Salts, which would have covered and sheathed up a good Part of these Acids; this Fermentation, I say, which is necessary for discovering the Acids of the Sorrel, is of no Effect for discovering those of the Lemon; which not being in the same State with those of the Sorrel, in point of the volatile Salts, and which rising naturally in Distillation, without being accompanied with volatile Salts, have no Need, like the Acids of Sorrel, of the Assistance of Fermentation, to give another Direction to these Salts, and turn their Effects another way. Hence we see, that the Analysis of Lemon Juice newly extracted, and of that which has been macerated, should not sensibly differ from each other, with regard to the Disentanglement and Quantity of the Acids, which are yielded by their respective Juices; and, consequently, what I have observed on the different Analyses of the Juices of Sorrel and Lemon, should naturally happen in the same manner, according to my Reasoning, which, in some measure, justifies it.

Moreover, in examining a great Number of Plants, naturally loaded with a great deal of essential Salt, and which was such, that its Acid, or at least a Part of its Acid, might easily be disengaged from its Matrix, during the Distillation of the Plant, and discover itself in the different Portions of the Analysis; provided it finds nothing there to hinder it, it appeared to me, that we might properly enough reduce to four Classes all the Differences observable in the Analyses of Plants, with regard to their Acids, and their volatile Salts, which do not always appear disseminated and scattered, in the same manner, in the different Portions of each Analysis; and which, in every Species of Distribution, have appeared, to me, to preserve a certain Order. 'Tis principally from the Analyses which the late Mr. *Bourdelin* has made, that I have drawn the following Observations.

I make the first Class to consist of those Plants, which, in the Analysis, do not ordinarily give Marks of a volatile Salt, or at least give but very faint and languid ones, which may pass for nothing; such are Rennets and Calville Apples, dry Martin-pears, and Frankreal-pears, &c. In these kinds of Plants the Acid appears sensibly, from the first Portion of the Analysis, and continues to appear all along, more and more, to the very End, when it still abounds more, and is better discover'd, because it has nothing to hinder it from so doing.

The second Class consists of such Plants as give more or less volatile Salts, but do not yield them till towards the End of the Operation. In this sort of Plants, the Acid generally discovers itself from the Beginning of the Analysis, and continues to do so still more and more, till it arrives at that Portion in which the volatile Salt begins to rise; and then the Acid either appears no more at all, if the volatile Salt is in great Quantity, or appears always much less than it would have done without the Company of the volatile Salt. It even often happens, that we discover Marks of a volatile Salt, and an Acid, in one or two Portions which come before the last: And for the last Portion itself, which is far more richly impregnated with volatile Salts than the other two, and which boils and ferments very strongly, as soon as the least Acid is poured into it, it so well conceals the Acids it has received from the Plant, that they cannot be perceived; tho', from other Circumstances, we have strong Proofs that it really contains more of them than any of the preceding Portions. We find Examples of this second Class, in the Analyses of the white Leaves of the Wild and Garden Succory, of Periwinkle, of Chervil beginning to flower, of Celery, of Roman Lettice, of Fumitory become hard, and beginning to bear Flowers and Seed, of Peruvian Bark infused in Water, of Gentian-roots, of Polypody, of Turneps, of Rampions, of Dwarf Sun-flower, of Liquorice, of Violet-flowers, of Colts-foot, of Elder, of Peaches, of Roses, of Artichoke Bottoms, of Melons, of Cucumbers, of Chestnuts, of Apricocks, of red Goose-berries, of fresh, but ripe Elder-berries, of unripe Grapes, of Buckthorn, and many others.

The third Class does not differ from the second, but in this; that the volatile Salt which, in the former, did not discover itself till towards the End of the Operation, discovers itself in the Beginning in this. As for the Acid, it often appears from the first Portion, notwithstanding the Mixture of the volatile Salt, and often it cannot be discovered at that time; but in the remaining Course of the Analysis it is found alone, or, at least, we observe nothing along with it; and that even to the End of the Process, when the volatile Salt begins again to appear, and produce the same Effects, attended with the same Circumstances as in the former Class. If any one desires Examples of this third Class, he needs only consult the ordinary Analysis of white Suc-

cory, of *Carduus Benedictus*, of the red Beet, of Spinage, of young Onions, of Sage, of Parsley-leaves, of the Flowers of Lilly of the Valley, of Cherries, of Heart-cherries, and several others.

The fourth Class differs from the preceding, not only because the Plants, which are comprehended under it, yield, in Distillation, much more volatile Salt than those comprehended under the other Classes; but also, because that Salt is more diffused through the succeeding different Portions of each Analysis, of which there are few in which it does not discover itself; and of which there is not, for the most part, one which is not very much impregnated with volatile Salt, or which does not give evident Marks of it. As for the Acid, it shews itself, more or less, in every Portion of the Analysis, in Proportion to the Quantity of volatile Salt with which it is lodged. For Instance, tho' the Analysis of Wheat, of Rice, of Barley, and of Oats, yield, almost in all their distill'd Portions, Marks of a volatile Salt, yet the Acid does not fail to appear also, and even often continues to shew itself, from the first Portion to the End of the Process; at which time the volatile Salt abounds so much, that it entirely sheaths up the Acid which is in them. Borrage, on the other hand, and Bugloss, which, from the Beginning of their Analysis, give strong Proofs of a volatile Salt, do not discover their Acid till towards the Middle of the Operation; that is, about the middle Portions of the Analysis, when the volatile Salt begins to abound less. It sometimes happens, that in one, or, at most, two of these Portions, the Acid appears alone; but if it appears afterwards, 'tis always accompanied with a volatile Salt, and that to the very Portion which comes last, or last but one, in which the volatile Salt is found in great Abundance, and makes the Acid entirely disappear. Some other Plants which still yield, in Distillation, more volatile Salts than Borrage and Bugloss, give, for the same Reason, much fewer Marks of Acids than those Plants do, as may be seen by the Analysis of the Leaves and Stalks of white Garden Orache, when it is young, and only four or five Inches high. This may be likewise seen in the Analysis of Radish, of Hops that are young, tender, and only five or six Inches high, of the speckled Nettle, of Pellitory of the Wall, of Colly-flowers, of the Stalks of Artichokes, of Gourd-seeds, and several others.

However, 'tis in vain to examine, with all imaginable Care, all the Portions of the Analysis of certain Plants, which, to speak the Truth, have, to me, appeared very few in Number; and which, containing naturally more Sal Ammoniac than those preceding, yield also, in Distillation, more volatile Salts, since we find that they discover no Marks of an Acid; and if we did not know, that these Portions of distill'd Liquor were the Product of a vegetable Substance, and were to reflect only on the prodigious Quantity of volatile Salt which they contain, and their entire Privation of Acids, we should make no manner of Doubt, but they belonged to some animal Substance. The Plants I have in View are Mushrooms; Garden Purslane, very tender, and about two Inches high; the Stalks and Leaves of Fumitory that is young, tender, beginning to flower, and about ten or twelve Inches high. Yet tho' these Plants do not, in their Analysis, discover any Acid, we have proved, that no one has a Right, from that Circumstance, to conclude that they contain none; since the volatile Salt, which is found in great Quantity, in the different Portions of the Analysis, may cause the Acid contain'd in them to disappear. And, without having recourse, at present, to the strong Reasons which will be alledged in their proper Places, and by which we shall see plainly, that there is neither Plant nor Animal, from which the ordinary Analysis does not make an Acid rise, and sometimes in very great Quantities, tho' there afterwards appears to be very little, or none at all, in the distilled Portions, we may convince ourselves of this Truth, by considering what happens in Fumitory, Pellitory, and Mushrooms, when allowed to ferment before they are analysed; for when the Fermentation has had time to detach, from the Sal Ammoniac of these Plants, a certain Quantity of volatile Salts, and keep them from being subjected to the Analysis which is to succeed the Maceration, this Analysis does not then fail to give Marks of Acids, which, indeed, are faint and languid; but which, at the same time, it would never have given, if it had been allowed to have all the Store of volatile Salts, which it must have naturally had, without the Maceration. There is also an Observation upon Lettice, which, in my Opinion, deserves our Consideration, since it has a very near Relation to the Subject in hand.

The Analysis of this Plant, like the Analysis of many others, varies in Proportion to the Age, and different Parts of the Plant: For Instance, its Root and Stalk yield much less volatile Salt, and give much stronger Marks of Acids than the Leaves; and the younger the Lettice is, the more volatile Salt it yields, and the fewer Marks of Acids it affords in Distillation; so that we find a very considerable Difference betwixt the Analysis of small young Lettice, and that of the very same Lettice when full grown and flowering; yet as this Plant, in all its different States, never fails to yield a great Quantity of volatile Salt,

Salt; the Quantity of that Salt lays a Foundation for our thinking, that the Analysis of Lettice allows fewer Acids to appear than it really contains; that is, fewer are actually raised in its Distillation. This may be sufficiently proved by the following Observation upon the Leaves of Lettice, in two different States; in which, when analysed in the ordinary manner, they yield the strongest Marks of a volatile Salt, and the least Signs of Acids. First, when the Plant is very small, and ready to be transplanted in Ranks, in order to be made to cabbage: Secondly, when it is just cabbaged, tender, and in its best State for Sallad. This Plant, analysed in these two different States, yields very faint Marks of Acids, till the last Portion but one; but yields, thro' the whole Operation, a great deal of volatile Salt; and the young Kind yields still more than the other, as I have already observed; which Circumstance inclines me to place it in the fourth Class of Plants, in the Analysis of which the Acid appears very little, or not at all. But the following is a new, and hitherto unknown, Method of making the Acid of the Leaves of Lettice appear vastly more than it does by any other Process. Instead of carrying on the Analysis of the Leaves all at once, by a single Operation, and in one Retort, the Juice must first be strongly expressed, and put into a Retort; and the bruised Leaves, after Expression, are to be put into another; and then both must be subjected to Distillation; thus performing by two Operations what others do by one. In examining each of these Analyses, I have observed that of the Juice of the Leaves of cabbaged Lettice to bear a strong Resemblance to that of the entire Leaves, when full of their Juice; that is, this Analysis yields, thro' all its Stages, a great deal of volatile Salt, and very few Marks of Acid; and that only in one Portion; whereas the Analysis of the expressed Leaves, being divided into thirteen Portions, shews no strong Signs of a volatile Salt but in the last, and some slight Marks of it in the last but one, and in the three first; but the Acid shewed itself in all the Portions except the last, and in several of them it appeared very evident, and in great Quantity.

I observed very near the same Differences in the Distillation of the Juice, and the expressed Leaves of the small Lettice; whence it appears very plainly, that if the whole Quantity of Acid, which discovers itself so clearly in the Analysis of the expressed Leaves of Lettice, be so obscurely perceived in the Analysis of the same Leaves, when entire and full of Juice, the Reason is, not because all that Quantity of Acid is less really existing in the different Portions of this last Analysis, than in that of the expressed Leaves; but because it is suppressed and absorbed by the great Number of volatile Salts, afforded by the Juice of the Plant, which must, of necessity, be wanting in the Analysis of the expressed Leaves, these being deprived of their Juice.

To proceed; what more augments the Quantity of Acids, concealed and contained in the different Portions of the Analysis of the Leaves of the Lettice, is, that besides those just now observed, which the expressed Plant affords to those Portions, they will receive a considerable Increase from the Juice: For tho' this Juice, analysed by itself, manifests but very little Acid, it will be easy to perceive a greater Quantity of them, if you cause this Analysis to be preceded by such an Operation as was performed upon the Juice of Sorrel, and upon several other Plants; which is, to let the Juice macerate for a sufficient time, or to evaporate a good Part of it in Balneo Mariæ.

If then Lettice, in which the Taste and common Analysis indicate so few Acids, do yet contain, and actually yield a great Quantity of them in the different Portions of their Analysis, as has been proved, we have Reason to suppose the same thing of several other Plants, which are in the same Circumstance with the Lettice, with respect to the volatile Salts, which abound in their Analyses, and the Quantity of essential Salts, with which these Plants are naturally impregnated; for the Quantity of Acids must bear a Proportion to that of these Salts, as we shall now shew, in giving the Reasons of a very common Observation upon the Analyses of vegetable and animal Substances compar'd together.

We have already observed in the preceding Memoir, and the Beginning of this, that animal Substances in general shew so few Signs of Acids, in all the Portions of their Analysis, performed in the common way, that if we were not otherwise convinced, that they really contained a great Quantity, but were to refer ourselves for Proof wholly to these Analyses, we should absolutely deny, that there was any Acid, if not in all, at least in the greatest Part of these Substances: But the Case is not the same with vegetable Substances, analysed like the preceding; for it is observed, that the greatest Number of these Substances disclose a good Quantity of Acid; that there are but few of them which manifest but a very small Quantity, and yet fewer which exhibit none at all.

The most easy and obvious Hypothesis, to account for this Difference in the Analyses of Plants and Animals, is, that Plants in general contain a far greater Quantity of Acids than Animals; and consequently the Portions of their Analyses being much more impregnated with them, it is natural, that they

should also manifest them much more. But we have already shewed, both in this and the preceding Memoir, that if we always judge of the Quantity of Acids contained in any Substance, by the Signs of it which appear in the Analysis, we should frequently be exposed to Mistakes; and so much the more, because there may be a Substance which discovers little or nothing of Acid in Distillation, and yet may contain more, or at least as much of it, as another Substance, whose Acid manifests and displays itself in every Portion of its Analysis. This may well be the Case of animal Substances, with respect to Vegetables; and, indeed, there are few Plants from which we can extract more Acids than from a great Number of animal Substances, by means of certain Processes. We shall not here enter into a nice Detail of Acids, which is so much the less necessary, as our Business is not to compare Plants with Animals in particular, but to make a general Comparison of all vegetable with all animal Substances: But we may always know in general, by what Rule to guide our Judgments on that Subject, by considering the natural Composition; and relative Quantity of the two Salts, which prevail in both the Substances in Question. As to what regards the natural Composition of these Salts, we have shewn, that what abounds in Animals is a true Sal Ammoniac, that is, a Compound of Acids lodged in a volatile Matrix; and that the Salt which prevails in Vegetables, is also a Compound of Acids lodged in a fixed Matrix. The Matrix of each of these Salts, then, being a kind of Magazine of Acids, and those very numerous, as Experience demonstrates, tho' we had not found the Secret of extracting a great Quantity of Acids from animal Substances, they may yet be supposed to contain a good Quantity of them, merely from this Consideration, that they are impregnated with a great deal of Sal Ammoniac. To know whether they contain less than Vegetables, let us consider, first, that Animals being nourish'd with Plants, or other Animals who themselves lived on Plants, the Parts of the Vegetables pass with their Salts into the proper Substance of the Animals; consequently the Acids pass thither, and may there be found again. This being the Case, we see no Reason why there should be a less Quantity of Acids in the animal than in the vegetable Kingdom; or, to render the Comparison more sensible, why an Animal which lives but upon one or two sorts of Plants, and receives into himself all that is in these Plants, should contain fewer Acids in all his Parts, than an equal Weight of Vegetables in all their Parts. In short, all the Alteration that happens to Salts of Vegetables, in their passing into Nutriment for Animals, is, that their Matrix, which was fixed in the Plant, becomes volatile in the Animal; and for the same Reason, that the Matrix of Sal Ammoniac becomes fixed, in passing from Animals into Plants. But this Change in the Matrix of vegetable Salts has no relation to the Quantity of their Acids, which may as well reside in a volatile as in a fixed Matrix; and it should seem even possible for them to be contained in greater Quantities in a volatile than in a fixed Matrix, as we shall presently shew by sensible Experiment.

We shall observe, in the second Place, that when we consider, and compare together, the Juices of Animals and Plants, which are our ordinary Nourishment, it does not appear, that Plants are more impregnated with Salt than Animals; the Taste might even seem to indicate, that there are more aqueous Parts, and less Salt, in Plants than in Animals. But supposing the Quantity of Salt to be equal in both, it is easy to shew, that any Portion of the Salt, which is predominant in Animals, contains as much Acid as the like Portion of the Salt which abounds in Vegetables. Experience might even make us believe, that it contained much more; and that, even when the Portion of Sal Ammoniac contained, for Instance, in a Pound of animal Substance, is less, by half, than that of another kind of Salt lodged in a Pound of vegetable Substance, the animal Substance, by virtue of its Salt, should contain more Acids than the vegetable. There is no other way to come to a Certainty in this Matter, than to chuse two highly alkaline Salts, one fixed, and the other volatile; for Example, the Salt of Tartar, which is known to be the most powerful Alkali among fixed Salts, and the volatile Salt of Peach-flowers, which is also one of the most powerful Alkalies amongst volatile Salts. If an equal Quantity of these two Salts be saturated with the same acid Spirit, the Spirit of Salt, for Instance, you will find, that one Dram of Salt of Tartar requires two Drams and a half of Spirit of Salt; and one Dram of volatile Salt of Peach-flowers requires eight Drams of the same Spirit: Hence it appears, that, taking equal Quantities, a volatile Matrix absorbs and contains abundantly more Acids than a fixed Matrix; and, consequently, that a Quantity of the Sal Ammoniac, which is predominant in Animals, is so far from containing fewer Acids, that, on the contrary, it contains more, than the same Quantity of Salt which resides particularly in Plants.

In short, tho' one should suppose gratis, and without solid Foundation, I might even venture to say, in spite of Experiments to the contrary, that there are generally more Acids in Vegetables than in Animals, the Supposition must be carried to

to an excessive Length, and beyond all Probability, to account for what we commonly observe in the Analyses of Animals; that is, why the same Process always shews, or very seldom fails to shew, the Acid in Vegetables, and commonly in great Quantity, and seldom or never shews it in Animals. One might even say, that if there were no other Difference between Plants and Animals, than that of their being more or less stocked with Acids, Animals might not indeed afford so many Marks of them in their Analyses, as Vegetables, but they would always give Marks of some Acids, either more or less, and their Analyses would not be so uniform as they are, without discovering any at all, without the Help of Mediums, of which we shall take Notice hereafter. We must then have recourse to another Cause than what has been assigned, to explain the Difference which we find between the Analyses of Plants and Animals; and we shall now shew, that, supposing as great a Quantity of Acids, at least, in Animals as in Vegetables, all that we observe in their Analyses ought necessarily thus to happen, according to our way of Reasoning, which is a natural Consequence from what has been said in this and the preceding Memoirs.

That the Acids, contained in the Compound, might shew themselves in the several distilled Portions of its Analysis, it is not sufficient, that each Portion be really much impregnated with it, but it is also necessary, that the Acids should be more free and disengaged in every Portion of the Analysis, than they were in the very Bosom of the Compound. To give an Example: As long as the Acids of Saltpetre are lodged in their natural Matrix, they shew no Signs of Acidity; but they exhibit very many when the Distillation has disengaged them from that Matrix, which remaining at the Bottom of the Vessel because of its Fixity, resides no more with them in the same Place. For it is to be observed, that if this Matrix, instead of being fixed, had been volatile, it would have risen with them, and always have rendered the Acids imperceptible; which is easily proved, by urging with Fire Sal Ammoniac after two different manners, that is, alone; and with a fixed and alkaline Medium. And, indeed, if we suppose the Operation to be made without a Medium, the Sal Ammoniac will rise entire; and the Acids not having been disunited from their Matrix, they will be found again together on the Sides of the Head, nearly in the same State, and as much encumber'd as they were before the Sublimation; and if, before you subject the Matter to the Fire, you mix it with Water and a Medium, a great Part of the Acids will remain at the Bottom of the Vessel with the Medium; and if the volatile Salt should carry off some Acids with it, they will be less in a Condition to appear after, than before the Operation, because the Quantity of these Acids will be then much inferior to those which resided in the Matrix. Hence it follows, that if we suppose a Mass of Sal Ammoniac to contain twice or thrice as many Acids as another Mass of Salt, such as Saltpetre, that is, such a one as shall have a fixed Matrix, all that shall be elevated from the Saltpetre by the Action of the Fire, will give infinitely more inconsiderable Tokens of Acids, than what shall proceed by Distillation from a Mass of Saltpetre mixed with a convenient Medium, beforehand.

This is exactly what happens in the ordinary Analyses of Vegetables and Animals; and tho' we should suppose in these last as many or more Acids than in the others, and should imagine, that there arise from them in Distillation, as many and more Acids than from Vegetables, yet, as the Salt of which they are particularly composed is Sal Ammoniac, the greatest Part of the Acids, which rise by means of the Distillation, thus rise with their proper Matrix, from which they were never separated; for which Reason, the Operation contributes nothing at all to the making of them more perceptible than they were before. As for the Acids which were separated from their Matrix, and were sublimed by themselves, and commonly at the End of the Operation, they always find in the Receiver a much greater Quantity of volatile Salts than is necessary to absorb them; and they never fail of being absorb'd, if you don't take care expeditiously to separate these Acids by way of Rectification; and oftentimes, how speedy soever you are, either the Acids have already disappeared, or you can perceive but very few of them. This gives Occasion to observe, that when the Analyses of Animals manifest some visible Acids, they are never such as rise with their Matrix, and never abandon it, but such as, after having been separated from it, came over at the End of the Operation, in proportion to the Heat of the Fire. Therefore if you have a mind to have a greater Quantity of these Acids appear, you must labour to disunite a great Number of them from their Matrix, to make them rise separately, and to prevent their Reunion. A Method not commonly used in analysing animal Substances, the Neglect of which will render a Part of their Acids imperceptible, is as follows:

The first Step in this Process is Maceration, which produces in animal Substances what we have already observed it to produce in Vegetables, that is, it makes way for a great Number of volatile Salts to disengage themselves from their Acids, and

to disperse themselves in the Air, or renders them more disposed so to do upon the least Heat. By this means you set at Liberty a certain Quantity of Acids, which could never have been done without it. For Example: It is observed, that when Urine is new, and has not fermented, its Phlegm rises before its volatile Salt, and that it shews no Sign of Acids; but when it has fermented, its volatile Salts rise first, then its Phlegm, and, lastly, a red Liquor, which is manifestly pregnant with Acids.

The second Step is, to intermix a fixed and alkaline Medium with the animal Substance which is to be analysed, in order to disengage a greater Quantity of Acids from their volatile Matrix, and to put them in a Condition of rising afterwards separately, and to be distinguished from it.

The third is, in the Beginning of the Distillation to make use of a Heat so gentle as to be only capable, as I may say, of raising the volatile Salts, with Intent that the Acids, which will come over afterwards with a stronger Heat, may be accompanied with a less Quantity of volatile Salts; and so being less confounded with them, may make themselves more easily known.

The fourth is, to increase and continue the Fire for a long time, and at last to carry it to the utmost Degree of Violence, in order to release the Acids which were detained by the earthy Part of the Compound, and without this Assistance would never rise, or rise in so small a Quantity as hardly to be distinguished. 'Tis oftentimes for want of this Circumstance, that the Acids of animal Substances fail of appearing in their Analysis; for those Acids which come over towards the End of the Operation, are the only ones which can be made to appear, because no others have been well disengaged from their volatile Matrix.

Lastly, As soon as Distillation is finished, we must set about Rectification, especially of the last Portions, in order to separate as speedily as possible the Acids, which lie there confounded with the volatile Salts, and not give them time to reunite with their first Matrix.

This Method being regularly observed in the Analysis of animal Substances, if we should not be able to extricate all the Acids, we shall however always discover a great Part of them.

As to what regards, at present, the Analyses of Vegetables, the greatest Part of their Salt being the Opposite of Sal Ammoniac, or, what amounts the same, the most part of their Acids being naturally engaged in a fixed Matrix, when the Fire has disengaged and carried them aloft, they don't find their Matrix again in the Receiver, nor rise with it, as do the Acids of Animals; hence they lie more open than those Acids, and more easily preserve themselves in that bare and open Condition in which they were put by the Fire. 'Tis true, however, and we have already observed it, that several Plants yield volatile Salt in the Analysis, and oftentimes enough even to make great Part of their Acids to disappear. But it must be considered, that as Plants naturally impregnated with Sal Ammoniac never contain so much of it as Animals, and that as their Sal Ammoniac is always joined with a much greater Quantity of another Kind of Salt, which is not in Animals, so they not only have always fewer volatile Salts, but also the Proportion or Quantity of these Salts, with respect to that of the Acids, is always less in the different Portions of the Analyses of Plants than of Animals. And indeed the volatile Salts raised from an animal Substance by Distillation, have scarcely, to speak properly, any thing in the distilled Liquor to balance them, except the Acids, which they before contained in the Compound, and which, in this very Liquor, are found in less Quantity, in proportion to the volatile Salts, than in the Compound itself, as we said before; whence it comes to pass, that these Salts are always more than sufficient to answer the Acids, and consequently to make them disappear. But for those volatile Salts, which come over from a vegetable Substance, besides the Acids which they contained in the Vegetable itself, they are also to answer to those which proceeded from another Matrix, I mean a fixed Matrix, which is the most plentiful Source of Acids in the vegetable Kingdom. Wherefore as these Salts are not sufficient at once for two Sources of Acids, so the same Process, that will hardly render manifest any Acids in animal Substance, shall commonly make them appear in Plants which yield the most volatile Salts. And if it happens, in some Analyses of Plants, that the Quantity of volatile Salts is large enough to hinder the Acids from rendering themselves perceptible in the Process just before-mentioned, which very seldom happens if we use the same Method upon those Species of Plants, which we before recommended for discovering the Acids of Animals, we shall find by Experience, that this Method will still meet with fewer Obstacles, and consequently still operate with more Dispatch, both upon Vegetables and Animals.

We have no more to do at present, but to make some critical Reflections on the Analyses of Plants, with respect to the Acids raised from them by Distillation. And, first, when we consider only the Acids which offer themselves to View in these Analyses, without looking any farther, or at least with-

out duly reflecting, that there are always in a Plant concrete and essential Salts, which actually contain large Quantities of Acids, such as Saltpetre, from whose Bosom the Acids we speak of proceed, we might be ready to imagine, that those Acids, which the Analysis represents to us under a fluid Form, disengaged from earthy Matter, and sufficiently free and disclosed, were after the same manner in the Plant itself; and that they were not there lodged, as they really are, in a solid Matrix, in Conjunction with which they formed a concrete Salt.

A second Error into which the Analysis might be ready to lead us, is concerning the Quantity of Acids which offer themselves to our Senses. Here perhaps we may inconsiderately assure ourselves, that some Plants contain more or fewer Acids than others, according to the Measure of what we see in them; but how 'tis possible for us to be mistaken on this Subject, has been sufficiently proved in the Course of this Memoir.

We shall observe, in the third place, that the Acids which are dislodged by the Analysis from the fixed Matrix, do not always remain in that destitute State, but frequently possess themselves, as we have said, of other Matrices, either saline and volatile, or purely sulphureous, with which they form new Compositions. So that all these Metamorphoses, which are the Effects of the Analysis, cannot chuse but deceive us as to the natural Order and Disposition of the Parts of the Plant.

Lastly, the Analysis of Plants plainly lets us see the Acids in them; but these Acids are so much blended and confounded with other Substances, that it is impossible to distinguish their particular Character; and thus all Plants appear to us, by this way, to contain the same Acid. It is however a Matter of Importance to understand and distinguish the particular Nature of the Acids of Plants, such a Knowledge having a great Influence towards an Insight into their Virtues; for it is very true, that different Acids, lodged in the same Matrix, form Compounds of very different Properties; for Example, natural or artificial Saltpetre, and vitriolated Tartar, have the same Matrix, but by no means the same Virtues. Mercury, penetrated by the Acids of Spirit of Salt, is much more corrosive than when it is impregnated and covered with those of Spirit of Nitre; consequently two Plants, whose Effects are different, and, which in regard to their Analyses, do not appear to differ in Nature, nor even in the Quantity of their Acids, may yet differ very much in this respect, and to this Difference be accountable, if not wholly, at least in part, for the Difference of their Effects. If to what has been said on the Comparison of the Acids of several Plants, we add the false Resemblance which Analyses may represent to us, in comparing other Substances of which each of those Plants are compounded, and which, tho' really different in the natural State of every one of those Plants which are thus compared, do yet appear, after the Analysis, under a like Form, this Reflection may perhaps serve to account for the Observation made on *Solanum furiosum*, and the *Brassica capitata*; one of which is Poison, and the other Aliment, and yet in their Analysis they produce Substances so much alike in Appearance, that you would say, these two Analyses were made of one and the same Plant. *Memoires de l'Acad. Roy. des Scienc. 1721.*

In the Course of this Work, I have been obliged to give such Analyses of Plants, Animals, and Minerals, as I could find in the best Authors; and amongst others, in *Tournefort*, who has employed some Methods of examining into the specific Natures of Plants, with which the Reader must be made acquainted, in order to his understanding the Inferences from the Experiments he will meet with. I shall therefore insert the following Extract from the Preface to Dr. Martyn's *Tournefort*.

1. By the Chymical Analysis of Plants is meant, the Separation of their Principles, by means of Fire, and proper Vessels; to which End we distil fresh Plants in an Alembic, or in *Balneo Mariae*: Or before you proceed to distil them, they are to macerate or digest for some time, according to the Nature of the Plants, or the Intention that you have: It is proper to separate the Substances which are obtained from it, into Portions of four or six Ounces, the better to examine separately their Characters. You commonly draw off by this means the Phlegm, the spirituous Water, or the burning Spirit of Plants; when the Distillation is ended, you put the *Residuum* into a Retort, and giving Fire by Degrees, you draw off from the generality of Plants an urinous Spirit, a volatile concrete Salt, and a fetid Oil.

From the Caput Mortuum lixiviated, we separate by Filtration and Evaporation the Salt that was mixed with the Earth.

2. By acid and alkaline Salts, are meant those two Kinds of Salt, to which the Physicians and modern Chymists have given these Names. See the Articles ACID and ALCALI.

3. By essential Salt, is meant that which forms itself by the Crystallization of the Juice of Plants: We find this essential Salt in the Extracts of such whose Juice does not crystallize.

4. By the volatile Salt of Plants, is meant the Salt, which, in the Distillation of Plants by the Retort, sticks to the Sides of the Receiver.

5. By the fixed Salt of Plants, is meant the Salt which is made by Elixivation of the Ashes of Plants burnt, or from the Caput Mortuum of those which are analysed.

6. To discover the Acids, we have not only made use of Salt of Tartar, Lime-water, Spirit of Sal Ammoniac, and such-like Substances, with which Acids generally ferment; we use likewise the Solution of Turnsole, or blue Paper, which is nothing else but common Paper, coloured with Turnsole, dissolved in common Water; the alkaline Salts make no Change on the Turnsole; the Acids, according to their Strength, reddens it by Degrees, from a very faint Red to a very lively one: You meet with the Turnsole commonly at the Colour-shops; they are little Cubes of a deep-violet Colour, and give a blue Tincture; but it is a Colour the most susceptible of Alteration that I have yet found; for the weakest Acid will change it: Milk is also sometimes made use of, to try if certain Acids will curdle it.

7. To discover the alkaline Salts, we have used not only the Spirit of Nitre, of Salt, of Sulphur, of Vitriol, and other Acids, with which Alkalies commonly ferment; but also of corrosive Sublimate dissolved in common Water: Acids do not at all change the Colour of this Solution; but it becomes obscure, milky, yellow-orange-coloured, and curdles according to the Strength of the alkaline Salts: These Salts also change white, green, or curdle the Solution of Galls, and that of Copperas; but these two last Experiments are not so certain as those of the Sublimate; for there are some Acids, as we shall see hereafter, that change also the Solution of Copperas, and the Infusion of Galls.

8. As Sal Ammoniac discovers itself by its volatile or urinous Salt, Oil of Tartar, or Lime-water, has been used to discover whether there be any Sal Ammoniac in certain Plants; for then they emit an urinous Spirit, like that which exhales from Urine, or Sal Ammoniac, when they are mixed with Oil of Tartar, or Lime-water: Lime-water and corrosive Sublimate, combined in a certain manner, with a Solution of Sal Ammoniac, distinguish also the Nature of the Sal Ammoniac; for the Solution of this Salt, mixed with Lime-water, hinders its becoming Yellow, or Red-orange: When we pour on the Solution of Sublimate corrosive, the Whole becomes white as Milk; on the contrary, Lime-water, mixed with the Solution of Sublimate, turns yellow or red as before, altho' it is join'd to that of Sal Ammoniac. Thus, as the urinous Salt of Plants is not altogether without Acid, I believe it is better to say, that a Plant acts by a Salt approaching to Sal Ammoniac, than by a pure volatile Salt; and so much the more, because the Plants which yield a concrete volatile Salt, reddens the blue Paper in like manner as Sal Ammoniac does, except where a great Quantity of Oil smothers the Acid, and hinders its Appearance.

9. As Nitre discovers itself by Detonation, I believe the best means to know nitrous Substances certainly, is to throw them upon burning Coals.

10. Every body knows, that the most remarkable Property of Vitriol is to blacken the Infusion of Galls; therefore we ought to mix the Bodies which we examine, with this Infusion.

11. To know whether there be Sulphur in any particular Body, it seems to be the best way, to put it in Digestion in good Spirit of Wine, to see if it draws any Tincture: The Readiness which these Bodies have to catch Fire, is also an Indication of Sulphur. The dry *Elatarium* burns at a Candle; the Extract of *Sedum majus vulgare*, C. B. does not burn at all; therefore the first contains a resinous Matter, which we do not find in the other. The oily Substances become soapy when they are mixed with Lime-water, or Oil of Tartar.

The following Experiments may serve to shew the Nature of that Salt, which we can draw from the Earth, without the Help of Fire.

Take Plaster into a low Place, where there has not been any Chimney; pound it, and put it into a Pail of Water, covering it half a Foot: After an Infusion of four Days, if the Water does not afford any Sign of Saltiness, and does not change it at all by the forementioned Experiments, let it be put again upon fresh Plaster taken from the same Place.

The second Infusion grows a little reddish, acrid, saline and bitter.

1. It made but a faint Impression of Violet upon the blue Paper.

2. It did not curdle Milk at all.

3. It did not receive any Change from Spirit of Nitre.

4. It made the Infusion of Galls muddy, and rendered it whitish; afterwards it made a pretty thick Coagulum, followed with a Precipitation.

5. When it was mixed with Infusion of Vitriol, it became a dark, tawny Colour.

6. It rendered obscure a Solution of Sublimate corrosive.

7. The same Infusion, mixed with Oil of Tartar, instantly made a white Coagulum; immediately after was perceived a very considerable urinous Spirit. Mixed with Lime-water, it did the very same, without finding in either of these Experiments either Effervescence or Heat.

8. Substituted in the room of Sal Ammoniac, it whitened Lime-water, when it was added to the Solution of corrosive Sublimate; this White was not so lively as that which appeared by means of the Solution of Sal Ammoniac.

It appears by the fourth, fifth, and sixth Experiments, that the Infusion of Plaster contained an alkaline Salt; and by the seventh and eighth, that it contained Sal Ammoniac. The first discovered some Acid in the same Salt: This seems to be scattered through the Whole; for when they whiten old Houses with Lime, one may perceive an urinous Smell for a Day or two.

Beside Sal Ammoniac, the Infusion of Plaster evaporated yields Nitre, which discovers itself by Detonation: It is separated also from a marine Salt.

The Infusion of Earth, scraped from the high Roofs of Vaults, is found to be of the same Nature with that of Plaster. The Infusions used by the Saltpetre-makers of Paris, contain a fixed Salt, because they put a certain Quantity of Ashes in the Bottom of their Bucking-tubs, in order to purify the Saltpetre.

Beside the Infusion of Plaster, I made others with Earth of different Natures. To twenty-five Quarts of Water, I put to infuse twenty Pounds of Mould, from a Garden which had been neglected for many Years; after four Days Infusion, I passed it through a Strainer of Hair-cloth, and poured the Infusion again upon fresh Earth. The first and second Infusion did not undergo any Change with the common Trials. It was put again upon another Portion of Earth. I designed to have made still more Infusions, but the thing was hardly possible, because the Earth had consumed a great deal of the Water, notwithstanding the Precaution used to filtre it.

This last Infusion of the Earth was a little reddish, salt, and bitter; being half evaporated, it became like that of Plaster.

The Infusion of Earth taken from a Piece of Ground not dunged, that of Kitchen-garden Earth and Mould, afforded nearly the same Characters as that of Plaster, except that these last Earths sent forth an urinous Spirit more penetrating than that of the first: Besides, the Infusion of all these Earths whitened the Solution of corrosive Sublimate a great deal more than the Infusion of Plaster.

The *Natrum* or *Anatron* of Egypt made the same Alteration upon the Solution of Sublimate; and as in the *Levant* we find this Salt naturally in the Ground, it is no Wonder that it should have some Similitude with the Infusion of that of this Country.

The *Natrum* seems to be nothing else but a marine Salt, mixed with a natural alkaline Salt. These Salts are not perfectly united together; for if you go to steep a Piece of *Natrum* in Water, it dissolves at first only that which makes the least Resistance; and that Part being dissolved, you may see, in that which remains, a great many Cavities something like those of Sponges.

Natrum has the Taste of marine Salt, and crackles in the Fire; it makes no more Impression upon blue Paper, than marine Salt; it does not at all ferment with Spirit of Sal Ammoniac; it makes a white Coagulum with the Infusion of Galls; mixed with Lime-water, it does not hinder its turning yellow, when mixed with a Solution of Sublimate; marine Salt does the same; it ferments considerably with Spirit of Nitre, which marine Salt does not.

The Solution of *Natrum* renders that of Copperas of a very dirty Green, like Sea-green. This Change seems to indicate an alkaline Salt, since it comes to the same when mixed with Oil of Tartar, or Lime-water, with a Solution of Copperas; and this Sea-green is wholly destroy'd by the Mixture of Spirit of Nitre, which, uniting itself with the Oil of Tartar, causes it to part with the Copperas.

Upon these Experiments we have related touching the Infusion of Plaster, and of the different Sorts of Earth, we may reasonably advance,

1. That there is in all Earth, what we may call a natural Salt, whether the Earth has always been impregnated with it, or it is continually made by the Mixture of rotten Plants, the Dung of Animals, the Air, or other Causes which we are ignorant of. This Salt participates of Nitre, of marine Salt, or Sal Ammoniac, of Alum, and of Vitriol.

2. That in the Salt of the Earth there is an alkaline Salt, different from the Sal Ammoniac; for the Infusion of various Earths, and the Solution of *Natrum*, whitens the Solution of Sublimate corrosive, which the Solution of Sal Ammoniac will not do; on the other hand, the *Natrum* ferments considerably with Spirit of Nitre, and the Infusion of Earth, boiled a little with the same Spirit, which we do not find when we mix the Solution of Sal Ammoniac with Spirit of Nitre.

3. It appears also, that the Bodies which we draw from Earth, without the Help of Fire, afford us but small Signs of

Acid, except Alum and Vitriol. The following Observations are relating to common Salts.

I.

N I T R E.

1. Nitre makes no Impression upon the blue Paper, nor upon Solution of Turnsole, nor upon Syrup of Violets.

2. One cannot draw a Spirit of Nitre, without a very violent Fire: This Spirit reddens very lively the blue Paper, Solution of Turnsole, and Syrup of Violets.

3. Nitre inflames upon the Fire, and kindles readily: The Spirit of Nitre extinguishes it.

4. It does not curdle Milk: The Spirit of Nitre curdles it instantly.

5. It does not change the Colour of Ox's Gall: The Spirit of Nitre makes it red. I suppose, by the uniting itself with the acrid Salts, which had perhaps contributed to yellow the Sulphur of the Blood, it is a Means of making this Liquor return to its natural Colour.

6. It makes a white or greyish Coagulum, with Infusion of Galls: The Spirit of Nitre does not alter this Infusion.

7. Neither Nitre, nor its Spirit, alter the Solution of Copperas.

8. Nitre, and Oil of Tartar, make an almost insensible Ebullition, wherein there appears to be an Agitation of the Parts, like those of Dust, which you may see move about the Air in a very light Place: The Spirit of Nitre, and Oil of Tartar, ferment without Heat, but with a great Froth, and afterwards it becomes a very thick Coagulum.

9. Nitre does not hinder Lime-water becoming yellow, when mixed with the Solution of Sublimate: The Spirit of Nitre only raises a few Bubbles in the Lime-water, all appearing as transparent as before, although the Sublimate corrosive be poured upon it.

10. The Solution of Nitre, and the Spirit of Sal Ammoniac, do nothing at all: The Spirit of Nitre, and Spirit of Sal Ammoniac, ferment.

11. The Solution of Nitre, and that of corrosive Sublimate, do not immediately change; but about a Quarter of an Hour after they are mixed, they become white.

12. The Solution of Nitre, and Spirit of Salt, do not change at all. None of these Experiments discover any Signs of Acidity in the Nitre; for that which happens in the ninth is insensible; the sixth and eleventh rather shew, that it contains an alkaline Salt; nevertheless Fire draws from Nitre one of the strongest Acids that we know.

II.

S E A - S A L T.

1. Marine Salt does not alter the blue Paper, nor Solution of Turnsole, nor Syrup of Violets.

2. One cannot draw the Spirit of Salt without a violent Fire; this Spirit tinges blue Paper, and the Solution of Turnsole, of a lively Red.

3. The Solution of marine Salt whitens a little the Solution of Sublimate.

4. It muddies the Infusion of Galls, and afterwards occasions it to precipitate a little: The Spirit of Salt muddies it also, and renders it whitish.

5. It makes the Spirit of Sal Ammoniac obscure, and increases the strong Smell: The Spirit of Salt, and that of Sal Ammoniac, ferment with Smoke, and great Heat.

6. It does nothing at all with Oil of Tartar, nor with Lime-water: Spirit of Salt ferments very much with Oil of Tartar, but without sensible Heat. This Spirit does not ferment at all with Lime-water.

7. It does not hinder Lime-water from turning yellow, when mixed with Sublimate: The Spirit of Salt hinders it entirely; and the Liquor, after the Mixture of Sublimate, is more transparent than before.

It appears by the third and fourth Experiments, that marine Salt contains an alkaline Salt; and by the fifth, that it is somewhat acid.

III.

V I T R I O L.

1. The Solution of Copperas, or common Vitriol, is saline, styptic, afterwards sweetish.

2. It reddens the Solution of Turnsole, and blue Paper; but this is not a lively Red.

3. It gives Syrup of Violets a small greenish Cast, far from reddening it.

4. We cannot draw the Spirit and Oil of Vitriol without an intense Heat; the Spirit and Oil redden the Syrup of Violets to the Colour of Ox's Blood.

5. The Spirit of Vitriol colours the Paper of a very lively Red, and the Solution of Turnsole of a Red somewhat less lively: The Oil does the same, but it ferments and grows hot with Solution of Turnsole.

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6. Every body knows, that Copperas, mixed with Infusion of Galls, makes Ink ; but every body perhaps does not know, that Ink reddens blue Paper : Mixed in a very little Quantity with Solution of Turnsole, it gives it a little reddish Cast ; but this Colour is less sensible, than upon the blue Paper.

7. The Spirit of Vitriol muddies and whitens a little the Infusion of Galls : The Oil of Vitriol thickens it, makes it of an ash Colour, and it makes a thick Precipitation.

8. The Solution of Copperas, its Spirit and Oil, curdle Milk.

9. It does not change at all that of Sublimate corrosive.

10. It becomes a grey-brown and like Sea-green, mixed with Oil of Tartar, or with Lime-water. This Colour does not change, although it be mixed with corrosive Sublimate. Spirit of Vitriol, and Oil of Tartar, ferment with a great deal of Froth, and a considerable Heat ; but all these augment, if instead of Spirit you use the Oil of Vitriol, and all their Mixtures become a white Coagulum.

11. Common Water, and Oil of Vitriol, grow also very hot, and generally make a Noise ; there is no Fluid, that more easily grows hot with the Mixture of others, than the Oil of Vitriol.

It appears, by all these Experiments, that Vitriol naturally affords a great many Signs of Acidity.

IV.

A L U M.

1. Alum is a little saline, and very styptic.

2. The Solution of Alum tinges of a fiery Red the blue Paper, and Solution of Turnsole.

3. It does not alter the Colour of Syrup of Violets.

4. It curdles Milk.

5. It instantly makes a white Coagulum, with Oil of Tartar, but without Heat or Smoke.

6. It does not alter the Solution of Sublimate.

7. It makes the Infusion of Galls muddy, and whitens it considerably, throwing down a Precipitation.

8. It whitens Lime-water a little, and this Mixture does not turn yellow, when mixed with Sublimate corrosive, but it forms little white Clots like Starch ; this is perhaps occasioned by the Urine, which is employed in the Crystallization of Alum ; so we cannot conclude any thing from all these Experiments, except that Alum contains a good deal of Acid.

V.

S A L A M M O N I A C.

1. Sal Ammoniac is acrid and saline.

2. Its Solution tinges blue Paper of a dark Red : It does not at first change the Solution of Turnsole, but a Day after this Mixture becomes a reddish Brown.

3. It does not curdle Milk.

4. It does not alter the Solution of Sublimate corrosive.

5. Mixed with Oil of Tartar, or with Lime-water, it emits an urinous Spirit.

6. This Spirit coagulates, and whitens the Solution of Sublimate. From Sal Ammoniac one may also draw an acid Spirit, like the Spirit of Salt ; thus the Sal Ammoniac appears to be a marine Salt united with an urinous one.

7. The acid Spirit of Sal Ammoniac hinders the Lime-water's changing Colour, when it is mixed with the Solution of Sublimate ; but the whole Mixture becomes white as Milk, if you pour on the urinous Spirit of this same Salt, the Sal Ammoniac thus causing the same Effect upon Lime-water and Sublimate, as its urinous Spirit does. It is certain, that this is the urinous Part, and not the acid Part of this same Salt, which whitens the Lime-water, when mixed with Solution of Sublimate. Urine whitens it more faintly than the Solution of Sal Ammoniac.

8. The acid and urinous Spirit of Sal Ammoniac ferments with Heat.

9. If you pour the acid Spirit of Sal Ammoniac upon Lime-water tinged by the Sublimate corrosive, the Whole becomes transparent ; and all this becomes white as Milk, if you add the urinous Spirit of Sal Ammoniac. The Spirits of Salt, of Vitriol, of Sulphur, perform the same as the acid Spirit of Sal Ammoniac.

VI.

T A R T A R.

1. Tartar, which is nothing else but the essential Salt of Wine, is sourish.

2. Its Solution reddens the blue Paper, and the Solution of Turnsole, as lively as Alum.

3. It whitens Lime-water, but it does not hinder its becoming a Red-orange, when mixed with the Solution of corrosive Sublimate.

4. It makes no Change when mixed with corrosive Sublimate, or with Infusion of Galls.

5. It does not change with Spirit of Sal Ammoniac.

A N A

6. Mixed with Oil of Tartar, it does not receive any Change.

7. The Spirit of Tartar contains a good deal of Acid ; it gives a lively Red to the Solution of Turnsole, and renders the Syrup of Violets of a reddish Brown.

8. It makes a Coagulum with *Oleum Tartari per Deliquium*.

9. Mixed with Lime-water, it does not change Colour ; but if you pour upon the Mixture a good deal of the Solution of Sublimate, the Whole becomes whitish. Thus it is probable, that beside the Acid, this Spirit contains an urinous Part ; but it does not appear so strong as one would judge at first by its Smell.

10. Mixed with the urinous Spirit of Sal Ammoniac, it thickens, becomes whitish, and makes a thick Coagulum.

11. It renders whitish the Solution of corrosive Sublimate, and makes a Coagulum, the Grumes of which are of the same Colour.

12. It does nothing at all with the acid Spirit of Sal Ammoniac.

13. The Salt of Tartar dry, or dissolved into Liquor, which is called Oil of Tartar, is acrid, and very bitter ; this Bitterness does not go away but by the Mixture of a great Quantity of acid Salt.

14. The Oil of Tartar, and Solution of corrosive Sublimate, make an orange Colour, which approaches more or less to a Yellow, according as the one or the other of the Liquors predominate ; but the Whole becomes transparent by the Mixture of an acid, corrosive Spirit.

15. It does not give any considerable Change to Spirit of Vinegar ; one discovers only that Kind of trembling, where some Parts are stirred like the Appearance of Dust in the Sun.

16. Oil of Tartar, and Spirit of Vinegar, mixed, don't forbear turning yellow, when mixed with Solution of Sublimate.

17. Oil of Tartar ferments with the corrosive acid Spirits.

18. Oil of Tartar, and acid corrosive Spirits, don't forbear turning yellow, when mixed with Solution of Sublimate.

19. Oil of Tartar, and the urinous Spirit of Sal Ammoniac, don't change when mixed ; but the Whole becomes thick, and white as Milk, when you pour on the Solution of Sublimate.

20. Oil of Tartar turns Syrup of Violets green.

21. Oil of Tartar thickens the Infusion of Galls.

VII.

L I M E - W A T E R.

It is not necessary to repeat here what we have already said concerning Lime-water : We will only remark,

1. That it becomes very white, when mixed with Oil of Tartar ; it makes a very thick Coagulum, which seems to indicate some Acid in Lime.

2. Mixed with the corrosive Acids, it becomes more clear ; the same also when mixed with distilled Vinegar.

3. Mixed with the urinous Spirit of Sal Ammoniac, it turns white.

4. Mixed with a strong Infusion of Galls, it becomes thick, greyish, approaching to brown ; and one may observe upon its Surface a black Spot, like a Drop of Ink : Thus Lime-water seems to have something of Vitriol.

VIII.

E A R T H.

One may see by all these Experiments, what Affinity there is between the natural Salt of the Earth, and the other Salts whereof we have been speaking ; but moreover that of the Earth is wrapped up with a great deal of Sulphur.

The mineral Sulphur, Bitumens, Pit-coal, Jett, and Petroleum, prove, that the Earth is not without a natural Sulphur.

By the Chymical Analysis the pure Earth, without Dung or Rubbish, yields a foetid Oil, and an urinous Spirit ; the Remainder, which you draw, participates more of Alkali than Acid.

Garden Mould, well dried and sifted, gives Spirit of Wine a lemon Colour, after five or six Days Infusion upon warm Ashes.

1. This Spirit of Wine does not presently change the Colour of Solution of Turnsole ; but soon after it precipitates, and the Remainder becomes grideline. Common Spirit makes the same Precipitation, but the Liquor remains blue.

2. It becomes pretty white and thick by the Mixture of Water ; but some time after it becomes grumous, and precipitates in form of a yellowish Refin ; all which does not happen to the common Spirit of Wine.

3. It becomes very white with Solution of Sublimate, and grows warm ; this Solution, mixed with common Spirit of Wine, grows warm also, but the Whole remains clear.

4. It whitens likewise by the Mixture of Lime-water, and precipitates a resinous Matter.

5. It

5. It mixes but very indifferently with Oil of Tartar; and after these two Liquors have been well shaken together, they become thick.

6. It occasions no Change with urinous Spirit of Sal Ammoniac, nor with the corrosive Spirits, except that it heats them a little; but that is the same with the common Spirit of Wine.

7. It grows hot with Lime-water, and hinders its turning yellow with corrosive Sublimate; these Liquors make just such a dirty White, as you may observe when you mix Urine with Lime-water, and add Sublimate to it. The common Spirit of Wine grows hot also with Lime-water; but the Whole becomes a Red-orange, when you pour on the Solution of Sublimate.

These Experiments shew, that there is a Sulphur, an alkaline Salt, and Sal Ammoniac in Earth. Sulphur also appears in the Extract that remains after Evaporation of the Infusions of Earth; for this Extract makes a kind of Soap, very thick, when mixed with Oil of Tartar.

After all these Experiments, we have made no great Difficulty, first, to compare to Sal Ammoniac, those Salts of Plants, which, by a Mixture of Oil of Tartar, or Lime-water, emit an urinous Spirit; and which, by Chymical Analysis, produce also a volatile crystallized Salt; for it is probable, that the volatile Salt is nothing but the urinous Part of the Sal Ammoniac of the Plant, which leaves its acid Parts by Force of Fire: Thus, by the Mixture of Oil of Tartar, or Lime-water, the urinous Spirits appear to be nothing but part of the same volatile Salt dissolved in Phlegm, and the foetid Oil is as much loaded with the same Salt. We must not therefore wonder, that these Sorts of Plants are aperitive, deterfive, febrifugous, vulnerary, and the like; for Sal Ammoniac has all these Qualities.

It is proper to observe, that although Sal Ammoniac seems to be but in very small Quantity in Infusions of Earth, yet it is very considerable; for the urinous Spirit, which by the Mixture of Oil of Tartar separates itself from these Infusions, is only a Part of the Sal Ammoniac; and the white Colour which the same Infusion gave to the Lime-water and corrosive Sublimate, denotes that this Part is very considerable. On the other hand, this Salt is insensibly gathering several Days in Plants; and the Quantity of volatile Salt, which is obtained from four or five Pounds of a Plant, is commonly only from half a Dram to six Drams. Of all the Parts of Plants, the Leaves are most fit to be loaded with Sal Ammoniac; for the Roots, Flowers, and Fruit, retain more properly Acids. The Oil is commonly distributed in the Seeds, and the Phlegm diffuses itself through the whole Plant.

2. Alum seems the most proper to explain the Virtue of such Plants as are styptic, astringent, and which, by Chymical Analysis, afford a great deal of Acid, and much Earth; for these two Parts must make a Salt analogous to Alum. There are a great many of these Sorts of Plants, which also afford a little urinous Spirit; and this seems to denote, that besides the Alum, there is some Sal Ammoniac in their Composition.

3. Those which are aperitive, and from which a great deal of Acid and Earth is drawn, have perhaps a Salt not much different from that of Coral.

4. It is supposed, that the Plants which, besides the Acid and Earth, yield alkaline Liquors, or Signs of Sal Alkali, do contain a Salt like to *Tartarus Vitriolatus*, or to that Preparation of Salt of Tartar, which *Mullerus* and *Sennertus* have called *Terra foliata Tartari*, or *Tartarum foliatum*. Sometimes we have compared the Salt of these Plants to that which *Angelus Sala* has named *Oxysal Diaphoreticum*; but all these Salts, in the same manner as *Sal Ammoniac*, are modified in Plants by different Portions of Sulphur and Phlegm. See *TARTARUS VITRIOLATUS*, *TARTARUS REGENERATUS*, and *OXYSAL DIAPHORETICUM*.

5. It is probable, that in aromatic Plants, as several skilful Persons have proposed, there is something like that Chymical Preparation, which is called the volatile, aromatic, oily Salt; or oily, volatile, aromatic Spirit; for both of them are drawn at the same time. See *AMMONIACUM*.

We commonly draw less concrete volatile Salt from these Sorts of Plants, than the others: It seems that Sal Ammoniac dissolves itself in their Texture; and then the urinous Part being separated from the Acid, and uniting itself to the essential oily Parts, that little which remains of the concrete urinous Salt insensibly evaporates. *Martyn's Tournefort*.

ANA-MALLU. The Name of a leguminous Shrub, which grows in the *Brasil*. The Natives make use of the Thorns of this Plant, after taking off the Bark, to bore their Ears with. They also make a Decoction of the Leaves, in Water wherein Rice has been washed, or in Whey, which they use by way of Bath, in case of an Intumescence of the Belly, either from Wind or extravasated Lymph. It is taken Notice of in the *Historia Malabaricus*.

ANAMIX, *ἀναμίξ*, an Adverb used by *Hippocrates* to express promiscuously, or the mixing Ingredients together.

ANAMNESIS, a Recollection, or Remembrance.

Hence *ANAMNESTICA SIGNA*, commemorative Signs; that is, Signs by which we discover the preceding State of the Body; as demonstrative Signs are those which shew the present, and prognostic Signs those which shew the future State. It is derived from the Greek Preposition *ἀνά*, and *μνήμηναι*, to remember.

Blancard explains *ANAMNESTICA*, Remedies which restore the Memory.

ANANAS, the Pine-apple.

The Characters are;

It hath a Flower consisting of one Leaf, which is divided into three Parts, and is Funnel-shaped; the Embryo's are produced in the Tubercles; these afterwards become a fleshy Fruit, full of Juice; the Seeds, which are lodged in the Tubercles, are very small, and almost Kidney-shaped.

The Species are,

1. *Ananas aculeatus, fructu ovato, carne albida*, Plum. OVAL-SHAPED PINE-APPLE, WITH A WHITISH FLESH.

2. *Ananas aculeatus, fructu pyramidato, carne aurea*, Plum. PYRAMIDAL PINE-APPLE, WITH A YELLOW FLESH.

3. *Ananas folio vix serrato*, Boerh. Ind. Alt. 2. 83. PINE-APPLE, WITH SMOOTH LEAVES.

4. *Ananas lucide virens, folio vix serrato*, Hort. Elth. PINE-APPLE WITH SHINING GREEN LEAVES, AND SCARCE ANY SPINES ON THEIR EDGES.

5. *Ananas aculeatus, fructu pyramidato virescente, carne aurea*. THE GREEN PINE-APPLE, WITH A PYRAMIDAL FRUIT, COMMONLY CALLED THE SUGAR-LOAF-PINE IN *BARBADOES*.

6. *Ananas fructu ovato ex luteo virescente, carne lutea*. THE OLIVE-COLOURED PINE.

The first Sort is the most common in *Europe*; but the second Sort is much preferable to it, the Fruit of this being larger, and much better flavoured; the Juice of this Sort is not so astringent as is that of the first, so that this Fruit may be eaten in great Quantity, with less Danger. This Sort generally produces six or seven Suckers, immediately under the Fruit, whereby it may be increased much faster than the common Sort; so that, in a few Years, it may be the most common Sort in *England*.

The third Sort is preferred by some curious Persons, for the sake of Variety; but the Fruit is not near so good as either of the former.

The fifth Sort is, at present, the most rare in *Europe*; there being very few of the Plants at present: This is esteemed the best Sort, yet known, by some of the most curious Persons in *America*, who have thrown out all the other Sorts from their Gardens, and cultivate only this Kind. The Plants of this Sort may be procured from *Barbadoes* and *Montserrat*, in both which Places it is cultivated. The sixth Sort was brought from *Jamaica*; this is not very common in *England* as yet; it is esteem'd a very good-flavour'd Fruit, by those who have tasted it; but it being a very backward Sort, will render it less valuable in our Climate; for this Sort will require a Month longer time to ripen, from the first Appearance of the Fruit to its Maturity, than most of the other Sorts. I have also heard of another kind of Pine; whose Flesh is very green, and the Outside yellow; but having never seen the Sort, I cannot give any Account of it. There are many other Kinds to be found in the several Countries where they are cultivated, which have arisen from Seeds, which differ in their Shape, Colour, and the Flavour of their Fruit; so that as these Fruits become common in *Europe*, all the bad Sorts should be rejected, and such only as produce fine Fruit should be cultivated.

This Fruit, which is justly esteemed for the Richness of its Flavour, (as it surpasses all the known Fruits in the World) is produced from an herbaceous Plant, which hath Leaves somewhat resembling those of an Aloe, and are, for the most part, saw'd on their Edges; but are much thinner, and not so juicy as the Aloe: The Fruit resembles the Cones of the Pine-tree, from whence it is supposed to have its Name.

Where this Plant is a Native, I believe it is hard to determine; but it was brought from the Factories in the *East-Indies*, and planted in the hottest Islands of the *West-Indies*, where they are in great Plenty, and extraordinary Goodness; but it hath been very lately that it was introduced into the *European* Gardens, so as to produce Fruit: The first Person who succeeded in this Affair, was *Monfieur Le Cour*, of *Leyden* in *Holland*, who, after a great many Trials with little or no Success, did, at length, hit upon a proper Degree of Heat and Management, so as to produce Fruit equally as good (tho' not so large) as those which are produced in the *West-Indies*, as hath been often affirm'd by Persons who have lived many Years there: And 'tis to this worthy Cultivator of Gardening, who did not spare any Pains or Expence to accomplish it, that all the Lovers thereof are obliged, for introducing this King of Fruits amongst them; and it was from him that our Gardens in *England* were first supplied,

plied, tho' we have since had large Quantities brought from America.

The Time of this Fruit's ripening is, from the Beginning of July till September; after which time, the Fruits that ripen are seldom well-tasted, the Season being so far spent, that we have not Heat enough to correct the Crudities, which are imbibed in the long Nights, from the Vapours of the Bed, and their own Perspiration in the Day-time.

The Manner of judging when they are mature, is, by the strong Smell they emit, like that of ripe Fruits, and by gently pressing the Protuberances of the Fruit with your Thumb and Finger; and if they give way, it is a certain Sign of Ripeness: Nor will this Fruit keep above three or four Days at most, if suffered to remain on the Plant, before its high Flavour will be lost; and if cut, it should not be kept above twenty-four Hours at most, if you would eat it in Perfection. *Miller's Dictionary*.

They press out the Juice, and make of it an excellent Wine, almost as strong as Malmsey, and which intoxicates.

It is proper to fortify the Heart, and good to exhilarate the Spirits when oppress'd; it cures a Nausea, and provokes Urine; but Women with Child ought to abstain from it, because it will endanger a Miscarriage.

They make a Confection of the Ananas upon the Spot where it grows, which is brought hither whole: This is good to warm and restore a weak Constitution. *Lemery de Drogues*.

ANANCE, ἀνάγκη, properly Necessity, but by *Hippocrates* it is used generally to express Force, or Violence; such as is used in the Distention of a dislocated Limb, in order to reduce it.

ANANDREIS, ἀνδρείς, from a Negative, and ἀνὴρ, a Man. *Hippocrates*, in his Treatise de Aere, Locis & Aquis, calls certain People amongst the Scythians by this Name. The Interpreters translate it Effeminate. I have rendered it Impotent. See the Passage in the Translation of this Treatise, under the Article AER.

ANANDROI, ἀνδρεί, of the same Derivation as the former, tho' of a very different Signification: For *Hippocrates* uses this, joined with γυναῖκες, Women, to express their never having known Man.

ANANTHOCYCLUS. This is a kind of Plant mention'd by Mr. Vaillant, and by him called *Couronne effleurée*.

It takes its Name from the Greek Words ἀνθός, without, ἀνθός, a Flower, and κύκλος, a Circle; because the Flower of this Sort of Plant is surrounded, or crown'd, with one or more circular Ranks of Ovaries, destitute of Fleurets.

The Species of it are,

1. *Ananthocyclus coronopi Chrysanthemum exoticum minus, capitulo apophyllo*; *Chamæmeli nudi facie*, Breyn. Cent. 1. Tab. 76.
2. *Ananthocyclus chamæmeli folio. An Chrysanthemum exoticum perpusillum nudum, foliis Coronopi*, Pluck. Alm. 101. Tab. 274. Fig. 6. *Memoires de l' Acad. Royale, A. 1719*.

I can find no Virtues that are particularly attributed to this Plant.

ANAPALIN, ἀνάπαλιν, on the contrary, on the opposite Side, over-against. This Word has a direct contrary Signification to κατ' ἑξιν, on the same Side, and εὐθυαία, Rectitude.

These Words are very much used by *Hippocrates*, in speaking of the Transmutations and Fluxes of the Humours. For, in the Motions of Nature, he teaches us always to regard the εὐθυαία, "the Direction, and strait Situation of the Parts," and the κατ' ἑξιν, "the Situation on the same Side." Whatever Symptoms happen ἀνάπαλιν, that is, on the opposite and contrary Side, are always judged bad. So, in an Hemorrhage, τὰ ἀνάπαλιν αἱμορραγέοντα, "all Fluxes of Blood on the contrary Side," are condemned by *Hippocrates*. And in his Doctrine of Abscesses, *Epid. Lib. 2.* he passes the same Censure on τὰ ἐπὶ τ' ἀνὰ πλάτη βέποντα, "those which verge to the contrary Side." But of these some are reckoned good, others bad, from Experience rather than any Reason that can be given for it. In a Crisis, the Blood ought to flow from the Nostril on the same Side with the labouring Part; as, for Instance, from the Left Nostril when the Spleen is inflamed, and from the Right Nostril in an Inflammation of the Liver. It is a thing so fully proved by long Experience, as to be taken by Physicians for an undoubted Truth, that Nature struggles with more Vigour, and better Success, in the Passages that run directly on the same Side, or ἐν εὐθυαίᾳ, than in those which lie ἀνάπαλιν, "on the contrary Side," where she seems as if she acted symptomatically, and were disabled from restraining the inordinate and unruly Motion of the peccant Matter, by making a Transition from one of the Viscera to another Part opposite to it. *Gorræus*.

ANAP AUSIS, ἀνάπαυσις, from ἀναπαύω, properly to rest again from Labour. It signifies Rest after Exercise or Labour, Ease from Pain, or Remission.

ANAPETIA, ἀναπέτεια, from ἀναπετάσθαι, to expand. It signifies an Expansion of the Passages, through which the Blood or Juices circulate.

ANAPHALANTIASIS, ἀναφαλαντίασις, from ἀναφαλαν-

τῆς, a bald Person. Baldness, properly, of the Eye-brows. *Aristot. Hist. Animal. Lib. 3. Cap. 7.*

ANAPHONESIS, ἀναφωνία, a Species of Exercise. It consisted in Vociferation.

The first Condition, or Quality, ascribed to Vociferation, of what Kind soever, by *Antyllus*, *Plutarch*, *Paulus*, *Aetius*, and *Avicenna*, is, that it exercises, exceedingly well, the Breast and Vocal Organs. *Averroes* says, that the Lungs are properly concerned in the Exercise of the Voice; and that the Use of it, upon Occasions, increases the natural Heat, cleanses, strengthens, and attenuates, and renders the solid Parts of the Body robust, pure, and not liable to be injured. *Avicenna* adds, that this Exercise improves the Complexion: The natural Heat is increased, because the Breath is in constant Motion, as well in Inspiration as in Expiration, and suffers an Attrition and Collision, by which Heat is excited. This Exercise cleanses, as it makes the Flesh more rare; and also, because by the Motion of the Vocal Instruments the internal Humidities are consumed; as is very evident from the thick Vapour which exhales out of the Mouth in Vociferation, and the Superfluities of the stale Humours which adhere to all the Canals, discharged as well in this manner as many other ways. And, lastly, the natural Heat is strengthen'd and attenuated; because the Vessels are absterged, and many Humours, as Spit, Mucus, and Phlegm, are consum'd, which, as before they obscured, debilitated, and condensed that Heat; so, by their Dispersal and Evacuation, it acquires a new Strength and Purity, and the Solids become more firm, and less liable to be affected.

The Premises being granted, it stands to Reason, that Vociferation becomes a noble Support to such as have their inward Parts affected with Humidity, and whose whole Constitution is become frigid.

For these Reasons we find it recommended by *Antyllus*, *Cælius Aurelianus*, and *Aetius*, to People subject to Heart-burning, frequent Vomiting, habitual acid Eructations, Indigestion, Inappetency; to those who labour under an Atrophy, or are languid, cachectic, hydropic, asthmatic, consumptive; to Persons affected with Pains in the Thorax, or Diaphragm, or Abscesses in the Thorax; to pregnant Women, or those that labour under a Pica, that is, an inordinate Appetite for incongruous Food; and *Alexander* says it is good for Women in Labour, as it promotes Delivery: It is farther recommended by the above-quoted Authors, for Quartans, pituitous Disorders, and for People on the Recovery from almost any Disorder.

I must remark here, that there is scarce any vulgar Custom, let it seem never so trifling, but what may be found recommended by one or other of the antient Medicinal Authors. The Advice of *Alexander*, above-quoted, is followed by almost all the common Midwives in the World, who advise frequent Vociferation to the Women in Labour, under their Care, and it seems not unlikely to have a very good Effect.

Galen, 8. de Med. Local. Cap. 4. recommends Unctions, Exercises, and Vociferation, applied by an experienced Artist, for Pains in the Stomach. It is the Judgment of that antient and most excellent Physician *Aretæus*, that Vociferation is an excellent Exercise, not only in Leprous Cases, but also in the Coeliac Passion.

Aetius was of Opinion, that Vociferation was of Service in Hoarsenesses, occasioned by superfluous Humidity, in Resolutions of the Organs of Voice, and a Cachexy; and if the Voice is affected by some Distemper, or becomes spontaneously bad, *Antyllus* advises this Exercise. But as the Voice itself receives Injury not only from too long continued, or too loud Talking, but also from too much Silence, whereby the Organs of Voice forget, as it were, their Functions by Disuse; in both these Cases the proper Exercise of the Voice may be of Service; for, by this, the Defects contracted by too long and loud Talking, may be moderated; and a Shrikeness in the Tone of Voice may be remedied by an Intermixture of deeper Notes; and the Exercise of the Voice may be rationally supposed to mend Defects thereof, caused by too much Silence, and the Disuse of the Organs subservient thereto.

Hippocrates asserts, that the Exercise of the Voice, after Supper, is beneficial in Cases where the Flesh has been wasted by too strong Labour and Exercise.

It is however to be remark'd, that Vociferation is not accommodated to Disorders of the Head, because it has a Faculty of filling the Head with Humours, and thereby affecting the Organs of Sense contained therein.

Hence it is, that *Cælius Aurelianus*, approving of it for the Epilepsy, in the Declension of the Disease, prudently adds, "provided the Patient can bear it." For the violent Vociferation, which sometimes is call'd ἀναύδισις, by *Aretæus* φωνασκία, is said by *Hippocrates* to afflict (λυπεῖν); besides that, it fills the Head, and renders it more heavy, as *Aretæus* and *Galen* testify: It is also in an extraordinary manner, according to his Opinion, pernicious to the Voice, and also makes the Veins burst: And *Cælius*, for the same Reason, disapproves Exclamation for Persons affected with the Epilepsy, as too violently straining the Parts affected; and *Pliny* the younger, with Justice, complained

plained that *Zosimus*, his Freed-man, whilst he studied the Recovery of his Voice, fell into a fresh Hæmorrhage, after the Vessel, which used to discharge the Blood, had been stopp'd. *Aræteus*, however, advises it in stomachic Disorders; and *Aetius* for suppressing the Hickup: But it is observable, that almost all Authors remark, that Vociferations were never rashly or unadvisedly to be used, especially by such Persons who commence, whilst they are unacquainted with this Exercise; nor ought any Person to use it who abounds with bad and corrupt Humours: Moreover, the Voice is not to be exercised, if the Stomach is disordered with many and manifest Crudities, left by the Action of Inspiration and Expiration, which becomes more strong and quick, whilst the Voice is increased, both with respect to Frequency and Loudness; the corrupt Vapours be more widely distributed through the Body: Wherefore it was the Advice of *Aræteus* to exercise the Voice gently, and to utter deep Sounds; because shrill Notes occasion Distentions of the Head, Palpitations at the Temples, Pulsations of the Brain, Strainings of the Eyes, and Ringing of the Ears; but the Voice, gently used, does Good to the Head. We must beware also of Vociferation after Meals, because by these the Voice is very much disorder'd: Whence *Aristotle* advised Actors, Singers, and others of such Professions, to exercise their Voices with an empty Stomach; otherwise the Breath, being heated, as well by the undigested Food, as by their Exclamations, exulcerates the Aspera Arteria as it passes thro' it, and so the Voice is spoiled: In short, we must take care, according to *Plutarch's* Opinion, that no one, conscious of a Plenitude, or of immoderate Lust, or Fatigue, strains his Voice; nor uses too violent Vociferations, and brawling Clamours; since such unequal Strainings of the Voice, and Violence, produce Ruptures of the Vessels, and Convulsions.

Next to Vociferation succeeds Singing, differing from it in this, that it consists in a certain Harmony, nor is it perform'd with so much straining of the Voice; for which Reason, besides other Advantages, it is productive of a certain Pleasure, which Vociferation has not. For *Alexander* writes, "That Porters, if they sing, feel their Burden the less," because the Mind, soothed with the Notes and Harmony of Numbers, is insensible of the Weight, and so becomes less affected. For similar Reasons the Antients generally made use of Pipes and Music for Persons mourning, and otherwise disturbed (which *Aristotle* also acknowledged); and it was customary to have Men assembled and talk of indifferent Subjects to such as were grieved at the Death of their Relations, and mourned: Since the Mind, when it turns itself to talking, is less affected with Grief; which the Antients well understanding, invented different Scenes of Diversions, in order to divert the Mind, and disengage it from the Subject of Grief, sometimes with one, sometimes with another Entertainment. With respect to Singing or Vociferation with Harmony, *Antyllus*, *Aetius*, and *Paulus* are of Opinion, that it contributes nothing to Health: But I find it sometimes apply'd in Distempers; for *Cælius Aurelianus* writes, that the Exercise of the Voice compos'd in a musical Strain was found useful for mad People in the Decline of their Disorder.

Besides, *Aulus Gellius* relates, that he found it written by *Theophrastus* and *Democritus*, that playing upon Pipes, and Singing, cured the Bites of Vipers and of Men; and moreover, it was believed, and has been handed down to Posterity, that such as have the Sciatica, when in the Violence of their Pain, if they themselves, or a Musician plays soft Music, (which we read to be the constant Practice of *Ismenius the Theban*), their Pain was abated, as the Brother of *Philistion* has also acknowledged. This kind of Remedy some have thought to be the Invention of *Pythagoras*: Tho' *Soranus*, who is Author of those three Books concerning acute Distempers, translated into Latin by *Cælius Aurelianus*, reflecting upon *Asclepiades*, who profess'd to cure phrenetic Patients by Singing, very justly said, "That they are possessed with a strange conceited Opinion, who believed that Excess of Pain can be removed by playing on Music or Singing." If therefore Singing conduces little towards the Preservation of Health, and the Sound of deeper Notes is useful, Persons studious of their Health ought rather to study Vociferation than Singing: Because a Quantity of Air thus attracted defends the Thorax, opens or dilates the Belly, and all the Passages dispersed thro' the whole Body; when in Singing there can only a more useless Amusement be found, more fit to render robust Bodies effeminate, than to preserve or strengthen them. Whence I have often admired why *Socrates* (as *Plutarch* relates) us'd to exercise himself with Singing, and not with Vociferations, since by these, and by reading fast, the Excretions of redundant Humours are promoted; and those who read faster are more affected, and principally by Sweats, whilst those who read more leisurely, and less loud, are reliev'd by means of insensible Perspiration. Nevertheless, we ought always to remember the saying of *Avicenna*, That it is dangerous to strain the Voice a long time, and that, from Exercises of the Voice, Herniæ and Ruptures of the Vessels are often caused. *Hieron. Mercurialis de Arte Gymnastica*.

ANAPHORA; ἀναφορά, from ἀναφέρειν, to bring up, or upwards. In a Medicinal Sense it imports a Spitting of Blood, if join'd with ἀίματι. But *Hippocrates*, in his Treatise de Arte, uses it to express an Obligation, or Thanks due for an Obligation. Hence,

ANAPHORICOL, ἀναφορικοί, those who spit Blood; or, according to *Aëtius*, those who expectorate with Difficulty. The Word in itself, according to Etymology, seems to signify no other than those who cast or throw up any thing from the lower Parts: *Dioscorides*, Lib. 2. de Materia Medica, as he is translated by *Cornarius*, seems to understand by it those who throw up Blood from the lower Parts at the Mouth. But *Marcellus Virgil*, restrains the Word, in the Place before cited, to a painful and difficult throwing up, or vomiting; wherein he follows *P. Ægineta*, who, Lib. 3. Cap. 28. of the Affections of the Arteries, as *Goupylus* renders him, seems barely to understand those who expectorate with Pain and Difficulty. And, indeed, the Greeks by these Words ἀναγερν, ἀνάσσειν, ἀναφέρειν, when put absolutely, without any Addition, usually mean not so much a bringing up of Blood, as of any other Humour, or Collection of purulent Matter contained in the Breast or Lungs, which are to be evacuated by the Mouth; so that those whom *Dioscorides*, Lib. 2. τῶν ἐν πύλιν, and everywhere in his Book de Materia Medica, calls ἀναφορικοί, are by *Hermolaus Barbarus* rightly translated "such as bring up corrupt Matter," where he has taken the Author's Sense much better than *Cornarius*.

I am, however, aware, that most Authors use this Word to signify such as spit Blood. *Serapion* restrain'd its Meaning to an Expectoration of Sanies; but to this Word most added ἀίματι. How great the Differences are between Hæmoptoici, or Spitters of Blood, and Anaphorici, appears from the different Remedies which they require. *Gorraeus*.

ANAPHRA, ἀναφρα, from ἀ Negative, and ἀφρός, Froth. It is used by *Hippocrates* as an Epithet to Stools, in order to express their being not Frothy.

ANAPHRODISIA, ἀναφροδισία, from ἀ Negative, and ἀφροδισία, Venery. Impotence with respect to venereal Commerce.

ANAPHROMELI, from ἀ Negative, ἀρής, Froth, and μέλι, Honey. Despumated Honey, or Honey boil'd till it will no longer froth. *Blancard*.

ANAPLASIS, ἀνάπλασις, from ἀναπλάσσειν, to restore to the original Form. *Hippocrates*, in his Treatise de Officina Medici, uses this Word to express the replacing a fractur'd Bone in the same Situation it obtain'd before it was broken. In the same Treatise also, it signifies a Restoration or Renu-trition of the extenuated Flesh.

ANAPLEROSIS, ἀναπλήρωσις, Repletion in general. But it also signifies that Part of Surgery which is concern'd in restoring Deficiencies, and in this Sense is the same as PROSTHESIS, which see. Hence, ANAPLEROTICA are Applications which encourage the Growth of Flesh in Wounds or Ulcers. Incarnatives.

ANAPLEUSIS, ἀνάπλευσις, from ἀναπλέω, to fluctuate, or float upon. *Hippocrates* sometimes uses this Word to express the Redundance of Humours fixing on a Bone, which makes it rot, exfoliate, and fall off, as is sometimes the Case of the Bones of the Jaws.

ANAPNEUSIS, ἀνάπνευσις, from ἀναπνέω, to respire. Respiration. But *Aræteus* uses it to express a Truce from Pain; as *Homer* uses it also to express a Truce from War. It signifies also Transpiration.

ANAPODOPHYLLON, (of *Anas*, a Duck, πῆξ, a Foot, and φύλλον, a Leaf). Duck's-foot, or Pomum Maiale, May Apple.

The Characters are;

The Cup of the Flower consists of one Leaf: The Flowers are hexapetalous. The Foot-stalk of the Flower comes out from the Stalk of the Leaf. The Fruit is in the Shape of an Urn, in which are contained many roundish substriated Seeds.

This Plant was brought from America, and is by some of the Inhabitants called Black Snake-root, and by others the May Apple; I suppose, because in that Month the Fruit of this Plant is nearly ripe, and is of an oval Shape, in some measure resembling a small Apple. We have but one Species of this Plant in England, which is the *Anapodophyllon, Canadense Morini*. Tourn.

This Plant is very hardy, enduring our sharpest Winters in the open Ground: It is increased by parting the Roots in August, after the green Leaves decay: It loves a moderate Soil, and for the Oddness of the Plant may merit a Place in a good Garden, although it is of no great Beauty nor Use. *Millar's Diet*. Vol. I.

ANAPSYXIS, ἀνάψυξις, Refrigeration.

ANARISTESIS, ἀναρίστησις, from ἀ Negative, and ἄριστον, a Dinner. *Hippocrates*, in his Treatise de Insomniis, uses this Word to express the Subtraction of Dinner from a Patient.

ANARRHOEA, ἀναρροια, from ἀνα, upwards, and ῥοια, to flow. A Flux of Humours, tending from the inferior Parts, upwards. *Castellus* from *Schneider. de Catarrho.*

ANARRHOPIA, ἀναρροπια, from ἀνα, upwards, and ῥοπια, to verge. A Tendency of the Humours to verge or incline upwards, or towards the superior Parts; as *καταρροπια* is a Tendency of the Humours to the inferior Parts. See CATARRHOPIA.

ANARTHROI, ἀναρθροι. *Hippocrates*, in his *Treatise de Aere, Locis, & Aquis*, says, that a certain People amongst the *Scythians* are ἀναρθροι, to express their being so fat and bloated, that their Joints are obliterated, and not discernible. It is derived from a Negative, and ἄρθρον, a Joint.

ANAS, the Duck, distinguished into the Wild and the Tame. The Tame Duck is thus named:

ANAS, *Offic. Bellon. des Oyse. 160. Anas domestica, Aldrov. de Ornith. 3. 188. Jonf. de Avib. 95. Schrod. 5. 314. Charlt. Exer. 104. Anas domestica vulgaris, Will. Ornith. 293. Raii Ornith. 380. Ejusd. Synop. A. 150. Circur. Gesn. de Avib. 83. THE DUCK OR DRAKE.*

The whole Duck alive, the Fat, Blood, and Dung are used.

A living Duck, stript Part of it bare of Feathers, and apply'd to the Belly, eases the Pain of the Colic. It is useful in external and internal Pains, as of the Sides, Joints, and in a cold Distemper of the Nerves. The Blood is an Alexipharmic, and therefore sometime used in Antidotes. The Dung is apply'd to the Bites of venomous Creatures, *Schrod. Dale.*

The Flesh of the Tame Duck is not esteem'd very good Aliment for sedentary People, those whose digestive Organs are weak, or for such as confine themselves to a Regimen, either on account of preventing Diseases, or for the Re-establishment of Health, because it is not very easily digested, nor does it afford very good Juices.

The Wild Duck is thus distinguished:

ANAS SYLVESTRIS, *Offic. Schrod. 5. 314. Anas torquata minor, Raii Synop. A. 145. Aldrov. Ornith. 3. 212. Anas fera torquata minor, Gesn. de Avib. 99. Anas fera, Charlt. Exer. 104. Mer. Pin. 180. Boscas major, Jonf. de Avib. 97. Will. Ornith. 284. Raii Ornith. 371. THE WILD DUCK AND MALARD.* They live in Rivers. The Fat, Blood, and Dung are in use. As for the Virtues, they agree with those of the common Duck. *Dale.*

The Salts of the Wild Duck are much more exalted than those of the Tame Duck, both on account of the habitual Exercise and Aliment of the wild Species, for these live much on Fish and aquatic Insects. The Wild Duck therefore must be a proper Aliment, when an Acefcence prevails in the Stomach and Intestines, or in the Juices; but the contrary, where there is any Tendency to an alkaline Putrefaction.

Lemery, in his *Treatise on Aliments*, makes the following Observations on Ducks.

There are two Sorts of Ducks, the Tame and the Wild Duck; the last of which has brown and reddish Flesh, more valued for the Goodness of its Taste than that of the Tame Duck. Whether you make Choice of the one or the other, you are to pitch upon those that are tender, young, fat, fed with good Food, and bred in a pure and serene Air.

Duck is nourishing enough, and is a Food that is solid and durable. Some Authors think, that the eating of it puts a good Colour into the Face, and makes the Voice pleasant and agreeable.

The Duck, and especially the Tame one, is hard of Digestion, and breeds dull and gross Humours.

The Tame Duck contains much Oil, volatile Salt, and Phlegm; and the Wild ones have more volatile Salt than the other, but less Phlegm.

Both the one and the other agree, in cold Weather, with young hail People, who are used to much Exercise, and have a good Appetite.

REMARKS.

A Duck is an amphibious Animal; for she lives by Land and Water. The Tame one is not so well tasted, nor so wholesome as the Wild Duck; and the Reason is, because she has not near so much Motion, and consequently abounds with dull, viscous, and gross Humours. Moreover, the Tame Duck lives among Mire, and feeds upon filthy things, such as Mire and Ordure, dead and rotten Fish, Frogs and Toads; whereas the Wild ones live upon Foods which they seek for every-where: They have also a freer Transpiration, by reason of the Exercise they have, which helps to attenuate and drive out the gross Humours they may have in them, and, lastly, more and more to exalt the Principles of their Fluids, and for that reason they abound more with volatile Salt, than the Tame ones do.

The Goose and Duck are much like one another in respect to the Substance of their Flesh, and very near produce the same Effects. The Wing of a Duck, as well as that of a Goose, is excellent Food; and *Martial*, by the following

Lines, shows what were the Parts of a Duck most in Esteem, for the Goodness of their Taste:

*Tota mihi ponatur anas, sed pectore tantum
Et cervice sapit; cetera redde coquo.*

The Tame Duck raises itself but a little from the Earth, and walks slowly, because she is very heavy; but in lieu of that, she swims very easily, and fast, and can for a long time hold her Head, and the rest of her Body, under Water, either to seek for somewhat to eat, or to conceal herself.

The Liver of a Duck, besides that it hath a very good Relish, is also to be looked upon to be good for stopping the Flowing of the Liver.

The Fat of a Duck is of a mollifying, dissolving, and softening Nature.

They open the Body of a Duck, and apply it warm to the Belly in the Wind Colic.

There are several sorts of Wild Ducks, that differ from one another in Bigness, Form, Cry, and Colour. There are some of them which fly slow, and others very swiftly: However, we may say in general, that Wild Ducks, for the most part, fly faster than Tame ones: They usually live where there are Rivers, Marshes and Lakes.

ANASARCA, ἀνασarca, or, as it is sometimes wrote in two Words, ἀνα σarca, in the Flesh.

A Species of Dropsy, wherein the Flesh appears puff'd up and swell'd, and yields to the Impression of the Fingers like Dough. See HYDROPS.

ANASPISIS, ἀνασπισις, from ἀνα, and σπιδω, to draw, *Hippocrates*, in his *Treatise de Prisca Medicina*, uses this Word to express the Contraction of the Stomach. He says, *These Stomachs digest much slower, and want a greater Degree of Contraction, ἀνασπισις*. I suppose he means, that the Stomach wants a greater Degree of Elasticity and Tension; and we know, that when the Fibres of the Stomach are relaxed, Digestion is neither performed so speedily, nor in any respect so well as it ought to be.

ANASSUTOS, ἀνασutos, from ἀνα, for ἀνω, upwards, and στω, to move. The Word is, I think, peculiar to *Hippocrates*. He uses it in his second Book de *Morbis Mulierum*, as an Epithet to Air, where speaking of a Suffocation of the Uterus, call'd by the Moderns *Hysterics*, he says, *if the Uteri*, (in the Plural Number) *approaching the Heart, cause a Suffocation, and the Air in Expiration is forced out with Violence, ἀνασutos*. *in ὁ δὲ βιάμενος*, the Patients perceive a great Anxiety, and vomit. In Hysteric Fits we frequently see a Patient labour for breath, the Air being a long time in entering the Lungs during Inspiration, and immediately after rushing out with great Velocity, so that the Inspiration is not proportion'd to the Expiration with respect to Time; something of this Kind happens in that Action of the Lungs usually call'd *sighing*. Physicians who have seen Women in Hysteric Fits, will readily understand what *Hippocrates* means by this, the Thing itself being the best Explication of the Word.

ANASTALTICA, from ἀναστήλλω, to contract. Styptic, or restraining Medicines.

ANASTASIS, ἀνάστασις, from ἀνίστημι, to cause to rise. In the Classics this Word usually imports a Resurrection, or the Removal of a Camp or People from one Place or Country to another. But *Hippocrates* uses it in two Senses, both somewhat different from these. The first is a Rising up, in order to go to Stool. The second is the Migration of Humours, when expell'd from one Part and oblig'd to remove to another.

It is also sometimes used to express a Rising up on the Recovery from Sickness, or the Recovery itself.

ANASTOICHEIOSIS, ἀναστοicheiosis, from σπιδω, a Principle or Element of which Bodies are composed. *Castellus* explains this very properly by Re-ementation, or a Resolution of the Solids and Fluids of the Body into their first Elements. It is principally used to express a Colliquation of the Solids or Fluids, when in a morbid State, in order for their Expulsion out of the Body.

ANASTOMOSIS, ἀναστομωσις, from ἀναστομω, to relax or open the Mouths of the Vessels. This Word imports the opening of the Mouths of the Vessels, in order to discharge their contain'd Fluids. Thus the Menfes, Hæmorrhoids, and Blood from the Nose, are said to be discharg'd *par Anastomosis*, that is, by an Aperture, or Opening of the Mouths of the Vessels; whereas, when the Fluids contain'd in the Vessels transude thro' the Sides, the Discharge is said to be *per Diapedesin*; but if the Vessels have been corroded by acrimonious Humours, the Evacuation is said to be *per Diabrosin*, διαβρωσις, by Exection; and if the Contents of a Vessel are let out by a Rupture thereof, it is said to be *per ῥήγμονα*, *Celsus, L. 4. C. 4.*

Hence ANASTOMOTICA, are aperitive Remedies, or Medicines which have the Power of opening the Mouths of the Vessels, in the Sense of *Hippocrates, Celsus, and Caelius Aurelianus*.

But ANASTOMOSIS also implies *Inosculation*. Thus the ANASTOMOSIS of the Arteries and Veins, is their Inosculation, or their Communication together, at their Extremities.

ANATASIS,

ANATASIS, ἀνάστασις, from ἀνίστημι, to extend upwards, or lift up. An Extension of the Body upwards. It is opposed to Catatasis, which is an Extension of the Body downwards. *Galen.*

ANATES, a Disease of the Anus. *Castellus* from *Laurentius bergius.*

ANATHLASIS, ἀνάθλασις, from ἀνά and θλάω, to confuse, or break. *Erotian* explains this by ἐκθλάω, Expression.

ANATHREPSIS, ἀνάθρεψις, from ἀνατρέφω, to renourish, or reconvey Nourishment to Bodies wasted by Sickness. Renutrition.

ANATHRON, a sort of Salt, which vegetates upon Rocks, in the Form of a white stony Moss. It is a sort of Nitre. *Johnson.*

ANATHYMIASIS, ἀναθυμίασις, from θυμιάω, to fumigate. It signifies Evaporation.

ANATICA PROPORATIO, from *Ana.* See A; and *ANA.* Anatic Proportion, it implies equal Parts.

ANATOME, ἀνάτομή, from ἀνατέμνω, to dissect. Anatomy.

The Sect among the ancient Physicians, called *Rationalists*, held it necessary for a Professor of the Art of Medicine, to be acquainted with the interior Parts of the human Body. For since many Pains and Diseases are incident to these inner Regions, how shall a Person, say they, administer Remedies well adapted to those Parts of which he has no Notion? It is necessary therefore to dissect dead Bodies, and to inspect and search into the Viscera and Intestines. *Herophilus* and *Erasistratus* were very much in the right, in receiving Malefactors presented by their Kings, and cutting them up alive, that they might have an Opportunity, while there was yet Breath remaining, of considering those things which Nature had before locked up and concealed, and of examining their Situation, Colour, Figure, Magnitude, Order, Hardness, Softness, Smoothness, and Roughness, their Situation, and their Connections and Communications with each other. For suppose an inward Pain, how shall a Physician know the affected Part, if he be ignorant where any one of the Intestines or Viscera lies? And how can the diseased Part be cured by one who does not know what it is? And when the Viscera happen to be laid open by a Wound, one who never saw the Colour of a sound Part, cannot know the sound from the corrupted, and consequently must be incapable of applying a Remedy to what is corrupted. Besides, the Knowledge of the Figure, Situation, and Magnitude of the interior Parts, renders a Person better qualified for the Application of external Remedies. Nor can it be deemed Cruelty, by the Punishment of Malefactors, and but a few of them neither, to search out Remedies for innocent Persons to all future Ages.

On the contrary, they who called themselves ἐμπειροί, "Empirics," from their experimental Knowledge, maintained, that it was not only unnecessary, like many other things insisted on by the Rationalists, but also great Cruelty, to cut open the Breasts and Bellies of living Men, and to turn that Art which professes the Guardianship of human Health, to the Destruction of Individuals, and that in the most barbarous manner that can be devised; especially when the things which are inquired after by such violent means, are, some of them, impossible to be known at all, and others may be known without such Barbarity. For as to the Colour, Smoothness, Softness, Hardness, and all such-like Qualities, they are quite different in a dissected, from what they were in an entire Body. Even while Bodies remain untouched, these Properties often suffer Alterations; by Fear, Pain, Hunger, Indigestion, Weariness, and a thousand other less violent Affections. How much more probable then is it, that the interior Parts, which have a greater Degree of Softness, and which are Strangers even to the Light, should undergo a Change from such desperate Wounds, and downright Murder? Nor can we do more absurdly than to imagine any thing in a Man to be just the same whilst he is alive, as it is when he is expiring, or even dead. For even the Belly, though it may contain Air, cannot be divided without immediate Death; but as soon as the Knife comes to the Region of the Heart, and the *Septum transversum*, which by a certain Membrane, called by the *Greeks* the *Diaphragm*, separates the upper Parts from the lower, is divided, the Man loses his Life that very Moment, and so the butcherly Physician comes to have a full Prospect of the Heart and its Appendages, with all the Viscera of a dead Man, which can be no other than such as belong to the dead Man, and not such as were belonging to the living Man. So that all the Physician gains, is barbarously to commit Murder, without being the wiser with respect to the State of the Viscera during Life. However, if there be any thing of this Nature that can be the Object of our Sight, while the Breath is in the Body, Chance often subjects the same to our View, when we attend the Sick. Sometimes, for Instance, a Gladiator in the public Shews, a Soldier in a Battle, or a Traveller fallen among Thieves, receive such Wounds as lay open the interior Parts, some one Part, some another, where the sagacious Physician, whose Mind is set on curing his Patients, not on Blood and Slaughter,

VOL. I.

may behold the Situation, Posture, Order, Figure, and the like, and attain the same Knowledge by the way of Pity and Compassion, which others reap from their detestable Cruelty. If these Reasons be considered, even the Mangling of dead Bodies, which if not cruel, is at least filthy, will appear unnecessary; since most things are found in dead Carcasses in a manner different from what they were in the living Body; and all that can be known in living Bodies is evidently shewn in the Cures which are made upon them.

Celsus concludes with giving his Opinion as a Moderator in these Words: To dissect the Bodies of living Persons, is both cruel and unnecessary; to anatomize dead Bodies, is necessary for a Learner; for he ought to know the Posture and Order of the Parts, which are better represented in a Carcase than in a wounded living Person. As to the rest, which can only be learnt in living Bodies, Practice will, tho' by a slower, yet in a more merciful way, demonstrate them in the Operations on wounded Persons. *Celsus in Præfat.*

I am sensible there have been modern Physicians, who, ignorant of Anatomy themselves, by a Piece of Policy, not altogether free from Guilt, have represented an Accuracy in this Science as trifling, and of no great Use towards the Cure of Distempers. I believe the following Dissertation will set every reasonable Man right, as to the Uses of Anatomy in Medicine; and certainly every Man of Capacity, and a right Turn, must in proportion be qualify'd to cure Distempers, as he understands the Structure of the internal Parts.

It must however be confess'd, that Anatomical Knowledge has sometimes fallen to the Share of People, who by a Misapplication of it have rendered themselves worse Physicians, than they would have been without it. Such are those of whom *Doctor Friend* speaks, "who, though they have been exact enough in the dissecting Part, yet, without any regard to Nature, or right Philosophy, are for advancing every trifling Discovery into a more trifling Hypothesis." This is, however, no rational Objection to the Art itself, but to an ill Use of it.

I must remark, that in refuting the Arguments against Anatomy, in the first Part of this Dissertation, *Hoffman*, who is the Author of it, had *Stahl* in View, who was a sort of Rival to him, both being Professors in the same University, and both eminent for their great Knowledge in the practical, as well as theoretical Part of Physic. But *Stahl*, it seems, had some extraordinary Notions concerning Nature. See *NATURA*.

Of the Use of Anatomy in the Practice of Medicine.

Those who apply themselves to the Study of Politics, are obliged to make themselves acquainted with Geography, a Science, highly necessary for the Illustration and Improvement of that Kind of Knowledge. Of the same Service is Anatomy, or the Knowledge of the human Body, in Medicine; and he who enters himself in the Mysteries of this Art, well furnished with anatomical Knowledge, can scarcely fail of Success in his Practice.

Now, in the Study of Geography, it is not enough to know the Situation and Position of Places, with their Rivers and Mountains, but we ought to have clear Notions of other things, which principally recommend this Branch of Learning. We must be acquainted with the natural Genius of the Inhabitants, their Customs and Manners, in what Arts, or in what Branches of Commerce they principally excel. We ought to know farther in what the Riches of the Country consist; what Plants and Animals are produced in it, what are the Qualities of the Air and Waters; and, in short, what Stones and Minerals the Earth conceals within its Bowels. Whoever observes these things in his Study of Geography, and makes it his Business to attain just Ideas of them, may reasonably expect from thence no small Help and Advancement in his political Studies.

The like Observation may be made with respect to Anatomy, the exact and curious Knowledge of which does not barely include the Situation of one or other of the Viscera; or the Magnitude, Colour, Figure, and Order of the internal Parts, but is of very wide Extent. For it is necessary to inspect, with all our Curiosity, the peculiar Structure of each Part; which is formed with the highest Art and Skill, to find out its Use, what Function it performs in the Body, what Connexion it has with other Members; and to comprehend what Influence it has, after a wonderful manner, on different and remote Parts.

Such a Knowledge of Anatomy is a most firm Foundation, on which the whole Body of Medicine may securely rest; if this be removed, all rational Explications in medicinal Matters, shake and give way, Practice is in Danger, and even Medicine itself falls all to Ruin. The Use of Anatomy in Surgery is so undoubted, that none but such as are little versed in the medicinal Art, will have the Rashness to deny it. This Part of Medicine, in order to be rightly and successfully exercised, requires a perfect Knowledge of the external Part, for which it is extremely obliged to Anatomy, and, by means thereof, may be carry'd to the highest Perfection. Perhaps it may be doubted by some Physicians, who employ themselves more in exercising

cising than in studying the Art, whether Anatomy promises any Advantages to us in Practice. We must declare, that we are wholly of Opinion, that a solid and skilful Physician is principally obliged to Anatomy for these Qualifications; and therefore can by no means be excused from having them. For the fuller Confirmation of our Assertion, especially in this Age, wherein the Sciences have received so much Light and Improvement, we shall, in the following Dissertation, assert the Usefulness of Anatomy in Practice; in which we shall be a little prolix, that we may the better do Justice to so noble a Subject.

To come immediately to the Matter in hand, we shall first consider the Arguments of those who are of a different Opinion as to the Excellency of Anatomy, and account it of little Use in practical Medicine. These People, that they may confirm their Opinion, constitute in the human Body a *Nature*; by which they mean a Soul. From this Principle they suppose every Motion to flow, as from its first Spring; by this, all Effects produced in the Body, are disposed and regulated, since the Body is an Instrument merely passive, and only qualified to receive those Motions.

This *Nature*, or Soul, according to them, renders the Body sound and vigorous, guards it against Diseases, and expels them when contracted. For since this *Nature* is endued with an exact Knowledge of the Body, it must act in certain Order, Measure, Time, Degree, and Place, and for a certain End, so as to be sufficient, not only for preserving the Body in Health, but for expelling any Disease which may happen to infect it, since the most savage and illiterate Nations, who neither know the Virtues of Herbs, nor are acquainted with any other Remedies against Distempers, will sometimes recover their lost Health by the sole Benefit of Nature. Hence they conclude, that the chief Duty of a Physician is to acquire the Knowledge of the Powers, Ways, and Intentions of *Nature* alone, neglecting the Care of the Body, because it is merely passive. In Confirmation of their Opinion, they add, that Medicine had a Being, and flourished too, in former Times, when Anatomy and natural Philosophy were very little cultivated; and that the Art of Healing, in some who lived in those Times, surpassed the Skill and Address of our Days, though the Physicians of those Ages, being contented with simple Remedies, knew nothing of the medicinal Virtues of Metals and Minerals, nor the artificial Preparations of Remedies. As for Anatomy in particular, in order to depreciate it, they add, that the most complete and accomplish'd Anatomist, who very well understood all the Muscles, and their Texture, would succeed no better in his Attempts to cure them of any Disorder, than one of the most superficial Knowledge in this Part of Medicine. For it is the Soul which puts together the Parts of the Body, and is the Contriver of this wonderful Structure; and if any thing happens to be broken or damaged, the same Power will take care to restore it, and set all things to rights, without the Help of a Physician. Since therefore these things are all at the Disposal of the Soul, Anatomy can be of no Advantage in practical Physic.

Having thus proposed the Arguments which are brought against Anatomy, we are next, according to our Method above declared, to vindicate the Dignity and extensive Usefulness of Anatomy by examining these Reasons, and giving a full Answer to all these Objections. Here first we think ourselves obliged, in few Words, to explain what is meant by *Nature* among the Antients. For our Ancestors, though, on other Accounts, very wise Persons, and highly to be revered, both for their good Parts, and long Experience, yet in rational Medicine, and natural Knowledge, I won't say they were inferior to the Moderns, but that, for want of these Improvements, they took their Measures of the salutary Art, only from Effects and Experiments. Hence it is, that in those Times, the Art of Medicine was taught in a rude and imperfect manner; because the most noble Branches of Learning, that of the Nature and Motion of Bodies, lay in a manner buried; and as for Chymistry, it was wholly unknown; for which Reason, our Indulgence is due to the Simplicity of those Ages for the many unaccountable Stories and idle Dreams they have left us upon Record. They are often talking of several Sorts of active Beings; they considered Matter as passive and inert; and look'd upon the human Body as a mere Instrument. The Soul, or Nature, they supposed to be an incorporeal, wise Being, endu'd with Reason, and Author and Governor of all the Motions of the Body. Having laid this Foundation, it was necessary, that since the Principle was obscure and unknown, all Science and Demonstration should be extremely precarious. How great Detriment must result from hence to the Art of Medicine, and how great a Hindrance, on the other side, it must be to the Improvement of the practical Part, is manifest from the Lights we have received in this present Age, which shall be further explained. For when neither the Powers nor Effects of corporeal things, which yet act upon us after a wonderful manner, can be explain'd or demonstrated from an unknown Principle, it easily appears in how great Darkness these Times were in-

volved; when they were obliged, for the Solution of Phenomena in Medicine, to have recourse to an unknown *Nature* as their only Refuge. I therefore think we have good Reason to congratulate the present Age, upon account of its being blest'd with a sound and rational System of Philosophy, by which we are taught, that all Bodies, of whatever Kind, are in a State of Action, and that Motion is no more than the Excess or Difference of Action and Force in any two given Bodies; for when two Bodies mutually resist each other, and when the one yields to the other in Consequence of that active Force, originally impress'd upon, and communicated to them by the all-powerful Author of Nature, then and in that Case, Motion is produced; and, *vice versa*, when the Forces of Action happen to prove a precise Balance to each other, then both Bodies remain in a State of Rest; and even those very Motions which are most regularly perform'd, and carried on by the strictest and most uniform Laws of Order, Harmony and Proportion, are no more than the beautiful Result of the various Situations and Combinations of different Bodies mutually acting upon, and resisting each other; for 'tis surprising what considerable Effects may be produced only by the Situation of Bodies: A familiar Illustration of this Point may be drawn from the Action of the Lever; for no incorporeal external Principle, much less a certain *Wisdom of Nature*, whereby she is enabled to produce Motion, is requisite for carrying on the regular and orderly Motions of Bodies; but a certain moving Force is originally impress'd upon these Bodies themselves, which may be either augmented or diminished according to their Situation and Disposition. Since in Productions of human Art, so wonderful and curious Effects flow only from the Action of Bodies upon one another, this must necessarily happen in a greater Degree in the Fabric of the human Body, that incomparable Machine, so delicately form'd, and exquisitely finish'd, by the all-powerful Hand of God; for the human Body must, in Dignity of Structure, excel all Productions of human Art, in the same Degree, that its august and venerable Architect surpasses frail and imperfect Mortals in Grandeur, Power and Skill: Since this Body is a Machine, in the Formation of which, the richest Stores of infinite Art have, if I may be allowed the Expression, been exhausted: Since 'tis a Machine formed by the nicest Art, and in which, almost all the Laws of Mechanics, Statics, Hydraulics, and Optics, take Place, a vast and amazing Variety of every Species of Motion must happen in it. A Physician must, for this Reason, make it his principal Care to understand the Texture of this Machine, and to know the Laws of the several Motions produced in it, whether by the Air, Aliments, or Medicines. When a Physician thoroughly comprehends these things, he can scarcely be ignorant of the genuine Bent and Tendency of Nature, but must plainly see, that she is not only the bountiful Source of Life and Health, but that she likewise governs and directs the Operation of Medicines, and all the several Motions that happen in the Body. When the Word *Nature* is taken in this Acceptation, as indeed it ought to be, then Physic is placed upon a true Foundation, and stands secure upon a Rock that cannot be shaken by the vain Efforts of Imagination and Error. And indeed a Physician who goes thus to work, cannot be ignorant when Nature is well disposed, and when otherwise; but must know in what Life, Health, Diseases, and Death itself consist; nor can the Reasons for a right Method of Cure, and a proper Choise of Medicines, escape him.

If on the other hand, Nature should, as with some of the Antients, be styled *Medicatrix Morborum*, or *The Curer of Diseases*, then nothing more is meant, than the Body itself, adapted with singular Art and Contrivance, for the Production of certain Motions; for by this peculiar Benefit and Assistance of the solid and fluid Parts, of which it is composed, as well as by the Qualities of the Elements and Food, it is enabled expeditiously to perform certain regular and stated Motions, which conduce very much not only to the Preservation of Life, but also the Removal of the Causes of Diseases. For this Reason, that this beautiful and curious Fabric of the Body may be thoroughly known, and its minute Parts discovered, Anatomy is to be carefully study'd, since it is the only Branch of Learning which can supply us with an accurate Knowledge of its Structure. Besides, the Body can neither subsist, preserve Life, nor escape the Fury of Diseases, unless it be guarded and fortified by external Means, such as Air, Food, and Medicines; and from this Circumstance arises the indispensable Necessity of Physic, which is, as it were, an Assistant to *Nature*, considers and governs her several Motions, discovers what occasions a good, and what a bad State of Health, and takes care, that things of hurtful Qualities be avoided and removed from the Body. And altho' many have been blest'd with a long and prosperous Life without the Assistance of Physicians, yet they never arrived at that happy State without the Assistance of Physic itself, that is, without Remedies, or proper Food, and Regimen. How daring a Piece of Insolence must it then be to affirm, that Nature alone is sufficient for the Cure of Diseases, since in many, both of the acute and chronical Kind, she can do

do little or nothing without the Aid of a Physician? It is not therefore sufficient, that the Physician has the Advantage of long Practice, and great Experience; that he knows what things are advantageous, and what are prejudicial; that he knows the Symptoms of a beginning Disease, or the precise Form and Manner in which it quits the Patient; but he must carefully weigh Circumstances and Reasons, and from them form his Judgment of Diseases, foretel their Events, and take rational and prudent Steps for their Cure. If any one follows this Method, he cannot so far miscarry in the Practice of Physic, which is a Work of the highest Importance, as to be of no Use to the Patient; for 'tis abundantly plain, that a Reliance upon Experience alone has too often imposed both on the Physician, and the Patient; wherefore in so great a Concurrency of Causes, 'tis proper to call in Reason and Philosophy to our Assistance, that so the true one may be discovered. Hence arises the Necessity of rational Medicine, which, being founded upon the Principles of Philosophy, must of Consequence be preferable to that which is circumscribed within the scanty Bounds of Practice and Observation. But such a Physic as is supported upon the Principles of Reason and Philosophy, not only deduces and solves the Phenomena occurring in Practice, from sure and uncontested Principles, but likewise greatly assists Practice itself, by suggesting the most salutary Maxims, for discovering a safe and easy Method of Cure. It is not indeed to be denied, that Physic drew her illustrious Origin from Experience; but it must at the same time be owned, that she received her most striking Charms, and all those Degrees of Beauty and Perfection, which at present set her at the Head of all her *Sister Arts*, from Reason and Philosophy. But for acquiring a Knowledge of this rational Medicine, Anatomy is absolutely and indispensably necessary, since without the latter, the former cannot possibly be obtain'd.

It must indeed be confess'd, that Anatomy does not directly and immediately cure the Sick; but yet it has a happy Tendency to make the Cure proceed more safely and agreeably, than it would otherwise do. *Celsus*, in his Preface, very justly observes, that *though there are many things which do not belong to the Arts themselves, yet these very things prove useful to them, by quickening and improving the Genius and Taste of the Artiste*. Thus, tho' a Contemplation of the Works of Nature may not form a Physician, yet it renders him better qualified for the Practice of Physic. In like manner, tho' Anatomy does not constitute a Physician, yet it proves at once an Ornament and an Assistance to him, by supplying him with wholesome and salutary Maxims, for the Direction and Regulation of his Practice; for no Branch of Learning is of greater Use and Advantage for discovering Errors in Practice, applying Remedies, and giving just Prognostics, than Anatomy is, as I shall shew more fully in the Course of this Dissertation.

I shall begin with that divine and noble Discovery the Circulation of the Blood; and indeed he must be blind, who does not perceive the Clouds of Darkness that have been dispell'd, and the glorious Light that has been shed upon Physic, by this celestial Discovery; for when, by an accurate Inspection of the human Body, we find that the Blood, and other Humours, are continually carried through numberless small Meanders, by the Vibration and Tone of the solid and muscular Parts; then we come to know wherein Life consists. We shall likewise be convinced of the Excellency of Anatomy, if we allow ourselves to consider, how egregiously the Antients, who neglected the Improvement of this useful Art, blundered in defining *Life*; for they vainly amused themselves with idle Whims and Conceits in this important Affair, asserting the Cause of Life to be *the Action of the Soul, or Nature, upon the Body; a vital Spirit; a small Flame in the Heart; an innate Heat; the Temperament of the four Humours; and an implanted and influencing Spirit*. These useless and unmeaning Dreams receiv'd a fatal Blow, and fell to the Ground at once, upon the Discovery of the Circulation of the Blood, which, so long as it washes the Body with its perpetual Stream, affords us the Evidence of our Senses for the Existence of Life; for 'tis the bountiful Office of this salutary Motion, to keep the Body safe and free from Corruption, to which 'tis otherwise very much subject. Neither are we to forget, that the Life of the Body is not, properly and strictly speaking, the Duration or Preservation of a compound Substance; for if this was the Case, and if Life was sustained in this manner, a Stone, or a Piece of Bread, might be said to live, so long as its respective Mixture or Composition remained. Life is more properly and accurately defined, a perpetual Action and Motion, by which the Body is principally preserved from Filth and Corruption. For as Putrefaction is no more than an intestine Motion produced in the Fluids by some external Cause, and destroying the Moisture of the Parts, so 'tis plain, that it can only be check'd by their internal, which is promoted by their progressive Motion; and this Motion wonderfully resists the circumambient Atmosphere, and its external Action upon the State and intimate Mixture of the Blood; for the Body is immediately exposed to the Injuries of the Air, as soon as the fluid Particles of the Blood come to be in a

State of Rest. As Medicine in general, so more especially the pathologic and therapeutic Branches of it, have received incredible Advantages from this Discovery; since by it we come to know, that nothing can be more fatal to Life, or more repugnant to Health, than those things which either hinder, or in the least disturb the free and salutary Circulation of the Blood. 'Tis no hard Task to find the Reason, why violent Cold is so prejudicial to the Body, or why Draughts of cold Liquors, drank by Persons over-heated, produce Death. Hence 'tis likewise plain, why polypous Concretions adhering to the Orifices of the Vessels near to the Heart and Lungs, produce sudden and unexpected Death, by intercepting the Course of the Blood. From the Circulation of the Blood, we are also enabled to assign a Reason, why Poisons prove so fatal to the Body; for, in my Opinion, they can scarce produce their Effects in any other way, than by exciting violent Spasms in the Vessels, contracting them, and so hindering the free Course of the Blood through them. We likewise know from this, that all acid and viscid Substances, as also too plentiful Feeding, are destructive of Health, and hurtful to the Body, because, either by insipifating or augmenting the Juices, they hinder their free Circulation, and produce immediate Loss of Health. As this is the Case, we may easily, from the Doctrine of the Blood's Circulation, deduce the most wholesome and salutary Rules for the Preservation of Health and Life; for every one who is fond of a long and happy Life, must by the Benefit of this Discovery perceive, that it is his chief and principal Interest to preserve the Circulation of his Blood uninterrupted, safe, and entire. Hence he must see the Necessity of abstaining both from such things as coagulate his Blood, and from such as, by augmenting its Quantity beyond a proper Degree, render it less fit for making its way through the several Vessels of his Body. He ought, on the other hand, to use all such things as have a Tendency to preserve his vital Juices in a due State of Fluidity, such as volatile Salts, Aromatics, and warm Infusions of balsamic Herbs, by means of which, the due Motion of the Blood is most effectually preserved. From this Discovery we must likewise perceive, that in case of too great an Affluence of Blood, its Quantity must be diminished; and that, in such Cases, Bleeding must not only be proper, but even prove the sole and only Preservative of Life.

Besides, Anatomy furnishes us with abundance of Reasons, why Death, in Spite of all the Medicines in the World, must prove the Fate of every Individual; for Life, which is no more than the perpetual Motion of the Fluids, not only depends upon their due Temperament, but also, and that more especially, upon a certain Motion of the solid Parts. Now when old Age begins to approach, the moving Fibres gradually become hard, thick, and immoveable, the Pores are shut up, and the Vessels are too full. Hence the Fibres, not being sufficiently animated by the subtle nervous Fluid, become stiff, inflexible, and unfit for protruding the Blood thro' the Body. Besides, when the cutaneous Pores are obstructed, the several Excretions must of course be retarded, and recrementitious Filth must be accumulated in the Body; the Consequence of which is, first, a bad Habit of Body, and, not long after, inevitable Death. If we reflect with a little Attention upon this Circumstance, the most effectual Means of obtaining a long Life cannot fail to suggest themselves to us, and convince us, that we ought to place our principal Care in preserving our several Juices in a due State of Fluidity, lest, thro' a Defect in that Point, the Pores should be block'd up, and the Fibres become gross and rigid. For preventing this, Motion and Exercise are very proper, since they are exquisitely calculated for preserving our Fluids in their due State. A pure and serene Air, thin and light Water, good small Wine, Food which contains little of an earthy and compact Substance, and which is light, and of easy Digestion, and Composure of Mind, contribute also to this End. When these Things are diligently attended to, and Health regulated by these Measures, Life must be preserved the longest that the Condition of our Natures will admit of. Nor is frequent Phlebotomy to be neglected, the Usefulness of which, for protracting Life, is sufficiently shewn by the Discovery of the Blood's Circulation; for 'tis plain, that by this means Blood, which by reason of its Abundance, is become thick and slow in its Motion, must be restored to its due and regular Course thro' the Body: Neither have we any Reason to be afraid of exhausting this rich Fountain of Life, since, as *Galen* has observed, the Antients took whole Pounds, instead of Ounces, as the Moderns do.

By the Help of Anatomy we likewise become acquainted with the formal Cause of Death, which, in whatever Shape it deprives a Man of Life, may be distributed into four Classes; for there must be either an Inflammation of the more noble Parts, such as the Meninges, Lungs, Stomach, and Intestines; or extravasated Blood or Serum, as usually happens in the Brain, Thorax, and Abdomen; or some of the Viscera must be corrupted; or a Polypus must be formed among the Vessels of the Heart or Lungs, obstructing the free Circulation of the Blood. I say, where-ever Death happens, it must be owing to one or other of these Causes,

Causes, as is plain from all Dissections. And, indeed, an Inflammation is the Cause of Death in acute Disorders; and a Corruption of the Viscera, or an Extravasation of Blood or Serum, produces the same Effect in chronical Cases: But a Polypus is generally found to be, of all others, the most speedy Cause of Death. These several Causes of Death plainly shew, that it is nothing more than a Destruction of the Circulation of the Blood. From the joint Consideration of these Circumstances, it follows, that he who intends to ward off Death, must be at due Pains to prevent Inflammations of the internal Parts of his Body, Weaknesses or Obstructions of his Viscera, and Extravasations of his Blood and other Juices.

This same Discovery, I mean that of the Circulation of the Blood, which is, without Doubt, the surest Prop, and the noblest Ground-work of all Medicine, clearly accounts for the Causes of Health, and sufficiently shews, that it can only be expected from a free and due Circulation of the Blood and Humours, and the several Excretions being carried on with Regularity: For when the Blood is carried thro' the Body in a calm, regular, and uniform Manner, then the several Elements of which it consists, are not only duly mixed with each other, but every thing that is of a recrementitious Nature, every thing that offends either in Quantity or Quality, is by that means evacuated, and drawn out of the Body. Thus all the animal Functions are performed, according to the Order and stated Laws of Nature; thus Health, and thus the Vigour of Health, are preserved: Those must therefore err, who maintain, that Life consists in the Excretions being duly made; because Life, even when the Excretions are entirely out of the Account, may cease; and Experience proves, that many die at the very time their Excretions are performed. We therefore, with better Reason, affirm that Health depends upon the Circulation of the Blood, which, when duly carried thro' the Body, renders the several Excretions regular and natural; whereas, when its Motion is too languid, or impair'd by any Disease, the Excretions are interrupted; nor, indeed, can there be any Disease in which the Excretions do not suffer. We even often see Patients die, rather from the Excretions being too copious, than from their being deficient; as may be observed in acute Disorders, hectic Cases, Dysenteries, and other Diseases of a like Nature. That Physician, therefore, acts a Part entirely consistent with the Dignity of his Character, who, in the Cure of Distempers, has a Regard not only to the Circulation of the Blood, but also to the several Excretions, especially that of Transpiration.

Since our Fluids pass thro' the Body very often every Day, and since indulgent Nature has every-where bountifully provided proper Emunctories for the Excretion of the recrementitious Matter, we must take care, that these Emunctories be always kept open; for by this means the Blood is rendered limpid, pure, and balsamic; and all such things as are capable of laying a Foundation for Diseases, are eliminated out of the Body. Among the several Emunctories, which are evidently to be found in the Body, those of the Skin, by which, as *Celsus* says, Transpiration is carried on, as it were, thro' so many invisible little Holes, are the most considerable; for what friendly Offices Transpiration performs to the Body, and how much it contributes to the Preservation of Health, may be conceived from this Circumstance; that more recrementitious Matter, and that too of a more virulent Quality, is discharged from the Body in this way, than by all the other Excretions together. Hence 'tis plain, that nothing can have a more direct and immediate Tendency to bring on Diseases, than a Suppression of the several Excretions, especially that by which the Filth and Sordes of the Body are carried off by Transpiration. As this is the Case, the Practice of that Physician must be rational, who, when he is perfectly acquainted with the Origin of the Disorder, restores the usual Excretions, opens the obstructed Emunctories, and disposes them to afford a free and easy Passage to the malignant and virulent Sordes: But this is most effectually brought about by means of a pretty quick and accelerated Motion in the Fluids; which, when it happens in acute Disorders, and especially in Fevers, sufficiently accounts for the Patient's recovering Health only by the Benefit of Nature, without any great Trouble to the Physician: For this intense Motion expels the Cause of the Disease, opens the Emunctories, attenuates the Humours, and soon restores perfect Health. The Reverse of this happens in Diseases of the chronical Kind, and of long Continuance, where the Motions, being sluggishly carried on, are to be accelerated by Art, and the Weakness of Nature is by that means to be assisted. In Disorders therefore of this Kind, Sudorifics, Chalybeats, Bitters, Salts, Purgatives, warm Baths, and mineral Waters, are of singular Advantage; and the Virtues of these Remedies, in Cases of this Nature, are to be accounted for only from this, That by their quick and accelerated Motion they remove the Obstructions of the Body, and, by restoring the several Excretions, reduce the Fluids to a natural and orderly State. The same Reason may be assigned, why Motion and Exercise, the Drinking of wholesome mineral Waters, and the Clemency of the Air and Climate, have so

happy an Influence upon chronical Disorders, and prove so effectual in carrying them off.

But since the Antients were ignorant of the Blood's Circulation, we need not be much surpris'd, that they fell into various Errors in Practice; but, to pass over others of their Blunders, 'tis well known how careful, or, to speak more properly, how whimsical and superstitious they were in opening certain Veins, being groundlessly persuaded, that this or that particular Vein was appropriated or consecrated to this or that particular Part; the Head, for Instance, the Heart, or the Liver; and that, in the Diseases of those Parts, it was necessary to open their respective Veins. In Process of Time, when Anatomy began to be improved, these wild Chimeras were entirely banished; for we have learned, that there are two Uses in Bleeding, that is, Evacuation and Derivation; the former of which is serviceable in case of too great a Quantity of Blood, and 'tis no great Matter which Vein be opened: But, in order to make a Derivation, we are taught to open a Vein in the upper or lower Parts of the Body, as the Nature and Circumstances of the Disorder shall require.

From Anatomy 'tis also plain, that the four Humours, and their Intemperies, were, by the Antients, falsely proposed as the Causes of Diseases; for these very Humours appear no-where in the Body, so that their Theory must, of course, fall to the Ground, since it was built upon a Foundation so precarious and uncertain: Hence it happened, that the principal Part of their Medicines consisted generally of strong Purges, whilst they supposed, that Purgatives had an *elective Quality*; and idly imagined, that one was proper for purging Bile, another Melancholy, and another Phlegm. And although I willingly allow, that one of these Medicines may be preferable to another, and better calculated for breaking the Force, and removing the Cause of certain Distempers, yet I cannot approve of their Opinion, since it is entirely inconsistent with the Circulation of the Blood, from which alone the Causes both of Life and Diseases are derived: For whatever Purges act strongly and violently, must throw out whatever kinds of Humours are lodged in the Body, whether they be viscid or bilious; and, for this very Reason, the Antients were faulty in their Practice, since they made so frequent Use of the strongest Purgatives: For in the Days of *Galen*, and more especially in those of *Hippocrates*, the more gentle Laxatives had no Place in Practice, but the Patients were racked with Hellebore, Colocynth, Scammony, Elaterium, and other Purgatives of a like Stamp. Yet Experience has taught us, that these Medicines are so far from being beneficial, that they are very noxious and hurtful to our Constitutions; for they destroy the Tone, and impair the Strength of the Intestines, which are so necessary for the Preservation of Life; they diminish the Force and Strength of the Membranes by spasmodic Constrictions, exhaust and carry off the balsamic Bile, and disturb the salutary Excretions, by drawing that Humour which should be discharged through the Skin, from the Circumference to the Centre of the Body. Nor can any other Cause be assigned for this Error in Practice, than their Ignorance of Anatomy, which, as soon as she rear'd her Head above those Clouds of Darknefs, with which she had, till then, been incircled, detected these Errors, and instructed us to beware of them for the future.

Besides, their immense Number of Medicines sufficiently proves, that their Practice was confused, and their Industry, in some Degree, superfluous; for what is the Design of so many Cordials, Hepatics, Splenetics, Uterines, Antiepileptics, Anthelmintics, and Remedies appropriated to each Part of the Body? What can be the End of such a Multitude of Remedies, but to convince us, that the Physician, amidst such a Store of various Medicines, knew only the Virtues and Qualities of a few? For Diseases are cured with a few, but well-chosen Medicines, which the Antients being ignorant of, contrived such a cumbersome *Materia Medica*, under so many trifling and inconsistent Forms. It was likewise their Misfortune, that the richer and more noble Medicines were not known in their Days, such as volatile Salts, neutral Salts, the right Use of Anodynes; as also the several Preparations of Steel, Antimony, and Mercury. As it was their Misfortune to be ignorant of these Things, they must of consequence be very ill qualified for the Cure of chronical Disorders; or if they attempted a Cure in Cases of this Nature, it was done by Regimen, Abstinence, Phlebotomy, Frictions, Baths, Exercise, Change of Air, and their last Resource was the Knife, and Fire. The very Nature of the Climate, in which some of the ancient Physicians lived, was also a Circumstance which very much contributed to the Cure of some Diseases; for in those warm Countries, such as *Greece* and *Italy*, Diseases are not very deeply rooted, and are therefore cured with little Pains and Trouble: But in acute Disorders, as Nature always challenges a greater Share of the Cure than Art, so 'tis not to be doubted but, among the Antients, these short-lived Disorders have been removed by the Force of Nature, aided by the Temperature of the Climate, and the Clemency of the Air. Now that we stand in need of fewer Medicines, and are Masters of

of a Method of Cure which is safe, easy, and simple in Comparison of theirs, is, in my Opinion, owing to our Knowledge of Anatomy; for since 'tis the principal Business of every Physician to take care, that the Quantity, Temperament, and Mixture of the several Humours, be duly proportioned to the Vessels and Strength of the Patient; and that these Humours be kept continually circulating, whilst, at the same time, the Excretions are regularly made; since this is the whole Business of a Physician, every one must see, how few Medicines are requisite to answer these several Ends.

Having thus considered, how useful a Knowledge of the Blood's Circulation is in Practice, I now come to take a View of the Advantages accruing to it, from our Acquaintance with the Structure of some other Parts. The first I shall mention, is that common Covering of the Body, the Skin, the Texture of which if we understand, by means of Anatomy, we shall not only shun the Errors commonly received with regard to it, but likewise be greatly assisted in the Cure of Diseases: In the Skin various Vessels, Tendons, and Nerves terminate, with which some small Glands, or small villose Bodies, are interwove, that the thick Serum, and the salt, agile, and aerial Principle, may be the more commodiously secreted. If a practical Physician rightly understands this Structure of the Skin, which is only fit for the Excretion of very small Particles, he must be convinced, that the Pores of the Skin, destined for a Discharge of the finest Particles, must be very ill-adapted to carry off the viscid and bilious Sordes collected in the *Primæ Viæ*. Whenever, therefore, the Stomach and Intestines are become turgid with Humours of this Kind, as it usually happens in intermittent Fevers, Quartans, hysterical and hypochondriac Disorders, the Physician is carefully to avoid prescribing all hot Medicines, and the stronger Sudorifics; for these, instead of procuring Stools, which indeed ought to be done, rather make the Patient costive, by driving the Load of recrementitious Matter from the Centre to the Circumference of the Body, and mixing it with the Mass of Blood. This Practice is likewise to be shunn'd, when the Bile, in consequence of a sudden Sally of Passion, has quitted its proper Channels, and lodged itself in the Stomach and Intestines; for if, being put into a Commotion by warm Medicines, it should pass into the Blood, it resembles the Nature of Poison, produces the same deleterious Effects, and threatens the Patient with imminent Danger. In such a Case, therefore, the Physician must, if he pretends to act up to the Principles of his Art, take care to evacuate that Load of Humours lodged in the Stomach and Intestines, by the proper Emunctories, and with the Assistance of gentle Laxatives.

By this same Anatomical Observation we are taught, that this Method of Evacuation is less proper when saline, caustic, and subtle Sordes are mixed with the Blood; for these should have a way made for them thro' the Skin; the Pores are therefore, in such a Case, to be kept open by a due Degree of Heat, and proper Medicines: And this is to be carefully attended to, in all Diseases where Sordes of this Kind are offensive, as Erysipelas, Itch, Purple Fever, Petechial Fever, Small-pox, Measles, and Gout, especially if the Pustules are struck back into the Body. All these Things plainly shew a Physician, who ought to be the Assistant of Nature, that nothing can better qualify him for being so, than a Knowledge of Anatomy; but because the Skin is, upon account of the Nerves and Tendons which terminate in it, of a very quick and exquisite Sensation, and consequently very easily constricted, a Physician ought to guard against all those things which contract the Pores, and prevent a free and wholesome Transpiration. This is principally to be regarded in Diseases where the Blood abounds with impure and saltish Recrements; and all possible Care is to be taken, that the sharp and noxious Matter, which should be discharged thro' the Skin, be not imprudently struck back into the Body, and Mass of Blood: For this Reason we are to avoid cold and moist Applications, Ointments, Plaisters, and whatever may contract the Skin; but this Caution is particularly necessary in pustular Disorders, such as Itches, Gout, scald Heads, Leprosies, Erysipelas; and also in critical Sweats, lest by the rash Use of these things we precipitate the Fate of the Patient.

Next to the Skin the Fat presents itself, from an accurate Contemplation of which, the practical Physician must likewise receive Advantages, that will more than counterbalance his Toil in the Research; for as this Substance is laid thicker upon some Parts of the Body than others, so, by this very Circumstance, it points out to us the true Method of applying external Remedies, or, as we commonly call them, Topics. Thus, for Instance, the Person who applies external Medicines to his Hip or Thigh, in order to remove the Agonies of Sciatic Pains, will find his Expedient attended with very little Success; because the Abundance of the Fat, and the Thickness of the Muscles, prevent, in a great measure, the Medicines from reaching the Part affected. Nor will he act more rationally, who, in order to cure the Disorders of his Stomach, applies Plaisters to his Sternum or Abdomen; because, in these Parts, such Remedies produce very little Effect on account of the Fat, with which the Abdomen is covered. (*It is necessary to remark here, that tho'*

Hoffman may be right in the general upon this Subject, yet, with respect to Applications to the Hips, Abdomen and Stomach, Experience manifestly contradicts him, since there are Topics which exert considerable Effects when applied to those Parts. Our Author here, in defending Theory, which may be rendered extremely useful, has given us an Instance of its Misapplication, thro' the Rashness and Self-sufficiency of human Wisdom. In Philosophy, as well as Divinity, we are subject to arrogate to ourselves supreme Knowledge, and, in consequence of that, rashly to deny the Existence of Things and Effects, unless we can comprehend them, and conceive in what manner they are brought about; whereas Nature, or its all-powerful Author, has ways of acting to which we are, at present, Strangers, and Resources with which we are utterly unacquainted.) We therefore learn from the Principles of Anatomy, that in applying Topics, such Parts of the Body must be chosen as are covered with the slenderest Muscles, and the smallest Quantity of Fat: For this Reason, the nervous and tendinous Parts are, of all others, the most proper; such as the Soles of the Feet, the Palms and Wrists of the Hands, the Temples; and the Nape of the Neck: Medicines of this Kind may be also applied, with Advantage, under the Arm-pits, and to the Hollows of the Ham; from which Parts their Virtues are sensibly diffused thro' all the Body. When therefore, in case of too great a Heat and Fervor, the Body is to be cooled, it is proper to apply, to the above-mentioned Parts, Liquors that are somewhat acid, and gently repressing; for, by the Use of these, the Body is surprisngly refreshed. The same Practice is to be followed in allaying Spasms in Fevers, in which Case also corroborative and subastrigent Plaisters may, with Success, be applied to the Nape of the Neck, the Temples, and the Wrists: But when the nervous System is to be strengthened, 'tis proper, now-and-then, to warm and cherish the Nape of the Neck; and the Sutures of the Head, with mild and balsamic Corroboratives. When the Force of the languid and unactive Nerves is to be excited, or a viscid Humour to be dislodged from some particular Part, the Intention is best answered by Vesicatories, applied to the Nape of the Neck. Lastly, in a *Lues Venerea*, or an Itch, which Disorders are often happily carried off by a seasonable Salivation, it is most safely raised by applying mercurial Ointments to the Arm-pits.

An accurate Knowledge of the Structure of the Navel will also qualify a Physician for the Application of Topics, with equal Prudence and Success; for 'tis known, that the *Linea Alba* is contiguous to the Navel; which, of itself, is a Part most sensible of Impressions: In this *Linea Alba* many considerable Tendons centre; so that 'tis plain, that Part must be endowed with a very quick and exquisite Sense, and therefore have a Consent with the whole Body; for 'tis very remarkable, that all the nervous Parts of the Body, if strongly irritated, or otherwise affected, do at the same time put the whole Body into a Commotion, by reason of the mutual and uninterrupted Connection of the Nerves dispersed up and down it: For this Reason we are not to wonder, if Medicines applied to the Navel do not confine their Efficacy to that particular Part, but convey it to the most distant and remote Quarters of the Body, by means of the many considerable Nerves which run thro' the Navel. Thus 'tis known, from a celebrated Family Experiment, that the Quantity of a Nut, of fresh Butter, applied to the Navels of Children, procures them Stools: And if Worms are lodged in the Intestines, if the Navel is anointed with Bull's-gall insipidated with the Ointment of Sow-bread, and mixed with Oil of Colocynth, it stimulates the Intestines to expel the Worms. In the convulsive Colic, which is indeed a very terrible Disorder, the Agonies of Pain are surprisngly allay'd by anointing the Navel with a few Grains of Civet. Nor is less Relief to be expected in a Suppression of Urine, from carefully anointing the Navel with Oil of Turpentine; for the Discharge of the Urine will be wonderfully promoted by that means, since the Umbilical Arteries adhere to the Sides of the Bladder.

The Diseases of the internal Parts, and the most proper Methods of curing them, must be made known to us by considering their Situations, and the several Parts where they are placed: Thus we know, that the Stomach is inclined to the Left Side; and that its upper Orifice adheres to the *Spina Dorsæ*, whereas its inferior Orifice is covered with the *Scrobiculum Cordis*. From this Circumstance it is very plain, that the most intense Pain, which has erroneously got its Denomination from the Heart, proceeds entirely from the Stomach; and that the Seat of a *Cardialgia*, as is groundlessly thought, is not in the Left, but rather in the Right Side of the Stomach: For leaving the Seat of the Pain, which is under the *Scrobiculum Cordis*, entirely out of the Question, this appears plainly from this Circumstance, that the Bile, which frequently excites the Pain, lies nearer to the Right than to the Left Orifice: Hence those, who labour under Obstructions of the Liver, are most frequently troubled with this Disorder. Now when the Pain itself has reached the very Back, the Left Mouth or Orifice must also inevitably suffer: Anatomy therefore teaches us, that, in this Case, Plaisters, spirituous Substances, Balsamics, and such things as are calculated for strengthening the Stomach, and allaying Pain, are to be externally

externally applied to the *Scrobiculum Cordis*, and the Left Side under the false Ribs. From Anatomy we also learn, that this Disorder is most effectually relieved by such Medicines as correct the Acrimony of the Humours, and discuss Flatulencies. Besides, because the Stomach, as Anatomy teaches us, lies under the Diaphragm, it often happens, that its being inflated produces the greatest Uneasiness, and Difficulty of breathing; in which Case, the Physician, who is ignorant of Anatomy, would commit an egregious Blunder, if he prescribed sweet and emollient Pectorals, imagining the Cause of the Disorder to reside in the Lungs; whereas the Cause itself, which is a thick Phlegm, and an Inflation, ought rather to be taken away, and the Spasms of the Stomach should be removed; both which are often happily effected by gentle Emetics and Laxatives.

The Situation of the Colon, and its sinuous Structure, of which the Antients were ignorant, by reason of their Neglect of Anatomy, has so deceived them, and even some of the Moderns, that they ascribed to a Fault of the Spleen, those Tumours; especially of the Left Side, which, in Hypochondriacal Cases, proceed from a Flatus, and Ordure pent up in the Foldings of the Colon. If these Men had learn'd, that the Spleen lay under the Diaphragm, and that it was nearer to the Spine, they might have easily shunn'd so palpable an Error. For 'tis well known; that the Pains, the parching Heats, and the Tumours, under the false Ribs of Hypochondriac Persons, appear principally in the Left Side. Add to this, that the Spleen has a less exquisite Sensation; and by reason of its Bulk, the Circumstance which generally renders it troublesome, excites a very heavy and fixed Pain, whereas in Hypochondriac Disorders we observe, that the Pain is intense, but soon goes off. As this is the Case, 'tis plain, that in the Cure of that Disease, carminative Clysters, which dilute the Acrimony of the Humours, and defend the nervous Membranes of the Colon, are deservedly preferable to all others. In this Case Carminative Plaisters are not to be neglected, which, when apply'd to the Left Side, strengthen the Tone of the Colon, and afford surprizing Relief.

Another Disorder, which draws its Origin also from the Colon, sometimes perplexes the Physician who is ignorant of Anatomy; for it sometimes happens, that a violent Pain suddenly arises near the Costa of the Right Ilium, accompanied with an obstinate Constipation of the Belly. The Cause of this Disorder is this: The Beginning of the Colon is situated there, and consists of very strong Ligaments and Membranes, that so it may the more speedily protrude the Fæces upwards. But when, in Persons that are reduc'd by the Violence of some Disease, the Tone and Strength of this Intestine are impair'd, Flatuosities and Fæces retain'd in it distend it, resemble a Tumour, and subject the Patient to the most excruciating Agonies. The Cause then of this Disorder plainly demonstrates, that in this Case the only things which can afford Relief are Cataplasms of Carminative Seeds and Herbs; and that 'tis likewise very proper to wash the Intestines with oily Clysters; for when these arrive at the Beginning of the Colon, they powerfully soften the indurated Fæces, and by that means forward their Expulsion.

Violent Pains often arise about the Navel, which, being really in the Ilium, are, by some Physicians, who are ignorant of Anatomy, erroneously taken for Colics. This Disorder is certainly very frequent, but it was still more so in the Days of *Hippocrates*, who often makes mention of it, but never of a Colic; which seems to be owing to this, that on account of the Salubrity of the *Grecian* Climate, Colics, as well as Hypochondriac Disorders, were not frequent. 'Tis therefore highly proper, that in the Cure of this Disease we should know the Situation of the Intestines, lest we should otherwise apply Medicines to no Purpose. For tho' in Colics Clysters are very proper, yet 'tis very plain they do little Service in the Iliac Passion, since they never reach beyond the Valve of the Colon. 'Tis therefore in vain to have recourse to Clysters for the Cure of this Disease; we are rather to use Plaisters and Ointments externally, and internally Oil of sweet Almonds, mixt with Oil of Anise.

In this Case also nervous Medicines, and Preparations of Castor, are very properly used, because they wonderfully mitigate the Violence of the Spasms. (*See ILIACA PASSIO, where the Reasons will be given why emollient Clysters are useful in this Case, tho' they should not pass the Valve of the Colon*).

He who is acquainted with the Situation of the Intestinum Rectum, and its close Connection with the Bladder, must perceive the Reason why a Difficulty in making Water, especially if it proceeds from a Wound, or the Stone, is always accompanied with a Tenesmus, and very often with a Prolapsus Ani. The Physician who knows the Situation of this Intestine, will also be able to assign a Reason, why, in a Tenesmus, the Bladder is reciprocally stimulated to discharge its Contents. In such a Case therefore 'tis carefully to be inquir'd into, whether the Fault lies in the Bladder, or in the Intestinum Rectum, lest whilst the Cause is unknown, the Cure should miscarry; for Remedies would be very improperly apply'd to the Bladder, if the Intestinum Rectum should happen to be the Seat of the Disorder.

It is equally necessary to consider the Situation of the Bladder, which is placed in the very Bosom or upper Part of the Pelvis, and is join'd to the *Os Pubis*. A numerous and manifest Series of fleshy Fibres run along it, by the Contraction of which the Urine is discharg'd, and which being again distended by too great a Quantity of Liquor in the Bladder, their Elasticity is proportionably destroy'd, and the Urine suppressed. Hence we learn, that for relieving this Disorder, we must apply to the Region of the Pubis such Medicines as stimulate the Fibres to a Contraction, that so the Efflux of the Urine may be restored. For answering this Intention, some Oils are very proper, such as Oil of Scorpions, and Juniper, Garlick also, roasted Onions, and other Medicines, which have a Tendency to raise and strengthen the weakened Tone of the Bladder.

The Course of the Ureters is towards the Bladder, and passing in an oblique Direction over the Psoas Muscles, are inserted into its posterior Part. These; I mean the Ureters, consisting of muscular and tendinous Fibres, must necessarily be violently irritated by Stones falling down into them, and remaining there. That the Physician may also receive Advantage from this Anatomical Observation, it will not be amiss to inform him, that in this Case he is carefully to avoid prescribing Oils of Juniper and Turpentine, Balsam of Sulphur, and all Medicines that are of a forcing Nature, because in this Disorder 'tis his Business to relax the Parts contracted by the Violence of the Spasms; for which Reason he will, with more Advantage, have recourse to the express'd Oils, such as Oil of sweet Almonds, Nutmegs; Oil of white Lillies, Scorpions, Poppy-seeds, Caraway, and others; for these, when apply'd to the Region of the Loins and Ureters, surprizingly assuage the Pains produced by this Cause.

The like Advantages in curing Diseases flow from considering that exquisite Congeries of Nerves, that Variety of Arteries, Veins and Tendons, which are interwove with the Mesentery about the last Vertebra of the Back, and first of the Loins; for hence we may reasonably conjecture, that the intense Pain which seizes People in the Beginning of Intermitting Fevers, in the Small-Pox, in the Measles, in the Hysterical Passion also, and other acute Disorders, does not arise from a Stone in the Kidneys, as is generally thought, but from the Congeries of Nerves in the Mesentery: For if these be distended or vellicated by Flatulencies, or Blood stagnating in the Intestines, there immediately arises a Pain in the *Spina Dorsii*. I once knew a Physician very successful in curing this Disease, who for that Purpose very often used Plaister of Frog's-spawn, with Oil of Henbane and Camphire. On the other hand, narcotic astringent Remedies, and Lead-plaisters, instead of affording Relief, rather hasten the Destruction of the Patient. I have also often observed, that such Applications, when used with a View to check the menstrual Discharge, not only restrain'd, but entirely stopp'd it, to the great Prejudice of the Patient, the Blood being by these Means forc'd upon other Parts.

I now come to take a Survey of the genuine Structure of the Viscera, that we may thence see how useful the Knowledge of Anatomy is in the Practice of Physic. To begin therefore with the Lungs, 'tis sufficiently evident, that since they are composed of mere Vessels, they must abound with Blood; for innumerable Branches of Vessels, winding in a great many various Directions, pass thro' them, and thro' the Whole of their Course embrace the *Bronchia*. The Pulmonary Artery also, by which the Blood is convey'd from the Right Ventricle of the Heart into the Lungs, appears to be larger than the Aorta itself. Besides, the Pulmonary Vein sends so many wonderful and curious Branches thro' them, that if melted Wax is injected into these Branches, a very considerable Number of them may be seen. This may furnish us with an Argument, that the Diseases of the Lungs proceed principally from a Stagnation of the Blood, and a Prevention of its free Circulation thro' them. This is confirmed by a Spitting of Blood, a Peripneumony, a Pleurisy, a Phthisis, and all the fatal Train of Diseases which prey upon the Lungs.

If we allow these Considerations their due Weight, we must evidently see, that in Disorders of the Lungs Phlebotomy not only affords Relief, but is absolutely necessary, both for the Cure and Preservation of the Patient. Hence we see with how great Propriety all those Medicines are prescribed in Diseases of the Lungs, which dissolve and attenuate the Blood lodg'd in them. The best and most effectual Remedies of this Class are warm Infusions of Herbs that are balsamic, and contain a subtile nitrous Salt. 'Tis hence also plain to a Demonstration, that in Disorders of the Lungs nothing can be more hurtful and pernicious, than astringent Acids, Styptics, viscid Substances, and all such Medicines as retard the free Course and Circulation of the Blood; and because the *Aspera Arteria* enters the Lungs, and is itself lin'd with a nervous Membrane, all acid and sharp Substances are therefore to be avoided, as hurtful in Disorders of the Breast; for these not only draw too great a Quantity of Blood to the Part affected, which is already too full, but, which is still worse, stop the Motion and Circulation of the Blood.

It now remains, that we take a View of the Structure of the Liver, which, of all the Viscera, abounds most with Blood, and presents us with various Vessels, the precise Number of which 'tis no easy Task to determine: Even the very Glands which are found in the Liver, are no more than the numberless Branches of Vessels; which, arising from the *Vena Portæ* and *Vena Cava*, form themselves into membranous Cells of an oval Figure, as has been ingeniously observ'd by *Vieussens*, in his Treatise *De novo Vasorum Systemate*; for the Glands of the Liver secrete the Bile, which is collected together from various little Vessels interwoven with, and adhering to one another.

Now if we consider, that the Liver is furnish'd with the greatest Part of its Blood from the Spleen; the Omentum, the Stomach, the Intestines, and other Contents of the Abdomen; by means of the *Vena Portæ*, and that this Vein is destitute of a Pulse to propel its Contents forwards, we shall be at no Loss to conceive why the Liver should be very obnoxious to Stagnations of the Blood, and all the dismal Train of Consequences that follow it; for Obstructions of the Vessels; Infarctions, Indurations, and most chronical Disorders, are the Results of a weak and languid Circulation of the Blood thro' the Liver; for if a Passage is deny'd the Blood thro' the *Vena Portæ*, and the *Vena Cava*, it returns to the Viscera whence it came, and is deriv'd to the Spleen, the Pancreas, the Mesentery, and other Parts. By this means it happens, that, so long as it lodges there, it distends the Vessels, and by stimulating the nervous Membranes occasions various Spasmodic Disorders, and Obstructions. Upon this Occasion the Lymph is extravasated, and hence arise Tumours, Piles, Vomitings of Blood, the *Morbus Niger* mentioned by *Hippocrates*, and a numerous Train of such-like Disorders: That these may be expell'd from the Body, the prudent Physician informs himself from Anatomy, that the chief Intention of Cure consists in rendering the Motion of the Blood thro' the Liver free and easy. In Cases of this Nature therefore, Mineral Waters, warm Baths, wholesome Waters liberally drank, all Bitters likewise, saline Substances, fix'd neutral Salts, and in a Word all such things as attenuate the Blood, strengthen the Solids, and restore the Blood, to its usual Circulation, are of Service: And when the Blood accumulated in too great Abundance, which is often the Case, proves hurtful, we may easily imagine, that Phlebotomy must be proper and beneficial, because by means of it the too great Quantity of Blood which distress'd the Patient, by distending his Vessels, and breeding Obstructions, is happily diminished.

Besides, by Anatomy we discover, that the Liver adheres to the Diaphragm, which particular Structure, like all the other Works of the supreme Creator, was design'd to answer a noble and important End, which is, that by the frequent Motion of the Diaphragm in Respiration, the Liver, which adheres to it, might be agitated and put into Motion; and by that means the languid Motion of the Blood quickened and accelerated; which is a sure Proof, that in Diseases of this Kind, Motion is a proper Remedy, and that for this Reason, Exercise, Walking, Riding, and other Species of Motion, are deservedly prescribed. If we farther consider, that the Hemorrhoidal Vessels, which are extended longitudinally upon the Colon and Intestinum Rectum, are at a vast Distance from the Trunk of the *Vena Portæ*, and that all perpendicular Ascents, as they are called, are performed with Difficulty, we must easily perceive, that since the Blood passes with Difficulty thro' the *Vena Portæ*, and the Viscera of the Abdomen, it must readily stagnate, and, having burst the Vessels, especially if the Patient is seiz'd with Spasms, flow from the Mouths of the Veins. Hence it must be proper in Disorders of this Kind to corroborate the solid Parts, to restore the Motion of the Blood by Diluents, and to abstain from smart Purges, aloetic Preparations and Astringents; for these, by irritating the Intestinum Rectum, render this Discharge, which is sometimes salutary and wholesome, hurtful and injurious.

Having said enough of the Liver, I now proceed to take a View of the Uterus, a perfect Knowledge of which is of vast Importance in the Cure of those Diseases which are peculiarly incident to the Female Sex. The Uterus, according to the Discoveries of Anatomy, is likewise one of those Viscera which contains Blood, and which, besides its muscular and fibrous Substance, has a considerable Number of winding Vessels carried to it from the Hypogastric and Spermatic Vessels. Now since these Vessels are in various Places interwoven with and adherent to each other, it must necessarily happen, that the Blood, especially when in too great a Quantity, must, by reason of these winding Canals, make its way, in a languid manner, thro' this Part. Hence we may reasonably conclude, that if the Blood stagnates there, and is not duly return'd thro' the crooked Windings of the Veins, very terrible Disorders must ensue; for hence, as from a fruitful Source, proceed Effusions of Blood, viscid Concretions of Blood, commonly known by the Name of Polypuses, and innumerable other Disorders. Hence likewise proceed frequent Miscarriages; hence Dropsies,

Tumours, Cachexies, Obstructions, and all the Train of Disorders peculiar to the Female Sex.

As this is the Case, we may reasonably maintain, that in these Disorders all such things as retard the Motion of the Blood are carefully to be avoided, such as Acids, Styptics, and Astringents, because these Disorders are exasperated and increased by such Medicines. Those Medicines, on the other hand, are proper, which render the Blood fluid, florid, and susceptible of an easy Motion. Such Remedies are likewise proper as strengthen the solid Parts, that so the vital Juices may the more speedily convey their benign and salutary Influences thro' the whole Body; to this Class belong Baths, volatile oily Salts, and balsamic Bitters; which Medicines, if used sometimes, and with proper Caution, afford singular Relief in the above-mentioned Disorders. Allow me also to recommend Phlebotomy, which is an excellent Preservative against Abortion, and other Disorders peculiar to that Sex.

I now come to consider how beneficial a strict and anatomical Knowledge of the Structure of the Spleen is in the Practice of Physic. *D. Spigelius* long ago observed, and *Ruyssch*, the Glory and Ornament of our own Age, has proved by several Experiments, that the Spleen is composed of a vast Number of Vessels, Veins and Arteries, which has induced some of the Moderns to think it almost a vascular Substance, and, as it were, a sanguineous Gland. Hence we easily see, that the Spleen was originally design'd for attenuating the thick Blood convey'd to it, that so it might be transmitted in a purer and more florid State to the Liver. These Circumstances being discovered, we cannot fail to perceive what Injuries must ensue to Health from its being obstructed, becoming tumid, or stuffed with Blood; because by these means a thick and viscid Blood is from it convey'd to the other Parts, which, whilst it passes with Difficulty through the narrow Parts of the Vessels, settles in them, and becomes the Source of various Disorders. Hence 'tis to be observed in Practice, that in Disorders of this Kind, no Medicines are either so powerful, or so speedy in their Effects, as those which attenuate the Blood, open the Vessels, remove Obstructions, and strengthen the Tone of the Solids; for by these the languid Motion of the Blood is augmented, and its Circulation carried on without Interruption. For attenuating viscid Blood therefore, the plentiful drinking of wholesome Water is very proper; and the Reason is plain, why warm Baths, and Mineral Waters, are not only useful, but of all other Remedies the most sovereign in Disorders of this Kind. Now as the Circulation of the Blood is assisted by the Tone of the solid Parts, and as this Tone is proportionably destroy'd by the Distention of the Vessels, it plainly follows, that gentle Astringents, such as Chalybeats, and what we commonly call Splenetics, are not to be neglected in Disorders of this Nature.

Among the Number of sanguineous Viscera we may justly reckon the Kidneys, the Knowledge of whose Structure, as 'tis highly useful in Practice, deserves our most attentive Consideration; for the Secretion of the saltish Serum depends entirely upon the free Circulation of the Blood thro' the Kidneys. Now that this Circulation is naturally very expeditiously performed, may be proved by two Arguments: First, the emulgent Arteries are not far distant from the Heart, near which the *Systole* of the Arteries is very strong. Secondly, the Fluids taken into the Stomach are very quickly discharged by the Bladder. This principally happens upon drinking warm Liquors, such as Small-beer, and Infusions of Tea, and Paul's Betony, after plentiful Draughts of which, the Urine is very soon discharged in great Plenty. All the Disorders then incident to the Kidneys, such as Exulcerations, Inflammations, Paroxysms of the Stone, Suppressions, immoderate Fluxes of Urine, proceed from a Stagnation of the Blood. Hence the Physician may learn, that too great a Quantity of Blood, or a Plethora, is the Cause of these Disorders; and that Phlebotomy must of Consequence be very proper for the Relief of the Patient, and the Removal of the Disease. Hence we are also taught, that warm Baths, Mineral Waters, warm Infusions of Paul's Betony, and Ground-ivy, and all other Medicines which attenuate coagulated Blood, are beneficial in Disorders of the Kidneys.

The membranous Parts of the Body likewise claim our particular Regard, since, being endow'd with a most quick and exquisite Sense, 'tis of vast Importance for the Physician to understand their Structure. The Viscera then, which principally consist of Membranes, are the Stomach, the Oesophagus, the Intestines, and the Bladder. Now we learn from Anatomy, that such Parts as consist of Membranes, contain little Blood; but that they are furnished with a great many Branches of Nerves, and fleshy Fibres, that so they may both contract and dilate themselves. For these Reasons they are very subject to Spasms: Hence the Blood, flowing slowly thro' the compress'd and obstructed Veins, easily stagnates, and produces the most fatal Disorders; for from this Cause we find the most dangerous Inflammations arise, because the nervous Parts, on account of their incredible Connection and Communication with one another, at once irritate and affect the whole nervous System; so that

that a Complication of very terrible Symptoms are generally observed to accompany such Disorders, as acute Fevers, Watchings, Loathing of Food, Heat of the internal, and Coldness of the external Parts, Restlessness, Convulsions, and in some Degree Loss of Reason. Hence it likewise follows, that the more noble and valuable the Part affected is, the more terrible and dangerous the Inflammation ought to be judged; and that the Endeavours of the Physician to procure a speedy and seasonable Relief, ought to bear a direct Proportion to the Weakness and Danger of his Patients. This Theory plainly demonstrates, that, in order to protect the Body against the violent Assaults of such a Disorder, all those Remedies are proper, which preserve the Tone and Strength of the solid Parts, and are neither too astringent, nor too relaxing; among which I cannot help recommending nervous Medicines, temperate Balsamics, warm Infusions of Herbs, volatile oily Salts, alexipharmic Essences, &c. In case of a Plethora, or too great a Quantity of Blood, Phlebotomy is also necessary; and all Purgatives, Emetics, Styptics, and Opiates, are to be avoided. Acids in Food, viscid Substances, and such as induce a Coldness of the Body, are likewise to be shunn'd, because, by stimulating the Fibres into Spasms, they augment the Disorder. But the Importance and Largeness of the Stomach calls upon me to say something particular upon its Structure; one Peculiarity of which is, that, in the superior Cavity of its Left Part, the Blood-vessels are defended with a very thin Membrane, whilst at the same time their canous and villous Membranes are extremely slender in the same Place. Hence a Reason may plainly be assigned, why, in Hypochondriac Disorders, and Obstructions of the Spleen, these Vessels, being distended with Blood, should be easily burst, the Consequence of which is, a plentiful Effusion of Blood from the Mouth. These Vomittings of Blood are also very common to Women, for no other Reason than that the Blood, which should have been carried off by the menstrual Discharge, is retained; and being convey'd to the Stomach, first distends, and then bursts these Vessels. Moreover, the Bottom of the Stomach, and its inferior Orifice, together with the Duodenum, are cover'd with a very thick and villous Coat, which covers the nervous sensible Coat; so that we have no great Reason to wonder why these Parts of the Intestines are endow'd with a less exquisite Sense than others, since Anatomy demonstrates, that the latter are entirely destitute of the above-mentioned Coat. This plainly appears to be the noble Result of exquisite Contrivance, and unerring Wisdom; for 'tis without Doubt intended to hinder the Bile and Aliments, which are principally lodged in these Parts, from irritating this nervous Coat, and thereby proving prejudicial to Health. Hence we may lay this down as a Rule in Practice, that saline Purges, and gentle Openers of the Belly, are of no Use in Disorders where a Load of acid or bilious Matter is lodg'd in the Bottom of the Stomach, in the Duodenum, or the Beginning of the Jejunum; for these Parts, being only endowed with a dull and heavy Sensation, resist the faint and languid Stimulus of such weak and ill-chosen Medicines. But no Medicines are better calculated for dislodging these remote and deep-rooted Sordes, than gentle Emetics; for these, by the Sulphur, and subtiler caustic Salt, of which they consist, penetrate the Tunica Villosa, or villous Coat, and by stimulating the nervous Coat, easily excite Spasmodic Contractions of the Parts; whence the Sordes, lodg'd within them, are drawn forth, as it were, by the Energy of the Medicine.

Whilst I am speaking of the Duodenum, it will not be amiss briefly to touch upon the more curious Circumstances of its Structure, which few have as yet sufficiently adverted to. Heaven then, whose Works are always perfect, has bountifully contriv'd, that this Intestine should resemble a little Bag, or Stomach, that so the Bile, pour'd from its respective Ducts into this Intestine, may remain the longer in it, and by that means be the more intimately mixed with our Food; a Circumstance which is absolutely necessary to Health. As this is the Case, it is not to be doubted but a great many Disorders proceed from this Intestine, if too large a Quantity of Bile is lodged in it; and especially if thro' the Languidness of its Motion, and the Length of its Stay there, it becomes corrupt, and assumes a virulent Quality. Certain it is, and I only affirm what I know from Observation, that this Intestine, as above circumstanc'd, contains the latent Causes of many terrible Disorders; for to it we may principally refer Intermitting, Tertian, Burning, and Bilious Fevers, Dysenteries, Diarrhoeas, and Cardialgias. In this Intestine also lurks that malignant Matter, which, being afterwards translated to the Blood, occasions Small-Pox, Purple Fevers, and Disorders of various Kinds. Hence we may rationally conclude, that no Medicines are more efficacious, either for preventing these Disorders when dreaded, or removing them when present, than gentle Emetics, whereby the Seeds of the Disease may be dislodg'd, and the Sordes duly evacuated, lest they should communicate a Taint to the Blood. This Intention is also answer'd by nitrous absorbent Abstersives, which act immediately on the Matter of the Disease, and break the pungent Spiculae which prove its Cause.

I should be guilty of an unpardonable Neglect, if in this Place I fail'd to take Notice of the Bile, that Humour so necessary for the Welfare of the Body, and of which the Abundance loudly calls for our Admiration and Surprise, since in the Liver it is plentifully generated, and convey'd to the Intestines by two Ducts; for which no other Cause can be assign'd, than that this Humour is absolutely necessary for the Body, since it enters the Duodenum and first Intestines, mixes with the Chyle, and proves a proper Stimulus for discharging the Contents of the Intestines. Hence we learn, that the Bile is vastly conducive to Health, and that its being either corrupted, or deficient in Quantity, produces various Disorders. Hence we also learn an useful Maxim in Practice, which is, That all those Substances are excellent Preservatives of Health, which either recruit the diminish'd Bile, or restore its Temperament, and balsamic Bitterness. This Intention is excellently answer'd by bitter Extracts of Wormwood, lesser Centaury, Carduus Benedictus, Extract of Aloe, and other Substances of a like Nature; for as the Bile, in its natural State, strengthens the Motion of the Intestines, proves a proper Stimulus for the Discharge of the Excrements, and incides the acid and viscid Humours of the Body, and by that means preserves it from cold Disorders, we have no Reason to doubt, but that, in Cases of this Nature, Bitters, administer'd in Conjunction with Balsamics, are highly proper and expedient: For this Reason these Medicines are greatly beneficial in Cachexies, Dropsies, Hysterics and Hypochondriac Disorders.

It will not, on this Occasion, be improper to say somewhat of the Circulation of the Lymph, and shew what an Advantage the Knowledge of it must be to the Practitioner. We must first then consider, that the Lymph, or most thin and refin'd Part of the Serum, is secreted from the Arteries, convey'd by means of the lymphatic Vessels to the thoracic Duct, and returned to the Heart, with this View, that the Blood may be sufficiently attenuated by a proper Fluid; for we learn, that our Bodies are supported and maintain'd by a due and proper Quantity of Fluids; and 'tis plain from Chymical and Statical Experiments, that our Bodies in the Complex contain eleven Parts of Fluid to one that is Solid. Hence a Fluid must necessarily be the principal Element of the Blood, whereby 'tis preserved, and so diluted, as to pass easily thro' the narrow Channels of the Vessels. Hence we must know, what Fluid, even when taken in the greatest Quantity, must be conducive to Health, which must be that which is lightest, thinnest, and best calculated for mixing with the Blood. For this Reason a Physician ought carefully to inquire into the Qualities of different Waters, that so he may know which are best calculated for the State of his Patient, and most conducive to Health. Hence the Physician must also perceive, that nothing is so effectual for attenuating a thick Blood, as an Abundance of Fluids; and that in the most obstinate Disorders arising from Obstructions of the Viscera, and Viscidity of the Blood, hot Baths, and Mineral Waters, afford the noblest Relief, provided they are liberally drank.

The Anatomical Contemplation of the Lymph also teaches us, that its retrograde Course is perform'd with a great deal of Difficulty; for which Reason bountiful Nature has lent her skilful Aid, and furnish'd the lymphatic Vessels with many bye Passages, whilst she has at the same time fortify'd the conglobate Glands, thro' which the lymphatic Vessels pass, with nervous Fibres, that by their Strength and Impulse, the Course of the Lymph to the Heart may be the more readily performed. Hence *Nuck*, that ingenious Inquirer into the Structure of the lymphatic Vessels, judiciously compares them to Siphons. But if this Motion should prove languid; if the Lymph should be viscid, or the Strength defective, the Lymph itself settles about the Glands, and obstructs them. Now if the Lymph should want a due Degree of Motion, it corrupts, turns rapid, and lays a Foundation for a great many, and those very terrible Disorders; such as those, which, from an Impurity of the Lymph, deform and spoil the Skin; among which are Leprosies, Herpes, Pustules, Itches, Scabies, and the Lues Venerea. Having then found out the Cause of Disorders of this Nature, which without Anatomy we cannot possibly do, the Physician is to endeavour to restore the Lymph to its Circulation; or, in other Words, to open the obstructed Glands, that the Motion of the Lymph may be increased. In a Case therefore of this Nature, Bleedings, Purgatives, Absorbents, or Salts prove ineffectual, and more powerful Medicines must be applied; such as penetrate, whose Texture remains sound and entire, and which, by stimulating the Fibres, open the Glands and Vessels. The Mineral Kingdom supplies us with Medicines of this Kind, such as Sulphurs of Metals, Antimonial and Mercurial Preparations, the wonderful Efficacy of which upon the Glands, and Motion of the Lymph, cannot be sufficiently extoll'd.

If the free Circulation of the Lymph is prevented, especially from Obstructions of the Liver, the lymphatic Vessels first swell, and then break. Hence the Serum, being extravasated in Abundance, produces various Species of Dropsies, which receive

ceive their different Denominations from the respective Parts they affect: Whence it is evident to a Demonstration, that these Disorders admit of a Cure with Difficulty; for it requires no great Labour to shew how hard a Task it is to soften indurated Viscera, and consolidate burst Vessels.

I now come to consider the Brain and Nervous System, with a View to illustrate the extensive Use that an accurate Anatomical Knowledge of these Parts is of in Practice. And, indeed, the Antients called these Parts cold, not because they wanted their proper Degree of Heat, but because, when compar'd with other Members, they were furnish'd with a proportionably smaller Quantity of Blood. Besides, the Substance of the Brain is of itself void of all Sensation: hence it plainly appears, that the *Deficiency of the Blood has a very considerable Influence upon those Parts*; since in Bleeding, or where a large Hæmorrhage happens, we observe the Patient to faint away, which is a convincing Proof, that by that means the Nourishment, as it may be called, is drawn away from this Part. Hence we learn, that warm Medicines are particularly beneficial in Disorders of the Brain, because, by strengthening its Membranes, they occasion a quicker and more expeditious Circulation of the Blood thro' it. For this Intention Cephalics, as they are commonly called, are deservedly commended; such as Oils distilled from aromatic Herbs, apoplectic Balsams, and volatile oily Salts; for if the Membranes of the Brain are not sufficiently strong, the Blood is easily retained in them; and hence very terrible Disorders arise, such as Apoplexies, Loss of Voice, Melancholy, Difficulty of Sight and Hearing, Gutta Serenas, Incubi, frightful Watchings, Sleep, Disorders and Diminutions of the several Senses and Motions of the Body. But as Corroboratives are excellently calculated for the Cure of these Disorders, so no Medicines are more fatal to the Brain than those which induce too great a Relaxation, Coldness, or Heaviness upon it. Of this Kind are all Substances that abound in Vapours, as moist Air, too much Sleep, the Affections of the Mind, and especially Sorrow, together with all such Things as strike the Nerves of the Head with their sulphureous Effluvia; such as Opiates, Narcotics, as also Acids, refrigerating Medicines, and autumnal Fruits. In these Disorders, on the other hand, volatile, oily, and balsamic Salts, are beneficial; the principal of which is my liquid Balsam, which since 'tis compos'd of the best and most genuine Oils, scarcely to be found in any other Composition, affords a surprising Relief in Disorders of the Brain and Nerves. In Disorders, therefore, which proceed from Obstructions of the Head and Nerves, such as a Palsy, I must for the same Reason recommend balsamic Medicines apply'd externally, not so much to the affected Part, as to the Origin of the Nerves, and the Nape of the Neck.

I should now handle the Doctrine of the Nerves at large; did I not think it sufficient to touch upon it on this Occasion: and without Doubt, if a Physician lies under Obligations perfectly to know any Part of Anatomy, 'tis certainly that of the wonderful Structure and Consent of the Nerves; for unless he knows this, he can never discern whence any given Series of Symptoms draw their Origin; nor what Disorders affect only by Consent. Whence the many Errors that might slip into Practice, may be easily conceived; for this is to be laid down as a general Caution, that the Cause of the Disease is to be removed, and that the Physician goes preposterously to work, who being ignorant of Anatomy, and overlooking the Cause, directs his Views only to the Symptoms. Now the Reason or Cause of these Symptoms is no other than that the nervous Parts are intimately connected with one another, whence their surprising Consent arises; for 'tis certainly wonderful, that when one nervous Part should be disturbed, the whole Body should, in Consequence of it, be affected. Thus from intense Pains, even of distant Parts, from a wounded Nerve or Tendon, from the Stone, the Colic, or Hic Passioni, proceed Fevers, Deliriums, Convulsions, and some other most terrible Disorders.

The intercostal Branch, and the eighth Pair of Nerves, run almost thro' all the Parts of the Body; whence it generally happens, that Vomitings, Diarrhoeas, Asthmæ, Constipations of the Belly, Suppressions of Urine, a Difficulty of Breathing, and a Pain in the Breast, succeed Disorders of the Head, Apoplexies, Epilepsies, or Contusions. The same happens in Hypochondriac or Hysteric Disorders; for if, in this Case, the nervous Foldings of the Mesentery, and the Nerves of the Stomach and Lungs, should happen to be distorted by Flatulencies, or any acrid Matter, Suffocation, Palpitation of the Heart, Vertigo, Pain of the Head, Fainting, Pain of the Neck, Asthma, Cataplexis, and Convulsions, threaten the Patient. Now the Physician would do nothing, who, only taking the Symptoms into Consideration, should prescribe Remedies against these Disorders; whereas, if the real Cause was once thoroughly known, such a Complication of Disorders might often be removed by a single carminative Clyster, or an antispasmodic Medicine. With a Paroxysm of the Stone are frequently join'd Vomitings, the Colic, Stupor of the Thigh, Retraction of the Testes, and what is still more remarkable, Epilepsy, and an uncommon

Pain of the Breast; for which Symptoms no other Cause can be assign'd, than that the intercostal Nerves, and those of the eighth Pair, are inserted into the Bladder and Kidneys. Over-looking Symptoms then, the Physician is to make it his chief Business to remove the Pain of the Stone, which being once done, the other Disorders will disappear with it; for which Intention Baths, oily Ointments, and gentle Anodynes, are to be prescribed, that by relaxing the Passages the Pain may be mitigated or removed. Equally necessary is that Observation concerning Worms, which, if lodg'd in the Intestinum Ileum of Children, corrode its Membrane, and produce Spasms and Convulsions: Which Symptoms will nevertheless easily cease, if the Physician makes a right Judgment of the Cause, and endeavours to kill the Worms by proper Anthelmintics. Intense Pain, Tenesmus, Loathing of Food, Watchings, and cold Sweats, often succeed an Erosion of the Bladder from the Stone. If by the Assistance of Anatomy we are directed to the Cause of this Distemper, it will easily appear, that in order to remove its concomitant Symptoms, the Physician's first and principal Care ought to be placed in removing the Stone, which is best and most effectually done by oily and balsamic Medicines; or, if the Case is very urgent, by extracting the Stone by a skilful Hand.

It would be tedious to mention the other Parts which are subjected to the most violent Torments, in Consequence of the incredible Connection and Communication of the Nerves: It will not, however, be improper to say something upon this Head. The most violent Disorders then, such as Diarrhoeas, Coughs, Fevers, Constipations of the Belly, Heaviness about the Breast, Convulsions, and other Disorders, accompany the Tooth-ach, and difficult Breeding of Teeth in Children; but these Symptoms, when they are not very violent, immediately remit, upon the Pain being allay'd, or the faulty Tooth pull'd out, which was the Cause of the Disorder: But 'tis surprising, what racking Pains accompany an Inflammation of the Stomach; because this Part, having very considerable Nerves, affects at once the whole Body. Hence by taking Poison, or by some acrid Matter lodging in the Stomach, intolerable Heart-burnings, Deliriums, and Uneasinesses, which in the Issue prove fatal, are produced; the internal Parts, but especially the Region of the Breast, are burn'd as it were in a Flame; the external Parts are cold, and the Pulse unequal; which Symptoms, as they are very terrible and dangerous, may justly alarm the Physician; yet they disappear, if the State of the Stomach is duly adverted to, and the Poison thrown out by means of Oil or Milk; or the Acrimony of the Matter destroy'd by proper Remedies. Nor is this less subject to happen in Wounds of the Tendons; for sometimes a Train of Disorders are the Consequences of a wounded Finger or Toe, or a Corn unskilfully cut; for then Cynic Spasms, Convulsions, Pains, and other Symptoms, afflict the Patient, and put him in the highest Danger; but the Fury and Violence of the Symptoms remit, if, by a seasonable Remedy, the Pain of the Nerves is mitigated.

In the Hysteric Passion, that Disease peculiar to the Female Sex, the Patients fall down as if they were Thunder-struck, or in an Apoplexy, since on account of the Nerves of the eighth Pair, and the Par Vagum, which are inserted in the Uterus, the Membranes of the Brain are at the same time seiz'd with Spasms. But, not to mention other Disorders, which in this Disease afflict the tender Sex, they all proceed from no other Cause than this; that the Nerves are carry'd in one uninterrupted Course thro' the Whole of the Body.

From this surprising Consent of Nerves, we are often to account for the Diseases, in which the Bile is justly accused as faulty; for as the hepatic Congeries of Nerves, which goes to the Gall-bladder, passes also thro' the Pylorus, the Pancreas, and the Duodenum; the Reason is plain, why, the Stomach being irritated, the Bile should be discharged both from its Ducts and Cystis; and why the Jaundice stimulates and provokes the Stomach itself to Nausea and Vomiting.

There is also a great Consent between the Bladder and Ureters, because the same Nerves pass thro' these Parts in one uninterrupted Course. Hence if the Beginning of the Ureters is afflicted with a Stone or Spasms, there very often happens at the same time a Suppression of Urine, a Strangury, and a fruitless and ineffectual Endeavour to make Water.

But enough on the Consent of the Nerves, which, if every thing was to be suggested, would detain us too long: The Physician in the mean while may profit so far from this, as to be able to distinguish the Cause from the Symptoms of a Disease. If any one desires to read more upon this Subject, he may consult that excellent Writer, *Kiussens*, who has laid down the Doctrine of the Nerves at greater Length. Tho' all I have advanced has a most direct Tendency to shew the Use of Anatomy in Practice, yet if I was to launch out into Surgery, Anatomical Knowledge would still be found more beneficial to it: For the Effects of Surgery are the most evident of any in Medicine; whereas in the Cure of internal Disorders there is at least a Possibility of doubting whether the Cure be performed by the Benefit of Nature, or the Virtues of the Medicine. But

in that Branch of the Art, by which Cures are performed by the Surgeon's, it is evidently and immediately perceptible to the Eye, that the Patient receives Assistance from his Hand. Hence it easily appears how great Praise a practical Physician may reap from the joint Knowledge of Anatomy and Surgery. I shall at present add no more concerning the Use of Anatomy in Surgery, since the Subject is of such Importance and Extent as to deserve a more particular Discussion. *Hoffman Medicina Rationalis Systematica*, Vol. 6.

Hoffman, tho' no inconsiderable Writer, has, however, in the preceding Dissertation, given a very confus'd Account of the Practice of the Antients. If amongst these he includes *Hippocrates*, he has done him great Injustice, by charging him with using too copious a *Materia Medica*, with a Neglect of gentle Laxatives, and with all the Errors and Dreams of later Physicians, who built their Theories upon the Peripatetic and Chymical Philosophy.

The HISTORY of ANATOMY.

With respect to the Antiquity of Anatomy, it seems scarcely possible, but that the Slaughter of Beasts for the Use of Man, Casualties, Murders, and the Accidents of War, must have furnished Mankind with a general Knowledge of the Structure of the Parts, in very early Ages of the World. But it is not very certain at what Period it began to be cultivated as a Science. This, however, must have been very early, especially if we pay any Regard to *Manetho*, the famous Egyptian Writer, who, according to the Report of *Eusebius*, relates, that *Athotis* an Egyptian King wrote some Treatises of Anatomy. This King, if the Egyptian Chronology was to be depended on, liv'd many Ages before *Adam*. This, however false with respect to Time, amounts to a sort of Proof of the Antiquity of the Science I am speaking of.

It is inferred, that *Solomon* was no Stranger to the Structure of the human Body, from a Passage in the twelfth Chapter of *Ecclesiastes*, which is thus:

Remember now thy Creator in the Days of thy Youth, while the evil Days come not, nor the Years draw nigh, when thou shalt say, I have no Pleasure in them;

While the Sun, or the Light, or the Moon, or the Stars, be not darkened, nor the Clouds return after the Rain:

In the Day when the Keepers of the House shall tremble, and the strong Men shall bow themselves, and the Grinders cease, because they are few, and those that look out of the Windows be darkened:

And the Doors shall be shut in the Streets, when the Sound of the Grinding is low, and he shall rise up at the Voice of the Bird, and all the Daughters of Music shall be brought low;

Also when they shall be afraid of that which is high, and Fears shall be in the Way, and the Almond-tree shall flourish, and the Grasshopper shall be a Burden, and Desire shall fail: Because Man goeth to his long Home, and the Mourners go about the Streets:

Or ever the Silver Cord be loosed, or the Golden Bowl be broken, or the Pitcher be broken at the Fountain, or the Wheel broken at the Cistern:

Then shall the Dust return to the Earth as it was; and the Spirit shall return unto God, who gave it.

It is evident, that *Solomon* is describing figuratively the Decays of the several Parts, which happen in old Age. But the whole Passage is too enigmatical to determine how far the Author was acquainted with the Structure of the Body.

It is very certain, that before, or, at least, in the Days of *Homer*, Anatomy was much cultivated, since this Author appears to have had a competent Knowledge of the Parts, and to have been very well vers'd in the Renunciation of Wounds, as the Moderns call it, so as to give an accurate Account of their Effects in almost all Parts of the Body.

But *Hippocrates* is the first Author at least extant, who treated of Anatomy scientifically. This divine Writer, conscious of his noble and exalted Genius, published many Anatomical Observations, which, tho' disjointed and scatter'd here and there in his Works, yet make up an entire Body of Anatomy, when taken together; But that he made it his principal Business to understand and explain the Bones of the human Body, is plain from those valuable and well-wrote Books upon Fractures, and the Joints, which evidently discover his perfect Knowledge of, and intimate Acquaintance with, the Bones; and that his Diligence, his Industry, and Skill in this Way, might the more effectually be transmitted to future Ages, he consecrated, if we may believe *Pausanias*, a brazen Skeleton to the Delphian *Apollo*.

The Writings of this great Man are interspersed with many Things relating to the Blood, which as they seem to shew his Knowledge of its Circulation, and also of the Secretions of the Humours, Dr. *Douglas* has pointed out such of them as seem to be the most glaring and unexceptionable Proofs of this Point.

The first of these Passages runs thus: *The Veins diffused thro' the Body supply it with Spirit, Fluidity ψύμα, and Mo-*

tion; whilst many of them branch out from one. But 'tis to be observed, that by Veins *Hippocrates* in this Passage means Arteries.

The second is in his Book *de Alimento*: *The Liver*, says he, *is the Root of the Veins, and the Heart that of the Arteries; from these the Blood and Spirits flow, and thro' these the Heat is diffused.*

The third is in his second Book *de Morbis*: *And if he recover, or get the better of his Disease, so that the Blood becomes warm, whether of itself, or by means of such Things as are administered; it ferments, is attenuated, and put into Motion, carries Spirits along with it, despumates itself, and is separated from the Bile, and so the Patient becomes sound.*

And again, *But*, says he, *whilst the Blood does not move, it cannot be but the Body must remain in a State of Rest and Sluggishness; and a little after, If the Coldness and Coagulation of the Blood are perfect, the Patient dies.*

The fourth Passage is in his second Book *de Dieta*: *For the Blood being warm'd and attracted, those Things which are in the Body perform a quick Circulation, [αἰεὶδὼν] and then the rest of the Body is purg'd by means of the Spirits; then that which is compact, becoming warm, is attenuated and eliminated from the Body thro' the Skin, and this is called a warm Sweat: And after this Excretion, the Blood is restored to its natural State, and the Fever remits.*

The fifth Passage is in his Book *de Insomniis*: *All these Symptoms, appearing, are the Signs of Health, and that the Body, together with all its Ingestions and Secretions, [ἀπορροιαί] are sound.* And again, *But Rivers, not flowing in their usual Manner, may be compared to the Circulation of the Blood, [αἷμα] when they overflow their Banks, they resemble the Excess; and when they cease to fill their Channels, they resemble the Deficiency of the Blood.*

The sixth Passage is in his first Book *de Dieta*: *For when the Circulation is slow, the Senses are lost by little and little, and those who are most acute are a little put out of Order, by reason of the Slowness of the Circulation.*

The seventh is in his Book *de Flatibus*: *For the Blood itself, being naturally warm, and propell'd by a certain Force, cannot soon make its Way thro' a narrow Passage, since it may meet with many Letts and Hindrances, whence Fevers, Pains, and other Disorders, arise.*

These Sentiments favour very much of the modern Theory of Fevers, arising from Obstructions of the Capillary Vessels.

The eight Passage is in his Book *de Morbo Sacro*: *The Spirit rests, the Brain is compress'd, and the Blood (ἐν) stands still.*

Many Passages, enumerated at large by *Joh. Ant. Vander Linden*, in a Treatise intitled, *Hippocrates de Circuitu Sanguinis*, might be subjoined to these; from which we may infer, that he had some Notion of the Circulation of the Blood.

Thus far Dr. *Douglas*. It cannot be doubted but *Hippocrates*, and all the Antients, knew that the Blood circulated; but it is certain, that they did not know how, or in what manner, the Circulation was performed; this Discovery being reserved for the great *Harvey*.

It would be superfluous to give a particular Detail of the Anatomy of *Hippocrates* in this Place; because whatever is remarkable, is taken Notice of under the respective Articles to which they belong. I must, however, observe that *Le Clerc* is far from thinking, with Dr. *Douglas*, that all the Anatomical Observations dispersed in the Works of *Hippocrates*, amount to an entire System. He says, that it is no easy Task to give a just Extract of the Anatomy of *Hippocrates*. Three things concur to deprive us of the Light that were to be desired in this Point. In the first Place, there are several Contradictions in what *Hippocrates* has wrote upon this Subject, or rather in the Books ascribed to him as their Author. Secondly, though one should collect all that he has said concerning each Part, yet still it would amount to nothing complete or coherent. In fine, tho' so many Faults had not crept into the Text, or tho' there were less Variety in the original Manuscripts, yet his Style is so concise, and some Passages in him are so obscure, and conceived in Terms so peculiar to himself, that 'tis not always easy, even for the greatest Masters of the Greek Language, to comprehend his Meaning.

For these Reasons, one might justly lament the Loss of a Book wrote by *Galen* on the Anatomy of *Hippocrates*, were not this Author to be suspected, on account of his Partiality, with regard to that ancient Physician: Instances of which, even in point of Anatomy, are to be met with.

The Assistance which, upon this Occasion, one might expect from Translators, and modern Commentators, is also very inconsiderable: If any Light is to be got from them, we ought to depend less upon these of the present, than those of preceding Ages; since 'tis to be dreaded, that the former, full of their new Discoveries, imagine they see them every-where; falling into the like ridiculous Error with those who find in *Homer* the most exquisite Delicacies, and refin'd Improvements of all the Arts and Sciences; or into the still more unaccountable Enthusiasm of others, who find the *Philosopher's Stone* in all the

the Books of the Antients; whatever the Subject handled should happen to be.

It is remarkable, that *Hippocrates*, in his Treatise *de Locis in Homine*, says, *That the Nature of the Body is the Principle, or Foundation, on which all medicinal Reasoning ought to be supported.* But in his Book *de Prisca Medicina*, there is a Passage which appears to be contradictory to the preceding: *Some Physicians*, says he, *and some Philosophers, affirm, that one cannot be Master of the medicinal Art, without knowing what Man is, what his first Formation, and the Manner in which his Body is composed, are. All that these Men have said, or wrote, concerning the Body, seems to me rather to belong to the Art of Painting than to that of Medicine; and I am persuaded, that one cannot have a more distinct Knowledge of the Nature of the Body, than by Medicine, as those who are Masters of that Art must easily perceive.*

These Passages, tho' seemingly inconsistent with each other, are, in my Apprehension, however, to be reconciled. It appears by many Passages in *Hippocrates*, that some Philosophers, in his Days, set up for a Knowledge in Medicine, merely upon the Strength of Hypothesis, and the Dreams of Theory, supported, in their Opinion, by the Structure of the Parts, without consulting Nature, and her Method of operating. Instead, therefore, of observing diligently how Nature really acts in producing and curing Diseases, they determined, *a priori*, how the necessarily must act, according to their Principles, which they seem to have taken for granted. In this last Quotation, then, our Author has these Philosophers in view, and their Abuse of Anatomy; and, indeed, there seems a great deal of good Sense in what he insinuates, which is, that Anatomy, supported by Observation, lays a noble Foundation for rational Medicine; whereas all rash Conclusions, drawn from the Structure of the Parts, before Experience has confirmed them, are at best precarious, and generally pernicious to the Practice of Physic.

Democritus was cotemporary with *Hippocrates*: With respect to his Knowledge of Anatomy, we learn no more, than that when the People of *Abdera* called *Hippocrates* to cure him of a supposed Madness, this Physician found him dissecting Animals, in order to discover the Cause of Madness, which he apprehended had its Residence in the Bile; upon which *Hippocrates* reported to those who employ'd him, that *Democritus* was not only in his Senses, but was the wisest of Men.

Diogenes Laertius gives the Title of a Book wrote by *Democritus*, which should seem to be Anatomical, as it is *Of the Nature of Man, or of the Flesh*.

Pythagoras, according to the Report of the same *Diogenes Laertius*, had some crude Notions of Anatomy, which are not of Importance enough to relate, since they are drawn from Speculation more than Reality.

Empedocles, a Scholar of *Pythagoras*, as we learn from *Galen*, had some very singular Notions of the Structure and Uses of the Parts of Animals; for he imagined, that certain particular Parts of their Bodies were contained in the Seed of the Male, and others in that of the Female; and that, from this Circumstance, the Venereal Desires of both Sexes were to be accounted for; foolishly imagining, that the Parts, thus separated, had a natural Tendency to join, and be again united with, each other.

With regard to Respiration, he thought it was performed in this manner: *As soon, said he, as that Humidity, of which there is great Store on the first Formation of the Fœtus, begins to be diminished, the Air, insinuating itself thro' the Pores of the Body, succeeds it: After that the natural Heat, by its Tendency to make its Escape, drives the Air out; and when this natural Heat enters the Body again, the Air follows it afresh.* The former of these Actions is called Inspiration, and the latter Expiration. The Fœtus, according to this Philosopher, respired in the Belly of the Mother.

The Sense of Hearing was, according to him, excited by the Air striking on the Inner-side of the Ear, which is wreath'd in form of a Shell, and fixed to the most elevated Part of the Body, as it were like a small Bell, which was sensible of all the Undulations and Impulses of the Air which should enter it.

The *Flesh* was, according to him, composed of an equal Portion of the four Elements. The *Nerves* consisted of Fire, Earth, and two Parts of Water. The Nails were formed by the Extremities of the Nerves, cool'd and harden'd by their Contact with the ambient Air. The Bones appeared to him to be composed of equal Parts of Water and Earth; or, at least, he thought, that these two Elements predominated over the other two in their Composition. Sweat and Tears he took to be Blood attenuated, and rendered thin.

The Seeds of Plants he esteemed analogous to the Eggs of Animals, which drop at the Time of their Maturity.

Alcæon of *Crotone*, who was also a Disciple of *Pythagoras*, deserves to have his Name handed down to future Ages, if, as *Chalcidius* in his Commentaries upon the *Timæus* of *Plato*, assures us, he was the first who dissected Animals, in order to know the Parts of which their Bodies consist: But Time having robb'd us of his Writings, we know no more of his Anatomy

than what we find in some antient Authors; and even what we meet with in them, seems rather to relate to Physiology than Anatomy. He imagined, that the Sense of Hearing was occasioned by the Ears being hollow within; and that all hollow Places resounded when any Sound enter'd them; and that Goats breath'd partly by their Ears.

With regard to the Sense of Smelling, he maintained, that the Soul, of which the principal Part is, according to him, lodged in the Brain, received the Smells drawn in, in Respiration. He imagined, that the Tongue distinguished Tastes by its Humidity, its moderate Heat, and its Softness. He thought the Seed was a Part of the Brain; and that the Fœtus was nourished in the Womb, by drawing a Supply at all the Parts of the Body, which is externally porous like a Sponge. Health, in his Opinion, depends on the Equality of Heat and Dryness, of Coldness and Humidity, and even of Sweetness and Bitterness, and other sensible Qualities. Maladies, on the other hand, he thought arose, when one of these Qualities predominated, and by that means broke the Union and Connection.

That *Aristotle* applied himself diligently to Anatomical Studies, is sufficiently plain from his Writings; for they abundantly convince us, that he does not relate every thing on the Authority of others, but that he was an immediate Spectator of them; tho', in his Days, Dissections of the human Body were very rare and uncommon. It must, however, be owned, that he borrowed many things from *Hippocrates*, which will not fail to appear, upon comparing the two Authors together: But *Hieron. Mercurialis* affirms, without Reason, that he borrowed all his Sentiments on Anatomy from others.

Alexander the Great, whose Preceptor *Aristotle* was, being desirous to know the Nature, and different Properties, of Animals, ordered him to bend his Thoughts that way; and for that Purpose furnished him with eight hundred Talents, which amount to about a hundred and fifty-five thousand Pounds sterling. That Prince supplied him also with several Thousands of Men from the different Quarters of *Greece* and *Asia*, who had Orders to obey him, to communicate to him all they had learn'd from Hunting and Fishing, and even to nourish and bring up all sorts of Animals, with no other View but to discover the Peculiarities of each Species, and communicate them to him.

One might justly think, that, with so considerable Assistances, *Aristotle* should not have failed to produce something very exact and accurate upon this Subject; and yet even the Antients observed, that he had advanced several things contrary to Truth. He may be excused, in this Point, by saying, that, in this Case, he was obliged to rely on the Authority of others, since he could not possibly see and do every thing himself. But suppose he had been obliged, on some Occasions, to rely on the Relations and Accounts of these Men; for Instance, in what relates to certain Properties of Animals, discovered by chance; yet there are other Occasions, on which he must have been an Operator himself, or, at least, must have been present, and given Directions to another. Of this Kind are the things relating to Anatomy. What Opinion, then, must we have of the Accuracy of this Philosopher, when we find him maintaining, that all Animals have their Necks flexible, and consisting of Vertebrae, except Wolves and Lions, whose Necks, he says, consist of one Bone? What Notion shall we also entertain of him, when he assures us, that the Bones of Lions contain no Marrow? a thing contrary to all the Experiments that have hitherto been made. The Curious may consult the learned *Borrichius*, with regard to the other Errors into which *Aristotle* has fallen, in respect of the Anatomy of the Lion, the Eagle, and the Crocodile. *Aristotle*, however, has had Errors laid to his Charge, of which he never was guilty. Those, for Instance, who publish'd the Account of a Dissection of a Lion at *Paris*, in the Academy of Sciences, have also been at some Pains to point out the Blunders of this Philosopher, with regard to the Anatomy of that Animal; and all they advance, on that head, may possibly be true; but, in one Passage, they seem to make *Aristotle* say what he never so much as dream'd of. We find these Words in his Book *de Physiognomia*: *παύεται δὲ τὸν ζῶον ἐπ' αὐτὸν τελευτάῃ μετεκτρέφει τὴν τὴν ἀπὸ τοῦ ἰδίου*. Which the Latin Interpreter translates thus: *Videtur Leo omnium animalium perfectissimum animal in assumendo maris formam.* Here *Aristotle's* Words are explained as if he meant, that the *He-Lion* has, by way of Eminence, and beyond all other Animals, the visible and apparent Marks of his Sex. This is the Interpretation of these Gentlemen, and, in order to prove that *Aristotle* was mistaken, they add, that the Urethra of the Lion, that is to say, the Canal of his Penis, together with its Ligaments, appears externally to be only three Inches and an half in Length: Their Conclusion had been just, if *Aristotle*, as they and *Borrichius* imagined, had meant, that the Lion, of all other Animals, has that Part which distinguishes the Sex the largest, and most apparent: But, in my Opinion, this was not so much as in his Mind; and, I believe, he meant no more, than that the Lion does, of all other Male Animals, distinguish himself the most easily from the Female, by a grand and masculine Air peculiar to himself.

I trans-

I translate the *Greek Word* *ἰσμία* by the *English Word* *Air*, or the *Latin Word* *Species*, which precisely corresponds to the *Greek Word*.

The several Dissections which *Aristotle* made of the different Species of Quadrupeds, Birds, Fishes, and Insects, taught him many things concerning the Uses of the several Parts of each Species. I shall not, here, examine every Particular he advances upon this Head, or upon the Differences that are found among these Parts, and their respective Uses; but I shall give his Sentiments, with respect to the Construction and Uses of the Parts, which are common to the Animals commonly called perfect, such as Man and Quadrupeds.

Aristotle looked upon the Heart as the Source and Principle of the Veins and Blood. The Blood, says he, passes from the Heart into the Veins; but he says, that it comes from no Part to the Heart. He moreover maintained, that two Veins proceeded from the Heart, the one from the Right Side, which is the larger, the other from the Left, which is lesser, and which he called the Aorta. Here 'tis proper to observe, that this Philosopher, according to *Galen*, (*de Venar. & Arteriar. Diffect.*) was the first who gave this Name to the great Artery; which proves, that *Hippocrates's* fourth Book *de Corde*, where this Word is found, was not wrote by him. *Aristotle* thought that these two Veins convey'd the Blood to all the Parts of the Body. He also imagined, that there were three Cavities in the Heart, which he calls Ventricles. Of these three Ventricles, that in the Middle, the precise Situation of which he does not determine, is, according to him, the common Principle of all the rest, tho' it be the smallest; the Blood which it contains is also the most temperate, and most pure. The Blood of the Right Ventricle is warmest, that of the Left coldest; and this last Ventricle is the largest of the three. All these Ventricles have a Communication with the Lungs by Vessels, which are quite different from the two great Veins already mentioned, which Vessels distribute themselves thro' all the Substance of the Lungs.

Aristotle not only made the Veins, or Blood-vessels, but also the Nerves, to derive their Origin from the Heart; and he founded his Opinion upon this, that the largest of the Ventricles of the Heart, according to him, contains small Nerves: The Vein which he calls the Aorta is nervous, and is itself like a true Nerve towards its Extremities, since it has no Cavity, and is stretch'd out in the same manner with Nerves, where it terminates near the Articulations of the Bones. He also maintains, that there are a Number of Nerves in the Heart, and that they are of singular Use there, since its Contraction and Dilatation depend upon them. He seems, in this last Passage, to mean the Tendons or Fibres which contract and dilate the Heart; and if *Hippocrates* confounded the Nerves with the Tendons and Ligaments, it does not appear, that *Aristotle* better distinguished these Parts, nor that he knew the Use of the real Nerves. He maintains, that the Nerves are not continued like the Veins, but that they are scattered here-and-there, and distributed to the Parts where the Articulations are; by which 'tis plain, that he still means the Tendons. If he had understood the Use of the Nerves, he had never asserted, in another Passage, that no Parts, but such as contain Blood, were capable of Sensation; and he would never have maintained, as he does, that the Flesh is the proper Organ of Sensation. As for Motion, if he ascribes it to the Nerves, it is evident, that the Nerves he means are also Tendons or Ligaments.

The common Principle of Motion and Sensation is, according to *Aristotle*, lodged in the Heart; which he makes to be the Principle of Nourishment to the whole Body; by the Blood which it sends to all its Parts. It contains the natural Fire, is the Seat of the Passions, the Point, as it were, in which all the Sensations terminate as in a common Centre, and the true Seat of the Soul; and all this, not because the Nerves draw their Origin from it, as one might be induced to think by what has been said, but because the Heart is the Reservoir, or Store-house, of the Blood and Spirits. *Aristotle* even maintains, in plain Terms, that the Spirits cannot be contained in the Nerves.

But if he ascribed so noble Uses to the Heart, he imagined, that the Brain was only a Mass of Earth and Water, void of Blood, and destitute of Sensation. The Office of this cold Mass was, says he, to balance and correct the Heat of the Heart: But, besides his ascribing this Office elsewhere to the Lungs, he does not specify the Manner in which he imagined the Brain could answer this End. Tho' the Brain be placed immediately above the *Medulla Spinalis*, and is joined with it, yet *Aristotle* imagined, that this Marrow was quite a different Substance from that of the Brain, being only a Species of Blood prepared for the Nourishment of the Bones, and consequently hot; whereas the Brain was, in his Opinion, very cold. Besides, he thought the Brain of so little Importance, as to place it only next in Rank to the Excrements; and imagined, that it ought not to be rank'd among the Parts of the Body, which are united and connected with one another; but that it ought to be look'd upon

as a Substance of a particular Nature, quite different from all the rest of the Parts.

With regard to the other Viscera, such as the Liver, the Spleen, and the Kidneys, he imagined, their chief and principal Use was to support the Veins, which, without them, would be loose and pendent, and to fix them in their proper Places. Besides this general Use, he assigned some particular one to each of them. The Liver, for Instance, assists the Concoction of the Aliment in the Stomach and Intestines, by the Heat which it communicates to these Parts. The Spleen is not of so great Use; it is only, in our Philosopher's Opinion, accidentally necessary to collect, prepare, and give a different Direction to the moist Vapours which rise from the Belly; and hence those Animals, in which these Vapours take a different Course, have only very small Spleens. Of this Class are Fowls and Fishes, whose Feathers and Scales are nourished by this Humidity; and for this very Reason, says he, these Animals have neither Kidneys nor Bladder. The Kidneys also are, according to him, only designed for a Piece of Convenience; since their Office is to imbibe a Part of the Excrement, which is carried to the Bladders of these Animals, in which it abounds too much, that the Bladder may be eased of a Part of its Burden. He adds, a little after, that the Humours filtrate themselves, or flow thro' the Substance of the Kidneys; in which, indeed, he has come somewhat nearer to the Use generally ascribed to these Parts; but he talks at the same time very obscurely on the Point.

The Testicles are also, according to him, Parts form'd by Nature for Convenience; but are not absolutely necessary. He also affirmed, that two Veins came from the Aorta, and were inserted into the Testicles; and that two other Veins came to them from the Kidneys; and that these latter Veins contained Blood, but the former none. That there came from the Head of each Testicle, or, at least, from some one of its Extremities, another larger and more nervous Canal, which, bending itself, and lessening by degrees, ascends to the two others; and, being wrapt up in a Membrane, terminates at the Root of the Penis. He adds, that this last Canal contains no Blood, but a white Liquor; and that terminating at the Penis, or towards the Neck of the Bladder, it there finds an Opening, which leads to the Penis; about which Opening there is a kind of Husk *δεν Κέλυφος*, or Bark.

Taking this for granted, he maintained, that when the Testicles were cut from any Animal, all the above-mention'd Canals shrivel'd up; and that it was for this Reason that castrated Animals could not, for the future, propagate their Species. For a Proof of this, he adduces an Instance of a Cow, which conceived after Copulation with a Bull immediately after his Castration, and before the Seminal Vessels had shrivel'd up. In another Passage he explains himself still more particularly, with regard to the Use of the Testicles, when he maintains, that they are no Part of the Canals or Reservoirs of the Seed, and that they have nothing in common with them; but that they only serve as a Counter-poise to draw them downwards, and to retard the Motion of the Seed, almost in the same manner with those Stones which Weavers tie to their Webs. He advanced farther, as a Proof of the Uselessness of the Testicles, with regard to Generation, the Instances of Fishes, and Serpents, which being, to all Appearance, deprived of these Parts, did nevertheless propagate their Species.

He also thought, that Conception was occasioned by a Mixture of the Male Seed with the Menstrual Blood, in the Matrix; and ascribed no other Part in Generation to the Female Seed, which, according to him, was only the Excrement of the Matrix, which some Females discharged, and some not; and that these last were not, on that Account, less fit for Generation, or more deprived of the Sensation of venereal Enjoyments, since it proceeded from the Afflux of Spirits to the Parts of Generation.

As to the Place where the Concoction of the Aliments was perform'd, and the Manner in which it was brought about, he imagined, that the Aliments were first prepared in the Mouth of such Animals as used any kind of Food, which stood in need of Mastication. But we must not imagine, that, in that Place, any sort of Concoction is made; the Food is only reduced into small Parts, that it may the more easily be prepared and penetrated, after it has descended into the Stomach, and lower Belly, which are both designed for the Preparation of the Aliments; and as the Mouth is the Opening at which the unprepared Aliments enter, and the Oesophagus the Duct by which it is convey'd to the Stomach, there must, in like manner, be other Openings, by means of which, all the Parts of the Body receive the Degrees of Nourishment of which they stand in need: These last Openings are the Mesenteric Veins, which draw what is necessary for them from the Stomach and Intestines, in the same manner as Horses draw Hay from a Rack.

Aristotle imagined also, that as Plants received their Nourishment from their Roots, which were spread in the Earth, so Animals

Animals received theirs by the Mesenteric Veins; which may be compared to so many Roots, designed for drawing the Juice from the Stomach and Intestines; these last Parts being, with regard to Animals, what the Earth is in respect of Plants. I must also observe, with regard to the Anatomy of *Aristotle*, that he himself never dissected any thing but Beasts, and that in his Days they had not ventured on the Dissection of human Subjects. This he himself seems to insinuate, when he says, *That the internal Parts of Man's Body are unknown, or that we have nothing certain relating to them; but that we must judge of them by the Resemblance they bear to those of other Animals which correspond to them.*

By these Sketches of the Anatomy of *Aristotle*, we may form a Judgment of his Knowledge in this Science, and conclude, that he knew very little, or nothing, of the true Uses of the Parts. It must, however, be remarked, that he mentions the Intestine *Jejunum*; and distinguishes the *Colon*, *Cæcum*, and *Rectum*; whereas *Hippocrates* only takes Notice of the *Colon* and *Rectum*.

Le Clerc gives some more Particulars relating to the Anatomy of *Aristotle*, which may be consulted by the Curious; but it will give no great Information to Anatomists.

Diocles Carystius is said to have lived some little Time after *Aristotle*, that is, under the Reign of *Antigonius*. *Galen* informs us, that he was the first who wrote upon the Method of dissecting Bodies; this Art, before his Days, being confin'd to private Families, and only taught to the Children and Pupils of those who possess'd the Secret: But the same Author tells us, that *Diocles* made no great Advances in Anatomy.

But much greater Progresses were made in this Science by *Herophilus* and *Erasistratus*. *Herophilus* is said to have lived during the Reign of *Ptolemy Soter*, and to have been born at *Carthage*.

Herophilus and *Erasistratus* are reported to have had this in common, that both of them dissected living Subjects. Of the former, *Tertullian* talks in this manner: *Herophilus, that Physician, or rather Butcher, who dissected six hundred Men, in order to find out Nature; who hated Man, in order to know the Construction of his Body, could not, by that means, come to a more perfect Knowledge of his internal Parts, since Death induces a great Change on all the Parts, as they are not the same after Death that they were before, especially since they did not die a natural Death, but under all the Agonies to which the Curiosity of the Anatomist was pleased to subject them.*

The Fact may possibly be true; the Possibility of it is not to be disputed, since, in these Days, we meet with Instances of the like Inhumanity. But may we not suspect, that since *Herophilus* and *Erasistratus* were the first who dissected human Bodies, the Novelty of the Attempt forcibly struck the Minds of the Vulgar, and laid a Foundation for groundless Exaggerations, and a Publication of more than was really Truth? a thing very common upon Occasions of a like Nature; witness the Story of *Medea*, who was branded with the Inhumanity of boiling Men alive, for no other Reason but because she invented warm Baths: And who, to this very Day, can persuade the Vulgar, but the Pupils of Anatomical Schools secretly convey off People, in order to dissect them?

'Tis, however, certain, that *Herophilus* and *Erasistratus* had really dissected many human Bodies. This last speaks, in a Fragment of his Anatomical Works, of the Brain of a Man whom he had dissected; and of *Herophilus*, *Galen* talks in this manner (*de Diss. Vulvæ*, Cap. 5.): *He was, says he, an accomplished Man in all the Branches of Physic; but he was particularly knowing in Anatomy, which he had learned not, by the Dissection of Beasts alone, as Physicians usually do, but principally by the Dissection of Men.*

The same *Galen* observes, (*Administ. Anatomic. Lib. 7. Cap. 5.*) that it was at *Alexandria*, the Capital of *Egypt*, where *Herophilus* made his Dissections; which renders it probable, that it was owing to the Curiosity of the Kings, and their Inclination to encourage the Arts, that these two Physicians had the Liberty granted them of instructing themselves by dissecting human Bodies: A Liberty which those of succeeding Times very rarely enjoy'd for many Ages, whether thro' a Defect of Kings of equal Courage and Learning with the first *Ptolemies*, or thro' the scrupulous Disposition of the People passing to the Sovereigns, or getting the better of their Authority. I am not ignorant, that *Riolanus* has maintained, in Opposition to this, that they not only dissected Men before this Time, but that this Practice was even continued down to the very Days of *Galen*. He also maintained, that *Aristotle* practised the same kind of Dissection; but this learned Anatomist proves no more, than that *Aristotle* really dissected Animals, and composed some Books of Anatomy, to which he often refers his Readers. This cannot be denied; but that he dissected Men, cannot be proved, since we find *Aristotle* himself confessing, that he never dissected any thing but Beasts.

This Anatomist succeeds no better, when he attempts to prove, that *Hippocrates* had dissected human Bodies; but his Arguments for this will, upon an impartial Review, be found

so weak and inconclusive, that we may safely infer, that *Herophilus* and *Erasistratus* were the first who were known to dissect human Bodies.

As for *Herophilus*, one of the principal Proofs of his Accuracy is this, that he addicted himself to those Parts of Anatomy which had not before been touched upon. Neurology, or the Dissection of the Nerves, was in his Days a Part of Anatomy, not as yet well known. *Galen* informs us, that *Herophilus* was the first after *Hippocrates*, who handled this Matter with Accuracy; but he shares the Praise, due to him in this respect, with another Physician, *Eudemus*. As for *Hippocrates*, who likewise comes into the Account upon this Occasion, *Galen*, being resolved to extol him above all the antient Physicians, honours him with a Degree of Knowledge in this respect, which his Writings no where discover.

It is very probable, that *Herophilus* was the first who was known to discover the Nerves; properly so called; and who knew how to demonstrate them: According to *Rufus Ephesus*, he divided the Nerves into three Kinds. The first he called *Ἀσθητικὰ καὶ παρὰσθητικὰ νεῦρα*, or those Nerves which are the immediate Instruments of Sensation, and the Ministers of the Will. These, according to him, derived their Origin from the Brain, from which they rose like so many Branches, and were a Part of the *Medulla Spinalis*. The second proceeded from some of the Bones, and terminated at others of them. The third arose from some of the Muscles, and terminated at others. By this we see, that *Herophilus* gave the Name of Nerves to those Parts, which were afterwards called *Ligaments* and *Tendons*; but 'tis a Matter of little Moment, what Names Things receive, provided they be sufficiently distinguished: In Reality, this Distinction of three Sorts of Nerves, ascribed to this antient Anatomist, is a Proof, that no such Distinction was made before his Time, and that these Parts were confounded with one another. The Writings of *Herophilus* being lost, we know no more of his Sentiments, with regard to the true Nerves; but that he gave the Name of *Optic Pores* to those Nerves which reach to the Bottom of the Eye, and which now are called *Optic Nerves*; and maintain'd, that they had a sensible Cavity, which was not to be met with in other Nerves.

There is nothing remarkable with respect to his Notions of the Uses of the Brain, except that we are told, he imagined the reasonable Soul was lodged in its Ventricles.

But one of his principal Discoveries; which, though look'd upon to be the Product of our own Age, is nevertheless very antient; is, his finding certain Veins in the Mesentery, which according to him, were destin'd to nourish the Intestines; which do not, like the other Veins, go to the *Vena Portæ*, but terminate in certain glandular Bodies. *Erasistratus* likewise discovered something of this Nature.

Besides, as *Herophilus* had learned Anatomy, not by reading the Books of his Predecessors only, and form'd particular Ideas of the Parts; from what he had seen in Dissections, especially those of human Bodies, he expressed these Ideas by Words, which appeared to him most proper for that Purpose; that is, he invented new Names; and gave Names to Parts, which before had none.

For Instance, he called the first of the Intestines, or that which is next to the Stomach; *Δωδεκάδακτυλον*, because it is twelve Inches in Length.

Having also observed, that the Vessel which passes from the right Ventricle of the Heart to the Lungs; and which he took for a Vein, had a thick Coat like that of an Artery, he called it, if we may believe *Rufus Ephesus*, the *Arterial Vein*; and for the quite contrary Reason, he called the Vessel which comes from the Lungs to the Left Ventricle of the Heart, the *Venous Artery*. But though the Names he gave to those Vessels, point out the Knowledge he had of the Heart, and the Vessels with which it is immediately connected; yet *Galen* (*De Hippocrat. & Platon. Decret. Lib. 1. Cap. 10.*) observes, that he has been very negligent in describing the Membranes of the Heart, to which he had nevertheless given a Name, calling them *Nervous Separations*, or *Partitions*.

It was also *Herophilus* who first called two Coats of the Eye, the *Tunica Retina*; and the *Tunica Arachnoides*. He also called that Membrane which lines the Ventricles of the Brain, the *Membrana Choroides*, because he saw, that it resembled the Chorion which covers the Fœtus in the Matrix.

He also compared the Cavity, which forms the fourth Ventricle of the Brain, *Ἀναγλυφὴ τοῦ καλάρου*, to the Concavity of a writing Pen, or Reed, used for that Purpose in *Egypt*. He has in like manner given the Name of *Λυγρὸς*, *Torcular*, to that Place where all the Sinuses of the *Dura Mater* unite.

It was he likewise who gave the Name of *Glandula Parastata* to those Glands which lie about the Root of the Penis.

He styl'd these *Parastata glandulous*, in order to distinguish them from other *Parastata*, which he called *Varicose*, and which he placed at the Extremity of those Vessels which convey the Seed from the Testicles, or rather, as he thought, which serve to prepare it; for though he did not deny, that the Testicles served, in some measure, to the Generation of Seed, yet

he believed, that the above-mentioned Vessels contributed much more to that Purpose. The Word *Parastata* imports any thing situated near another. Some antient Physicians have also given the Name of *Parastata* to the Epididymis. It is plain, that *Hippocrates* and *Aristotle* knew the Varicose Parastatae of *Herophilus*, though they did not give them the same Name.

The Authority of *Herophilus*, in point of Anatomy, was so great, that almost all the Names he assign'd to the different Parts, are still preserved. The Testimony of Antiquity is so strong in the Favour of *Herophilus*, that we cannot, without injuring his Character, deny him to be the best Anatomist of the Times in which he lived. If his Writings had reached our Hands, we might have been able to have judged of his Sentiments for ourselves. But as they are lost, we can say no more, than that what is preserved in Quotations is sufficient to give us a great Idea of his Exactness and his Skill, especially if we consider, that he lived at a time when Anatomy was only in its Infancy, and that his whole Stock of Knowledge, in this Particular, was principally of his own acquiring. *Fallopian*, a knowing Anatomist of the last Age, was so superstitious an Admirer of *Herophilus*, that he laid it down as a Maxim, that it was as unreasonable to contradict him in point of Anatomy, as to contradict the Gospel; but the Encomium is a little too extravagant.

It is generally thought, that *Erasistratus* was contemporary with *Herophilus*, or liv'd very soon after him.

It was by means of Anatomy, that this Physician first became considerable in the World; and *Galen*, who upon many Occasions talks unfavourably enough of him, yet confesses that *Erasistratus* had contributed a great deal to the Re-establishment of Anatomy, which, as he says, had been in a great measure lost for some time before. But 'tis no easy Matter to find out what particular Period of Time he has in View: However, that we may understand the Passage the better, it is necessary to relate the Whole of it. Those, says he, who are not ashamed to speak against Evidence, are the Cause of the Length of this Dispute [the Dispute betwixt him and *Chrysippus* the Stoic, who maintain'd, that the Seat of the Soul, and the Origin of the Nerves, was in the Heart]. We ought not to accuse either *Hippocrates*, or *Eudemus*, or *Herophilus*, or *Marinus*, who since the Days of the Antients have re-established the Science of Anatomy, which had been neglected in *ῥημελαῖον χρόνον*, in the intermediate Space of Time between them.

Galen at first seems to hint at the Time which passed between *Esculapius*, or his first Descendants, and *Hippocrates*; which is that dark Period, during which, the State of Physic was not known. But we shall see by what he says elsewhere, that he meant no such thing. In order then to prevent the Contradiction betwixt the Passage now quoted, and some others of the same Author, we must necessarily put a Point after the Word *Hippocrates*, and begin another Period thus: We ought not to lay the Blame upon *Hippocrates*. Neither ought we to accuse *Erasistratus*, nor *Eudemus*, nor *Herophilus*, nor *Marinus*, who after the Antients have re-established the Science of Anatomy, which had been neglected in the Time intervening between them. Or this Sentence of *Galen* may be translated thus: We ought neither to accuse *Hippocrates*, nor those who have re-established Anatomy, which had been neglected in the Interval between them and him, such as *Erasistratus*, *Eudemus*, *Herophilus*, &c. According to this Explication, which is the genuine Sense of *Galen*, *Hippocrates* will not be rank'd among the Restorers of Anatomy, which would not agree with what the same Author says in another Passage, [De Administ. Anatom. Lib. 2. Cap. 1.] "That the antient Physicians, and even the antient Philosophers, were very much addicted to the Study of Anatomy, and that in these Days Fathers not only train'd up their Children in it, by obliging them to read and write upon the Subjects, but also by making them dissect Subjects themselves; so that having learned the thing from their Infancy, it was impossible they should forget it. But, continues he, it was not so afterwards, when Physic came to be out of the Hands of the *Aschypiadean* Family, and when Physicians began to teach their Art to Strangers, especially to Men advanced in Years, for whom they had an Esteem, and whom they revered on account of their Virtue. These Men, not being young enough to labour at Anatomy with Success themselves, or to inform themselves of the Parts of the Body by their own Sight, and by putting their Hands to the Work, could only learn Anatomy very imperfectly. Hence it was, that, in Process of Time, the necessary Instructions in this Branch of Learning passing often from one hand to another, Anatomy grew still worse and worse."

Thus *Galen* supposes, that Anatomy was in a flourishing State whilst Physic was confin'd to the *Aschypiadean* Family; he even fixes, in express Terms, the Beginning of its Declension, at the particular Time when Physic began to be practis'd by others, than those of that Family. Now we are no-where inform'd, that Physic was practis'd out of this Family, till the Philosophers began to encroach upon the Art, or, at least, till *Hippocrates* began to teach Disciples, as *Galen* elsewhere observes.

As this is the Case, it is scarce to be believ'd, that the Philosophers were the Cause of the Decay of Anatomy, since it was their Interest to carry it to its Perfection, even though they had not had the Interest of Physic in View. *Galen* himself does not think, that this was the Case, since he joins the Philosophers and Physicians together, when he speaks of the Time wherein Anatomy was in its Perfection; and by the Philosophers, he undoubtedly meant *Democritus*, and others who preceded *Hippocrates*. So that the Time spoke of, must be that which followed the Death of *Hippocrates*.

But there is a considerable Difficulty in this Point; for if *Hippocrates* was so skilful an Anatomist as *Galen* represents him, who can possibly believe, that his Knowledge in this Particular should have been so soon lost, or rased from the Memories of Men, that *Diocles*, *Praxagoras*, and the other Physicians of their Time, were so little improved by his Discoveries, or the Traditions of them, that *Galen* has with Justice styled them [De Dissert. Vulva, Cap. 9.] unskilful Anatomists? Before this could happen, a great Time must have intervened between *Hippocrates*, and these Physicians. But where shall we find all these Successions, or that great Number of Generations, since all the Authors agree, that *Diocles* followed not long after *Hippocrates*; so that he must have been contemporary with *Plato*? As this is the Case, if he did not see *Hippocrates* himself, he must, at least, have seen his Sons, or his Son-in-law, who may reasonably be presumed to inherit the Knowledge of their Father, in point of Anatomy, as well as of the other Branches of Physic. And as for *Praxagoras*, who lived almost in the same Time with *Diocles*, though he had not had an Opportunity of instructing himself in the same way, that is, by the Traditions of *Hippocrates* and his Disciples, yet, according to *Galen* himself, he was one of the Descendants of *Esculapius*, the Children of whose Family were train'd up to Anatomy from their Infancy; so that, in this respect, *Hippocrates* could enjoy no greater Advantages than he. *Galen* would not have involved himself in this Difficulty, if he had not been unreasonably prepossess'd in favour of the *Aschypiadean* Family, as may be easily seen by his Works.

It is certain, that *Erasistratus* and *Herophilus* carried Anatomy to a higher Pitch of Perfection. But *Galen*, who look'd upon the former of these as the Rival of *Hippocrates*, was unwilling to confess this, but declares all along in favour of the latter.

It is also certain, that before *Erasistratus* and *Herophilus*, Anatomists had never ventured to dissect human Bodies; and that in the Times of *Aristotle*, who lived not long before these two Physicians, they had only dissected Beasts. It must be own'd, that in Egypt they had long before a Custom of embalming their dead Bodies, which could not be done without opening them; and *Galen* himself confesses, that this Custom might have furnished the Physicians of that Country with a favourable Opportunity of instructing themselves.

But as it is not probable, that those Persons who were employ'd in Embalming, durst satisfy their Curiosity entirely, and search as narrowly as was necessary into the human Body, which was look'd upon as something sacred, Anatomy could not possibly arrive at any considerable Pitch of Perfection, whilst no other Means were employ'd in its Cultivation. Carcases, upon which every thing might be attempted, were absolutely necessary for that Purpose. These were probably first granted in Consequence of the Inclination which the Kings of these Times had to advance the Arts and Sciences. *Alexander the Great* first began to patronize those who apply'd themselves to Natural History, by ordering *Aristotle* to labour at that of Animals, and their several Parts; and without Doubt, *Ptolemy Soter*, or *Ptolemy* the Son of *Lagus*, succeeded *Alexander*, as well with regard to this Inclination, as with regard to that Part of his Empire, which fell to his Share. This appears still the more probable, if we consider, that *Ptolemy* was a Man of Learning, and wrote himself a History of *Alexander*, as we learn from *Arrian*. *Ptolemy Philadelphus*, Son of the preceding *Ptolemy*, was no less industrious in promoting Arts and Sciences; since he invited to his Capital all the learned Men of his Time, and collected, at an extraordinary Expence, a Library of Books from all Parts of the World, in order to form a Library, which was still augmented by his Successors.

It is probable, that these two Kings, getting over the Scruple which had till then reign'd, of dissecting human Bodies, not only granted the Physicians the Bodies of Criminals after their Death, but, if we may give Credit to some Authors, put into their Hands many of these wretched Creatures, to be dissected, imagining, that they might by that means discover things, which otherwise they could not do. *Herophilus* and *Erasistratus*, says *Celsus*, have dissected living Criminals, condemn'd to Death, and dragg'd from their Prisons by the Order of their Kings, for that very Purpose.

Which ever of these two Princes *Erasistratus* lived under, 'tis probable, that he laid hold of this favourable Opportunity, and made those Discoveries in Anatomy which gain'd him so high a Reputation. But as his Writings have not reached us,

we know no more of his Sentiments than what are transmitted to us by *Galen*, who generally quotes him with no other View but to refute him.

The principal of *Erasistratus's* Discoveries, which, by the way, was not made upon human Bodies, but which at the same time acquir'd him abundance of Honour, was his finding out [*Galen. an Sanguis sit Naturâ in Arteriis, Cap. 5. & Administrat. Anatom. Lib. 7. Cap. ultim.*] certain white Vessels in the Mesentery of sucking Kids, which he believed to be Arteries. He added, That these Vessels seem'd at first to be full of Air, and afterwards of Chyle.

Erasistratus and *Herophilus* were the first who knew the true and genuine Use of the Brain and Nerves, or, at least, the Uses ascribed to them by all succeeding Anatomists. *Rufus Ephesus* says, that *Erasistratus* owned two Sorts of Nerves, those which are the Instruments of Sensation, and those that are the Instruments of Motion. He maintained, according to *Galen*, that the former were hollow, and drew their Origin from the Membranes of the Brain, whereas the other sprung from the Brain itself, and the Cerebellum. But *Galen* [*De Hippocrat. & Platon. Decret. Lib. 7. Cap. 3.*] informs us, that *Erasistratus*, having inquir'd more accurately into the Matter, was at last convinced, that all the Nerves proceed equally from the Brain. This may be gathered from a Passage of this antient Anatomist, related by *Galen*, the Whole of which I shall translate, that we may see what Notions he entertain'd with respect to the Brain, the Cerebellum, the Nerves, and all the several Parts connected with each of them. "We examined, says *Erasistratus*, what the Nature of the human Brain was, and we found it divided into two Parts, as it is in all other Animals. It had a Ventricle or Cavity of a longitudinal Form. [*Here there seems to be a Chasm, or Defect in the Text.*] These Ventricles had a Communication with one another, and terminated in a common Opening, according to the Contiguity of their Parts, reaching afterwards to the Cerebellum, where there was also a small Cavity. But each Part was separated from the other, and shut up in its proper Membranes, and the Cerebellum in particular was wrapt up by itself, as well as the Brain, which by its various Windings and Turnings, resembled the Intestinum Jejunum. The Cerebellum was in like manner folded and twisted different ways, so that it was easy to know by seeing it, that as in the Legs of swift-running Animals, such as the Hart, the Hare, and some others, we observe Tendons and Muscles well calculated for that Purpose; so in Man, who has a larger Share of Understanding than other Animals, this great Variety and Multiplicity of Foldings in the human Brain, was undoubtedly design'd for some particular End. Besides, we observ'd, continues *Erasistratus*, all the Apophyses or Productions of the Nerves which come from the Brain; so that, to say all at once, the Brain is visibly the Principle of every thing that passes in the Body; for the Sense of Smelling proceeds from the Nostrils, being pierced in order to have a Communication with the Nerves. The Sense of Hearing is also produced by the like Communication of Nerves with the Ears. The Tongue and the Eyes receive also the Productions of the Nerves of the Brain."

Here we see, by the Confession of *Erasistratus* himself, that he had dissected Men. *Erasistratus* had also very accurately described, in *Galen's* Opinion, [*De Hippocr. & Platon. Decret. Lib. 1. Cap. 10. & Lib. 6. Cap. 6.*] the Membranes which are found at the Orifices of the Heart; and he maintain'd with *Aristotle*, that the Veins and Arteries drew their Origin from it. There are, says he, certain Membranes inserted in the Orifices of the Vessels of the Heart, of which the Heart makes use, either for the Reception or the Expulsion of such Substances, as either enter into it, or come out of it. Some, adds *Galen*, have been so rash as to deny, that there were such Membranes, and have look'd upon them as Fictions of *Erasistratus*, or a kind of Hypothesis invented to support his own System: But these Membranes are so well known by Anatomists, that none but Novices in the Art are ignorant of them. There are, continues *Galen*, three of these Membranes at the Orifice of the *Vena Cava*, which resemble the Points of Arrows; whence some of the Disciples of *Erasistratus* have called them *τετραόχυνες, Tricuspides*. There are also at the Orifice of the *Arteria Venosa* (for so I call that Artery, which rising from the left Ventricle, disperses itself in the Lungs) Membranes of a like Form, but of different Names; for that Orifice has only two Membranes. The other two Orifices, I mean, that of the *Vena Arteriosa*, and that of the *Arteria Magna*, have also each of them three Membranes, resembling the Sigma of the Greeks, which resembled our C. Here *Galen*, ceasing himself to speak, again introduces *Erasistratus*, saying, "That these two last Orifices are equally disposed to convey any thing from the Heart; that thro' the former the Blood flows to the Lungs, and thro' the latter the Spirits, in order to be distributed thro' the whole Body. [*Here some part of the Greek Text seems to be wanting.*] Thus it happens, continues *Erasistratus*, that these Membranes alternately perform opposite Offices to the Heart.

Those which are adherent to the Vessels, by which Substances are carried into the Heart, bend inwards, that they may yield to the Impetuosity of such things as are carried towards them, and, lying in the very Cavities of the Heart, may open its Entry for the Introduction of such Substances as are attracted to it; for we have no Reason to imagine, that such Substances enter the Heart of their own Accord, as if it were an inanimate Receptacle; but the Heart, by its Diastole or Dilatation, draws them to it, as the Blacksmith's Bellows does the Air; and in this manner the Heart is fill'd. The Membranes of those Vessels, on the other hand, which serve to convey things from the Heart, are quite differently disposed and situated; so that yielding easily to the Substances coming from the Heart, they open their Orifices at the time it thrusts out such Substances; whereas at other times they shut up these Orifices, and allow nothing to return which is once thrust out, just as the Membranes of the Vessels, which serve to introduce things into the Heart, shut the Orifices of these Vessels upon the Heart's contracting itself, and allow nothing to be carried out which is once thrown in."

It were to be wish'd, that *Galen* had left us more Fragments of *Erasistratus*, of the same Nature with these two.

Besides, what he elsewhere says, that some thought the Membranes of the Heart a Fiction of *Erasistratus*, is a sure Proof, that the Book *De Corde*, ascribed to *Hippocrates*, was not really wrote by him, since in it these Membranes are made Mention of. If this Book had been wrote by the Author whose Name it bears, *Galen* would not have fail'd to take Notice of it; for his Honour, and in order to stop the Mouths of those who thought, that these Membranes were an Invention of *Erasistratus*. He had nothing to do but to let these People see, that *Hippocrates* had wrote before on the same Subject.

But 'tis surprising, that this same *Erasistratus*, who had so accurately examined the Heart, and dissected so many living Animals, should yet embrace an Opinion, with regard to the Arteries, which all other Anatomists have look'd upon as absurd. He affirm'd, as did *Praxagoras* before him, [*Galen. an Sanguis sit Naturâ in Arteriis*] that in a natural State, the Arteries contained no Blood, and that they, as well as the left Ventricle of the Heart, were only filled with Air. It was an easy matter to give him the Testimony of his own Eyes for his Error; but he had recourse to this Subterfuge [*Galen. an Sanguis sit Natura in Arteriis, & Platon. Decret. Lib. 1. Cap. 6. & de Venâsect. adv. Erasistratum, Cap. 3.*]: As soon, said he, as we open the left Ventricle of the Heart, that Air or Spirit is evaporated before we can observe it, and the Ventricle is instantly filled with Blood. He asserted the same thing with regard to the Arteries.

What engaged him to entertain this Opinion, with regard to the Arteries, was, as *Galen* informs us, because he could not conceive how there should be two Kinds of Vessels destin'd for the Conveyance of the same Liquor, that is, why both the Veins and Arteries should contain and convey the Blood. If he had known the Secret of the Blood's Circulation, which some learned Men imagine is plainly found in the Writings of *Hippocrates*, he had not been so much puzzled and perplexed with regard to this Point; he might even have inform'd himself of it, by the Knowledge he had of the Membranes or Valves of the Heart, if he had not been mistaken with regard to one of them. What follows, will illustrate this Anatomist's Opinion, and at the same time inform us what his Sentiments were, with regard to the Causes of Diseases.

Galen, de Venâsect. advers. Erasistratum, says, that *Erasistratus* maintain'd, "That the great Vein was the Reservoir of the Blood, and the great Artery that of the Spirits." He added, "That after these Reservoirs had divided themselves into many Branches, they became smaller, and their Number greater; and that as there is no Place in all the Body where any of these Branches terminate, that has not a smaller Branch which receives what was brought to it by the larger; so it happens, that before these Vessels arrive at the Surface of the Body, they divide themselves into Branches so small and minute, that the Blood they contain cannot pass through them; so that, adds our Author, though the Mouths of the Arteries and Veins be very near each other, yet the Blood keeps itself within its proper Bounds, without entering the Vessels in which the Spirits flow; and in this Case, the Animal remains in its natural State. But when any violent Cause happens to disturb this Economy, the Blood forces itself into the Arteries, and proves the Source of Disorders. Among the Causes now mentioned, too great a Quantity of Blood is the principal; for in that Case; the Coats of the Veins are dilated more than ordinarily; and their Extremities, which were formerly shut up, are open'd; whence follows a Transfusion of the Blood from the Veins into the Arteries. And this Blood, by its Irruption, opposing the Course and Motion of the Spirits, which come from the Heart, if this Opposition is direct and immediate, or if the Blood stops in a principal Part, this causes a Fever; but

" if

" if the Spirits should happen to drive it backwards, so that it
 " does not pass the Extremity of the Artery, in that Case,
 " an Inflammation of the Part is only produced. As to the
 " Inflammation and Fever which happen in Wounds, they
 " are also occasioned by the sudden Evacuation of Spirits,
 " which is the Consequence of the cutting of the Artery, and
 " forces the Blood continually into the Place of the Spirits,
 " left there should be a Vacuum."

Erasistratus made use of this Comparison to support his System. [*Galen. Histor. Philosoph. Plutarch. Celsus.*] As the Sea, says he, which remains in a Calm, when she is not ruffled by Winds, swells in an extraordinary manner, and overflows her Shores, when the Winds blow hard, so the Blood, moving in the Body, departs from its ordinary Canals, and enters into the Reservoirs of the Spirits, where it afterwards becomes warm, and puts all the Body, as it were, on a Fire.

These are the Notions which *Erasistratus* entertained with regard to the Causes of Diseases in general, which at the same time are very different from those attributed to him by the Author of a Treatise ascribed to *Galen*, intitled, *The Introduction*; who assures us, that this Physician did not search for the Causes of Diseases in the Humours, or the Spirits, but in the solid Parts; whereas *Hippocrates* look'd upon these three Substances as the Causes of Health and Diseases. I think, that Author only means, that *Erasistratus* did not admit of the different Humours mentioned by *Hippocrates*, or, at least, seem'd to think them of so little Importance, as not to ascribe the Causes of Diseases to them. This is what *Galen* himself confirms; but he asserts at the same time, that though *Erasistratus* overlook'd and neglected the Humours, he was nevertheless obliged to speak of them on some Occasions, as for Instance, [*De atra Bile*]; when he says, that a Palsy proceeds from the Humour, which nourishes the Nerves, being stopped on account of its too great Viscidity. And when he talks of the Bile and black Urine.

With regard to Respiration, [*Galen. de usu Respirat. Cap. 1.*] he maintain'd, that it was only useful to Animals by filling their Arteries with Air, which is a Consequence of his former Hypothesis; and he imagin'd, that the thing was done in this manner: When the Thorax, [*Galen. de usu Respirat. & de Locis Affect.*] or the Breast, dilates itself, the Lungs are also dilated, and filled with Air. This Air passes to the very Extremities of the Aspera Arteria, and from them to those of the smooth Arteries of the Lungs, from which the Heart draws it when it dilates itself, to carry it afterwards through all the Parts of the Body, by means of the great Artery. When it was objected to him, that the Heart moved in its ordinary manner, when a Person retains his Breath, he answered, That, upon that Occasion, the Heart drew Air from the great Artery. To this it was reply'd, That the Membranes which adhere to the Orifice of this Artery, will not so much as allow it to return from it to the Heart. But he thought to extricate himself by saying, That though this was the Case in a natural State, yet it did not follow, that it must be so during the Time a Person retains his Breath, which is a State of Violence, and consequently cannot last very long.

Erasistratus also entertained a very singular Opinion, with regard to the Manner in which the Aliments were prepared in the Stomach. He thought, that the Stomach contracts itself, that it may the more closely embrace the Food, and break its Texture; that Trituration corresponding, according to him, to the Concoction of which *Hippocrates* speaks. And with regard to the Chyle, that is, the Juice of the Aliments extracted in the Stomach, he maintain'd, [*Galen. de Facultat. Natur. Lib. 2. Cap. 9.*] that passing from the Stomach to the Liver, it arrived at a certain Place, where the Branches of the Vena Cava, and the Extremities of the Vessels, which are connected with the Reservoirs of the Bile, equally terminate; so that the Parts of the Bile insinuate themselves into the Orifices of these two Kinds of Vessels, according as these Orifices are disposed to receive them; that is, every thing of a bilious Quality in the Chyle, passes into the Canals connected with the Reservoir of the Bile, and the pure Blood passes into the Branches of the Vena Cava, and, taking another Course, is separated from the Bile. *Galen* [*De usu Part. Lib. 4. Cap. 13.*] makes *Erasistratus* say, that the Veins are divided in the Liver for the Separation of the Bile.

Besides, we must observe, [*Galen. de Facult. Natur. Lib. 2. Cap. 9. & de atra Bile, Cap. 5.*] that neither *Erasistratus*, nor his Successors, pretended to account for the Causes of certain Effects, Researches of which Kind they thought belonged more properly to the Philosophers than to the Physicians. Tho' they believed, for Instance, that the Stomach contracts itself for the embracing the Food the more closely, yet they were not at the Pains to enter into minute Explications of the particular Causes and Manner of this Contraction. Neither did they hesitate to own, that they were uncertain whether the Bile was produced in the Body, or if it was before contain'd in the Aliment.

Another Proof of the Ingenuity of *Erasistratus* we have in *Aulus Gellius*, [*Lib. 16. Cap. 3.*] who informs us, that he frankly own'd, when talking of unfatiable Hunger, or a *Boulimia*, (a Word not to be found in *Hippocrates*, but of which all the Greek Physicians after him have made use) that he did not know why this Disease happen'd rather during great Cold, than in hot Weather; tho' he imagin'd, that Hunger, in general, proceeded from the Stomach and Intestines being empty; and that a long and unpainful Abstinence was owing to the Stomach's being strongly contracted and shrivelled up. It was for this Reason, added he, that those who fast voluntarily feel Hunger towards the Beginning of their Course, but not after they have fasted for some time. He brought, in Support of his Opinion, the Example of the *Scythians*, [*Galen. de Natural. Facultat. Lib. 1. Cap. ult.*] who, when they were obliged to fast, swaddled themselves up with large Rowlers, with a View to contract or strengthen their Stomachs.

Erasistratus own'd, that the Urine was separated in the Kidneys; but he did not acknowledge, with *Hippocrates*, that it was done by Attraction; for he entirely rejected this Sort of Attraction, tho' he no-where explains himself with regard to the Manner in which this Separation is made. Some of his first Followers believed, as *Galen* informs us, that the Parts above the Kidneys received only pure Blood; that what is aqueous, or charged with Serosities, tends downwards by its own Weight; and that after this Blood is separated from the aqueous and useless Part, it is carried to the Parts above the Reins, to nourish them.

It is also necessary to observe, that *Erasistratus* rectified *Plato* with regard to the Use of the *Arteria Trachea*, thro' which *Plato* imagined the Drink was carried, in order to water the Lungs (see *Aulus Gellius*, *Plutarch*, and *Macrobius*). This Opinion was common to *Plato*, with *Philistion*, *Hippocrates*, and the most of the Physicians of these Days.

Lycus and *Quintus* are also mentioned as two antient Anatomists, but nothing particular is known of their Discoveries.

Marinus is also mentioned, as an Author who wrote well on the Anatomy of the Muscles, after the Time of *Erasistratus*. *Galen* is said to have epitomiz'd his Works.

Aurelius Cornelius Celsus is also an Author of too distinguish'd Merit to be pass'd over in Silence. He was born at Rome, and, in all Probability, flourish'd under *Tiberius*, *Caligula*, *Claudius*, and *Nero*. Many things are found dispersed in his Writings, from which we may gather, that he rarely employ'd himself in Dissections; but that he had, at the same time, a very high Veneration for Anatomy.

Besides his Books *De re Medica*, he also wrote concerning the Figure and Situation of all the Bones of the human Body; which, indeed, is the principal Reason why he should not be overlook'd, upon an Occasion of this Nature.

His Sentiments, with respect to Anatomy, are specify'd in the Beginning of this Article.

Caius Plinius Secundus was, according to some, born in *Novocomum*; others will have him to be a Native of *Verona*; but, however this be, 'tis certain, that he lived under the Emperor *Vespasian*, about the Year 72. His Writings are interspersed with many curious Observations, relating both to the Anatomy of Men, and other Animals; but as he was no profess'd Anatomist, and never appears to have been exercised in Dissections, he took, and inserted in his Works, Truth and Fiction indiscriminately, as he met with them in the Writings of others.

Dr. Wigan, as well as all Authors who have mention'd the incomparable *Aretaeus*, have been sensible of the Difficulty of fixing the Time in which he liv'd, but concludes it probable, that he wrote after the Beginning of *Nero's* Reign, and before that of *Domitian*. His Taste may be judg'd from this, that he thought a Knowledge of Anatomy so necessary, both for discovering the true Causes of Diseases, and the proper Methods of Cure, that in the Beginning almost of every Chapter he premises something concerning the Structure of the Part affected. In this Instance he seems to have pursued the Steps of *Erasistratus* and *Herophilus*, who were the Chiefs of the Dogmatic Sect, and maintain'd, that without a Knowledge of Anatomy no one could possibly be a skilful Physician. So that *Aretaeus*, tho' a concise and compendious Writer, has yet insisted upon this Branch of Medicine more copiously, and with more Accuracy, than any of the antient Physicians.

The Heart is, according to him, the Principle of Life and Strength, in which the Soul and Nature of Man reside in a particular manner. This was also the Doctrine of *Hippocrates*, and *Chrysippus* the Stoic. For this Reason a *Syncope*, as it is a Disease of the Heart, and consequently must have an immediate Influence upon Life, is unfriendly to the human Constitution, and in some measure dissolves and destroys that Connection by which the vital Faculty is maintained. He also asserted, that the Heart was a warm Part of the Body, and the Principle of Life and Respiration; that it is situated in the Middle of the Lungs; and that the Heart inspires the Lungs with a Desire of fresh Air, as it heated the Lungs, but that the Heart itself attracts it.

The Lungs were, according to him, naturally incapable of Pain, because they consisted of a loose sort of Substance resembling Wool. He also maintain'd, that rough cartilaginous Arteries, incapable of Pain, were distributed thro' them, and that they had no Muscles, but only some small and slender Nerves, by means of which their Motion was produced. And this, according to him, was the true Reason why in a *Peripneumony*, which is no more than an Inflammation of the Lungs, the Lungs themselves are insensible of Pain; and only a sort of Heaviness at the Breast, which is nevertheless free from Pain, afflicts the Patient; but that all those Membranes, by which the Lungs are connected to the Breast, are endow'd with a most exquisite Sensation; and if they are inflam'd, together with the Lungs, the Patient is pain'd as in the Case of a *Pleurisy*, accompanied with a *Peripneumony*.

This, according to him, is also the Reason why in Spitting of Blood, where the Blood, being immediately discharg'd from the Lungs, creates the most dangerous of all Disorders, the Patients never cease to hope, even in the very last Stages of the Disorder, because the Lungs themselves are insensible of Pain; for under every trifling Degree of Pain, the Patients become afraid of Death, and most People are more frightened for the Consequences, than hurt by the Disease itself; whereas, in the most terrible Disorders, when unaccompani'd with Pain, the Patient is not rack'd with the Fears of Death; and indeed this Distemper is more fatal than frightful to the Patient.

The Pulsation of the Arteries, according to him, propelled the Blood; for which Reason, if the Arteries are wounded, the Lips of the Wound are with Difficulty brought together, and kept in Contact. The *Arteria Crassa*, or the *Aorta*, which runs near the *Vena Cava*, in the same Direction with the *Spina Dorsi*, and by *Aretæus*, after *Praxagoras*, called *ἀρεταία πᾶχυν*, suffers Inflammation along with the *Vena Cava*, which Inflammation was by the Antients called a Species of *Causus*, since in both the same Symptoms appear, and the Fever in the one Case tends to a *Syncope*, as well as in the other; for the Liver is the Root of the Veins, and the Heart the Source and Origin of the Arteries. It is therefore probable, that the superior Parts of these Viscera are affected; for the Heart imparts Warmth to the Arteries, and the Liver conveys Blood to the Veins. Now since both these Viscera are very large, the Inflammations to which they are subject, must of course be very considerable. But this same Artery, in Inflammations of the *Vena Cava*, palpitates near the *Spina Dorsi*, which appears from the Pulsation in the other Part of the *Præcordia*; for the Artery, lying close by the Vein on its Left Side, is drawn into Consent with it, as being dispersed thro' the whole Body.

Those of the Antients, whose Writings have been handed down to us, scarce make any mention of this Disorder of this Artery and Vein. But whoever have handled this Subject, have follow'd the Opinion of *Praxagoras*, who, as we learn from *Rufus Ephesius*, affirm'd, that the Origin of Fevers was in that Vein which sends Branches from the Liver to the Kidneys, and which alone he called the *καίαν*, *Cava*, tho' others also gave the same Name to that which rises upwards to the Heart thro' the *Septum Transversum*; so *Aretæus* likewise calls it, and says, that both these are only a Continuation of one and the same Vein.

The Veins rise from the Liver, as from their common Root, and receive the Blood they contain from it. From the Porta of the Liver, betwixt its Extremities, a large Vein arises; which, dividing itself still more and more, is at last dispersed thro' the Liver, in Veins so small and minute, as to become invisible. The Extremities of these Veins are inserted into the Mouths of others, which, growing gradually larger, and fewer in Number, at last terminate in the Liver in one great Vein, which, dividing itself again into two Branches, reach beyond the Liver. One of these Branches, penetrating the first Lobe of the Liver, again emerges in its gibbous Part; and having afterwards perforated the *Septum Transversum*, extends itself within the Breast, but adheres to no other Part; and being suspended there, is inserted into the Heart; this is called the *Vena Cava*. Another, penetrating through the fifth and inferior Lobe of the Liver, as far as its gibbous Part, goes out near the Spine, and runs along it to the *Coxæ*. This is also the *Vena Cava*; for it receives the same Name, because it is the same Vein arising also from the Liver: For if any one has a Mind, he may pass a Probe from the upper Part of the *Vena Cava*, which reaches to the Heart, into that Part of it which creeps along the Spina; and back again from the Spina, thro' the Liver, into the Heart, for the Passage is the same.

In this Vein, besides the above-mentioned Inflammation, those Disorders which the *Greeks* called *Κεῖματα*, arise; in which Case the Hæmorrhage consequent upon its Rupture, soon puts an End to the Life of the Patient.

The Blood is convey'd from all the principal Viscera to the hollow Vein at the Cubit; for this Vein, and that which lies above it, are Branches of one and the same Vein in the Arm: Hence it is of no greater Service to open the superior Vein

than this; for they are entirely ignorant of the Sources of the Veins, who appropriate the superior Vein to the Stomach and Liver. But if there should happen any Effusion of Blood from the Spleen, some Physicians order the Vein lying betwixt the little Finger and the Ring-finger to be open'd, because they imagine, that it reaches to the Spleen; but this is also a Branch of the inferior Vein of the Cubit. Why then should any one choose to open it so near the Fingers, since at the Bending of the Elbow it is much larger; and permits the Blood to flow out more readily?

The Work of Sanguification belongs to the Liver, which is the Source of the Veins; and for that Reason the greatest Part of it is no more than a certain Concretion of Blood; for as the Aliments have Access to the Liver, and as there is no other way by which the Food is convey'd thro' the whole Body from the Stomach and Intestines, so the Blood passes from this Bowel to all the Parts of the Body. This was also the Sentiment of *Erasistratus*. The *Portæ Jecoris* consist of Nerves and Membranes, which are indeed small of themselves, but of great Importance to the Functions of Life; and of large Veins, for which Reason they are very subject to small Inflammations. Besides, some Philosophers have affirmed, that the Appetites of the Soul were lodg'd in this Place.

Now the Bile is formed in the Liver, and is secreted by means of a Cystis or Bladder situated there for that Purpose; and afterwards is convey'd to the Intestines by certain Ducts; and if they should be obstructed by a Scirrhus, or an Inflammation, or if the Contents of this Bladder should overflow, the Bile returns backwards, and is mix'd with the Blood, which, flowing thro' the whole Body, carries likewise the Bile along with it: Hence in Jaundices the Skin seems, as it were, ting'd with Bile, and the Excrements are white like Clay, and unting'd with the Colour of the Bile, because none of that Humour flows to them: Hence also Icteric Patients are costive, because their Bellies are neither moistened nor stimulated by the Bile.

The Aliment of the Spleen is black; and the Spleen itself deterges and refines the black Blood. It is a Bowel of a rare Contexture, and of a dissoluble Nature, and for this Reason subject to Impostumations and Abscesses.

The Stomach presides over Pleasure and Uneasiness, and because it is adjacent to the Heart, the common Source of all the Faculties, (for it is connected to the Middle of the Heart and Lungs, and with them adheres to the *Spina Dorsi*) it contributes very much to Strength, and to Composure or Dejection of Mind, upon account of its Consent with the Soul. This is the principal Faculty of the Stomach. From Pleasure arises a good Digestion, a full and fleshy Habit of Body, and a fresh and lively Colour. From Uneasiness the Contraries of these arise, and sometimes Dejection of Mind, when the Stomach is empty. The Disorders of the Stomach are, properly speaking, Nauseas, Vomitings, Loathings of Food, Hiccups, Eructations, and these too sometimes acid; and tho' in People labouring under Disorders of the Stomach, it is generally free from Thirst, yet in it the Source and Origin of Thirst is contained.

The Colon also contributes to the Concoction of the Food, as well as the Stomach, and the Aliments are convey'd from it to the Liver: Neither do all the Aliments pass thro' visible Canals, for Nature distributes the far greater Part of them thro' the whole Body by Vapours, which easily pass from one Part of the Body to another; and these very Vapours are also by Nature carried thro' the compact and solid Parts of the Body. The Colon is a very large Intestine, wide enough in all its Parts, and form'd into Sinuses, more thick and fleshy than the small Intestines, and more capable of bearing Injuries; and for this Reason, when this Intestine is the Seat of Colic Pains, the Danger is the less: For when the small Intestines are affected, a sharp and pungent Pain is felt; but when the Colon is affected, there is great Abundance of Humours, and a Sensation of Gravity is perceiv'd in it. By reason of its Situation and Connection, the Pain sometimes reaches to the Ribs, and makes a *Pleurisy* suspected; for even in the Colic a Fever sometimes arises. Sometimes the Pain appears to be on one Side, sometimes on the other, under the spurious Ribs; so that the Liver, or Spleen, seems to be affected, and the Pain falls down again to the *Iliæ*. With some this Pain seizes the *Os Sacrum*, the Thighs, and the *Cremaster* Muscles of the Testicles; so that *Aretæus*, knowing the Reasons of these Symptoms, justly stigmatized the Ignorance of some Physicians, who, in this Case, cut off the *Cremaster* Muscles, as if they had contained the immediate Cause of the Disease. Now can any thing advanced by later Anatomists possibly come nearer the Truth?

There are two Coats of the Intestines, as well as of the Stomach, one of which lies obliquely upon the other. When therefore the Connection of these is dissolved, as it sometimes happens in Dysenteries, the interior Coat, separating lengthways, is discharg'd by Stool, and strikes many, who are unacquainted with the true Cause, with a Dread of having lost their Intestine; and the exterior Coat remaining within, incarns and cicatrizes, and then the Patient becomes sound; but the lower

Intestine is only subject to this Accident, as having its Coats of a fleshy Nature.

The Kidneys are naturally glandular Bodies, of a reddish Colour, resembling rather the Liver, than the Breasts and Testicles. These are Glands, but they are whiter than the Kidneys. The Kidneys indeed resemble the Testicles in Figure, but they are broader, more crooked, and contain small Sinuses, with narrow Necks, for percolating the Urine. From these two small nervous Canals, resembling little Pipes, branch out, which are called the Ureters, and are inserted in the Sides of the Bladder on each Side, and from both Kidneys there is an equal Conveyance of the Urine to the Bladder. Nature has formed the Sinuses of the Kidneys oblong, and by that means adapted them to the Diameters of the Ureters, which are but small.

The Bladder is of a very inconsiderable Thickness, and naturally of a nervous Texture; for which Reason it neither incurs nor cicatrizes easily. When it is full it is distended, and when empty it collapses; so that in case of an Ulcer, it suffers just as much as a Joint does in Extension and Contraction. Now all Ulcers upon Joints are cur'd with the greatest Difficulty. Besides, bilious Urine, and an inveterate Ulcer, must necessarily corrode the Bladder.

The Anus and Bladder are contiguous to each other; and for this Reason in Inflammations of the Rectum, the Bladder with Difficulty discharges its Contents; and in Disorders of the Bladder, the Fæces are not discharg'd, even tho' the Belly should not happen to be costive.

Certain Membranes are affix'd to the Uterus, which are nervous Ligaments of the Uterus. These Membranes, which are inserted in the Bottom of the Uterus, hard by the Loins, are small and slender; the others towards its Neck, and which adhere here-and-there to the Uterus, are very nervous, and spread much after the manner of the Sails of a Ship. Now if all these Membranes are relax'd, the Uterus falls out of its Place. Sometimes the interior of the two Membranes which surround the Uterus appears, and may be separated from the other; for only two of its Membranes can possibly be divided, one of which recedes from the other, by reason of the Fluxion of Humours, as it happens likewise in Miscarriages and hard Labours, in which Case it adheres to the Chorion; for if that is forcibly extracted, the Coat of the Uterus comes along with it; but if the Woman escapes Death, and if it returns to its proper Situation, it reunites exactly, or else hangs a little out. Sometimes the Mouth of the Uterus falls out only as far as its Neck; but it is easily restor'd, if Fumigations are used, and the Midwife uses proper Endeavours to replace it gently, and by Degrees.

The Head is the Origin of the Senses and Nerves, and rather attracts the Blood from the Heart, than conveys it to other Members. When therefore the Cause of any Disorder is lodg'd in the Nerves, the Senses must be injured. Tho' the Nerves arise from all Parts of the Head, yet the anterior Part of the Head is the Store-house, as it were, of all the Senses, and from it all Aids and Injuries are deriv'd. For this Reason, in applying Fomentations, we ought to proceed no farther than the Vertex.

Arctæus, following the Opinion of *Erasistratus*, maintain'd, that the Nerves were not only the Origin of Sensation, but the Source of all Action and Motion of the Members. So that if the Origin of any Nerve below the Head is affected, as the Membrane or Meninx of the Medulla Spinalis, the Parts which come under the same Denomination; and also those which are contiguous, become paralytic; the Parts of the Right Side, if the Nerves on that Side be hurt; and those of the Left, if the Nerves on that Side should happen to be injured. But if the Cause of the Disease be lodg'd in the Head, if the Nerves on the Right Side be affected, the Parts on the Left Side will be paralytic, and vice versa. The Reason of this Phenomenon is, that the Nerves change Sides near their Origin; for those on the Right Side do not go directly all the way to the Parts on the Right Side; but both those on the Right and Left Sides, being inserted in their proper Origins, they immediately cross one another in the Form of the Greek Letter X, sending to opposite Parts. But whether the whole Body, or some of its Members, either on one or both Sides, are paralytic, the Nerves which arise from the Head are sometimes affected, and in short, are easily deprived of their sensitive Faculty, but do not of themselves so readily become incapable of Motion. These Nerves also, if by Consent, they contract any Injury from those destin'd for the Purposes of Motion, lose in some measure their Capacity for Motion, with some Degree of which, tho' a very small one, they are naturally endow'd. Sometimes also the Nerves arising from some Muscles, and terminating in others, are hurt; and these are the Nerves which are chiefly capable of Motion, and convey it to the Nerves of the Head, which derive a great deal of their Motion from them, tho' they have some Degree of it in themselves. These Nerves therefore suffer principally a Decrease of Motion, but they rarely or never lose their sensitive Faculties; and if at any time a Congeries of Nerves rising from any Bone, and terminating in another, should be either

relaxed, or broke, the Parts become impotent and contracted; but they are not depriv'd of Sensation.

According to *Arctæus*, a *Tetanus* is a Disease incident to the Nerves, in which he also taught, that the principal Cause of Melancholy resided; he likewise thought, that they were affected, and often contracted, in a Phrenitis; and that in the Gout all the System of Nerves was affected.

These were the Notions maintain'd by *Arctæus*, with regard to Anatomy, which he made chiefly subservient to Physic, in accounting for the Symptoms and Causes of Diseases. In this he imitated the Sect of the Dogmatists, who maintain'd, That since Pains and Disorders of various Kinds were incident to the internal Parts, no one could apply Remedies to them who was ignorant of their Structure. So that tho' the Notions of *Arctæus* concurr'd sometimes with those of *Hippocrates*, *Erasistratus*, or *Herophilus*; yet he was not the blind Votary of any Party, or the too fond Admirer of any Man; but freely declares what he himself thought Truth. *Wigan's Preface to Arctæus.*

RUFUS EPHESIUS

Is the next Anatomical Author of Note we meet with. He liv'd under the Emperors *Nerva* and *Trajan*, and is esteem'd a very skilful Physician by *Galen*; who also informs us, that he wrote in Verse upon the *Materia Medica*. He also wrote a Treatise upon the *atra Bilis*, or black Bile; and some other Pieces quoted by *Suidas*, but these have not reach'd our Hands; for the only Remains we have of this Author are, a small Treatise on the Greek Names of the several Parts of the human Body, another on the Diseases of the Kidneys and Bladder, and a Fragment relating to purgative Medicines. The principal Design of this Physician, in the first of these Works, was to give a general Idea of Anatomy, and to dissuade those who studied Physic in his own Days from being deceiv'd in reading the ancient Authors, some of whom had describ'd the Parts of the human Body under one Set of Names, and others of them the same Parts under quite different Appellations. Besides, we may fairly gather from what *Rufus* advances in this Treatise, that in his Days all the Anatomical Demonstrations were made upon Beasts. *Make Choice*, says he, *of an Animal as nearly resembling Man as you can possibly meet with. You will not find all the Parts of the Animal exactly, and in every Particular, like those of Man; but there will at least be some Analogy or Similitude betwixt them.* Formerly, continues he, *Anatomy was taught on human Bodies.*

We also learn from the same Book, that those Nerves, which were afterwards distinguished by the Epithet *recurrent*, were but just then discover'd. *The Antients*, says *Rufus*, *call'd the Arteries of the Neck carotid or carotic Arteries, which Epithet, in their Language, imply'd Sleep-inducing, because they imagined, that when these Arteries were strongly compress'd, the Animal was inclined to Sleep, and lost the Use of its Voice: But in this Age we have discover'd, that these Symptoms are not occasioned by the Compression of these Arteries, but by that of the Nerves, which are contiguous to them.*

'Tis also probable, that *Rufus* observed certain Vessels of the Matrix, of which preceding Anatomists had made no mention. *Herophilus*, says he, *did not believe, that Women had any Parastata Varicosa; but upon examining the Matrix of a Beast, I have observed certain Vessels which arise from the Testicles, and which, being folded back upon both Sides in the Form of Varices, terminate in the Cavity of the Matrix. Upon compressing these Vessels, there even flows from them a glutinous Humour; and 'tis thought that they are certainly seminal Vessels of the varicose Kind.* *Rufus* had before observed, that in Men there were four spermatic Vessels, two of the varicose, and two of the glandular Kind; and that the Extremities of the former, which adhered to the Testicles, were call'd *PARASTATAE*.

What he calls in this Passage *Parastata Varicosa*, appear to be the same things, which are now call'd *Tubæ Fallopiæ*, from *Fallopia*, the supposed Discoverer.

GALEN

Is the next and principal Anatomist of Antiquity; to him we are obliged for most we know with respect to the Anatomy of the Antients. As a complete Extract of his Works on this Subject would be too voluminous, I shall in this Place only give some general Remarks on his Anatomy, reserving his particular Discoveries for the Articles to which they properly belong.

Galen maintain'd, that the *Asclepiadae*, or Descendants of *Esculapius*, down to the very Days of *Hippocrates*, who was one of that Race, were perfect Masters of Anatomy; but that none of that Family, except the last, had wrote any thing upon that Subject. The Reason of their not writing was, that their Children, to whom alone they communicated their Art, learn'd Anatomy immediately under themselves, almost as soon as they learn'd the Letters of the Alphabet; and that, by seeing Dissections made, and making them themselves; so that they had no Occasion for Books to instruct them in this Art. It afterwards happened, says *Galen*, that *Hippocrates* having wrote on Anatomy, as well as the other Branches of Physic, and having first made Strangers his Disciples, Anatomy began to decline

space, because the Physicians who came after him, satisfied themselves with reading his Books, without taking the Pains to dissect themselves. *Diocles*, who came almost immediately after *Hippocrates*, wrote also on the same Subject, but in such a manner as discovered abundance of Ignorance.

Things remained in this Situation till the Death of *Diocles*, which happened much about the Time, in which *Herophilus* and *Erasistratus* appear'd. These two Physicians apply'd themselves industriously to Dissections; and had, for that Purpose, as many human Subjects as they desir'd; so that they soon re-established Anatomy, which had been neglected during the above-mentioned Interval. But the Anatomists of succeeding Ages had not the same Opportunities of dissecting human Bodies; the Reasons for which are at Length enumerated by *Riolanus*. Most human Bodies, says he, were burned immediately after Death. There was a Law enacted at Rome, in Consequence of the Disorders which reign'd during the Civil War, which happened under *Marius* and *Sylla*, which discharged and prohibited the committing any Outrages on the Bodies of the Dead. We also know, that in the Days of Antiquity, People were not only afraid of touching, but even of coming near, human Carcases; and for that Reason the *Vespillones*, or those who interr'd the Dead, and even the *Coriarii*, or those who prepared the Skins of Beasts, had their Dwellings without the Gates of Rome; neither had the public Executioners any Residence in it; for the Romans were so delicate in this Point, that they would not so much as allow any one to be punished within their Walls. The Laws of the Jews, relating to those who touched dead Bodies, are too well known to stand in need of an Enumeration; but every one does not know, that the Sentiments of the Greeks, with regard to this Point, were the same with those of the Jews. This *Riolanus* proves by a Passage from the *Iphigenia* of *Euripides*: If any one, says that Poet, stain his Hands by Murder; if any one touch a Carcase, or a Woman immediately after Child-birth; the Gods discharge him from their Altars as impious and profane. The Difficulty which there formerly was, of finding human Bodies for Dissection, appears from a Passage of *Pliny* to the same Purpose, [Lib. 28, Cap. 2.] where he says, that it was against the Laws to look into the Entrails of Men. But these Authorities, and all the others brought by *Riolanus*, cannot hinder him from thinking, that in all Ages Physicians have fallen upon the Means of procuring human Bodies for Dissection. This he endeavours to prove by a Passage of *Pliny*, where [Lib. 19, Cap. 5.] he says, that the Kings of Egypt in antient Times opened the Bodies of the Dead, in order to know of what Distempers they died. The Egyptians also used to embalm their Dead, which they could not possibly do without opening them. There were at *Alexandria* [Galen. *Administrat. Anatom. Lib. 1. Cap. 2.*] human Skeletons, by means of which young Physicians learned to know the Bones: We read in *Rufus Ephesus*, that the Physicians who lived before him, had learned Anatomy upon human Bodies; and the Accounts handed down to us of *Herophilus* and *Erasistratus* will not allow us to doubt of it. *Galen* [De Dissect. *Vulva*, Cap. 5.] pronounces concerning the first of these Physicians, That he had acquired a very exact Knowledge of Anatomy, by dissecting Men, and not Beasts, as most other Physicians used to do. *Seneca*, according to *Riolanus*, affirms, *Medicos, ut vim ignoratam Morbi cognoscerent, Viscera rescidisse; bodie Cadaverum Artus rescindi, ut Nervorum Articulorumque Positio cognosci possit.* That Physicians opened the Bowels of Men, in order to discover the Causes of their Diseases; and that even in his Time they dissected the several Parts of Carcases, in order to know the Situation of the Joints and Nerves. But in the common Edition of *Seneca*, there are only these Words: *Medici, ut vim ignotam Morbi cognoscerent, Viscera hominum resciderunt.* Physicians, that they might know the hidden Natures of Diseases, opened the Bowels of Men. Now *Seneca*, according to *Riolanus*, lived in the Days of *Augustus*, *Tiberius*, and *Nero*; and the Roman Physicians were allow'd to dissect the Carcases of their Enemies, which in Reality they did during the Wars of *Marcus Aurelius* against the Germans, as *Galen* informs us. It was also no difficult Matter to procure the Bodies of such as were put to Death at Rome, since they remained uninterr'd without the *Esquiline Gate*, now called the *Porta di S. Lorenzo*. The Bodies of exposed Children might have also been easily obtained. In short, since in these Days Masters had great Numbers of Slaves, who could hinder them from using any Liberties with the Carcases of these poor Creatures, which they themselves should judge proper? *Riolanus* might have subjoin'd to all these Proofs, what *Cicero* says [Academic. *Quaest. Lib. 4.*]: *Corpora nostra non novimus; qui sint situs Partium, quam Vim quaeque Pars habeat, ignoramus: Itaque Medici ipsi, quorum intererat ea nosse, aperuerunt ut viderentur; nec eo tamen, aium Empirici, notiora esse illa, quia fieri possit, ut patefacta & detecta mutantur.* We know not, says he, our own Bodies; we are ignorant of the Situation of the Parts, and unacquainted with the Powers of each particular Member. For this Reason, the Physicians themselves, whose Interest it was to be thoroughly versed in these things, dissected human Bodies with a View to dis-

cover them: But, say the Empirics, they are not by that means better understood or comprehended by us, because 'tis possible, that so soon as they are discovered, and exposed to View, they may assume a different Nature, than what they had before. The same *Riolanus*, having proved, in general, that the antient Physicians sometimes dissected Men, endeavours to shew in a particular manner, that *Hippocrates*, *Aristotle*, and *Galen*, did so too. As for the two first, they come not under our Consideration at present. I shall therefore only inquire a little into the Truth of his Pretences, with regard to *Galen*, in whose favour he stands up against some Moderns, who have maintain'd the contrary: People, says he, have no Reason to accuse *Galen* of never having dissected human Subjects, and of having taught the Anatomy of an Ape instead of that of a Man. I could easily prove by a great many Quotations from this Author, that he has dissected both Apes and Men; but that he has only taught the Anatomy of Man. Upon this Occasion, he quotes two or three Passages from *Galen*, by which indeed it appears, that this Author treats, or, at least, says he treats, of the Anatomy of Man; and in one Passage, he even promises to publish separately the Anatomy of some other Animals. The Words of this last-mentioned Passage run thus: I have not here a Design to enumerate the Number of Lobes which make up the Livers of other Animals, because I have not as yet described the particular Structure of any of their Organs, except in some Passages; where I have been obliged to do it, in order to illustrate what I say concerning Man: But, if I live, I shall some time or other describe the Structure of the Bodies of Beasts, and furnish out an exact Anatomy of all their Parts, as I have now done with regard to the Parts of Man. *Riolanus* quotes another Passage, wherein *Galen*, when talking of some Anatomists of his Days, says, That it was no wonder if they were deceived, since they only dissected the Hearts and Tongues of Oxen, never considering at the same time, that these Parts are not, in these Animals, the same they are in Men. One may reasonably suppose, that if *Galen* had not himself examined those Parts in Man, he would not have been so forward in censuring those who had not done it more than himself.

After the Passage in which *Galen* commends *Herophilus* for learning Anatomy by dissecting Men, he adds, That most other Physicians dissected only Beasts. This Passage proves, that *Herophilus* was not the only Anatomist who dissected Men; if none, except he, had done so, our Author instead of these Words, Most other Physicians, should have said, All other Physicians. Now, if some of the Physicians of his Time dissected human Bodies, it is very probable, considering the Fondness he discovers for Anatomy, that he was not idle in this respect, whilst others were labouring to improve themselves. I believe then, as well as *Riolanus*, that *Galen* may possibly have dissected human Bodies; but 'tis probable he did so very rarely, and perhaps but imperfectly too. What has already been said upon this Head, proves that the thing could not be undertaken without a great deal of Difficulty; and in this Sentiment *Galen* himself confirms us, by the Pains he is at in speaking of several other Methods, in which he thought Anatomy might be learn'd. He advises (*Anatom. Administrat. Lib. 6. Cap. 1.*) to make choice of that Species of Apes, which bear the nearest Resemblance to Man; or, if such, continues he, cannot be found, we must dissect those whose Heads resemble that of a Dog, or Satyrs, or Lynxes: If these Animals should still be wanting, we must make use of Bears, Lions, Weasels, or Cats, because these Animals have a kind of Fingers resembling those of Men. He goes on thus: I have never made an Attempt to dissect Ants, Gnats, Fleas, or any such minute Insects; but I have often dissected Weasels, Rats, Serpents, and several Species of Birds and Fishes; by which I have discovered, that the same Principle of Intelligence is employed in the Formation of all Animals; every one of which has the Structure and Mechanism of its Body adapted to the State and Condition of its Nature. It also appears, that *Galen* sometimes dissected Hogs and Goats; and he himself (*Anatom. Administrat. Lib. 7. Cap. 10. De Usu Part. Lib. 17. Cap. 1.*) speaks of an Elephant, the Whole, or at least some Parts, of which he had dissected at Rome. It will, no doubt, be said, that our Author advised to begin with dissecting Beasts, and to finish and perfect our Knowledge of Anatomy by dissecting Men. All this is true; but let us see in what Strain he talks of this last Affair (*Administrat. Anatom. Lib. 3. Cap. 5.*): I advise you, says he, first to exercise yourself thoroughly upon Apes; that if you should find an Opportunity of dissecting a human Body, you may be able readily to discover and know each Part of it; in which Case you will be foil'd in your Attempts, unless, before-hand, you have frequently exercised yourself upon other Subjects: For want of such a previous Exercise, those who dissected the Bodies of the Germans, during the War undertaken by that People against *Marcus Aurelius*, reaped no other Advantage from their Labours than a Knowledge of the Situation of the Viscera. But a Physician who has before try'd his Hand upon other Animals, and especially upon Apes, sees at once the Peculiarities of the Parts he dissects. It is more easy for a Man of Skill and Practice in Anatomy, with a single Glance of his Eye, to disco-

ver what he has elsewhere seen before, than for a Novice in the Art to perceive even the most evident Things at his greatest Leisure. Many of this first Class of Men have very quickly discovered what they wanted to see, upon the Bodies of those who were condemned to Death, or exposed to the Fury of wild Beasts, or upon the Carcasses of Robbers, who were denied the Privilege of Burial. Besides, large Wounds, or deep and hollow Ulcers, have sometimes discovered, to these Men of Skill, many Parts of the human Body resembling those they had formerly seen in Apes; whereas those who had never endeavoured to improve themselves upon these Animals, could reap no Advantage upon Occasions of this Nature. Those who have frequently dissected the Bodies of exposed Children, well enough know, that the Bodies of Apes and Men very much resemble each other. It is not to be doubted, but Galen employ'd some of these Means, or others of a like Nature, in order to instruct himself in Anatomy; and the Anatomy acquir'd in this Shape, was by him styled, *Ἀνατομὴ κατὰ ἀνάγκην*, or *Anatomy acquired by Accident*, which was the only Kind approv'd of by the Empirics. That Galen enjoy'd Opportunities of this Nature, is plain from another Passage, where, after having advised young Physicians to travel to *Alexandria*, in order to see the Skeletons, and not to satisfy themselves with what they read in Books upon that Head, he adds these Words: *I have often examined the Bones of Men, when Sepulchres or ruined Monuments have fallen in my way. A Sepulchre, slightly built upon the Brink of a River, happened to be destroy'd by the Impetuosity of the Torrent, which had overflow'd it, so that the Body, which had been laid in this Sepulchre, being carried off by the Current, stopp'd at last in a Place not unlike a Harbour, surrounded with pretty high Banks. I had an Opportunity of seeing this Body, of which the Flesh was already rotten; but the Bones were still connected with one another; so that one would have said it was a Skeleton, prepared for the Instruction of young Physicians. One Day I also saw the Carcase of a Robber lying on a Mountain, far enough from any public Road: This Robber was kill'd by a Traveller, whom he had attack'd; and the Inhabitants of the adjacent Parts refusing to bury him, because they judged a Man so wicked the proper Prey of Vulturs, his Bones were two Days afterwards stripp'd of all their Flesh, and dry, like those prepared for the Instruction of Physicians.* Galen speaks also, in the same Chapter, of a Disease attended with Carbuncles, which had raged in most of the Cities of *Asia*, and afforded him Opportunities of examining the Situation and Disposition of the Muscles of several Parts, which were stripp'd of the Skin, and some Part of the Flesh.

If our Author confin'd himself to the Methods above specified, he cannot sure be said to have made complete and regular Dissections of the human Body. Among all the Subjects, from which he says Anatomy may be learn'd, none, except the expos'd Children, seem calculated for furnishing him with the Materials of a complete Anatomy; because it was no difficult Matter to carry off some of these little Bodies, and afterwards dissect them, with the Leisure necessary for that Purpose: And this, in my Opinion, he himself seems to insinuate, when he says, that *those who frequently dissect exposed Children, well enough know, that the Body of Man very much resembles that of an Ape.* If Dissections of this Nature were often made in the Days of Galen, as we may gather from this Passage, 'tis probable that he, like others, employ'd himself in this way; tho' a Principle of Caution might restrain him from making a public Declaration of it, on account of the Aversion which then reign'd in the Minds of People against Practices of that Nature. It may be said, that it was not much more difficult to get some of the Bodies of executed Criminals carried off; but he no-where insinuates, that any one made the least Attempt of this Kind; for when he speaks of what was learn'd by examining the Bodies of Robbers, or other Carcasses casually found in the Fields, he informs us, that this Examination was made upon the very Spot where such Bodies were found, by endeavouring, as soon as possible, to discover the Part or Circumstance sought for. This may be gather'd from the Passage already quoted, where he says, that those who have dissected Apes are able *speedily* to inform themselves, by means of the Carcasses they find in the Fields, with regard to the Disposition of those Parts which they may have formerly seen by dissecting Animals. In the Course of this Passage, he three or four times repeats the Word *speedily*, which expresses the Shortness of the Time which he himself, or any body else, had to view the Parts of the Carcasses we are now speaking of, for fear, no doubt, of being surpris'd in an Action, which must have struck Terror into the Spectators, and must be own'd to be, in its own Nature, none of the most agreeable. In short, the Pains Galen is at to specify all the other Means of learning Anatomy, which we have mention'd, sufficiently prove, as we have already observed, that, in these Days, regular Dissections of the human Body could be made but very rarely, and with a great deal of Difficulty. A collateral Proof of this is, that such Dissections were not publicly made in the Schools of the Physicians; for we may well suppose, that if they were made in any Part of the World, it must have been at *Alexandria*, the Capital of *Egypt*, where the Custom of open-

ing the Dead, in order to embalm them, might have been supposed, in some measure, to reconcile and inure them to the Horror which attends a complete Dissection: But we do not find, that any thing of this Nature was practised there since the Days of *Herophilus* and *Erasistratus*, or of the antient Kings of that Country: All that was done in this respect, even in that famous Medicinal School which flourished in the Days of *Galen*, was to teach Osteology upon human Skeletons, which might have been very antient. If the Masters of this School had exhibited, upon human Subjects, all the other Parts of the Anatomy of Man, *Galen*, and a great many other Authors, had not fail'd to acquaint us with it, in numberless Passages. As for those Passages from many Authors, which have, since the Time of *Riolanus*, been advanced to prove, that in the Days of Antiquity human Dissections were practised, it is easy to shew, that almost all of them have a Reference to what pass'd long before the Times in which these Authors wrote; and that the Accounts handed down of *Herophilus* and *Erasistratus*, might have laid a Foundation for all that has been said upon that Subject. But, to return to *Galen*; taking it for granted, that he dissected some human Bodies, yet nothing is a more convincing Proof of his not having dissected a sufficient Number, than his describing, in several Passages, the Parts of Apes, or some other Animals, instead of those of a Man. This has been clearly shewn by *Vesalius*; and those who have maintained the contrary, have been miserably blinded and misled by their superstitious Attachment to *Galen*.

But tho' *Galen* has sometimes confounded the Parts of Beasts with those of Men, his Anatomy is nevertheless a very valuable Work, and *Vesalius* himself had a high Veneration for it; and, indeed, it must be own'd, that nothing could set the Merit of its Author in a fairer or truer Light than this Piece; if it be true, as he says, that no one had wrote well on Anatomy before him, and that he had made many important Discoveries in this Branch of Physic. It is, indeed, possible, that, considering his Attachment to Anatomy, he might have made some Discoveries of his own in that Science; tho', at the same time, his Propensity to commend himself must render every thing he says, concerning himself, suspected: But, the Truth is, whether he was the first who placed Anatomy on a good Foundation, or whether he raises his own Character on the Labours of others; from which, at the same time, he has not drawn all the Advantage that could have been wish'd; yet still 'tis very certain, that we should have suffer'd very considerably if all his Anatomical Works had been lost, since they are the only remaining Monuments of all that the Antients wrote upon that Subject; for what else we find, of that Nature, is scarce worth Notice, if we except what *Aristotle* has given us upon that Head. 'Tis true, *Galen* had not attain'd to Perfection; but neither can the Moderns pretend to that; and 'tis probable, that, without those Lights, with which he supplied the very Men who have censur'd him, we should have still been in the Dark, with regard to a great Part of that which he has clearly demonstrated. *Galen's* two principal Treatises upon Anatomy are, his *Anatomical Administrations*, and his Book *On the Use of the Parts of the human Body*. The former contained fifteen Books, of which the six last are lost: The latter, which we have complete, contains seventeen. We have also a Book of his, which treats *Of the Bones* in particular; another, *On the Dissections of the Muscles*; a third, *On the Dissection of the Nerves*; which is imperfect; a fourth, *On the Dissection of the Veins and Arteries*; a fifth, in which the Author proves, in Opposition to *Erasistratus*, *That there is Blood in the Arteries*; a sixth, *On the Anatomy of the Matrix*; a seventh, *On the Organ of Smelling*; an eighth and ninth, *On the Usefulness and Causes of Respiration*; a tenth and an eleventh, *On the Motion of the Muscles*; a twelfth, *On the Formation of the Fetus*; and two others, *Concerning the Seed*; without taking into the Account what we find concerning Anatomy, in his Books *On the Natural Faculties*, and elsewhere, scatter'd up and down his other Works. *Galen* wrote several other Books, which are lost; in some of which he treated of the *Anatomy of Hippocrates*, and in others of that of *Erasistratus*; in a third Work he treated of the *Dissection of dead Bodies*; and in a fourth concerning *that of living Animals*. It were to be wish'd, that all these had reach'd our Hands, but especially those Pieces relating to the Anatomy of *Hippocrates* and *Erasistratus*; as also the Abridgments he made of the Anatomical Works of *Lycus* and *Marinus*; the latter of whom wrote twenty Books, which were abridg'd by *Galen*, and of which he has preserv'd the Titles, which are so curious as to lay a just Foundation for our lamenting the Loss of so great a Work.

But tho' we have not all the Works of *Galen*, yet those we have, happen luckily to comprehend almost the Whole of his Anatomy; and if his *Anatomical Administrations* are not complete, the other Books we have mention'd, and especially those concerning the *Use of the Parts*, supply that Defect; for this Book *on the Use of the Parts*, is a Master-piece, which has been justly admired in all Ages, and which sufficiently discovers the Extent of its Author's Genius; since in it the Physician, as well

well as the Philosopher, may find Satisfaction. But what, in a particular Manner, strikes Christians with Admiration is, that *Galen*, tho' a Heathen, yet acknowledg'd One God, all-wise, all-good, and all-powerful, the Creator of Man, and of all other Animals. The Words he uses, in one Passage of this Book, have not only strong Sense, but also something of a divine and striking Energy in them. [De usu Part. Lib. 3. Cap. 10.] In writing these Books, says he, I compose a true and real Hymn to that awful Being, who formed us all; and, in my Opinion, TRUE RELIGION does not so much consist in sacrificing many Hecatombs on his Altars, or in making him rich and costly Presents of the most fragrant and exquisite Perfumes, as in being persuaded ourselves, and endeavouring to persuade others, that he is possess'd of unerring Wisdom, irresistible Power, and all-diffusive Goodness. For his having ranged all Things in that Order and Disposition, which is best calculated for the Continuation of their respective Beings, and his having condescended to distribute his Favours to all his Works, is a glaring Proof of his Goodness, which calls aloud for our Hymns. His having found the Means necessary for the Establishment and Preservation of this beautiful Order and Disposition, is an incontestable Proof of his Wisdom, as his having done every thing he pleased, is of his Omnipotence. 'Tis not in one Passage only, that *Galen* talks in this exalted Strain; these are so much the genuine Sentiments of his Heart, that he loses no Opportunity of inculcating them, and confuting, at the same time the *Epicureans*, who maintained, that this beautiful and harmonious Frame of Nature was the blind Result of a fortuitous Concourse of Atoms. 'Tis true, that [De usu Part. Lib. 11. Cap. 14.] he opposes *Moses* for having maintain'd, that the Will, or sole Command of God, was the only Cause of all Things. *Galen* does not admit of this Principle of *Moses*, except the Will of God be taken in Conjunction with the Choice which he made of the most proper Materials, for answering the particular Ends he had proposed to himself, after having known what was really best, with regard to the Arrangement of each Body; for, says our Author, God could not have form'd Man out of a Stone, nor an Ox or a Horse out of a Parcel of Ashes. *Galen* did not reflect, that, as God was the Master and Creator of Matter, so his Will was sufficient to make any Part of it assume that particular Form, and all those other Modifications, which were requisite for answering his Ends. If *Epicurus*, bewitch'd as he was with his Atoms, had acknowledg'd the Supreme Cause of their Arrangement, he would have reason'd better upon this Subject than *Galen*; but *Galen* was misled by *Plato*, or *Aristotle*, and not by *Epicurus*.

The younger SORANUS EPHESIUS

was contemporary with *Galen*; he first practis'd Physic at *Alexandria*, and afterwards at *Rome*: He wrote a Treatise on the Disorders of Women.

There is a Treatise on the Uterus, printed in *Greek* at *Paris*, 1551. which is supposed to be a Fragment of the Book of *Soranus* above-mention'd.

In the *Venice* Edition of *Vesalius*, 1604. the Anatomy of the Matrix, from *Soranus*, is publish'd in *Latin*. And the same Treatise was printed, together with the Works of *Theophilus Protaspatarius*, at *Paris*, 1556. 8vo.

THEOPHILUS PROTASPATARIUS, or rather PROTAS-PATHARIUS,

a *Greek* Anatomical Author, lived, according to *Fabricius*, in the Time of the Emperor *Heraclius*: He was undoubtedly a Christian, and probably a Monk, as he is styled in some ancient Manuscripts. He wrote five Books, περὶ κατασκευῆς ἀνθρώπου σώματος, Of the Fabric of the human Body, in which he is said to have epitomiz'd excellently *Galen* of the Use of the Parts; and besides mentions some things not to be found in any preceding Author. Thus he asserts, that the first Pair of Nerves, arising from the first Ventricles of the Brain, is extended to both the Nostrils; and that by means of these, Smells are convey'd to the Brain.

Thus also he says, that two Muscles are concern'd in shutting the Eye-lids, but that they are open'd by one only.

According to him, the Substance of the Tongue is muscular.

He also first described a very strong Ligament, which is common to, and fixes all the Articulations of the Vertebrae. This Passage is very remarkable, and, as it may serve as a Specimen of his Work, I shall insert it: Ἐπειδὴ δὲ καὶ κατέλεον ἐμελλεν ὁ ἀνθρώπος, καὶ ἀνατεῖναι, καὶ ἰσχυρὴν τὴν ἀγὰρ τὴν Θεοῦ πρὸς αὐτὸν εἰς μόνους τὰς κατὰ μέγεθος συνδεῖσθαι δυνάμεις τὰς σπονδυλάς. ἀναγκασία γὰρ ἐστὶ καὶ ἰσχυρὰ ἡ χρεῖα, ἀλλ' ἔξωθεν μὲν τῆς ἀνάγκης τῆς βίτης, ἐπέθηκε συνδεσμον, ἔκωθεν μὲν τῇ χρεῖᾳ, νεύουσαν δὲ τὴν αἰσία, ἀπὸ κεφαλῆς ἀπὸς συνδεῖσθαι ἀπὸς διαφθορὰς τῶν σπονδυλῶν κοινὸν συνδεσμον.

But as it is necessary for a Man to bend himself forwards and backwards, it did not seem sufficient to the good Providence of God to furnish each particular Articulation of the Vertebrae with proper Ligaments, which, however, are very necessary, and of

great Use; but, besides these, it added, on the Outside of the Spine of the Back, a Ligament of a yellow Colour, and of a nerveo-cartilaginous Substance; as a common Ligament to all the Articulations of the Vertebrae of the Spine.

'Tis probable, that this Author also knew, that the Substance of the Testicles is vascular; for he takes Notice of a prodigious Number of capillary Vessels, as fine as a Spider's Web, which, he says, are dispersed in the glandular Substance of these Parts.

This Work of *Theophilus* was publish'd at *Paris* in *Greek*, in 1555. 8vo. Dr. *Douglas* informs us, that it was also publish'd in *Greek* at *Paris*, 1540. But, I am afraid, this may be a Mistake; for *Vander Linden* and *Fabricius* inform us, that the *Paris* Edition of 1540. is only the *Latin* Translation of *Junius Paulus Crassus*; but as I have never seen this Edition, I cannot determine it. *Fabricius* has given this whole Treatise in *Greek* and *Latin*, at the End of the twelfth Volume of his *Bibliotheca Græca*.

The above-mention'd Translation was also publish'd at *Venice*, 1536. 8vo. at *Basil*, 1539. 4to. and, with some other Authors, at *Basil*, 1581.

This *Theophilus* is also Author of several other Medicinal Treatises.

The next Anatomical Author is

ORIBASIVS.

He, in two large Books, has described all the Parts then known, of the human Body, and assign'd the proper Office to each of them; but he has added little to what *Galen* has discoursed of in his Anatomical Works; and upon the account of this Treatise, rather than of any other of his Writings, he deserves the Name given him of *Simia Galeni*, the Ape of *Galen*. Only one thing we find, which is either omitted by *Galen*, or is lost, together with some other of *Galen*'s Works, the first Description of the Salivary Glands, which is this: "On each Side of the Tongue lie the Orifices of the Vessels, which discharge the Spittle, and into which you may put a Probe. These Vessels take their Rise from the Root of the Tongue, where the Glands are situated. They rise from these Glands, in much such a manner as Arteries usually do, and convey the Salivary Liquor, which moistens the Tongue, and all the adjacent Parts of the Mouth." See *ORIBASIVS*.

NEMESIUS

is an Author whose Name must by no means be omitted in a History of Anatomy. He was Bishop of *Emissa*, a City of *Phœnicia*, at the latter End of the fourth Century: He wrote a Treatise περὶ φύσεως ἀνθρώπου, Of the Nature of Man, of which there have been the following Editions:

Antverpiæ, 1565. 8vo. in *Greek*, with the *Latin* Translation of *Nicæsius Ellebodium*.

Oxon, 1671. 8vo. *Greek* and *Latin*.

Vander Linden and *Douglas* mention an Edition at *Antwerp*, 1584. 8vo. but *Fabricius* takes no Notice of it.

A *Latin* Translation by *Georgius Valla*, was printed at *Antwerp*, 1538.

An *English* Translation was printed *London*, 1636. 8vo.

As to the Anatomical Discoveries of *Nemesius*, Dr. *Freind* makes the following Reflections:

The *Oxford* Editor ascribes two Discoveries to him, one of which was the most considerable that ever was made in Physic. The first is concerning the Bile, which is constituted, as *Nemesius* says, not only for itself, but for other Purposes; for it helps Digestion, and contributes to the Expulsion of the Excrements; and therefore it is, in a manner, one of the nourishing Powers; besides, as a vital Faculty, it imparts a Sort of Heat to the Body. And, for these Reasons, it seems to be made for itself; but, because it purges the Blood, it seems to be formed for the sake of the Blood. Here, says the Editor, the System of the Bile is plainly and accurately deliver'd; that very System, which *Sylvius de le Boë*, with so much Vanity, boasted he had invented himself. And, indeed, so far is true, that here is the true Foundation of *Sylvius*'s Reasoning; and if this Theory be of any Use in Physic, *Nemesius* has, I think, a very good Title to the Discovery. But there follows a much more material Point; and the Editor contends, that the Circulation of the Blood, an Invention which the last Century so much bragg'd of, was known to *Nemesius*, and described in very plain and significant Terms, which are these: The Motion of the Pulse takes its Rise from the Heart, and principally from the Left Ventricle of it: The Artery is, with great Vehemence, dilated and contracted, by a Sort of constant Harmony and Order. While it is dilated, it draws the thinner Part of the Blood from the next Veins, the Exhalation or Vapour of which Blood is made the Aliment for the vital Spirit; but while it is contracted, it exhales whatever Fumes it has through the whole Body, and by secret Passages; so that the Heart throws out whatever is fuliginous through the Mouth, and the Nose, by Expiration.

Upon this single slender Proof does he attribute this great Discovery of the Circulation to *Nemesius*; and those who have insisted,

infisted, that it was known both to *Hippocrates* and *Galen*, have full as good Arguments on their Side. I will only say this, that from this very Description, and from what the same Author says of the Liver in the same Chapter, that it ministers Nourishment to the Body by the Veins, one may demonstrably infer, that *Nemesius* had no Idea of the Manner in which the Circulation of the Blood is performed.

It must be remarked, that, from the Time of *Galen*, to the Beginning of the fifteenth Century, Anatomy made but very slow Advances. For most that the lower *Greeks* have said on this Subject, is collected from *Galen*. And the *Arabic* Anatomy must have had the same Source, as Dissections of human Bodies, we are told, were not permitted by the *Mahometan* Religion. The Books of Anatomy, which the *Arabians* call *Taschrib*, most in Esteem amongst the Orientals, are those of *Ben Sina*, whom we call *Avicenna*, of *Rhazes*; and *Ebn Herman*. *Herbelot*.

The next Anatomist which occurs worthy of Remark, is

MUNDINUS,

a *Milanese*, according to *Douglas*, and *Freind*, who made some new, tho' rude Efforts, to improve Anatomy: About 1315. he compos'd a regular Body of that Science; and as he was a Dissector himself, interspers'd several Observations and Discoveries of his own, especially relating to the Uterus. This Book reviv'd, in some measure, the Study of Anatomy; and was so much in Vogue till the Restoration of Learning, that the Statutes of *Padua* allow'd of no other System to be taught in their Schools.

Mundinus, in describing the several Parts of the human Body, specifies their Places, particular Modes of Situation, Number, Appearance, Substance, Qualities, Bulks, Coats, Ligaments, Uses, Inconveniencies, Actions, and the Disorders to which they are subject.

He treats of the Viscera pretty largely, but touches very superficially on the Nerves and Blood-vessels. He only describes the abdominal Muscles, and contents himself barely with making mention of those employ'd in Respiration.

He seems to have been a fond Admirer of the Anatomical Works of *Galen* and *Avicenna*, tho' at the same time he does not fall in with their Sentiments upon every Occasion.

He observes, that larger Veins and Arteries are distributed to the Penis and Tongue, than to any other Parts of the Body of an equal Bulk.

The Testicles of Women were, in his Opinion, full of Cavities and glandular Caruncles, in which a certain salival Humidity was generated, which was the Source or Cause of that Sex's Pleasure in Venereal Enjoyments.

He mentions, that seven Cells are found in the Matrix, the Mouth of which resembles that of a young Whelp, or, rather, that of a grown Tench; and that towards its Surface there was *Velamentum vel Pudicitia*; or, rather, as it is in some Editions, *Velamen Subtile quod in Violatis rumpitur*, a slender Covering, which is burst upon the first Coition; by this he, no doubt, meant the Hymen.

The Neck of the Uterus was, according to him, a Palm in Length, broad and dilatable, with Wrinkles, or *Rugæ*, resembling Horse-leeches, for the sake of Titillation.

He took the *Vulva* for the Extremity of the Neck of the Uterus; upon which Occasion he takes Notice of two Membranes near the Orifice of the Bladder, by which the Nymphæ are in all Probability meant.

The Ducts of the Ureters into the Bladder run, according to him, obliquely, that is, between one Coat and another, that the Return of the Urine to the Kidneys might be prevented.

He calls the Valves, belonging to the Orifices of the Vessels of the Heart, *Ostiola*, or small Doors.

He publish'd a Book under the Title of *Anatome omnium humani Corporis interiorum Membrorum*, or the Anatomy of all the internal Parts of the human Body.

This Piece was printed, *Papia*, 1478. *Fol. Bonon.* 1482. *Fol. Venet.* 1507. *Fol. Argent.* 1509. *Papia*, 1512. *Quart. Lugd.* 1520. *Oct. Marpurgi*, 1541. *Quart. Argent.* 1513. *Quart. Venet.* 16mo. corrected by *Carpus*. It also appeared with *Ketham's Fasciculus Medicinæ*, Anno 1500. *Fol.*

The next Anatomical Author, we meet with, was

JOHANNES DE CONCORIGGIO,

a *Milanese*, who dy'd in 1438. His Works were printed at *Venice* in 1515. and 1521.

ALEXANDER BENEDICTUS

flourished about 1495. He was of *Verona*, and cultivated Anatomy. He wrote a Book under the Title of *Alexandri Benedicti. Physici Anatomia, sive de Historia Corporis humani, Libri 5.* Printed *Basil*, 1527. *Oct. Argentorati*, 1528. *Oct. Parisiis*, 1514. His *Epist. Nuncupat.* was printed *Venet.* 1497. and his *Opera Medica, Venet.* 1535. *Folio. Basil*, 1539. *Quart. & Fol. Ibid.* 1549. *Fol.* His *Historia Corporis humani*, together with some of his Collections, or Apho-

risms, was printed *Anno* 1527. 12mo; but the Place where, is not mentioned.

He mentions, that the yellow Bile flow'd from the Gall-bladder to one particular Part of the Stomach.

He observ'd two Foramina, or little Holes, hard by the Urinary Passage in Women, which he falsely asserts to be the Orifices of Veins, and from which, he said, a certain Humour flow'd, which was not prolific.

About the same Time liv'd

ALEXANDER ACHILINUS,

of *Bologna*. His Annotations on the Anatomy of *Mundinus* were published, together with the *Fasciculus Medicinæ Johannis de Ketam* at *Venice*, 1522. *Fol.* And his Treatise de *humani Corporis Anatomia* was published at *Venice*, 1521. *Quarto.*

He is said to have discover'd the Malleus and Incus of the internal Ear.

JOHANNES DE KETAM

above-mentioned treats on several Anatomical Subjects. His Works are published at *Venice*, 1495. 1500. and 1522. *Fol.*

GABRIEL DE ZERIS,

of *Verona*, flourish'd in the latter End of the fifteenth and Beginning of the sixteenth Century. His Anatomical Pieces were published *Venet.* 1502. and 1533. *Fol.* and *Marpurg.* 1537. and 1545. *Quarto*, together with the Anatomy of *Mundinus*.

GUIDO DE CAULIACO

was a Native of *France*, and study'd at *Montpelier* under *Raymund*. He flourish'd in the Year 1363. at which Time he wrote a large Body of Surgery. His Works, under the Title of *Chirurgia Tractatus Septem cum Antidotario*, were printed *Venetis*, 1490. 1519. 1546. *Fol. Lugd.* 1572. *Oct.* 1585. *Quarto. Venet.* 1499. *Folio. Lugd.* 1559.

He first taught, that Incisions about the Eye-brows should be made in the same longitudinal Direction with the Body itself, and not in that of the *Rugæ*, or Wrinkles of the Forehead; because the Muscles which serve to move the *Supercilia*, or Eye-brows, run in the former and not in the latter Direction.

With regard to the *Os adjutorium*, or *Humerus*, he advanced some Things which had the Appearance of being new; but they may be more justly ascribed to *Galen*, the great Restorer of Anatomy, as will plainly appear from his Works.

I have now trac'd Anatomy from its Origin, to the fifteenth Century. But the Industry of the Revivers of this Science in the sixteenth, which had, from the Time of *Galen*, lain in a great Degree uncultivated, will furnish us with more frequent and ample Discoveries, tho' it must be confessed, that many have been pretended to be made, which were known even in the Infancy of Anatomy.

JACOBUS BERENGARIUS CARPENSIS

was the great Reviver of Anatomy. He is distinguish'd with the Epithet *Carpensis* from the City *Carpi* in *Italy*; he is likewise called *Carpus* alone, and *Jacobus Carpus*, and by *Fallopis*, *Jacobus Carpensius*. But these three last-mention'd Names he assumes to himself in his *Isagoge*. He flourish'd in the Year 1522. and was Professor of Anatomy and Surgery in the University of *Pavia*. His Commentaries upon the Anatomy of *Mundinus* were printed *Bononia*, 1521. *Quarto*. His Anatomy was printed *Bononia*, 1523. *Quarto. Colonia*, 1529. *Oct. Argentorati*, 1533. *Oct. Venet.* 1535. *Quarto*. His Practical Anatomy was translated into English by *H. Jackson*, and printed at *London*, 1664.

He was the first that used Uction with Quicksilver, for the Cure of the *Lues Venerea*, and became immensely rich by his Practice that way.

He first discover'd the *Echphysis*, or Appendix of the *Intestinum Cæcum*, which he calls the *Additamentum Coli*, and under that Name describes it at Length.

He denies that the seven Cells of *Mundinus* are to be found in the Uterus, and admits only of one Cell or Cavity.

He was acquainted with the sublingual Glands, and their Ducts. He thinks that the three Divisions in the *Musculi Recti* of the Abdomen are the Tendons of three Muscles, serving for the Contraction of the Abdomen.

He first discover'd Caruncles in the Kidneys, resembling the Nipples of a Breast.

That Line which now goes by the Name of the *Linea Alba*, was by him called the *Linea Centralis*, because it reach'd along the Middle of the Belly.

He thought that the *Processus Mamillares* were not, on account of their excessive Softness, to be reckon'd among the Nerves.

Concerning the Ear he has these Words: "Two little Bones are adjacent to this Membrane, [he means the Tympanum] which, being mov'd by the undulating Air, mutually ally

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ally strike each other, and, by their Motion, excite what we call Sound in the Ear. This is the real Structure of the Parts, which, though very remarkable, has yet been observed by few."

He is therefore unjustly thought by some to be the Discoverer of these little Bones, since he assigns the same Use to them that others have done before him; and, which is still more, he nowhere pretends to be the Discoverer of them.

JASON A. PRATIS, OF PRATENSIS,

was a Native of Zeland, and flourish'd in the Year 1520. His two Books *De Uteris* were printed Antwerp. 1524. Quarto. *Amstelodami*, 1657. 12mo. His Book *De Parturiente & Partu* was printed Antwerp. 1527. Oct. *Amstelod.* 1657. 12mo.

ANDREAS LACUNA

was a Native of Segovia in Spain, and flourish'd about the Year 1552. His *Anatomica Methodus* was printed Paris. 1535. Octavo. His *Epitome Galeni Pergameni Operum*, in quatuor Partes digesta, was printed Basil. 1551. Folio. *Ibid.* 1571. Folio. *Argentorati*, 1609. Folio. *Lugd.* 1553. 16mo. 4 Vol.

When talking of the Tongue, he expresses himself thus; "Tis a Circumstance which well deserves our Consideration, that Nature only bestow'd a Frenum, or Bridle, upon the Tongue and Privy Parts, as if she had intended, that Men should be modest in the Use of both."

When talking of the Lips, he maintains, that "they are cover'd with the inner Coat of the Stomach: And this, says he, is the Cause, why, when a Nausea affects the Stomach, the Lips become tremulous, and presage a Discharge by Vomit."

When talking of the Stomach, he says, that "its Orifice, which is called the *Pylorus*, is not in its Bottom, but a little higher, that the Part of the Food, which is not sufficiently concocted, may not slip down into the Intestines till it is so." He likewise ascribes to it a *Constrictory Muscle*.

"He denies, that, in a good Habit of Body, the yellow Bile is sent into the Stomach, because it is hurtful to its Functions; whereas the black Bile is friendly and beneficial to them; and tho' in the Stomach there are no biliary Pores, yet bilious Vomitings frequently happen, because the yellow Bile is convey'd by a large Passage into the Intestinum *Jejunum*, which lies next to the Stomach; and hence it happens, that that Part, into which it is inserted, is always observed empty; and if at any time it is irritated by the Acrimony of the Bile, it throws it out from it. Now as the yellow Bile is naturally light and active, it oftentimes flies upwards, and destroys the Functions of the Stomach, unless it be forthwith discharged by Vomit."

The Intestinum *Cœcum*, according to him, hangs like a sort of fill'd Stomach, in the Bottom of which there is no Orifice; but it has two Orifices, one by which it receives, and the other by which it discharges.

NICOLAUS MASSA.

This Anatomist was a Venetian by Birth, and flourish'd about the Year 1530. His *Liber Introductorius Anatomia* was printed Venet. 1536. Quarto. 1559. Quarto. His *Epistolæ Medicinales* were printed Venet. 1542. Quarto. 1550. Quarto. 1558. Quarto.

Riolanus, and some others seduced by his Authority, ascribe the Invention of the *Musculi Pyramidales* to him. But they have nothing to support their Opinion; for that Muscle which is taken for the Pyramidal Muscle of *Massa*, is more properly called the *Cremaster Muscle*, which it really is.

The *Septum Scroti*, which some Moderns boast of as their own Discovery, is elegantly described by him in these Words: "This Bag [he means the Scrotum] has, besides, an intermediate Membrane, which divides the Right Testicle from the Left, so that the Scrotum has two Sinuses. Hence it happens, that it is sometimes distended on one Side by a Deffluxion of Humours, or a falling down of the Intestines, whilst the other Side remains in its natural State."

He deny'd the Existence of the *Panniculus Hymeneus*, which, according to *Mundinus*, block'd up the Mouth of the Matrix; and in its stead maintain'd, that some *Rugæ*, mutually connected with Veins and Ligaments, were relaxed and broke, when a Woman was deflower'd.

He describ'd the Ducts of the renal Caruncles, thro' which the Urine is strain'd, and which are now call'd the *Tubuli Urinarii*. *Carpus*.

Concerning the Anatomy of the Seminal Vessels, he expressly affirms, that the spermatic Vein and Artery do not at all meet, but pass separately to the Testicles.

He demonstrates, that the Substance of the Tongue is muscular, and that it is cover'd with a double Skin.

He also asserted, that the Neck of the Uterus was muscular, and endow'd with a voluntary Faculty. He takes the *Mem-*

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brana Frontis Carnosa for a real Muscle; and asserts, that the *Ossicula auditus*, which strike the Tympanum of the Ear, were known to Anatomists in the Time of *Achillinus*.

JOHANNES GUINTERIUS.

This Anatomist is styl'd *Andernacus*, because he was born in *Andernacum*, a Town of *Ubich* on the Rhine, in the Year 1487. His Works, under the Title of *Anatomicarum Institutionum ex Galeni Sententia, per Johannes Guinterium Andernacum Medicum, Libri quinque*, were printed Basil. 1536. Octavo. 1539. Quarto. *Patauii*, 1558. Oct. *Wittemberg*, 1613. Octavo. And his Piece *De Medicina veteri & nova*, was printed Basil. 1571. Fol. 2 Vol.

He first call'd that glandular Body which is situated in the Middle of the Mesentery, and consists of a soft and yielding Substance, the *Pancreas*.

He boasts of his being the Discoverer of the Complication of the spermatic Vein and Artery, a little before their Infertion into the Testicles; which, he says, was never observ'd before him; and which, he adds, he shew'd to *Vesalius*, when he was studying Anatomy at Paris.

The Uterus, he said, had two Sinuses, corresponding to the Number of the Breasts, not divided by an intermediate Membrane, but terminating in one narrow Cavity, which he call'd the Neck of the Womb, which Neck, he said, terminated at the *Sinus Muliebris*, which he also call'd the *Pudendum*.

He also admitted of the *Membrana Allantois*.

He asserts, that the Muscle which surrounds the Neck of the Bladder, consists of transverse Fibres, and has various Offices; for, first, it shuts the Bladder, and then, after the Discharge of the Urine, contracting itself every Way, it propels what remains in the *Meatus Urinarius*.

LUDOVICUS BONNACIOLUS.

This Anatomist was a Native of *Ferrara*, and flourish'd about the Year 1530. His *Enneas Muliebris* was published *Argentini*. 1537. Octavo.

He first described the Nymphæ and the Clitoris as separate and distinct Parts, which had not been distinguished by the Antients.

He said, that the Mouth of the Uterus resembled in Figure the Glans of the Penis. The Testicles, according to him, were not perfectly spherical, but resembled a Sphere gently compressed on each Side.

JOHANNES FEKNELIUS.

This Author is likewise styl'd *Ambianus*, because his Father was a Native of *Amiens* in France; but he himself was born at *Clermont*, in the Year 1506. according to *Goelicke*; but according to *Douglas*, in his *Bibliogr. Anat. Specim.* in the Year 1485: But as this is a Controversy of too trifling a Nature to deserve Regard, we shall only observe, that he was a Man of extensive Learning, and so successful in his Practice as a Physician, that he became the Oracle of the Age in which he lived. But as he was no profess'd Anatomist, and only casually interspersed some Descriptions of particular Parts of the human Body, with his Physical Writings, he comes not properly under our present Consideration. His Book *De Naturali Parte Medicinæ*, was published Paris. 1542. Venet. 1547. Octavo. *Lugd.* 1551. 16mo. *Lutet.* 1554. Fol. *Mag.* And his *Univerſa Medicinæ, sive Opera Medicinalia*, was printed Venet. 1564. Quarto. *Lutet.* 1567. Fol. *Præfatos*. 1592. Fol. 1603. Octavo. *Hannovia*, 1610. Fol. *Paris*. 1602. Fol. *Lugd. Bat.* 1645. Octavo. 2 Vol. *Træjecti ad Rhenum*, 1656. Quarto. *Genev.* 1644. Oct. 1679. Fol. 1680. Fol.

He advanced nothing remarkable, in point of Anatomy, unless that he deny'd the *Peritonæum* to be perforated with small Holes.

LUDOVICUS VASSÆUS.

This Physician was a Native of *Catalonia*, and the Scholar of *Sylvius*. As he observed, that what *Galen*, and other learned Men, had wrote upon the Subject of Anatomy, was so scatter'd up and down, that it was not easy to come at it, he resolv'd to redress this Grievance, by compiling certain Tables to pave the Way, as it were, to that Divine Work of *Galen*, *De Usu Partium*; and, indeed, the Value of these Tables is enhanced by this Circumstance, that there is scarce a single Part of the human Body, how minute soever it be, that is not described in them. They were published under the Title of *Ludovici Vassæi Catalaunensis in Anatomien Corporis humani Tabulæ Quatuor*, *Lutet.* 1540. 1541. 1553. Fol. *Venet.* 1544. Oct. *Lugd.* 1560. Oct. A French Edition of them was also printed at Paris, 1555. Octavo.

ANDREAS VESALIUS.

This Anatomist was born at *Brussels*, a Town of *Brabant*, in the Year 1514. His superior Genius, in Conjunction with his indefatigable Application and Industry, soon raised

raised him to such a Pitch of Anatomical Knowledge, as render'd him at once the Ornament of his own, and the Admiration of future Ages. As it is the Fate of all Sciences to have their Votaries blindly and superstitiously attached to the Opinions of some particular Author of Note, till some daring Genius ventures to think for himself, and endeavours to make Authority fall a Sacrifice to Truth; so the Anatomists, at the Time *Vesalius* appeared, were so much blindfolded with the Authority of *Galen*, that to have contradicted him had been look'd upon as Heresy. *Vesalius*, regardless of this unhappy State of Things, ventur'd to expose the Mistakes, and correct the Errors, committed by *Galen*, both in Physic and Anatomy; but more especially the latter. But as there is a Principle of Emulation interwoven with the very Frame and Make of human Nature; so it must follow, that uncommon Merit must create, if not Enemies, yet at least Censurers, of Note and Distinction. This was the Fate of *Vesalius*: Some distinguish'd Authors have charged him with Ignorance, Want of Honour, Vain-glory, and Plagiarism.

Piccolhomini, an Author of considerable Note, talks of him in this Strain: "When a proper Opportunity occurs, I shall sufficiently shew, that whatever is good in that large Volume wrote by *Vesalius*, *De Re Anatomica*, is borrow'd from *Hippocrates*, *Aristotle*, *Galen*, and some others of the Antients, without the Author's so much as mentioning their Names; and that whatever Things are false and erroneous, which, indeed, are very many, are the Product of his own Ignorance, and Impetuosity of Temper; and tho' he has secretly stole many Things from *Galen*, yet he never mentions his Name, unless it be with a View to find Fault with him."

The Censure of *Cajus* upon *Vesalius* is still more remarkable. "We both lodg'd, says he, in the same Quarters at *Padua*; at the Time when *Vesalius* wrote and prepar'd his Book *De Corporis humani Fabrica*. One *Aldinus Junta*, a *Venetian* Printer, employ'd him to correct the Anatomical Works of *Galen*, both *Greek* and *Latin*; and for that Purpose several Emendations were sent him; but he render'd *Galen's* Text more corrupt than it was before, with no other View than that he might have something to find Fault with."

And tho' *Fallopian* owns him to be the Father of Anatomy, he yet carps at his Opinions almost every-where.

Columbus talks thus of him: "I can't but be surpris'd, that he, who on all Occasions lashes and chastises *Galen* for his having describ'd Apes and Brutes, instead of Men, should yet himself be so ridiculous as to describe the Larynx, the Tongue, and the Eyes of Oxen, and not of Men, without so much as ever giving a Caution with regard to it. He also ascribed Muscles to the Epiglottis, which are only found in Brutes." *Eustachius* has also observed of him, "That he described and delineated a Dog's Kidney instead of a Man's."

Arantius styles him the common Master of Anatomists, but accuses him of having delineated the Pudenda of Brutes, on account of the Scarcity of the Carcases of Women; whereby it happen'd, that *Valverde*, and those who immediately followed him, taking Things upon Trust, split upon the same Rock.

Johan. Bapt. Carcán. Leon. speaks of him thus: "It is surprising, that *Vesalius*, whilst he accuses *Galen*, the Chief of Physicians and Anatomists, of so many Blunders and Errors, should yet himself be so justly liable to Censure in the same respect: And, what is still worse, by these his Accusations, he seems widely to have mistaken *Galen's* Meaning; ascribing to him Things he never so much as dream'd of, and affirming that he deny'd those very Things which he insisted on in the most distinct and explicit manner; and whilst he so often wonders at, and finds Fault with, *Galen*, he himself deserves to be wonder'd at, and found Fault with."

"The Style of *Vesalius*, says *Riolanus*, is ridiculously pompous, and his Periods by far too long; so that he generally throws a greater Degree of Darkness upon things that are of their own Natures too obscure. Besides, I suspect, that the Latin of that Book is none of *Vesalius's*, but the Language of some other learned Man, since his *Chirurgia Magna*, his *Examen Observationum Fallopii*, and his little Book *de Radice Chinae*, are wrote in a quite different Style." And for this Reason, *Fallopian* thinks that his great Work is only fit for those who are well advanced in Anatomical Studies.

But these sharp and ill-humoured Censures have had not more Influence upon the Fate of *Vesalius's* Works, than a gentle Breeze of Wind would have upon *Mount Caucasus*, or *Athos*; for his Writings ever have been, and for ought I know, ever will be, esteem'd, so long as Anatomy and Physic are thought necessary to the Good and Welfare of Mankind; and that is, so long as human Nature endures.

His Work *De humani Corporis Fabrica*, was printed *Basil* 1543. *Fol.* *ibid.* 1555. *ibid.* 1563. *Venet.* 1568. *Fol.* *Min.* *ibid.* 1604. *Fol.* His *Anatomia* was printed *Francfurti*, 1604-1632. 4to. *Lugd.* 1552. 12mo. His *Epitome de humani Corporis Fabrica*

Librorum, was printed *Basil.* 1543. *Fol.* *Coloniae Agrippinae.* 1600. *Paris.* 1560. 8vo. *Wittebergæ*, 1582. 8vo. *Londini*, 1642. *Fol.* *De modo propinandi Radicis Chinae Decoctum*, was printed *Basil.* 1546. *Fol.* *Lugduni*, 1547. 16mo. His *Examen Anatomicarum Observationum Gabrielis Fallopii* was printed *Venetis*, 1564. 4to. The last Edition was *Vesalii Opera omnia*, *Lugdun. Batav.* 1725. *Fol.* See *Vander Linden de Scriptis Medicis*, and *Douglas's Bibliotheca Anatomica Specimen*.

As for the Discoveries, with which *Vesalius*, by his indefatigable Labour and Industry, enrich'd Anatomy, if I was to enumerate them all, I should not only find the Task difficult in itself, but inconsistent with my present Design; However, not to pass them over altogether, he maintain'd, that "The Penis" was connected at the Union of the *Offa Pubis*, by a certain small Ligament." This Ligament was delineated by *Casseri*, and our Countryman *Cowper* lately described and delineated it under the Name of *Ligamentum Penis Suspensorium*. We are also indebted to *Vesalius* for the first Delineation of the *Auditus Offa*, or Bones appropriated to Hearing.

He first discovered, that the Optic Nerve was not inserted directly in the Centre of the Eye, but a little to one Side. He likewise maintain'd, that the *Ligamentum Teres Femoris* was not inserted into the Middle of the Head of the Femur, but rather into the Side of it. I do not pretend to give the Life of *Vesalius*; for that would require a Volume by itself: My Design was only to shew the State of Anatomy, when he appear'd; which, I hope, may be sufficiently known from the preceding Hints.

CAROLUS STEPHANUS.

This Physician was a Member of the Faculty at *Paris*, and, by the Assistance of *Riverius*, made such Advances in Anatomy, as to acquire Credit enough to introduce *Galen's* Doctrine, which was unknown to the Age in which he lived. He also enriched Anatomy with some Discoveries, such as the membranous Apophysis within the Liver, at the Origin of the Vena Cava, lest the Blood, elaborated there, should regurgitate. He first of all maintain'd, that the *Oesophagus*, and great Artery, passed down through different Holes, though they lay very near to one another, which was quite the reverse of what *Galen* asserted. He says, that the *Membrana Carnosa* is visible in melted Fat; for, if you melt Fat before the Fire, you will observe a thick Membrane remaining. He accurately described the *Septum Scroti*, first observed by *Massa*, and gives it the Names of *Diaphragma* and *Septum*. His Works under this Title, *De Dissectione Partium Corporis humani Libri tres, una cum Figuris et Incisionum Declarationibus a Stephano Riverio Chirurgo compositis*, were printed *Paris.* 1545. *Fol.* and, in *French*, *Paris*, 1546. *Fol.*

This in general is to be remark'd with regard to his Plates, that they are imperfect, and therefore not to be trusted to.

He has six Representations of a human Skeleton, exhibiting the anterior, and posterior Views of the Body. The first and second of which represent only the Bones, the third and fourth the more considerable Ligaments, and the fifth and sixth the Origins and Insertions of the several Muscles. He has also two other Representations of the human Skeleton, exhibiting the Course of the Nerves. Two Figures represent the anterior, and posterior Parts of the Body, covered with their respective Muscles, and every Muscle is besides delineated by itself. He has likewise a Delineation of the Vena Cava and Aorta. He has also given a View of the Body as cover'd with the Skin, illustrated with the genital Parts in Women, in eight Figures; and towards the End of his Work, laid down the several Parts of the human Body in the same Order in which they occurred to him in Dissections.

THOMAS VICARY.

This Author was a Citizen and Surgeon of *London*, and this seems to be the most remarkable Circumstance in his Character, that he was the first who published any thing upon Anatomy in the *English* Language. His Book is called *The Englishman's Treasure, or the true Anatomy of Man's Body*; and was printed *London*, 1548. *ibid.* 1577. 8vo. *ibid.* 1587. 4to. *ibid.* 1633.

THOMAS GEMINI.

This Man was a Foreigner, but settled in *London*, in Quality of an Engraver in Copper. He only comes under our present Consideration, for his having first engrav'd the Figures of *Vesalius* on Brass, two Years after they were done in Wood in *Germany*. Though he was a skilful Artist, and a great Master of his Business, yet he is highly to be blam'd for suppressing the Name of *Vesalius*, and affirming, that the Work was the Product of his own Industry and Labour. By the Assistance of Mr. *Udal*, and other learned Men, (for he himself knew neither *Latin*, *English*, nor Anatomy) he adorned his Plates with *Vesalius's* Descriptions. There are three Editions of this Book, one in the Reign of *Henry* the VIIIth, another under that of *Edward* the VIth, and a third under *Queen Elizabeth*.

The Book is published under the Title of *Compendiosa totius Anatomiae delineatio Aere exarata per Tho. Geminum, Londini, 1545. Fol.* and then in *Engliſh, London, 1553. Fol. ibid. 1559. Fol.*

JACOBUS SYLVIVS.

This Anatomist was born at *Amiens* in *Picardy*, in the Year 1478. and was afterwards the Scholar of *Tagaultius*. He was a great Admirer of *Galen*, and an inveterate Enemy to *Vesalius*. He hath enrich'd Anatomy with many new Discoveries; and, particularly, he was the first who discovered those Valves which he calls *Epiphyſes*, or membranous *Epiphyſes*, in the Mouths of the *Vena Azygos*, the jugular, brachial, and crural Veins; as also at the Trunk of the *Vena Cava*, which rises from the Liver.

Fabricius ab Aquapendente unreasonably claims the Glory of this Discovery; but he only described them more accurately, and from their Use and Structure gave them the Names of Valves, which to this Day they retain.

He was also the first who observed the *Musculus Femoris Quadratus*, and rank'd it among the *Musculi Quadrigemi*, as he calls them.

He accurately describes the Origin of that Muscle in the Thigh, which is call'd the *Musculus Rectus*.

He maintain'd, that the Tendons of the *Musculus Plantaris*, and *Palmaris*, were wanting in some Subjects.

But what is surprising is, his receding from his Master *Galen*, in assigning the Origin of the *Musculus Rectus Abdominis*.

He mentions the large fleshy Substance in the Sole of the Foot, which runs out to the Sides of the Toes, and takes Notice of the *Musculi Pyramidales* arising from the Os Pubis, and calls them the *Musculi Succenturiati*; and indeed he may deservedly be said to be the first Discoverer of them.

He also takes Notice of the Glands at the first Division of the *Aſpera Arteria*, as also of two Glands at the Root of the *Larynx*, and of the glandular Substance of the *Pylorus*.

His *Opera Medica*, &c. were printed *Coloniae Allobrogum*, 1630. Fol.

His *Depulſio Vesani Gujusdam*, &c. was printed *Parisi*. 1561. 8vo.

His *Piece de Mensibus Mulierum*, *Venet.* 1556. 8vo. *Basil* 1556.

His *Piece*, intituled, *Ordo & Ratio Ordinis in Legendis Hippocratis & Galeni Libris*, *Parisi*. 1561. 8vo.

MICHAEL SERVETUS.

This Physician was a Native of *Spain*, and a Man of an uncommon Genius. Happy had it been for him, if he had confin'd his Researches within the Bounds of Physic and Philosophy; but unluckily he went beyond his Sphere, and plung'd himself into the deepest and most abstruse Points of Theology: For he publish'd a Piece against the mysterious Doctrine of the Trinity, and that too at a very unlucky Juncture, I mean the Dawn of the Reformation. Upon this *Calvin*, the great Champion of that Cause, used his Interest to do him all the Injury he could. And as true Christian Zeal had in these Days degenerated into a most hellish and most execrable Spirit of Persecution; he found it no hard Task to get him condemned to the Flames; and the Sentence was accordingly put in Execution at *Geneva*, in the Year 1553. His seven Books de *Trinitatis Erroribus* were printed at *Basil*, 1531. And his *Christianismi Reſtitutio* was printed at *Basil*, 1553. Though these Pieces made their Author fall an unfortunate Victim to a Spirit of Persecution then prevailing, yet, as a Physician, they will perpetuate his Name to all succeeding Ages; since in the fifth Book of the former of these Works, which treats of the Holy Spirit, those Passages were found, which amount almost to a Demonstration, that he was better acquainted with the Doctrine of the Circulation of the Blood, than any preceding Author.

"There are," says he, "in the human Body, Spirits of three different Kinds, the natural, the animal, and the vital; which are really not three, but two distinct Spirits. The vital is that which is communicated by Anasomoses from the Arteries to the Veins, in which it is called natural. The Blood therefore is first, whose Seat is in the Liver and Veins. The vital Spirit is second, whose Seat is in the Heart and Arteries. The animal Spirit is third, which is like a Ray of Light, and has its Seat in the Brain and Nerves."

Now to understand how the Blood is the Life, he says, "We must first understand the substantial Generation of the vital Spirit, which is compounded of, and nourished by, inspired Air, and the subtlest Part of the Blood. The vital Spirit has its Original in the Left Ventricle of the Heart, by the Assistance of the Lungs, which chiefly contribute to its Generation. It is a subtle Spirit wrought by the Force of Heat, of a florid Colour, having the Power of Fire; so that it is a sort of shining Vapour made of the purer Part of the Blood, containing within, in itself, the Substance of Water, Air, and Fire. It is made in the Lungs, by the Mixture of inspired Air with that elaborated subtle Blood, which the Right Ventricle of the Heart communicates to the Left."

VOL. I.

"Now that this Communication is not made thro' the Septum of the Heart, as is commonly believed, but the subtle Blood is very artificially agitated by a long Passage through the Lungs from the Right Ventricle of the Heart; and is prepared, made florid by the Lungs, and transfused out of the arterious Vein into the venous Artery; and at last, in the venous Artery itself, it is mixed with the inspired Air, and by Expiration purged from its Dregs. And thus at length the whole Mixture is attracted, by the Diaſtole of the Heart, into the Left Ventricle, being now a fit Substance out of which to form the vital Spirit."

"Now that this Communication and Preparation is made by the Lungs, is evident from the various Conjunction and Communication of the arterious Vein with the venous Artery in the Lungs; the remarkable Largeness of the arterious Vein does likewise confirm it, since it would never have been made of that Form and Bulk, nor would it have emitted so great a Quantity of very pure Blood out of the Heart into the Lungs, if it had been only for their Nourishment; nor would the Heart have been this way serviceable to the Lungs, since the Foetus in the Womb is otherwise nourished, by reason of the Closeness of the Membranes of the Heart, which are never opened till the Birth of the Child, as *Galen* teaches; so that the whole Mixture of Fire and Blood is made in the Lungs, where there is a Transfusion out of the arterious Vein into the venous Artery, which *Galen* took no Notice of."

Afterwards he says, "That this vital Spirit is transmitted from the Left Ventricle of the Heart into the Arteries of the whole Body; so that the more subtle Parts get upwards, where they are yet more refined, especially in the Plexus Retiformis, which lies in the Base of the Brain, where, from vital, it begins to become animal, and approaches to the proper Nature of the rational Soul."

The Circulation of the Blood is a Discovery of such Importance, that every one who gives the remotest Hints of it, has some Party to take him by the Hand, and canonize him as the first Discoverer. Thus *Hippocrates*, *Galen*, and a great many more, have had their respective Champions in this Particular, who have pronounced boldly either one way or the other, just as Whim and Caprice directed them. But as such a Turn of Mind is a Disgrace to Philosophy, and a Reproach to human Nature, whose Glory and Dignity consist in shaking off Prejudice, and adhering inviolably to Truth; where-ever it can be found, so we will not absolutely pronounce, that *Servetus* knew the Doctrine of the Blood's Circulation; but certain it is, that the first Step made to this noble and useful Discovery was the finding, that the whole Mass of Blood passes thro' the Lungs by the Pulmonary Artery and Vein. Now that *Servetus* had a pretty distinct Idea of this Matter, is sufficiently plain from the foregoing Passages; but he talked in too vague and undetermined a manner, to be esteem'd a full and uncontest'd Discoverer. The Glory of this was reserved for our own Country, which gave Birth to the divine *Harvey*, who first improv'd those, and the like noble Hints, into a rational and consistent Theory, truly useful to Mankind, and absolutely necessary to farther Improvements in rational Medicine.

REALDUS COLUMBUS.

This Anatomist was a Native of *Cremona*; he flourish'd about the Year 1544. and was intimate with *Vesalius*, whose public Lectures he had frequently an Opportunity of hearing. He is by some charg'd with want of Gratitude to *Vesalius*, from whom he is said to have stole every thing that is valuable in his own Works; but others maintain, that he had a clearer Idea of the Parts than *Vesalius*, and described them more accurately; and 'tis certain, that his *Latin* is very pure.

He was the first who wrote distinctly and accurately about the Caruncles in the *Vagina Muliebris*.

He was the first who made mention of the Duplication of the Peritonæum; and he affirmed, that the Pleura was everywhere double. He assumes to himself the Discovery of the *Tunica Innominata* of the Eye, and accuses all his Predecessors of Ignorance in that Point. But *Douglas* thinks, that the Coat of the Eye, which *Galen* describes under the Name of the *Tunica Sexta*, is the very Coat he means.

He also boasts of his having first discovered the third Bone subservient to Hearing.

He affirms of *Vesalius*, that he not only described, but publicly dissected, the Tongue, the Larynx, and the Eyes of Oxen, instead of those of Men; and that he himself was an Eye-witness of the Imposition.

As *Galen* and *Vesalius* exceeded in the Number of the Muscles of the Eye, so *Columbus* is as remarkably deficient in that Point, since he determines, that there are only five.

The Use, by him ascribed to the Lungs, deserves to be taken Notice of; for he thinks, that they were bestow'd on Animals for this Purpose, that the Blood and vital Spirit might be prepared and generated in them; for he thinks, that the Blood, being attenuated by Elaboration in the right Sinus of the Heart,

Heart, is carried through the *Vena Arteriosa* to the Lungs, where by their continual Motion it is agitated, still farther attenuated, and mixed with that Air, which is drawn in through the Nostrils and Mouth, and carried through the Branches of the *Aspera Arteria* to the Whole of the Lungs, which Air is itself prepared by this Collision; so that the Blood and Air, being thus mix'd, are received into the Branches of the *Arteria Venosa*, and at last carried through the Trunk itself to the Left Ventricle of the Heart, from which they are carried through the Aorta in all Directions, to all the Parts of the Body.

Since this Opinion is largely insisted upon by *Michael Servetus*, we have Reason to suspect, that *Columbus* borrowed it from him. This also *Galen* had advanced long before *Servetus*, where he says, that when the Thorax is contracted, the *Venous Arteries*, which are in the Lungs, being on all hands pent up, and compressed, quickly throw out the Spirit contained in them; but that they receive some Portion of the Blood from the *Vena Arteriosa*, by minute and invisible Orifices.

His Works were printed under the Title of *Realdi Columbi in almo Gymnasio Patavino Anatomici celeberrimi, de re Anatomica Libri Quindecim, Venetiis, 1559. Fol. Paris. 1572. 8vo. Lugd. Batav. 1667. 8vo.*

JOHANNES VALVERDA.

This Physician was a Native of Spain, and, in his Anatomical Studies, the Scholar of *Realdus Columbus*. He is said to have carried the Knowledge of Anatomy from Italy to Spain. He published the Tables of *Vesalius*, with their Descriptions somewhat enlarged in the Spanish Language, and added four new Figures to them; the first of which exhibits the Direction and Progress of the Fibres which compose those Muscles, that cover the Fore-part of the Body. The second represents a Woman big with Child. The third and fourth give us a Prospect of the cutaneous Veins scattered up and down the anterior, and posterior Parts of the Body. But he is an Author of too small Note to be insisted upon at greater Length. Since the greatest Character we find given him is, that he was rather to be commended for his Industry in propagating Anatomy, than for his writing well upon any Part of it.

GABRIEL FALLOPIUS.

This Anatomist was born at Modena in Italy, in the Year 1490. His Skill in Physic and Anatomy has rendered him universally admired. *Douglas* in his *Bibliographia Anatom.* has beautifully drawn his Character, when he says, that he was *in docendo maxime methodicus, in medendo felicissimus, in secundo expeditissimus*, Most judicious and methodical in his Method of Teaching, most successful in his Practice, and most expeditious in his Dissections. He died in the 73d Year of his Age, in the Year 1563. after having illustrated Anatomy, and enriched it with several things unknown to former Ages. He affirms in particular, That the *Musculi Pyramidales* were first discovered by him; and he is of Opinion, that the Bladder is compressed by them; but this was observed before him by *Galen*, and *Jacobus Sylvius*.

He boasts of his being the first who solved the perplexing Difficulty of *Oribasius*, or rather of *Galen*, concerning the Motion of the upper Eye-lid, after the *Musculus Orbicularis* is cut off; for he affirms, That in the Year 1553. he discovered the Muscle which raises the upper Eye-lids. But *Galen* himself solves this Difficulty, at a Time when he was become venerable for his Age and Experience, that is, when he digested the *Commentaries de Locis male affectis*, as will evidently appear to any one who reads them. Besides, *Avicenna* clearly describes this Muscle, *Lib. 1. Sum. 2. de Musculis, Cap. 5.* The same Muscle is likewise accurately described by *Realdus Columbus* in his Anatomical Works, Anno 1559.

Though he is esteem'd the Discoverer of that seminal Duct, which he calls the *Tuba Uteri*, whose Extremity, in which there is a large Hole, is lacerated and fringed, as it were, like the Edges of old work'd Linen Cloth; yet it is excellently described by *Herophilus*, and *Rufus Ephesus*, who lived long before him.

By the true Neck of the Womb, he means all that Part from its internal Orifice, till it begins to enlarge itself, and grow wider. But the Whole of that Passage into which the Penis enters, is by him called *Sinus & Pudendum Muliebre*.

His *Observationes Anatomicae* were printed Venet. 1561. 8vo. Paris. 1562. 8vo. *Helmaestadii*, 1588. 8vo. His *Expositio in Librum Galeni de Ossibus* was printed Venet. 1570. His *Lectiones de partibus similaribus humani Corporis*, were published Noribergæ, 1575. Fol. His *Compendium de Anatome humani Corporis* appeared Patavii, 1585. 8vo. Venet. 1571. His *Opera Omnia*, Venet. 1584. Fol. Francof. 1600. Fol.

AMBROSIUS PARÆUS. *Ambroise Paré.*

This Anatomist was a Native of France, and acquir'd a great Character rather for his uncommon Success in the Practice of Surgery, than for any Figure he made in Anatomical Learning.

The Muscles, which *Sylvius* calls *Succenturiati*, are by him styled the *Triangulares Pubis*, or the *Accessorii*. He first described the *Membrana Muscularum Communis*, or *Common Membrane of the Muscles*. His Works, under the Title of *Anatomie universelle du Corps humain*, appear'd at Paris, 1561. 8vo. and afterward in a Latin Version Paris, 1561-1582. Fol. Francof. 1593-1612. Fol.

BARTHOLOMÆUS EUSTACHIUS.

This Anatomist was a Native of Italy, and a Man of very extensive Learning. His Tables, 'tis to be presumed, have made his Character, as an Anatomist, sufficiently known where Learning is countenanced; or even heard of. He enriched Anatomy with several Discoveries; "for he first discovered the Glands which lie upon the Kidneys."

He finds Fault with *Vesalius* for describing, dissecting and delineating the Kidney of a Dog instead of that of a Man, without so much as taking Notice of the Difference. He maintained, that the Duct of the Renal Veins is oblique, and not transverse, as it is delineated by *Vesalius*. He exhibited, in a most beautiful Figure, the *Canaliculi Urinarii*, which he compares to very small Hairs; but which were before described by *Nicolaus Massa*. In his *Examination of the Bones*, he says, the true Structure of the Vifory Nerve was first discovered by himself; and adds, that when it is immersed in Water, it is distended and expanded into a large Membrane; like a very thin Linen Cloth.

Concerning the third Bone of the internal Ear, called *Stapes*, he has these Words: "I am conscious to myself, that without either Instruction or Information, from any one, I knew that Bone long before they wrote, and that I shewed it to many in Rome, and caused it to be engraved on Copper."

He was the first who gave an accurate Description of the *Thoracic Duct*, or the Passage by which the Chyle is conveyed to the Heart, which, he says, in Horses, resembles a white Vein, and has a semi-circular Mouth, opening into the internal Jugular Vein.

He was the first who observed the Valve at the Orifice of the *Vena Coronalis* in the Heart.

He boasts of having first discovered, and exactly described, that Valve, which is by some called the *Valvula Nobilis*, in the *Vena Cava*, near the right Auricle of the Heart, tho' *Jacobus Sylvius* seems to have observed it before him. In his *Treatise de Renibus*, he makes mention of the Glands of the Larynx. His *Opuscula Anatomica* were printed Venet. 1563. 4to. His *Libellus de Dentibus*, Venet. 1563. 4to. His *Epistola Nuncupatoria*, Romæ 1562. His *Opuscula cum Annotationibus*, Venet. 1574. 4to. Lugd. Batav. 1707. 8vo. and his *Tabula Anatomica* were published by *Jo. Maria Lancisi*, Romæ, 1714. Fol. and afterwards *Amsteladam*. 1722. Fol. then Romæ, 1728. Fol.

His Notes upon *Erotian* were published Venet. 1566.

JOHANNES HALL.

This Author was a Surgeon in London, and amongst the first who wrote any thing upon Anatomy in the English Language. Having never seen his Works, we know of nothing for which he is so remarkable as the gaudy and pompous Title of his Book, which runs thus: *A very faithful and necessary brief Work of Anatomy, or Dissection of the Body of Man, compendiously shewing the Natures, Forms, and Offices of every Member, from the Head to the Feet, with a commodious Order of Notes, leading and guiding the young Chirurgeon's Hand from all Offence and Error, in right way of perfect and cunning Operation, compiled in three Treatises, more useful and profitable than any heretofore in the English Tongue published.* It was printed at London, 1565. 4to.

VOLCHERUS COITER.

This Author was born at Groningen in the Year 1534; and, in Process of Time, acquired a very great Character, both as a Physician, Surgeon, and Anatomist. In his *Introduction to Anatomy*, Cap. 6. he gives this Advice to such as are desirous of making quick and regular Advances in their Anatomical Studies: "If, says he, any one is fond to learn the Anatomical Art, let him first read *Galen's Books de Usu Partium*, and *de Anatomia Administrationibus*; and then *Vesalius's Fabrica Corporis humani*. Let him, in the third place, read *Fallopius*; and then *Vesalii Examen*; and, last of all, *Eustachius*; and by this means he will be sure to acquire a thorough and perfect Knowledge of this Art." Anatomy is considerably indebted to this Author for his Labour and Industry; for he clearly specifies the first Origin of the Bones, accounts for their Growth, and points out the Difference between those of Infants and Adults; for he used to prepare Skeletons of Children, compare their Bones with those of Adults, and demonstrate the Difference between them to his Scholars in Bologna; where, in his own House, he exhibited an abortive Fœtus as long as a Finger, and furnished with all the Parts of a human Body. He also makes mention of another, which he saw at Bologna, in the House of Dr. *Arantius*.

In his *Tractatus de Auditus Instrumento*, he has these Words: "What *Fallopian* called the Tympanum, he chiefly took from the Ears of Brutes, and such Animals as chew the Cud; for these have this Passage formed like a certain Species of Seashell, or a *Turkish Drum*; whereas in Men this Passage is widely different from the Shape of a Drum." For this Reason he thinks, that this Passage, or the second Cavity, receives its Denomination of Tympanum rather from its Use than its Form. He maintains, that there are two of these Cavities; for, says he, immediately behind the Myringa, by which he meant the Tympanum, in the upper and fore Parts, appears a Cavity, which is at first narrow, but afterwards dilating itself, is stretch'd backwards towards the upper Parts, and this Part is spongy and fungous, and seems to have a Communication with the internal Space of the Processus Mamillaris.

According to him two of the *Officula Auditus*, that is, the two largest, are full of small Holes, which are fill'd with a medullary Substance; but the third contains none, on account of its exceeding Smallness.

He says, that there are two Muscles of the internal Ear assigned by some, but he does not describe them.

To the Muscles belonging to the Face, he adds some others, which, by later Authors, are called the *Musculi Corrugatores*, but, from their principal Office, should rather be styled the *Musculi Superciliorum Depressores*, which he first discovered, and accurately described, but gave them no Name: He adds, "You will also observe, under the internal Skin of the Lips, and that of the Root of the Tongue, many fleshy Glands, under which are found Fibres, rising upwards from their Sides in an oblique Direction; and these to me seem to draw the under Lip inwards." His Piece intitled, *de Cartilaginibus Tabula*, was printed *Bononia*, 1566. Fol. His *Externarum atq; internarum principalium humani Corporis Tabula*, &c. *Norimbergæ*, 1573. Fol. *Lovanii*, 1653. Fol. His *Lectiones Gabrielis Fallopi de Partibus Similibus humani Corporis ex diversis Exemplaribus, summa cum diligentia collectæ*, &c. were printed at *Norimberg*, 1575. Fol.

JULIUS CÆSAR ARANTIUS.

This Author was born at *Bologna*, and was the Scholar of *Vesalius*, as also of his Uncle *Bartholomæus Magis*, who taught him the Elements of Anatomy in the Year 1548. His Piece intitled *De humano Fœtu Opusculum*, was printed *Venet.* 1571. *Basil.* 1579. 8vo. *Venet.* 1587. 4to. To this Edition he join'd a Preface, and a Book of Anatomical Observations, printed *Venet.* 1595. In the first Chapter of the last Edition of this Book, he describes the true and genuine Substance of the *Uterus*, asserting that it is fungous, and bears a Resemblance to a Sponge; that it is not single, but divisible into many Laminæ, like certain *Fungi*, which grow under Trees; and that it is perforated with Holes, like a Sponge or a Pumice-stone. In the third Chapter he not only accurately describes the Vessels of the Uterus; but also maintains, that its Arteries are continued to the Veins; which he also takes to be the Case with all the Arteries and Veins in the human Body; which is the same as if, with later Authors, he had maintain'd, That the Veins were no more than Arteries returning to the Heart.

The spermatic and hypogastric Arteries, which he calls the descending and ascending ones, not only unite, and are continued together; but the Vessels of the Right Part of the Uterus are intermix'd with those of the Left.

And, in *Chap.* 4. he treats largely and accurately of the Coalition of the Vessels in the Heart of a Fœtus. "A few Days, says he, after their Birth, there is a Coalition of this Foramen; tho' even in older Subjects, some remaining Marks of that Agglutination are always retained."

He also makes mention of another Coalition in the Liver, that of the *Vena Portæ* with the *Vena Cava*, which is now universally called the *Ductus Venosus*.

That white and rising Part of the Basis of the Ventricle of the Brain, which is stretch'd forwards, on both Sides, in a longitudinal Direction to the Forehead, he calls the *Pedes Hippocampi*.

He says, that the Muscles of the Eye arise from the *Os Sphenoides*, hard by the Foramen, thro' which the Optic Nerve passes; but that one of the oblique Muscles, or that call'd the *Musculus Brevis*, arises from a certain Suture, or Cleft, which divides the Bones of the *Maxilla Superior* from the *Ossa Mali*.

He asserts, that the *Musculus Palpebræ Superioris*, destin'd for opening the Eye, and rising also from the *Os Sphenoides*, was known to him in the Year 1548.

He first observed the interior Chink of the Larynx, accurately described it, and appositely enough compared it to the Clefts in musical Wind-Instruments.

Tho' he does not openly acknowledge the Circulation of the Blood, yet he largely specifies all the Arguments that are calculated for destroying the Hypothesis of the Antients, concerning a Transudation thro' the Septum or Partition, which divides the Ventricle of the Heart.

He first observed, that the Duct of the Artery of the Spleen was oblique, and twisted in form of a Snake.

He was the first who asserted, that the middle Substance of the Urethra, or of the Canal common to the Urine and Sperm, was of the same Structure with the Penis itself, and capable both of being distended, and becoming flaccid.

He first took Notice of an orbicular Muscle surrounding, on all Sides, the Sinus Muliebris; but this Discovery was owing to *Jacobus Carpus*, who had before described the whole Neck of the Uterus as a muscular Substance.

According to him the *Musculi Recti* of the Abdomen arise with a fleshy Origin from the *Pubes*, when their Coverings, he means their *Musculi Pyramidales*, are wanting.

He maintains, that the Portion of the *Musculus Biceps*, which, according to *Vesalius*, arises from the Process of the Acromion, and is inserted into the Humerus, is the eighth Muscle of the Humerus, which was afterwards by *Riolanus* call'd *Coraco-brachialis*. But it is, without Reason, by some call'd the *Nonus Humeri Placentini*, since it is in reality the Discovery of *Arantius*.

He likewise discovered the *Indicator*, or the *Indicis extensor proprius*, which had remain'd unobserved before him.

He maintain'd, that the second Muscle of the Fingers, by which he means what is now call'd the *Flexor perforans*, was the Instrument of bending all the *Internodes*, and not of the third Joint only, as his Predecessors had maintain'd.

He assumes to himself the Discovery of the *Musculus Femur Circumagens*, which he calls the twelfth.

He likewise observes, that a Portion of the *Musculus Femoris primus*, that is, of the *Gluteus Maximus*, becomes a membranous Tendon, which, joining with another Tendon arising from the sixth Muscle of the Tibia, or the *Fascialis*, is strongly and laterally inserted into the Appendix Tibiæ.

By means of this Communion, or Conjunction, he accounts for the Pains of the Hips reaching to the very Knee.

In his *Observat. Anatom.* *Chap.* 36. he has these Words concerning the Substance of the Testicles: "Perfect Seed is carried, as it were, from numberless small Roots of a Plant; variously dispersed thro' the Substance of the Testicles, which Roots appear wrapp'd up and curl'd like the Tendrils of Vines, and resemble white curl'd Hair."

CONSTANTIUS VAROLIUS.

This Author was a Native of *Bologna*, an accurate Philosopher, an expert Surgeon, and a skilful Anatomist.

He is said to be the first who discover'd the Valve of the Colon, and elegantly described it in the following Words: "Where the *Ilium* is joined to the Colon, there rises in its inner Part a certain Membrane, being the last Boundary of the *Ilium*, which reaches so far, and which I, its first Discoverer, call the *Operculum Ilii*." And a little after he makes mention of the "Appendix of the Colon, as being an oblong Sack, imperforated at one of its Extremities, which is call'd the *Intestinum Cæcum*."

He first divided the Brain into three Parts, by adding the Beginning of the Spinal Marrow, whilst yet contain'd within the Skull, and giving Birth, as it were, to the Nerves, whose Origin was formerly thought to be the Brain.

The Optic Nerve, according to him, arises from the posterior Part of the Spinal Marrow, and not from the Base of the Brain in its fore Part, as *Galen* and others maintained.

The transverse Process of the Brain is call'd the *Pons Varolii*, from *Varolius*, its first Discoverer.

He first discovered the Glands in the *Plexus Choroideus*.

His *Anatomia, sive de Resolutione Corporis humani, Libri Quatuor*, &c. was printed *Patau* 1573. 8vo. *Francos.* 1591. 8vo.

JULIUS JASSOLINUS.

This Anatomist was the Scholar of *Philip Ingrassias*, and afterwards succeeded him in the University of *Naples*, in the Year 1570. Dr. *Douglas* calls him, *Seculi Epidaurius sui*. But *Riolanus*, who was no bad Judge of an Anatomist's Worth, talks of him in this diminutive Strain: "As the Presence of some Men lessens their Fame, so the reading Books that have been earnestly desired and sought after, sometimes makes their Authors appear mean and contemptible."

He has something pretty remarkable concerning the Generation of the Bile; for he maintains, that the bilious Excrement is evacuated from the Liver, in two different Portions; the one is unmix'd, thin, and unadulterated, and is carry'd into the *Vesicula* itself, by the small Vessels between the Roots of the *Vena Portæ* and the *Vena Cava*, which the Gall-bladder afterwards discharges into the Beginning of the Intestine. Another Portion of it is mixed, thick, and feculent, which is carry'd directly from the Liver into the Intestine. To this he has subjoin'd a new Figure of the Gall-bladder and its Vessels, His *Questiones Anatomicae, and Osteologia Parva*, were printed *Neapoli*, 1573. *Oct.* *Hænevia*, 1654. *Quarto*. His Piece

De Poris Chelidocis, & Vesica Fellea, was printed Neapoli, 1577. Octavo.

JOANNES BAPTISTA CARCANUS LEONIS.

This Anatomist was a Native of Milan, and the Scholar of *Pallopius*. He maintain'd, that there was no Membrane in the *Canalis Arteriosus*, which shuts up its Orifice, as *Vesalius* imagined.

The Foramen near the Orifice of the *Vena Coronalis*, thro' which the Blood flows from the *Vena Cava* to the *Arteria Venalis*, appears to be of an oval Figure. Hence we may conclude, that it first acquired the Name of *Foramen Ovale* from this Description.

He asserts that the *Vena sine Pari* has no Membranes or Valves on its Orifice, which contradicts what *Anatus Lusitanus* relates, who in his first Century of Cures affirms, that he saw these Membranes exhibited at *Ferrara*, by *Johannes Baptista Conanus*.

He finds Fault with *Columbus* for asserting, that the Penis has neither Veins nor Nerves; for he not only specifies the Veins of its principal Substance, but also others which creep along its Surface, and which he calls cutaneous; all which taken together, a certain Modern of great Note call'd the *Vena ipsius Penis*, or, the Vein of the Penis itself.

He asserts, that the *Musculus Orbicularis* of the Eye-lids cannot be separated into two, as *Vesalius* thought. His two Books of Anatomy were printed *Ticini*, 1574. Oct.

FELIX PLATERUS.

This Author was born at *Basil*, in *Switzerland*, in the Year 1536. He had from his Infancy a Desire to view the Entrails of Beasts when they were slain, and even then pronounced the Butcher happy, for his being able at first View to handle them over and over, without committing a Mistake. His *Libri Tres de Corporis humani Structura & Usu*, &c. were printed *Basil*, 1583. Fol. 1603. Fol. His *Quest. Physiologica*, *Lugd. Bat.* 1650. His Piece *De Mulierum Partibus Generationi dicatis*, &c. *Argentinae*.

SALOMON ALBERTUS.

This Author was Professor of Physic at *Wurtemberg*, and published a Book, intituled *Historia plerarumq; Corporis humani Partium, in Usum Tyronum, Wittebergæ*, 1583. Oct. 1602. Oct. 1630. Oct. The Discovery of the Valve of the Colon, commonly called the *Valvula Bauhini*, is justly ascribed to him; for he affirms, that he first discover'd it in a Beaver, and then in a Man.

His three Orations *de Disciplina Anatomica* were printed *Nirernbergæ*, 1585. Octavo; and his *Observationes Anatomicae*, *Wittebergæ*, 1620. Oct.

ARCHANGELUS PICCOLHOMINUS.

This Author was a Native of *Ferrara*, and a Citizen of *Rome*: He was born in the Year 1526. but in *Riolanus's* Opinion, he was rather a Philosopher, than an Anatomist, since his Anatomical Prelections are interspersed with Physiological Disquisitions, and fine-spun Controversies, quite foreign to Anatomy. But that he labour'd with Success in this Branch of Learning, is sufficiently evident from the Improvements and Discoveries he has made in Anatomy; for

He was the first who divided the Substance of the Brain into *cineritious* and *medullary*; for he calls that concretionary or whitish livid Body, which first appears, the Brain itself; but he calls that solid white Body which is wrapt up in it, the *Medulla*, or Marrow, which he distinguishes into three Kinds, the *Medulla globosa*, the *Medulla oblongata caudicis instar*, and the *Medulla spinalis*.

He maintains, that all the Nerves have their Origins from the *Medulla oblongata*.

He was the first who called the *Processus Mamillares*, *Nervi odoratorii*, or, the Nerves by which the Sensation of Smelling is produced.

He first discovered that wonderful Contrivance of Nature at the Beginning of the *Intestinum caecum*, that is, three Valves like little Doors opening downwards: And asserted, that they were design'd to prevent the Return of the *Fœces*.

He first delineated the Anastomosis of the *Vena Porta* and the *Vena Cava* within the Liver, after it had been described by *Jacobus Carpus*.

He ascribed *Prostatae* to Women, as *Galen* had done before him.

He was also the first who described the particular Membrane of the Fat, which *Riolanus* afterwards called the *Membrana Adiposa*.

He asserts, that the *Peritonæum* is every-where double, and consists of two Coats.

He first took notice of, and described, that white Line of the Abdomen, which is now called the *Linea alba*.

In his Opinion there was only one continued Duct which reach'd from the Mouth to the Anus.

He affirms that the internal Coat of the Intestines is three times as long as the external Coat; and that it is corrugated, and form'd into Wrinkles, that the Chyle, by that means, remaining longer in them, might be the more commodiously extracted by the mesenteric Veins.

He describes the membranous Canals, or the Tubes with a fleshy Covering, thro' which the Urine is strained, better than *Carpus* or *Massa*.

The Reason he assigns, why the left spermatic Vein does not arise from the emulgent, is precisely the same which is embraced by the Moderns.

He calls the *Hymen*, *Claustum Virginitatis*.

He assigns Names to all the Muscles, from the Uses and End, for which Nature design'd them; thus he named the *Musculi Ocularii*, or *Visorii*; *Masticatorii*; *Locutorii*; *Respiratorii*; *Amplexatorii*; *Scapularii*; *Humerarii*; *Cubitarii*; *Apprehensorii*, or *Manuum Moveres*; and *Ambulatorii*, or *Progressorii*; the *Femorales*, and *Tibiales*, &c.

He call'd the frontal Muscles *Musculi Pathematici*, or *Musculi Animi affectuum significativi*. His *Anatomica Prælectiones* were printed *Romæ*, 1586. Folio; and his *Commentarii in Librum Galeni de Humoribus*, *Paris*. 1556. Oct.

CASPARUS BAUHINUS.

This Author was born at *Basil*, in the Year 1560; and was universally esteem'd to be a skilful Anatomist, and a curious Botanist: But *Riolanus* talks of him as ignorant, injudicious, and presumptuous. He says, that, in the Year 1579. he observed the Valve in the Beginning of the Ilium, or Colon, before he read any Author who made mention of it: But 'tis certain, that *Varolius*, and a great many others, describ'd it very accurately many Years before.

He took notice of the natural Narrowness of the Intestinum Colon in the Right Side; and for this Reason Colic Pains not only arise most frequently, but rack most violently, in that Part; for that narrow Passage is easily obstructed, by the Excrements, which are long retained there, and indurated. His Piece, intituled *De Partibus humani Corporis externis Liber*, was printed *Basil*. 1588. His *Anatomes Liber secundus*, *ibid.* 1591. Oct. His *Anatomica Corporis Virilis & Muliebris Historia*, *Lugd. Bat.* 1597. Oct. 1609. Oct. His *De Corporis humani Fabrica*, *Lib. 4.* &c. *Basil*. 1600. Oct. His *Theatrum Anatomicum*, *Francos.* 1605. Oct. *Francos.* 1621. Quarto. His *Institutiones Anatomicae*, &c. *Basil*. 1604. 1609. Oct. 1640. Quarto. *Francos.* 1616. Oct. *Oppenheimii*, 1614. Octavo. 1629. Oct. His *Epistola Anatomica Curiosa*, *Lipsia & Franc.* 1673. Quarto.

JOHANNES POSTHIUS.

This Anatomist was born in the Year 1537, in *Germerheim*, a Town of the Lower Palatinate upon the *Rhine*, and died in the 60th Year of his Age, in the Year 1597. He seems to be very dextrous at dissecting the Muscles, which is sufficiently proved by some Discoveries he has made.

He maintains, that there are four Muscles which draw the Lips inwards to the Teeth; two in the inferior, and two in the internal Part.

He ascribes six Muscles to the Penis; and affirms, that there is only one Muscle between the Cartilages of the Ribs, and not two, as in the intercostal Spaces.

He says, that the fourth Muscle of the *Maxilla inferior* does not arise from the Styloid, but from the Mamillary Process. He was also the first who asserted, that the tendinous Part of this Muscle adhered to the *Os hyoides*. He also asserts, that the *Processus Mamillares* are not the Organs of Smell. He advises to dissect the Muscles, as much as possible, in such a manner as to preserve their Origins and Insertions entire; because by this means their Uses may be most commodiously discovered. His *Observationes Anatomicae* were printed *Francos.* 1590. 1593. Octavo. His *Mantissa Anatomica* was printed *Hafnia*, 1661. Oct.

VIDUS VIDIVS.

This Author was born at *Florence*, but was Professor of Physic and Surgery at *Paris*, and Physician to *Francis I.* He died in 1567.

He was remarkable for being extremely well vers'd in the Writings of *Hippocrates*.

His *Ars Medicinalis* was printed *Venet.* 1611. 3 Vol. Fol.

The third Volume contains seven Books, on the Subject of Anatomy, illustrated with twenty-eight Copper Plates.

ANDREAS CÆSALPINUS.

This Author was born at *Arezzo* in *Italy*, and was a strong Champion for the Peripatetic Doctrine, in Opposition to *Galen*, who was at that Time reverenc'd as an Oracle. Hence it was, that the Writings of *Cæsalpinus*, tho' very valuable in themselves, were neglected; and those Passages which he casually wrote, concerning the Circulation of the Blood, either not adverted to, or not understood, by any, till *Harvey*, the

Glory

Glory of his Country, published his incomparable Book upon that Subject.

Cæsalpinus affirms, with *Aristotle*, that the Heart is not only the Source and Origin of the Arteries and Veins, but also of the Nerves.

In Quest. 4. where he proves, that in Respiration no external Air can have Access to the Heart, he has these Words: "For the Membranes are so fitted and adapted to the Mouths of the Vessels, that when the Heart is dilated, they are opened; but when it is contracted, they are shut." Here he also clearly and fully explains the Contraction and Dilatation of the Heart.

"Some of the Vessels," continues he, "which terminate in the Heart, send their Contents into it, such as the *Vena Cava* into the Right Ventricle, and the Venous Artery into the Left. Some of them, on the other hand, draw their Contents from it, as the Arteria Aorta from the Left Ventricle, and the Arterious Vein from the Right; but they all have Membranes so fitted and adapted to them, that the Mouths of the intromitting Vessels will not admit of a Return, and the eliminating Vessels will not admit of an Intromission. It happens, that when the Heart is contracting, the Arteries are dilated; and when it is dilating itself, they are contracted; for when the Heart is dilating, it shuts the Orifices of the eliminating Vessels, so that nothing can at that Time flow from the Heart into the Arteries; and when it is contracting, its Contents must flow into the Vessels, because the Membranes are then opened.

He maintains, that the Pulsation of the Heart and Arteries proceeds from an Effervescence of Humours in the Heart; and he treats largely of the Pulse.

Soon after, he has these Words: "The Lungs, therefore, drawing the hot Blood from the Right Ventricle of the Heart by a Vein resembling an Artery, and by *Anastomosis* returning it to the Venous Artery, which goes to the Left Ventricle of the Heart, the fresh Air is in the mean time transmitted thro' the Canals of the *Aspera Arteria*." *Real-dus Columbus* had advanced the same before him.

"The several Phenomena, appearing upon the Dissection of a Subject, correspond excellently with this Circulation of the Blood, from the Right Ventricle of the Heart, thro' the Lungs, to the Left Ventricle."

And a little after he with a great deal of Learning proves, That the Antients had no manner of Reason for giving the Names of *Arteria Venosa*, and *Vena Arteriosa*, to the Vessels which bear these Names, since, in his Opinion, one of them was an Artery, and the other a Vein.

In his fifth Question, where he shews, that the Heat of the Heart is the Principle of Motion in Respiration, he has these Words: "The same hot Blood, which, by dilating the Heart, causes the Pulse, is also, by dilating the Lungs, the Cause of Respiration." The Lungs then being enlarged, the external Air must necessarily rush into the *Aspera Arteria*, which Inspiration is, for that very Reason, call'd Refrigeration; and a Diminution of Bulk happens just as in boiling Liquors, when cold ones are pour'd into them; but when the Lungs collapse, the Air must necessarily be returned, which is call'd Expiration.

In Question the sixth, he endeavours to prove, that no Part, in which there is not Blood, can be capable of Sensation. But tho' in his Opinion there can be no Sensation without a Nerve, yet it is not the Nerve that feels, but the Flesh, or Part in which the Blood is contained.

"The Contrivance of Nature," says he, "in animal Motion, resembles that of Organs, which, by means of the Air communicated to the Pipes, and by touching sometimes one, and sometimes another Key, produce the various Combinations of Sounds intended by the Organist."

In Question the seventeenth of his second Book, he says, that Suffocation in a Quinsey is rather produced by the Repletion of the Jugular Veins, than the shutting up the Mouth of the Larynx; for when the Veins of the Neck are so obstructed, that the Blood and Spirits cannot ascend, they must necessarily regurgitate to the Heart and Lungs; and the Lungs being fill'd, and becoming replete by this means, cannot contract and dilate themselves.

In Page 234. he has these Words: "The Veins become turgid beyond the Ligature, and not betwixt it and the Heart; but it ought to have been otherwise, if the Motion of the Blood and Spirits had been from the Viscera to the several Parts of the Body; for the Passage being obstructed, the progressive Motion of the Blood is stop'd, so that the Veins should have become turgid betwixt the Ligature and the Heart." Let us see whether this Difficulty is solved by what *Aristotle* has said, *Lib. de Somno, Cap. 3.* where he has these Words: "For that which is evaporated must necessarily be impell'd to some Part, and then transform'd and chang'd in the same manner with that Arm of the Sea called *Eurippus*; for that which is warm in every Animal, has a Ten-

VOL. I.

dency to fly upwards: But when much of it is lodg'd at one and the same time in the upper Parts, it then returns, and is carried downwards." Thus far *Aristotle*.

"For the understanding of which Passage we must know, that the Passages of the Heart are so contrived by Nature, that there is an Entry from the Vena Cava to the Right Ventricle of the Heart, from which there is a Passage into the Lungs; and that from the Lungs there is another Passage into the Left Ventricle of the Heart, from which at last there is a Passage into the Arteria Aorta, certain Membranes being fitted to the Mouths of the Vessels to hinder the Return of the Fluids; for thus there is a perpetual Motion from the Vena Cava, thro' the Heart and Lungs, into the Arteria Aorta.

"When we are awake, the Motion of the natural Heat is towards the Surface of the Body, which is the immediate Instrument of Sensation; and since, during Sleep, it is towards the Heart, we may suppose, that, in a waking State, many Spirits, and much Blood, are convey'd into the Arteries, and from thence carried into the Nerves; but that in Sleep this same Warmth returns to the Heart thro' the Veins, and not thro' the Arteries; for there is a natural Passage to the Heart thro' the *Vena Cava*, but not thro' the Artery. A Confirmation of this may be had from the Pulses of the Arteries, which, in waking People, are high, vehement, quick, frequent, and in some Degree vibratory. But in Sleep they are low, languid, slow, and loitering; for, during Sleep, very little of the natural Heat goes into the Arteries, but it rushes into them with greater Violence when we awake; but 'tis quite otherwise with the Veins, which, during Sleep, become turgid, but lessen and become smaller when we are awake, as will appear by taking a View of those in the Hand, in these two different States.

"For the native Heat, during Sleep, passes from the Arteries into the Veins, by a Communication of Orifices, called *Anastomosis*, and from thence to the Heart. But as the Flux of the Blood towards the upper Parts, and its Reflux to the lower, after the manner of *Eurippus*, is manifest both during a State of Sleeping, and Watching; so the Motion of it in any Part of the Body is very sensible, when a Ligature is apply'd, or the Veins are obstructed any other way. For when the Passage is intercepted, those Rivulets swell at the very Part where they were used to flow easily; perhaps the Blood, on such an Occasion, returns to its Source, lest its Motion being intercepted, it should be quite destroy'd."

Tho' *Cæsalpinus* writes, as one would think, very explicitly upon this Matter, yet we will not take upon us to determine positively, that he knew this Affair distinctly. We rather think, with Mr. *Wotton*, "That this Notion had only been occasionally and slightly treated of by *Columbus* and *Cæsalpinus*, who themselves, in all Probability, did not know the Consequences of what they asserted; and therefore it was never applied to other Purposes, either to shew the Uses of the other Viscera, or to explain the Nature of Diseases: Neither, for any thing that appears at this Day, had they made such Numbers of Experiments, as were necessary to explain their Doctrine, and to clear it from Opposition. All this Doctor *Harvey* undertook to do, and with indefatigable Pains traced the visible Veins and Arteries throughout the Body; in their whole Progress from and to the Heart; so as to demonstrate even to the most Incredulous, not only that the Blood circulates thro' the Lungs and Heart, but the very Manner how, and the Time in which, that great Work is performed."

His *Questionum peripateticorum libri Quatuor, Diæmonum Investigatio peripatetica, Quæstionum Medicarum Libri Duo, & de Medicamentorum Facultatibus*, were printed Venetiis 1593: 4to.

This Author dy'd at Rome in 1603.

HIERONYMUS FABRICIUS AB AQUAPENDENTE;

So called from a Town in *Tuscany*, where he was born. He was Pupil to *Gabriel Fallopius*, then Professor of Anatomy at *Padua*, whom he succeeded in that Province, in the Year 1565: and continued in it upwards of fifty Years. He dy'd in 1619. at *Padua*.

In 1574. he first observ'd the Valves of the Veins; of which, it is said, he was inform'd by Father *Paul*; but he was not acquainted with their true Structure, nor their Uses.

He discovered a small Muscle in the internal Ear, which he appropriates to the Malleus.

He affirms, that the Cuticle consists of two Laminæ.

He was also the first who look'd upon the carnosus Coat of the Bladder, as a Muscle concern'd in the Expulsion of the Urine.

Besides these Particulars, he has many others which deserve Attention: And, upon the Whole, he was an accurate Anatomist, and admirable Surgeon.

His Works are, *De Visione, Voce, & Auditu*, Venet. 1600. Fol. *Tractatus de Oculo Visus Organo*, Patavii, 1603. Fol. Francof. 1605. ——— 1613. Fol. *De Venarum ostiis*, Patav. 1603. Fol. *De Locutione & ejus Instrumentis*, ibid. 1603. Fol. *De Musculi Artificio, & Ossium Articulationibus*, Vicentiae, 1614. 4to. *De Respiratione & ejus Instrumentis*, Patavii, 1615. 4to. *De Motu locali Animalium*, Patav. 1618. 4to. *De Gula, Ventriculo, Intestinis Tractatus*, Patavii, 1618. 4to. *Opera Anatomica*, Francof. 1623. Patav. 1625. *Opera omnia Physiologica & Anatomica*, Lipsiae, 1687. Fol. *Opera Anatomica cum Praefatione Albini Lugduni*, Batav. 1738. Fol.

JULIUS CASSERIUS

Was born at *Placentia* in *Italy*, in 1545. He was first Servant, and afterwards Pupil, to *Fabricius ab Aquapendente*; and by dint of Parts and Industry made very great Progress in Anatomy, inasmuch that, in the Opinion of Dr. Douglas, he was a better Dissector than his Master, tho' not so good a Philosopher. He dy'd in 1605. in the sixtieth Year of his Age.

His Works relate principally to the Organs of Voice, and of the Senses, and are illustrated with excellent Figures. Their Titles and Editions are as follows: *Historia Anatomica de Vocis Auditusque Organis*, Ferrariae, 1600. Venetiis, 1607. Fol. *Pentasthesion*, Venet. 1609. Francof. 1609. 1610. 1622. Fol. *Tabula Anatomica*, with what was wanting, supply'd by *Daniel Bucerius*, Venet. 1627. Francofurt. 1632. 4to. Amstelod. 1645. *Tabulae de forma Foetu*, Amstelod. 1645.

JOHANNES PHILIPPUS INGRASSIAS,

A *Sicilian* by Birth, and Professor at *Naples*, flourish'd about the Year 1546.

He claims the Discovery of the Stapes, a small Bone of the internal Ear; and is the first who describes the true Structure of the Os Cribrosum.

His only Anatomical Work is his *Commentaria in Galeni Librum de Ossibus*, printed *Panor.* 1603. Fol. Venet. 1604. Fol.

ANDREAS LARENTIUS

Was Professor of Physic, and Chancellor of the University of *Montpelier*, and Physician to *Henry* the Fourth of *France*. He dy'd in 1619. His Anatomical Works are more remarkable for Elegance of Style, than Correctness, with respect to the Subject; for he is said to have made a great many Mistakes, and to have laid Claim to many important Discoveries, which were however known to preceding Authors. His Errors are said by *Riolanus* to be owing to his trusting to the Reports of others, without examining the Parts himself. His Anatomical Works and Figures are, notwithstanding, in very good Repute, and are esteemed very useful.

His Works are *Hist. Anatom. humani Corporis*, &c. printed *Parif.* 1600. Fol. Francof. 1600. Fol. — 1602. 8vo. 1616. 8vo. — 1627. 8vo. *Opera omnia Anatomica & Medica*, Francof. 1627. Fol. in French, à *Paris*, 1646. Fol. *Opera Anatomica*, &c. *Hanoviae*, 1601. 8vo.

LUDOVICUS SEPTALIUS

Was born at *Milan* in 1550. and dy'd at the same Place in 1630. He describes the Structure of the *Cartilago Ensisformis*, in his Book *de Morbis ex Mucronata Cartilagine evenientibus*, *Mediolani*, 1632. 8vo.

He also publish'd a Book *de Nævis*, printed *Mediolani*, 1606. *Patavii*, 1628. 8vo. *Argent.* 1629. 8vo. *Patavii*, 1651.

PETRUS PAAW.

This Anatomist was born at *Amsterdam*, in 1564. As he had the Advantage of attending the Lectures of *Bontius*, *Heurnius*, and *Rembert Dodonæus* at *Leyden*, of *Duretus*, and *Joh. Faber*, at *Paris*; and of seeing the Dissections of *Fabricius ab Aquapendente* at *Padua*, by this, and his own Industry, he acquired great Knowledge and Reputation in his Profession, inasmuch that in 1589. he was made Professor of Physic at *Leyden*.

His Works are, *Primitiae Anatomicae de humani Corporis Ossibus*, *Lugd. Batav.* 1615. 4to. *Amstelod.* 1633. 4to. *Notæ & Commentarii in Epitomen Andree Vesalii*, *Amstelod.* 1616. ibid. 1633. 4to. *Succenturiatus Anatomicus*, &c. *Lugd. Batav.* 1616. *De Vagula Intestini Epistola Duæ* are extant in the first Century of *Fabricius Hildanus*, printed *Oppenheim.* 1619. His *Anatomicae Observationes Selectiores*, published by *Thomas Bartholine*, are in the third and fourth Centuries of his *Hist. Anatom. & Med. rar.*

BARTHOLOMÆUS CABROLIUS

Was of *Aquitain*. He was Professor of Anatomy at *Montpelier*, about 1570.

His Anatomical Works are, *Alphabetum Anatomicum*, printed *Genevæ*, 1604. 4to. and in French, 1624. 4to. and the Colle-

gium *Anatomicum Clariss. trium Viror. Jassolini, Severini, Cæbrellii*, Francof. 1668. 4to.

GEORGIUS HORSTIUS

Was born in 1575. and in 1606. was made Professor at *Wirttemberg*. He dy'd in 1636. at *Ulm*.

His Anatomical Works are, *Scepsis de Naturali Conservatione & Cruentatione Cadaverum*, *Wittebergæ*, 1607. 8vo. *Libri Duo de Natura humana*, *Wittebergæ*, 1607. 8vo. Francof. 1612. 4to. *Ulmæ*, 1628. 4to. *Norimbergæ*, 1652. 4to. His *Anatome Corporis humani*, *Gressæ*, 1617. Fol. *Exercit. de Natura motus Animalis*, *Gissæ*, 1617.

CASPAR HOFFMAN

Was born at *Saxe Gotha*, in 1572. and practised Physic at *Norimberg* and *Altorf*, about the Year 1600. He died in 1648.

He wrote the following Anatomical Treatises: *De Usu Lienis Secundum Aristotelem Liber singularis*; *De Usu Cerebri secundum Aristotelem Diatriba*, *Lipsiæ*, 1619. 8vo. *Commentarii in Galen. de Usu Partium*, *Lib. 17.* Francof. 1625. Fol. *De Thorace ejusque Partibus Commentarius*, Francof. 1627. Fol. *De Generatione Hominis*, Francof. 1629. Fol. *Notæ perpetuæ in Galen: de Ossibus Librum*, ibid. 1630. *Institutiones Medicæ*, *Lugd.* 1645. *De Partibus Similibus Lib. singularis*, *Francofurt*, 1667. 4to. *Pro Veritate*, *Tract. 3.* *Lutetiæ*, 1647.

JOHANNES RIOLANUS

Was born at *Paris*, in the Year 1577. where he was afterwards Royal Professor of Anatomy and Botany, and first Physician to *Mary of Medicis*, Mother to *Lewis* the XIIIth. He was an exceeding dexterous Anatomist, and elegant Writer; he enriched Anatomy with many useful Discoveries, and appears well versed in the Writings of the Antients.

Amongst other Discoveries, he first took Notice of the *Appendiculæ Pingues* of the Colon, gave Names to the *Hepatic* and *Cystic Ducts* of the Liver; and observed, that the *Ductus Communis* was not furnished with a Valve, but instead of that, with a kind of Rugosity, which in some Degree supplies the Place of one.

With respect to the Hymen, he thinks it is a circular Membrane, placed across the Vagina, with a small Foramen in the Middle; and that by the Laceration of this, the *Carunculae Myrtiformes* are form'd.

He allows of the *Anastomoses* of the *Epigastric* and *Mammary Arteries* in Women, but not in Men.

He has also some Observations, which are new, concerning the Canal of the Cervix Uteri, the Os Hyoides, Tongue, and a Ligament, which is extended from the *Styloide Apophysis*, to the Angle of the lower Jaw.

His Works are *Schola Anatomica*, &c. *Parif.* 1607. 8vo. 1609. *Genev.* 1624. 8vo. *Anatome Corporis humani*, &c. *Parif.* 1610. Fol. *Osteologia*, &c. *Parif.* 1614. 8vo. *Anthropographia*, *Parif.* 1618. 8vo. ibid. 1626. 4to. His *Opera Anatomica*, *Lutetiæ Parif.* 1649. Fol. *Opuscula Anatomica*, *Parif.* 1652. 12mo. *Enchiridion Anatomicum*, &c. *Lugdun. Batav.* 1649. *Parif.* 1658. 8vo. *Jenæ & Lipsiæ*, 1674. 8vo. *Lugdun. Batav.* 1675. 8vo. Francof. 1677. 8vo. and in French, à *Lyon.* 1682. 8vo.

ANDREAS LIBAVIUS.

This Author was Professor of Poetry and History at *Jenæ*, in 1588. and in 1605 Director of the University of *Coburg*. He died in 1616.

His Character is founded on his Chymical Works; but he was the first who described the Method of transfusing the Blood from one Animal to another. See the Article CHYMA.

ÆMILIUS PARISANUS.

This Author treats on many Anatomical Subjects; but, as it is said, with a great deal of Ignorance and Infolence. *Riolanus* speaking of this Author, has the following remarkable Passage: *Cacata hæc Charta annalium Volusianorum fato dignissima, quæ Parisani Fatuitatem declarat, deferatur in Vicum vendentem Thus, & Odores, & Piper, & quicquid Chartis amicitur ineptis.* His Works are, *Nobilium Exercitationum Lib. duodecim*, printed *Venet.* 1623. Fol. *Par & Sanius Judicium de Seminibus à toto Proventu*, &c. *Venet.* 1633. *Altera Paris Nobilium Exercitationum*, *Venet.* 1635. Fol. *Nobilium Exercitationis Pars tertia*, *Venet.* 1638. Fol.

MELCHIOR SERIZIUS.

This Author was born at *Straßburg*, in 1578. and is remarkable for having studied at twenty-seven Universities. He was Professor at *Straßburg*.

His Works are interspersed with many Anatomical Dissertations; they are, *Exercitationes Medicæ*, &c. *Argentorat.* 1624. 1631. 1636. 4to. 1674. 4to. *Dissertationes tres de Respiratione*, *Argentorat.* 1642. 4to. *Disput. 4. de Dentibus*, ibid. 1645. 4to. *Disputat. de Concoctione*, ibid. 1642. 4to. *Disputat. de Facultatibus*,

cultatibus Naturalibus, ibid. 1644. 4to. Disputat. de Sudore, ibid. 1657. 4to. Disputat. de Fame & Siti, ibid. 1655. 4to. Disputat. de Pilis duæ, ibid. 1651. 4to. Prodromi Examinis Vulnerum singularum humani Corporis Partium partes quatuor, Argentorat. 1632. 4to.

ADRIANUS SPIGELIUS.

This Physician was born at *Brussels*, in 1578. He was a celebrated Anatomist, Knight of *St. Mark*, and first Professor of Anatomy and Surgery at *Padua*. His Works are, *De formato Fætu Liber singularis, Patav. 1626. Fol. Francof. 1631. 4to. De humani Corporis Forma Lib. decem, &c. Venet. 1627. 1654. Fol. Francof. 1632. 4to. De incerto Tempore Partus Epistola, 1664. Opera omnia quæ extant, Amstelodam. 1645. Fol.*

ALEXANDER MASSARIAS.

This Physician was born at *Vicenza*, and in 1587 was Professor of Physic at *Padua*; he died in 1598.

He is remarkable for the extravagant Compliment which he paid to the Memory of *Galen*, which was, that *he had rather err with Galen, than be in the right with the Moderns.*

His *Traçtatus de Urinis & Pulsibus*, was published *Francof. 1608. Opera Medica, Lugdun. 1634.*

MATTHIAS LUDOVICUS GLANDORP.

This Author was a Pupil to *Spigelius*, and a celebrated Surgeon of *Bremen*. His Works contain many Anatomical Observations, some of which are illustrated with Figures. His Works are, *Speculum Chirurgorum, Bremæ, 1619. 12mo. Traçtatus de Polypo Narium, Bremæ, 1628. 4to. Gazophylacium Polyplurium Fonticulorum & Setonum reseratum, &c. Bremæ, 1632-1633. 4to.*

PETRUS LAURENBERGIUS

Was Professor of Physic and Philosophy at *Rostoch*. He was; in the Opinion of *Riolanus*, but an indifferent Anatomist. His Works are, *Isagoges Anatomicae Græcæ Interpretatio, Lugd. Batav. 1618. 4to. Procestria Anatomica, Hamburgi, 1619. 4to. Anatomia Corporis humani, Rostochii, 1636. 4to. Francof. 1665. 12mo.*

FABRICIUS BARTHOLETUS.

This Author was born at *Bologna*, in 1588. and was Professor at *Pisa*. He died in 1630.

He wrote an Anatomical Piece, intituled, *Anatomica humani Microcosmi Descriptio, Bononiæ, 1619. Fol.*

JOHANNES REMELINUS

Was of *Ulm*, in *Swabia*. His Work is only remarkable for the Figures; which are contrived in such a manner, that upon lifting up that Part of the Figure, which represents the external Parts; those which are situated underneath are discovered; and upon removing these, others, which lie deeper, appear.

Stephanus Michelspachier engraved these Plates. They were published under the Title of, *A Survey of the Microcosm, or The Anatomies of the Bodies of Men and Women, &c. London, 1702. Fol.* In Latin it appear'd before, in 1613-1614-1615-1619. and in Dutch; 1645.

ROBERT FLUDD.

This Author was of *Salop*. He, in his Youth, followed the Profession of Arms; but was afterwards made Doctor of Physic at *Oxford*, and Fellow of the College of Physicians. He died in 1637.

His Work is intituled, *De Anatomia Triplici; Francof. 1623. Fol.*

RICHARD BANISTER,

An English Surgeon, wrote an Anatomical Description of the Eye, which is extant in the first Part of his Work, intituled, *A worthy Treatise of the Eyes, containing the Knowledge and Cure of 113 Diseases incident unto them and the Eye-lids, printed London, 1622.*

CASPAR ASELLIUS.

This Anatomist was born at *Cremona*, and was Professor of Anatomy at *Pavia*. He is celebrated for being the first, amongst the Moderns, who took Notice of the Lacteal Vessels in the Mesentery, which he describes as conveying the Chyle to a large Gland, situated in the Centre of the Intestines; but this Account, he confesses, is taken from the Appearances in Brute Subjects. He modestly declines the Honour of this Discovery, because he says these Lacteals were known to *Hippocrates, Erasistratus*, and *Galen*. This Discovery was made in 1622.

His Works are, *De Lactibus, seu Lacteis Venis, quarto Vaso- rum Meseraicorum genere novo invento, Dissertatio, cum Figuris elegantissimis, Mediolan. 1627. Basil. 1628. Lugd. Batav. 1640. 4to. 1641. 8vo.* It is also extant with the Works of *Spigelius*, reviv'd by *Vander Linden*, and in *Veslingius*, illustrated by *Blasius*.

WILLIAM HARVEY.

This celebrated Physician was born at *Folkstone* in *Kent*, in the Year 1577. He studied five Years at *Padua*, where he took a Doctor's Degree; afterwards took the same Degree at *Cambridge*; and having been Physician to King *James* and King *Charles* the First, and President of the College of Physicians, he died in 1657, in the Eightieth Year of his Age.

His Discovery of the Circulation of the Blood was of the most Importance to Physic of any that was ever made, and acquir'd him an immortal Name. But as it has been frivolously disputed, whether the Honour of it belongs to him, I shall transcribe a Passage from *Wotton's* Reflections on antient and modern Learning, which sets this Affair in a true Light.

This Discovery, first made perfectly intelligible by Dr. *Harvey*, is of so very great Importance to shew the Communication of all the Humours of the Body with each other, that as soon as Men were perfectly satisfied, that it was not to be contested, which they were in a few Years, a great many put in for the Prize, unwilling that Dr. *Harvey* should go away with all the Glory. *Vander Linden*, who publish'd a most exact Edition of *Hippocrates* in *Holland*, about thirty Years ago, has taken a great deal of Pains to prove, that *Hippocrates* knew the Circulation of the Blood, and that Dr. *Harvey* only reviv'd it. The Substance of what has been said in this Matter, is this: That *Hippocrates* speaks, in one Place, of the usual and constant Motion of the Blood: That, in another Place, he calls the Veins and Arteries the Fountains of Human Nature, the Rivers that water the whole Body, and convey Life; and which, if they be dried up, the Man dies: That, in a third Place, he says, That the Blood-vessels, which are dispersed over the whole Body, give Spirit, Moisture, and Motion, and all spring from one; which one (Blood-vessel) has no Beginning, nor no End; for where there is a Circle, there is no Beginning.

These are the clearest Passages that are produced, to prove that *Hippocrates* knew the Circulation of the Blood; and it is plain from them, that he did believe it as an Hypothesis; that is, in plain English; that he did suppose the Blood to be carried round the Body by a constant accustomed Motion: But that he did not know what this constant accustomed Motion was, and that he had not found that Course, which, in our Age, Dr. *Harvey* first clearly demonstrated, will appear evident from the following Considerations. (1.) He says nothing of the Circulation of the Blood in his Discourse of the Heart, where he anatomizes it as well as he could, and speaks of the Ventricles and the Valves, which are the immediate Instruments by which the Work is done. (2.) He believes, that the Auricles of the Heart are like Bellows, which receive the Air to cool the Heart: Now there are other Uses of them certainly discovered, since they assist the Heart in the Receiving of the Blood from the Vena Cava, and the Vena Pulmonaris. This no Man, that knows how the Blood circulates, can be unacquainted with; and accordingly would have been mention'd by *Hippocrates*, had he understood it. (3.) *Hippocrates* speaks of Veins, as receiving Blood from the Heart, and going from it; which also was the constant way of speaking of *Galen*, and all the Antients. Now no Man, that can express himself properly, will ever say, that any Liquors are carried away from any Cistern, as from a Fountain or Source, through those Canals which, to his Knowledge, convey Liquors to that Cistern. (4.) *Hippocrates* says, the Blood is carried into the Lungs from the Heart, for the Nourishment of the Lungs, without assigning any other Reason. These seem to be positive Arguments, that *Hippocrates* knew nothing of this Matter; and, accordingly, all his Commentators, antient and modern, before Dr. *Harvey*, never interpreted the former Passages of the Circulation of the Blood: Neither would *Vander Linden*, in all Probability, if Dr. *Harvey* had not help'd him to the Notion; which he was then resolv'd to find in *Hippocrates*, whom he supposed to be not the Father only, but the Finisher also, of the whole Medical Art. It is pretended to by none of the Antients, or rather Admirers of them, after *Hippocrates*. As for *Galen*, any Man that reads what he says of the Heart and Lungs, in the sixth Book of his *De Usu Partium*, must own, that he does not discourse as if he were acquainted with modern Discoveries; and therefore it is not so much as pretended, that he knew this recurrent Motion of the Blood: Which also farther shews, that if *Hippocrates* did know it, he explain'd himself so obscurely, that *Galen* could not understand him; who, in all Probability, understood *Hippocrates's* Text as well as any of his Commentators, who have written since the Greek Tongue, and much more since the Ionic Dialect, has ceased to be a living Language.

Since the Antients have no Right to so noble a Discovery, it may be worth while to inquire; to whom of the Moderns the Glory of it is due; for this is also exceedingly contested. The first Step that was made towards it, was, the finding that the whole Mass of the Blood passes through the Lungs, by the Pulmonary Artery and Vein.

The first that I could ever find, who had a distinct Idea of this Matter, was *Michael Servetus*; a Spanish Physician, who

was burnt for Arianism at *Geneva*, near 140 Years ago. Well had it been for the Church of *Christ*, if he had wholly confin'd himself to his own Profession! His Sagacity in this Particular, before so much in the Dark, gives us great Reason to believe, that the World might then have had just Cause to have blessed his Memory. In a Book of his, intituled, *Christianismi Restitutio*, printed in the Year 1553. he clearly asserts, that the Blood passes through the Lungs, from the Right to the Left Ventricle of the Heart, and not through the Partition which divides the two Ventricles, as was at that time commonly believed.

Realdus Columbus, of *Cremona*, was the next that said any thing of it, in his *Anatomy*, printed at *Venice*, 1559. in *Folio*, and at *Paris*, in 1572. in *Octavo*, and afterwards elsewhere. There he asserts the same Circulation through the Lungs, that *Servetus* had done before; but says, that no Man had ever taken Notice of it before him, or had written any thing about it: Which shews, that he did not copy from *Servetus*; unless one should say, that he stole the Notion, without mentioning *Servetus's* Name; which is injurious, since, in these Matters, the same thing may be, and very often is, observed by several Persons, who never acquainted each other with their Discoveries. But *Columbus* is much more particular; for he says, That the Veins lodge the whole Mass of the Blood in the *Vena Cava*, which carries it into the Heart, and so it is thrown into the Left Ventricle; and by the *Aorta* again, when enliven'd by the Air, diffused thro' the whole Body.

Some Years after appear'd *Andreas Cæsalpinus*, who printed his *Peripatetical Questions* at *Venice*, in *Quarto*, in 1571. and afterwards, with his *Medical Questions*, at the same Place, in 1593. He is rather more particular than *Columbus*, especially in examining how Arteries and Veins join at their Extremities; which he supposes to be by opening their Mouths into each other: And he uses the Word *Circulation* in his *Peripatetical Questions*, which had never been used in that Sense before. He also takes Notice, that the Blood swells below the Ligature in Veins, and urges that in Confirmation of his Opinion. Some Hints of this Matter are likewise to be found in *Constantius Varolius*, who printed his *Anatomy* in the Year 1591.

At last *Dr. William Harvey* printed a Discourse on purpose, upon this Subject, at *Frankfort*, in 1628.

This gave him a just Title to the Honour of so noble a Discovery, since what his Predecessors had said before him was not enough understood, to form just Notions from their Words. One may also observe how gradually this Discovery, as all abstruse Truths of human Disquisition, was explained to the World. *Hippocrates* first talked of the usual Motion of the Blood. *Plato* said, That the Heart was the Original of the Veins, and of the Blood, that was carried about every Member of the Body. *Aristotle* also, somewhere, speaks of a recurrent Motion of the Blood. Still all this was only Opinion and Belief: It was rational, and became Men of their Genius; but not having as yet been made evident by Experiments, it might as easily be denied as affirm'd. *Servetus* first saw, that the Blood passes thro' the Lungs; *Columbus* went farther, and shew'd the Uses of the Valves, or Trap-doors of the Heart, which let the Blood in and out of their respective Vessels, but not the self-same Road. Thus the Way was just open when *Dr. Harvey* came, who built upon the first Foundations: To make his Work yet the easier, the Valves of the Veins, which were discover'd by *Father Paul the Venetian*, had not long before been explain'd by *Fabricius ab Aquapendente*; whence the Circulation was yet more clearly demonstrated.

There was one thing still wanting to complete this Theory, and that was, the Knowledge how the Veins received that Blood which the Arteries discharged: First, it was believed that the Mouths of each sort of Vessels join'd into one another: That Opinion was soon laid aside, because it was found, that the Capillary Vessels were so extremely small, that it was impossible, with the naked Eye, to trace them. This put them upon imagining, that the Blood oozes out of the Arteries, and is absorb'd by the Veins, whose small Orifices receive it, as it lies in the Fibres of the Muscles, or in the Parenchyma of the Bowels; which Opinion has been generally received by most Anatomists since *Dr. Harvey's* Time: But *Leeuwenhoek* has lately found in several sorts of Fishes, which were more manageable by his Glasses than other Animals, that Arteries and Veins are really continued Siphons, variously wound round each other towards their Extremities, in numberless Mazes, over all the Body: And others have found what he says to be very true, in a Water-newt; so that this Discovery has passed uncontested. And since it has been constantly found, that Nature follows like Methods in all sorts of Animals, where she uses the same sorts of Instruments, it will always be believed, that the Blood circulates in Men, after the same manner as it does in Eels, Perches, Pikes, Carps, Bats, and some other Creatures, in which *Leeuwenhoek* tried it. Tho' the Ways how it may be visible to the Eye, in human Bodies, have not, that I know of, been yet discovered.

But *Thomas Bartholine* and *Consentinus* have raised up a modern Rival to *Harvey*, for the Honour of the Discovery of the

Circulation, which is the celebrated *Father Paul*. What they relate amounts only to this; that in a Manuscript of *Father Paul's*, which was left in the Hands of *Father Fulgentius* at *Venice*, the Particulars of the true Circulation of the Blood, as publish'd by *Harvey*, are contain'd; and hence they conclude, that he communicated it to *Fabricius ab Aquapendente*, who told it to *Harvey* whilst he was at *Padua*.

But the Truth of the Affair appears to be; that after *Harvey's* Return to *England*, he made a Prefent of his Book, just then publish'd, to the *Venetian* Embassador; who, immediately after going home, lent it to *Father Paul*, whose Curiosity led him to make some Extracts from it, which are contain'd in the Manuscript above-mention'd.

What made this Story the more likely to be true; was *Father Paul's* Sagacity in Anatomical Researches, who first observed the Contraction and Dilatation of the Pupils of the Eye; and is said to have communicated to *Fabricius ab Aquapendente* his Knowledge of the Valves in the Veins.

Besides this Discovery of the Circulation, *Harvey* made several with respect to the Generation of Animals.

His Works are, *Exercitatio Anatomica de Motu Cordis & Sanguinis in Animalibus*, *Frankf.* 1628. 4to. *Lugd. Batav.* 1639. 4to. *ibid.* 1647. *Cum Refutationibus Emiliij Parisiani*, 1647. *Patavii*, 1643. It is likewise in a Book, intituled, *Recentiorum Disceptationes de Motu Cordis, &c.* printed *Lugd. Batav.* 1647. 4to. Then it appeared in *English*, printed at *Rotterdam*, 1671. His *Exercitationes duæ de Circulatione Sanguinis*, *Rotterdam*, 1649. *Epistola ad Joh. Dan. Horstium de Inventis Asellii & Pequeti*, are in the Decad. of *Medical Epistles* of *Joh. Dan. Horstius*.

Exercitationes de Generatione Animalium, *London.* 1651. 4to. *Amstel.* 1651. 1652. 12mo. *Hagæ Comitum*, 1680. 12mo. In *English* at *London*, 1653.

CASPAR BARTHOLINUS.

This Author was a *Dane*, born in 1585. After visiting most of the most famous Universities, and attending the Lectures of the most celebrated Professors, he was made Royal Professor at *Copenhagen*; then turn'd his Studies to Divinity, and died in 1630. in the Forty-fifth Year of his Age. He was Cotemporary with *Harvey*.

His Anatomical Works are in much Esteem, which are his *Anatomica Institutiones*, printed *Albiæ*, 1661. *Argentorati*, 1626. *Rostoch.* 1626. *Goslaræ*, 1632. *Oxoniæ*, 1632. These Institutions were enlarged by *Bartholine* the Son, and publish'd in different Years at different Places. They were publish'd in the German Tongue, *Hafniæ*, 1648. His *Controversiæ Anatomicae*, *Goslaræ*, 1631. His *Enchiridion Physicum*, *Argentiniæ*, 1652.

To *Caspar Bartholine* I shall subjoin his Son and Grandson, tho' not properly belonging to this Place.

THOMAS BARTHOLINUS.

This Physician was the Son of *Caspar Bartholine*, and born at *Copenhagen* in 1616. He was Professor at the Place of his Birth, and enrich'd Anatomy with many useful Discoveries. He claims the Glory of having first observed the Lymphatic Vessels; but the Pretensions of *Olaus Rudbeckius*; and *Dr. Jolliffe*, an *English* Physician, to the same Discovery, render his Title to it doubtful. *Rudbeckius* publish'd his Observations much about the same time as those of *Bartholine* appear'd; and *Dr. Jolliffe* shew'd the same to several of his Friends, but without publishing any thing concerning them. The Discoveries being undoubted, and all three working upon the same Materials, there seems no Reason to deny any of them the Glory of their Inventions. The thing which they found was, that there are innumerable small clear Vessels in many Parts of the Body, chiefly in the lower Belly, which convey a colourless Juice either into the common Receptacle of the Chyle, or else into the Veins, there to mix with the Blood.

He also pretends a Title to the Discovery of the *Thoracic Duct*; but this is also disputed with him by *Van Horne* and *Pequet*.

His Works are *Anatomia ex Caspari Bartholini parentis Institutionibus, &c.* *Lugd. Batav.* 1641. *ibid.* 1645. *ibid.* 1651. *Hagæ Comitum*, 1655. *ibid.* 1660. *ibid.* 1663. *Rotered.* 1669. *ibid.* 1673. *Anatomica Aneurismatis dissecti Historia*, *Panormi*, 1644. *De Lacteis Thoracicis in Homine Brutisq; nuperrime observatis Historia Anatomica*, *Hafniæ*, 1652. *Londoni*, 1652. *Parisiis*, 1653. *Genevæ*, 1654. *Lugd. Batav. & Ultra Trajecti*, 1654. It is also in the *Messis Aurea* of *Siboldus Hempsterhuis*, printed *Heidelbergæ*, 1659. and with his own *Opuscula*, *Hafniæ*, 1670. *Vasa Lymphatica, nuper Hafniæ in Animalibus inventa, & in Homine*, *Hafniæ*, 1653, 1654. *Parisiis*. They are also extant with *Siboldus Hempsterhuis*, *Messis Aurea*, *Heidelbergæ*, 1659. and also with his own *Opuscula*, printed *Hafniæ & Amstelodami*, 1670. *Historia nova Vasorum Lymphaticorum*, publish'd with *Le Clerc* and *Maugelus's Bibliotheca Anatomica*, printed *Genev.* 1685. *Dubia Anatomica*, *Hafniæ*, 1653. *Parisiis*, 1653. *Defensio Vasorum Lactearum, &c.* *Hafniæ*, 1655. and with

with his *Opuscula Anatomica*, 1670. *Historiarum Anatomicarum Centuria prima & secunda*, Hafniae, 1654. *Historiarum Anatomicarum Centuria tertia & quarta*, ibid. 1657. *Historiarum Anatomicarum Cent. quinta & sexta*, Hafniae, 1661. *Vindiciae Anatomicae*, Hafniae, 1648. *Opuscula nova Anatomica*, Hafniae & Amstelod. 1670. *Observationes Anatomicae Petri Pavi*, printed in his third and fourth Centuries of his own Observations, Hafniae, 1657. *Collegium Anatomicum*, Hafniae, 1651. *Specilegium primum ex Vasis Lymphaticis*, Hafniae, 1655. 1658. *Reflectionum*, 1660. Amstelodami, 1661. Also with his *Opuscula*, printed Hafniae, 1670. *Specilegium secundum ex Vasis Lymphaticis*, Amstelod. 1660. *Specilegia bina ex Vasis Lymphaticis*, Amstelodami, 1661. And with his own *Opuscula nova Anatomica*, Hafniae, 1678. *Dissertatio Anatomica de Hepate defuncto*, Hafniae, 1661. And with his *Opuscula Anatomica nova*, Hafniae, 1670. *Responsio de Experimentis Anatomicis Bilsianis*, &c. Hafniae, 1661. Amstelodami, 1661. And with his *Opuscula nova Anatomica*, Hafniae, 1670. *De Hepatis exautorati Causa desperata*, Hafniae, 1666. And with his *Opuscula Anatomica nova*, Hafniae, 1670. *De Cerebri substantia pingui*, &c. Hafniae, 1669. *De Anatome Practica ex Cadaveribus morbofis adornanda Consilium*, &c. Hafniae, 1674. *De Pulmonum Substantia & motu Diatribe*, Hafniae, 1663. Lugd. Batavor. 1672.----- Vander Linden, p. 1003.

He left two Sons, *Caspar* and *Thomas*; the former of whom published many of his Father's Works. He also wrote upon the Ovaries of Women, Generation, and the Structure of the Diaphragm; and is said to have first discovered the inferior and lesser Salivary Ducts. He farther speaks of a new Method of preparing the Viscera for Anatomical Uses.

His Anatomical Works are, *De Ovarii Mulierum*, &c. Romae, 1677. Amstelodami, 1678. Norimbergae, 1679. *Epistola de Nervorum Usu in Musculorum Motu*, Parisiis, 1676. *Diaphragmatis Structura nova*, Parisiis, 1676. *Administratio-nem Anatomicarum Specimen*, publish'd with *Michaelis Lyseri Cultrum Anatomicum*, Francofurti, 1679. *Exercitationes Miscellaneae*, 1675. There are likewise several of his Anatomical Pieces printed in the *Acta Hafniensia*.

From the Time of the great *Harvey*, there have been such a Multitude of Anatomical Writers, that a particular Detail of them would of itself require a Volume. I shall therefore only give an alphabetical Catalogue of the principal, and take some Notice of their Discoveries, when of any Importance. I must, however, remark, that it would have been fortunate for Anatomy, and Students in this Science, if Authors could have contented themselves with publishing their own Discoveries, and animadverting upon the Errors of others: But, instead of doing this, many have thought, that a Discovery, sometimes trifling enough, or a Professor's Chair, have intitled them to write an entire System; thus making it necessary to search large Volumes for Discoveries, which a few Pages were sufficient to contain.

ALBINUS,

A Professor at *Leyden*, has published some Anatomical Pieces, which are in much Esteem; and the World is in Expectation of more from the same Hand. His Works which have come to my Knowledge, are as follows:

Historia Musculorum Hominis, Lugdun. Batav. 1734. 4to.
Icones Offium Foetus humani; accedit Osteogeniae brevis Historia, Lugdun. Batav. 1737. 4to.
Tabulae Anatomicae, Lugdun. Batav. 1741. Fol.
The last is not yet completed.

BELLINI (LAURENTIUS).

His Anatomical Works are,

De Structura Renum.

Gustus Organum novissime detectum.

Of both which there have been several Editions. I have seen one printed Lugduni Bat. 1711.

BERGERUS (JOHANNES GODOFREDUS).

He was of *Hall* in *Saxony*, but Professor of Physic at *Wirttemberg*.

His principal Anatomical Piece is an Epistle concerning the Division of the Aorta, principally with respect to its ascending Branches.

BESLERUS (MICHAEL RUPERTUS).

He was of *Nuremberg*, born 1607. died 1661. according to *Goellicke*. His Anatomical Works are,

Admiranda Fabrica humanae Mulieris partium Generationi potissimum inservientium, & Foetus, fidelis, quinque Tabulis, ad magnitudinem naturalem & genuinam, typis aeneis impressis, hactenus nunquam visa, Delineatio. Noribergae, apud *Jeremiam Dumlery*, 1640. in Fol.

Observatio Anatomico-medica singularis cujusdam, Calendar. Januar. 1644. tres filios naturalis magnitudinis viventes, enixa. Puerpera vero retentis secundinis extremum quasi balitum spirabat, intra aliquot horarum spatium, dextra divinitus adminiculante, summa cum adstantium admiratione & stupore, feliciter evasit. Noribergae, 1644. in 4to.

BIDLOO (GOTTOFREDUS).

He was Professor, at *Leyden*, of Surgery and Anatomy. He publish'd a hundred and five magnificent Figures of different Parts of the Body, Amstelodam. 1685. in a very large Folio, some of which are said not to be according to the Life. Cowper corrected these.

Opera omnia Anatomico-Chirurgica edita & inedita, Lugdun. Batav. 1715.

His *Exercitationum Anatomico-Chirurgicarum Decas* was printed Lugdun. Bat. 1704.

BLANCARDUS (STEPHANUS)

Publish'd some Anatomical Pieces, which are said to be very indifferent Compilations.

BLASIUS (GERHARDUS)

Publish'd several Anatomical Treatises, as, *Commentarius in Syntagma Anatomicum Johannis Veslingii, cum Figuris*, Amstelodam. 1659. 4to.

This was reprinted at the same Place, 1666. 4to. This Edition is said to be the best.

De Renibus monstrosis, published with *Bellini Exercitatio Anatomica de Struct. Renum*, 1665. 12mo.

Anatome contracta, Amstelodam. 1666. 12mo.

Anatome Medullae Spinalis, & Nervorum inde provenientium, Amstelod. apud *Casparum Commelinum*, 1666. in 12mo.

Observata Anatomica in Homine, Simia, Equo, Vitulo, Testudine, Echino, Glire, Serpente, Ardea, variisque Animalibus aliis. Accedunt extraordinaria in Homine reperta, Praxin Medicam aequae ac Anatomen illustrantia, Lugd. Batav. & Amstelod. apud *Gaasbeeck*, 1674. in 8vo.

Zootomia seu Anatomies variorum Animalium pars prima, Amstelod. apud *Abrahamum Wolffgang*, 1676. in 8vo.

Anatome Animalium Terrestrium variorum, Volatilium, Aquatilium, Serpentum, Insectorum, Ovorumq; Structuram naturalem, ex Veterum, Recentiorum, propriisq; observationibus proponens, Figuris variis illustrata, Amstelod. apud *Viduum Johannis a Someren*, 1681. in 4to.

BOHNIIUS; (JOHANNES)

Professor of Anatomy at *Leipsic*. Several Anatomical Observations are dispersed in his Works, the principal of which are relative to the Biliary Ducts, and Bile.

BONETUS (THEOPHILUS)

Collected with immense Labour, and publish'd, a prodigious Number of Dissections, which had been made upon Bodies which died of Distempers, or Casualties, thereby excellently explaining the immediate Causes of Diseases and Death. This Work is, perhaps, the most valuable Piece which the Moderns have produced, and the best adapted to render a Physician perfectly acquainted with the Indispositions of the human Body.

No Physician should be a Day without consulting this Author.

His large Work, intituled, *Sepulchretum sive Anatomia Practica*, was first published in two Volumes, Geneva, 1679. Fol.

Mangetus published another Edition, with considerable Additions, in three Volumes, Lugd. 1700.

There is also another Piece on the same Subject, intituled, *Prodromus Anatomiae practicae, sive de abditis Morborum Causis, ex Cadaverum Dissectione revelatis, Libri primi Pars prima, de Doloribus capitis, ex illius apertione manifestis*, Geneva, apud *Franciscum Miege*, 1675. in 8vo.

BONTIUS (JACOBUS)

Publish'd some Anatomical Observations, which are extant, amongst other Treatises, in his *Medicina Indorum*, Lugd. Batav. 1642. 12mo. Amstelodam. 1658. 12mo.

They are also amongst his *Opuscula varia*, Amstelodam. 1658. Fol.

These are also printed with *Prosper Alpinus's Medicina Aegyptiorum*, Parisiis, 1646. 4to. and Lugd. Bat. 1719. 4to.

BORELLUS (ALPHONSUS)

Gave a Mechanical Account of the Motion of Animals, drawn from the Structure of the Parts. As he had the Advantages of Dr. *Lower's* Discoveries, with respect to the Order of the muscular Fibres of the Heart, he was enabled to give a Solution of all the Appearances of the Motion of the Heart, and of the Blood in the Arteries, upon Mathematical and Mechanical Principles. His Anatomical Works are,

De Renum Usu Judicium, publish'd with *Bellini de Structura Renum*, Argentorati, 1664. 8vo.

De Motu Animalium, publish'd in the *Bibliotheca Anatomica* of *Manget* and *Le Clerc*.

BRIGGS (WILLIAM)

Wrote an accurate Description of the Eye, with the Method of dissecting it, intituled, *Ophthalmographia*, Cambridge, 1675. 8vo. This is also extant in *Mangetus's Bibliotheca Anatomica*.

From the Structure of the Eye he form'd a Theory of Vision, which is extant in the *Acta Eruditorum*, 1683.

He discover'd, that in the *Tunica Retiformis*, which is contiguous to the vitreous Humour, the Filaments of the Optic Nerve there expanded lie in a most exact and regular Order, all parallel one to another; which, when they are united afterwards in the Nerve, are not shuffled confusedly together, but still preserve the same Order till they come to the Brain. The crystalline Humour had already been discover'd to be of a double convex Figure, made of two unequal Segments of Spheres, and not perfectly spherical, as the Antients thought: So that this farther Discovery made by Dr. Briggs, shews evidently, why all the Parts of the Image are so distinctly carried to the Brain, since every Ray strikes upon a separate Filament of the Optic Nerve; and all those Strings so struck are moved equally at the same time.

He also describes the Ducts which convey Moisture to the Eyes, from the Glands in the Corners thereof, for the Convenience of their Motion in the Orbit.

BROWN, (JOHN)

A Surgeon of Saint Thomas's Hospital, wrote an Epistle concerning the glandulous Substance of the Liver.

BRUNNERUS (JOHANNES CONRADUS)

Wrote about the Pancreas, Intestinal Glands, and the Lymph. His Work is intituled, *Experimenta nova circa Pancreas*, Amstelodami, 1683. 8vo.

CASSEBOHM (JOAN. FREDERICUS)

Wrote an Anatomical Work, under the following Title: *Tractatus quatuor Anatomici de Aure humana, tribus Figurarum Tabulis illustrati, Auctore Joan. Frid. Cassebohm, Halee Magd.* 1734. in 4to.

CHARLTON (WALTER)

Publisch'd some Anatomical Works:

Exercitationes Physico-Anatomicæ, sive Oeconomia Animalis, novis in Medicina Hypothesibus superstructa, & Mechanicè explicata, Londini, apud R. Danielis, & J. Redmannum, 1659. in 12mo. Amstelodami, apud Joh. Ravensteyn, 1659. in 12mo. Lugduni Batavorum, apud Petrum de Graaf, 1678. in 12mo. Hagæ Comitis, apud Arnoldum Leers, 1681. in 12mo.

Exercitationes Pathologicæ, in quibus Morborum penè omnium Natura, Generatio, & Causæ ex novis Anatomicorum inventis sedulo inquiruntur, Londini, apud Thomam Newcomb, 1661. in 4to.

Onomasticon Zoinon plerorumque Animalium Differentias & Nomina propria pluribus Linguis exponens. Cui accedunt Mantissa Anatomica, & quedam de variis Fossilium Generibus. Londini, apud Jacobum Allestry, 1668. in 4to. Ibidem apud eundem, 1671. in 4to. Oxonii, 1673. in Fol. min.

CHESELDEN (WILLIAM)

Publisch'd the ANATOMY OF THE HUMAN BODY, of which there have been five Editions, the last of which was printed at London, 1740. This Work is interspersed with many curious Chirurgical Observations; and is illustrated with forty accurate Copper-plates.

He also lately publish'd an Osteology, with magnificent Figures. In this there is an accurate Account of the Diseases of the Bones.

LE CLERC, (DANIEL)

Together with Mangetus, publish'd the *Bibliotheca Anatomica*, which is a Collection of Anatomical Authors. See MANGETUS.

COWPER (WILLIAM)

Publisch'd Bidloo's Anatomical Figures, with many Additions and Improvements.

This has lately been reprinted in Holland, under the Direction of Albinus.

He wrote also excellently on the Muscles. His Works are interspersed with many curious Chirurgical Observations.

This Author is said to be the first who gave a Figure of the Thoracic Duct, as it is found in human Subjects; whereas preceding Anatomists delineated it from Brutes.

He also discover'd certain Glands in the Urethra, which have been since called *Glandule Cowperi*; but Cheselden disputes their Existence.

DEUSINGIUS (ANTONIUS)

Was Author of a great many Books; an Account of which may be seen in *Vander Linden*. Some of these were Anatomical; but I don't know that he made any particular Discoveries.

DIEMERBROECK (ISBRANDUS de)

Was Professor of Anatomy at Utrecht. Goelicke blames him for not publishing his Discoveries separately, instead of writing a

whole Body of Anatomy; a Fault common to him, with a Multitude of other Writers. He also accuses him of making tedious Digressions, sometimes not much to the Purpose; and he farther says, his Discoveries are not always to be depended upon, some of them being rather the Offspring of Imagination, than the Result of Experience. His Figures are not remarkably exact, for which he blames his Engraver in his Preface.

His Works are, *De Peste Libri quatuor*, Arenaci, 1646. Amstelodami, 1665. *Disputationum Practicarum Pars prima & secunda de Morbis Capitis & Thoracis, Trajecti ad Rhenum*, 1664. *Anatome Corporis humani, &c. Ultrajecti*, 1672. Geneva, 1679. Lugduni, 1679. These two last-mention'd Editions are vastly more correct than the others, and adorned with far correcter Plates.

DIONIS.

He was Demonstrator of Anatomy at the Royal Garden at Paris, where he had great Opportunities of dissecting Bodies. He publish'd a Book on the Subject of Anatomy, which is in pretty good Esteem, and of which there have been many Editions.

Dionis has had an Honour done him, which very few European Authors have attain'd to, which is to have his Anatomy translated into the Tartar Language, now used at the Court of China. This was done by Father Parenni, a Jesuit Missionary, at the Command of Cam-Hi, Emperor of China, who died in 1722. But this was a Compliment paid Dionis by his Countryman, the Translator, and not by the Emperor; for Parenni's Instructions were to translate the best European System of Anatomy.

DOUGLAS (JAMES).

This Gentleman was very eminent in the Practice of Midwifry, and an accurate Anatomist. His Memory is too fresh to make any farther Account of him necessary. His principal Anatomical Works are,

Bibliographia Anatomica Specimen, which was first printed at London, and afterwards, with Additions, at Leyden, by Albinus, 1734. Octavo.

Myographia comparata Specimen, London, 1707. In this Book, the Author remarks the Differences betwixt the Muscles in Men and in Dogs.

This was translated into Latin, and printed at Leyden, 1729.

A Description of the Peritonæum, London, 1730. Dr. Freind, in the first Volume of his History of Physic, speaking of the Operation for a Hernia, says, that to form a right Notion of the Distention to which the Peritonæum is subject, one ought to see the curious Preparations of that diligent and accurate Anatomist, Dr. Douglas, who is the first that has given us any true Idea of the Peritonæum; a Part which is much concerned, and whose Structure should be so much consider'd, not only in this Operation, but in the High Way for cutting for the Stone. He too is the first, who has plainly shewn, that the Elongation of the external Lamella of the Peritonæum does not form the vaginal Coat of the Testicles, as Authors say, but a Coat peculiar to the seminal Vessels, which he very properly calls *Tunica Vasorum Spermaticorum propria*. And he afterwards observed, in reading Paulus, that this Coat was known to, and described by him, by the Name of *ἐλκυστήρ*, from the many Contortions there are in those Vessels which it covers.

DRAKE, (JAMES)

An English Physician. His Work is intituled *Anthropologia nova, or, A New System of Anatomy*, of which I have seen two Editions. A great deal of the first Edition is left out in that of 1717. He had some very singular Notions with respect to the Bile, and the Catamenia.

DRELINCOURT, (CHARLES)

A Frenchman, was a celebrated Professor of Anatomy at Leyden, and wrote very well on many Anatomical Subjects. His Works, principally relating to Anatomy, are,

De Partu Oestimestri vivaci Diatriba, L. Bat. 1653. 12mo.

Preludium Anatomicum, 1672. 1680.

Both these are amongst his *Opuscula*, L. Bat. 1680. 12mo.

Idem, Hagæ, 1727.

De humani Fetus Membranis Hypomnemata, Lugd. Bat. 1685. 12mo.

Experimenta Anatomica ex Vivorum Sectionibus petita, Lugd. Bat. 1681. 1682. 12mo.

This Treatise is in Manget's *Bibliotheca Anatomica*; as also some Pieces of the same Author, intituled *De Conceptu*; *De Semine Virili*; *item, De Semine Muliebri*, Ovis, Utero, Tubis Uteri; *cum Corollariis de humano Fœtu*.

He was Author of many other Medicinal Pieces.

DUPRE.

Goelicke mentions this Author, and informs us, that he published a Description of five Pair of Muscles, which are concerned in moving the Head in different Directions, and which are inserted into the first and second Vertebra of the Neck.

He,

He, according to the same Author, described two Ligaments, which connect the Head either to the first or second Vertebra of the Neck.

ENT (GEORGE)

Was an *English* Physician, and President of the College of Physicians. He wrote an Apology for the Circulation of the Blood, in Answer to *Emilius Parisanus*: This was printed at London, 1641. 8vo.

He also published Animadversions on *Malachias Thurston's* Treatise of the Uses of Respiration, London, 1678, 8vo.

This Treatise is in the *Bibliotheca Anatomica* of *le Clerc* and *Mangel*.

EUSTACHIUS.

His *Opuscula Anatomica* was printed Delphis, 1726. 8vo.

FRANCUS, (GEORGIUS FREDERICUS DE FRANKENEAU)

A Dane, wrote a Treatise on the Nails. *Goelicke*.

GARENGEOT (JAQUES CROISSANT DE)

Wrote an Anatomical Piece under the following Title, which was printed at Paris, 1728. 12mo.

Miotomie humaine, & canine, ou la Maniere de dissequer les Muscles de l'Homme, & des Chiens; suivie d'une Miologie ou Histoire abrégée des Muscles.

GIBSON (THOMAS)

Wrote a Compendium of Anatomy, which is said to have nothing in it new; but to consist entirely of Collections from others. He was an *English* Physician, and Fellow of the College.

GLISSON (FRANCIS)

Was an *English* Physician, Professor of Physic at Cambridge, and Fellow of the College of Physicians. His principal Discovery was the Duct which conveys the Bile from the Liver to the Gall-bladder. His Works are,

Anatomia Hepatis, cui præmittuntur quædam ad rem Anatomicam universè spectantia, Londini, apud Oëtav. Pullen. 1654. in 8vo. *Amstelodami*, apud Johan. Ravensteyn, 1659. in 12mo. *Ibid.* apud Joh. Janssonium à Wasberge & Elizeum Weyerstraten, 1665. in 12mo.

At the End of this there is a Treatise on the Lymph.

Tractatus de Rachitide, seu Morbo Puerili, Rickets dicto, Londini, apud Sadlerum, 1650. in 8vo. *Ibid.* 1660. in 12mo. *Lugduni Batavorum*, 1671. in 8vo. *Hagæ Comitum*, apud Arnoldum Lees, 1682. in 12mo.

Tractatus de Natura Substantiæ Energeticæ, seu de Vita Naturæ, ejusque tribus primis Facultatibus: I. Perceptivâ. II. Appetitivâ; & III. Motivâ, Naturalibus, &c. Londini, apud H. Brome & N. Hooke, 1672. in 4to.

Tractatus de Ventriculo & Intestinis; cui præmittitur alius, de partibus continentibus in genere; & in specie, de iis Abdominis. *Ibid.* apud eundem 1677. in 4to. *Amstelodami*, apud Jacobum Junorem, 1676. in 12mo.

The *Anatomia Hepatis*, and *Tractatus de Ventriculo*, are in *le Clerc's* and *Mangel's Bibliotheca Anatomica*.

GOELICKE (ANDREAS OTTOMARUS)

Wrote an History of Anatomy, under the Title of *Historia Anatomica nova æque ac antiqua*, Hagæ Magdeburgicæ, 1713. 8vo.

GRAAF (REGNERUS DE)

A Physician of Delft in Holland. He published the following Anatomical Pieces.

Disputatio Medica, de Natura & Usu Succî Pancreatici, Lugd. Batav. ex Officina Hackiana, 1664. in 12mo. *Tractatus Anatomico-Medicus, de Succî Pancreatici Natura & Usu. Accessit Epistola, de Partibus Genitalibus Mulierum.* *Lugduni Batavorum*, 1671. in 8vo.

This Treatise is in the *Bibliotheca Anatomica*.

De Virorum Organis Generationi inservientibus: de Clysteribus: de Usu Siphonis in Anatomia. *Lugd. Batav. & Roterdami, ex Officina Hackiana*, 1668. in 8vo. *Ibidem*, 1670. in 8vo. *Ibid.* 1672. in 8vo.

This is also in the *Bibliotheca Anatomica*.

Epistola de nonnullis circa Partes Genitales Inventis novis, *Lugd. Bat.* 1668. in 12mo.

De Mulierum Organis Generationi inservientibus, Tractatus novus, demonstrans, tam Homines & Animalia cætera omnia, quæ Vivipara dicuntur, haud minus, quam Ovipara, ab Ovo originem ducere. *Ibidem ex Officina eadem*, 1672. in 8vo.

This is also in the *Bibliotheca Anatomica*.

Defensio Partium Genitalium. *Lugd. Bat.* 1673. in 8vo.

This is also in the *Bibliotheca Anatomica*.

Opera omnia, Lugduni Batavorum ex Officina Hackiana, 1677. in 8vo.

Two Dissertations also of this Author are extant in the *German Ephemerides*; one on the Indications of the carotid Arteries; the other on a monstrous Uterus.

Many new Things concerning the respective Subjects he treats of, are contained in the Works of this Author; but he is charged with borrowing them from *Van Horne*, whose Pupil he was. 'Tis, however, remarkable, that his invention of a Syringe gave Birth to all the Discoveries in Anatomy which have, since his Time, been made by means of Injections.

GRASECCIUS, (GEORGIUS)

Of *Strasbourg*, publish'd an Anatomical Work under the following Title:

Μεγεθυνοποιον θηρεον. In quo Fabrica humani Corporis Musculum representantis, affabre demonstratur, una cum Icone Musculi Homini dissecti seorsum expressa. *Argentorati, apud Johan. Caralem*, 1605. in 8vo.

GREW (NEHEMIAH)

Wrote a comparative Anatomy of the Stomach and Intestines, which is, I think, published at the End of his *Catalogue of Rarities, &c.*

He also wrote many Treatises on the Anatomy of Vegetables.

HALLER (ALBERTUS)

Wrote a Treatise, intitled, *De Musculis Diaphragmatis Dissertatio Anatomica*, Bernæ, 1733. 4to.

HAVERS, (CLOPTON)

An *English* Physician. He wrote admirably well on the Bones, and made some considerable Discoveries with respect to the Periosteum, and the Marrow. He discovered, in every Joint, particular Glands, out of which issues a mucilaginous Substance, whose Nature he examined by numerous Experiments, which, with the Marrow supplied by the Bones, always serves to oil the Wheels, that to our Joints and Muscles might answer those Ends of Motion, for which Nature designed them. This was a very useful Discovery, since it has made abundance of Things, that were obscure in that Part of Anatomy, plain, and easy to be understood: And, among other things, it shews the Use of that excellent Oil which is contained in our Bones, and there separated, by proper Strainers, from the Mass of the Blood; especially, since, by a nice Examination of the true inward Texture of all the Bones and Cartilages of the Body, he shew'd how this Oil is communicated to the Mucilage, and so united, as to perform their Office.

Novæ quædam Observationes de Ossibus, *Lugd. Batav.* 1734. 8vo.

HEISTER, (LAURENTIUS)

A celebrated Professor at *Helmstädt*, published a very valuable Piece of Anatomy, intitled, *Compendium Anatomicum, Veterum, Recentiorumque Observationes brevissimè complectens.* *Altorfii*, 1717. 4to.

Altorfii & Norinbergæ, 1719. 1727. and 1732.

An *English* Translation of this Book was published at London, 1721.

HEMSTERHUYTS (SYBOLDUS)

Published some Anatomical Collections under the following Title:

Messis aurea, seu Collectanea Anatomica, continentia trium Præstantissimorum Anatomicorum Opuscula: 1. Joh. Pecqueti Experimenta nova Anatomica. 2. Thomæ Bartholini de Latæti Thoracis Historiam Anatomicam, cum ejusdem, de iisdem Dubiis: & Vasorum Lymphaticorum Historiam novam. 3. Olai Rudbeck, Duct. Hepaticos aquosos: Vasa Glandularum Serosa: Observationes: Epistolæ Variorum: Ejusdem de Vasis Lymphaticis Tabulas 13. æri incisæ, Lugduni Batavorum, 1654. in 12mo. *Heidelbergæ, Typis Adriani Wyngaerden*, 1659. in 8vo.

HIGHMORE (NATHANAEL)

Published an Anatomical Work under the Title of, *Corporis humani Disquisitio Anatomica, &c.* *Hagæ Comitum*, 1651. Fol.

The large Cavity of the upper Jaw is called from him, *Antrum Highmorianum*; but he is not the first Describer of it; for *Casseri* takes Notice of it under the Name of *Antrum Genæ*.

HOBOKEN, (NICOLAUS)

A French Author, publish'd, according to *Goelicke*, a Treatise on the Method of dissecting, in French. His other Anatomical Works are, *Anatomia Secundinæ humanæ, quindecim Figuris ad vivum propriâ Auctoris manu delineatis illustrata, Cum annexo Spicilegio Epistolarum, rem potissimum generatorem referentium. Trajecti ad Rhenum, apud Johan. Ribbium*, 1669. in 8vo. *Ibidem*, 1672. in 8vo.

Cognitio Physiologica Medica, accuratissima & clarissima Methodo tradita. Ultrajecti apud Henric. Verstergh, 1670. in 4to. *Ibidem apud Johannem Van de Water*, 1685. in 4to.

Anatom.

A N A

Anatomica Secundinae humanae repetita, aucta, roborata, & quadraginta quatuor Figuris, propria Auctoris manu delineatis; insuper illustrata: quae praeter novissimè observatam Naturam ac Constitutionem universae Secundinae illius, ac partium singularum usum quoque & utilitatem docet. Praemittuntur Literae D. Henrici Euffonii cum Auctoris Responsionibus. Ibid. apud Joh. Ribbium, 1675. in 8vo.

Anatomia Secundinae Vitulinae; triginta octo Figuris, propria Auctoris manu delineatis, illustrata: Ultrajecti, apud Johan. Ribbium, 1675. in 8vo.

HOFFMAN, (JOHANNES MAURITIUS)

Professor of Physic in the University of Altorff, published an Anatomical Work under the Title of,

Dissertationes Anatomico-Physiologicae: ad Viri Clarissimi, Johannis Van Horne, in Universitate Lugduno Batav. Profess. quondam Meritissimi, Microcosmum, Annotatae, Observationibus & Experimentis Anatomicis recentioribus variis illustratae. Altorffii, apud Henricum Meyerum, 1680. in 4to.

HORNE (JOHANNES VAN)

Was Professor of Anatomy at Leyden. His Anatomical Pieces bear a very good Character. He has the Reputation of having discovered the Thoracic Duct, and is said to be the first who was acquainted with the true Structure of the Testicles. He also gave the Name of Ovaria to what was before called the Testes of Females. De Graaf is said to be much obliged to him for the Discoveries he has published with respect to the Parts of Generation. His Works are,

Novus Ductus Chyliferus, nunc primum delineatus, descriptus, & Eruditorum Examine expositus, Lugduni Batav. apud Franc. Hackium, 1652. in 4to.

Μικροκομος, seu brevis Manuductio ad Historiam Corporis humani: in Gratiam Discipulorum edita, Lugduni Batavorum, apud Jac. Chovet, 1660. in 12mo. Ibidem, apud eundem, 1662. in 12mo. Ibidem, apud eundem, 1663. in 12mo. Lipsiae apud Johannem Fritschium, 1675. in 12mo.

Leonhardi Botalli Opera omnia, Lugduni Batav. apud Daniel. & Abrah. à Gaasbeeck, 1660. in 8vo.

Prodromus Observationum suarum circa Partes Genitales in utroque sexu, Lugd. Batav. 1668. in 12mo.

Observationes Anatomico-Medicae, Amstelodami, apud Abrah. Wolffgang, 1674. in 12mo.

HORSTIUS, (JOHANNES DANIEL)

Professor at Marburg, was Author of the following Anatomical Pieces:

Decas Observationum & Epistolarum Anatomicarum, quibus singularia scitu digna, Laclearum nempe Thoracicarum & Vasorum Lymphaticarum natura, Embryonisque per os nutritio, atque alia rariora exponuntur. Francof. apud Wilhelmum Serlinum & Georg. Fickwirthum, 1656. in 4to.

Anatome Corporis humani, Tabulis comprehensa. Marburgi, apud Chemlinum, 1639. in 4to.

HOFIUS (JACOBUS)

Advances, that the Humours of the Eye are perpetually wasting, and as perpetually replenished by the Vessels which terminate in the Eye. That the aqueous Humour may waste, and be restored, is certain; but it is not evident, that the other Humours of the Eye are in the same State; though indeed it should seem necessary for the maintaining their perpetual Transparency and Lustre. I have only seen one Edition of his Book, which is intituled, *Tractatus de circulari Humorum Motu in Oculis, Lugduni Batavorum, 1740. 8vo. cum Figuris.*

KEILL (JAMES)

Was a Native of Scotland; he read Lectures in Anatomy at Oxford, and afterwards practised Physic with great Reputation at Northampton, where he died of a Cancer in his Mouth, much regretted.

His *Anatomy of the human Body abridged* is deservedly in great Esteem, of which there have been a great many Editions printed at London. He wrote also some other Treatises relating to Physic.

KERKRINGIUS (JOHANNES THEODORUS)

Wrote the following Anatomical Pieces:

Specilegium Anatomicum, continens Observationum Anatomicarum rariorum Centuriam unam: necnon Osteogeniam Foetuum, in quo, quid cuique officulo singulis accedat mensibus, quidque decedat, & in eo per varia immutetur tempora, accuratissime oculis subjicitur. Amstelodami, apud Andr. Frisium, 1670. in 4to. Ibid. 1673. in 4to.

Antropogeniae Ichnographia, sive Conformatio Foetus ab Ovo usque ad Ossificationis principia, in Supplementum Osteogeniae Foetuum, cum Figuris. Ibidem, apud Andr. Frisium, 1670. in 4to.

This is in the *Bibliotheca Anatomica.*

A N A

His *Osteogenia Foetuum* is also in the *Bibliotheca Anatomica.*

KULMUS (JO. ADAMAS)

Published an Anatomical Work, intituled, *Tabulae Anatomicae, in quibus Corporis humani, omniumque ejus Partium Structura & Usus brevissime explicantur, &c. Amstelod. 1732. and in French, ibid. 1734. 8vo.*

LANCISI (J. MARIA)

Wrote a Treatise *De Motu Cordis & Aneurismatibus*, which was printed at Rome, and afterwards at Leyden, 1740.

Lancisii Opera omnia, Genev. 1718.

He also published Eustachius's Tables.

LEALIS (LEAL)

In an Epistle to *Dominicus de Marchettis*, has several Discoveries relating to the Spermatic Arteries and Veins, and to the Structure of the Vesiculae Seminales.

LEEUWENHOEK (ANTONY VAN)

Has obliged the World with a great many Discoveries relative to Anatomy, particularly by means of his Microscopes. It is not possible to give the Particulars of them, unless I was to transcribe his Works. Many detached Pieces of this Author's were published at different times; but his entire Works were printed *Lugd. Batav. 1722.*

This Author has made evident the Anastomoses of the Arteries with the Veins, and discovered a prodigious Number of Animalcula in the Sperm of Male Animals; but the System of Generation, hence deduced, has the Appearance of being utterly false, as is shewn under the proper Article.

LISTER, (MARTIN)

In an Epistle to *Henry Oldenburgh*, has some Particularities relating to the Intestinum Cœcum.

LOWER (RICHARD)

Wrote an excellent Treatise on the Heart, wherein he advances several things which are new, with respect to the spiral Order of the Fibres which compose this Part. There are several Editions of this Work: Those I have seen are,

Amstelodami, 1669. Londini, 1670.

Manget and Le Clerc have also printed it in their *Bibliotheca Anatomica.*

LYSERUS, (MICHAEL)

Of *Leipsic*, was a Pupil, and Favourite of *Thomas Bartholine*, and by his Friendship and Instructions became a very dexterous Anatomist.

The only Anatomical Work he published, is intituled, *Cultus Anatomicus*, which contains excellent Instructions for dissecting Bodies with Dexterity: Of this there have been many Editions, as

Hafniae, 1653. 8vo. 1665. 8vo.

Frankfurti, 1679. 8vo.

Lugduni Batav. 1731.

In this last Edition are contained, his *Observationes Medicae*; the *Observationes Medico-Chirurgicae Henrici a Moench*; and the *Observationes Anatomico-Chirurgicae Martini Bogdani.*

MALPIGHIIUS (MARCELLUS)

This Author flourished in the last Century, and was deservedly celebrated for his great Skill, and singular Sagacity, in Anatomical Researches. His Industry was not confined to the more perfect Animals, but was extended to Insects, and even to Vegetables, to the great Improvement of natural Knowledge, and to his own Honour. He was a Member of the Royal Society.

Amongst other Discoveries, he found by his Microscopes, that the Cortical Part of the Brain consists of an innumerable Company of very small Glandules, which are all supplied with Blood by Capillary Arteries; and that the Animal Spirit, which is separated from the Mass of the Blood in these Glandules, is carried from them into the Medulla Oblongata, through little Pipes, whereof one belongs to every Gland, whose other End is inserted into the Medulla Oblongata; and that these numberless Pipes, which, in the Brain of some Fishes, look like the Teeth of a small Ivory Comb, are properly that which all Anatomists after *Piccolhominus* have called the *Corpus Callosum*, or *The medullar Part of the Brain.*

Before his Time, the Texture of the Tongue was but guess'd at, which occasioned great Disputes concerning the Nature of its Substance, some thinking it to be glandulous, some muscular, and some of a peculiar Nature, not to be matched in any other Part of the Body. This therefore *Malpighius* examined with his Glasses, and discovered, that it was cloathed with a double Membrane; that in the inner Membrane there are abundance of small Papillae, which have Extremities of Nerves inserted

inserted into them, by which the Tongue discerns Tastes, and that under this Membrane it is of a muscular Nature, consisting of numberless Heaps of Fibres, which run all manner of ways, over one another, like a Mat.

The Lungs, as most of the other Viscera, were believed to be of a parenchymous Substance, till *Malpighi* found by his Glasses, that they consist of innumerable small Bladders, that open into each other, as far as the outermost, which are covered by the outer Membrane, that incloses the whole Body of the Lungs; and that the small Branches of the Wind-pipe are all inserted into these Bladders; about every one of which, the Veins and Arteries are entwined, in an inconceivable Number of Nets and Mazes, that the inspir'd Air may press upon, or mix with, the Mass of Blood, in such small Parcels as the Antients had no Notion of.

Till *Malpighi* discovered the Texture of the Liver by his Glasses, its Nature was very obscure. But he has found out, that the Substance of the Liver is framed of innumerable Lobules, which are very often of a cubical Figure, and consist of several little Glands, like the Stones of Raisins; so that they look like Bunches of Grapes, and are each of them clothed with a distinct Membrane; that the whole Bulk of the Liver consists of these Grape-stone-like Glands, and of divers Sorts of Vessels; that the small Branches of the Cava, Porta, and Porus Biliaris, run through all, even the least of these Lobules, in an equal Number; and that the Branches of the Porta are as Arteries that convey the Blood to, and the Branches of the Cava are the Veins which carry the Blood from, all these little Grape-stone-like Glands. From whence it is plain, that the Liver is a glandulous Body with its proper excretory Vessels, which convey away the Gall, that lay before in the Mass of Blood.

He also discovered, that the Substance of the Spleen deducting the numerous Blood-vessels and Nerves, as also the Fibres which arise from its second Membrane, and which support the other Parts, is made up of innumerable little Cells, like Honeycombs, in which there are vast Numbers of small Glandules, which resemble Bunches of Grapes; and that these hang upon the Fibres, and are fed by Twigs of Arteries and Nerves, and send forth the Blood there purged, into the Ramus Splenicus, which carries it into the Liver; to what Purpose, is not yet certainly discovered.

The Mechanism of the Reins was wholly unknown till *Malpighi* found it out. He by his Glasses discovered, that the Kidneys are not one uniform Substance, but consist of several small Globules, which are all like so many several Kidneys, bound about with one common Membrane; and that every Globule has small Twigs from the emulgent Arteries, that carry Flood to it; Glands, in which the Urine is strained from it; Veins, by which the purified Blood is carried off to the emulgent Veins, thence to go into the Cava; a Pipe, to convey the Urine into the great Basin in the Middle of the Kidney; and a Nipple, towards which several of those small Pipes tend, and through which the Urine issues out of them into the Basin. This clear Account of the Structure of the Reins has effectually confuted several Notions, that Men had entertained, of some secondary Uses of those Parts; since hereby it appears, that every Part of the Kidneys is immediately and wholly subservient to that single Work of freeing the Blood from its superfluous Serum, and Salt.

He also made some Observations concerning the lymphatic Vessels and the Glands, which are new.

His Works are, his *Observationes Anatomicae de Pulmonibus*, printed along with *Bartholini de Pulmonum Substantia & Motu Diatribæ*, *Hafniae*, 1663. *Lugd. Bat.* 1672. *Dissertatio Epistolica de Bombyce*, *Londini*, 1669. *De Viscerum, nominatim Pulmonum, Hepatis, &c. Structura*, *Amstelod.* 1669. *Jenæ*, 1677. They are also in *Le Clerc* and *Mangetus's Bibliotheca Anatomica* printed *Genevæ*, 1685. *Epistolæ Anatomicae*, *ib.* 1669. and in *Le Clerc* and *Mangetus's Biblioth. Anatomica*, printed *Genevæ*, 1685. *Anatome Plantarum*, *Lond.* 1675. *Anatomes Plantarum Pars altera*, *ibid.* 1679. *Dissertatio Epistolica de Formatione Pulli in Ovo*, *Lond.* 1666. It is also in the *Biblioth. Anatomica* of *Le Clerc* and *Mangetus*, printed *Genevæ*, 1685. in which are likewise contained his *Dissertationes De Cornuum Vegetatione: De Utero, & Viviparorum Ovis, & de Pulmonibus Epistolæ: His Dissertatio de Polypo Cordis. Epistolæ quædam circa illam de Ovo Dissertationem, &c. Appendix repetitis auctasque de Ovo incubato Observationes continens.*

MANGETUS (JOHANNES JACOBUS)

Was a Physician at *Geneva*, and, together with *Daniel le Clerc*, publish'd the *Bibliotheca Anatomica*, *Genev.* 1685.

This was also reprinted at *Geneva*, 1717.

In this Collection the following Treatises are contained:

Francisci Glissonii Tractatus de Partibus continentibus in genere, et in specie Abdominis.

Marcelli Malpighii de Externo Fœtus Organo Exercitatio Epistolica.

VOL. I.

Marcelli Malpighii de Cornuum Vegetatione Dissertatio Epistolica.

Francisci Glissonii Continuatio Tractatus de Partibus Continentibus in Genere, & in Specie de iis Abdominis.

Marcelli Malpighii Exercitatio de Omento, Pinguedine, & Adiposis Duëstibus.

Francisci Glissonii Tractatus de Ventriculo & Intestinis.

Thomæ Willis Primarum Viarum Descriptio.

Johannis Conradi Exercitatio Anatomica Medica prima de Glandulis Intestinorum.

Johannis Conradi Anatome Ventriculi Gallinacei.

Johannis Conradi Exercitatio secunda de Glandulis Intestinorum.

Ejusdem Certamen Epistolare de Glandulis Intestinorum cum Joh. de Muraltio.

Excerpta ex Joh. Nicol. Pechlini de Exercitatione & purgantium Medicamentorum Operationibus.

Excerpta ex Johan. Jac. Wepfero de Glandulis Ventriculi.

Chylificationis Historia ex Variis.

Thomas Whartonius de Mesenterio e Tractatu de Glandulis.

Regneri de Graaf Tractatus Anatomico-Medicus, de Succu pancreatici Natura & Usu.

Johan. Conradi Brunneri Experimenta Nova circa Pancreas.

Francisci Glissonii Anatomia Hepatis.

Marcelli Malpighii Exercitatio de Hepate.

Marcelli Malpighii Exercitatio de Liene.

Glandularum Renalium, seu Renum Succenturiatorum, Historia ex Variis.

Laurentii Bellini Exercitatio Anatomica de Structura & Usu Renum.

Marcelli Malpighii Exercitatio de Renibus.

Regneri de Graaf de utriusque Sexus Organis Generationi inservientibus Tractatus duo.

Nicolai Stenonis Observationes Anatomicae spectantes Ova viviparorum.

Johannis Swammerdam Miraculum Naturæ, sive Uteri Mulieris Fabrica.

Regneri de Graaf Partium genitalium Defensio.

Caspari Bartholini Thomæ Filii Hafniæ Professoris Anatomies de Ovariis Mulierum, & Generationis Historia, Epistolæ duæ.

Marcelli Malpighii de Utero, & Viviparorum Ovis, Dissertatio.

Gualtheri Needham Disquisitio Anatomica, de formato Fœtu.

Marcelli Malpighii Dissertatio Epistolica de Formatione Pulli in Ovo.

Epistolæ quædam, circa hanc de ovo Dissertationem, aliqua ex Occasione, sub nata Argumenta ultro citroque scripta.

Marcelli Malpighii Appendix, repetitis auctasque de Ovo incubato Observationes continens.

Gulielmi Harvei Exercitationes de Generatione Animalium.

Theodori Aldes, seu potius Matthæi Sladii Amstelædamensis, Dissertatio Epistolica contra Gulielmum Harveum, tribus Observationibus Anatomicis in Vitulis & Vaccino Utero factis, auctior reddita.

Theodori Aldes Observationes in Ovis institutæ, An. 1668. in Variis Incubationis Diebus.

Frederici Ruyschii observatiuncula de Ovo in Utero humano reperto.

Theodori Aldes Sciagraphia Nutritionis Pulli in Ovo Fœtus vaccini in Utero, ut et Fœtus humani in Utero suo, & de Urina.

Caroli Drelingcurtii de Conceptu Conceptus.

Carolus Drelingcurtius de Semine Virili, item de Semine Mulieris, Ovis, Utero, Tubis Uteri, cum Corollariis de Fœtu humano.

In the second Tome are contained the following Treatises:

Caspari Bartholini Thomæ Filii Diaphragmatis Structura Nova.

De Mammis, & Lactis Secretione.

Gulielmi Harvei Exercitatio Anatomica de Motu Cordis & Sanguinis.

Exercitationes Anatomicae duæ de Circulatione Sanguinis ad J. Riolanum, J. Filium.

Richardi Lower Tractatus de Corde, item de Motu & Colore Sanguinis, & Chyli in eum Transitu.

Nicolai Stenonis Observationes circa Motum Cordis, ejusque Auricularum, & Venæ Cavæ, excerptæ a variorum Animalium Sectionibus, hinc inde factis.

Marcelli Malpighii de Polypo Cordis Dissertatio.

Marcelli Malpighii de Pulmonibus Epistolæ duæ.

Thomæ Willis de Respirationis Organis & Usu Dissertatio.

Johannis Swammerdami Tractatus Physico-Anatomico-Medicus de Respiratione, Ususque Pulmonum.

Malachiæ Thruston de Respirationis Usu primario Diatriba.

Georgii Entii Antidiatriba, sive Animadversiones in Malachiæ Thruston Diatribam de Respirationis Usu primario, cum Responsionibus & Instantiis.

Johannis Mayow Tractatus de Respiratione.

Ejusdem Tractatus de Respiratione Fœtus in Utero & Ovo.

Thomæ Willis Cerebri Anatome.

Marcelli Malpighii Exercitatio Epistolica de Cerebro.
Caroli Fracassati Dissertatio Epistolica responsoria de Cerebro.
Marcelli Malpighii de Cerebri Cortice Dissertatio.
Nicolai Stenonis de Cerebri Anatome Dissertatio.
Nicolai Stenonis de Vitulo Hydrocephalo Epistola.
Joannis Jac. Wepseri de Puella sine Cerebro Nata Historia.
Theodori Rerckringii de Orbibus aliquot & Puero Cerebro carentibus; &c.

Gulielmi Briggs Ophthalmographia.
Joannis Baptist Verle Anatomia Artificialis Oculi.
Guntheri Christ. Schelhammeri de Auditu Tractatus.
Josephi du Verney de Auditus Organo Tractatus.
Marcelli Malpighii Exercitatio Epistolica de Lingua.
Laurentii Bellini Gustus Organum novissime deprehensum.
Theodori Rerckringii Anthropogenia Ichnographia.
Theodori Rerckringii Osteogenia Foetuum.
Nicolai Stenonis de Musculis Observationum Specimen.
Nicolai Stenonis Elementorum Myologiae Specimen.
Thomae Willis Exercitatio Medico-physica de Motu Musculari.
Joannis Mayow Tractatus de Motu Musculari, & Spiritibus animalibus; obiter de Motu Cerebri, necnon de Usu Lienis & Pancreatis.

Caroli Sponii Myologia heroico Carmine expressa.
Caroli Sponii Musculorum Microcosmi Origo & Insertio.
Thomae Willis Nervorum Descriptio & Usus.
Thomae Willis Arteriarum Descriptio Anatomica.
Caspari Asellii Ticinensis Historia Vasorum Chyli.
J. Pecqueti Diepensis Experimenta Nova Anatomica circa Lactearum Progressum.
Thomae Bartholini Archiatri Regii, & Hafnienfis Academiae Professoris Honorarii, de Lacteis thoracicis Historia Anatomica.
Thomae Bartholini de Lacteis thoracicis Dubia Anatomica.
Caroli Drelingcurtii Experimenta Anatomica ex Vivorum Sectionibus petita.
Thomae Bartholini Vasorum Lymphaticorum Historia Nova.
Olai Rudbechi Succi Nova Exercitatio Anatomica, exhibens Ductus hepaticos, aquosos, & Vasa Glandularum serosa.
Frederici Ruysch Dilucidatio Valvularum in Vasis Lymphaticis & Lacteis.

Guntheri Christ. Schelhammeri de Lymphæ Ortu, & Lymphaticorum Causis, Dissertatio Epistolica.
Thomae Whartoni Adenographia.
Nicolai Stenonis Observationes Anatomicae de Glandulis Oris, & Novis inde prodeuntibus Salivæ Vasis.

Nicolai Stenonis de Glandulis Oculorum, novisque earundem Vasis.

Ejusdem Appendix de Narium Vasis.
Nicolai Stenonis de Glandulis Tractatus.
Gulielmi Cole de Secretione Animali Cogitata.
Johannis Alphonsi Borelli de Motu Animalium Opus posthumum.
Michaelis Lyseri Culter Anatomicus.

Simonis Pauli Dani Modus dealbandi Offa pro sceletopæia.
Ejusdem Observationes in Coctura Ossium, præsertim Sterni.
Caspari Bartholini Thomæ Filii Administrationum Anatomicarum Specimen.

Josephi Zambeccari Experimenta circa Diversa e Variis Animalibus viventibus exsecta Viscera.

MARCHETTIS (DOMINICUS DE)

Succeeded *Veslingius* as Professor of Anatomy at *Padua*. At the same Place lived *Petrus de Marchettis*, who applied himself to Surgery.

The Works of both are in good Esteem. That of *Dominicus de Marchettis* is *Anatomia, cui Responsiones ad Riolanum Anatomicum Parisiensem in ipsius Animadversionibus contra Veslingium additæ sunt*, Patavii, 1652. *ibid.* 1654. *Harderwici*, 1656. together with *Petri de Marchettis Nova Observatio, & Curatio Chirurgica*.

MAYOW, (JOHN)

A Physician of *Oxford*, Fellow of *All Souls College*, and Doctor of Laws, wrote the following Anatomical Treatises:
Tractatus Quinque Medico-physici, printed *Oxonii*, 1669. *ibid.* 1674. *Hagæ Comitum*, 1681. These Treatises, except the first and the last, are in the *Biblioth. Anatom. of Mangetus* and *Le Clerc*, printed *Genev.* 1685. *Tractatus duo seorsum editi, quorum prior agit de Respiratione, alter de Rachitide*, *Oxonii*, 1669. *Lugd. Batav.* 1671.

MEIBOMIUS (HENRICUS)

Discovered some Vessels of the Eye-lids, which had not been taken Notice of before. These he gives an Account of in an Epistle, intitled, *De Vasis Palpebrarum Novis Epistola Vir. Clar. Joëlem Langelet, Helmstadii*, 1666. *De Medicorum Historia Scribenda Epistola ad V. Cl. Georg. Hieronym. Velfchium, Helmstadii*, 1669.

MOLINETTUS, (ANTONIUS)

A Physician and Anatomist of *Padua*, was Author of the following Treatises:

Dissertationes Anatomicae & Pathologicae de Sensibus, & eorum Organis, Patavii, 1669. *Dissertationes Anatomico-pathologicae, &c. Venetiis*, 1675.

MONRO, (ALEXANDER)

A celebrated Professor of Anatomy, at *Edinburgh*, Author of an Osteology, which is in much Esteem. I don't know, that he has published any thing else, except some Pieces in the *Medical Essays*. The second Edition of this Osteology was printed *Edinburgh*, 1732.

MORGAGNI (JOHANNES BAPTISTA)

Was born at *Forli* in the Ecclesiastical State, and was Professor of Anatomy at *Bologna*. He made considerable Discoveries in Anatomy, relating to the Muscles of the *Os Hyoides*, *Uvula*, and *Pharynx*; to the Tongue, and *Epiglottis*; to the *Arytenoide Glands*; to the *Sebaceous Glands*; to the *Bladder*, *Uterus*, *Vagina*, and *Breasts*.

His Works are,
Adversaria Anatomica, which were collected and printed at *Leyden*, 1723. 4to.

Epistolæ Anatomicae duæ, Lugdun. Bat. 1728. 4to.

MURALTO (JOHANNES DE)

Was of *Zurich*, where he was Professor of Physic. He wrote various Essays on the Anatomy of Fish, Insects, and other medicinal Subjects, which are extant in the *German Ephemerides*.

Besides these, he publish'd a Book, intituled, *Vade Mecum Anatomicum, sive Clavis Medicinæ*, printed *Tiguri* 1677.

NEEDHAM, (WALTER)

An English Physician of the last Century, gave a good Account of the Membranes which involve the Foetus; in his Book *De Formatu Foetus*, *Londini*, 1667. 8vo. *Amstelodami*, 1668. 12mo.

NICHOLLS (DR. FRANCIS).

I don't know, that this Gentleman has published any thing in Anatomy, except his *Compendium Anatomico-Oeconomicum*, and some Essays in the *Philosophical Transactions*. But his uncommon Application to this Science, and his singular Sagacity in Anatomical Researches, make it hoped, that he will some time oblige the World with an Account of his Discoveries. The Editors of the *Edinburgh Medical Essays* somewhere observe, that *Albinus* had injected the Vessels of the Coat of the Crystalline Humour of the Eye, and seem to think it a new Discovery: On this Occasion I cannot forbear taking Notice, that I have seen *Dr. Nicholls* inject these Vessels sixteen Years ago.

NUCK, (ANTONY)

A Dutch Physician, first practised his Profession at the *Hague*, and afterwards was Professor of Anatomy at *Leyden*. He was a most experienced and indefatigable Anatomist, having dissected with his own Hands, in the Space of eight Years, upwards of sixty human Subjects.

The way how the watry Humour of the Eye, when by Accident lost, may be, and is constantly supplied, was first found out and described by *Nuck*, who discovered a particular Canal arising from the internal Carotid Artery, which, creeping along the Sclerotic Coat of the Eye, perforates the Cornea near the Pupil, and then branching itself curiously about the Iris, enters into, and supplies the aqueous Humour.

He also discovered some Salival Glands, not mentioned by *Wharton*, *Steno*, *Bartholine*, or *Rivinus*.

He says, that the Breasts are Heaps of Glands, supplied with Blood by innumerable Ramifications of the Axillary and Thoracic Arteries; some of which, passing through the Breast-bone, unite with the Vessels of the opposite Side. These Arteries, which are inconceivably small, part with the Milk in those small Glands into small Pipes, four or five of which, meeting together, make one small Trunk. Of these small Trunks, the large Pipes, which terminate in the Nipple, are made up; tho' before they arrive thither, they streighten into so small a Compass, that a stiff Hair will just pass through. The Nipple, which is a fibrous Body, has seven or eight, or more Holes, through which every Pipe emits its Milk upon Suction; and left, any one of them being stopp'd, the Milk should stagnate, they all have cross Passages into each other, at the Bottom of the Nipple, where it joins to the Breast.

He says, that the Lympheducts arise immediately from the Arteries, and that many of them pass through the Conglobate Glands, that are dispersed in the Abdomen and Thorax, in their Way to the Receptacle of the Chyle, or those Veins which receive them.

His Works, which I have seen, are, *Adenographia, Sialographia, & Operationes & Experimenta Chirurgica*, in three small Vols. printed *Lugd.* 1722.

A N A

PALEYN, (JOHN)

A Surgeon of Ghent, wrote a Book intituled, *Anatomie Chirurgicale, ou Description exacte des Parties du Corps humain*, printed à Paris, 1734. 8vo. 2 Vols. and another, intituled, *Description Anatomique des Parties de la Femme, qui servent à la Generation, avec une Traité des Monstres*, à Leide, 1780. His *Nouvelle Osteologie*, &c. Paris, 1731. 12mo.

PASCHIONI, (ANTONIUS)

An Italian Physician, wrote a Treatise about the Dura Mater, which he dedicates to *Lancisi*; in this he describes some Conglobate Glands about the longitudinal Sinus, which had been overlooked by *Nuck* and *Malpighi*.

PASCOLUS, (ALEXANDER)

A Physician of *Perusa*, in Italy, wrote a Book, intituled, *Corporis humani brevis Historia*, which is printed in Italian at Venice, 1727. 8vo. 3 Vols. and at Rome, I think, in Latin, 1728. 8vo. 3 Vols.

PAULI (SIMON)

Was born at *Rostock* in 1603. In 1632. he was made Professor of Physic at the Place of his Birth. In 1639. he was constituted Professor of Anatomy, Surgery, and Botany, at *Copenhagen*: And in 1656. Physician to the King of Denmark.

He is Author of a great many Treatises; but his Anatomical Works are, *Methodus dealbandi Offa pro Sceletopectia*. *Observationes in Coctura Ossium, præsertim Sterni*. Both which are in the *Bibliotheca Anatomica*.

PEQUET, (JOHANNES)

Of *Diepe*, an Author of the last Century, rendered his Name famous by his Discovery of the Receptacle of the Chyle; which, however, it is said, *Bartholomæus Eustachius* was acquainted with before him. But the World is obliged to *Pequet* for shewing, beyond all Contradiction, that the Lacteal Vessels convey the Chyle to this Receptacle; and for proving, that it is thence carried, by particular Vessels, through the Thorax, almost as high as the Left Shoulder, and there thrown into the Left Subclavian Vein, and so directly carried to the Heart. His Works are, *Experimenta nova Anatomica*, printed *Hardervici*, 1651. *Parisis*, 1654. To this Edition there is added, *Dissertatio de Thoracis Lacteis*, &c. &c. *Amstelodami*, 1661. They are also extant with the *Messis Aurea Siboldi Hemsterhuis*, *Lugd. Batav.* *Heilbergæ*, 1659. also in the *Bibliotheca Anatom.* of *Le Clerc* and *Mangetus*, *Genev.* 1685. and with most Editions of the *Anatomia Reformata Thomæ Bartholini*.

PETIT (JEAN LOUIS)

Is Author of a Book, intituled, *Traité des Maladies des Os*, of which there have been many Editions; the last was printed *Paris*, 1741.

PEYER, (JOHANNES CONRADUS)

A Native of *Schaffhausen*, in Switzerland. He is famous for having first given an accurate Account of the Intestinal Glands, which, in a State of Health, separate a Fluid for the Lubrication of the Intestines, and which in Diarrhoeas, or upon taking a Purge, supply the extraordinary Discharge, which happens upon these Occasions. His Works are, *Exercitatio Anatomico-medica de Glandulis Intestinalibus*, *Schaffhusæ*, 1677. *Amstelodam.* 1682. This is in the *Biblioth. Anatom.* of *Mangetus* *Le Clerc*. *Pæonis & Pythagoræ Exercitationes Anatomica*, *Basil.* 1682. *Methodus Historiarum Anatomico-medicarum*, &c. 1679. *Parerga Anatomica & Medica*, *Amstelodami*, 1682. *Experimenta Nova circa Pancreas*, extant with the *Biblioth. Anatomica* of *Le Clerc* and *Mangetus*.

PLEMPIUS, (VOPISCUS FORTUNATUS)

Of *Amsterdam*, was famous for giving a good Description of the Eye, in a Treatise, intituled, *Ophthalmographia, sive Tractatus de Oculi Fabrica, Actione, Usu*, &c. *Amstelodam.* 1632. *Lovanii*, 1648.

RIDLEY (HENRY)

Was Fellow of the College of Physicians; and, at the latter End of the last Century, published a Treatise on the Brain, in which he makes some Observations, which had escaped the Notice of *Willis* and *Vieussens*. His Book is intituled, *The Anatomy of the Brain, containing its Mechanism and Physiology, together with some new Discoveries, and Corrections of modern Authors, upon that Subject; to which is annexed, a particular Account of Animal Functions, and Muscular Motion, illustrated with Sculptures*, London, printed, 1695.

ROLFINCKINS (GUERNERUS)

Was born at *Hamburg*, in 1590. and was Professor of Anatomy at *Jena*, in 1629. He wrote the following Books upon Anatomical Subjects: *Dissertationes Anatomica*, printed *Noribergæ*, 1656. *Dissertatio de Hepate*, *Jenæ*, 1653. *Dissertatio de Cordis*, *ibid.* 1654.

A N A

RUDBECKIUS, (OLAU)

Of *Upsal*, in Sweden, had a great Dispute with *Thomas Bartholine*, about the Discovery of the Lymphatic Ducts, to which both laid Claim. It is certain, that *Dr. Jolliffe*, in England, remarked these Vessels much about the Time, or something before, these Antagonists observed them; and I see no Reason why all three may not equally pretend to the Glory of the Discovery, since, 'tis probable, neither of them took the Hint from either of the other. His Works are, *Exercitatio nova Anatomica*, &c. printed *Arossæ*, 1653. *Lugd. Batav.* 1654. It is also printed with the *Messis Aurea* of *Siboldus Hemsterhuis*, *Heilbergæ*, 1659. and with the *Biblioth. Anatomica* of *Le Clerc* and *Mangetus*, *Genevæ*, 1685. *Insidiæ Structæ Olai Rudbeckii Sueci*, &c. *Lugd. Batav.* 1654. *Pro Ductibus hepaticis contra Bartholinum*, *Lugd. Batav.* 1654. *Epistola ad Thomam Bartholinum de Vasis Serosis*, *Upsaliæ*, 1657.

RUYSCH (FREDERIC)

Was born at the *Hague*, on the 23d of March 1638. He was the Son of *Henry Ruysch*, Secretary to the States General, and to *Anne Van Berghem*. The Family from which he was descended, was originally of *Amsterdam*, where from the Year 1365. his Ancestors had, without Interruption, bore the most honourable Offices of the State, till the Year 1576. when a War happening betwixt Spain and the States, occasioned a Revolution in the Fortunes of the Family.

But Mr. *Ruysch* is far less considerable on account of his Extraction, than his distinguished Merit as a Member of Society, a Physician, and an Anatomist.

This Gentleman, from his Infancy, devoted himself to Physic, and began his first Researches with the *Materia Medica*. The Virtues of Plants, the Structures of Animals, the Qualities of Mineral Bodies, Chymical Operations, and Anatomical Dissections, were the Objects that first struck his Fancy, and called for his improving Hand. He was none of those superficial Inquirers, who either thro' Prejudice, or Indolence, rest satisfied on this Side of Truth; for he had stripp'd his Mind of all those unreasonable Attachments, which are inconsistent with the Temper of a Philosopher; and acquir'd such an indefatigable Turn, that his hardest Labours in Pursuit of Truth became his highest Pleasures, and his only Recreations. And even when he married in 1661. it was in a great measure with a View to render his Circumstances easy, that he might pursue Truth to the greater Advantage.

About this Time, the famous *Bilsius*, being appointed Professor of Anatomy at *Louvain*, made his Appearance at *Leyden*. This Physician bore it with a high Hand; undervalued those who were justly esteemed the Ornaments of their Profession, and, with all the haughty and supercilious Airs of a Spaniard, extoll'd his own Discoveries above theirs, especially with regard to the Motion of the Bile, the Lymph, the Chyle, and Fat. But as Insolence seldom fails to be chastised by real Merit; so *Deleboe*, *Sylvius*, and *Van Horne*, then Professors at *Leyden*, had a mind to check the exorbitant Vanity of this Stranger. For this Purpose they courted the Assistance of young *Ruysch*, who had been more conversant in minute and delicate Dissections, than they themselves. Mr. *Ruysch* came from the *Hague*, where he lived, to *Leyden*, by Night, presented them with Materials proper for encountering and confounding *Bilsius*, and returned home directly, to make new Preparations for the same Purpose.

After having thus fought in Secret against *Bilsius*, the two Combatants came at last to an open Engagement; for *Sylvius* and *Van Horne*, to whom he had lent so reasonable an Aid, had no mind to assume the Results of his Industry as their own Discoveries. Mr. *Ruysch*, in the Course of the Debate, had asserted, that the Resistance he felt upon blowing into the Lymphatic Vessels, gave him Reason to believe, that these Vessels were furnished with Valves, which, he confess'd, he had not seen, but said, he was not singular in his Judgment as to that Particular. *Bilsius* not only denied the Fact with uncommon Assurance, but even testified a strong Contempt for those who pronounced the thing possible. *Ruysch*, who was blest'd at once with a clear Head, and an accurate Hand, actually found those Valves, to the Number of above two thousand, and gave incontestable Proofs of the Reality of that, which he had before advanced as a Conjecture only. This Accident gave unspeakable Satisfaction to Men of Sense, who always rejoice to see Merit triumph over Arrogance and Ignorance. *Bilsius*, who regarded Reputation more than Truth, promised to yield the Point as soon as he himself should see these Valves: But when the Evidence of his own Senses reduced him to a Necessity of acknowledging their Existence, he added Arrogance to his Ignorance, and confidently asserted, That he knew these Valves, tho' for Reasons of his own, he did not chuse to discover his Knowledge in that Particular. *Ruysch*, in a small Volume, published in 1665. which, by the way, was the first Work of his that saw the Light, has given us a particular Account of this Contest; in which *Bilsius*, insensible of the Advan-

Advantages of Modesty, renders himself famous, or rather infamous, for the opposite Vice.

Mr. *Ruyfch* was in the Year 1664. created Doctor of Physic in the University of *Leyden*, and had very soon after a very fine, but at the same time, a very deplorable Opportunity put into his Hand, of convincing the World with how great Justice that Dignity was conferr'd upon him; for the Plague began to rage all over *Holland*, and Mr. *Ruyfch* had the Care of those that were infected at the *Hague*, committed to him. This Office, whatever Share of Glory it might procure him, was nevertheless far from being desirable in itself: But it is no uncommon thing for Merit and Learning to subject their Possessors to Inconveniencies, from which the Ignorant and Illiterate are entirely free.

But his principal Business, and the Employment which engross'd most of his Time, consisted in carrying Anatomy to that noble Height of Perfection, at which it had never before arrived. Anatomists had long contented themselves with such Instruments as were judged necessary for separating those solid Parts, the particular Structures, or mutual Relations, of which they wanted to discover. *Regnier de Graaf*, an entire Friend, and an intimate Acquaintance of Mr. *Ruyfch*'s, was the first, who, in order to discover the Motion of the Blood in the Vessels, and the several Roads it took during Life, invented a new Species of Syringe, by means of which, he filled the Vessels with some high-coloured Substance, which sufficiently discovered the Road taken by itself, and consequently that taken by the Blood in a living Animal. This Invention was at first approved of; but the Practice was soon after discountenanced, because the Matter gradually made its Escape, and left the Preparation good for nothing.

John Swammerdam endeavour'd to supply this Defect in *de Graaf*'s Invention, and happily concluded, that there was a Necessity for using some warm Substance, which becoming gradually cool, in Proportion as it flow'd into the Vessels, might at last, when arrived at their Extremities, lose the Nature of a Fluid, and by that means become capable of being retain'd in the Vessels. This, no doubt, required a very nice and discerning Judgment, both with regard to the particular Quality of the injected Matter, its due Degree of Heat, and the just Momentum, or Proportion of Force, with which it was to be impell'd. By this means *Swammerdam* first render'd the Capillary Arteries and Veins of the Face visible; but he did not long persist either in the Use or Improvement of his new Invention; for an Excess of Piety soon after spoil'd his Anatomical Turn, and made him look upon such Practices as impious. The devout *Swammerdam* was, no doubt, afraid of rivalling the Almighty in the Perfection of his Works; but his Fears in this Particular were ill-founded. But as the most exalted Degrees of Devotion rarely extinguish all the Motions of Vanity in the Heart, so *Swammerdam* was tempted to communicate his Invention to his Friend Mr. *Ruyfch*; who was not only fond of it, but afterwards practis'd it without any Fear of offending God.

Upon his first Trial he found the Experiment to hold, and, in all Probability, produced a more perfect Preparation than *Swammerdam* himself had done: The Vessels were so curiously injected, that the remotest Parts of their Ramifications, which were as slender as the Threads of a Spider's Web, became visible; and, which is still more surprising, sometimes were not so, without the Assistance of a Microscope. What then must the Nature of that Substance be, which is, at once, so fine as to enter the imperceptible Cavities of these Canals, and at the same time is possess'd of such a Quality as to indurate itself there?

Small Ramifications were discover'd, which were neither observable in the Living, nor to be seen in dissecting the Bodies of those that were newly dead.

The entire Carcasses of Children were injected; for the Operation was thought very difficult, if not entirely impossible, in Adults. Nevertheless, in the Year 1666. by the Order of the States General, he undertook to inject the Body of the *English* Admiral *Berkeley*, who was killed on the 11th of *June*, in the Engagement betwixt the *Dutch* and *English* Fleets: This Body, tho' very much spoil'd, before *Ruyfch* put his artful Hand to it, was yet sent over to *England* as curiously prepar'd as if it had been the fresh-Carcass of an Infant; and the States General bestow'd a Recompence which was at once proportion'd to their Grandeur, and the Artist's Merit.

Every Part of the injected Matter preserved its Consistence, its Softness, its Flexibility, and even gradually acquir'd fresh Degrees of Beauty with Time.

Carcasses, with all their Viscera, were so far from having a nauseous Smell, that they even acquired an agreeable one, and that too in Cases where they smell'd very strong before the Operation.

Every Part was preserved from Corruption by Mr. *Ruyfch*'s Secret. A long Life afforded him the Pleasure of seeing, that his Preparations had, till then, been Proof against the Shocks of Time, and even put it out of his Power to ascertain the Length of their future Duration. All his injected Carcasses glow with

the striking Lustre and Bloom of Youth; they appear like so many living Persons fast asleep; and their pliant Limbs pronounce them ready to walk: In short, the Mummies of Mr. *Ruyfch* were so many Prolongations of Life; whereas those of the antient *Egyptians* were only so many deplorable Continuations of Death.

When Mr. *Ruyfch* began to produce such surprising Preparations, abundance of incredulous People pronounced the Facts impossible; but he gently oppos'd their Obstinacy with these Words, *Come and see*. His Museum was not only always open, but richly stor'd, if I may be allow'd the Expression, with living Monuments of his Art, who were ready to pronounce in his Favour, and give the Lye to his Opposers. A certain Professor of Physic very seriously advis'd him to renounce these Novelties, and tread in the safe and beaten Paths of his Predecessors; but as Mr. *Ruyfch* despis'd the foolish Admonition, the Doctor redoubled his Letters, and at last told him, that his Conduct in that Particular was inconsistent with the Dignity of a Professor; to all which *Ruyfch* replied, in a noble and truly Laconic Strain, *COME AND SEE*.

Mr. *Ruyfch* conceals the Name of the Professor, who was so friendly, or rather so foolish, as to give him this Advice; but he has acted otherwise with regard to Messrs. *Raw* and *Bidloo*, who were both famous for their Skill in Anatomy, and had openly declared themselves against him; especially *Bidloo*, who confidently boasted, that he knew the Secret of preparing and preserving Carcasses better than Mr. *Ruyfch* himself. Upon this Mr. *Ruyfch* asked him, Why, since it was so, he had not discover'd such and such Parts? And why he had mangled his Anatomical Tables, by committing notorious Blunders? which he specifies and points out to him. Thus far the Conduct of Mr. *Ruyfch* was unexceptionable, and hitherto he appears with all the Advantages that a good Cause, and Candour in Dispute, can give him: But soon after he loses the Temper of the Philosopher, and the Gentleman; for, upon *Bidloo*'s calling him a *subtile Butcher*, he falls into personal Reflections, and says, that he rather chose to be *Lanio subtilis, quam Leno famosus*, "a *subtile Butcher*, than an infamous Pimp." The Play of Words, and the imagin'd Antithesis, betwixt *Lanio* and *Leno*, may possibly have induced him to transgress so far against the Laws of Decorum, and true Politeness: But what had he to do with the Morals of his Antagonist, when the Extent of his Knowledge was the Subject in Dispute? True it is, that *Bidloo*'s Conduct was so provoking as not to admit of an Apology, when he call'd him *miserrimus Anatomicorum*, "the most miserable of Anatomists." But the Extravagance of one Man ought never to unhinge the Mind, or authorize the Rashness of another.

But tho' Fallshood may sometimes have resolute Champions, yet Truth never fails to come off victorious in the End. The Beauties of Mr. *Ruyfch*'s Art were seen, and the Advantages of it felt. The Subjects necessary for Dissection, which the reigning Superstition of the Times render'd very few, soon spoil'd in the Hands of other Anatomists; but Mr. *Ruyfch* had the incomparable Secret of rendering them of eternal Use. Dissections were now no more accompanied with those Ideas of Horror and Aversion, which before had proved fatal to Anatomy: Hitherto Anatomical Demonstrations could only be made in the Winter Season, but now the most scorching Heats were equally proper for that Purpose, provided the Days were equally clear.

Now, considering the Advantages of this Secret, and the strong Curiosity that naturally reign'd in Mr. *Ruyfch*'s Breast, we need not be surpris'd, if he discover'd things that had escap'd the Notice of all that went before him, such as the Bronchial Artery, which supplies the Lungs with Nourishment, before unknown to the most minute and accurate Anatomists; the Periosteum of the *Officula Auditus*, which were formerly look'd upon as bare; the Ligaments belonging to the Articulations of these *Officula*. He likewise found, that the Cortical Substance of the Brain was not glandular, as was commonly thought, but consisted of Vessels infinitely ramified; and that several other Parts, which were falsely look'd upon as glandular Bodies, were no more than so many Congeries of simple Vessels, which only differ'd in their respective Lengths, their Diameters, the Curves they describ'd in their Courses, and the Distance of their Extremities from the Heart, Circumstances on which the various Secretions or Filtrations depend. *Frederic Schreiber*, who writes his Life, when talking of the Extent and Importance of his Discoveries, seems animated with a kind of Enthusiasm, and expostulates the Matter in this warm Strain: *Who before him observ'd the Vessels running thro' the Tunica Aranea, the Patella, and the Acetabulum Coxæ? Who discovered the Vessels diffused in that Membrane which surrounds the Marrow of the Vertebrae? Or who found out the Vessels in the Meditullium of the Bones, and in those Tendons and Ligaments which are destitute of Blood?*

Ruyfch, besides his Practice of Physic, and Professorship of Anatomy, was, by the Burgo-masters of *Amsterdam*, appointed Inspector of all those who were either kill'd or wounded in personal Quarrels. He was likewise, for the general Good of the State, created *Master of the Midwives*, who, generally speaking,

ing; were very ignorant of their Business; they were too hasty, for Instance, in forcibly extracting the *Placenta*, when it came not away; and were often rash enough to tear it, which frequently caused unavoidable Death: But Mr. *Ruyfch* taught them, tho' with some Difficulty, to wait with Patience for its coming away, or at least only gently to assist its Expulsion; because an orbicular Muscle, which he had discover'd in the Bottom of the Uterus, naturally thrust it outwards, and was even sufficient to expel it intirely.

At last *Ruyfch* was created Professor of Botany, in the Exercise of which Office he gave the same Scope to his natural Genius, which he had formerly done in Anatomy. The extensive Commerce of the *Hollanders* supplied him with many exotic Plants, which he dissected and preserved with incomparable Art: He dexterously separated their Vessels from their Parenchyma, and by that means plainly shew'd wherein their Life consisted. Thus Animals and Plants were equally embalmed; and equally sure of Duration, by the skilful Touches of Mr. *Ruyfch's* Hand.

His Museum, or Repository of Curiosities, contain'd such a rich and magnificent Variety, that one would have rather taken it for the Collection of a King than the Property of a private Man: But not satisfied with the Store and Variety it afforded, he would beautify the Scene; and join an additional Lustre to the curious Prospect. He mingled Groves of Plants; and Designs of Shell-work, with Skeletons, and dismember'd Limbs; and, that nothing might be wanting, he animated, if I may so speak, the Whole with apposite Inscriptions, taken from the best *Latin* Poets. This Museum was the Admiration of Foreigners: Generals of Armies, Embassadors, Electors, and even Princes and Kings, were fond to visit it. When *Peter the First*, of *Muscovy*, came into *Holland*, in the Year 1695: he was so struck with the View of Mr. *Ruyfch's* Collection, that he tenderly kiss'd a little Infant, which sparkled with all the Graces of real Life, and seem'd to smile upon him. On his second coming over, in 1714. he purchased the Collection, and sent it to *Petersburg*; but the Industry and long Experience of Mr. *Ruyfch* soon supplied him with another.

In the Year 1727. he was chosen Honorary Associate of the University of *Petersburg*. He was also a Member of the *Leopoldine* Academy in *Germany*, and of the Royal Society in *England*.

He died of a Fever in the 92d Year of his Age in 1731: and had this peculiar Advantage over most other learned Men, that he lived to see all that Opposition, which Malice and Envy made to his Merit, hush'd and laid to sleep.

Mr. *Ruyfch* has publish'd a great many Pieces at different Times, which were at last reduced into a very confused and unaccountable Order, and printed, as the Title-page of the first Volume imports; *Amstelodami, apud Janssonio-Waesbergios, 1737.*

There is a Peculiarity in one Work of Mr. *Ruyfch's*, which deserves to be taken Notice of, which is, that some Passages of his *Adversaria*, which he publish'd in *Latin* and *Dutch*, are left untranslated into the *Dutch*. What influenced this Author in this Case, every one must judge for himself, from the Nature of the Passages untranslated.

We hope the vast Variety both of entertaining and instructing Incidents that occur in the Life of Mr. *Ruyfch*, will sufficiently apologize for its Length, and account for our spending more Time upon him than some of the rest.

SANTORINI, (J. DOMINICUS)

As I remember, a *Venetian*, publish'd many curious Anatomical Discoveries in his *Observationes Anatomicae*, of which there have been one or more *Italian* Editions; but the last was printed at *Leyden*, 1739-40.

His *Opuscula Medica* were printed at *Rotterdam*, 1719.

SCHELHAMMERUS, (GUNTHERUS CHRISTOPHERUS)

A Physician, who, in the latter Part of the last Century, was Professor of Physic at *Jena* for four Years; and afterwards removed into *Denmark*, where he spent the Remainder of his Days. He wrote a Book intitled, *In Physiologiam Introductio*, printed *Helmstedtii*, 1681. 4to. and another intitled, *De Auditu Liber Unus*, *Lugd. Bat.* 1684. 8vo.

This last, and his *Epistolica Dissertatio de Lymphæ Ortu, & Lymphaticorum Vasorum Causis*, are extant in the *Bibliotheca Anatomica*. He also publish'd an Edition of *Conringius's* Introduction to Physic, with Notes.

He makes various Observations relative to the Tongue, Larynx, Salivary Glands, Diaphragm, Mesentery, Colon, Intestinum Cæcum, Receptaculum Chyli, Kidneys, Fingers, Nails, and to the Lymph, and Lymphatic Ducts, all which are worthy of Consideration.

Some detach'd Pieces of this Author are extant in the *German Ephemerides*, as the *Anatomy of a Mole*, and a Treatise *De Calculo Cerebri*.

SCHILLINGIUS (HENRICUS SIGISMUNDUS)

Was Author of the following Anatomical Works:

Discursus Physiologico-Anatomicus de Microcosmi Miseria, & Perfectionis Excellentia, *Wittebergæ*, 1658. in 4to.
Tractatus Osteologicus, sive Osteologia Microcosmica, *Dresdæ*, 1669. in 4to.

SCHNEIDERUS, (CONRADUS VICTOR)

A Professor of Physic at *Wirttemberg*, in the Middle of the last Century, wrote a great many Anatomical Pieces; but his principal Subjects are the *Membrana Pituitaria*, and the Bones of the Head, upon which he has some excellent Remarks.

His Works are,

Dissertationes Anatomicae de Partibus, quas vocant, Principalioribus, Capite, Corde, Hepate, cum Observationibus ad Anatomiam, necnon ad Artem Medendi pertinentibus, *Wittebergæ*, apud *Johann. Rotinerum*, 1643. in 8vo.

Liber de Osse cribriformi, & Sensu ac Organo Odoratus, & Morbis ad utrumque spectantibus, de Coryza, Hemorrhagia Nasium, Polypo, Sternutatione, Amissione Odoratus, *Wittebergæ*, apud *Tobiam Mevium & Elerdum Schumacherum*, 1655. in 12mo.

Disputationes Osteologicae aliquot, *Wittebergæ*, apud *Michael. Wendium*, 1649. in 8vo.

Disputatio Medica de Ossibus Sincipitis, *Wittebergæ*, apud *Johann. Robnerum*, 1653. in 8vo.

De Osse Occipitis, ejusdemque Vitiis ac Vulneribus. *Ibidem*, apud *Johann. Hacke*, anno & formâ eisd.

Disputatio Medica, de Ossibus Temporum. *Ibid.* apud *Johann. Robnerum*, 1653. in 8vo.

Oratio de Aequitate ac Justitiâ Naturæ, *ibid.* 1646. in 4to.

Oratio de Bellis Naturæ, *ibid.* in Fol.

Dissertatio Anatomico-Chirurgica, de Natura Ossis Frontis, & ejus Vulneribus ac Vitiis, *ibid.* 1650. in 8vo.

Liber primus de Catarrhibus. Quo agitur de speciebus Catarrhorum, & de Osse cuneiformi, per quod Catarrhi decurrere finguntur, *Wittebergæ*, apud *Hæ. Tobiam Mevium, & Elerdi Schumacheri*, 1660. in 4to.

Liber de Catarrhibus secundus, quo Galenici Catarrhorum meatus perspicui falsi revincuntur, *ibid.* apud *Eisdem*, anno & formâ eisdem.

Liber de Catarrhibus tertius, quo Novi Catarrhorum meatus demonstrantur, *ibid.* apud *Eisdem*, 1661. in 4to.

Liber de Catarrhibus quartus, quo generalis Catarrhorum Curationis ad novitia Dogmata & Inventiâ paratur, *ibid.* apud *Eundem*, anno & formâ eisdem.

Liber Quintus & Ultimus de Catarrhorum Dieta, & de speciebus Catarrhorum, &c. *Wittebergæ*, 1662. in 4to.

Liber de Catarrhibus specialissimus, &c. *Wittebergæ*, 1674. in 4to.

Liber de Morbis Capitis seu Cephalicis illis, ut vocant, soporosis, &c. *Wittebergæ*, 1669. in 4to.

Liber de Nova Gravissimorum trium Morborum Curatione, &c. *Francfurti*, 1672. in 4to.

Liber de Spasmodum Naturâ & Subjecto, &c. *Wittebergæ*, 1678. in 4to.

SEVERINUS (MARCUS AURELIUS)

Was Pupil to *Julius Jassolinus*, in the Beginning of the last Century; and afterwards Professor of Anatomy and Surgery at *Naples*. He is more famous for his *Chirurgical* than his Anatomical Works, and perhaps excell'd in Surgery by the Help of Anatomy, without which it would be very difficult to make any considerable Figure in that Profession. His Anatomical Works are,

Zootomia Democritea, &c. *Noribergæ*, 1646. in 4to.

Historia Anatomica, Observatioq; Medica, viscerati Corporis, *Neapoli*, 1629. in 4to.

De Aqua Pericardii Cordis Adipe, Paris Cholidochis, Hancviæ, 1654. in 4to.

His *Quæstiones Anatomicae quatuor*. 1. *De Aqua Pericardii*. 2. *De Cordis Adipe*. 3. *De Paris Cholidochis*. 4. *Osteologia, pro Galeno, adversus Argutatos. Epidochæ in totidem alias Julii Jassolini*; are extant in an Anatomical Piece of *Volckamer's*, *Hanovizæ*, 1654. in 4to. *Francfurti*, 1668. in 12mo.

SEVERUS, (NICOLAUS)

About the Middle of the last Century, wrote the following Anatomical Pieces:

Responsio ad Vindicias Hepatis Redivivi contra Deusingium, *Lugd. Batavorum*, 1662. in 12mo.

Observationes Anatomicae de Glandulis Oculorum, novisque eorum Vasis, *Hafniæ*, 1664. in 4to.

Observationes Anatomicae de Glandulis Oris, *Lugd. Batavorum*, 1662. in 4to. and 12mo.

STENO, (NICOLAUS)

A Dane; flourish'd about the Middle of the last Century. He enrich'd Anatomy with many valuable Discoveries: Amongst other

other Things, he observed the Ducts which convey Moisture to the Eye for the Convenience of its Motion in the Orbit, and in 1662 describ'd a salivary Duct not taken Notice of before, which comes from the Glands which lie near the Ears. He also observed, that the Fibres of the muscular Coat of the Pharynx are spiral in 2 double Order, one ascending, and the other descending, which run contrary Courses, and mutually cross each other in every Winding. Besides these, he made several Observations concerning the Lympheducts.

His Anatomical Works are,

De Musculis & Glandulis Observationum Specimen, &c. Hafniae, 1667. in 4to. Amstelodami, 1664. in 12mo. Lugduni Batavorum, 1683. in 12mo. This is in the *Bibliotheca Anatomica*.

Dissertatio de Cerebri Anatome. This is translated from the French Edition of 1669. by Guido Fanoisus, Lugd. Bat. 1671. in 12mo. This is also in the *Bibliotheca Anatomica*.

Observationes Anatomicae, quibus varia Oris, Oculorum & Narium Vasa describuntur, novisque Salivae, Lacrymarum & Muci Fontes deteguntur; et novum Bilsii de Lymphæ Motu & Usu Commentum examinatur & rejicitur. Lugd. Bat. 1662. in 12mo. Ibid. 1680. in 12mo.

This is also in the *Bibliotheca Anatomica*.

Elementorum Myologiae Specimen, seu Musculi Descriptio Geometrica. Cui accedunt Canis Carchariae dissectum Caput, & dissectus Piscis ex Canum genere. Amstelodami, 1669. in 8vo.

This is also in the *Bibliotheca Anatomica*.

STÖCKHAMERUS, (FRANCISCUS)

In the latter End of the last Century, published the following Anatomical Pieces:

Microscopographia, sive Partium humani Corporis omnium, earumque Actionum & Usuum brevis quidem, accurata tamen & atoma Descriptio, novis hujus seculi Inventis exornata. Viennae Austriae, 1682. in 12mo.

STRAUSSIUS (LAURENTIUS)

Flourish'd in the latter Part of the last Century. He published many Pieces, amongst which, those that are Anatomical, are,

Conatus Anatomicus, aliquot Disputationibus exhibitus. Francof. 1665. in 4to.

Microscopographia Metrica, sive humani Corporis Historia Elegiaco Carmine exhibita, & ad Sanguinis Circulationem, & pleraque nova Anatomicorum Inventia accommodata. Giesse, 1679. in 8vo.

SWAMMERDAM (JOHANNES).

He was a celebrated Anatomist of Amsterdam, in the latter Part of the last Century, having been a favourite Pupil of Van Horne, under whom he made a considerable Progress in the Art of dissecting and preparing Bodies.

De Graaf was Pupil to Van Horne at the same Time with Swammerdam, and is charged by Swammerdam with Plagiarism, in stealing the Discoveries of their common Instructor, and claiming them as his own. His Works are in very good Esteem, and are,

Miraculum Naturæ, sive Uteri Muliebris Fabrica. Notis in D. Joh. Van Horne Prodromum illustrata, & Tabulis à Clariss. Expertissimisque Viris cum ipso Archetypo collatis, adumbrata. Adjecta est Nova Methodus, Cavitates Corporis ita præparandi, ut suam semper genuinam faciem servant. Lugd. Bat. 1672. in 4to. Ibidem, 1679. in 4to. This is in the *Bibliotheca Anatomica*.

Tractatus Physico-Anatomico-Medicus, de Respiratione Ususque Pulmonum. Lugd. Bat. 1667. in 8vo. Ibid. 1679. in 8vo. and L. Bat. 1738. This is also in the *Bibliotheca Anatomica*.

SYLVIUS (FRANCONIUS DE LA BOE).

He is more known as a practical Author, than as an Anatomist. He was born at Hanover, in 1614; practis'd at Amsterdam; afterwards was a Professor at Leyden, where he dy'd in 1678.

What gives him a Title to a Place here, is his System of the Bile, which, 'tis said, he borrow'd from Nemesius; and the Discovery which he claims of the Os Orbiculare of the internal Ear, whose Situation, however, he mistook; for he thought it was placed on the Side of the Head of the Stapes, whereas it is placed betwixt that and the Incus.

TAUVRY, (DANIEL)

A French Physician, who published a Treatise of Anatomy, but of no great Character, being remarkable for extravagant Hypotheses, and ill-concerted Theory. This he published under the Title of *Anatomie Renfonnée*, about 1687, being then but eighteen Years old. In 1700 he published his *Traité de la Generation, et de la Nouriture du Fœtus*. He dy'd in 1701, in the 31st Year of his Age.

TELINGIUS (MATTHIAS)

Wrote several Anatomical Pieces; but is not remarkable for any new Discoveries. He liv'd in the latter Part of the last Century. His Anatomical Works are,

De Tuba Uteri, deque Fœtu nuper in Gallia, extra Uteri cavitatem, in Tuba concepto, Exercitatio Anatomica. Rintbellii, 1670. in 12mo.

De Placenta Uteri Disquisitio Anatomica, novis in Medicina Hypothesibus illustrata. Rintbellii, 1672. in 12mo.

De Admiranda Renum Structura, eorumque Usu nobili in Sanguificatione, Seminis Præparatione, ac Humoris serosi Sanguine Segregatione, consistente, Exercitatio Anatomica, ex Principiis de Circulari Sanguinis Motu illustrata. Francof. 1672. in 12mo.

Anatomia Lienis, ad Circulationem Sanguinis, aliaque Recentiorum inventa, accommodata. Rintbellii, 1673. in 12mo. Ibid. 1676. in 12mo.

Παράρτησις, seu Digressio Physico-Anatomica Curiosa de Vase brevi Lienis, ejusque Usu nobili ac egregio in Corporis humani Oeconomia. Minda, 1676. in 12mo.

TYSON (EDWARD).

This Gentleman was Physician to Bethlehem Hospital, Fellow of the College of Physicians, and Lecturer of Anatomy at Surgeons Hall.

He was a very accurate Anatomist, as appears by several Dissertations, of which he was Author, interspers'd in the *Philosophical Transactions*, and the *Acta Eruditorum*, relating to the human Anatomy, that of Beasts and Insects.

His *Phocæna*, or the Anatomy of a Porpus, dissected at Gresham College, with a preliminary Discourse concerning Anatomy, and a Natural History of Animals, was printed London, 1681.

VALSALVA (ANTONIUS MARIA)

This Physician was born at Imola, a City of Italy, and was Professor of Anatomy at Bologna. His Treatise on the Ear is esteem'd an excellent Performance, and contains many Discoveries relating to that Organ. He also describes, and gives new Figures of, the Muscles of the Uvula and Pharynx.

VERHEYEN (PHILIP).

He was born in 1648. He intended originally to turn his Studies towards Divinity; but having lost one of his Legs by a Mortification, he apply'd himself entirely to Physic, and was Professor of Anatomy and Surgery at Louvain, where he acquir'd great Reputation, and died of a Fever in 1711, much regretted by the learned World. His Anatomy bears an excellent Character, and has gone through several Editions, the third of which is that printed Brux. 1726. 2 Vols. 4to.

VERLE (JOHANNES BAPTISTA)

Wrote a Treatise intituled *Anatomia Artificialis Oculi humani*. This was printed at Amsterdam, 1680. 12mo. and is extant in the *Miscellanea Curiosa*, and in the *Bibliotheca Anatomica*.

VERNEY (GUICHARD JOSEPH DU).

This celebrated Anatomist was born at Feurs en Forez, August the 5th, 1648. His Father, Jaques du Verney, was a Physician at that Place. He study'd Physic five Years at Avignon, and came to Paris 1667, where he was soon after employ'd in dissecting the Brain, before Assemblies of learned Men, who us'd to meet at the Abbé Bourdelet's, and at Mr. Denys's, a learned Physician at Paris. He acquitted himself so well on these Occasions, that in 1676 he was received into the Royal Academy of Sciences as a Member; and afterwards read Lectures to the Dauphin in Anatomy. In 1679 he was constituted Professor of Anatomy at the Royal Garden.

In 1683 he published his *Traité de l'Organe de l'Oïe*, which the following Year was translated into Latin, and printed at Nuremberg. He dy'd the 10th of September 1730. The above-mentioned Treatise on the Ear is in great Esteem, and is the only Work he published.

VESLINGIUS (JOHANNES).

He was Professor of Anatomy and Botany at Padua, in the Beginning of the last Century. His *Syntagma Anatomicum* bears a good Character; of which there have been many Editions adorn'd with Figures; but that of Amsterdam, 1666, with Notes, and an Appendix by Gerârd Blasius, is in most Esteem.

VIEUSSENS (RAYMOND).

He was of Montpellier, and was famous for understanding, with great Accuracy, the Anatomy of the Brain, spinal Marrow, and Nerves, in which he sometimes differs from Willis. In his *Neurologia* he gives a very good Description, and magnificent Figures, of these Parts. His *Neurographia* was painted Lugd. 1684.

VIGIERIUS (JOHANNES):

He was a celebrated Surgeon, and liv'd about the Middle of the last Century. His *Enchiridium Anatomicarum* is printed with his *Opera Medico-Chirurgica*, Hagæ Comitum, 1659. Quarto.

VIRSUGUS (JOHANNES GEORGIUS):

He was a Bavarian, and a considerable Anatomist. He published no Work, but render'd himself famous by the Discovery of the Duct of the Pancreas, which discharges the Fluid; separated in that glandulous Substance; at the same Place where the Ductus communis Cholochochus opens into the Duodenum. This he discover'd in 1642. He was, not long after, shot by an Italian, in his own Study; who, it was thought; had been hired to murder him. His Name is sometimes spelt *Wirtungus*.

VOLKAMERUS (JOHANNES GEORGIUS):

He was a Physician of *Norimberg*, about the Middle of the last Century.

There are a great many detach'd Pieces of this Author in the *German Ephemerides*; besides which he publish'd

Collegium Anatomicum concinnatum ex clarissimis Triumviris: ex Julii Jäsolini, Locris; Quæstionibus Anatomicis. 1. De Cordis Adipe. 2. De Aqua Pericardii. 3. De Poris Choleodochis; & Vesica Fellea. 4. Osteologia parva: Marci Aurelii Severini, Thurii, totidem Epidochis: & Bartholomæo Cabrollo, Aquitano. Hanoviae, 1654, in 4to. Francof. 1668. in 4to.

Epistola de Stomacho, scripta ad Doct. Johan. Georgium Sartorium, Altdorphi Noricor. 1682. 4to.

WEPFER (JOHANNES JACOBUS):

He was a Physician of *Schaffhausen* in the latter Part of the last Century, and oblig'd the World with many curious Anatomical Pieces; particularly some relating to the Anatomy of People who dy'd Apoplectic. His Anatomical Works are,

Observationes Anatomicæ, ex Cadaveribus eorum, quos sustulit Apoplexia, cum Exercitatione de ejus Loco affecto. Schaff. 1658: in 8vo. Ibid. 1675. in 8vo. Amst. 1681. in 8vo.

Historiarum & Observationum Apoplecticarum & simillium, potissimum Anatomæ subjectorum Auctarium: cum Scholiis. Ibidem, anno & formâ eisdem.

Historia Anatomica de Puellâ sine Cerebro natâ. Schaffh. 1665. in 8vo. This is in the Bibliotheca Anatomica.

De Dubiis Anatomicis Epistola. This is publish'd, together with a Treatise of *Jacobus Henricus Paullus*, intitled, *Anatomia Bilsiana Anatomæ, Noribergæ, 1664. in 4to. Argent. 1665, in 8vo.*

WESENFELD (CONRADUS):

I don't know, that this Physician ever published any thing in Anatomy; but *Johannes Petrus Albrecht*, in the *German Ephemerides*, relates, That *Wesensfeld* thought he observ'd; in a Criminal he dissected, some Ducts which pass from the *Intestinum Cæcum* to the Bladder of Urine: But I don't find, that these have been observ'd by any one since.

WHARTON (THOMAS):

He was an *English* Physician, and in 1656 published a Treatise on the Glands, intitled, *Adenographia*; in which there are many curious Particulars not known before. In particular he discover'd a Duct, which, arising from the conglomerate Glands, which are situated in the inner Side of the lower Jaw, conveys *Saliva*, which it discharges near the Middle of the Chin into the Mouth.

WILLIS (THOMAS):

He was a Physician, educated at *Oxford*, where he was Professor of Natural Philosophy. He was born in 1620; and dy'd 1677. He was more eminent for his Practice in *London*, than valuable for his Theory, which in many Instances happens to be none of the best. He was, however, an excellent Anatomist, particularly in what relates to the Brain, Nerves, Stomach, and Intestines.

Piccolhominus had observ'd before him, that the Brain, properly so called, and Cerebellum, consist of two distinct Substances, an outer Ash-colour'd Substance, thro' which the Blood-vessels, which lie under the *Pia Mater* in innumerable Folds and Windings, are disseminated; and an inner, everywhere united to it, of a nervous Nature, that joins this Bark (as it is usually called) to the *Medulla Oblongata*, which is the Original of all the Pairs of Nerves that issue from the Brain, and of the spinal Marrow, and lies under the Brain and Cerebellum. After him, *Dr. Willis* was so very exact, that he traced this medullary Substance, thro' all its Insertions, into the Cortical Substance, and the *Medulla Oblongata*, and examined the Rises of all the Nerves, and went along with them into every Part of the Body, with wonderful Curiosity. Hereby not only the Brain was demonstrably proved to be the Fountain of Sense and Motion, but also, by the Courses of the Nerves, the Man-

ner how every Part of the Body conspires with any others to procure any one particular Motion, was clearly shewn; and thereby it was made plain, even to Sense, that where-ever many Parts joined at once to cause the same Motion, that Motion is caused by Nerves that go into every one of those Parts, which are all struck together. And tho' *Vieussens* and *du Verney* have in many things corrected *Dr. Willis's* Anatomy of the Nerves; yet they have strengthen'd his general Hypothesis, even at the Time when they discover'd his Mistakes.

He separated the Coats of the Stomach; and examined the several Fibres of the middle Coat, with more Exactness than formerly; he also has been very nice in tracing the Blood-vessels and Nerves that run amongst the Coats; has evidently shewn; that its Inside is covered with a glandulous Coat, whose Glands separate that Mucilage, which both preserves the Fibres from being injur'd by the Aliments which the Stomach receives; and concurs with the Spittle to further the Digestion there performed; and has given a particular Account of all those several Rows of Fibres, which compose the muscular Coat.

WINSLOW, (JAMES BENIGNUS)

Professor of Physic, Anatomy, and Surgery in the University of *Paris*; Member of the Royal Academy of Sciences, and of the Royal Society at *Berlin*.

In 1723 he published an excellent Work intitled *Exposition Anatomique de la Structure du Corps humain, &c.*

This was translated by *Dr. George Douglas* into *English*, and published *London, 1734.*

It is esteem'd the best System of the solid Parts of the Body which has yet appeared, and is remarkable for Conciseness and Perspicuity and for the exact Order of the Work. The Author is, however, charged with introducing new Terms into Anatomy without any Necessity, which can only tend to embroil the Science, and perplex Students. The famous *Steno* was great Uncle to *Winslow*.

ANATON. See ANATRON.

ANATRESIS; ἀνάρεσις; from ἀνά and τρέω, to perforate. It signifies literally Perforation; but by *Galen* is used to signify Trapaning.

ANATRIIBE, ἀνατριβή; and

ANATRIPSIS; ἀνατριψις; from ἀνά, and τριβω, to rub. Friction.

ANATRIS, or, ANTARIS, Mercury.

ANATRON, or, NATRON, is a Salt taken from the River *Nile* in *Egypt*, by Crystallization, or by Evaporation. It was very probably the Nitre of the Antients, and is rarely found in *Europe*. It is a little acrid and alkaline to the Taste.

It ought to be chosen in a Lump, white, looking as if crystalliz'd, ponderous, having the Taste of common Salt, but of a bad Smell, easily moistening in the Air. The Washerwomen made use of it formerly, instead of the Salt of *Kali*, to whiten their Linen; from whence it is improperly called by the Name of that Salt. The Butchers also make use of it in the room of Sea Salt, to season their Fleish-meats.

This Salt is very aperitive, if taken inwardly; externally taken, it deterges, dries, and resisterh a Gangrene. It is an Ingredient in the Composition of the Stone of *Crollius*.

There is also an artificial Anatron called *Anatron Factitium*; it is compos'd of ten Parts of Saltpetre, four Parts of quick Lime, three Parts of common Salt, two Parts of Roch Alum, and two Parts of Vitriol: All these are dissolved in Wine, and the Dissolution boiled; then strain it, and evaporate it to the Consistence of Salt. It is used as Borax to purify Metals, and put them in Fusion. *Lemery des Drogues.*

There is a very great Difference between the Nitre, or Natrum, of the Antients, and our Saltpetre; which we do not know whether the Antients were acquainted with or not: And, in like manner, their Nitre is almost unknown to us.

By Nitre the Antients understood an acrid, alkaline Salt, found in *Egypt*; and other Places, which, as it made an Effervescence with Acids, was used as a lixivial Salt for cleansing Cloaths, and for making Glafs. *Solomon* mentions the Effervescence of Nitre with Vinegar, *Prov. xxv. 20.* where he compares a Man that sings Songs with an heavy or afflicted Heart, to a Mixture of Vinegar and Nitre; which Antipathy, or Contrariety, cannot be understood of the common Nitre, or Saltpetre, which raises no Effervescence with Vinegar. The Antients frequently used their Nitre, or Aphronitrum, in Baths, and the Women in their Washes; whence *Jeremiah* says, Chap. ii. Ver. 22. *Though thou wastest thee with Nitre, and takest thee much Soap, yet thine Iniquity is marked before me, saith the Lord God.* This cannot be said of Saltpetre, but of the Lixivium of that alkaline Salt; which was brought from *Egypt* by the Name of *Nitrum*, or *Aphronitrum*.

This Nitre easily relented in the Air, fermented with Vinegar, and had an absterfive Quality; and even at this Time, in the Fields of Lesser Asia, near *Smyrna* and *Ephesus*, the Earth rises in small Hillocks, placed very near each other, like Molehills,

Molehills, during the Spring and Autumn, of which the Inhabitants prepare a Ley for washing Cloaths; as also of the Salt they get from that Earth, by dissolving it in Water, they make Soap; as is related by the great *Tournefort*. This ancient Nitre was likewise used to make Glafs, being mixed with Sand, as they afterwards did with the Salt of the Plant Kali, or Glasswort, as may be gathered from what *Tacitus* says, *Hist. 1. 5.* That the Sands of *Palestine* and *Syria*, near *Egypt*, were made into Glafs with Nitre.

It is evident, therefore, that the Nitre of the Antients was quite different from ours. At this Time it is very little used, and very rare in *Europe*, tho' it was very much in Use amongst the Antients, both for making of Medicines, and for other Purposes of Life. The common Custom of Bathing alone consumed a vast Quantity of it. It served likewise for Dying, for seasoning Viçuals, and for glazing earthen Vessels. Very little of it is brought us; and it is very hard to determine the Aphronitrum, or the *African* or *Egyptian* Nitre, or *Spuma Nitri*, which I believe to be the Baurach of the *Arabians*, and the *Grecian* Nitre. Nitre was a native Salt, of a red or white Colour, and bitter Taste. It did not fly in the Fire like common Salt, nor flash like Saltpetre, but melted, and rose in Bubbles, like Alum and Borax. It made an Effervescence with Acids; and hence I look upon it to have been of the same Nature with the Salt of Tartar, or Pot-ash. See *NATRON*. *Geoffroy*.

ANATRON sometimes signifies the Gall of Glafs, which is nothing else but the Spume cast up by the Matter of which Glafs is made.

It is also taken for the Terra Saracenica, of which there are three Kinds, which are the Black, the Red, and the Azure.

Sometimes it means a white and stony Excrescence, which grows on Rocks, in Form of a white Moss, and is called by some *Sal Nitrum*. It is also called, *Anachron*, *Anatrum*, and *Anaton*. *Castellus* from *Ruland*. *Johnson*, *Schrod*. *Hoffm*.

ANATROPE, *Ἀνατροπή*, from *ἀνατρέω*, to subvert. A Subversion, literally, or Relaxation of the Stomach, attended with Loss of Appetite, Vomiting, and Nausea. *Galen*. The Verb *ἀνατρέω*, in *Hippocrates*, *Lib. de Art*, signifies to subvert, ruin, and destroy.

ANATRUM, the same as *Anatron*.

ANATUM, Egg-shells. *Johnson*.

ANAUDOS, *Ἀναυδός*, the Word is explained by *Galen* on *Hippocrates*, to signify one that has lost the Use of Speech, and *Aphonos*, *Ἀφρονός*, to mean one who can utter no Voice. In the former, the Organs of Speech, or articulate Voice, are injur'd or clogg'd; the other, who has utterly lost his Voice, has the Instruments thereof, as the Larynx, with the Muscles and Nerves thereto belonging, disabled from performing their Function. The Word is derived from a Negat. and *αὐδῆ*, Speech; as *Aphonos*, *Ἀφρονός*, comes from a Negat. and *φωνή*, Voice.

ANAVINGA. *Baccifera Indica*, *Fructu rotundo cuspidato*, *Cerasi Magnitudine*, *polyphyreno*. *Anavinga* *H. M. P. 4. T. 49. p. 101.*

A Tree of a middle Size, that grows in *Malabar* in the *East-Indies*, especially about *Cochin*. It is an Evergreen, and its Fruit, or Berries, are ripe in *August*.

The Juice of the Berries drank excites Sweat, cures malignant Distempers, and keeps the Belly soluble. The Decoction of the Leaves in Water makes a fit Bath for such are affected with Pains in the Joints. *Raii Hist. Plant.*

ANAXYRIS, *Ἀναξυρίς*, a Name for a kind of *Lapathum*, called otherwise *Oxalis*, and *Lapathum agreste*. *Oribas. Med. Coll. Lib. 11.*

ANAXYRIDES, *Ἀναξυρίδες*, in *Hippocr. de Aere*, &c. signifies a sort of Breeches, or Drawers, worn by the *Scythians*, from *ἀνατρέω*, to draw upwards, changing *o* into *z*.

ANBLATUM, *Cordi*, *sive Aphyllon*, *J. B. Orobanche Radice dentata, major*, *C. B. Dentaria major Matthioli*, *Ger. Orob. Radice dentata, sive Dentaria major Matthioli*, *Park. The GREATER TOOTHWORT.*

It flowers about the latter End of *April*, and Beginning of *May*. It has been observed in a shady Lane, not far from *Dorking*, in *Surry*; at *Bredgate*, near *Sittingborn*; about *Chislehurst* and *Maidstone*, in *Kent*; near *Dalston*, in *Westmorland*; and *Heptonstall*, in *Yorkshire*. *Syn. Ship. Brit. 288.* I find no Virtues ascribed to it. *Martyn's Tournefort.*

ANCHA, a Word used by *Avicenna*, and sometime by *Foerster*, and signifies the same as *Coxa*. *Castellus.*

ANCHILOPS.

The Anchilops is a Tumour situate at the great Angle of the Eye, for the most part, under the Conjunction of the Eye-lids; it degenerates into an Abscess, and is twofold, the one, attended with Pain, the other almost without any Pain.

The Anchilops with Pain is often accompanied with a violent Fever, which continues till the Matter is formed and discharged.

The Anchilops with little Pain is, for the most part, free from a Fever; the Swelling of the great Angle is light, and the Colour of the Skin but little changed.

This Tumour is produced by various Causes: 1. By the Lymph, which passes from the Eye through the Lachrymal Points, into the Nose. For, if this Humour, which ought to enter these small Channels, be vitiated, or the Parts, through which it should pass, be obstructed, it will certainly cause, by its Stagnation, an Abscess in the great Angle. This Lymph may be vitiated in a twofold manner: 1. When, through its Acrimony, it corrodes the inward Parts of the Lachrymal Bag, and so causes an oufing of purulent Matter, which enters the Lachrymal Duct, and stops it. The Lachrymal Lymph, being thus intercepted in its Passage, fills the Bag, swells it, and raises the upper Part of it, as appears from an Eminence, or Rising, under the Union of the Eye-lids: If this Eminence be pressed, the Matter regorges through the Lachrymal Points.

2. When the Lachrymal Lymph grows too thick or viscid, as it cannot pass through the Nasal Duct, it stagnates in the Lachrymal Bag, and there produces a Rising like to the before-mentioned Eminence, with this Difference, that, when the Tumour is press'd, the Humour flows through the Nose; this does not happen, when the Tumour is produced by the first Cause. Sometimes there is no Defect in the Lymph, but the Membranes, which form the Lachrymal Duct, are inflamed. As this Duct is obstructed through the Distention of its spongy Tissue, the Serosity must stagnate in the Lachrymal Bag, and by stagnating becomes acid, and excoriates the Inside of the Bag, from whence the forementioned Accidents arrive.

This Repletion of the Lachrymal Bag, from the Stagnation of its Lymph, is called by some a *Dropsy*, whether, when the Bag is squeezed by the Finger, the Lymph passes through the Nose, or flows towards the Eye. But this new Name for this Disease is altogether improper; for all Dropsies suppose an Accumulation of a watry Humour in some Cavity, out of which it has no Egress. But, in the present Case, the Matter contained in the Lachrymal Bag may be squeezed out; nay, the very Lymph passes through most Peoples Noses, when they are asleep; so that, in the Morning, the Bag is empty, tho' three Hours after the Patient has got up, the Bag fills again, which obliges him to empty it. This Observation seems to shew, that, whilst the Patient is in an erect Posture, the Lachrymal Bag forms a sort of Fold, or Plait, which stops its inferior Passage.

When the Lachrymal Bag is filled in the above-mentioned manner, and the contained Humour is too thick to pass off, either through the Lachrymal Points, or through the Nasal Duct, it causes an Inflammation, which turns to an Abscess, and forms the present Disease. What has been premised, sufficiently delineates the Signs of an Anchilops, when it is formed; but it is hard to know it, in the Beginning; notwithstanding, when the Tears cease to flow through their usual Passages, or when they flow with more Difficulty, a filmy Humour may be perceived at the great Angle, attended with a light Inflammation, with Pain, Itching, and a Flux of Tears. These Symptoms accompany most Defluxions.

When the great Angle of the Eye is pressed, if a whitish Humour flows through the Lachrymal Points, or the Eminence in the Lachrymal Bag appears, there is Reason to fear the Humour, contained in that Cystis, will become acid, and an Abscess ensue.

Abscesses of the great Angle, for the most part, degenerate into a Fistula Lachrymalis, and sometimes into a Cancer, when their productive Humour is malignant.

Care must be had to examine strictly, whether the Abscess opens into the Lachrymal Bag, or whether it be only superficial between the Skin and the Orbicular Muscle. In the latter Case, there is no Fear of its changing to a Fistula, if the Matter is not lodged between the Bag and the Muscle. When, by the precedent Signs, we perceive the Lymph is obstructed in the Lachrymal Bag, we must immediately apply Remedies to prevent the Increase of the Distemper; for which Reason the Patient must be let Blood. Let him take every Morning a Broth made of Veal, Chervil, Bugloss, Borrage, and Succory; he must likewise be purged from time to time. He must use the House Baths, and other Remedies proper to rectify the bad Crasis of the Lymph. In this Case, Injections through the Lachrymal Points are chiefly useful; but you must take care, if the Bag be considerably dilated, to press it a little with your Finger, whilst you syringe; otherwise the Injection, instead of doing any Good, will be very pernicious; for, without this Precaution, the injected Liquor will cause a greater Dilatation of the Bag: After you have used the Syringe five or six Days, if the Injection through the Lachrymal Points does not pass into the Throat, or flow through the Nose, it is of no Service; which confirms my Opinion, that it is proper only in simple Obstructions of the Lachrymal Bag, but not in a Fistula Lachrymalis.

A Bandage, that shall compress the Lachrymal Bag in its Elevation, will be more efficacious than the Syringe; for it continually forces the Humour towards its lower Orifice. Let the Outside of the Eminence be rubbed three times a Day with *Hungary Water*.

Let the Inside of the Eye be washed with hot Wine, in which you may mix some Drops of the *Friers Balsam*. (See *BAL-SAMUM*

SAMUM COMMENDATORIS). Every Night, let a Compress, dipp'd in this Wine, be laid to the great Angle. Some People are cured by this Method, when the Obstruction of the Lachrymal Bag is small, and the Os Unguis is not affected.

The Abbot de Grace has sometimes cured with his Plaister, Fistulas and Abscesses of the great Angle; he laid on a Plaister, that covered the whole Eye; for the Space of a Month, still wiping the Eye Night and Morning, and applying every Day a fresh Plaister. In any of the preceding Cases, when an Inflammation of the Lachrymal Bag supervenes, tho' it should be caused by a Flux of Humours on that Part, the Patient must be let Blood, and you must apply Remedies that will prevent the Increase of the said Afflux. The Pulp of a roasted Apple, mixed with the White of an Egg, or Pulp of Cassia, and a roasted Apple, of each an equal Quantity, mixed together, are very good. If the Os Unguis be not infected, to cure the Ulcer, make use of the Plaister of the Abbot de Grace; at the same time you must take care to purge the Patient, as the Disease shall require. When you perceive the Matter in the Lachrymal Bag is changed to Pus, you must not wait the spontaneous Discharge of it; for, by a long Continuance, it may generate a Caries in the circumjacent Bones; for which Reason you must open it with a Lancet, still observing the Direction of the Fibres of the Orbicular Muscle; dress the Wound with the Plaister of the Abbot de Grace. See FISTULA LACHRYMALIS. St. Yves.

The Plaister above-mentioned is made of discusive, and some restraining, Ingredients.

ANCHOAS, a Name which the Natives of Mexico have for the Male Ginger, which differs from the Female, or common Ginger; in having rougher and thicker Leaves, with a greater and thicker Root, which has a more acrimonious Taste, with a kind of Bitterness. *Hernand.*

Its Place of Growth, and Virtues, are the same with those of the common Ginger. See ZINGIBER. *Raii Hist. Plant.*

ANCHORALIS PROCESSUS, is the same as the *Processus Coracoides*. See CORACOIDES.

ANCHUSA, a Plant thus distinguished:

ANCHUSA, Offic. Chab. 516. Park. Parad. 250. *Anchusa Monspeliensis*, J. B. 3. 583. *Raii Hist.* 496. *Anchusa puniceis floribus*, C. B. Pin. 255. Boerh. Ind. A. 189. *Anchusa minor purpurea*, Park. Theat. 517. *Anchusa, Alcibiadion*, Ger. 656. Emac. 800. *Buglossum radice rubra*, sive *Anchusa vulgarior*, floribus caeruleis. Tourn. Inst. 134. *Buglossum radice rubra*, sive *Anchusa vulgarior*, Elem. Bot. 110. *Buglossum perenne minus, puniceis floribus*. Hist. Oxon. 3. 438. ALKANET. Dale.

ANCHUSA, by some called *Calyx*, by others, *Onoclea*, has Leaves like those of the sharp-leaved Lettice, hairy, rough, black and numerous, lying round about the Root close to the Ground, prickly. The Root is of a Finger's Thickness, inclining to a Blood-colour, sends forth Shoots in the Summer, and stains the Hands; it grows in a fertile Soil.

The Root is astringent, and good for Ambuitions, and old Ulcers, being boiled in Wax and Oil. Apply'd in a Cataplasim with Barley-meal, it cures the Erysipelas; and, anointed with Vinegar upon the Part affected, cleanses the Alphas and Leprosy. Applied by way of Pessary, it extracts the dead Child. The Decoction of the same is given to those who are afflicted with the Yellow Jaundice, and Infirmities of the Kidneys or Spleen; and if there be a Fever, it is mixed with Hydromel. The Leaves, drank in Wine, bind the Belly. The Dealers in Ointments also use the Root to incrassate their Compositions. *Dioscorides, Lib. 4. Cap. 23.*

Another *Anchusa*, which some call *Alcibiadium*, or *Onochiles*, differs from the first in having smaller Leaves, though rough like them, and slender Stalks, which bear a purplish Flower. The Roots are red, of a good Length, and, about the time of Wheat-harvest, full of a Blood-like Juice; it grows in a sandy Soil.

Both the Root and the Leaves are good against the Bites of venomous Beasts, and especially of Vipers, whether they be eaten, drank, (in Infusion) or worn as an Amulet, even so far, that if a Person, after chewing them, shall spit in the Mouth of a venomous Creature, he will kill it. *Idem ib. Cap. 24.*

There is a third Species of *Anchusa*, like the former, bearing a lesser Seed of a red Colour, which if a Person chew, and afterwards spit in the Mouth of a Serpent, it will die. The Root, taken to the Quantity of an Ounce and half, with Hyssop and Nasturtium, expels the broad Worm. *Id. Cap. 25.*

The Root cleaves like the Papyrus; it stains the Hands of a bloody Hue, and prepares Wool to receive costly Colours. It will not dissolve in Water, but in Oil, which is a Proof of its being genuine. A Dram of it in Wine is prescribed for Pains in the Kidneys; or if there be a Fever, in a Decoction of the *Balanus*. The Leaves, bruised with Honey and Meal, are applied to Luxations; and, drank to the Weight of two Drams in Mulsim, stop a Looseness. A Decoction of the Root in Water is said to kill Fleas.

There is another Plant like this, and therefore called the *Pseudanchusa*, and by some *Enchusa*, or *Doris*, and many other

Names, being more downy, and not so fat, but of a thinner and weaker Leaf. The Root yields no Oil, but a red Juice, by which it is distinguished from *Anchusa*. The Leaves are applied to Hurts received by Blows. It expels the Poison of Serpents, and is drank also to drive out Thorns from the Flesh. The Magi order the Leaves to be pluck'd with the Left-hand, and that you specify the Person for whom you take them, and then tie them about the Body as an Amulet, against a Tertian.

There is yet another Herb, whose proper Name is *Onochiles*; but some call it *Anchusa*, others *Anebion*, some *Onochelis*, others *Rhexias*, many name it *Enchusa*. It has a purple Flower, rough Leaves and Branches, a Root, in time of Harvest, of a Blood-colour, at other times black; but it is most efficacious in Harvest. The Leaves, bruised, smell like Cucumber. Three Ounces are a Dose for the Falling down of the Uterus. Those who carry it, they say, will not be hurt by Serpents.

Another Herb, like to this, but less, has a red Flower, and the same Virtues. *Pliny, Lib. 22. Cap. 20, 21.*

Anchusa and *Cinnabar* were used by the Antients, to give an agreeable Colour to their Ointments; and where there was *Anchusa* used, they put no Salt to prevent the Oil in those Compositions from growing rancid. *Idem, Lib. 13. Cap. 1.*

The Root of *Anchusa* was also serviceable in colouring Wood and Wax. *Idem, Lib. 21. Cap. 16.*

The Root of *Alkanet* is thick and woody, white within, and covered with a red Bark, which gives a red Dye or Tincture to any thing it is infused in: The Leaves are long, rough and hairy, in Shape like the common *Viper's Bugloss*; the Stalk grows about two Foot high, having many long narrow and hairy Leaves, disposed in alternate Order. On the Top of the Stalks grow the Flowers, thick set together in Bunches, of a purple Colour, smaller than *Bugloss*; each Flower consisting of a single Cap, divided at the Top into five sharp Segments, standing in a long hairy five-leaved Calyx, in which, after the Flowers are fallen, grow four longish Seeds.

It grows with us only in Gardens, and flowers in June. The Roots only are used.

Parkinson highly commends the Infusion of the Bark in *Petroleum*, as excellent in fresh Cuts, and green Wounds; at present it is very little used. *Miller's Bot. Off.*

The common *Alkanet*, *Anchusa*, Offic. is brought from *Languedoc* and *Provence*, being the Root of the *Buglossum Radice rubra*, sive *Anchusa vulgarior*. The Root is astringent, and proper in Hemorrhages of all Kinds. Apothecaries employ it to colour their Ointments, particularly the *Uguentum Rosatum*; but, for this Purpose, it must be boil'd in Oil; for it does not readily communicate its Tincture to Water. The Antients used it as a Cosmétique, as is mentioned by *Galen*. *Geoffroy.*

It contains a great deal of Oil, and a little Salt.

It stops Fluxes of the Belly, being made into a Decoction.

They bring from the *Levant* sometimes a kind of *Alkanet*, called *Alkanet of Constantinople*.

It is a kind of Root, near as thick, or as large, as a Man's Arm, but of a particular Figure; for it appears a Collection of great Leaves, twisted like a Roll of Tobacco, of different Colours, but generally of an obscure Red, and of a very fine Violet. There appears at the Top of this Root a kind of white or bluish Hoariness. They find in the Middle a Heart, which resembles a thin Bark, roll'd up like Cinnamon, of a fine Red without, and White within: In Appearance, the Root looks as if it was artificial. But whatever it be, it yields a finer Tincture than ours. *Lemery des Drogues.*

ANCHUSA LUTEA, Offic. Ger. 656. Emac. 800. J. B. 3. 583. *Raii Hist.* 1. 497. *Anchusa lutea major*, Park. Theat. 515. C. B. Pin. 255. *Anchusa lutea rarior & elegantior*, Chab. 516. *Symphytum Echii folio ampliore, radice rubra*, Elem. Bot. 114. *Symphytum Echii folio ampliore, radice rubra, flore luteo*, Tourn. Inst. 138. YELLOW ALKANET.

There are three Species of *Anchusa* described by *Dioscorides*; but what Plants they are, is not agreed among Authors, one naming this, another that. *Casalspinus* and *Thalium* call the common *Viper's Bugloss* by this Name. *Turrier*, *Dodonaeus*, and *Cordus*, refer two of the Species to *Bugloss*, for what Reason, I am a Loss, since the characteristic Mark, which is the Root's staining the Hands with a Blood-colour, belongs to neither of them.

The more modern Botanists acquaint us with several Species of this Plant: Those two, which I have here given, I am of Opinion, with *C. Baubine*, are the second and third Species of *Dioscorides*, whose first seems to be only a larger Sort of the second. Dale.

ANCHYLE, the same as ANCYLE, which see.

ANCHYLOPS, the same as *Anchilops*.

ANCHYLOSIS, the same as ANCHYLE, ANCYLE, or ANCYLOSIS, which see.

ANCHYNOSES, a Name for the *Phoenix*, or *Ray-grass*, in *Oribasius, Med. Coll. Lib. 12.*

ANCHYROIDES. See CORACOIDES.

ANCI, in Greek, Γαλιδζωνες, *Weasel-elbow'd*, from γαλιδ, a *Weasel*, and ἄγκων, an *Elbow*. So *Hippocrates* calls those, who,

who, from slipping of the Head of the Os Humeri into the Ala, have an Arm shorter and smaller than it ought to be, and the Cubit, or Elbow, of a Weasel, whence they are called by some *Mustelanei*, which fully expresses the Greek Word; or barely *Anci*.

The Disorder that gives Occasion to the Name, happens either in the Womb, where the Os Humeri suffers a Luxation from too much Moisture, or in tender Years, by means of an Abscess deeply seated about the Head of the Os Humeri. *Fæsius*.

ANCINAR, Borax. *Rulandus*.

ANCISTRON, Ἀγκίστριον, a Hook.

ANCON, Ἀγκών, the gibbous Eminence, or Flexure of the Cubit, the Middle of that Eminence, on which we lean, being the greatest of the two Apophyses of the Ulna, and the same with the Olecranon. *Castellus, Winslow*.

ANCONÆUS MUSCULUS. It arises by a round and short Tendon from the Back-part of the external Condyle of the Os Humeri; this soon grows fleshy, and is so intangled with Part of the Brachizus Externus, that there can be no separating them without Violence.

It is inserted fleshy and thin into the Lateral Part of the Ulna, a few Inches below the Olecranon.

Its Use is to assist in extending the Cubitus. *Douglas*.

ANCORA, Calx. *Ruland. Johnf.*

ANCORALIS, the same as ANCHORALIS.

ANCOSA, Lacca. *Ruland. Johnf.*

ANCTER, Ἀγκίτης, the Greek Term for a Fibula, or But-ton, in Surgery, by which the Lips of Wounds are joined and held together, *Celsus, Lib. 5. Cap. 26.* which Operation is called *Ancteriaismus*, Ἀγκίτησμός, according to *Galen*. See FIBULA, and SUTURA.

ANCUBITUS, an old Term, by which was meant that Affection of the Eyes, in which they seem'd to contain Sand, or small Pebbles. It was also called *Petrification* by *Johannes Anglicus. Castellus*.

ANCUNULENTÆ. Women are so called in the Time of their Menstruation, as contracting *Inquinamentum* [Pollution]. *Festus*. From the Greek Κόινω, comes the Latin *Cœnum*, from whence are derived *Cunire* and *Inquinare*.

Ancunulenta is compounded of *An* for Ἀντι, and *Cunio* quasi *Kovido*, *Inquino*, to pollute.

ANCUS. "A Name for such as have an Arm bent crooked, so that they cannot extend it." *Festus*. From Ἀγκών, an Elbow, according to *Servius*. "Ancus, mancus, καλλός, λαφός." *Vet. Glossarium*. *Varro* takes it for a Sabine Word, but it is certainly derived from the Greek Ἀγκή, which signifies the Bending of the Arm. The Greeks also use Γαλιανκόν, [Galiancon] for Ancus. See ANCI. *Baxter's Glossarium*.

ANCYLE, and ANCYLOSIS, from Ἀγκύλος, crooked. A Distortion, a Fixation (ἀλόχη) of the Joints, caused by a Settlement of the Humours, or a Distention of the Nerves. *P. Eginet. Lib. 4. Cap. 55. Actuarius, Meth. Med. Lib. 4. Cap. 16.*

In this Case, Remedies of a mollifying and relaxing Nature are required; in general, such as are appropriated to Scirrhotities, or rather, to Resolutions of the Parts. Particular Medicines are, a Perfusion of Water and Oil, in which have been boiled Lindseed, Fœnugreek, Marsh-mallow, Bay, and Root of Wild Cucumber, and *Sycæonian Oil*. After Perfusion, proper Applications may be made of some of the more simple *Acopa*, for Instance, that prepared of the black Poplar, and another of Fir, or the *Bromion*, *Aristophaneum*, *Azanitæ*, *Lyssponium*, or *Varium*. Proper Plaisters are that of *Amythaon*, the *Anicetum*, and the following, which is excellent:

Take of Bdelium, Fat of a Calf, Gum Ammoniac, *Illyrian* Orris, each sixteen Drams; of Opopanax, Galbanum, Rosemary-seeds, Stryax, Frankincense, each eight Drams; Grains of Pepper, one hundred and sixty; Wax, half a Pound; Resin of Turpentine, half a Pound; Dregs of Oil of Orris, a sufficient Quantity; Wine, a sufficient Quantity; beat them up together.

This also makes a good *Acopa*, moistened with *Unguentum Irinum*, *Cyprinum*, or *Laurinum*. Of a middle Nature, betwixt *Acopa* and Plaisters, is the compound *Pharmacopœia Pernâ*.

Your *Acopa* must be used by long and gentle Affriction, together with Endeavours to bend and stretch the affected Joint. *Paulus Egineta, ibid.*

The Malagma of *Euthycleus* for the Joints, for all Sorts of Pain, and particularly in the Bladder, and for Contractions of the Joints, after they have been newly cicatrized, (which the Greeks call ἀγκύλας) consists of

Soot of Frankincense, Rozin, half a quarter of a Pint; Galbanum without the Branches, an Ounce and an half; Gum Ammoniac, Bdelium, of each one Dram two Grains and an half; of Wax, one Dram thirty-three Grains.

Another Malagma is thus prepared:

Take of Orris, Gum Ammoniac, Galbanum, Nitre, of each one Ounce six Drams thirty-five Grains; Liquid Rozin, six Drams fifteen Grains; of Wax, two Ounces two Scruples. *Celsus, Lib. 5. Cap. 18.*

I don't well understand what *Celsus* means by *Fuligo Thuris*, unless the Soot arising from Frankincense, when burnt in Temples as Incense.

When a Joint, or Articulation of the Bones, grows stiff, and the peccant Matter there settles and hardens, which Disorder the Greeks call *Ancylosis*, if it proceeds from an Effusion and Concretion of the Juices of some broken Bone, the Cure, in such a Case, will be very difficult. But if this Stiffness be the Consequence of too long a Rest, or the Inspissation of the Humour which lubricates the Joint, it may not be altogether unreasonable to ply the Part affected with emollient Fomentations, and Bathings often repeated, especially the natural Baths; to be often rubbing it thoroughly with Oils, Fats of Animals, or mollifying Ointments, and with your Hands to move and inflect it this way and that way, till its former Flexibility be perfectly restored. *Heister*.

The following Case is related by Mr. *Malouet* in the Memoirs of the Academy of Sciences for 1728.

A young Man, three-and-twenty Years of Age, had, for more than a Year past, his Leg quite bent backwards, without being able, in all that time, to extend it in the least. He felt great Pains in his Knees, which were more acute at some Seasons than at others, but sometimes were so violent, that when he was in Bed, he could not bear the Weight of the Bed-clothes on his Knee, insomuch that, during four Months, he was obliged to support them with a Hoop, to prevent their touching him. Though these Pains were much less troublesome at certain Seasons, they were always felt, if any Pressure was made on the affected Part, and rendered him incapable of using a wooden Leg, which, through the Compression which his Knee must have suffered by resting on it, would not have failed to render his Pains more acute.

He was no less incapable of walking by the Help of two Crutches; for whenever he attempted it, the Weight of his Leg made him endure insupportable Misery in his Ham. He had tried to free himself from this Inconvenience, and from the Necessity of keeping his Bed, by the Help of a Swathe; but as this Expedient did not secure that Part sufficiently immoveable, it did not ease him in the least of his Sufferings.

The Surgeons in the Country, who passed for Men of Skill, being persuaded that it was an *Ancylosis*, in which the Leg and Thigh were ossify'd together, had for a long time used several Sorts of Remedies in vain, till at last, after several Consultations held upon the Affair, they concluded, that no other Method was to be taken but Amputation of the Thigh.

Some Persons of Consideration, who commiserated the Patient's Case, prevailed with him to let himself be brought to Paris, in Hopes that he might there find such Relief as would save him from coming to that Extremity.

Being arrived there in the Month of September last, he consulted the most experienced Surgeons in those Sorts of Maladies. They were of Opinion, there was no other Remedy for him but cutting off his Thigh.

He was so disheartened at the sad Condition to which he was reduced, and sometimes felt such exquisite Pains, that at last he made his Choice, and determined to undergo the Operation. As the Success was doubtful, and he must run a Hazard of his Life, the Surgeons, by a wise Precaution, had given Notice to the Vicar of the Parish, that he might administer to him the Sacraments; and because I had an Opportunity to visit the Patient, they made me acquainted with the Resolution they had taken to perform the Operation, as a thing liable to no Objections, with an Intent only, that I should prepare him for it by Purgations, and other Medicines, as I thought proper.

Thinking myself obliged to examine into the Disorder which gave Occasion for the Amputation of this Thigh, I had the affected Part uncovered, and found, that of the two inferior Condyles of the Os Femoris, that on the Inside was a little thicker than it ought to be, as well as the Inside of the superior Extremity of the Tibia. This Thickness was not painful, not even when it was pressed; and the Pain which the Patient felt at his Knee, was directly at the Place of the Ligament which fastens the Patella to the Tibia. I observed no Tumour in the Flesh; on the contrary, the Leg was considerably wasted.

Tho' the Excess in Bigness, which I had observed in that Knee, did not appear to me of Bulk sufficient to be the Cause why the Patient could not in the least extend his Leg, yet if we may judge from what usually happens, it might proceed from some disorderly Situation of the Heads of the Bones, in Consequence of which they might have been solder'd together by a Liquor, diffusing itself at the Joint, and by its Inspissation conglutinating them in such a manner as of two Pieces to make but one; a Disorder but too common, and the Cause why none

none of the soulder'd Bones thus united can any longer stir with its proper Motion, nor consequently play in their Articulations. But as I had made no such Observation on the Knee of this Patient, whatever Efforts he made to stretch out his Leg, I was willing to be assured, whether any such Cause operated in the present Case.

For this End I endeavour'd to extend the bended Leg, by making an Effort to pull it out strait with my Right-hand, while I kept down his Thigh with my Left. I observed, that the Leg bended, tho' indeed it was not without Difficulty on my Part, and Pain to the Patient. Wherefore I made no greater Efforts to extend it more, as well because I was persuaded, by the Resistance which I found, that I should hardly accomplish my Design, as because I was unwilling to increase his Pains, and render them insupportable. However, since the Leg return'd to its former State of Flexion, as soon as it was left at Liberty, and I believed it was of Importance to be assured, whether the Leg had this Motion in common with the Thigh, I repeated at several times my Efforts to extend it, and always with the same Success.

I was then persuaded, that the Bones were not soulder'd together; for in that Case not only the Limb has no more Play in its Articulation by its proper Organs, but it is also impossible to procure it by any outward Assistance, either in extending it when it is bent, or bending it when it is extended, unless the Bones should unfold, or break, neither of which, I was sure, had happen'd by the Efforts I had made.

I was obliged then to search somewhere else for the Cause which held the Leg in this Posture of Inflection, and quite disabled the Patient from extending it.

I examin'd the Tendons of the Musculi Flexores, and found they were extremely tense, and drawn back towards their Origin. I was satisfy'd there needed no more to hold the Leg in this inflected Situation, and thought I had discover'd the Cause. But in order to be better assured, if it were possible, I question'd the Patient about the Manner in which this Disorder happen'd to him, in Hopes to procure some Light from thence.

He told me, that in the Month of August 1726. he had a Fever, which lasted forty-five Days, the first fifteen or sixteen of which he had lain under a Delirium; that during all that Time, he struggled, and would have come out of his Bed, so that they were forced to tie him in it; that he had found means to untie himself, and to throw himself out of Bed upon the Floor; that he had been blooded seven times, four times in the Arm, and thrice in the Foot; that he knew all this to be true, because his Companions had related it to him, when he was come to himself; that then he perceived his Right Leg was quite bent, since which Time he could by no means stretch it out, whereas before it had always been as the other; that he had never felt any Pain in his Knee, nor felt any thing extraordinary, till this Time.

This Account did the Patient give me of the Condition he was in when this Disorder of his Knee seiz'd him; and I believed, that I had Reason to conclude, that the Illness, of which he gave the Particulars, was a continued Fever, attended with a Delirium; and as such a Symptom is accompany'd with convulsive Motions, of which it is usually the Cause, I judg'd from this Relation, that the Tension which I observed in the Flexores Musculi of the Leg, might well be the Consequence of a Convulsion of those Muscles, at the Time when the Patient was under the Delirium; in Consequence of which they might continue thus shrunk back by means of some Matter, which was capable, by swelling them, of keeping them in this contracted Condition, and was of a Nature not fitted to dissolve, either of itself, or by the Remedies hitherto used.

Whether this Reasoning be just or not, which I propose only as a Conjecture concerning the Origin of a Disease, of which I never saw the Beginning, I was persuaded by the Patient's own Account, and by what I observed of his present Condition, that the Reason why his Leg was thus inflected, and incapable of being extended, was because the Flexor Muscles were shrunk back and shortened.

Far from considering the Disorder as incurable, on the contrary, I believed it was very easy to be cured. Wherefore I oppos'd the Amputation of the Thigh, and set myself to think of some Remedies, by which I might cure the Patient, and at the same time preserve his Limbs intire.

In pursuance of the Notion which I had form'd of the Disorder, I propos'd to myself the mollifying and relaxing of the Fibres of the Muscles, which by their Contraction held the Leg bent, that I might give them that Suppleness which they wanted, in order to extend and stretch themselves out at full Length. I propos'd to myself also the Dissolution and Dissipation of the Matter which might be lodged in their Interstices, and, by keeping them swelled, hinder'd their Lengthening or Extension.

I thought I should endeavour to answer these two Indications at once, and that I might succeed, by putting the Patient in an aromatic Bath of hot Water, which seem'd to me the most proper Means for penetrating to the very Muscles, which

were shrunk backwards, and to produce the Effects which I had in View, as well on account of its Heat and Fluidity, as of the volatile Parts with which it would be impregnated.

After some general Remedies, which I gave the Patient, I order'd a Bath of this Kind. He went into it twice a Day, and stay'd there an Hour, or an Hour and an half, each time (Observe it was a whole Bath, which, acting equally upon the whole Mass of Blood, was much more efficacious than a Semicupium). At the fourth Bathing the Patient's Leg began to extend itself, and continued so to do in such a manner, that the eighth Time, when he got out, he set his Foot to the Ground, and was in a Condition to walk with two Crutches.

From that time the Pain of his Knee went off, and he never felt it since. After bathing seven Days, that is, fourteen times, I order'd him Rest, and even during that Rest his Leg extended itself more and more, and at last equally with the other, so that he had no Need of Crutches, but was oblig'd to use a Stick in walking, because he had still a Pain in his Ham; when he stretch'd it out. When he walk'd, he felt a Pain in the upper Part of his Foot, which I imputed to the Inaction in which he had been for a long time, by which some of the Parts had acquired a Dryness, or a Stiffness, which put them out of a Condition of readily complying with the different Motions necessary for walking.

To remove these Symptoms, I order'd Embrocations under the Ham, and upon the Foot, with Oils of Earth-worms, and St. John's-wort, mixed in equal Parts. By the Use of these Remedies for ten or twelve Days, the Motion of his Foot became less painful, and that of his Leg more free.

Mean while, as there still remained some little Stiffness in the Tendons of the Musculi Flexores of the Leg, I judg'd it proper for the Patient to repeat his Bathing; after purging him again. At the End of four Days finding him fatigued, I made him intermit it; and in short, after a Rest of fifteen Days, I made him repeat it for six Days, twice every Day. He bore it very well, and was perfectly cured; so that from that Time he has felt no Pain in his Knee nor Foot, except sometimes after he has walk'd a great deal. He stretches and bends his Right Leg as easily as his Left, he walks and runs without Cane or Stick; in short, since he has been cured, he has employ'd himself in clearing a Garden, tho' he is able to live without it, and spent his Time in carrying Earth and Stones, and doing other Works of that Nature, without feeling any Inconvenience.

However, tho' his Right Leg has recovered much of its Flesh, it has not yet attain'd to the Bigness of the Left, and his Knee always appears a little bigger than the other. This proves, that it was not this Excess in Bigness that held his Leg thus bent, and hinder'd its Extension.

The Leanness of this Leg might be imputed to the Alteration that its Flexion, which lasted above a Year, produced in the Tubular Vessels appropriated for the Conveyance of nutritive Juices to that Part. Those Tubes, instead of strait, as they commonly are, becoming very much bent, and by that means incapable of receiving, and consequently of supplying the Leg with a sufficient Quantity of those Juices, which occasion'd its Leanness, grew narrow and streighten'd; wherefore, though at present they have their first Direction, the Leg has not been able to recover its former good Plight; because they have not as yet resumed their natural Diameter.

With respect to the Bigness which remains on the Inside of the Thigh, I don't think, that we ought to regard it as an Exostosis of a bad Kind, that is, which was produced by a Depravation of the nutritive Juices, which had altered the Substance of the Bones; because they appear to be in their natural State, and the Bigness there observed is without Pain, Softness, Redness, or Swelling of the Skin, and does not incommode the Movement of the Articulation, which is a Symptom, that, for the most part, attends Exostoses of a bad Kind.

This Bigness then ought to be imputed only to a greater Quantity of nutritious Juices with which that Part was supply'd, whether owing to some natural Disposition, as we see in those Persons who have naturally one Part bigger than another; or to some Blow or Fall; or, lastly, to the bending Posture in which that Leg continued for so long a time, which State of Flexion, having been capable of making way for the Leanness of the fleshy Parts, might also be the Occasion of this Excess in Bigness of the bony Parts. These two Effects, tho' contrary, may proceed from the same Cause; of which we see an Example in the Rickets, where the Heads of the Bones increase considerably, while the fleshy Parts fall to Decay. But that we might give a Reason adapted to the Subject, let us suppose, that the Blood not having been capable of flowing in so large a Quantity as usual, in the Arteries which supply the Leg, because of their extreme Curvature, as I said just now, was oblig'd to stop at the Knee, in Consequence of which the Extremities of the Os Femoris and the Tibia having received a greater Abundance of Lymph, the same afforded a greater Quantity of nutritious Juice to those Parts of them which were most dispos'd to receive it.

It may be said, perhaps, that tho' there be no Room to doubt, that the Contraction of the Musculi Flexores of the Patient's Right Leg was the real Cause that held it thus bent, it is still uncertain whether that Contraction was the Consequence of a Convulsion of those Muscles, or of a Resolution of the Extensores of the same Part; that this last Disorder might equally make way for the Musculi Flexores of that Leg to bend it, and to keep it in that State of Flexion, as long as it subsisted; and that in this Case it might also have been cured by the Remedy which was used; and upon these Accounts, the Disease which I attribute to one Cause, might perhaps be imputed to another quite opposite.

I answer, that 'tis true a Member may as well be bent in Consequence of a Resolution of the Muscles which serve to extend it, as by a Convulsion of those which are appointed to bend it; that whether their own Force increases, or that of their Antagonists diminishes, they equally exert themselves beyond their just Bounds, and must by Consequence keep the Part bent, or inflected: But besides that we seldom or ever see a Delirium consequent upon a continual Fever attended with a Resolution, instead of which a Convulsion is the ordinary Symptom; I have observed this Difference betwixt a Member bent in Consequence of a Resolution of its Musculi Extensores, and a Member bent by a Convulsion of its Musculi Flexores; that in the first Case, a Force equal to that of the Musculi Extensores might perfectly extend the bended Part; that but a small Resistance is to be perceived from the Musculi Flexores, and that the Patient cannot in the least suffer from that Extension; but that, instead thereof, in the second Case, the greatest Force cannot altogether extend the bended Part, and that there is an invincible Resistance to be perceived on the Part of the Musculi Extensores, inasmuch that a Man would run the Risk of breaking or tearing them asunder, if he should endeavour with all his Force to extend them to their full Length; and in such a Case, the least Extension would put the Patient to great Pain.

Thus it happened exactly in the present Case: With all the Efforts which I made to stretch out the bended Leg, I came very short of extending it to the utmost, finding too much Resistance. 'Tis true, the Pains which the Patient felt on this Occasion, prevented me from using greater Force; and I have been told, that a Surgeon of an Hospital in that Country, having try'd to extend this Leg to its full Length by Strength, had employ'd two or three Men for that Purpose, and was not able to accomplish his Design, the Man having fallen into a Swoon, which lasted half a Quarter of an Hour.

These are the Reasons why I judged, that the Contraction of the Musculi Flexores of the Patient's Leg was not the Consequence of a Resolution of the Musculi Extensores.

The Result of this Observation is, that we ought not always to look upon those Symptoms as the Causes of a Disease, which, though they are often so, might yet, for all that, be sometimes the Consequences of it; and that in Distempers, even those belonging to Surgery, we are not always to rely on those Signs which are the most usual, and which appear the most natural, if possibly they may deceive us. Of this Nature was the Bigness of this Patient's Knee, the Pain which he felt, the Absence or Failure of a Tumour in the soft and fleshy Parts, the Impossibility he lay under of extending his Leg in the least. All this seem'd to indicate, and commonly shews, a Fault in the Bones, which gives Rise to all these Symptoms; but which were, for all that, the Effects of another Cause.

The Passion which some Surgeons in the Country have for Operations, makes them take all Opportunities of cutting off a Limb: Such may learn from the preceding Case, that it is never to be done rashly. Reason and Humanity should also inform them, that there is more Reputation and Satisfaction to be acquired by saving one, than amputating a thousand.

When an Ankylosis is perfectly form'd, that is, when the Bones are ossify'd together, it appears by the Nature of the Distemper, that the Case is incurable. But when the Stiffness is only caused by Humours inspissated in the Articulation, the Methods specify'd in the preceding History, and the two following Cases from *Le Dran*, seem to promise fair for a Cure, if duly persisted in.

Hot Pumping is a Remedy very little used; whether it be for want of knowing its Advantages, or from the Difficulty of performing it properly, which has often rendered it unsuccessful. It is very beneficial, however, in many Cases, and especially in Ankylosis, before they arrive to a perfect Hardness. A Series of Time is required before it can produce any considerable Effect, and it must be often repeated, when it begins to operate, having frequently proved unsuccessful, for want of being long enough continued.

In the Month of January 1725, a Man aged twenty-one Years felt an acute Pain in his Left Groin, which subsisted in the same Place during the Space of a Fortnight, and then removed its Situation. It varied often, affecting the Thigh one time, and the Rotula another, and then returned to its first Point again. After he was bled and purged, they bathed the

Part with Lavender-water for above three Weeks. The Patient finding no Relief, but on the contrary, that his Leg and Thigh were emaciated, he declined the Use of it, and put himself under the Hands of several Empirics for near three Months, who robbed him of his Money, without doing any Service. These Gentlemen (according to themselves) have infallible Noftrums; but if they are so, it consists in draining the Patients Purses; who place a Confidence in them. The last Remedy he used was dry Baths, such as are performed with Spirit of Wine; which being attended with the same Success as the former, he applied himself to me.

When I first saw him, he could not move his Thigh without violent Pains, nor suffer the least Violence to be used in moving it; the superior Part, to the Spine of the Ilium, was so prodigiously swelled, as to be twice its ordinary Magnitude. It was exceedingly distended, and as hard as a Stone; the Pain was very deep, but not augmented when the Tumour was handled.

What increased the Bulk of the Thigh to that Extent in its superior Part, was, probably, a large Quantity of Lympha inspissated and filtrated in the Interstices of the Muscles; perhaps also the Capsula, embracing the Articulation, was filled with Sinovia, as well as the Cavity Cotyloides. The Projection of the Trochanter Major externally afforded some Reason to believe, that the Thigh was luxated (This Sort of Luxation is often seen from an internal Cause, whereby the Head of the Femur is gradually thrust out of its Cavity). The internal Part of the Thigh was emaciated to such a Degree, that the Bone seemed to be covered only by the Skin, and might be embraced with one Hand. The Leg was emaciated also.

Seeing the Inutility of all the Remedies hitherto employ'd, I advis'd the Patient to go to *Bourbon* to try the Hot Pump, which he had not yet attempted. He told me the Impossibility there was of undertaking that Journey, both because his Circumstances could not afford it, neither would the Excess of his Pains suffer him to be moved. This gave me a Thought of erecting a Pump at my own House, which might, in some measure, answer the Use of the Hot Mineral Waters, and supply the want of them.

The Place being prepared with all necessary Conveniences, I put the Patient into *La Charité*, from whence I could remove him every Day to my House. I order'd him to be twice bled and purged, and the 12th of August began to pump upon him for the Space of an Hour; and when it was finished, he went to bed, where the whole Part affected was covered with Bladders, half filled with hot Water, to a supportable Degree. These Bladders were often renewed in the Space of two Hours, and when they were removed, the Part was suffered to perspire another Hour, covered only with warm Linen. Then the Patient was brought back to *La Charité*, where the Bladders were again renewed in the Evening.

When he had been pumped a few times, he began to lean upon his Leg with less Pain, but always by the Assistance of Crutches, and without any Motion in the Articulation.

The Part affected sweated considerably at each Pumping, and appeared much softer after it. The Patient had not used this Method above a dozen times, but the Swelling on the superior Part of the Thigh began visibly to diminish. Then I order'd the Motion of the Articulation to be gently forced, notwithstanding the Pain, tho' by Degrees, and a little at a time; moreover, I purged him twice. These Precautions, united with the Pumping, dissolved the Sinovia, so that the Patient could move his Thigh a little without any Assistance. In proportion as the Tumour diminished, the Leg and Thigh grew more fleshy; in short, within the Space of four Months, during which he was pumped between forty and fifty times, suffering him now-and-then to repose a Day or two, the Distemper so far yielded, that the Patient was able to walk very fast by the Help of a Cane only, feeling no more Pain, and having this Leg and Thigh answerable to the other.

In the Year 1728, a Gentleman, belonging to the King, had an inspissated Sinovia upon his Right Foot, which not only possessed the Articulation, but spread over the whole Foot, so that the Ankylosis was almost formed.

As he was ready to depart for *Bourbon*, to drink the Waters, by the Advice of Mr. *de la Peyronnie*, they mentioned the Pump I had erected at my own House; and having view'd it, the Patient was prepossess'd in favour of the Effect it might produce, and deferr'd his Journey for several Days to experience it.

Twelve Pumpings, with the same Precautions observed in the preceding Case, so far cured him, that he laid the Thoughts of his Journey aside, and has felt nothing since.

REMARKS.

We ought not to be surpris'd at the sudden Effect of Pumping, properly managed; three things act at the same time upon the stagnated and inspissated Fluids.

First, The falling of a Column of Water, of an Inch Diameter, from seven or eight Feet high, abrades and comminutes the inspissated Juices, by its Force and Compression.

Secondly,

Secondly, The Nature of the Water may contribute to produce this Effect, if the active Particles contained in it can be immitted into the Texture of the Part affected: And is there any thing that can sooner make it penetrate, than the precipitate Fall of a Column of Water upon it?

Thirdly, The Heat of the Water, which insinuates itself into the Part affected, and warms it to the very Bottom, afflits and accelerates the progressive Motion of all the Fluids; perhaps even the intestine Motion of such as have not entirely lost it, and communicates a Motion to those that are stagnated.

From hence it follows, that one Part of the stagnated Fluid transpires externally, whilst another takes the Course of the Circulation; and thus the Part is gradually disengaged. It is true, indeed, that every Patient does not receive the same Relief; but if the Distemper begins to give way after a few Pumpings, the Number is not to be regarded. Several Persons who have reap'd no Benefit from the Pumps at *Bourbon*, and other Places, have return'd unrelieved, for want of using it often enough, independent of other Obstacles opposing the Cure. So far *Le Dran*.

I must not dismiss this Article without observing, that though *Ancyle*, or *Ancylolosis*, are usually taken for a Union of the Bones at the Joint in general; yet *Ancyle*, or *Ancylolosis*, properly imports a Stiffness of the Joint, when the Part is fix'd in a bended Position; whereas when it is frait, the Disorder is call'd *Orthocolon*, *ὀρθόκωλον*.

ANCYLIDOTON, *ἀγκυλιδότον*. The Word is used by *Hippocrates*, and signifies, according to *Galen's* Interpretation, *ἀγκύλην ἔχοντα*. Things that have a Handle.

ANCYLOBLEPHARON, from *ἀγκύλη*, bent, and *βλέφαρον*, an Eye-lid. A Disease of the Eye, which closes up the Eye-lids.

Sometimes there is a Coalition of the Eye-lids, so that the Eye cannot be opened; and, what is an usual Accessory to the Disease, a Cohesion of the Eye-lids with the White of the Eye, which is owing to Carelessness in the Cure of an Ulcer affecting either of the Parts; for, as the Sore heals, what might and ought to be separated, will, if neglected, be glued together. The *Greeks* call both Affections *ἀγκυλοβλέφαρον*.

When there is only a Cohesion of the Eye-lids, they may be easily separated, tho' sometimes to no Purpose, for they will unite afresh; however, we ought to try, because it often succeeds. Introduce therefore the Specillum, with the blunt Side towards the Eye, and with it separate the Eye-lids; after which lay some small Pledgets between them, till the exulcerated Place be heal'd.

But when there is an Adhesion of the Eye-lid to the very White of the Eye, *Heraclides the Tarentine* advises cutting at the inferior Part of the Adhesion, the sharp Edge of the Knife being turn'd upwards; but with great Tenderness, that we may avoid cutting off any thing from the Eye or Eye-lid; but, if necessary, let it be rather from the Eye-lid. After this, the Eye must be anointed with Medicines proper to cure Asperities, and the Eye-lid must be turn'd up every Day, not only that the Medicine may have Access to the Ulcer, but also that it may not again adhere; and the Patient himself must be charg'd to raise it often with his two Fingers. I don't remember, that ever any one, by this Method, recover'd; and *Meges*, in his Writings, owns, that he had try'd many things, but never once succeeded; because the Eye-lid always stuck to the Eye afresh. *Celsus*, *Lib. 7. Cap. 7.*

The upper Eye-lid sometimes grows to the lower, sometimes to the *Tunica Adnata*, and sometimes to the *Cornea*. This Disease is an Impediment to the Function of the Eye.

In this Case the Coalition must be dissolved, either by passing a Probe under the whole Eye-lid, or by first distending it with a Hook, and then using the *Pterygotomus*; taking care not to wound the *Cornea*, lest it should occasion a Falling out of the Sight.

After the Section, and Infusions into the Eye, the Eye-lids are kept asunder by the Interposition of Lint, lest they should grow together again; then we apply Wool moisten'd with an Egg [*αἰβερχης*]; and, after the third Day, carry on the Cure with attenuating and cicatrizing Collyriums. *P. Eginet. Lib. 6. Cap. 15.*

When there is a Coalition of the Eye-lids, either with one another, or with the Eye itself, whatever be the Cause, it is call'd an *Ancyloblepharon*; and is easily distinguish'd from that Distemper of the Eyes, when, by the Intervention of some glutinous Matter, as it often happens in the Small-pox, and an Ophthalmia, they cohere or are glued together for a Time only, without a true Coalition.

Sometimes the Eye-lids unite so closely, that the Eye can by no means be open'd (see *Tab. 36. Fig. 23. A. A.*); and sometimes one, sometimes both Eyes labour under this Disorder; sometimes again the Eye-lids cohere with the Eye, either by the White of the Eye, or the *Cornea Tunica*, in a closer or looser manner, according to the Number of Fibres between which there is a Coalition. Affections of this Kind usually hap-

pen whenever the Eyes, or Eye-lids, have been injur'd by the Small-pox, or some violent Inflammation, or an Amblyopia; especially with Gun-powder; or, in short, by any other Exulceration whatsoever. 'Tis also no unusual thing for Infants to be born with this Defect, or for adult Persons to contract the same, as when, by means of a preternatural Excrecence of Flesh in either Canthus, the Eye-lids grow together, of which I have seen an Example.

Tho' this be, for the most part, a dubious and dangerous Disease; yet it is never more so, than when there is a Cohesion of the Eye-lids with the *Cornea*; for, in this Case, the Patient is seldom or never cur'd without the total Loss, or great Diminution of Sight. But the Eye and Eye-lids are separated with the greatest Difficulty, when the Disease is caused by an Amblyopia; wherefore it is much the best way to be diligent in making Injections of moistening and mollifying Medicines into the Eyes, to preserve them always moist and moveable, and to prevent the inflamed Parts from being glued together. But when there happens a Coalition of the Eye-lids from the Small-pox, they usually also grow to the Eye, and especially to the *Cornea*, from which they cannot easily be separated without very great Damage to the Eye; for, however circumspectly and nicely they are divided, there will always remain some Spots and Cicatrices in the *Cornea Tunica*, which are a great Impediment to Vision, and are seldom or never removed.

From the Premises we may infer, that the principal Part of the Cure consists in separating, by the Help of a ready and expert Hand, the conglutinated Parts. For this Purpose let the Patient be placed in Bed, or in a Chair, in such a Position as may be most convenient for taking a full View of the Eye, and for the commodious Access of the Surgeon. This done, the Surgeon is, first of all, to examine whether the Eye-lids be quite closed up, or whether there be any small Interstice to be met with any-where between them; which, if there be any, is commonly found in the great Canthus, or Corner of the Eye nearest to the Nose. If there be a perfect Coalition of the Eye-lids, a small Perforation is to be made in either Canthus, as shall be most convenient; in performing which, the Hand is to be conducted with the greatest Care and Nicety, for fear of hurting the Eye, and especially the *Cornea*. Into this Perforation is to be introduced one Arm of a fine Pair of Scissars, or a crooked small Knife, arm'd with a Button at Top, by the nice and even Management of which the Eye-lids are to be separated from each other. If the Eye-lids are not perfectly united, there is no Necessity of making a new Perforation; but the Instruments before-mention'd are immediately to be introduced, and the Eye-lids disunited in manner aforesaid. But if the Surgeon should not happen to be furnish'd with this Instrument, or Knife arm'd with a Button, to prevent, however, the Eye from being touch'd or injur'd by the Scissars, or sharp Lancet, it will be proper first to introduce a fine Probe with a Groove (see *Tab. 36. Fig. 24.*); and then, by another fine Instrument, as a Pair of Scissars, or Lancet used for Incision of Bleeding, with all imaginable Care to disjoin the Eye-lids from one another.

This done, we are to inspect very narrowly, and examine with the Probe, whether the Eye-lids adhere to the Eye: If this be the Case, we are to proceed with severing them, by cutting with the greatest Caution; or, if they stick to the Pupil by only a few Fibres, the Separation is to be effected by a Knife arm'd with a Button, or a Lancet blunt at the Point. If there be a perfect Coalition of the Eye-lids with the Eye, or at least with a great Part of it, this Operation by Section is usually not only troublesome, but extremely dangerous; for the Eye-lids can hardly be loosen'd from the *Cornea*, without damaging both It and the Sight, as before observed: But if the Coalition is only between the Eye-lids and the White of the Eye; their Division is much easier to be accomplish'd, without Danger of Blindness; for a Hurt done to the White of the Eye is of so small Moment, that I dare maintain, that if an Abscission from one or other of the Parts be unavoidable, it is better to cut off something from that white Tunic, than from the inner Membrane of the Eye-lids; because by injuring this Membrane, the Ducts of the Lachrymal Glands are at the same time very liable to be destroy'd, which would be of very bad Consequence. Hence appears the Necessity of a skilful and well-exercis'd, as well as steady, Hand in this Operation, that the Eye may receive no Damage.

But in order to prevent the separated Eye-lids from a fresh Cohesion, which usually happens, if not prevented by Art, there is no better way than to interpose between them a very thin Slip of the finest Leather, a Bit of Linen, or Gold-beater's Leaf, or Wax, or a thin Plate of Lead, in the Form of a Half-moon, or of an artificial Eye, and anointed with Oil of Almonds, or some such Oil; or else put some Lint between them. And whatever is thus interposed, must there remain for some Days, or till the Danger of a new Coalition is over; or if any thing happens to fall off, or is voluntarily taken off for some particular Reason, it must immediately be replaced. If any Person, as is sometimes the Case, cannot bear to have any thing of this Nature interposed, then, in order to prevent, as much as possible,

ble, a new Coalition, a Collyrium, compounded of Plantain-water, Tutty, and Sugar of Lead, is to be often infill'd into the Eye; or a Powder prepar'd of Sugar, Pearls, and Crabs-eyes, from time to time sprinkled on the Place. The Patients also are to be charg'd gently to rub and stroke their Eye-lids, and to lift them up with their Hands. In short, the Surgeon himself must, now-and-then, introduce a blunt Probe between the Eye and its Lids, for the more easy Prevention of a new Agglutination.

When by means of the Small-pox, or an Inflammation of the Eyes, as it often happens, the Eye-lids stick together during Sleep, thro' the Intervention of some viscid Humours, or glutinous Matter, so that the Eye cannot be opened, nor the Patient have the Use of Sight; in this Case, the Eyes are never to be open'd by Force, but the Humours are rather to be mollify'd by Injection or Instillation, or frequent washing the Parts with warm Milk; by the Use of which the Patients are usually enabled, in a short time, to open their Eyes, and to see again. *Heister.*

ANCYLOGLOSSUM, a Contraction of the Ligaments of the Tongue, hindering Speech. From *αγκυλω*, crooked, and *γλῶσσα*, the Tongue.

Some are Ancyloglossi [Crooked-tongued] from the Birth, others from a Disease. The former are such as have the lower Membrane, which support the Tongue, form'd imperfect, or of too hard a Substance, by Nature; the latter are those who are affected with an Incurvation of the Tongue, occasion'd by a preceding Ulcer, and a hard Cicatrix left under the Tongue; these speak with Difficulty, on which account they are call'd by the Greeks *μυριαδαί*. The Ancyloglossi by Nature are late before they come to their Speech; but after they have begun to speak, they utter their Words without Impediment, and fast enough, yet hesitate in pronouncing Words which are difficult of Pronunciation in other respects, as are those which have R, L, or K, repeated once or oftener. Ancyloglossi ought to be cured only by manual Operation, under the Hands of a Surgeon.

To perform this in a convenient Manner, the Patient must seat himself, and raise his Tongue to the Palate; then, if the Cause of the Incurvation lies in the Membranes themselves, the Surgeon takes hold of them with his Hook, extends them, and cuts them off, taking care that he does not, at the same time, cut the subjacent Veins. But if a Cicatrix be the Cause of the Curvature, it is in like manner taken up with the Hook, extended, and whatever is hard, and not of a Piece with the natural Flesh, is cut off. After the Operation the Mouth is to be wash'd with cold Water, or Posca, and then the Wound is to be sprinkled with Powder of Frankincense, and Lint must be apply'd to the Place. On the Days following the Sore is to be wash'd with Hydromel, and anointed with Egyptian Ointment, and Lint is to be laid thereon, in order to keep the Sides of the Wound separate, that the same may not be form'd again. *Aetius, Tetr. 2. Sermon. 4. Cap. 36. Paulus Aegineta, Lib. 6. Cap. 39.*

That Operation by which the Membrane under the Tongue, commonly call'd the Frenulum, by Physicians, is divided or cut, is styl'd *untying the Tongue*. This Operation is most generally perform'd upon Infants, and that with two different Intentions: First, in very tender Infants, when the fore Part of their Tongues, from the Moment of their Birth, is so closely join'd to the subjacent Parts, by means of this Membrane, that they cannot move their Tongues sufficiently, or thrust them so far out of their Mouths as to be able to suck. This Operation is also perform'd on Children somewhat farther advanced, when, by this Membrane's being too streight or short, they cannot pronounce articulately at an Age when it might be expected of them. For both these Reasons, this Operation is absolutely necessary; but it must be remember'd, that it is not to be perform'd promiscuously, and at random, upon all new-born Children, as most Midwives, Women, and even some Men, idly imagine. We have Reason rather to assert, that it is scarce necessary in one of a thousand Infants; for Experience has shew'd both myself and a great many more skilful Physicians, that this Case occurs far less frequently than Hare-lips; for when a Child can thrust its Tongue without its Lips, there is nothing amiss about the Frenulum; and it will learn, in Process of Time, both to suck and speak, unless there be some other Defect in the Organs necessary for these Purposes. On the other hand, if the Infant can scarce move its Tongue, and cannot thrust it beyond its Teeth; or if, in some other respect, this Membrane should fetter the Tongue, then a skilful Incision becomes very proper: But because this Operation is not to be rashly perform'd, lest, as has frequently been the Case, the most terrible Evils, and sometimes Death itself, should ensue, it will not be amiss to direct to the safest and most accurate Method of performing it.

The Point of the Tongue, then, ought to be a little elevated with the Left Hand, using either a Linnen Cloth, that it may not slip thro' the Fingers, (see *Tab. 42. Fig. 1.*) or even with a small Fork made for that Purpose (see *Tab. 42. Fig. 2. 3. and Tab. 22. O. and P.*); then as much of the Frenulum, as is necessary for Speech and Sucking, is to be cut with blunt-

pointed Scissars, (see *Tab. 22. C.*) or an Incision-knife; betwixt the *Vena Ranina* and the lower Salivary Ducts: But this is to be done with a great deal of Caution, lest either the Salivary Ducts, the *Vena Ranina*, or the Nerves of the Tongue, should happen to be cut at the same time; for when these are injur'd, very terrible Consequences ensue. Thus *Dionis*, in his Surgery, makes mention of an Infant, who by an excessive Hæmorrhage, in consequence of the *Vena Ranina* being cut, died very soon after the Operation. But if a Vein should be unluckily cut, which may very readily happen in a Frenulum that is too thick and short, a Compress, soak'd in Vinegar, is to be held a little while under the Tongue, till the Blood stops; but if, at the first Incision, the Tongue is not sufficiently untied, a few Days, or even a few Weeks after, as Circumstances shall require, the remaining Part of the Frenulum is very cautiously to be cut with Scissars, or an Incision-knife: Then, after the Operation is over, the Finger dipp'd in Honey of Roses, or Syrup of Violets, is very frequently to be rubb'd up and down under the Tongue, and the Wound is to be anointed with it, lest the cut Frenulum should again unite.

From what has been said it appears, that Disorders of this Nature are not only less frequent, but of more difficult and hazardous Cure, than is generally thought. Upon this Account, those Midwives are miserably mistaken, who, concluding with the ignorant Multitude, that no Infant is born without this Defect, thrust their whole Fingers into the Infant's Mouth, and with their Nails destroy the Frenulum; for it must necessarily happen, that such a rash and fool-hardy Laceration, by their Nails, must bring an Inflammation of that Membrane, Convulsions, and often the Death of the little Patient: For this Reason, Midwives and foolish Women are not only to be caution'd against such Practices, but *Hildanus* is to be carefully consulted; for he (in *Cent. 3. Obs. 28.*) hath very accurately laid down not only the Nature and Cure of the Disorder itself, but also the several bad Consequences that possibly may, and generally do, ensue from performing this Operation at an unreasonable Time, or in an uncautious Manner. But when the cutting this Frenulum is absolutely necessary, it may be done much more safely, and with much less Pain to the Patient, by the Scissars refer'd to, than by the long Nails of a simple old Woman. *Heister.*

There is no Operation belonging to a Surgeon, which is commonly esteem'd of so slight Moment as cutting the Ligament under the Tongue, the Care of which is commonly committed to Midwives, who use to break it off with their Fingers. Now this I cannot but disapprove, because they very often lacerate and break the adjacent Parts, so as to occasion a Pain and Inflammation, which hinder the Child from Sucking; whence he grows froward, lean, and weak. We ought therefore to act with Prudence in this Operation, and not think too slightly of it, tho' it seems to be the least in which we are concern'd: In the first Place, we ought to examine, whether the Ancyloglossus really wants the Operation; for Children are often incapable of uttering an articulate Voice, from some other Cause than the Ligament under the Tongue, being not really Tonguetied; and in such Subjects a Section would be dangerous, as will appear from the following Example:

A Peasant of my Neighbourhood, in the Village of *Corfellis*, named *Petit Yeux*, in May 1608. brought his Son, two Years old, to my House, to have his Tongue untied; for the Parents were thoroughly persuaded, that if the Ligament was cut, the Tongue would perform its Office, and the Child would speak in a short time. But when the Mouth was open'd, and the Tongue, which was very thick, was raised, no nervous Ligament appear'd; therefore I sent back the Parent with the Child, without doing any thing. A Month after came about a Circumforaneous Empiric, or Mountebank, who had the Child brought to him: He persuaded his Parents, that his Tongue was ty'd by a very hard nervous Ligament; and had the Impudence to affirm, that for a Sum of ready Money he could easily bring the Child to speak in a short time. He receives the Money, the Child is placed in a Woman's Lap, and the Impostor goes to work; in which, as I was told by some who stood by, he separated the Tongue both before and on both Sides to a great Depth from its Basis. The Consequence was, that the Boy, who before could go upright, on that very Moment sending forth a most loud and bitter Cry, was seiz'd with a Convulsion, so that his Knees were drawn up towards his Groin, and his Arms towards his Breast. On July 18. next, I visited this Child, and found that he could not speak a Word, and that his Legs and Arms were still contracted, and, when extended by Force, still fell back into their former Posture; his Tongue was thick, and his Head, and all Parts of his Body, of a phlegmatic Constitution.

I had a Brother, by the Mother's Side, who was very sickly when a Child, and, amongst other Disorders, could not speak a Word till he was three Years old. As I lived with a Surgeon, and exercised the Operation of cutting this Ligament almost every Day, I had once a Fancy, when I visited my Father's House, to inspect my Brother's Tongue. I found it tied and bridled

bridled with a gross thick Ligament in such a manner, that he could hardly put it out to his Fore-teeth: I cut it as well as I could, and for some Days after anointed the Place three or four times a Day with Honey of Roses. Two Months after the Abscession I found the Ligament in some measure renew'd; so that I was oblig'd to use the same Means as before; which, by the Divine Blessing, happily succeeded; for the Boy began to speak in a short time, and has ever since continued to speak as well and articulately as any Man.

This Operation is void of all Danger, if it be rightly perform'd. We are principally to take care, that we do not cut too deep: My way is to raise the Tongue, and cut the Ligament commonly in two, and sometimes in three Places; by which means it is more difficult for it to grow together again, than if the Incision had been only made in one Place. I cut only what is nervous, scarce touching the Flesh; and if it be not cut enough the first Time; or if it grows together again, the same Operation may be renew'd. When the Ligament is cut, I order the Nurse to raise the Tongue very often, and gently, with her Finger anointed with Honey of Roses, or common Honey, which is the way to prevent an Agglutination. *Hildanus, Cent. 3. Obs. 28.*

ANCYLOMELE, Ἀγκυλομήλη, from ἀγκύλῳ, crooked, and μέλη, a Probe. A Surgeon's crooked Probe; or, a Probe with a Hook.

ANCYLOSIS. The same as **ANCYLE**, which see.

ANCYLOTOMUS, **ANCYLOTOMUM**, Ἀγκυλοτόμος, Ἀγκυλοτόμῳ, from ἀγκύλῳ, crooked, and τέμνω, to cut. A crooked Knife to cut the Ligament of the Tongue: It is also used, as by *P. Egineta*, to signify any crooked Knife in general.

ANCYRA, Ἀγκύρα, an Anchor, a Hook. See **UNCUS**.

ANCYROIDES PROCESSUS, a Process from the upper Part of the Neck of the Scapula, or Shoulder-blade, resembling an Anchor, whence it takes its Name. It is also called *Coracoides*, and *Sigmoides*, from representing, in some measure, a Crow's Bill, and the Letter Sigma. *Rufus Ephesius*.

ANCYROMELE, the same as **ANCYLOMELE**. *Galen* explains it ἄγκυρῃ, a Surgeon's Hook.

ANDA, *G. Pison*. is a Tree of *Brasil*, the Wood of which is spongy and light; the Leaf longish, fibrous, and pointed; the Flower large and yellow, and the Fruit a grey Nut, which incloses, under a double Rind, two Kernels, of the Taste of Chestnuts.

The Fruit is said to be Purgative, and a little Emetic: Two or three of the Kernels are a Dose. They extract Oil by Expression from these Kernels, with which they anoint their Limbs.

The Rinds of the Fruit are esteemed proper to stop a Looseness. Thrown into Ponds, they kill the Fish. *Lemery de Drogues*.

ANDARAC, red Orpiment. *Rul. Johnf.*

ANDAS, a Solution of Salt, or Salt resolved. *Paracelsus*.

ANDENA, Steel imported from the Eastern Countries, which melts in the Fire, and takes any Form. *Rul. Johnf.*

ANDIRA, or, **ANGELYN**, *G. Pison*. a Tree in *Brasil*, the Wood of which is hard, and proper for Building: Its Bark is of an ash Colour: Its Leaves resemble those of the Laurel, but are less: It produces blackish Buds, from whence proceed many Tufts of Flowers, which are fragrant, and of a fine purplish and blue Colour: Its Fruit is of the Shape and Size of an Egg, green at first, but grows blacker by Degrees; has, as it were, a Seam running down one of its Sides, and is of a very bitter Taste. It is cover'd with a hard Rind, inclosing a Grain, or yellowish Kernel, of a bitterish, and somewhat astrigent Taste.

They pulverize this Nut, and give it for the Worms; but the Quantity must not be above one Scruple; for more than this, they say, turns to Poison.

The Bark, Wood, and Fruit of this Tree are as bitter as Aloes, in which it differs from another **ANDIRA**, which resembles it in every thing, except the Taste, which is insipid. The wild Beasts eat of this Fruit, and it fattens them. *Lemery de Drogues*.

ANDIRA, is also an Animal call'd *Andira guacu*; a kind of Bat in *Brasil*, the largest of which are as big as our Pigeons: They call them Horned Bats, because of a sort of Excrecence or pliant Body above their Beak: Their Wings are longer than half a Foot; they are of an ash Colour, have large Ears, and white Teeth; each Foot hath five Toes armed with sharp Claws. They persecute all Sorts of Animals, and suck their Blood. Some of these are very dangerous; for they get into Beds in the Night, and so subtly open the Veins in the Feet of those who are in Bed, that they are no sooner perceived than by the Blood that flows in the Bed, which it is a difficult Matter to stop. The Inhabitants of that Country reckon the Tongue and Heart of that Animal amongst Poisons. *Lemery de Drogues*.

ANDRACHNE. Among the homonymous Words of the *Materia Medica*, which are very numerous, is Ἀνδράχνη, An-

drachne, which signifies a Tree like the Strawberry-tree, and also the Herb *Portulaca*, Purslain. In vain does *Pliny* distinguish here between the Herb and the Tree, by changing one Letter; as if the Tree were call'd Ἀνδράχνη, *Andrachne* [*Pliny, Edit. Santandreaus, 1582, distinguishes the Tree by leaving out a Letter, that is, the first n, calling it Adrachne*]; for this *Attic* Name belongs as well to the Herb as the Tree, the *Attics* usually saying *Andrachne*, instead of *Andrachne*, which is the common Word; just as they say λίτρον, *Litron*, for what others call νίτρον. No less mistaken is *Galen*, when he labours at making a nominal Distinction of Ἀνδράχνη, and Ἀνδράχνη, *Aphronitron*, and *Aphrolitron*.

Andrachne, is the Herb in Latin call'd *Portulaca*, or *Porcaca*, quasi a *Porcis*, "as taking its Name from Swine; and hence "the later *Greeks* have call'd it χοιροβότανον, *Hogwort*." We [the *French*] commonly call it *Pourpier*, when we should say *Poupiéd*, quasi *Pulli Pes*, Fowl's Foot; for so it was call'd by the *Latins* of the latest Ages. The spurious *Macer de Herbis*,

*Andrachne Græcis, quæ Portulaca Latinis
Dicitur, hæc vulgi Pes Pulli more vocatur.*

Many other Herbs have Names of the like Kind imposed upon them; as *Pes Alaudæ*, *Pes Corvinus*, *Pes Columbinus*; *Lark's-foot*, *Crow-foot*, *Dove's-foot*, &c. *Salmaf. de Homonymis. Hyl. Iatr. Cap. 1. See PORTULACA.*

ANDRANATOME, or, **ANDROTOME**, Ἀνδραντομή, or Ἀνδρτομή, from ἀνδρ, a Man, and τέμνω, to cut. The Dissection of a human Body, especially of a Male. *Castellus* from *Marc. Aurel. Severini Zootome Democrit.*

ANDRAPHAXIS, or, **ANDRAPHAX**, Ἀνδράφαξις, Ἀνδράφαξ, in *Hippocr. περί γυναικ.* signify the same as *Atriplex*. Ἀνδράφαξις, stinking *Arrach*. *Fæf. Oecon. Hippocr.*

ANDRAPODOCAPELOI, Ἀνδραποδοκάπηλοι, from ἀνδραποδῶν, a Slave, and κάπηλος, a Dealer; and Ἀνδρακάπηλοι. These were a certain Species of Brokers, mentioned in many Passages of *Galen*. Those People were in antient Times so call'd, who kept Boys, Girls, Slaves, Eunuchs, and other Men for Sale; not for the Purposes of Lust, as Pimps did, but on other Accounts. These People, that they might render their Commodities the more saleable, apply'd themselves carefully to beautify the Bodies of those they were to dispose of: Hence we read in *Galen*, that they us'd to wash the Faces of their Boys with strain'd Pisan, Bean-meal, and sometimes with Nitre, in order to render their Countenances more beautiful and sparkling; that they sometimes lashed the Hips of those which were emaciated, with Rods, and anointed them, that their Bodies might appear fuller and better shap'd; that they brac'd up the Ribs of their Girls with strong Roilers, that their Breasts might appear full, and that the Breadth and Fulness of their Haunches, commonly esteemed an Ornament to a Woman, might be set off to the greater Advantage; and that they sometimes pull'd off, in different Ways, the Hairs growing on their Cheeks, and other Parts of their Bodies, that they might appear more beautiful and young. The *Roman* Ediles enacted a Law, that they should affix certain Titles to their Slaves design'd for Sale, expressive of the Diseases they labour'd under, or the Vices they were addicted to; that the Faulty, in any of these respects, might be return'd to their poper *Andropodocapelos*.

ANDREAS, an antient Physician, mention'd by *Celsus* in the Preface to his fifth Book. This Gentleman, with *Zeno*, and *Apollonius*, surnamed *Mys*, left behind them whole Volumes on the Virtues of purging Medicines. Great Part of these Remedies were neglected, and brought into Disuse, by *Asclepiades*, and not without Reason, as *Celsus* says; for since almost all Cathartics are of bad Juice, and hurtful to the Stomach, this Physician turn'd all his Studies to that Part of Medicine which cures by Regimen.

ANDRÆ COLLYRIUM, the Collyrium of *Andreas*, with which the Forehead is to be anointed in an Inflammation of the Eyes, is thus prepared:

Take Gum Arabic, one Dram two Grains and a half; Cereus, Antimony, each two Drams five Grains; Litharge boil'd and wash'd, four Drams ten Grains. The Litharge must be boil'd in Rain-water, and the dry Ingredients bruised with the Juice of Myrtle. *Celsus, Lib. 6. Cap. 6.*

ANDRÆ MALAGMA, the Malagma of *ANDRÆAS*, for Pains in the Side.

Take of Wax, one Ounce three Drams twenty-seven Grains; Mistletoe, Tears of the Sycamore-tree, each one Dram two Grains and an half; Pepper round and long, Gum Ammoniac, Bdellium, Illyrian Orris, Cardamoms, Amomum, Xylbalsamum, Male Frankincense, Myrrh, dry Rosin, each one Ounce two Drams twenty-five Grains; Pellitory of Spain, Gnidian Grains, Aphronitrum, Sal Ammoniac, Cretan Birthwort, Root of wild Cucumber, Resin of liquid Turpentine, each two Ounces four Drams fifty Grains: To these must

be added as much Unguentum Iridum, as will serve to mollify and make them of a proper Consistence.

This Medicine resolves, draws out a Humour, ripens Pus, breaks the Skin, and cicatrizes. It is proper to be apply'd to small and great Abscesses, and to the Joints; and is therefore good for the Gout and Sciatica. It is good for an inward Bruise, and mollifies Hardnesses and Infections in the Region of the Stomach, extracts Bones, and, in short, is good in all Cases where Heat can be of Service. *Celsus, Lib. 5. Cap. 18.*

ANDRIA, Ἀνδρία, from ἀνὴρ, a Man. An Hermaphroditical Woman, who has the Parts of both Sexes.

ANDRIUS, Ἀνδρεῖος, manly, metaphorically apply'd to strong generous Wine. Ἀνδρεῖος οἶνος in *Hippocrates*, according to *Erotian*, either signifies generous Wine, or Wine from the Island of Andros.

ANDROGENIA, Ἀνδρογένεια, from ἀνὴρ, a Man, and γένναι, to generate. This Word in *Hippocrates*, according to *Galen's* Exposition, signifies a Succession of Males, or a Propagation of the Male Sex.

ANDROGYNI, Ἀνδρογύναι, from ἀνὴρ, a Man, and γυνή, a Woman. Effeminate Men, in Opposition to Andrii, ἀνδρεῖαι, manly. *Hippoc. neci diatr. Lib. 1.* The Word is also used to signify Hermaphrodites.

ANDROMACHUS. *Andromachus* the Elder was a Native of Crete, and lived under the Reign of Nero, as we may conclude from his Poem upon the *Theriaca*, dedicated to that Emperor. *Galen* also observes, that *Andromachus* liv'd after *Menecrates*, who liv'd under *Tiberius* and *Claudius*, and before *Crito*, who flourish'd under *Trajan*. We know nothing concerning this Physician's Sentiments, or the Method of his proceeding in the Cure of Diseases: The only Remains we have of his are a great many Descriptions of compound Medicines, which were partly of his own Invention. *Galen*, who took the Pains to transmit these Descriptions to Posterity, places *Andromachus* among those Authors who have wrote best upon Medicines; but blames him for having given the Descriptions of them, without specifying their Properties and Virtues; and without having pointed out, except very rarely, those Diseases they were calculated to subdue or remove. The most famous of all the Compositions, either invented or described by this Physician, is the *Antidote* which he distinguished by the Epithet γαλήνη, that is, *Calm*; or, rather, according to the Idiom of our Language, *Calm-procuring*; but this Medicine came afterwards to be called *Theriaca*. *Andromachus* wrote a Greek Poem in Elegiac Verse, which he dedicated to Nero, and which is extant to this very Day. In this Work he teaches the Manner of preparing his Antidote; and specifies the particular Disorder for which it is proper. He chose to give this Description in Verse, rather than in Prose, that Alterations might not be easily made in it without being discover'd. At least *Galen* is of this Opinion, and approves of the Conduct of *Andromachus* in this Particular.

Till that Time the Antidote of *Mithridates* was the only Medicine used by every body; but when that of *Andromachus* came to be known, the former was laid aside as useless, tho', to speak the Truth, the latter was no more than an Imitation of it; since the only essential Difference between them consisted almost in nothing else than the Addition of the Vipers as an Ingredient into the *Theriaca*. Notwithstanding this, the Antidote of *Andromachus* was so highly esteemed at Rome, that some Emperors would have it made up in their own Palaces; and took particular Care to have all the Ingredients brought from the Places where they were produced, on purpose. The Emperor *Antoninus* used the Bulk of a Bean of it every Morning fasting, and its Reputation was now so effectually established, that several Physicians endeavour'd, but in vain, to alter it, and compose new *Theriacas* in their own Manner: But the *Theriaca* of *Andromachus* retained its Character in spite of all the Efforts they could make; and what is still more surprising is, that tho' a great many Faults or Superfluities have long ago been observ'd in its Composition, yet, to this very Day, the most considerable Towns in Europe religiously follow the Directions of *Andromachus*, in their Method of preparing it.

This Direction comprehends above sixty Ingredients, most Part of which are Aromatics, except some common Simples, Gums, and inspissated Juices, the most considerable of which is Opium. But the Vipers are the Ingredients from which this Medicine receiv'd the Name *Theriaca*; for the Word θηρίον, among the Greeks, imported all Kinds of fierce Animals, but more particularly such as were esteemed venomous. Before the Vipers were used as an Ingredient in the *Theriaca*, they were thus prepared: After their Heads and Tails were cut off, they were skinn'd, their Entrails taken out, and their Flesh separated from their Bones: Then the Flesh was wash'd, boil'd in Water with Dill and Salt, and kneaded with Crumbs of Bread into such a Consistence, as that the Whole might be form'd into Troches, or little Cakes.

If the Antidote of *Andromachus* was possess'd of the wonderful Qualities ascribed to it by its Inventor, we should scarcely have Occasion for any other Remedy; for he prescribes it against Poisons and Venoms of all Kinds, and pronounces it a Remedy for Pains and Weakness of the Stomach; for Asthmæ, and Difficulty of Breathing; for beginning Consumptions, Emphysemæ, Colics, Jaundice, Dropsies, Weakness of Sight, Convulsions, Ulcers of the Bladder, Venereal Impotence, Pains of the Kidneys, and even of the Plague itself.

Andromachus the Son, who reduced the Father's Verse to Prose, asserts, in so many Words, that the *Antidote* called *Theriaca* was excellent in all Indispositions of Body, proceeding from internal Causes, and especially for Disorders of the Stomach, for Poisons, and for intermitting Fevers.

Both Father and Son talk'd of their Antidote in this romantic Strain. But before we go farther, we must make a particular Inquiry into the Time when; and the Manner how, these Compositions came to be used; and what it was that People meant by an *Antidote*. *Hippocrates*; and the most ancient Physicians, seem to have founded the principal Maxims of their Practice upon the Observation of the several Motions of Nature in particular Distempers; and almost the Whole of their Method of Cure consisted in Diet, that is, in giving proper Rules relating to the Regimen of the Patients. *Herophilus* and his Followers were the first who made any considerable Use of Medicines, or who began to repose a greater Confidence in their Efficacy, than the Physicians who went before them: *Hippocrates*, it must be owned, made use of them sometimes, but very rarely, and even those he prescribed were of the most simple Kind. This Practice was not imitated by the Abettors of *Herophilus*, nor even by some Physicians, who liv'd a little before his Time; witness the Complaint which *Erasistratus* his Contemporary made against those who compos'd *Royal Compositions* and *Antidotes*, which they styled the *Hands of the Gods*. In these there were Ingredients drawn from Plants, from Animals and Minerals; from the Earth, and from the Sea.

But, compound as these Antidotes were, of which *Erasistratus* complains, 'tis probable that they were not so faulty, in that respect, as those which were afterwards made; and that before the Antidote ascribed to *Mithridates*, the shortest Receipt of which contains thirty-six Ingredients, so compound Preparations had not been seen. There was also another Antidote much more simple, the Receipt of which was found in the Closet of *Mithridates*, after he was routed by *Pompey*. We don't know at what particular Time this second Receipt or Prescription was made public, but 'tis probable it was so, very soon after the first, whether it actually had *Andromachus* for its Author, or only usher'd itself into the World, under the Sanction of his Name. Be this as it will, *Celsus*, who probably liv'd about an hundred Years after *Mithridates*, has describ'd the *Mithridate*; upon the Model of which the *Theriaca*, and all the other Medicines, consisting of a great Number of Ingredients, were made.

It may be said, in Defence of these Compositions, that Experiments upon Simples being daily multiplied, Physicians imagined, that the more of these Simples of similar Qualities were crouded into a Composition, the more likely it was to answer the End intended by it. It is also possible, that, as their Knowledge, both of the Qualities of Simples, and the Natures of Diseases, was very imperfect, they might imagine, that by mixing a great many Drugs together, they could produce Effects which one could not, since the Medicine is often wiser than the Physician who prescribes it. But *Pliny*, and a great many others after him, have imagin'd, that they crouded such a Number of Simples into their Compositions, only ad *Ostentationem Artis*, rather to make People believe, that there was more of Art and Mystery in their Profession, than from a Persuasion that such a Farrago was of any real Use in the Cure of Diseases.

The same Author, reflecting upon the *Mithridate* having fifty-four Simples in its Composition, and upon the small Quantity of each Ingredient that must consequently be taken at a Dose, is so provok'd against this Abuse, that he openly declares his Surprise, that Men should be capable of so glaring and bare-fac'd a Piece of Imposture. He puts the *Theriaca* upon the same footing, and says, that the *Theriaca* was invented for the sake of Delicacy or Sensuality; that it is composed of Ingredients produced in Foreign Countries; and that there were every-where Numbers of simple Medicines capable of answering the same Purposes equally well. Here he must certainly mean the *Theriaca* of *Andromachus*; for what he says with regard to the Foreign Ingredients, cannot be apply'd to that other Sort of *Theriaca*, which he elsewhere describes, [*Lib. 20. Cap. 24.*] and which, he says, consists only of a very small Number of common Simples. Hence we may infer, that the Antidote of *Andromachus*, which was called *Galenæ* by its Author, had the Name of *Theriaca* given to it before the Days of *Crito*, as the Author of the Book *De Usu Theriacæ*, ascribed to *Galen*, insinuates. Now *Crito* liv'd under *Trajan*, whereas *Pliny* liv'd under *Nero* and *Vespasian*, and consequently

quently might have seen both the elder and younger *Plinys*, whose Cotemporary he was, tho' he mentions neither one nor the other.

As for the Name *Antidote*, which was bestowed upon the *Theriaca*, it is composed of two *Greek* Words, one of which signifies *against*, and the other *given*; because Antidotes were given against Poisons, Corruption of Humours, or other bad Dispositions of Body. This Word seems in the *Greek* Language to be both of the Masculine and Feminine, and even sometimes of the Neuter Gender; and the *Latins* have said, *hæc Antidotus*, and *hoc Antidotum*. But, in all Probability, the *Greeks* at first used this Word as an Adjective, and not as a Substantive. When they used the Words *ἰσχυρὸν*, they understood the Substantive *Δύναμις*, which signifies every Sort of Medicine, Simple as well as Compound. The *Latins* might have translated the Word *Δύναμις*, by *Potentia*; but the Idiom of their Language, and the particular Idea they had affix'd to that Word, would not admit of such a Translation. The *Latins* then, for want of a proper Word to express the *Greek* *Δύναμις*, made use of the Words *Medicamentum* and *Compositio*, *Δύναμις ἰσχυρὸν*, *Compositio contra data*, as if one should say, *Δύναμις τελεσπάρχων*, a Composition, consisting of four Simple Ingredients; *Δύναμις ἰσχυρὸν, ἀσκήσαν*, a Composition for the Liver, or the *Aspera Arteria*. The Word *Δύναμις* was not only suppress'd by the *Greeks*, when they talk'd of Antidotes, but almost upon all other Occasions: Thus, for Instance, they used *ἰσχυρὸν καδελόν*, to express a Composition of Poppy-heads, and even without the Article, they used *ἀσκήσαν*, to denote a Medicine for the *Aspera Arteria*; *καλὴν*, for a Medicine against the Colic. We may even venture to say, that the Conjunction of these two Words *Antidotus Tranquilla*, or *Theriaca*, imports, that the former is a Substantive, and the latter an Adjective; but we must observe, that the Adjective *tranquilla* is an Epithet given to this Composition, and that the Meaning is the same, as if one should say, *Compositio Antidotus, Tranquilla dicta*; so that these two last Words are equally Adjectives. The Case is the same with regard to the Names of other particular Antidotes, such as *Hiera*, or *Sacred*, *Telia*, or *Accomplish'd*, &c. I may also shew, that the Word *Antidotus* was an Adjective, from the Use *Scribonius Largus* makes of it, who calls a Plaster, applied to Bites given by mad Dogs, *Emplastrum Antidotum*. I must also observe, that the *Greeks*, in their Turn, had no Word that corresponded directly to the *Compositio* of the *Latins*; for *Σύνταξις*, 'tis true, signifies *Composition*; but then it is restrained to the Act of Composing, and did not imply the Effect or Result of that Act, or the Thing composed; which the *Latins*, and we ourselves, mean by the Word *Composition*. In *Artemidorus*, the Word *Σύνταξις* occurs, which *Cornarius* translates *Compositio*; but I am inclined to think, that it ought rather to be translated by the Word *Præscriptum*, or the Receipt of a Physician.

Having now hinted at the Name of this Medicine, the Nature and Number of its Ingredients, and the Properties ascribed to it by its Inventor, it now remains, that we should give some Account of the Method in which it was prepared, and the Consistence it had; which was common to it, with all the other Antidotes. In order then to prepare the *Theriaca*, the Spices and other Ingredients capable of being reduced into a Powder, were pounded. The Gums and Juices were dissolved in *Cretan* or *Falernian* Wine, and passed through a Sieve after they were reduced into a Pulp. Then all these were mixed *secundum Artem*, in three times the Quantity of clarified *Attic* Honey. I think it needless to enter upon a fuller Detail, or more particular Account; of this Medicine, because 'tis in our Day too well known to call for a more minute and particular Description. What has been said of the Quantity of Honey used in this Composition, is sufficient to convince us, that it must have been of a pretty good Consistence. I shall not here speak of the various Antidotes which different Physicians invented in Imitation of the *Theriaca*, and the *Mithridate*, neither shall I consider those that were in Use before only; thus much I must observe in general, that they were all nearly of the same Consistence, since they were all made up of various Powders, Gums, Juices, and Honey. *Le Clerc Hist. de la Medicine*.

To this Account of the Origine of the *Theriaca*, I shall subjoin the Method of making it, as directed by the College, with *Quincy's* Remarks.

ANDROMACHI THERIACA. The Treacle of *Andromachus*, commonly called *Venice Treacle*.

Take of the Troches of Squills, forty-eight Drams; of the Troches of Vipers, Long-pepper, Opium, and Troches of Hedychoi, each four-and-twenty Drams; of exungulated dry red Roses, of fragrant *Sclavonian* Orris, of Juice of Liquorice, of Sweet Navew-seeds, of Tops of Scordium, of Opobalsamum, Cinnamon, and the Troches of Agaric, each twelve Drams; of Myrrh, Sweet Costus, or Zedoary, Saffron, true Cassia Bark, Spikenard, Schœ-

nanth, white and black Pepper, Male Frankincense, *Cretan* Dittany, Rhapontic, *Arabian* Stechas, Horehound, *Macedonian* Parsley-seeds, Calamint, *Cyprus* Turpentine, Roots of Cinquefoil, and Ginger, each six Drams; of the Tops of *Cretic* Polymountain, of Ground-pine, *Celtic* Spikenard-roots, Amomums, Styrax, Meum-root, Tops of Germander, *Pontic* Phu-root, *Lemnian* Earth, *Indian* Leaf, calcined *Roman* Vitriol, Gentian-root, Gum Arabic, Juice of Hypocystis, Carobalfam, or in its Defect, Nutmegs or Cubebs, of Seeds of Anise, Cardamoms, Fehil, and Heartwort, of *Acacia*, or in its stead, the inspissated Juice of four Plums, of the Seeds of Treacle-mustard, Tops of St. John's-wort, Seeds of Bishops-weed, and Sagapenum, each four Drams; of the best Castor, long Birthwort-root, Bitumen Judaicum, or Amber, *Cretic* Daucus-seed, Opopanax, the Lesser Centaury, and fat Galbanum, each two Drams, of old Canary, a sufficient Quantity to dissolve the moist and dissolvable Ingredients; and of clarified Honey, triple the Weight of all the dry Species: Make it into an Electuary. *S. A.*

This is likewise made with *Syrupus de Meconio* instead of Honey.

This hath continued the same in almost all the Dispensatories it hath yet passed through, and is not only the capital Alexipharmic of our Shops, but of all *Europe*. It has a great deal more wrote about it, than could be contained in the largest Volume: We shall therefore content ourselves with as short Remarks upon this grand Medicine, as is consistent with that Acquaintance every one in the Practice of Physic ought to have with it. That we frequently call it *Venice Treacle*, is from the great Quantities made there, and thence transported to most Parts of the World. As this has passed through many Ages, and the Hands of many, in their own Opinions, able to alter it for the better, there are abundance of different Recipes extant in Dispensatory Writers; and this of our College seems to be one of the best; that in the *Augustan* Dispensatory differs little from it. *Diemerbroeck* greatly extols the Multiplicity of Ingredients in this Composition, and had odd Notions of the united Efficacies of such Ingredients arising to a much higher Degree, and exalting the Virtues of each much beyond what they were possessed of when separate. *Monf. Chorras*, a *French* Author, has wrote a whole Treatise upon the *Theriaca*, and is very particular upon each Ingredient, but says nothing worth Notice here. *Zwelfer*, in his Animadversions upon the *Augustan* Dispensatory, says most to our Purpose, in which he has followed *Quercetan*. Many Ingredients are by them justly found Fault with, as not at all agreeing with the Intention of the Whole, such as Agaric, Rhubarb, Vitriol, &c. The Troches of Squills are likewise rejected, with those of the Viper; because the manner of making them into those Forms, destroys the Virtues which they are intended to retain. If therefore such were omitted, and others proportionably increased, so that the Opium might still have the same Proportion to the Whole, the Medicine would be much the better.

In the Dispensation of this Medicine, *Zwelfer* divides the Ingredients into several Classes, according to their Similitude of Textures; some to be dissolved as the Gums, and the other powdered separately, and afterwards mixed: But such a Trouble seems altogether needless; for some of the more tough and moist Ingredients will beat well enough with such as are drier, and more brittle, and pass the Sieve together; and some even powder the Opium itself, which is as good a way as any, if it has been already cleansed of its Fœces. All the Herbs ought to be cleared of their Stalks, and to be as fresh as possible; and the Roots should be freed from every thing that is unsound or decaying. The Saffron, if its Colour be insisted upon, may be powdered separately, and put into the Wine, drawn from the Vipers. The Galbanum, Turpentine, &c. must be first strained, and mixed with the Honey; and the Species sifted in leisurely, another stirring it all the time, that it may be well mixed; and last of all, the Wine is to be put in. This is a noble Medicine, and cannot be exceeded by any Composition as an Alexipharmic, and a Cephalic; for there is scarce any particular View, which any Symptom can give in either of these Intentions, for which there are not many Ingredients herein of great Efficacy provided. It is a good Opiate, and may more safely be taken than many of the plainer Opiates, in Cases that require some Stimulus to be used at the same time, with such things as procure Indolence; because such alone are apt to occasion Stagnations, and other Inconveniences. There is one Grain of Opium in each four Scruples, and therefore it may be given from one Scruple to two Drams, as the Strength and Circumstances of the Patient require.

Many here have a Prejudice, that this Medicine, made in *England*, is not so good as what comes from *Venice*, as if the Name, which by mere Accident it has obtain'd, confined it to be made good only in that Place; and their Vipers, they

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they say, are much better than any other. But there is no Foundation for this; for tho' their Country is hotter, and so may the more rarefy the viperine Juices, in which their Efficacy herein consists; yet the manner of their making them into Troches loses so much of their Volatility, that the way we have here directed to manage them, carries much more of their Virtues into the Medicine. Besides, this is but a naked Supposition, and in which there does not seem to be any Weight; for if we may judge by their poisonous Properties, the Bites of our Vipers, at the proper Time of the Year, which is the hottest, are as efficacious and deadly as theirs. But to end all Controversy on this Head, if a proportionable Quantity of the volatile Salt, drawn from these Creatures, be put into this Medicine, instead of any other Preparation, the Virtues will then be exactly the same; for the Salt which is produced from one, tho' it does not rise in such Plenty, is however of equal Virtues with that which comes from another. But if any other Country has the Advantage over us in this one Ingredient, ours has it much more, in another of as great, if not greater Moment; and that is, in the Saffron; for that which our own Country produces, is of four times more Strength and Goodness, upon every Account, than any which comes from abroad. This foolish Opinion, of the foreign Theriaca being better than what is made here, has occasioned the common People to be cheated, as they too much deserve, with the worst of Medicines for right Venice Treacle. For they, imagining that to be the proper Place of its Manufacture, and that it can come from thence genuine, at cheaper Rates than it is here sold at in our Shops, please themselves much with a Tincture, at a low Price, of a dirty Sailor, who pretends to have imported it, wrapt up with printed Directions in the Italian Tongue; whereas some of our Druggists, and unworthy Wholesale Dealers in Pharmacy, make this wretched Stuff of little else than the Sweepings of their Shops, have the very Bills printed in London, and put it off in this Disguise, upon such simple People. In Reality, no Country can make this cheaper than ourselves, and not easily so cheap, because many of the Ingredients are furnished us from both the Indies. And no one here, buying every thing to the best Advantage, can make it for so little as three Shillings a Pound out of Pocket; and therefore any one may judge what that must be, which is sold for less, as it is by these pretended Importers. They who have any Suspicion, that this is an Injustice upon their Venice Treacle Merchants, may be satisfied at almost any Printer's, who print and keep by them such Italian Directions; unless they can persuade themselves, that an Apothecary at Venice is forced to send to London to have his Bills printed.

This one Remark more the present Practice will not suffer us to omit, which is making this Medicine into an Electuary with *Syrupus de Meconio*, instead of Honey; but such who think there is equal Reason for so doing, proceed upon a great Mistake. The Diacordium is calculated for an Astringent, to which Intention Honey is opposite, because it attenuates and deterges, and therefore with great Reason was the *Syrupus de Meconio* substituted in its Room; but in an Alexipharmic Composition, as the Venice Treacle is, to reject Honey, which is of the same Intention, and very powerfully so too; and substitute what is contrary, unless by Accident, seems to be owing more to Whimsy, or the Vanity of leading an Example, than any good Reason. Opiates indeed contribute somewhat, which, we say, by Accident, forwards the Intention of an Alexipharmic; but in the Theriaca there seems to be a full Proportion of Opium already; so that by the Addition of the Diacordium, instead of procuring that easy Relaxation which favours the Operation of an Alexipharmic, there is induced such an Insensibility, that the Secretions will rather be diminished than enlarged; that is, instead of warming the Patient into a Sweat, he will be dozed into a Stagnation, and so have a Fever, which might be soon thrown off, changed into one of a putrid malignant Kind. And Instances of this Nature I have more than once met with, from the common Venice Treacle, when imprudently taken, or in an Over-dose; and therefore such Accidents are much to be feared, when this Alteration comes more to take Place. The greatest Reason which can be alledged for this Practice, is the Honey disagreeing with some particular Constitutions; but one Instance of this does not happen to a hundred of the contrary: And, if this is sufficient, it pleads for the same Alteration in most of the Official Electuaries; because there are few of them without it. *Quincy's Dispensatory*.

Quincy is undoubtedly right in his Remark with respect to the Change of Honey for Diacodium in this Composition; for if it is made without Honey, it must be a Medicine very different in every respect from the true Theriaca Andromachi; because Honey, by its Fermentation, induces a very great Change in all the Ingredients which enter the Composition of this Capital of the Shops, and unites the Virtues of all the Simples together, so as to become altogether as one, and to act with Uniformity in the Compound.

The Receipt of *Myrsifus* has the Ashes of Crawfish burnt in this Composition.

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ANDROMACHI ANTIDOTUS AD CALCULOSOS: *Andromachus's* Medicine for the Stone and Gravel. It breaks the Stone by Degrees, and expels it, thoroughly cleansing the Bladder, till the Urine is at last discharged pellucid; and, what is of greatest Moment, works so perfect a Cure, that the Stones shall not grow again. It is thus prepared:

Take of Seed of Wild Carrots, Anise, Cucumber-seed husked, Seed of Smallage, Parsley, Myrrh, each a Dram and an half; Cassia, Cinnamon, Celtic Nard, each one Dram; bruise them in Water, and make them up in the Form of small Lupines, to be taken fasting every Day, for thirty Days together, in a quarter of a Pint of Water. *Actius, Tetr. 3. Serm. 3. Cap. 13.*

ANDROMACHI COMPOSITIO AD DENTES MOLARES, *Andromachus's* Composition for the Grinders or Cheek-teeth, which easeth the Pains thereof in an Hour, is made of

Pepper, Pellitory of Spain, Juice of Spurge, Galbanum, of each an equal Quantity. Make them up with Galbanum, and put the same into the Hollow of your Teeth. *Idem, Tetr. 2. Serm. 4. Cap. 33.*

HEPATICA ANDROMACHI CYPHOIDES. The Hepatic Cyphoides of *Andromachus*, good in all Diseases of the Thorax.

Take of Raisins of the Sun, twenty-five Drams, some have it a hundred; of Saffron, a Dram; of Calamus Aromaticus, two Drams; of Bbellium, Juncus Odoratus, each two Drams and an half; Cinnamon, Cassia, Spikenard, each half a Dram; Myrrh, Turpentine, each four Drams; some have it sixteen; Aspalathum, a Scruple; Honey, sixteen Drams; Wine, a sufficient Quantity. *Actuarius, Meth. Med. Lib. 5. Cap. 6. See CYPHI.*

ANDRONIS MEDICAMENTUM PRO CANCRO. *Andron's* Remedy for a Cancer in any Part of the Body.

Take of the Rind of Pomgranate, ten Drams twenty-five Grains; of Birthwort, nine Drams twenty-two Grains and a half; of Aloes, four Drams ten Grains; of Myrrh, two Drams five Grains; of Galls, eight Drams twenty Grains; of Plumous Alum, three Drams seven Grains and a half; of Flos Aëris, two Drams five Grains. Bruise them, and sift them very carefully; then pour to them as much Cretic Raisin-wine, as shall make it of the Thickness of Honey. Keep it in a glass Vessel; and when there is Occasion, take it diluted with austere Wine. This Medicine is good for Carbuncles, for the Ignis Sacer, and for the Girdle, which the Greeks call *Herpes* [*εἶρας*]. *Scribonius Largus, Cap. 13.*

ANDRONIS MEDICAMENTUM IN UVAM. *Andron's* Remedy for the Swelling of the Uvula, consists of

Plumous Alum, Squama Aëris, Vitriol, Galls, Myrrh, Misy. Bruise and mix them together, adding by Degrees, as much austere Wine as will make it of the Consistence of Honey. *Celsus, Lib. 6. Cap. 14.*

ANDRONIS PASTILLI. *Andron's* Troches.

These Troches, *Actius* tells us, are good for running Ulcers; also for Inflammations of the Uvula, and Defluxions on the Tonsils, if the Parts under the Chin be anointed therewith. They take off Films from the Eyes, and are serviceable in the Beginning of Inflammations of the Glandules about the Groins, and for Abscesses in the Intestines after they are broken, when taken in a Clyster with two thirds of a Pint of Water, if there be a Fever, or with the like Quantity of Wine, if there be none. They also deterge the Callosities of Ulcers, and are thus prepared:

Take of Balaustines, ten Drams twenty-five Grains; Galls, Birthwort, each eight Drams twenty Grains; Plumous Alum, Vitriol, each four Drams ten Grains (some take but half that Quantity); Myrrh, Aloes, Frankincense, Saffron, each one Dram two Grains and a half. Bruise them first separately, and then all together, and reduce them into Troches. *Actius, Tetr. 4. Serm. 2. Cap. 50.*

P. Egineta gives a somewhat different Preparation of these Troches, as follows:

Take of Balaustines, ten Drams twenty-five Grains; Galls, eight Drams twenty Grains; Myrrh, Round Birthwort, each four Drams ten Grains; Vitriol, Saffron; Plumous Alum,

Alum, Crocomagna, Misy, Frankincense, each two Drams five Grains; bruise them in austere Wine or Vinegar. *P. Aegineta, Lib. 7. Cap. 13.*

He reckons it among the vehement Kind of Remedies for the Herpes and Carbuncle. *Lib. 4. Cap. 20. & 25.*

ANDRONION, the same as ANDRONIS PASTILLI.

ANDROSACES, Offic. Chab. 458. *Androsace annua spuria*, Ger. 425. Emac. 531. *Androsace Matthioli altera*, J. B. 3. 368. Raii Hist. 2. 1086. *Androsace altera major Matthioli*, Park. Theat. 560. *Androsace vulgaris latifolia annua*, Elem. Bot. 101. Tourn. Inst. 123. Boerh. Ind. A. 201. Rupp. Flor. Jen. 13. *Auricula urfi affinis*, *Androsace dicta major*, Herm. Hort. Lugd. Bat. 82. *Sanicula affinis Planta*, *Androsace dicta major*, Hist. Oxon. 2. 556. *Alpine affinis*, *Androsace dicta major*, C. B. Pin. 251. SUMMER NAVEL-WORT. Dale.

Androsaces grows in the maritime Places of Syria. It is a slender Herb, with thin Stalks, bitter, leafless, bearing small Pods on the Top, which contain the Seed.

The Quantity of two Drams hereof taken in Wine powerfully provokes Urine in hydropical Persons. The Decoction of the Herb, and the Seed, work the same Effect. It also makes a useful Cataplasm for the Gout. *Diosc. Lib. 3. Cap. 140.*

Oribasius reads λευκή, white, instead of λεπτή, slender. *Pliny* also says it is white, and in the rest agrees with *Dioscorides*.

It is a Plant which pushes up many hairy Stalks half a Foot high; the Top, dividing itself into six or seven Parts, forms a sort of Umbel; its Leaves are long and large, hairy, nervous, like that of Plantain; indented all round, spreading round about the Stalk upon the Ground; the Flower is small and white, spreading at the Top, and cut into five Segments; when the Flower withers, a little orbicular Fruit is found as big as a Pea, containing many longish and reddish Seeds; its Root is short and fibrous: It grows in maritime Places, amongst Corn, and in Woods; it contains a great deal of Salt.

It is aperitive, and good for the Dropsy, for Retention of Urine, and for the Gout.

Androsace is so called, from its bringing Relief to Men: *αὐτὸς ἀνδρὸς οὐρεσιν*. *Lemery de Drogues.*

ANDROSÆMUM, Offic. *Androsæmum vulgare*, Park. Theat. 575. Merc. Bot. 1. 19. Phyt. Erit. 8. Mer. Pin. 8. Raii Hist. 2. 1020. *Androsæmum maximum frutescens*, C. B. Pin. 280. Boerh. Ind. A. 242. *Hypericum maximum (quasi frutescens) bacciferum*, Hist. Oxon. 2. 472. *Hypericum maximum Androsæmum vulgare dictum*, Raii Synop. 3. 343. *Siciliana*, aliis *Ciciliana*, vel *Androsæmum*, J. B. 3. 384. *Siciliana*, vel *Androsæmum*, tota bona quibusdam, Chab. 457. *Clymenum Italorum*, Ger. 435. Emac. 543. TUTSAN, or PARK-LEAVES.

It grows in Hedges and Thickets, flowers in July and August; the Flowers, Leaves and Seed are used, which have the same Virtues as Hypericon, or St. John's-wort. Dale.

ANDROSÆMUM is by some called *Dionysias*, by others *Afcyrus*; but there is a Difference between this Plant and *Hypericum* and *Afcyrus*. It is a shrubby Plant, with small slender Twigs, and Branches of a scarlet Colour, and Leaves three or four times as large as those of Rue; which, being bruised, yield a viscid Juice. At the Head it expands itself into a Multitude of Branches, about which grow small yellow Flowers, producing a Seed in the Calyx, like that of black Poppy, and distinguished by Marks, as if they were engraved.

The Leaves, bruised, yield a resinous Smell. The Seed, pounded, and drank to the Weight of two Drams, purges Bile. It is very useful in the Sciatica; but after Purging, the Patient is to take a Draught of Water. The Herb, used in a Cataplasm, heals Burns, and stops Hemorrhages. *Dioscorides, Lib. 3. Cap. 173.*

ANDROSÆMON, or, as others call it, *Afcyrus*; is not unlike *Hypericon*, only has greater, thicker, and redder Stalks. The Leaves are white, and shaped like those of Rue. The Tops of the Herb, bruised, yield a Blood-like Juice. It springs up among the Vines, and is commonly digged out about the Middle of Autumn, and hung up. Bruised with the Seed, and taken to the Weight of two Drams, either in the Morning or after Supper, in Hydromel, Wine, or pure Water, it is a good Purge. But the next Day, the Patient must take the Weight of a Dram of Capet-root mixed with Rosin, and four Days after, he is to do the same. After Purging, the Patient, if of a robust Constitution, ought to drink Wine; if weak, Water. *Pliny, Lib. 27. Cap. 4.*

It is called *Androsæmon*, from *ἀνδρ*, a Man, and *αἷμα*, Blood, from its making the Fingers of those who rub it, look bloody. *Oribasius, Med. Coll. Lib. 11.*

The Stalks of *Tutsan* grow to be two or three Foot high, smooth, reddish, and not much branched, having two large oval brownish green Leaves set opposite at every Joint on very short Foot-stalks, those next the Ground, being usually smallest. On the Top of the Stalks grow the

Flowers, several together, on pretty long Foot-stalks, of five small yellow roundish Leaves apiece, with Stamina in the Middle, of the same Colour, yielding a reddish Juice, upon being rubbed between the Fingers, and are succeeded by Berry-like Seed-vessels, green at first, and afterwards of a deep-shining Purple, almost black, containing small Seed in a purplish Juice. The Root is somewhat thick, of a reddish Colour, with many Fibres. It grows in Hedges and Thickets, and flowers in July.

The Leaves and Flowers are sometimes used, and are counted much of the Nature of St. John's-wort, being a good Wound-herb, used both inwardly and outwardly; and is therefore called in French, *Tout-sain*, signifying *All-heal*, and from thence by us corruptly, *Tutsan*. *Miller Bot. Off.*

It contains a great deal of Oil, and a moderate Quantity of Salt and Phlegm.

It is aperitive, vulnerary, resolute, good for the Stone, to kill Worms, to resist Malignity, and guard against Madnefs, being externally or internally apply'd. *Lemery de Drogues.*

ANDROTOME. See ANDRANATOME.

ANECPYETUS, *Ἀνεκπύετος*, unsuppurated, from *ἀ* Neg. and *ἐκπύετος*, suppurated. See *ΕCΠΥΕΜΑ*.

ANEILEMA, ANEILESIS, *Ἀνείλημα*, *Ἀνείλησις*, from *ἀνείλω*, to roll up, or involve. An Involution, particularly such as is caused by Gripes and Flatulencies in the Intestines. *Hippoc. de vet. Med.*

ANEMONE, a Plant which Botanists, from the Time of *Dioscorides*, have distinguish'd into the cultivated; and wild Sort. The first is,

Anemone hortensis, Offic. *Anemone Geranii Rupertiani folio cœruleo*: an *Dioscoridis*, C. B. Pin. 174. Tourn. Inst. 277. Hist. Oxon. 2. 426. *Anemone Geranifolia*, Ger. 304. Emac. 377. Raii Hist. 1. 625. J. B. 3. 405. *Anemone Geranii folio, radice tuberosa, flore cœruleo & albo*, Chab. 462. *Anemone tenuifolia sive Geranifolia cœrulea*, Park. Parad. 208. GARDEN-ANEMONE. Dale.

The wild Sort is call'd

Anemone sylvestris, Offic. *Anemone Matthioli*, Ger. 304. Emac. 377. *Anemone sylvestris alba major*, C. B. Pin. 176. Raii Hist. 1. 627. Rupp. Flor. Jen. 128. Tourn. Inst. 277. Elem. Bot. 239. Boerh. Ind. A. 37. Buxb. 23. Hist. Oxon. 2. 425. *Anemone sylvestris latifolia alba, sive tertia Matthioli*, Park. Parad. 202. *Anemone magna alba, plurimâ parte anni florens*, J. B. 3. 411. *Anemone magna alba, capitulo tuberoso, caule densa lanugine cœnescente*, Chab. 464. WILD ANEMONE.

Of this Plant there are two distinct Species, the garden and the wild ANEMONE; and each of these Species is subdivided into several others, but especially the former, which is carefully cultivated in Gardens, on account of the Beauty of its Flowers. Their Roots send forth Leaves, that are almost round, and resemble those of Sow-bread, Mallows, Crane's-bill, or *Sanicle*. Some of these Leaves are pretty large, and others smaller; some of them are deeply indented, and others not so much; but still each Leaf has its proper Stalk. From the Middle of these Leaves arise small Stalks, bare half way up, where they are adorned with three Leaves, disposed in Form of a Collar. Each of these Stalks bears at its Top a beautiful large round Flower, with several Leaves disposed like those of a Rose. This Flower is single or double; yellow or white, purple or carnation, blue or red, violet, or diversified with several Colours, and sometimes adorned with a Tuft. When this Flower falls, a Fruit appears in its Place, which is generally of an oblong Figure, and includes a Nut filled with several Seeds, each of which is covered with its proper Husk, which is generally soft like Cotton. Its Root is fungous or knotty, and has many Fibres sprouting out from it. The wild Anemone grows in rising Grounds, and mountainous Places. Both Species of this Plant contain a great deal of Salt and Oil.

This Plant is deterfive, aperient, inciding, vulnerary, desiccative; but generally 'tis only used externally. It is used in Errhines and Collyriums for Ulcers of the Eyes. *Lemery de Drogues.*

There are two Kinds of Anemone, the wild, and the cultivated. Of the latter, one Sort bears a scarlet Flower, another a whitish, or milk-white, and another a purple one. The Leaves are like those of Coriander, tho' but slightly jagged near the Ground. The Stalks are downy, slender, bearing Flowers like those of the Poppy, and inclosing a black or sky-coloured Head in the Middle. The Root is of the Bigness of that of the Olive, or bigger, and divided as it were by Joints. The wild Kind is larger in all respects than the other, having broader and harder Leaves, and a longer Head, a scarlet Flower, with small and slender Roots, more in Number than the former. There is one Sort of it which has black Leaves, and more of Acrimony than the rest.

Both Kinds are acrimonious; for which Reason the Juice of the Root, snuffed up the Nostrils, is good to purge the Head. The Root, chewed, draws out Phlegm. Boiled in Passum,

[γλυκύ,

[γλυκὺν, Wine made of Grapes that have hung on the Vine till wither'd by the Sun] and apply'd as a Cataplasm, it cures Inflammations of the Eyes, deterges Specks, and whatever causes Dimness of Sight, and cleanses Ulcers of Filth. The Leaves and Stalks boiled in Ptisan, and eaten, breed Plenty of Milk in the Breasts, and made into a Pessary, provoke the Menfes; apply'd in a Cataplasm, they remove the Leprosy.

Anemone is by some called *Phenion*. There are two Kinds, the wild, and what is cultivated in Gardens; both delight in a sandy Soil. Of the garden Kind there are several Sorts; for one bears a scarlet Flower, which is the most common, another a purple, and a third a milk-white Flower. The Leaves of these three Sorts are like those of Smallage. They seldom exceed half a Foot in Height, and have a Top like that of Asparagus. The Flower never opens but when the Wind blows, whence it takes its Name. The wild Kind is the larger, has broader Leaves, and a scarlet Flower. Many have mistaken this for the Argemone, others for the red Poppy; but there is a great Difference between them, for both these come later in Flower, nor have they the Juice or Flower-cups of Anemone, and are only like it in having an Asparagus-top.

The Anemones are good for the Pains of the Head, and for Inflammations; help Diseases of the Uterus, and procure Milk in the Breasts. Taken in Ptisan, or apply'd to the Part in Wool, they provoke the Menfes. The Root chewed in the Mouth draws out Phlegm, and makes the Teeth sound; and the Decoction thereof cures Inflammations in the Eyes.

The Magi ascribe much to their Virtues. They order, that as soon as you see the Plant that Year, you take it up, saying these Words, That you gather it as a Remedy for Tertian and Quartan Agues; then wrap it up in a red Cloth, and keep it in a shady Place, till there be Occasion to tie it about the Patient. The Root of that which bears a scarlet Flower, bruised, and apply'd to the Flesh of any Animal, by its putrefactive Quality, causes an Ulcer, and is therefore used as a Deterfice for Ulcers. *Pliny, Lib. 21. Cap. 23.*

All the Anemonies are acrimonious and deterfice, Drawers, and endu'd with the Faculty of opening the Mouths of the Veins. *Oribas. Med. Coll. Lib. 15.*

Emplastrum ex Anemone. The Plaister of Anemone.

Take of Colophony, seventy-four Drams; liquid Resin of the Pine-tree, Wax, each four Ounces; Oil, nine Ounces; fresh Flowers of Anemone, taking out the black that is in them, and cutting off their Bottoms, eight Ounces: Boil the Colophony with the Oil over a Fire made of the Wood of the Pine-tree; stirring it with a Spathula of the Tæda, [a Sort of Pine-tree] till it comes to a solid Mass; then add the Resin, and boil it again, till it will no longer foul; when put in the Wax, and as soon as this is melted, take the Medicine off the Fire, and pour it upon the Flowers bruised in a Mortar, and work them together with your Hand, smeared in Oil; for they are glutinous, and no Water must come near them.

It is good for green Wounds, and bruised Flesh; for old, malignant, over-grown Ulcers, which are hard to cicatrize; for Bites of venomous Creatures; for swell'd and inflamed Joints, that are painful, and not without Difficulty moveable; for Strumæ, Fistulas, a Ganglion, Stæatoma, and Furunculus; for sinuous as well as spreading Ulcers; for Abscesses in any Part, but especially the Breast. To stop an Hemorrhage at the Nose, they lay a Bolster of it upon the Stomach, or it may be apply'd to the Forehead; in short, it mollifies, discusses, contracts, dries, and is an Anodyne.

If you had rather have it prepared with Vinegar,

Let the Flowers of the Anemone be cleansed, and their Bottoms cut off as before, and then dry'd in the Sun, and afterwards kept in a glass Vessel; then take of them eight Ounces, and pour thereto three Attic Half-pints of the strongest white Vinegar, in which let them macerate a Day and a Night. After this, work it with your Hands, and by Degrees press out all the Juice: Then take of the brightest Colophony, forty-two Drams; liquid Resin of the Pine-tree, Wax, Oil, each four Ounces; Juice of the Anemone, two Attic Half-pints and a quarter of a Pint: Boil the Colophony with the Oil at a slow Fire of the Wood of the Tæda, stirring it continually with a Spathula of the same Wood, till it comes to a proper Consistence; then put in the Resin by Degrees, lest it should boil over the Vessel, and boil all again till they come to a solid Mass; when put in the Wax, which being melted, take it off the Fire, stirring it with the Spathula, till it ceases boiling; then pour in the Juice by Degrees, carefully watching that there be no Ebullition, to which it is very subject, so as to run over. While the Mixture is thus gradually made, the Medicine takes a various, purple, and pleasing Colour. All the Juice being thus poured

in, and united with the rest, remove the Whole into a Mortar, and when it is cold work the same with your Hands, till all the Juice is absorbed.

This Medicine is good for the same Purposes as the former, only is of a milder Nature, and more accommodated to the Bites of Dogs, and venomous Creatures. Being diluted with Oil of Roses, it is proper for Ulcers in the Arms and Pudenda, when they need only mild Remedies. *Actius, Tetr. 4. Serm. 3. Cap. 12.*

ANEMONOIDES,

Offic. *Anemonoides flore albo*, Boerh. Ind. A. 36. *Anemonoides flore majore*, Dill. Cat. Giff. 39. *Anemone nemorosa, flore majore*, C. B. Pin. 176. Buxb. 20. *Anemone nemorum alba*, Ger. 306. Emac. 387. Raii Hist. 1. 614. Synop. 3. 259. *Anemone nemorum*, Merc. Bot. 1. 19. Phyt. Brit. 8. Mer. Pin. 8. *Ranunculus phragmites albus vernus*, J. B. 3. 412. Chomel. 653. Tourn. Inst. 285. Elem. Bot. 241. *Ranunculus nemorosus albus simplex*, Park. Theat. 325. *Ranunculus*, Chab. 465. *Nemorosa, flore roseo albo expansa*, Rupp. Flor. Jen. 128. **WOOD ANEMONE.** Dale.

The Word is derived from *Ἀνεμών*, Anemone, and *ἔδος*, Form, that is, in the Form or Image of Anemone.

The Characters are;

The Root is perennial, and for the most part grumose and creeping; the Leaves are finely cut, three of which, for the most part, surround the Stalk; it hath a single Flower upon each Stalk, which consists of many Leaves, and are expanded in Form of an Anemone, having many Stamina or Threads in the Middle; the Seeds are collected into an oblong Head, and are, in Shape, like those of the Ranunculus, having no Down adhering to them.

Miller enumerates six Species, and Boerhaave twelve, of this Plant.

The *Anemonoides flore albo* is found wild in the Woods, in most Parts of England; some of the other Varieties Miller says he hath gathered in great Plenty, in the Wildernesses belonging to the Gardens at *Wimbleton* in Surry, which were probably at first taken from some Woods in England. In this Place they increase so fast, that the Surface of the Ground is cover'd with them in the Spring; and what is more remarkable, there the large blue and double Sorts are the most common. *Miller's Dictionary.*

It is an hot and acrimonious-Plant, that will raise Blisters on the Skin. Dale.

ANEMONOSPERMOS, from *ἄνεμος*, Wind, and *σπέρμα*, Seed, because the Wind easily bears away the Seed.

The Characters are;

It hath an hemispherical scaly Cup; the Flower is radiated like the Ragwort; but the Seeds are copiously surrounded with a pappous Down, as are those of Anemone.

Miller enumerates four, and Boerhaave six, Species of this Plant.

They were originally brought from about the *Cape-of-good-Hope*, into the curious Gardens in *Holland*, where they have been propagated, and from whence they have been distributed into the several Parts of *Europe*, where they are now growing. *Miller's Dictionary.*

ANEMOS, *ἄνεμος*, Wind. See VENTUS.

ANENCEPHALOS, *Ἀνεγκεφαλός*, brainless, from a Neg. and *ἐγκεφαλός*, the Brain. In general it signifies mad, or foolish, but in a more restrained Sense may be apply'd to such Monsters as are born without Brains, on which *Bonetus* in his *Medic. Septentr.* has made a Collection of Observations. *Castellus.*

ANEOS, *ἄνεως*, in *Hippocrates*, as expounded by *Galen*, signifies *ἄφωνος ἢ τὸν νοῦν ἐμπεπλεγμένον*, "one struck with the Loss of his Voice and Reason;" and by *Helychius*, *ἄνεως* are said to be *ἄφωνοι ἢ ἐκπληξῆς ἡσυχῆς*, "seized with a Stupor and Loss of Voice." *Ἄνεως* is put for *ἄνεος*, according to the *Attic* Dialect. *Foefius.*

ANEPICRITON, *Ἀνεπίκριτον*, something of which no Judgment can be formed, that is neither the Object of the Understanding nor Senses, from a Neg. and *ἐπικρίνω*, to judge. Thus *ἄνεπικρίστον διαφωνία*, with the Empirics, [a Sect of Physicians among the Antients] signifies a Controversy and Disagreement in Words about a thing that can never be determined or defined, because of its Acatalepsia, which was a Word much in Use among that Sect, as *Galen* says, *Lib. de Sedis, &c.* See ACATALEPSIA.

ANERECTOS, *ἀνέρηκτος*, *ἀνέρηκτος*, *ἀνέρηκτος*. From a Neg. and *ῥήγνυμι*, to break. Apply'd to Fruit or Corn, not hull'd or broken in the Mill, or with the Pestle. *Ἀνέρηκτος ἕψος*, in *Hippocrates*, *Lib. περὶ τρώων*, signifies Bread made of Wheat not cleansed from the Bran.

ANESIS, Remission. See REMISSIO.

ANESTRAMMENA, *ἀνεστράμμενα*, from *ἀναστρέφω*, to change, or subvert, in *Hippocrates*, is expounded by *Galen* to mean the same as *Anatetaragmena*, *ἀνατέταραγμα*, from *ἀνατάσσω*.

psia, to trouble, or disturb; and 'tis apply'd, he says, to Urine, to signify such as is turbid or thick, without depositing any Sediment after standing.

ANETHOXYLA, *Ἀνεθόξυλα*. So the Translator of *Myrepsus* reads the Word, instead of *ἀνεθόξυλα*, as it is in the Greek Manuscript, and understands it of the woody Root of Dill. *Myrepsus*, *Self*. 8.

ANETHUM, Offic. Ger. 878. Emac. 1033. Raii Hist. 1. 415. Mor. Umb. 36. J. B. 3. 6. Chab. 384. Dillen. Cat. Giff. 136. Rivin. Irr. Pent. *Anethum hortense*, C. B. Pin. 147. Hist. Oxon. 3. 311. Tourn. Inst. 318. Elem. Bot. 268. Boerh. Ind. A. 65. Buxb. 20. Rupp. Flor. Jen. 222. *Anethum hortense sive vulgare*, Park. Theat. 886. **DILL**. Dale.

The Decoction of the Tops and Seed of dried Anethum, being drank, promotes the breeding of Milk, and easeth the Gripes and Inflammations, stops a Looseness and Vomiting, occasion'd by Humours floating in the Stomach, provokes Urine, and asswages the Hiccups. Often used, it renders the Sight dull, and consumes the Seed. The same is also good in an Infection for hysterical Women. The Seed burnt, and sprinkled on the Part, takes off a Condyloma. *Dioscorides*, Lib. 3. Cap. 67.

Pliny adds, that the Root is used, in Water or Wine, to anoint Inflammations of the Eyes [*Epiphora*]. The Seed, vehemently heated, and smell'd to, stops the Hiccups. Taken in Water, it takes off Uneasiness from Crudities. The Ashes give Relief in a *Prolapsus Uvulae*. *Pliny*, Lib. 20. Cap. 18.

The Root, heated, and applied to the Mouth of the Uterus, provokes the Menfes. *Oribasius*, *Synop.* Lib. 1. Cap. 22.

Burnt, and the Ashes sprinkled upon humid Ulcers, especially about the Pudenda, disposes them to heal; and cicatrizes inveterate Ulcerations under the Prepuce. The green Herb, as having less Heat, and more Moisture, is a better Digestive and Hypnotic, but the dry is more discutient. *Actius*, *Tetr.* 1. *Serm.* 1.

This Herb, both in Root, Stalk, and Leaf, very much resembles common Fennel, except that it seldom grows so tall, or so much branch'd; it bears such yellow Umbels of Flowers, after which come Seeds rounder, broader, and flatter than those of Fennel. The whole Plant is of a strong Scent, less pleasant than Fennel. *Dill* grows in Gardens, and flowers and seeds in *July* and *August*. The Leaves and the Seed are used.

Official Preparations from *Dill* are only the *Oleum Anethinum*, made by Infusion, and gentle Coction of the Leaves and Tops in Oil. *Miller Bot. Off.*

I meet with nothing with respect to the Virtues of *Dill* amongst the Moderns; but what has been specified from *Dioscorides*, and the Authors above quoted.

The Preparation of the Anethinum.

Take of the Flowers of Anethum, eleven Pounds eight Ounces, and infuse them in eight Pounds and nine Ounces of Oil for a Day; then press them out with your Hands, and set the Oil by for Use. If you think fit to make a second Maceration, take fresh Flowers, and infuse them in like manner.

It has the Virtue of mollifying and relaxing the Parts about the Uterus; and is of Service in the periodical Returns of a Rigor, being of a warming Quality, by which it relieves under Lassitudes, and helps Pains in the Joints. *Dioscorides*, Lib. 1. Cap. 61.

Oribasius, who every-where transcribes *Dioscorides*, reads him as appointing equal Quantities of Oil and Flowers, that is, eleven Pounds eight Ounces of each. *Orib. Med. Col. Lib.* 11.

ANETHINUM VINUM, Dill Wine.

Take of ripe, fresh, and sifted Seed of Anethum, nine Ounces; tie them up in a Linen Bag, and put them into ten Gallons two Pints of *Mustum* [Wine unfermented]; let them macerate for three Months, and afterwards put up your Wine into proper Vessels.

It creates an Appetite, helps Sickness at the Stomach, and Difficulty of Urine, and makes a sweet Breath.

After the same manner are made Wines of Parsley, Fennel, and Smallage, which have the same Virtues as that of *Dill*. *Dioscorides*, Lib. 5. Cap. 73, 74, 75.

OLEUM ANETHINUM, Oil of Dill,

Is made of the fresh Tops of *Dill*, before the Seeds are grown solid and acrimonious; for it would be unfit for this Purpose, if the Flowers were wanting.

Take only the green tender Tops, or Shoots, to the Quantity of an Ounce, and infuse them in an *Italic* Pint of Sweet Oil. Let the Mouth of the Vessel be well closed, and the Vessel set to stand in the Sun for forty Days.

This is hotter than Oil of Chamomile, and is therefore proper for Lassitudes in the Winter, for it mollifies and moistens.

It is also serviceable in feverish Disorders arising from Phlegm, and in all Distempers caused by Cold, especially where the Tendons or Muscles are affected. *Actius*, *Tetr.* 1. *Serm.* 1.

This Oil may be made, in case of Necessity, without Infusion; that is, by boiling the dry Tops of the *Dill* in a double Vessel; and so may Oil of Chamomile, &c. be prepar'd; but then these Oils are weaker than those which are made of the green Tops, and suffer'd to stand in the Sun. *P. Egineta*, Lib. 7. Cap. 20.

The Method directed by the College for making the *Oleum Anethinum*, is thus:

Take of the Flowers and Leaves of *Dill*, bruised in a marble Mortar, with a wooden Pestle, four Ounces; Oil of Olives, one Pound: Expose them to the Mid-day Sun, in a glass Vessel well stopp'd, for a whole Week, and shake them together every Day; then let them gently simmer in a Bath-heat, and press out the Oil: Put in fresh *Dill*, which manage after the same manner, and repeat the Process a third time; then let them stand together for forty Days; at the Expiration of which set by the Oil for Use, without pressing out the *Dill*.

There is also a Chymical Oil prepar'd from the Seeds of *Dill*, in the following manner:

Take two Pounds of *Dill*-seed bruised; of Spring-water twenty Pints: Let them be distill'd in an Alembic, with its Refrigeratory; and then let the Oil be separated by a proper Funnel.

These Oils partake of the Virtues of the Plant.

ANETICUS, *ἀναιτικός*, from *ἀνίμω*, to remit. An Epithet of such Remedies as have the Virtue of remitting Pain, and are call'd Purgatives. *Castellus*.

ANEURYSMA, from *ἀνευρύω*, to dilate much. An Aneurysm.

An Aneurysm may affect any Part of the Body, but most frequently happens in the Throat, where it produces a Tumour call'd Bronchocele, which is most incident to Women in Labour, because of the violent Retention of their Breath. This Disease also affects the Head in the Parts about the Arteries, or any Part of the Body where an Artery happens to be wounded; as, for Instance, when an unskilful Operator, in attempting to open the Vein of the Cubit, at the same time cuts the subjacent Artery.

Every Aneurysm is occasion'd either by a Transudation, an Anastomosis, or a Rupture, in both which Cases there is a gradual Extravasation of the Blood and Spirits, which are collected under the Skin.

The Characters of an Aneurysm are a small or great Tumour, of the Colour of the Skin, void of Pain, soft to the Touch, and seeming to be of a loose spongy Substance, yielding to the Compression of the Fingers so as almost to vanish, but recurring as soon as the Fingers are taken off; which Character is most remarkable in Aneurysms of the Chin, and such others as are not occasion'd by a Wound: But where a Wound of the Artery has preceded, and the Skin afterwards closing up, there has follow'd a Dilatation of the Vessels, the Tumour is less soft; for the Blood, more abounding with Spirits, runs into grumous Concretions, and extends the Tumour.

As to the Therapeutic Part, those Aneurysms which happen in the Head or Throat are accounted desperate, and are not attempted by Surgeons: For as soon as the Aneurysm is cut, there follows an excessive Hæmorrhage, with such a Profusion of vital Spirits, that the Patient often dies under the Operation. But as to an Aneurysm in the Cubit, we treat it in the following manner:

First, we mark out the Artery that extends itself along the internal Part of the Arm, from the Arm-pit to the Cubit. Then, in the same internal Part of the Arm, three or four Inches below the Arm-pit, we make a simple Incision lengthways, in the Place where the Artery is most obvious to the Touch; then by degrees we lay the Artery bare, by separating it from the Skin and the other incumbent Corpuscles; we then take hold of the Artery with a blunt Hook, extend it, and secure it by two firm Ligatures. This done, we make an Incision in the Part between the Ligatures, and fill the Wound with Powder of Frankincense, and, laying Lint thereon, apply a proper Bandage: After this, we proceed, with great Security, to cut the Tumour in the Cavity or Flexure of the Cubit, being under no Apprehension of an Hæmorrhage. After Evacuation of the grumous Contents of the Tumour, we search out the Artery whence the Blood made an Eruption, and having discover'd it, take it with a Hook, tie it in two Places, and make an Incision between them, as we did in the former Part; then filling up the Wound with Powder of Frankincense, as before, we procure a Suppuration.

For an Aneurysm in the Throat, a Plaister of Cypress is a proper topical Remedy. *Actius*, *Tetr.* 7. *Serm.* 3. Cap. 10.

The Aneurysm is a Tumour, soft to the Touch, and yielding to the Fingers, and owing its Generation to Blood and Spirits. *Galen* says of it: "When the Mouth of an Artery is open'd, the Affection is call'd *aneurysma* [a Dilatation]: The same thing happens, when, the Artery being wounded, the incumbent Skin is cicatrized, but the Wound of the Artery remains, being neither conglutinated, cover'd with a Cicatrix, nor shut by Incarnation. Affections of this Kind are known by the Pulsation of the Arteries, or more especially by compressing the Artery; for then all the Tumour diff: appears, the Matter that caused it recurring into the Artery." So far *Galen*; but we distinguish these Affections in the following manner: Those which proceed from the Anastomosis of an Artery, appear of a more oblong Form, are deeply situated, and, when impress'd by the Fingers, a Noise is perceiv'd. When the Affection is caused by a Rupture, no Sound is heard, but the Tumour is rounder, and more superficial.

Aneurysms which happen in the Arm-pits, the Groins, or the Neck, or in other Places, if they are of a remarkable Bigness, are not attempted by the Surgeons, because of the Largeness of the Vessels; but those in the extreme Parts, the Joints, or the Head, are treated as follows:

If the Tumour proceeds from a Dilatation of the Artery, we make a direct Incision lengthwise; then taking hold of the Lips of the Wound with Hooks, we separate the Artery, by the Help of proper Instruments, from the Skin and Membranes, laying it bare; then passing a Needle under it, we make a Ligature with two Threads: After this we prick the intermediate Part of the Artery with the Incision-knife, evacuate its Contents, and endeavour a Suppuration till the Threads fall off.

When the Aneurysm is caused by a Rupture, we take entire Hold of it, as far as may be done, together with the Skin, with our Fingers; then pass under it a Needle with a double Thread, and, after it is pass'd, cut the Loop, by which means we have two Threads, in order to make a Ligature on each Side the Tumour. If we are apprehensive, that the Threads should slip, we may pass another Needle, exactly by the same Perforation, threaded also with a double Thread; which being cut like the former, you may have four Ligatures upon the Tumour; then opening the Tumour in the Middle, we take away the Contents by the Aperture of the Skin, leaving the Ligature; then we apply a Compress moisten'd with Wine and Oil, and prosecute the Cure with Lint. *P. Ægineta, Lib. 6. Cap. 37.*

Dr. Freind takes Occasion, from the Doctrine of *Paulus*, with respect to an Aneurysm, to make the following Observations on this Subject:

An Aneurysm by *Galen*, and we see here by *Paulus*, is described to be a Tumour, which rises from arterial Blood extravasated; and that it proceeded from a Rupture in the Coats of the Arteries, was the constant Opinion of all the *Greek* and *Arabian* Writers. *Fernelius* was the first, who asserted, that the Artery was only dilated, but not burst, in an Aneurysm: And *Vesalius* seems to be of the same Opinion; for *Adolphus Occo* gives us the Relation of a Patient he had the Care of, in Conjunction with *Achilles Grasserus*. The Case was a Tumour in the Back, and that excellent Anatomist being call'd in, soon discover'd what it was by the Pulsation, and pronounced it an Aneurysm arising from a Dilatation of the great Artery; and, at the same time, he said, that the Blood was contain'd within the Coats of it, as 'tis in those of a Vein in a Varix; that he had found in these Swellings sometimes an Humour, concreted like Ice, or Crystal, sometimes like Suet, and sometimes Blood, grumous like a Mola. Upon Dissection, the Cavity of the Aorta was found vastly distended, and much clotted Blood in it, as *Vesalius* had foretold, which gain'd him a great Reputation. That the Arteries are capable of Distention, we find often in Persons who are poison'd, and in some morbid Cases. 'Tis a remarkable Instance which *Vidus Vidius* relates, and owns it to be a rare one, of a prodigious Intumescency in all the Arteries of the Head, quite round, so as to resemble large Varices. He adds, that *Fallopian* having undertaken to open it, just as he was going to attempt the Operation, being discouraged by the Bigness of the Tumour, alter'd his Opinion, and would not proceed: But such a Distention as this, which spreads itself equally through so many Branches, would scarce, I believe, be call'd an Aneurysm, which is a Tumour of a quite different Nature, and more circumscrib'd.

Sennertus, refining upon the Notion of *Fernelius*, and not satisfied with a bare Dilatation, makes the Nature of all Aneurysms to consist in a Rupture of the Muscular, or inner Coat of the Artery, while the outer, in the mean while, remains unbroken. It seems to me very plain, that he borrows this Doctrine, tho' he mentions nothing of it, from *Hildanus*, who, in express Words, said the very same thing before him. The Case *Hildanus* describes is that of an Aneurysm, succeeding upon a Puncture; and in that Case it may possibly happen, as he conjectures, that the outer Coat may upon Compression unite, being compos'd of membranous and very glutinous Parts, as is evident from all Glue being extracted from such Skins; but the Fibres of the inner Coats, being muscular, when they are

once broken, must of course contract and shrink up, and, by starting from one another, be more difficultly brought to a Reunion: And I can scarce think it well conceivable, that any other Aneurysm can be form'd in this manner, than that only, and that not always, which comes upon a Puncture; for it does not seem probable, that, when the Cause is intrinsic, a Force which is supposed able to burst the inner Coat, should find any Resistance from the outer, which is own'd to be at least five times weaker. But, however, the Notion we have mention'd, though scarce so much as plausible, was embraced by *Willis*, *Barbette*, and others, and became the fashionable Definition of an Aneurysm for many Years. And, indeed, since the Opinion of the Blood being not extravasated was first started, it may be observed, that all the Writers of Bodies either of Physic or Anatomy, have run into this Hypothesis, without knowing much of the Subject they writ upon, or indeed of what they writ upon the Subject. To give an Example: *Forestus* contends vehemently, that all Aneurysms come from a Dilatation of the Artery; and yet, in the very Instance, which is the only one in his Works he gives us of an Aneurysm, the Tumour came from a Rupture, and the Blood was extravasated. And *Diemerbroeck*, in Complaisance to the Doctrine then in Fashion, defines an Aneurysm, in Opposition to Mr. *Regi*, who was for a Rupture in the Artery: Then he tells a Story of an Aneurysm, where there was a Rupture; but at last judiciously concludes, that 'twas no Aneurysm at all, for no other Reason but because there was a Rupture, and so consequently did not come within his Definition.

The chief Arguments which the Assertors of Dilatation urge, and which those who acknowledge a Rupture in the Artery are at a Loss to answer, are only two: How comes it to pass, if the Blood be not confin'd within the Coats of the Vessels, that there is a Pulsation in an Aneurysm? How is it, that the Blood, if extravasated, does not turn to Pus? As to Pulsation, it may, I presume, be easily conceived, how the constant Impulse of the Blood of the Arteries may communicate a Motion to that which lies contiguous to it, though extravasated. The Force of Percussion is vastly great; and we find, by Experiment, in a Bladder full of Air, the least fresh Impulse from a Syringe will move all that is contain'd in it, and distend its Sides. If the Artery is large, if it lies superficial, and near the Centre of the Tumour, and if the Aneurysm be not diffused too much lengthways, the Pulsation will be strong, tho' the Coat of the Artery be burst; and this may be proved not only from Reason, but from Matter of Fact. We have a Case in *Severinus*, where, upon a Wound in the great Artery of the Thigh, there was an Effusion of six Pounds of Blood in the Interstices of the Muscles; there was so violent a Pulsation in the Swelling, as to lift up both one's Hands, when laid upon it. When the Aneurysm lies deep among the Muscles, very often the Pulsation is not sensible. We may add to this, that it may grow more obscure, and at last be utterly extinguish'd, as the Coagulation of the Blood increases; and of this we have Instances, both in *Severinus* and Mr. *Littre*, where the Pulsation was very violent at first, and afterwards entirely vanish'd; and, therefore, we must not look upon this as a constant Concomitant in the present Case. Indeed, in most Swellings, we ought rather to argue negatively; and if we are not sure of Pus, we ought always to be suspicious of an Aneurysm; and, for want of this prudent Fear, some have mistaken, and fatally cut it for an Abscess. What has been said of Pulsation, may let us into the Solution of the second Objection; for if we can conceive how there can be a Motion communicated to the Tumour, we may naturally and easily comprehend, how the same Motion may preserve the Blood from Putrefaction, as well as if it were contain'd in the Coats of the Artery, enlarged by Distention only. A very little Degree of Impulse will serve to hinder a large Mass of any Fluid from an entire Stagnation. Accordingly, in an Ecchymosis, the extravasated Blood, we see, very often never suppurates; or, when it does, there is some Part of it found turn'd to a red Coagulum, distinct and separate from the rest, without any Mixture of Pus. The very Case we have already mention'd in *Severinus*, comes up to the Purpose; where, after the Tumour had been growing forty Days, there were taken out of it six Pounds of pure Blood, extravasated between the Interstices of the Muscles, and it had no sort of Tendency to Pus. Besides, I believe, the very Position which these Writers lay down, that all extravasated Blood turns to Pus, may be justly question'd: What Quality 'tis in the Blood, or what Particles they are which dispose it to Suppuration, is a Problem, I confess, difficult to be solved; but, sure I am, there is something in arterial Blood which often hinders it from being chang'd into Pus, though extravasated.

Thus we see, how insufficient these Arguments made use of are to overthrow the Opinion of the Antients; and we shall find, that Experience itself, from Dissections in these Cases, generally decides the Controversy in their Favour. For, to return to the very Case, where we mentioned *Vesalius* before, (which indeed is the first History of an Aneurysm dissected, that we meet with) besides a Dilatation of the Artery, there was a large

large Rupture, as *Achilles Grafferus*, one of the Physicians concern'd, gives us an Account. *Saporta*, who was contemporary with *Fernelius*, and seems to have him in his Eye, tho' he does not mention his Name, relates three Cases, with all the Particulars, where the Artery was burst. The first is singled out, and repeated at length, by *Sennertus*, who pronounces it to be no Aneurysm: Though I can't imagine why he chose this Case to object against, when, of all the three, 'twas the most distinct, and least liable to Objection; for, upon Dissection, a great deal of pure Blood was taken out, and the Artery dilated and burst; and, while the Patient was alive, the Tumour had a great Pulsation, and receded upon Pressure; and if this be not a true Aneurysm, I can't tell what Words can be found out to describe one. *Bartholine* gives us the History of several Aneurysms dissected, particularly of one at *Naples*, which he has made the Subject of a Book, writ indeed in a romantic Style, but where the Fact is clearly enough delivered. This was in the Arm, and happen'd from a Puncture; the Arm was cut off, but the Patient died: The axillary Artery was vastly dilated up to the Arm-pit; it was whole, only where the Puncture had been made; on the other Side, all the Coats were burst, and the Branches which came from it could not be traced; as it lay superficial, there was grumous Blood lying along all the Tract of the Muscles. *Van Horne*, in his Epistle, which is printed with this Treatise of *Bartholine*, has another very remarkable Case: Because the Instance may suggest to us several practical Reflections, give me Leave just, in short, to relate the Particulars. This was a Tumour in the Calf of the Leg; *Antonius Vacca* pronounced it an Aneurysm; others were of a different Opinion, and, out-voting him, prevail'd, and treated it for an Abscess: This Method made the Swelling extend itself to the very Toes, and there occasioned a Gangrene, so that they were forced to cut off the Foot above the Ankle, for fear the Mortification should spread up to the Thigh: The third Day after, they attempted to open the Tumour, and the Patient died in the Middle of the Operation. Tho' the Artery was dilated, so as to be six times bigger than natural, the Side towards the Skin was eaten thro' and burst; and between the Gemelli was a Parenchyma of grumous Blood, very solid, and near the Consistence of Flesh. Somewhat a like Case I was an Eye-witness to myself, with the Surgeons of *St. Bartholomew's Hospital*: The Person was old, and of an ill Constitution; the Aneurysm had been, by his own Account, twelve Years growing, and of late it had increased extremely: It surrounded all the Calf, almost up to the Knee; and the Pulsation was very strong, not only along the Skin, but upon the Muscles, in the thickest Part of the Calf. The Valves of the Veins (many of them) were so entirely broken, that there were Varices both above and below the Knee, of a prodigious Bigness, which nevertheless subsided upon holding up the Leg. Upon Amputation, notwithstanding the Ligatures were strong, and the Operation perform'd with great Dispatch, there was discharged from the Vessels above a Pint of Blood, the Diameters of the Arteries and Veins were so greatly enlarged. In the Aneurysm, upon Dissection, were found, besides fluid Blood, two or three Pounds of Thrombi, which lay like so many Plates upon one another: The whole Tract of the Crural Artery was greatly dilated, and the several little Branches were broken off from the Trunk, not above a Quarter of an Inch from their Rise; and from these the Blood was thrown into the Interstices of the Muscles, and the Gastrocnemii; neither was there any Communication at all from the Bottom. The Bones were so carious, that there was a great Hole in the Tibia, and four Inches at least in the Fibula entirely wanting. This Circumstance of the Bones being carious, often attends an Aneurysm: *Ruyfch* has two Cases, where all the true Ribs, and the Sternum, were almost consum'd, and the little which remain'd was all rotten: And we may easily conceive, how such a Tumour, by a constant Pressure, may affect the Periosteum, and cause an Obstruction there, and by that means gradually waste the Bone itself. We may learn another thing too from this Circumstance, that, since so solid a Substance as the Bone cannot resist the Pressure of an Aneurysm, the arterial Coats may be thought more likely to yield to its Force, and have their Fibres destroy'd by it. *Lancisi* gives us the History of an Aneurysm in the ascending Trunk of the Aorta, where the Patient, who had some time before complain'd of a Palpitation, Fainting, Pain, Streightness, and Beating in the Thorax, died suddenly: The upper Part of the Sternum was press'd a little outward on one Side. Upon Dissection, in the whole Curvature of the Aorta, was found a Substance like Lard, inclosed in a Cystis; there was a Hole into the very Pericardium, in which accordingly were found two Pounds of Blood. He is of Opinion, that all Aneurysms come from a Dilatation of the Artery; and so, very probably, at first most of them do: Yet, in the present Instance, he speaks of the Fibres being corroded, and from thence accounts for the Dilatation, as he calls it, of them, in which the true Nature of an Aneurysm (he says) consists; that is, in *English*, I think, in an unripping or tearing of the arterial Coats. A Case, exactly like this, we find in *Laurentius of Guicciardin*, where not only

the Cava and its Valves were all burst, but the Orifice of the Aorta enlarged to the Bigness of one's Arm. So it was, in a like Case, related by *Paré*, where the inner Coat of the Artery, tho' offixed, yet at the same time was burst. Certain it is, the Aorta, before its bending, is easier dilated, upon the Account of the Resistance the Blood meets with from the Curvature there; and, for this Reason, Aneurysms ofteneft happen in this Part of the Artery; and one may easily conceive, that if they can consist in Dilatation only, it can no-where else so likely take Place as here.

Mr. *Littre* in the *French Memoirs*, gives a long and particular Detail of two Aneurysms in this Place; where the Artery was thrust out so, as to form a Sack, which reached up into the Thorax and Neck, and in one Case, even along the Neck to the lower Jaw. [See these Cases below]. In both these Cases, at first the Persons complained of a Beating, which exactly answered that of the Arteries, and of an uneasy Struggling in the Thorax, 'attended' at length with a great Oppression, a Difficulty of Breathing, and an universal Languor, some time before any thing was perceived outwardly above the Clavicles; afterwards other Symptoms appeared, much like what I have observed myself in a parallel Case, such as Pain, not only in the Chest, but in the Shoulders, the Arms, and the Head; in the last, often a Pulsation likewise; very little Sleep, and that often interrupted; and Inability often to lie down in Bed, and always a greater Ease in a leaning Posture forwards; the Breathing sometimes so disturbed, as to give Apprehensions of a sudden Suffocation. In the first of these Instances, some Part of the Ribs, the Sternum and the Clavicles were found carious. A Quack, by suppurating Medicines, had made some Part of it burst, upon which followed a Gangrene, and, in three Days, Death. Each of these Aneurysms, he says, was only a Dilatation of the Artery: But, I must confess, though his Description be very minute and exact, I have still some Scruples upon me, and am not perfectly satisfied, that in this Case there was a mere Dilatation alone of the arterial Coats. For, besides that he says himself, there was not only a firm Adhesion every-where of this Aneurysmal Pouch to the Ribs, the Sternum, the Clavicles, and the Muscles, but a Corrosion of its Membranes in all those Places, where it adhered; these Membranes, which he attributes to his Pouch, might be Portions of the *Mediastinum*, and the *Pleura*, or Expansions of those belonging to the Muscles. But yet further, it may not be absurd, if, in Answer to this, we should affirm, that Humours extravasated may form a particular Membrane to themselves, which is no Part of the Vessels, from whence those Humours are discharged. What we observe every Day of an Hernia Carnosa, and Wens, consisting of a vast Number of Cystis's, each of which has its particular Membrane, and is filled often with a different sort of Substance, may give so much Countenance to this Opinion, that we may at least think it worth considering, before we determine any thing in this Point. The Account *Ruyfch* gives of an Aneurysm in the Thorax, which filled the whole Cavity of it, without any outward Swelling, seems to answer this Idea: For it consisted, he says, of innumerable thick Coats, which lay like so many Plates one over another, between which was inclosed a great deal of coagulated Blood. Thus the Blood lay like Leaves one upon another, so as to form a sort of Polypus, in the Case recited by Mr. *Littre*. This is certain, that we may find Examples of this Kind in *Severinus*, *Marchetti*, and others. Our Countryman *Wiseman* tells us, that he always found both Coats of the Artery open. In short, as Matter of Fact is the best Argument, I can't but observe, that among all the Accounts Anatomists give us of the Dissection of an Aneurysm, there is scarce an Instance upon Record, of a large one, at least, where there was not a Rupture in the Artery, according to the Doctrine of *Paulus*. What has been said will, I believe, be sufficient to shew, how ill founded is that Division, which some Moderns have made of Aneurysms, into true and spurious; whereas the whole Difference lies only in the Form of a Tumour. And if you consider what they have advanced upon this Head, you will find that, as this Distinction is generally wrong in Theory, it signifies still less in point of Practice. *Freind's Hist. of Physic.*

I have inserted the preceding Dissertation, because there are many curious Passages in it, which should not be omitted in a Treatise on an Aneurysm. But in Justice to the Reader I must remark, that Dr. *Freind* has absolutely mistaken the Passage in *Paulus*; for this last Author plainly distinguishes betwixt an Aneurysm by Dilatation, and one by the Rupture of the Artery, in describing the Operation. His Words are *Εἰ μὲν κατ' ἀνεύρεσιν ὁ ἔγχεθ' ἐγείρετο*. *Cornarius*, the Interpreter of *Paulus*, translates this, *Si ex Apertione Tumor factus est*; but how erroneously, the learned Reader will readily see. I am sensible, that, a little before, *Paulus* seems to make a Distinction betwixt an Aneurysm *δι' ἀναστόμωσιν ἀεργίας*, and one *κατὰ ρήξιν*. But as no such thing as an *Anastomosis* can be meant here, in the Sense it is generally used in by the Greek Writers; and as he seems to explain it afterwards by *ἀνεύρεσιν*, when

when he speaks of the Operation, I am inclined to think he means by *Anastomosis* a Dilatation of the Artery.

I must not omit here a Remark of some Importance to Students in Physic, with respect to the *Latin* Translations of the *Greek* medicinal Authors: It is that they are so little to be depended on, that it is very dangerous to quote a Passage on their Authority. I have frequently been misled by their Inaccuracy, when I had no Opportunity of consulting the Originals, being at a Distance from Libraries; and I will not be answerable that I have corrected all the Mistakes they have led me into.

The following Histories of Aneurysms will set their Nature and Origins in a true Point of Light, and prove evidently, that the Distinction of Aneurysms into *true* and *spurious*, is not without Foundation.

HISTORY I. By Mr. LITTLE.

A Man of fifty-six Years of Age, who had always enjoyed a good State of Health, sent for me the tenth of *July* last.

I found him by the Fire, in an Elbow-chair, to which he had been confined four Months; for he could not keep in Bed, nor walk, because he was almost choaked so soon as he lay down, and could not walk without being in Danger of fainting.

He told me, that he slept very little, that his Sleep was unsound, and interrupted, that he was grown very lean and weak, and sometimes fainted, even in his Elbow-chair, altho' he took nutritive Food, and in sufficient Quantities; that his Respiration was difficult; that he could not turn nor bend his Neck and Head, without great Pain; that for five Months he had a Tumour upon his Neck, which increased by Degrees, altho' now-and-then it diminished very sensibly; but that this Diminution did not continue long, the Tumour quickly returning to its former Bulk; that it was painful, but especially in the inferior Part, and accompany'd with a continual Pulsation, which for a Month past had been gradually decreasing.

I felt his Pulse, which I found weak; and upon examining the Tumour, found a Part of it on the Neck, and a Part of it upon the Breast. This Tumour was soft, and yielded to the Pressure of the Fingers, but recovered its former Shape, so soon as I forbore pressing it. I felt a small Pulsation in it, which exactly agreed with that of the Arteries; the Colour of the Skin that covered it was natural. All these Circumstances made me conclude, that this Tumour was a real Aneurysm, formed by the extraordinary Dilatation of some Artery.

I asked the Patient, if he had received any Blow upon the Neck or Breast, or if he had strain'd himself in Coughing, Sneezing, or Vomiting, &c. He answered, that he was conscious of having received no Blows, but that for five Days successively he had used great and almost continual Efforts to vomit, and go to stool, which he said were the fatal Effects of Pills a Quack had given him to cure him of a Rheumatism; that three Weeks after he began to feel, towards the Middle of his Breast, a Beating he had not before felt; that six Weeks after a Difficulty of Respiration succeeded this Beating; and that the Difficulty of Respiration three Months after was followed by a Swelling on the Neck; that the Beating, and Difficulty of Respiration, had always insensibly increased, till this Tumour appeared; upon which he no more felt the Beating at his Breast, but began to perceive another Beating in that Part of the Neck where the Tumour was, and that the Difficulty of Respiration did no more increase, but continue the same.

I advised the Patient to take little Food, or what was not very nourishing, or to let Blood now-and-then, if he took a good deal of Nourishment. I also advised him to put a Bandage upon the Tumour, not with a View to compress it, but only to support the Integuments, that by being rendered more capable of resisting the Impulse of the Blood, they might in some measure prevent the Increase of the Tumour.

The Patient having sent for me again fifteen Days after my first Visit, told me, that his Faintings were more violent and frequent. I found him much weaker, and the Tumour larger; there was no more Pulsation, but about three Inches of the Skin towards the Right Armpit was become livid. In the Middle of the discoloured Place there were two Holes almost imperceptible, whence now-and-then proceeded some Drops of Blood. These new Symptoms were probably occasioned by acrid Medicines, which another Quack had apply'd to the Tumour to make it resolve or suppurate, who doubtless knew not the Nature of the Distemper, or was ignorant that real Aneurysms are not cured by resolute nor suppurative Medicines.

Two Days after, a dry Gangrene in the discoloured Part of the Tumour ensued, three Days after which the Patient died. I laid open his Body, which was so lean, that scarce any thing remained but Skin and Bones. I observed nothing extraordinary in the Parts contained in the Cavity of the Abdomen, nor in that of the Cranium, except that there was but little Blood in their Vessels, as also in those of the Face and Extremities.

Before I laid open the Breast with an Incision-knife, I disengaged the Integuments which covered the Tumour, except in the gangren'd Part, where I left them; for it was impossible to disengage them from it, without cutting or tearing a Part of

the Tumour, so firm was their Adherence to one another. I afterwards separated the Tumour from the Neck, from the Clavicles, and from the exterior Parts of the Breast; but it adher'd very strongly in those Places that touch'd upon the Ribs, the Sternum, and the Clavicles, where it was corroded, and the Bones become carious; the rest of the Tumour adher'd but little. The soft Parts situated upon the Breast under the Tumour were full of a serous Humour of a yellow Colour.

I then raised the Sternum with a Part of the Ribs, and the Clavicles that are join'd thereto on both Sides, that I might examine with more Freedom the Parts contain'd in the Cavity of the Breast, and extirpate the Tumour whole.

I observed, first, That the Lungs were dry, wither'd, and collaps'd; and that the Trunk and Branches of the Blood-vessels retained their natural Shapes.

Secondly, That there was a Spoonful and an half of Serum in the Pericardium, and no Fat about the Heart.

Thirdly, That the Trunk of the Aorta, from nine Lines Breadth above the Heart to the Place where it takes the Name of Aorta descendens, had its Coats much thinner, and was very much dilated, so that almost all the Dilatation was made in the superior and anterior Parts; and the three Branches which compose the Aorta ascendens, and which commonly rise from the Middle and Upper-part of the Trunk of the Aorta, were placed in the posterior Part of this Trunk.

Fourthly, That the dilated Part of the Trunk of the Aorta extended itself as far as the Under-jaw, cover'd the Forepart, and the Sides of the Neck fell back upon all the upper and anterior Part of the Breast, from one Armpit to the other, and form'd a Cystis not unlike a Bottle, the Neck of which was within the Breast, and Bottom without. This Cystis was nine Inches and an half long from the Trunk of the Aorta to the Under-jaw; it was two Inches broad at its Origin, and three at its Egress out of the Breast. Its Diameter upon the Neck was betwixt nine and ten Inches, and thirteen upon the Breast. Upon the Whole, this Cystis was half a Foot in Depth at the Neck, and seven Inches and an half on the Breast.

Fifthly, The Thickness of the Sides of this Cystis was so different in different Parts, that it varied in all the intermediate Degrees between the fifth Part of a Line, and ten Lines. Both the thickest and the thinnest Parts were without the Breast; the thinnest lay chiefly in the gangren'd Part, and the thickest in the Part situated upon the Breast.

Within this Pouch there was about two Pints of Blood, of which one third was black, coagulated, and very strongly adhering to its inner Surface; the other third was of a reddish-brown Colour, and half coagulated; the remaining third was liquid, and had almost its natural Colour and Consistence.

Lastly, The internal Surface of the Cystis of the Trunk of the Aorta was smooth and even in some Places, and rough in others. This Smoothness of the Surface was natural, and was owing to the internal Coat of the Cystis being kept entire. The Unevenness of the same Surface was unnatural, and depended upon two Causes, the Erosion of a Part of the proper Coats of the Pouch, and the Adherence of certain Fibres, which differ'd not from these of a Polypus of the Heart, but in this, that they were larger, plainer, firmer, and more red. These Fibres composed several Laminæ, that were easily separated from one another.

Having now given some Account of this Man's Distemper enumerated, with the several Symptoms that attended it, and declar'd what I found extraordinary in his Body, I shall endeavour to assign the Cause of the Distemper itself, and account for the most material of its concomitant Symptoms.

The Pills which this Man had taken, being composed of very violent Purgatives, as one may readily suppose from the Excess of their Operation, probably gave Occasion to the extraordinary Dilatation of the Trunk of the Aorta. My Reasons for thinking so are these: First, In the Efforts the Pills produced in him to vomit and go to stool, the Diaphragm, being violently contracted, compress'd the Aorta descendens strongly, and almost intercepted the Passage of the Blood to it; then the Blood sent from the Heart to the Trunk of the Aorta, finding only the Branches of the Aorta descendens open, but incapable to receive it, must of Necessity do Violence to these Branches, in order to force itself a Passage. Now if the Sides of the Trunk were thinner in Proportion, or of a less close Texture than the Branches, the Trunk must of Consequence have been dilated; and not the Branches; and this Dilatation must have been only in the weakest Parts of the Trunk, that is, in its Middle and Left anterior Parts, as has been already observed. These two Parts being once stretch'd by the Impulse, and the extraordinary Quantity of Blood, could no longer resist it, altho' it was only impelled to them with its ordinary Momentum, and in its ordinary Quantity; consequently they must afterwards yield, and be more and more dilated.

The Efforts also occasioned by these Pills might excite a great Agitation in the animal Spirits, determine them to flow into the Heart in greater Quantity, and with greater Velocity than ordinary, and thus render its Contractions more strong and frequent;

quent; so that it must of Consequence have thrown more Blood, and that with a greater Impetus, into the Trunk of the Aorta, forc'd its Sides to dilate themselves to receive it, and thereby have laid a Foundation for the extraordinary Dilatation of this Artery.

The posterior Part of the Trunk of the Aorta scarcely suffer'd any Dilatation, because it was thicker, and of a more compact Texture: But as the Trunk was dilated towards its superior Part, the three Branches, which compose the Aorta Ascendens, must of Necessity have been situated in the posterior Part.

The Sides of the Cystis of the Aorta were very thin in some Places, and very thick in others. Two Reasons may be assign'd why the Parts were thin: 1. Because they consisted of nothing but the simple Coats of the Artery. 2. Because of the vast Dilatation which these Coats had suffer'd, by the Impulse of the Blood, and by its Coacervation in the Cavity of the Cystis. The Sides of the Cystis were thick in the Places where the polypous Fibres were fastened to its inner Surface, and the Thickness was greater or less, just as there were more or fewer of these Fibres, laid upon one another. These Fibres, and even those of the Polypus, must have been formed by the Slowness of the Blood's Motion, by the Grossness and Viscosity of its Parts, and by their Surfaces coming into a great many Points of Contact.

The Slowness of the Blood's Motion might have also occasion'd its being pent up in the Cystis, and its Coagulation there: Hence also the weak Pulsations, and the Separation of some Part of its Serum. The Motion of the Blood was slow in the Cystis, because becoming gradually larger and larger, and its Bottom being imperforate, the Blood must come out at the same Place where it went in. Now the Blood which had been driven into the Cystis by one Contraction of the Heart, was hinder'd from coming out, by that which the next Contraction sent to it.

As soon as the Tumor appeared on the Patient's Neck, he felt a Pulsation there; but felt it no more in his Breast, because the Impulse of the Blood, which was the Cause of the Pulsation, made a much greater Effort against the Bottom of the Cystis, that form'd the Tumor, than against the other Parts, and because this Bottom was then out of the Cavity of the Breast. The Pulsation by Degrees diminished in the Tumor, in proportion as the Blood coagulated in the Cystis, as more polypous Fibres were formed, and as the Contractions of the Part became weaker.

The Difficulty of Respiration increased no more after the Tumor of the Neck appeared, because the Impulse of the Blood being chiefly in a rectilinear Direction, the Cystis of the Aorta only increased in Length within the Breast. Thus, when it reach'd the Neck, it increas'd no more in the Breast, consequently the Difficulty of Respiration continued the same.

The Patient was in Danger of Suffocation when he lay down: 1. Because in this Situation, the Blood driven by the Heart into the Trunk of the Aorta, flowing more easily into the Cystis of this Artery, than in a vertical Situation, it consequently received a greater Quantity of it on this Occasion. 2. Because the Blood contained in that Part of the Cystis, situated externally upon the Breast, fell then into that Part of the Cystis within the Breast, and from thence a Part of it fell into the Trunk of the Aorta. Lastly, In the horizontal, or somewhat oblique Situation, the Blood contain'd in the Part of the Cystis, that formed the Tumor of the Neck, had a greater Weight upon the Trachea, than in the vertical Situation, and therefore compress'd it more. These three Causes must necessarily produce the Danger of Suffocation in the Man, when he lay down. Towards the last Stage of the Distemper, the Tumor now-and-then diminished, but soon after returned to its former Bigness. The Tumor diminished now-and-then, 1. By the Confinement and Coagulation of the Blood. 2. When the Heart drove little Blood into the Trunk of the Aorta, or that its Motion thither was slow and weak; because then the Blood contained in the Tumor might with Ease fall into the Trunk of the Aorta, and from thence pass into its Branches.

The Tumor might return to its former Bigness, 1. By the intestine Motion and Rarefaction of the Blood. 2. When some Clots of Blood shut up its Passage from the Tumor into the Trunk of the Aorta, in such a manner, that it allow'd fresh Blood to enter, but suffer'd none to get out. The Sides of the Cystis of the Aorta were corroded in the Places where they touched the Ribs, the Sternum, and Clavicles; and these Parts of the Bones were become carious, because the Trunk of the Body of this Man being always vertical, a Part of the Blood contained in the Cavity of the Tumor press'd with a greater Weight upon the Coats of the Pouch, and upon the Periosteum of these Bones, compress'd them strongly, and stopp'd, or at least retarded, the Return of the Blood, and of the Lymph, into their Vessels; and thereby gave occasion to the Separation of a Part of the Serum. Now this Serum being always impregnated with Salts, which it dissolved, and carry'd along with it, must have first stimulated and corroded the Coats of

the Cystis, afterwards the Periosteum, and then the Bones. The Coats of the Cystis in these Places were sooner corroded than in others, because they, being supported there by Bones, were more press'd upon, resisted more, and consequently were more directly exposed to the Action of these Salts. The soft Parts situated upon the Breast, below the Tumor, were filled with a great deal of Serum, which was extravasated by the Pressure of the Tumor on these Parts.

The Body of the Patient was vastly extenuated, tho' he used a nourishing Diet, and that in considerable Quantity, because the Circulation being render'd very slow by the bad Disposition of the Trunk of the Aorta, the Parts of the Blood could neither be sufficiently attenuated, nor propelled with Force enough into the Pores of the solid Parts, in order to furnish them with a sufficient Quantity of Nourishment.

As for his great Weakness, and the fainting Fits that often seiz'd him, they might arise from the same Causes that the Leanness did; besides this, they might have been caused by some Clots of Blood, which falling from the Cystis of the Aorta into its Trunk, might, in some measure, shut up some of its Branches. These continued till the Clots were dissolved and attenuated by a fresh Impulse of the Blood, and by the Construction of the Artery. *Mem. de l'Acad. R. 1707.*

HISTORY II. By Mr. LITTRE.

A Man of 44 Years of Age dying of an Aneurysm, I laid open his Body to examine the Particulars of this Distemper: This was a true Aneurysm, that is, an extraordinary Dilatation of the Artery, situated partly upon the Neck, and partly in the Breast, parallel to the Spina, and extending itself from the third superior Vertebra of the Back, to the fifth inferior of the Neck, and laid all along upon the Oesophagus; its middle, and superior Parts lay upon the Trachea, and its middle inferior Part upon the Body of the Lungs themselves. It was four Inches long, and above two Inches and a half broad: Where its Diameter was largest, its Thickness was unequal, being thicker in its inferior Part, than in its superior; and in its superior, than in its middle. It was round and oblong, plain and smooth, of a reddish-brown Colour, and so hard, that tho' I press'd it down very much with my Finger, it yielded but little. It adhered pretty close to the Fore-part of the Sternum, to the first Rib on each Side, and to the Skin, and behind to the Muscles which cover the Trachea Arteria; and by its whole Basis it was join'd to the superior Right Part of the Trunk of the large Artery, of which it was only an Extension and Production.

After I had examined the Situation of this Aneurysm, I separated it from every thing to which it was fixed, and laid it open. I made the following Observations:

1. That the Sides were very dense, and of an unequal Thickness, being a quarter of a Line thick in the thinnest, and about a Line in the thickest Places; so that in the last the Sides were little less thick than in the rest of the Trunk.

2. That half of the Cavity of the Aneurysm was filled up with a sort of polypous Flesh, ranged in Laminæ fixed to one another, the outermost to the internal Surface of the Tumor, so that they might have been separated without breaking, if they had been gently handled.

3. That the same Surface of this Aneurysm was smooth in the Places where the polypous Flesh was not fixed; and that it was uneven in the Places where it adher'd. It was probably the Inequality of this Surface that caused the Attachment of the polypous Flesh; and the Inequality was the Effect of the Erosion of the Membrane, occasioned by some Salts separated from the Blood in the Cavity of the Aneurysm, by reason of the Stay it was obliged to make there.

Lastly, The Sides of this Aneurysm formed internally two Bodies of Strings; the one was situated about the middle Part; it was of a reddish Colour, one Line thick, and described only three quarters of the Circumference. The other String was placed in the inferior Part: It was of a whitish Colour: It was much harder than the other, two Lines thick, and went quite round the Aneurysm. At the Place where the two Strings were, the Aneurysm was not so big as in the Places near it, which made a sort of a Strangulation there. All the Trunk of the Aorta, unless where the Aneurysm was, had kept its former tubular Form. It was grown bigger, and its Sides somewhat more dense, but the Thickness seemed natural.

This Trunk, towards its Origin or Base, was two Inches and six Lines in Circumference, six Inches ten Lines towards its Middle, and two Inches six Lines towards its Extremity. One might observe, in the Thickness of its internal Sides, small stony Laminæ, of a whitish Colour, pretty brittle, of different Bulks, and of different Thicknesses. The interior Surface, in the Places where there was none of these Laminæ, had a great many Pores, from whence, when I press'd the Artery, a sort of Lymph came out, which was clear, and a little mucilaginous. This Lymph might have imparted some Fluidity to the Blood, moisten'd the interior Surface of the Artery, made

it smooth and slippery, and secur'd it from the Action of the Salts of the Blood.

The Right Axillary preserv'd its ordinary Bigness, and its exterior Surface was every-where smooth as usual. But the interior, four Lines from its Beginning, was, for half an Inch, unequal; there the Sides were somewhat more dense, and twice as thick as in the Parts near it, and the Cavity narrower in Proportion.

The Left Subclavian was also as big as usual, and its exterior Surface equal; but the interior was unequal in its Beginning, for the Space of three Lines; its Sides, in the same Extent, were somewhat more compact, three times thicker, and there the Cavity was proportionably narrower. In the above-mentioned Places, a faint Tincture of Yellow was observed in the Sides of these two Arteries. Lastly, the left carotid Artery, and the Aorta descendens, were in their natural State.

The Heart was big; the Cavities of its Ventricles were large, but especially that of the Left; their Sides also were somewhat thinner than usual.

The Lungs were full of a thick, blackish Blood: The Trachea, in the Place where the Aneurysm lay, was thicker, more compact, and not so round as in other Places; and the Branches and the Vessels of this Part contained in their Cavity a great deal of Humour, which was viscous, tenacious, and of a yellowish Colour.

REFLECTIONS on the Circumstances above-mentioned.

First Reflection. A true Aneurysm being only, as I said, an extraordinary Dilatation of the Artery, one may affirm, that in the Trunk of the Aorta, the Man I speak of, had two true Aneurysms; one particular, the other universal. The former, which has been the Subject of my Observation, was only form'd of a Part of this Trunk; and what remain'd, form'd the other.

Second Reflection. These two Aneurysms were produced by the same Causes: The Diminution of the Cavity of the Right Axillary, and the Left Subclavian Arteries, was the occasional Cause of them, the Blood the instrumental, and the Heart the efficient.

It is easy to comprehend, 1. That the Blood, continually thrown from the Left Ventricle of the Heart into the Trunk of the Aorta, finding no more, after the Diminution of the Cavity of these Arteries, the same Facility in its Distribution, must have struck with a greater Impetus upon the Sides of this Trunk, stretch'd them by Degrees, dilated them in an extraordinary Manner, and, at last, have form'd a total Aneurysm, if all their Parts had equally yielded to this Impulse; but a partial one, accompany'd with a total, if some of them were more distended than others, either because they were thinner, or of a Texture less compact, or, perhaps, more exposed to the Impetus of the Blood. It is easy to comprehend, 2. That the Circulation of the Blood, partly interrupted in the Sides of these same Arteries, might cause the Blood to coagulate there; this Interruption might have been occasioned by the Shriveling of the Fibres which compose these Sides, and which may have been stimulated by some extravasated Salts; or by the Elasticity of their respective Membranes and Vessels being weaken'd by the Blood which is continually driven thither by the Heart.

In these Cases, the Blood, not having its free Course, or not being propell'd in its ordinary Manner, must stop, and coagulate in the Cavities of these particular Vessels, dilate them, separate their Fibres, enlarge their Pores, give occasion to a greater Quantity of nutritive Juice to be discharged, to get between the several Laminæ of the Membranes of the Sides, diffuse itself among their Fibres, separate and disjoin them, adhere firmly to them on all Hands, and consequently increase the Thickness of the Sides of these Arteries.

Third Reflection. The considerable Diminution of the Cavities of these Arteries was the Effect of the extraordinary Thickness of their Sides, especially since the Thickness was wholly form'd on the inner Side; either because the Circulation had been only intercepted on this Side, or because the external Laminæ had more oppos'd their Separation than the internal. Thus the internal Sides incroached upon the Cavity, and diminished it in Proportion.

Fourth Reflection. It may possibly be asked, Whether the extraordinary Thickness of the Sides of these Arteries was a Fault in their original Conformation; or, Whether it was afterwards contracted by any particular Accident. The latter of these Opinions, to me, appears the more probable of the two, for the following Reasons:

1. The Patient, some Days before his Death, told me, that for about eight Months past, he had felt in the Middle of his Breast an extraordinary Heat, Palpitation, and Oppression, which had daily augmented from their very first Appearance. These three Symptoms may easily be accounted for, from the Description I have now given of the Aneurysm itself.

2. The Patient also assured me, that before that Time he had never been sensible of the least Indisposition, or Disorder, in his Breast.

Moreover, the Texture of the Sides of the Arteries was irregular, and their internal Surface uneven. We have therefore no Reason to believe, that this was a Fault of forty Years standing, (for so long the Patient had liv'd) or even of any considerable Number of Years; since in Infants, and even in Adults, we can with Difficulty observe the *Callus of a Bone*, which has been broken about a Year before.

Fifth Reflection. The Membranes of the Trunk of the Aorta, which in this Case, as one would imagine, must necessarily be very thin, by reason of the great Dilatation they had suffer'd, had nevertheless preserved their natural Thickness, probably, because in proportion as these Membranes were dilated, their Pores had proportionably opened and enlarged, and more nutritive Juice had insinuated itself into the Interstices of the Fibres, adher'd to their Surfaces, and increas'd the Thickness of the Membranes.

Sixth Reflection. The particular Aneurysm must have been formed at that particular Part of the Aorta where I observ'd it, rather than any other, since all its Parts are supposed of an equal Thickness, and endow'd with an equal Power of Resistance; and that so much the rather, because that Trunk of the Artery, which is nearly of a semicircular Figure, does not begin to bend itself, till it reaches the Place where this Aneurysm was situated. Thus the Blood thrown out of the Heart must, of Consequence, have produced more considerable Effects upon this particular Part, dilated it more, and brought on an Aneurysm in it.

Seventh and last Reflection. The particular Aneurysm must have been formed rather at the superior Part of the Aorta, than in the inferior and lateral Parts; because the Blood, which was the instrumental Cause of it, is directed in its Motion, from below, upwards; and consequently its Action must have been greater on the superior, than any of the other Parts. This upper Part then must of course have been thrust upwards, insensibly dilated, and form'd into an Aneurysm, which would enlarge itself towards that particular Side.

The principal Symptoms, with which this Aneurysm was accompany'd, accounted for.

The Patient complain'd of a Weight and Pain in his Head, and of a Weakness of the principal Functions of his Mind. These three Symptoms were produced by one and the same Cause, that is, the Compression of the Jugular Veins, occasioned by the Aneurysms.

The Case stands thus: These Veins being compress'd, the Return of the Blood from the Brain to the Heart is not free and uninterrupted; so that less Blood returning, the greater Quantity must consequently remain in the Head, and the Head itself of course must seem heavy: Because in such a Case there is too much Blood in the Brain, the Coats of its Blood-vessels, its Membranes, &c. must of course be stretch'd and vellicated, and suffer a kind of Distortion and Dilaceration, in which the Pain consists.

The same Vessels, so distended with Blood, must compress the Nerves situated in their Interstices, deprive the animal Spirits of their free and easy Motions in the Brain, and consequently weaken the Functions and Operations of the Soul, which depend upon these very Motions.

The Patient felt also a Pain in his Neck, Shoulders, and Arms; because the Aneurysm, being situated upon the Jugular as well as the Subclavian Veins, by which the Blood returns to the Heart from these Parts, must compress them, render the Motion of the Blood thro' them slow and difficult, and even, in some measure, stop it in them. The Blood, thus lodg'd in the Veins, must distend and stretch them by its excessive Quantity, and stimulate and irritate them by the Salts which are secreted from the Blood, by reason of its Continuance there; and thus, by these two Means, the Pain in these Parts is excited.

He was likewise troubled with a Difficulty of Respiration and Deglutition, because the Aneurysm being situated upon the Trachea, and Oesophagus, which are, as it were, the Conduits of Respiration and Deglutition, compress'd them so, that it was with Difficulty they performed their respective Functions, especially about the Beginning of the Sternum, where the Passage being surrounded on all Sides with bony Parts, whose Resistance cannot be surmounted, these two Conduits cannot of course elude this Pressure.

The Pulse of the Patient's Right Wrist was small and weak, because, as I have observed, the Entrance of that arterial Branch, whence the particular Branch occasioning this Pulse sprung, being very small, there must, of consequence, be little Blood convey'd into it, and that too must flow very slowly in it, since the Branch itself was too large and capacious, in proportion to the Blood carry'd thro' it. Thus that Blood could neither fill the Cavity of the arterial Branch, and thereby occasion a full Pulse, nor dilate the Sides of it with Force and Impetuosity enough to produce a strong one; so that the Pulse, in his Right Wrist, must have been both small and weak.

The Pulse also of the Patient's Left Wrist was so small and weak, that it could scarcely be felt. We have already observed,

served, that the Entry of the arterial Branch, from which the Branch producing this Pulse sprung, was much less than that in the Right Arm. The Artery where this Pulse is, must consequently receive much less Blood, its Sides be less dilated, and with a proportionably smaller Degree of Force, by which means the Beating of it was almost imperceptible.

Last of all, the Patient fainted, when, being weary'd of holding his Neck and Head upright, he let them fall to one Side.

When the Head and Neck are inclin'd forwards, the Jugular Veins form a kind of Bend, and are, as it were, choaked : When the Head and Neck, on the other hand, are reclin'd backwards, these Veins are too much stretched, and the Diameters of their Cavities are diminish'd ; because their Sides must of consequence approach nearer to one another ; and when the Head and Neck are inclin'd, either to the Right, or Left Side, the Jugulars of the one Side are bended, whilst those of the other are too much stretch'd.

Now in all these Situations, the Jugular Veins are compress'd, and their Cavities diminished ; and the Return of the Blood from the Brain to the Heart is by that very Means retarded and render'd more difficult. If to these Compressions we add that made upon the same Veins by the Aneurysm, we shall find no great Difficulty in comprehending how the Veins of the Brain must be choaked up, and how these choak'd up Veins must compress the Nerves to such a Degree, that, in our present Case, a sufficient Quantity of animal Spirits could not be convey'd to the Heart, in order to carry on its Motion without Interruption. Now this Interruption of the Motion of the Heart is always followed with Faintings, which are greater or less, according as the Interruption is shorter or longer. *Mem. de l'Acad. R. 1712.*

HISTORY III.

On the 5th of June 1721, a Soldier came into the House of Invalids with an Aneurysm, almost of a Year's standing, on the anterior, right and upper Part of his Breast. The external Tumour, which was about a Finger's Breadth distant from the Sternum, seem'd to be divided into two Parts, one of which possessed the intercostal Space between the second and third Cartilages of the Sternum ; and the other that between the third and fourth. This Aneurysm rose several Lines above the Level of these Cartilages, altho' they were sensibly more arch'd, and projected farther, than those of the Left Side, which was occasioned by the quick and continual Beating of the Aneurysm. They were even visible at some Distance ; and all the adjoining Parts were so sensible of Pain, that the Patient could scarce suffer his Cloaths to touch them. He could not call to Mind any external Accident, which might be assign'd as the Cause of the Disorder ; however, he spun out his Life under all the Agonies of his Disease, till the 22d of October, when Death put an End at once to his Life and his Pain.

Mr. Morand, the younger, laid his Body open, and found the Aneurysm in the Aorta. But a Circumstance which appears somewhat miraculous, was, that the Aorta, already preternaturally enlarg'd at the Place of its Egress from the Heart, about an Inch farther, form'd itself into a large Bag, thirteen Inches in Circumference, and capable of holding a Pint of Water. Afterwards it contracted itself in order to continue its ordinary Course, send forth its four superior Branches, and form its Crofs ; and at its upper and anterior Part, it was very closely united with that Part of the Pleura which covers the Cartilages of the Sternum.

Two Polypi fill'd the Cavity of the Aneurysm. The one began at the lower Part of the Aorta, cover'd the internal Surface of that Part of it which is next the Base of the Heart, and afterwards form'd a kind of Plate, pierc'd with a Hole, parallel to the Opening of the Left Ventricle. The other Polypus covered the superior Part of the Aorta, which adher'd to the Pleura. They both had this Circumstance peculiar to them, that the red Substance, of which they were compos'd, serv'd as a kind of Ground-work for a beautiful Contexture of small, white Filaments, which, by their Ramifications, intersected one another, and represented various Figures, such as Rays darting from a common Centre, Lozenges, Nets, and the nervous Ramifications observed on the Leaves of Trees. The red Substances were undoubtedly Concretions of Blood, form'd by its Congestion in the dilated Aorta. But if it should be ask'd, what the white Filaments were ; I answer, They were probably the lymphatic and nutritive Parts of the Blood, separated from the rest, by its Stay in the Bag, and again united, as much as their Nature would admit of. If, on the other hand, it should be asked, why these lymphatic and nutritive Parts of the Blood should rather unite themselves in Filaments, than in any other given Form ; I answer, That tho' we cannot account mechanically for this Phenomenon, yet we may reasonably suppose, that they are naturally dispos'd so to do ; and that this Effect is very agreeable to their Functions, and confirmed by the Formation of new Membranes, and Cysts, which are found upon certain Occasions.

Mr. Morand observed how surprisngly skilful Nature was, in finding out Expedients for her own Relief ; and drawing, as it were, from the very Disorders into which the animal Machine is thrown, the Means of preserving herself, or, at least, of warding off her Destruction. The Polypuses, as is usual, occasion'd a great Inequality in the Patient's Pulse ; sometimes an Intermittence, and at other times too great a Frequency ; but without these Inequalities in the Pulse, the Disorder would have been still greater, since the dilated Aorta would have received a larger Quantity of Blood, than the Heart would have been able to propel ; the Polypuses, by filling the Cavity of the Aneurysm, made amends for its excessive Dilatation, and directed the Course of the Blood thro' a Canal which had all along been kept open. In the two Polypuses also, a Part of one of which was pierc'd with a Hole, this Hole was parallel to the Opening of the left Ventricle, thro' which the Blood flows from the Heart. The upper Part of the Aneurysm adher'd to the Pleura, and, by its Union with it, had so fortify'd the Membrane of the Aorta, as to prevent its breaking by the Action of the Blood, and save the Patient from an Effusion of Blood in the Cavity of his Breast, which would have proved immediate Death. *Hist. de l'Acad. R. 1721.*

HISTORY IV.

A certain Surgeon gave our Society an Account of a very surprisng and uncommon Case : A Man, as he inform'd us, who had gone a hunting, happening to turn his Head hastily, and with some Degree of Violence, to the Right Side, was not able, without a good deal of Pain, to return it to its natural Situation ; ever after which Accident he was so much indispos'd, that he could neither swallow nor breathe without a very great Difficulty. About fifteen Months after the Accident, the Patient died ; and upon searching for the Cause of his Disorder, we found the Aorta very much dilated, a large aneurysmal Cystis in the Right Subclavian, the Oesophagus and Trachea strongly compress'd by this Cystis, the Clavicles removed out of their natural Situation, and a Piece of Bone, which was wanting in the Sternum, included in the Cystis. 'Tis no easy Matter to account for the Bone's being lodg'd in this Place. *Hist. de l'Acad. 1700.*

HISTORY V. By Mr. MALOET.

On the 26th of June last, in the Afternoon, a Soldier of 45 Years of Age came into the Royal Hospital of Invalids, where I saw him the same Day ; and upon asking him for what Disorder he came there, he told me, that for six Weeks past he had been troubled with a Defluxion in his Breast, for which he had been blooded six or seven times ; that he had cough'd a great deal, and spit Blood, and that his Cough, and a Pain in his Throat, were still remaining. I look'd at his Neck to see whether there was any Rising or Elevation about it, and found on the lower and anterior Part of it a Tumour as large as a Nut, immediately above the Cavity of the Sternum, on which it rested : It was soft, round, and smooth. The Skin which cover'd it retain'd its natural Colour. It had a very perceptible, and a very regular Pulsation, and yielded to the Pressure of one's Finger ; but restor'd itself to its former Dimensions very quickly, and with a kind of Force. From all these Symptoms I easily concluded, that it was a true Aneurysm ; and suspected it to lie at the superior Part of the Aorta, which I imagin'd to be lengthen'd out independently of the Aneurysm. I asked the Patient how long he had been afflicted with that Tumour, and whether he was sensible of any Circumstance, which might have possibly laid a Foundation for it.

He told me, that he had only perceived it since the Defluxion in his Breast ; and that he could think of nothing to which he could so properly attribute it, as to the Efforts he had made in Coughing.

As his Cough remain'd as yet, I order'd him composing Medicines ; and because his Pulse was a little too frequent, I reduced him to Broths and Ptisans ; and order'd him to abstain from making any Kinds of Efforts, because of the Aneurysm.

The Patient having continued under this Regimen till the 29th of the same Month, he asked me one Morning, when I made him a Visit, if it was by my Orders that he had not Wine allow'd him : When I told him it was, he said, I cut his Throat, as it were, by discharging him the Use of it : That as he had work'd at his Business in the Quarries, he had been accustomed to it ; and therefore begg'd, that I would let him have some Allowance of it. Finding his Pulse calmer than it was on the Day in which he came to the Hospital, I made him be mark'd among the Number of the Patients who were to have Wine.

I had no sooner reached the Bed next to the Patient's, than I heard behind me a Noise, as it were, of one vomiting. Upon returning, I found the Man, with whom I had just then parted, discharging Torrents of Blood from his Mouth. I ran to his Assistance, as did likewise the Apothecary of the Hospital, who attended me during my Visit. But as he cover'd not only himself, but every one that came near him, with Blood,

the first Step we took, was with all Haste to provide a Vessel for receiving the Blood, which he discharged without any Effort, in great Quantities, which came up immediately upon the Back of one another. As I thought the Case very desperate, I desired a Sister of the Infirmary to call a Priest with all possible Haste. The Patient, having laid himself on his Bed, in the Posture which he judged most advantageous, discharged great Quantities of Blood in the Vessel, which the Apothecary held for that Purpose, and expired in a Moment, before the Priest, who was in the Hospital at the very Time the Accident happened, could have an Opportunity of discharging the Functions of his Office, with regard to his Soul; for there was scarce a Minute betwixt his Death, and the Time of his beginning to throw up the Blood, which was frothy, and of a vermilion Colour.

Tho' I expected very fatal Consequences from the above-mentioned Tumour, yet, I must own, I did not imagine the Patient's Death so near at hand; and much less did I suspect, that the Aneurysm should have been discharged by the Mouth.

But there was no Reason to doubt of its having burst, and of the Patient's having lost all his Blood by that Means, since upon his Death the Tumour of his Throat disappeared entirely. But how did it appear possible, that this Blood should have reached the Mouth, since nothing is more evident, than that the Tumour was a dilated Artery, none of which have an immediate Communication with the Mouth, nor with any of these Canals by which this prodigious Quantity of Blood could be furnished? I saw plainly, that the Blood must have forced a preternatural Road to itself; but it could not have possibly discharged itself so suddenly without two Openings, one in the Artery, where the Aneurysm was, and the other in the Trachea, which I judged the only way by which the Blood could reach the Mouth. This too appeared somewhat hard to conceive, since the Fluid contained in the Tumour did not seem capable of corroding the Sides of the Canals; and even tho' it had, it must have pierced the Sides of the Aorta, before it could produce any Effect upon those of the Arteria Trachea; in which Case, that is, after it has pierced this Artery, it must have thrown itself into the Cavity of the Breast, and by that very Circumstance become incapable of corroding the Trachea, or coming through it to the Mouth.

Upon laying the Patient's Body open, my Difficulties were removed. This I did the very Night on which he died, and, before I began the Work, I observed a kind of bloody Froth flowing from his Mouth, and the smallest Remains of the Tumour on his Neck were not to be seen. I opened the Breast, and after having disengaged the great Artery, and its three large Branches, the Right Subclavian, the Left Carotid, and the Left Subclavian, I found something peculiar and uncommon in the Aorta; for it was dilated in the upper Part of its Arch, between the Right Subclavian, and the Left Carotid, betwixt which, just at their Origin, there was, contrary to what commonly happens, a Space of six Lines. The Right Subclavian Artery was larger and longer than ordinary; for it was about an Inch in Diameter, and two Inches long, before it sent forth the Carotid. There was on its upper Part, where it springs from the Aorta, a Cystis, which had form'd the Tumour, which appeared on the lower Part of his Neck. Hence it was, that this Aneurysm was not, as I had suspected, altogether in the Aorta, which nevertheless contributed somewhat to its Formation; for it was really dilated, or lengthened out, in its upper Part, as I had suspected.

The Cavity of this Cystis was about two Inches in Diameter every way. It was placed before the anterior Part of the Arteria Trachea, between the tenth and fifth cartilaginous Segments inclusively; so that it covered six of these Segments, and in its posterior Part adhered very closely to them, as it likewise did on the Left Side, which I did not touch.

I endeavoured to disengage it from the Arteria Trachea, but it opened as soon as I touched it with the Knife, though I did it with all the Gentleness I possibly could. Finding that it was not possible to separate the whole Cystis, which I at first intended, I enlarged the Orifice which I had made in its Right lateral Part, that I might look into its Cavity. I found nothing in it, but was surprised to see the Cartilages of the Arteria Trachea discovered. I endeavoured to find out the posterior Side of the Cystis, or dilated Artery, which, in Consequence of its Situation, should have been opposite to the said Cartilages; but I found no Side there, except a little Shred, which seemed to be very weak, decay'd, and even torn. I also observed, that the Cartilages upon which the Cystis touched, were weaker, flatter before, and less projected than the rest. And lastly, I observed between the sixth and seventh of these Cartilages, on the Right anterior Part of the Trachea, a Hole almost round, of two Lines transverse, and two and an half of vertical Diameter.

This Hole was made in the ligamentous Membrane, by which the cartilaginous Segments are tied to one another; and it even bordered upon the sixth and seventh, which by that means had become a little arched at that particular Place.

Upon founding the Hole with a Probe, I found it passed into the Cavity of the Arteria Trachea, but yet in such a manner, that it was larger at its Entrance, than in any other Part. I also judged it proper to take a View of the Stomach, which when I did, I found it filled with Clots of Blood.

I was then no longer at a Loss to judge which way the Blood discharged by the Mouth had come, and why it had been thrown up so quickly, and in so large Quantities; and even why it had not been thrown up sooner, though the Hole in the Trachea seemed to be of a considerably old Date.

'Tis not, in my Opinion, to be doubted of, but the Blood passed, by means of this Hole, from the Cystis into the Trachea; thence it must needs either mount up into the Larynx, or descend into the Bronchia; but the Air included in them prevented its taking that Course, tho' it was carried thither by its own Weight; so that it was forced to the Larynx, and from thence towards the Palate, from which it was discharged by the Mouth.

Though the Hole seemed to have been made in the above-mentioned ligamentous Membrane, some time before the Patient's Death, or rather before his Hæmorrhage, yet the Blood did not pass from the Cystis into the Cavity of the Trachea, because the internal Membrane of that Canal had remained entire, block'd up the Hole on the Side of the Cavity, and prov'd, as it were, a Defence to its Entrance. But this Membrane being broken and dilacerated, the Moment before the Patient died, the Blood contained in the Aneurysm, or rather that of the Subclavian Artery, found nothing to oppose its Passage into the Trachea.

I say this last-mentioned Membrane must have been first distended, and then broke, which could not well happen otherwise, since, being pretty lax, it must have yielded, and be driven inwards by the Blood, which came from the Subclavian Artery.

This appeared from the Form of its Opening, the Lips of which projected considerably into the Cavity of the Arteria Trachea; so that by laying them back towards the Hole formed in the ligamentous Membrane, they closed up the greater Part of it.

It now remains, that we consider how this Hole may have been made, between these two Cartilages, in the Membrane by which they are tied to one another; and this is not very hard to be conceived; for the posterior Side of this Cystis, which adhered to the Arteria Trachea, having been stretched, and at last broken, by the impetuous Efforts of the Blood, which arrived continually at it; and even destroyed, since it was very slender, and on one Side, apply'd to Substances harder than itself, and on the other, exposed to the Shocks of the Blood thrown very forcibly upon it, the Blood acted immediately upon the Trachea, but was not thrown forth from the Cystis, by reason of its close Adherence to the Trachea, which served as a Side to its posterior Part. This same Blood, whether by its Serosity, or some of the saline Parts, or by the Effort with which it had been thrown into the Cystis, had gradually wasted the Interstices of the cartilaginous Segments, which concurr'd to form the Trachea, and had produced this Opening betwixt the sixth and seventh of them, because that Place might have possibly been weaker, or more exposed to the Efforts of the Blood in Consequence of its Direction.

But this Opening was not formed instantaneously, but by little and little. It was begun, and even pretty well advanced, at that time the Patient spoke to me with so much Resolution, and accused me of cutting his Throat, as it were, by debarring him the Use of Wine. He did not certainly at that time think, that he was so near the Point of having it really cut, or, at least, pierced. The Blood had already broken through the ligamentous Membrane betwixt two of the cartilaginous Segments of the Trachea, and had arrived at the internal Membrane of that Canal, which was now the only Obstacle left for it to surmount in its Passage. At this particular time, it might have been truly said, that the Life of this Soldier hung, as it were, by a Hair, since it only depended on the shorter or the longer Time, which so slender a Membrane might be supposed to hold it out against the Shocks of the Blood, supplied by the first and largest Branch of the Aorta. It was scarce possible, that such a Membrane could, for any considerable time, hold it out against a Force capable of overcoming a vastly greater Resistance: Thus it was broken in a Moment; and that was the very Moment preceding the Death of the Patient.

As the Communication betwixt the Aneurysm and the Arteria Trachea had become free and uninterrupted by the breaking of this Membrane, the Blood contained in the Aneurysm, or rather in the Subclavian Artery, passed with all its Impetuosity into that Canal, and was from it convey'd, as I have already said, through the Larynx towards the Palate, by which it was discharged thro' the Mouth, as long as the Patient had Strength enough to sit up; but being obliged to lie down, or rather falling backwards, by reason of the extreme Weakness occasioned by such a Loss of Blood, and the Blood, in the mean time, continuing to flow towards the Palate, a Part of it then fell

fell into the Pharynx, and from thence into the Oesophagus and Stomach; this it might the more easily be supposed to do, because the Posture of the Patient favoured its Direction that way, by its proper Weight, whereas it opposed its Discharge by the Mouth. Hence we may account for the Blood found in the Stomach, where it was coagulated.

The Effort of the Blood, which flow'd from the Subclavian Artery to the Aneurysm, beating continually and immediately upon the Cartilages of the Arteria Trachea, could not fail to stretch them, and render them flat and weak, as I have observed they were.

This Aneurysm seems to me to have been the Consequence of the Augmentation of the Diameter of the Right Subclavian Artery, from whatever Cause such an Augmentation might proceed; for as the Diameter of this Artery could not be augmented without its Sides being at the same time distended, and consequently rendered thinner, which they were in Reality, in proportion as they were dilated, it is plain, that these Sides, becoming thinner, must, of course, have less Force to resist the Impetuosity of the Blood, which was carried towards them, and which was so much the greater, as it came immediately from the Aorta. These Sides then were forced to yield, and stretch more in some Places than in others, that is, in those Parts most which were most exposed, or weakest; and as they lost their proper Tone, and a Power of restoring themselves, the Cystis, or Cavity of the Aneurysm, was by that means formed.

The Efforts which this Soldier used to make when working at his Trade in the Quarries, might have laid a Foundation for this Augmentation of the Diameter of the Right Subclavian Artery, and by that means rather prove the Cause of the Aneurysm, than those Efforts which he made in Coughing, during the Defluxion of his Breast, to which he attributed it; because as in the Work in which he was employed, the Muscles of the Arms must be violently contracted, and remain for a long time in that State, they could not fail to intercept the Course of the Blood in those Arteries, which supply them with it; and this must have happened more remarkably in the Right, than in the Left Arm; because the former makes stronger and more frequent Efforts than the latter. The Course of the Blood being intercepted in the Arteries of the Right Arm, it must of course have stopped in the Trunk of the Subclavian, from which these Arteries take their Origin, and which was free from all Compression. The Blood being stopped in that Trunk, and rendered incapable of circulating forwards, in proportion as it was propell'd by the Heart, and accumulated there, it must have dilated the Vessel, and occasioned an Augmentation of its Diameter.

It is very rare, that a true Aneurysm opens, and kills the Patient in so short a time, especially when it is not more considerable than this was; for one may see very large ones supported by Patients for a great Number of Years, whereas this open'd in about the Space of six Weeks.

The Circumstance, which, in my Opinion, best accounts for this, is, that the Aneurysm touched upon the Cartilages of the Arteria Trachea. I have already taken Notice of the Part these Cartilages had in destroying the posterior Side of this Cystis, and consequently in its becoming open.

It is perhaps still rarer, that one should discharge, by the Mouth, Blood, which comes immediately from the Trunk of the Subclavian Artery. As I never saw another Instance of it, and have not met with a Case of the like Nature in all the Authors I have read with that very View, I thought proper to communicate the Particulars of a Case so singular. *Mem. de l'Acad. R. 1733.*

HISTORY VI. From the Philosophical Transactions.

In the Year 1685. a Servant to my Lord Culpeper got a Fall, which caused him a heavy Pain in the Breast for a while. About a Month after this Accident, a Musket burst in his Hands, and gave so violent a Recoil against his Right Side, that it made him spit Blood immediately, and continued for six Months. A Year after, he began to feel a Continuation on that Side, and then he spit Blood again, which continued but only in the Spring and the Fall, till he died.

He bled likewise by the Nose twice a Year, for a Month every time. In 1695. or 1696. a Tumour began to appear under the Right Nipple, which, growing by little and little, came to an extravagant Bigness, and at last, after using some emollient Ointments upon it, (of its own Accord) it broke suddenly, and he soon after died. Mr. Lafage open'd the Body, and found that two of the Cartilages of the Ribs were worn off, by the continual Pulsation of the Tumour: Part of the Sternum Bone was also worn off, by the same Cause. The Dilatation of the Artery began precisely on its Trunk next to the Heart, before it divided itself into the ascending and descending Trunks; and though there is but a little Place, yet it did dilate itself so excessively, that the Bag did fill up the whole Cavity of the Thorax on the Right Side, and pressed the Lungs so much, that they were thereby much diminished; the Bag by the Outside did adhere to the Mediastinum, to the Dia-

VOL. I.

phragma, the Pleura, and to the Sternum, in which it had digg'd two great Holes, so strong was the Impulsion: The Inside of that Bag was lined, almost all over, with bony Laminæ, some larger, some lesser, like so many Shells; the Heart was mightily relaxed, insomuch that it was twice as large as it ought to be; and amongst its Fibres there were some Stones, like them which are sometimes found in the Lungs of scrophulous Bodies. *Philosoph. Trans. Abr. Vol. 3.*

HISTORY VII. From the Philosophical Transactions.

We had lately an Opportunity of examining into the Nature of an Aneurysm, by means of a Patient, who was taken into St. Bartholomew's Hospital. She was about four-and-thirty Years of Age, and of a good Constitution; but there was a Tumour, bigger than one's Fist, which began from the upper Part of the Sternum, between the Origins of the *Musculi Mastoidei*, and extended itself to the *Pomum Adami*, almost up to her Chin, and possessed all the Breadth between the two Carotid Arteries. The Account that she gave of the Occasion of it was, that her Husband, being a passionate Man, took her by the Throat one Day, as she was crying out upon some Occasion or other, and griped her so hard, as almost to throttle her. She was then with Child, and immediately perceived something of a Pain a little above her Heart; and a few Days afterwards there appeared a Tumour about the Bigness of the Top of her Finger, just above the Sternum, and so continued without Increase or Pulsation, till she was brought to Bed, when it began to be enlarged, upon her having a hard Labour, agreeable to what Practitioners have observed, that Accidents of this Nature often happen to Women in Labour. This was about four Years since, and from that time it had continued gradually increasing, until it was arrived to almost the highest Pitch of Extension; and she had all along been troubled with a Palpitation, Pain, and Straightness within the Thorax, great Interruptions in her Rest, and frequent Sinkings, together with a constant Beating along the Chest up to the Tumour; in which likewise there was a Pulsation correspondent to the regular Pulse, shaking the Tumour at every Stroke, and manifest to the Eye as well as the Touch. Notwithstanding this, she was otherwise hearty, had her *Menses* regularly, had a good Appetite, and was mostly cheerful and lively, and never more so than just before the fatal Period of her Tumour. The Apex of the Tumour, which was towards the Middle, in the prominent Part of it, was beginning to mortify, through an Over-distention, and the common outward Integuments were the first that seemed to suffer: But the Distention continuing, the Mortification increased, and was quickly communicated to the outer Coat of the Artery likewise, which therefore sloughed off as well as the other Integuments, and being at length worn away, just at the Extremity, made a sudden Aperture, about twice the Bigness of a Goose's Quill. The Blood instantly gushed forth, as from a Stream or Torrent, and the poor Patient died in less than a Minute.

Upon opening the Body, we began from the Heart, in which there was little remarkable, except that the Left Ventricle was somewhat larger, as were likewise the *Columnæ Carnea*, than they naturally should be. There was little observable likewise in the Aorta itself, till we came to the *Curvature*; upon the upper Side of which was the Basis of the Tumour, forming a cylindrical Stem of four Inches long, while in the Cavity of the Thorax; but extending itself into a circular Form of a larger Dimension, when it became external. Upon opening the under Part of the Aorta, opposite to this Basis, and carrying the Incision throughout its whole Extent in the Thorax, the Trunk retained its usual Form and Dimensions, and was not at all dilated; but in the upper Part above described, just on this Side the Orifice of the Right Subclavian Artery, (which was nearer than usual to the Orifice of the Left Carotid) there was a preternatural circular Aperture of half an Inch Diameter. Upon dividing this Aperture, and carrying on the Incision to the Apex of the Tumour, its whole internal Substance appeared. The Edges of the Aperture, at the Basis of the Tumour, were hard, and almost cartilaginous, and seemingly the Remains of thick and fleshy Fibres, which, upon a nicer Inspection, they appeared to be in Fact; viz. the broken Fibres of the Inner, or what is commonly called, the Muscular Coat of the Artery, which terminating here, the Tumour immediately increased to two Inches Diameter, and continued of that Dimension, till it came out of the Neck, between the Clavicles; but then extended itself circularly to a Diameter of above three Inches, the Covering of which was nothing else but the outer Coat of the same Artery, all along dilated from the Base, even to the Extremity of the Tumour. The Cavity was, for the most part, filled with a sort of Polypus, or Sarcoma, in which, nevertheless, there were three Sinuses, or Passages, that were kept open by the constant Influx of the Blood, and communicated near the Apex with one another, (that in the Middle being the largest) and terminating in one towards the Extremity of the Tumour, not far from where it broke. *Philosoph. Transact. abridg'd, Vol. 8.*

I shall conclude these Histories of Aneurysms with the following Remarks by Dr. Nicholls, which I find in the *Philosophical Transactions*, because they seem to set the Nature of these Tumours in a just Light.

An Aneurysm is, by all Authors, defin'd to be a soft, circumscribed Tumour, in which there is a sensible Pulsation of the Artery, to which it adheres. As it is certain, that any Tumour, of what Kind soever, lying on, or adhering to, any considerable Artery, must necessarily be mov'd by every Pulsation of such Artery; so this Pulsation (unless understood in such manner as I shall hereafter explain) can no ways be admitted as the true Diagnostic, whereby to specify the Difference between this kind of Tumour and any other. An Aneurysm is found most commonly to succeed Falls, Vomiting, Labour-strains, and such other Motions or Indispositions of the Body, as, by compressing the great Branches of an Artery, any ways stop the progressive Motion of the Blood. It is obvious, that, as the Section of the Artery, above the Compression, must, in its natural State, be sometimes very incapable of containing at once the whole Quantity of Blood, which ought only to have pass'd thro' it successively; and as the Force of the Heart may frequently exceed the Resistance it may meet with from the Coats of the Artery, so the Consequence of such a Stop to the progressive Motion of the Blood, may occasion either a Rupture of the Artery, or a Distention of the Artery without a Rupture, or a Rupture of the internal Coats of the Artery, and a Distention of its external. A Rupture of the large Branches of the *Aorta* necessarily allows so plentiful Effusions of the Blood, as to occasion immediate Death; while the Capillaries may be burst, without any other Injury but a slight *Echymosis*; and the Tumour form'd by the Effusion from them, will be diffused and superficial. A Rupture of the mean Branches (such as descend between the *Tibia* and *Fibula*, the *Radius* and *Ulna*, &c.) will be attended with a considerable Effusion of Blood; but as the Blood will find a Passage between the Interstices of the Muscles, it will never form a circumscribed Tumour. However, the Effusion being continued, *per Saltum*, thro' the ruptured Artery, will give a faint Pulsation, and consequently some Resemblance of the Aneurysm; for which Reason it is, by some Surgeons, term'd a *Bastard Aneurysm*. Whether or no an Aneurysm be a Tumour form'd by the Dilatation of the Artery, or by a Rupture of the internal Coats of the Artery, and a Distention of the external, has for some time been a Matter of great Dispute; each Party protesting (perhaps too unjustly) against the Possibility of the other's Opinion: As to the Possibility of an Artery's being dilated, it stands supported by Reason and Autopsy. We find the Uterine Arteries constantly increased in Thickness and Diameter, in proportion as the *Uterus* is distended; and many Cases of Palpitations of the Heart have been attended with great Dilatations of the *Aorta*: Instances of which I have seen both in human and brute Subjects. Such a Dilatation will necessarily follow a constant or frequent Pressure on any Part of the *Aorta*, provided such Pressure does not entirely stop the progressive Motion of the Blood thro' the *Aorta*: But, on the other hand, such a Dilatation will always retain somewhat of the Form of the Artery. The Resistance will not be every way equal, as in the extravasate Tumours; because the quaquaversal Pressure of the Blood will be controul'd by the Pressure on the Artery, and the Resistance from the Coats of the Arteries, so as necessarily to form a Cylindroid; and the Consequence of such a Dilatation cannot (if consider'd abstractedly from its Pressures) be worse (if so bad) than from a varicous Vein. Again, they who conceive an Aneurysm to be a Rupture of both Coats of the Artery, oppose their Opinion who imagine the internal Coat to be ruptured, and the external to be distended, by comparing the two Coats in Question, and urging, that, as the internal Coat is so much thicker than the external, it seems impossible the last should be sufficient to resist a Force capable of destroying the first. Were these two Coats similar, as to their Structure, we might then compute their Strength by their Thickness, and this Argument would be of much greater Force than at present it can be; because the internal Coat being composed of annular *Fasciculi*, whose Sides have but a very weak Cohesion, their Power of resisting will not be measurable by the Strength of those *Annuli*, but by the Force with which they adhere laterally. And, on the other hand, the external Coat being composed of Fibres equally interwoven, and of a quite different Composition, it may either exert a greater Resistance, or be capable of much greater Dilatations than the internal: But, that Autopsy may evince the Truth of this Difference in the Strength of these Coats, it will be found, by any one who pleases to try the Experiment, that by blowing into the Pulmonary Artery, the internal Coat will soon burst, and the external form itself into aneurysmous Tumours (which Experiment was accordingly tried before the Society, to their Satisfaction).

Upon considering all which, and having, by Order of the Society, both privately and publicly examined an Aneurysm, which I find to be round, like other extravasate Tumours, unless when controul'd by any notable Pressure, and that the Sac-

culus does not divide into Coats, as the Artery from whence it arises does, I am induced to think, that this Aneurysm is a Tumour form'd by the Blood's being forced thro' the *Ligamentous*, or what is call'd the Muscular Coat, and distending the membranous or outer one: And because the Impetus of the Blood will, as it were, perpetually press through the Aperture into the Tumour, and be again (at least in Part) return'd by the Elasticity of the external Coat; therefore such a Tumour will rather have a pulsatile Dilatation, than a Pulsation, for its true Diagnostic. *Phil. Trans. Abr. Vol. 8.*

As Aneurysms frequently happen from Accidents in Bleeding, I shall first specify the necessary Method of proceeding, in order to prevent an Aneurysm, when a casual Wound of an Artery, in Phlebotomy, makes it suspected, that one may ensue.

In letting Blood, it sometimes happens, that the Artery is cut instead of the Vein, or that the Vein and the Artery are wounded at one and the same time. This Misfortune generally happens, when the Surgeon intends to open the *Basilic Vein* in the Arm; for near this Vein there usually lies some large Artery, and generally the principal one in the Arm (though I have often observed the large Artery near the *Cephalic Vein*); the pricking of this brings on, for the most part, a terrible Effusion of Blood, an Aneurysm, or even, as *Hildanus*, some others, and I myself have observed, a Gangrene of the Arm, from the Circulation of the Blood being stopp'd in it; or, which is still more terrible, Death itself, from an immoderate Effusion of Blood. Now, that an Artery is wounded, may be pretty well known from these Signs:

The Blood bursts from the Orifice at certain Intervals, and, as it were, by Starts; and springing forth, in a more violent manner than when no such Accident happens, it describes certain Arches in its Progress. Its Colour is also more red and florid, than that which flows from a Vein open'd as it ought to be. Besides, if the Part below the Orifice is press'd with the Finger, the Blood bursts forth with the greater Impetuosity; but if any Pressure is made above the Wound, the Impetus of the flowing Blood is diminish'd. The Reverse of all this happens when a Vein is duly open'd; but if at any time this Misfortune should happen, 'tis reasonable the Surgeon should be apprised of the Danger that attends it, that he may both preserve such a Presence of Mind, and Turn of Thought, as may enable him to take proper Measures, and conceal, if possible, his Error both from the Patient and the By-standers. He must therefore diligently observe, in the first place, whether the Blood flows freely from the Orifice, or whether it insinuates itself copiously between the Muscles and the Skin; if it flows freely, a very large Quantity of Blood is to be taken from the Patient, and even till he faints away. The Patient, in the mean time, and the By-standers, are, according to the Advice of *Dionis*, to be artfully wrought up into a Persuasion, that the Person abounds too much in Blood; that 'tis too hot, and, as it were, boiling; and that, in consequence of these Circumstances, his Case calls for so large an Evacuation: For since the Blood ceases to flow when the Deliquium comes on, the Wound may be conveniently tied up, and the Abundance or Impetuosity of the Blood, by that very Means, hinder'd from bursting out afresh, producing an Aneurysm, or at least from preventing the Agglutination of the Wound. In the mean time, the Surgeon ought, if possible, to catch an Opportunity of privately conveying a Piece of Money into the first Compress, which he is to apply immediately to the Wound, for its more effectual Compression; then, after cleansing the Patient's Arm, he is to apply a second Compress, broader than the first; and even a third, broader than the second; and all of them sufficiently thick: And then, bending the Patient's Elbow, he is to apply a double Bandage, both with a View to retain the Compresses more firmly, and compress and agglutinate the Wound of the Artery more effectually. These Bandages are to be applied in the same manner as in common and ordinary Venesections. It is also highly proper to apply a narrow, thick, and long Compress upon the Tract of the *Brachial Artery*, all along from the Wound to the Arm-pit; and this Compress is to be fix'd with a Bandage applied in obtuse spiral Wreaths, that the *Brachial Artery* being thus gently compress'd, the Impetus of the Blood upon the Wound may, by that means, be considerably diminish'd: And that the By-standers may not so much as entertain the remotest Suspicion of the Error committed, they are, with a grave and serious Air, to be told, that it was absolutely impossible to stop the impetuous boiling Blood of the Patient, without the Assistance of so artful and curious a Bandage. I hope *Father Parnin*, when he translated *Dionis's Surgery* into the Tartar, or modern Chinese Language, left out this Advice above-mention'd; otherwise it would give the Chinese a horrid Idea of the Villany of the European Surgeons, which Charity obliges us to presume they are seldom guilty of. As the most political thing a Surgeon can possibly do, is to be honest, I should advise him, in the Case before us, to discover fairly the Accident, that farther Advice and Assistance may be immediately procur'd; for the Welfare of the Patient is of infinitely more Importance, than the Reputation of any Surgeon whatever. Instead of the first Compress, arm'd with a Piece

Piece of Money, a little chew'd Paper, especially if immerfed in melted Greafe, and well wrung out, may be applied to the Orifice with the fame, if not more Propriety; and fome Comprefles, becoming gradually broader, as in the other Cafe, are to be clapt upon it, and fecured with the fame Bandages, and in the fame manner.

After this is over, if the Patient has not recover'd from his Deliquium, he is to be rous'd, by applying to his Nostrils a Linen Cloth foak'd in Vinegar or Hungary Water, by pouring a little Wine into his Mouth, and by opening the Windows, that he may enjoy the Benefit of the free Air: When this troublefome Scene is clofed, Reft, together with a fpare and fender Diet, is carefully to be recommended to the Patient: He is even to be told, in plain Terms, that a moft dangerous Effufion of Blood will enfue, if either by an improper Regimen, Motion of his Arm, or any other Caufe, the Bandages fhould be unloofed or give way. For this Reason, 'tis not only expedient, but abfolutely neceffary, that the wounded Arm, moderately bent, fhould be fupported in the Day-time with a Towel, or Scarf, hung about his Neck, and by feveral Pins fix'd to his Cloaths, that his Arm may the more effectually be kept from moving; and in the Night-time it is to be laid on a foft Pillow.

Some Hours after the Application of the Bandage, the Surgeon ought frequently to vifit the Patient, take a careful Survey of the Bandages, and the wounded Arm; and obferve whether a frefh Effufion of Blood, a hard and painful Tumour, a vehement Inflammation, or a Gangrene, have already happen'd, or are likely to happen; and whether the Bandages are ftill firm and tight. If all other Appearance are favourable, tho' a large, but at the fame time a foft, Tumour arifes about the Part affected, the Bandages are to remain in that State, and not to be loofed before the fourth Day; for a Tumour of that Kind, portends no Ill, even tho' it fhould diffufe itfelf thro' the whole Arm; but when the Bandages appear too loofe, they muft be taken off with the greateft Caution, and again applied more tightly; whilft they are taking off, the Brachial Artery fhould always be comprefs'd with a Torcular, or at leaft with the Thumb of an Affiftant, about the Middle of the Arm; and the Wound itfelf fhould always be comprefs'd with the Thumb or Finger of the Surgeon, till the fame Bandages, or others, together with frefh Comprefles, are again applied: But we are to take particular Care, that the Comprefles, efpecially the undermoft, or the chew'd Paper, if adhering to the Orifice, be not pull'd away, but rather be allow'd to fall off of their own Accord: And, indeed, this Bandage is carefully to be furvey'd, and when it becomes loofe, to be made tighter, after putting a little Balfam of Peru or Capivi into the Wound, fo long as there is even the leaft apparent Danger of a frefh Effufion, and till the Wound is effectually agglutinated. But if, unluckily, a frefh Effufion come on, the Trunk of the Brachial Artery, about the Middle of the Arm, is to be ftroingly comprefs'd, either with a Torcular, or the Thumb or Fingers of an Affiftant, as we advifed above, till other and longer Bandages, together with frefh and thicker Comprefles, are prepar'd, as in the firft Dreffing; the former Applications are to be removed, the Wound is carefully to be cleanfed with warm Wine, or Spirit of Wine, and the Comprefles and Bandages are again to be applied in the manner above directed, till the Wound is agglutinated. But if a Gangrene appears, and is occafion'd by the Tightnefs of the Bandages, in that Cafe they are to be remov'd with the Cautions already given; and, after enlarging the Comprefles, they are again to be applied a little more gently, and the Arm itfelf is to be ply'd with fuch Medicines as are good againft Gangrenes: But if the Gangrene proceed from an Obftruction of the Circulation of the Blood, for want of another Artery in the Arm, which, by the way, is rarely wanting, in this Cafe there is an abfolute Neceffity for having recourfe to Amputation.

But even tho' none of thefe Misfortunes fhould happen, and tho' the Wound fhould, for fome time, remain in this hopeful Condition, the Patient is neverthelefs to be advifed to keep a Bandage on the Wound for eight, ten, or fourteen Days, and indeed the longer the better; and to keep his Arm in a State of Reft, left the Impetus of the Blood fhould again deftroy the tender Cicatrix, or raife it into an Aneurysm. The Regimen alfo, as in the Beginning of the Diforder, muft as yet be fpare and fender: Wine, and other ftrong Liquors, are entirely to be avoided, that a too violent Motion of the Blood may be prevented; which, if it fhould happen, is to be taken off by opening a Vein in fome other Part: For thus the moft dangerous Evils, that is, an exceffive Effufion of Blood, and an Aneurysm, are not only guarded againft, but the wounded Artery is more effectually agglutinated; efpecially if, when the under Comprefle, or the chew'd Paper ufed for that Purpofe, falls off, a little Balfam of Peru or Capivi, or any other balfamic Effence, be applied to the Wound. By thefe means the Patient is frequently reftor'd fo effectually, that he fufains no manner of Injury by the Error of the Surgeon.

There are the Meafures to be taken, and this the Courfe to be follow'd, by the Surgeon, when neither Patient nor By-ftanders fufpect the Error; but if any one fhould at firft fufpect the Misfortune, and fee the Surgeon's Error, in this Cafe 'tis better ingenuoufly to own his Blunder, which indeed may be committed by any one; and after laying down the Caufes of the Error, which could not have been guarded againft even by the moft fkilful and quick-fighted Surgeon, he is to encourage the Patient and By-ftanders by the Promise of a fpeedy and effectual Cure, provided his Directions are follow'd. This open Ingenuity, and frank Confeflion, of the Surgeon frequently lays a Foundation for a fpeedier and furer Cure, than if the Patient had not fufpected the Error; becaufe, being by this means apprifed of the Danger, he is the more careful to follow his Surgeon's Directions, and both do and fuffer whatever is thought neceffary to his Cure.

But when the Orifices of the Skin and Artery do not exactly correfpond to each other, but the Blood, flowing from the wounded Artery, infinuates itfelf between the Mufcles and the Skin, the Surgeon is then to proceed in a quite different Method: For, in this Cafe, 'tis by no means proper to bleed the Patient, *ad Animi Deliquium*; becaufe, being by this means apprifed of the Danger, he is the more careful to follow his Surgeon's Directions, and both do and fuffer whatever is thought neceffary to his Cure. But when the Orifices of the Skin and Artery do not exactly correfpond to each other, but the Blood, flowing from the wounded Artery, infinuates itfelf between the Mufcles and the Skin, the Surgeon is then to proceed in a quite different Method: For, in this Cafe, 'tis by no means proper to bleed the Patient, *ad Animi Deliquium*; becaufe, being by this means apprifed of the Danger, he is the more careful to follow his Surgeon's Directions, and both do and fuffer whatever is thought neceffary to his Cure. A Quantity of Blood may poffibly infinuate itfelf between the Mufcles and the Skin, as may lay a Foundation for a Sphacelus by its Corruption, or at leaft create an immediate Neceffity of performing the Operation for the Aneurysm. In this perplexing State of Things, therefore, if the Orifice of the Skin cannot, by the Affiftance of the Finger, be made to correfpond fo to the Orifice of the wounded Veffel, that the Blood may not infinuate itfelf between the Mufcles and the Skin, but flow freely out of the Body, the Orifice is immediately to be stopp'd with the Finger, or a Piece of chew'd Paper; and feveral Comprefles, becoming gradually broader, are to be applied to it; and the Comprefles are to be retain'd and fix'd by Bandages in the manner above-directed; nor is the Application of that long Comprefle, and Bandage, which we have recommended for compreffing the Trunk of the Brachial Artery, to be neglected. A large Quantity of Blood muft alfo be taken from fome other Part of the Patient's Body, if Circumftances call for it: After this the fame Steps muft be taken which we have directed above, till the Wound be effectually agglutinated. Soon after the Patient muft again be vifited; for it fometimes happens, that, after the Application of the Bandage, no Blood flows from the Wound, but fo infinuates itfelf between the Mufcles and Skin, as to diftend the Arm fometimes to a prodigious Size. *Dionis* gives us a memorable Cafe of this Nature, in which he was obliged to lay open the Skin of the whole Arm, and evacuate four Pints of Blood, which had fill'd all the intermediate Space of the Arm, between the Elbow and the Scapula. *Ruyfch* alfo gives us an Inftance much of the fame Nature, where the Blood was found coagulated almoft thro' the whole Arm. *Heifter*.

CURE of ANEURYSMS.

ANEURYSM is a Term in Ufe among the Surgeons, by which they fignify a Tumour caufed by a Dilatation, Percuffion, or Rupture of an Artery, full of Blood, and commonly attended with a Pulfation. They reckon two Kinds of Aneurysms, the *Spurious* and the *True*: The true Aneurysm is, when a Tumour, with more or lefs Pulfation, arifes from a Dilatation either of the whole Artery, or only of one Side thereof, almoft in the fame manner as the Tumours call'd *Varices* are generated in the Veins. Both thefe Sorts of Tumours may be confider'd as Hernias of the Arteries and Veins; and by fome, for that Reason, are fo call'd. On the other hand, a *spurious* Aneurysm happens from an Aperture made in an Artery, either by external Violence, as in Phlebotomy, a Wound, or a Contufion; or by an Erofion, however caufed, whence there is produced an Extravafation of Blood betwixt the Skin and the other Parts; from whole Effufion, and Detention under the Skin, the Part affected fwells, by little and little, to an exceffive Degree, and becomes of a livid or black Colour; or when a true Aneurysm happens to fwell in fo extraordinary a manner, that its containing Coats being diftended and broken, Blood either iffues from a Wound, or there is an Effufion of the fame under the Skin, which remains whole and unperforated. Hence arifes a very troublefome Tumour, which has little or no Pulfation, and lefs Elevation than in the true Aneurysm. Sometimes a Gangrene follows the Corruption of this Effufion of Blood, or Death itfelf, from the profufe Hæmorrhage. But we may alfo diftinguifh Aneurysms by the Accidents which accompany them: Thus fome are deftitute of the bad Symptoms which attend other Kinds; and there are fome, particularly fuch as are call'd *spurious*, which are accompanied with Immobility, a great Pain, and a Corruption and Sphacelation of the Part: Thefe may, not improperly, be ftyl'd *complicated*; and the former Kind, *simple*. They may alfo be diftinguifh'd into *external* and *internal*; the firft affects fome external, the other an internal Artery: And, to name no more, there feems to be a very remarkable Difference between Aneurysms, as fome of them, tho' of a good

a good Bigness, are now-and-then void of Pulsation; others are constantly attended with the same, in a greater or less Degree; for you must observe, as was said before, that the *spurious* Aneurysms, especially the larger Sort, have scarce any Pulsation; but in the true Kind, and principally those of a small Size, the Pulsation is pretty strong; and in some of these Aneurysms diminishes as the Tumour increases, but in others is not diminish'd, but rather increases with the Tumour.

The true external Aneurysm, besides the Properties just now mention'd, is commonly at first a very small Tumour, often no bigger than a Hasle-nut, with a constant Pulsation. As for internal Aneurysms, because they are invisible in the Beginning, we can say nothing of their Size. To proceed then with the other; the Place of the Tumour is, for the most part, soft to the Touch, and a fluctuating and renitent Liquid is perceiv'd in it. It very seldom deviates from the natural Colour of the Skin, and beats like other Arteries. The Tumour, when press'd with the Finger, while it is yet small, vanishes, and returns when the Finger is removed; but this Trial very seldom or never succeeds, after the Tumour is advanced to any considerable Size; for the Tumour increases by degrees, and sometimes arrives to a vast Bigness. The spurious Aneurysm swells, with a Pain, and Hardness, and a Lividness of the Skin; but the Tumour is more flat than in the other, and generally without a Pulse; when it is press'd, a Noise is perceiv'd; and oftentimes the whole Member, or at least a great Part of it, being more and more inflated, at last putrifies, and becomes sphacelated.

Aneurysms very often arise in the Arms, that is, whenever the Surgeon, in opening a Vein, especially the Basilica, pricks an Artery at the same time, or at least touches it with his Lancet. For, in such Cases, the other Coats of the Artery, or those which were newly agglutinated, being worn and press'd by the continual Pulsation of the Blood, are more and more debilitated and distended, till at last they give way for the Rise of a very terrible Tumour. Wherefore if, in the Space of some Days or Weeks after Venæsection in the Arm, there arises a Tubercle with a Pulse in it, as described in the preceding Paragraph, you may conclude, that you see the Appearance of an Aneurysm. But, besides the Surgeon's Instrument, there are a Multitude of other Causes, both internal and external, that give Birth to Aneurysms, as well in other Parts as in the Arms: For it is no unusual thing for remarkable Tumours to arise in several Parts of the Body, from Wounds, Bruises, and Suppurations of the Arteries, by external Causes. And 'tis not impossible for the Breast and Abdomen to be inwardly affected with Aneurysms, from the Weakness of the outer or inner Coats of the Arteries, however occasion'd, whether by Exulceration, for Instance, or Erosion. This is abundantly confirm'd by undoubted Observations of *Fallopian*, *Severinus*, *Ruyssch*, *Lancisi*, and myself. The Causes, indeed, especially of internal Aneurysms, are often doubtful, or wholly uncertain; however, they must be either internal or external: And 'tis probable, that Aneurysms, many times, owe their Rise to a Fall, or to Blows, or former Fractures, to violent Motions in lifting or pushing great Weights, to Leaping, hard Riding, or any other violent Concussion, by which an Artery may happen to sustain too great a Percussion, and be debilitated; or be too much press'd, and by that means distended into a Tumour: Or they may be owing to an Inflammation, Suppuration, and Erosion, occasion'd by an Ulcer of an adjacent Part, or a Part of the same Artery, whereby its other Coats are render'd too weak to sustain the Force of the Blood that rushes into them, and so are obliged to stretch and give way, and by degrees to expand into a Tumour. So it has been often seen, that from a slight Hurt of the Artery, by a Knife, a Dart, or any other sharp Instrument, especially in Phlebotomy of the Arm, as before observ'd, Aneurysms have proceeded; and even when the Artery has been but just touch'd, and only its outer Coat slightly wounded, by the Point of the Lancet, the inner Coat remaining entire: For this slight Hurt is the Occasion, that the inner Coat, at the Place where the Injury is received, becomes unable to resist and sustain the Pulse of the Heart, and the pressing Influx of the Blood, but is forced to give way; by which means the weak and injur'd Part is by degrees dilated into a very sensible Tumour, call'd an Aneurysm. Now if we apply this mechanical Theory of an Aneurysm from external to internal Aneurysms, many things may happen to injure the Coats of the internal Arteries: Thus an Artery may be weaker, and have less renitent Force, in a certain Place than elsewhere, whether the Cause of the Defect operates on the external Superficies of the Artery, or within its Tunics. So also from a Fall, a Blow, a Bruise, an Inflammation, Suppuration, Ulcer, &c. some Part of an Artery may be so debilitated, or corroded, as to become unable to sustain the Impressions of the Heart and Blood, and so an Aneurysm may be produced; especially if some external Force, as violent Motion, a Fall, Concussion, or the like, happen to concur.

How to prevent an Aneurysm, from an Accident in Bleeding, is specify'd above. I am now to give the Signs by which you may know, whether, in opening a Vein, you happen to hurt

an Artery, tho' but slightly; but as there are no certain, or, as they call them, pathognomic Marks of a slight Hurt of that Kind, we must trust to probable Conjectures. Whenever, then, we plainly perceive a Pulsation against the Point of the Lancet held to the Arm, but no Blood springs out of the Artery, we may reasonably suspect, that the outer Coat of the Artery has been touch'd, and suffer'd Injury: To avoid therefore the Danger of a supervening Aneurysm, you are to enter on the Method of Cure directed above.

But if, through the Imprudence or Negligence of the Patient, or the Surgeon himself, the thing be disregarded, or the Bandage, there advised, left off too soon, an Aneurysm is very easily form'd, and shews itself. For it is to be observ'd, that whenever a Tubercle, with a Pulsation in it, arises within the Space of a Month after a Vein has been open'd, there is an Aneurysm, which owed its Rise to a slight Hurt of the Artery in the Arm. But a true Aneurysm, while it is yet fresh and small, brings little or no Inconvenience with it, besides an uneasy Pulsation, and a slight Tumour; but afterwards, when by little and little it is increased, and grown to the Bigness of an Egg, or a Man's Fist, or his Head, of which last there are Instances, (see *Tab. 32. Fig. 6.*) it is attended with a most intense Pain, an Immobility of the Part, a Weakness, and other ill Symptoms; the Consequences of which are, that, without immediate Assistance, the Coats of the Arteries, becoming every Day thinner, are at last burst, to the great Prejudice of the miserable Patient, and oftentimes not without instant Danger of Death; for either the outward Skin is burst at the same time, and a dreadful Hæmorrhage succeeds, or it remains entire; in which Case there comes on, by little and little, a Corruption of the retain'd Blood, and a Gangrene. Tho' almost all Aneurysms are attended with Danger, and, as *Bartholine* and *Hardey* assures us, few ever saw a happy Event of an Aneurysm; yet the most troublesome and dangerous are usually such as affect either the internal and largest Arteries, or those which lie very much conceal'd, and out of Reach. Of this Kind are those Aneurysms which arise in the Aorta, in the Beginning of the Brachial, Subclavian, or the Carotid Arteries, &c. So also, for the most part, are those Aneurysms incurable which affect the Carotid Artery in the Neck, the Subclavian and Axillary near the Shoulder, and also the Crural Artery, especially near the Belly. For, during the Operation, there usually happens a dreadful, and often mortal, Hæmorrhage; or they terminate in a Gangrene and Sphacelus. Aneurysms in the external Arteries are of a less dangerous Nature, and are frequently cured; of this Sort, in particular, are such as affect the Arteries of the Cranium, those on the Outside of the Ribs, of the Foot, Hand, and lower Part of the Arm. But in an Aneurysm in the Arm, which is caused by the Prick of a Lancet, unless it be taken care of in the Beginning, in which State, by Compresses and Ligatures, it is often cured, the Operation is of doubtful Event: For, in this Case, as the Trunk of the Artery wants to be conglutinated and closed, it can hardly be avoided but the Elbow and Hand, either through a Deficiency in the larger Branch, or the Smallness of the lesser Ramifications, must begin to want sufficient Blood and Nutriment; in which Circumstance a Gangrene and Sphacelus, and oftentimes a Mortification of the Part, are nigh at hand, as I have learn'd from long Experience, confirm'd by the Observations of several Physicians; so that we are often obliged to cut off the corrupted Part, to save the Patient's Life, who yet, for all that we can do, many times perishes after the Amputation. Whenever an Aneurysm breaks spontaneously, and contrary to Expectation, there is generally so great an Effusion of Blood, that the exhausted Patient must die immediately, if not very speedily assisted by means of the Tourniquet, and other things of that Nature, under a skilful Operator. Equal, almost, is the Danger, when a Tumour of this kind is treated like an Abscess, and suffers an Incision from an ignorant Surgeon. But there is one thing, which, above all others, merits Observation, which is, that the spurious Aneurysms are far more dangerous than the true ones: For these latter, especially if they are of no extraordinary Size, may be endur'd for many Years, and even to the End of Life, without much Trouble or Hazard, especially with the Use of a proper Ligature or Bandage; whereas, on the contrary, the spurious Sort immediately betray their Tendency either to an excessive Hæmorrhage, or to a Corruption and Sphacelus. Indeed, both Kinds of Aneurysms are to be dreaded, in proportion to their Largeness, and dangerous Situation; inasmuch that the intrepid and most experienced *Hildanus* never attempted any Chirurgical Operation upon them; and *Ruyssch* expressly says of the Surgeons of *Amsterdam*, that not one of them, for above twenty Years, undertook an Operation of that kind. So, also, a spurious Aneurysm is generally more difficult to be treated with the Knife than the true Sort; because the extravasated Blood being diffused on all Sides, and concreted, creates a great deal of Trouble to the Surgeon in removing it. As for internal Aneurysms, since they frequently lie conceal'd, 'tis plain, that they are out of the Reach of the salutary Art of Surgery, because they

they are not so to be come at by the Hands; or if these internal ones should, in some measure, offer themselves to Sight, there is no opening, or making an Incision in them, without immediate Hazard of Life; for which Reasons those consummate Surgeons, *Fallopian*, *Paré*, and *Severinus*, never attempted their Cure. Upon this Consideration we also, for our Part, left we should be thought to throw away Time and Advice upon a desperate Case, shall only treat, in the therapeutic Part, of external Aneurysms, where there is some Prospect of a Cure.

That every Person may be instructed in the best Method of curing so dangerous a Disorder, we shall make it our principal Endeavour, in the first place, briefly to explain by what Methods Aneurysms, that arise in the Flexures of the Cubit, or Elbow, which happen more frequently than elsewhere, are most properly to be treated; whence it will sufficiently appear, after what manner other Aneurysms, which are less frequent, ought to be managed. Now when a true Aneurysm arises in the Flexure of the Cubit, while it is in the Beginning, and but small, or at least of no considerable Bigness, there are two Ways of Cure, one by Compress and Bandage, the other by the Knife. The former of these is executed in two different manners, that is, by Bolsters and Fillets; or by some peculiar Instruments, adapted to the Purpose. The Method of Compression for a true Aneurysm, while it is little, and for a spurious one, where is no Effusion of Blood between the Parts, is always to be try'd in the first Place; for it would be Cruelty to set about a dangerous Incision, when a milder Method of Cure would answer the End. After we have made a Repression of all the Blood from the Tumor, the Aneurysm may be contracted, and kept down, by means of Compresses of chew'd Paper, or an astringent Plaster, and afterwards with larger Compresses, and proper Bandages, which, if kept on the Place for some Weeks or Months, may be of great Service. This Method, to pass over more modern Examples, was long ago practised by *Hildanus*, *Tulpius*, and *Rogerus*. But if a Ligature of this Kind will not answer the Purpose, as *M. Bourdelot*, Physician to the King of France, experienced in his own Case, the Surgeons have invented proper Machines, by means of which the smaller Sort of Aneurysms are not only repressed and kept down, but with the Help especially of a strengthening Plaster, are usually cured. Two of these, among many, are represented *Tab. 32. Fig. 8. and 9.* tho' their Application and Use are better demonstrated by Inspection, than described in a Multitude of Words. In the mean time we hope they will be clearly enough understood from the Explication of the above-mentioned Plate, which see.

If the Aneurysm be too large to submit to Repression, either by Ligature or Instruments, or if a true Aneurysm, by the bursting of the Coat of the Artery, be degenerated into a spurious one, especially if the Blood diffused amongst the Flesh tends towards a Gangrene; if there be any Immobility of the Arm, attended with Pain; in short, if there be any Danger, that from the Bursting of the Tumor and Skin together, the redundant Hæmorrhage should kill the Patient on a sudden; in all these Cases Recourse must be had to the Knife. The Operation, however, being very painful and dangerous, is not to be undertaken rashly, but with the utmost Caution and Circumspection, and after Consultations had with Physicians, and the most experienced Surgeons, for fear that if any ill Accidents should happen, that were unforeseen, they should readily be imputed to the Ignorance or Temerity of the Operator, who, as 'twill be pretended, was under no Necessity of proceeding in that Method.

The Business of the Operation consists in two principal Points, which are, first, removing the Tumor of the Aneurysm, and afterwards the Agglutination of the Artery. In Italy, no longer ago than the last Century, the Practice was to amputate an Arm affected with an Aneurysm, and to sear the divided Arteries with an hot Iron, as appears from *Bartholin's History of an Aneurysm*. At present we endeavour to preserve the Arm, and carry on the Cure by gentler Means. That the Surgeon may be the more ready and exact in performing his Office, he ought to direct his Intentions to the three following Points: First, by means of the Tourniquet, to stop the Blood, which is a Contrivance unknown to the Antients; in the next Place, to find out and discover the Artery; and, lastly, to compress and bind it fast by the Help of some Topical Medicine or Ligature. He ought, therefore, before he enters upon the Operation, to be provided with all the necessary Instruments, and have them ready by him, dispos'd in Order, in a Dish, or on a Board or Table. The common Apparatus of Instruments, or things necessary, is as follows: A Tourniquet, for compressing the Artery of the Arm, and stopping the Blood, and this either a common one, or one of better Sort (described under the Article AMPUTATIO); then an Incision-knife, for laying bare the Artery (*Tab. 22. G.*); some small Hooks (*Tab. 29. Fig. 2, 3.*); a Sponge dipt in hot Wine, or Spirit of Wine; a Pair of Scissars, with a blunt Point (*Tab. 22. C or D.*); Lint sufficient; some small square Bolsters of different Sizes; a narrow, but thick, Bolster, a Span long; two large linen Cloths,

big enough to envelop and cover the whole Arm; and, lastly, two or three Fillets, of the Breadth of two Fingers, but three or four times as long as those used about Bleeding in the Arm. Besides those we have mentioned, if any one chuses a Method of Cure which proceeds by Astringents and Corrosives, which, however, is a very uncertain way, he must have in Readiness a Bit of blue Vitriol, or some of *Weber's Styptic Water*, or Butter of Antimony, or some other thing of the like Nature. If you think it best to make a Ligature upon the Artery, which is the surest way to prevent a fresh Hæmorrhage, and is, for that Reason, practised of late by the best Surgeons, because the Falling-off of the Eschar is often followed by a Flux of Blood, with great Danger of Death, provide yourself with a crooked Needle, threaded with a double or triple waxed Thread, or instead thereof, with a peculiar Instrument invented by myself for that Purpose (*See Tab. 29. Fig. 4.*).

Being furnished with all things requisite for the Purpose, the Patient is to be seated in a Chair, bending forwards, with his Arm extended as for Bleeding. Then four Assistants are to be disposed in Situations where they may be most useful and serviceable to the Operator. For Example: When the Right Arm is affected, I think it most convenient for the Surgeon himself to stand by the Right Side of the Patient, and to place one of the most dextrous of his Assistants at the Right Shoulder, who may lay hold of the Arm above the Tumour, together with the Tourniquet apply'd thereto, in order to strain it tighter, or relax it, according to the present Exigency, or the Surgeon's Word of Command. Another should be ordered to stand before the Patient, and strongly to hold the Arm above the Wrist, that it may not easily be drawn back while under the Operation. Let a third stand by the Left Side, holding the Dish, or Table, with the Instruments, and the rest of the Apparatus. And the fourth must stand ready, as Occasion serves, to furnish the Surgeon with whatever he shall think necessary for completing the Operation. In what Order and Position the Operator and Assistants ought to place themselves when the Disease affects the Left Arm, is very obvious from the Premises, being only a Disposition of the Persons in an Order directly contrary to the former.

The first Business of the Operation consists in a very exact Application of the Tourniquet upon the Brachial Artery, nearly between the Middle and the upper Part of the Arm (*See Tab. 24. Fig. 1. K.*); which must be gently streighten'd, till no Pulse remains either in the Aneurysm itself, or at the Wrist of the Hand; for this is the best Precaution we can take against an Effusion of Blood. But we must take care, that the Constriction be not too hard, so as to injure the Nerves, and other tender Parts. Let the Assistant on the Right Side hold the Stick placed in the Tourniquet, or if the Surgeon chuses a Tourniquet furnished with a Screw, (*see Tab. 26. and 27.*) it will remain fixed on the Part, by that means, without further Trouble.

The Tourniquet being thus rightly fixed, there are three different ways of Operation, which, we think, deserve a particular Description.

The first Operation consists principally in passing the Incision-knife, when the Tourniquet is fixed, through the whole Aneurysm, if it be a true one, from the Bottom upwards, according to the Length and Situation of the Artery. A Wound being thus made of sufficient Largeness, either with the Knife, or by Scissars, either lengthwise or across, the Surgeon, by means of his Fingers, his Probe, and a Sponge, is to cleanse and deterge it from all the corrupted Blood and Matter. The Wound being cleansed, the Tourniquet must be a little relaxed, that the Discharge of Blood may discover the superior Orifice of the Artery. If the Patient be robust, and full of Blood, the Tourniquet is not presently to be streighten'd again, but some Ounces of Blood, as far as is consistent with Safety, may be suffer'd to flow from the Wound. The Tourniquet being streighten'd with all possible Care, if any Topics are thought proper, a little Bit of blue Vitriol, wrapt in Lint or Cotton, may be apply'd to the upper Orifice of the Artery; and over this may be laid some small Bolsters, in such Order, that the least of them lying innermost, the rest increase in Size gradually to the biggest, which is outermost, with good Store of Pledgets of Lint, roughly twisted, disposed on each Side. All these things must be well kept and held together with the Fingers, but especially the Thumb, of the Left Hand, and be closely compress'd upon the wounded Artery. Instead of a Bit of Vitriol, you may apply a twisted Pledget, express'd out of *Weber's Styptic Water*, or Butter of Antimony, to the superior Orifice of the Artery, with the same or better Effect, taking care to lay over it every one of the things before-mentioned. All these must be cover'd with a square Plaster, sit on each Side, and a large square Bolster, of a considerable Thickness; and, lastly, the Whole must be encompass'd, and bound up, with a Fillet three or four times as large as those which are commonly used in Phlebotomy. Those who follow *Dionis*, perform the Bandage in such a manner, that, omitting the Vitriol, they first apply a Bit or two of chew'd Paper, or a small Bolster

Bolster moistened with some Styptic Water, over which they bind a Multitude of small Bolsters, one still larger than another, like those we have mention'd, upon the open Orifice of the Artery; and this Method may sometimes well enough answer the Purpose.

But for the better Security against an Hæmorrhage, over the first Fillet must be brought another like it, which, after some Windings, like the former, about the affected Part, is to pass over the long, thick, and narrow Bolster, upon the Inside of the Arm, in order to strain it close to the Brachial Artery, in the Line of its Direction, and keep it tight, by passing over it as it winds upwards; and that this Fillet may hold the faster, it should go once round the Breast, and have its End firmly fasten'd to the Shoulder or Arm, and then the Patient is to be left to his Repose. Having proceeded thus far, and the Tourniquet being a little relaxed, we are to examine whether any Blood has made its way through the Bandage; and if no Sign thereof appears, the Operation is well performed.

If any Blood appears, the Tourniquet is again to be freightened, and all the Bandage being loosened, either the Ligature is to be renewed in the same manner as before, and with all imaginable Care; or if there be no trusting to so uncertain a Method of Cure, the Extremity of the Artery, agreeably to the Advice of *Paulus Ægineta*, is to be skilfully ty'd, by passing under it a crooked blunt Needle, and a strong double Thread; for there is scarce any other Means left to save the Life of the Patient. But here are two things necessary to be observed, which are, that the Surgeon be very careful, in the first place, to avoid hurting the Artery; and, secondly, that he be no less wary, lest he should hurt or prick the Nerve that lies near it. For this Reason it will be most advisable to make a sufficient Incision in the upper Skin, and with a small Hook, as exactly as may be, to remove or loosen the Nerve from the Artery, if it be possible; after which, to avoid wounding either of those Parts, you are to pass the blunt End of the Needle, which they call the Head, under the Artery, till you can take hold of the Thread, that you may not hurt the Artery with the sharp End of the Needle; or you may make use of that peculiar Instrument of my own Invention (see *Tab. 29. Fig. 4.*); which, after you have passed the Thread far enough through it, and cut it, may be withdrawn; and the superior Orifice of the Artery must be ty'd up, after laying upon it some Lint, or a little thin linen Bolster, and the Thread should be left to hang the Length of about four Fingers Breadth out of the Wound, till, as the Artery heals, it loosens, and falls off. Some advise the tying also of the lower Part of the divided Artery, but other Surgeons hold it absurd, needless, and even pernicious; and indeed in some Circumstances, as when the Flexure of the Cubit is concern'd, they are much in the Right; for in this Case a much greater Wound and Cicatrix is to be made, either of which may easily endanger a Stiffness of the Cubit. But if the Aneurysm in the Arm be out of the Flexure of the Cubit, and particularly below the Cubit, and the lower Part of the Artery, after the superior is ty'd, continues to bleed, it may be ty'd without Injury, and even ought to be ty'd. For Instance, in the Cure of an Aneurysm of the cubital Artery in the Middle of the Arm, that is, betwixt the Hand and the Flexure of the Cubit, after I had ty'd the upper Extremity of the wounded Artery; and the lower, the Tourniquet being loosen'd, still continued to discharge Blood in a considerable Quantity; I ty'd it up, by passing under it a crooked Needle, with a strong Thread; and the Patient, who was near Death, perfectly recover'd his Health, without any ill Accident, by the Help of balsamic Medicines. Wherefore, if there happens a Necessity of tying the Artery near the Cubit, it must be ty'd; otherwise it must be well compress'd with Bolsters, and a convenient Ligature; for by this means, without tying, I have perfectly cured the Wound of the lower Part of the Artery, without the least Effusion of Blood. It is the Custom with some, after tying the Artery, to cut it across just under the Ligature, with a View of preventing Effusions of Blood, as the two Extremities of the divided Artery, retiring within the Flesh, are by this means closed up. But I look upon this Method as pernicious, or at best insignificant; and I myself have twice undertaken the Operation, without cutting the Artery, and yet my Patients did very well. As to the rest, the Wound must be well filled up with Lint and Rags, or with Bolsters closely compress'd together, and afterwards bound up in the most exact and skilful manner.

Some think it not amiss, in order to prevent an Inflammation, to wrap those Parts of the Arm which are near the Cubit on both Sides, in Linen dipt in Oxycras, and over that to make a spiral Bandage, and sometimes to take away Blood from the opposite Arm. This is a good Precaution with respect to Persons of a hot Temperament, and full of Blood: But for such as are already refrigerated, and debilitated, with too great a Profusion of Blood, the taking away of more, tho' recommended by the *French Surgeons* without any Exception, and the Application of Refrigerants, are destructive; for I have cured such, without taking away a Drop of Blood; and in cold

Habits of Body, instead of Oxycras, or Vinegar, have taken care to foment the Arm with hot Spirit of Wine camphorated, or impregnated with Theriaca, and so I have bound it up. When this is over, the Patient must be put to-bed, and his Arm, gently bent, should be laid on a Pillow, that it may rest on a soft Place, and by that means all vehement Sallies and Pulsations of the Blood may be prevented; for Rest in this Case is highly necessary. However, if the Arm happens to swell extremely, we must be very cautious, lest a dangerous Inflammation should be occasion'd by the Straightness of the Bandage; for if any such thing be apprehended, the Bandage is to be taken off, and renewed. But upon other Accounts we are not easily to be prevailed upon to loosen the Bandage, for fear of an Hæmorrhage; for I know, by Experience, that in these Cases the Arms can bear to swell to a very great Degree, and even till they turn livid, without any considerable Injury, provided the Tumor be not too hard and painful, and there be no Signs of a Gangrene.

But to secure the Patient from being exhausted by a sudden Effusion of Blood, which may easily happen, when Astringents and Corrosives have been used, or in case of a bad Ligature, a Person provided with a Tourniquet should be order'd to watch for some Days and Nights together, who, if an Hæmorrhage should happen, may be ready to stop the Blood by applying his Thumb, or soon restrain it by clapping on the Tourniquet; and then call a Surgeon to make a Ligature on the Artery, if there were none before, or a better and stronger one, where it had been ill made, that the Patient may not perish by the Loss of Blood; on which Account, it is, in my Opinion, safer to tie the Artery, than to leave it unty'd; a Ligature therefore should be made upon the Artery at first, with a strong Thread, as accurately as is possible. Wherefore those Surgeons are not in the Wrong, who pass a triple Thread under the Artery, and leave one of them loose, in order to be serviceable upon such an Emergency; and, that, if the other two are not sufficient, they may tie it up afresh with the third Thread.

Now the first Bandage, provided it be sufficiently firm, if there be no Effusion of Blood, great Inflammation or Tumor, or any other ill Accidents of that Kind, ought not to be loos'd till the third or fourth Day, that the Wound of the Artery may be the better conglutinated. But when it comes to be loos'd, the Surgeon ought to take all imaginable Care, in the first place, that the Artery be compress'd, either by the Assistant's Fingers, or by means of the Tourniquet; and next, that the Compresses which stick to the Place, and especially those next the Wound, be not imprudently taken off, and so occasion a new Effusion of Blood. The Wound, however, as far as is convenient, ought to be cleansed from Sordes, and to be dress'd with fresh Lint, and some digestive Ointment, till whatever adheres to it resolves of itself, and comes off in the rest of the Dressings. But it is by much the safest Way not to be too frequent in loosening the Dressings for the first fifteen Days, and then always to observe the same Precautions as I just now advised, lest some extraordinary Effusion of Blood, especially if the Artery be not ty'd, should occasion a fresh Trouble to the Operator.

But if within a few Days after the Operation there be an intense Heat, with a quick and vehement Motion of the Blood, that is, a Fever, which may endanger an Hæmorrhage and Gangrene, we are to have immediate recourse to Phlebotomy in the other Arm, which is sometimes necessary to be renew'd, especially in such as abound with Blood, and Medicines are to be prescrib'd for allaying the Heat. As to Diet, the safest way is to avoid all heating, hard, and solid Meats; and, on the contrary, to subsist on very thin Broths, and sordid Food, very much diluted and refrigerating, and such as is usually prescrib'd in dangerous Wounds and Inflammations.

As soon as the Orifice of the Artery is thus closed, which, in Aneurysms of the milder Sort, generally happens about the tenth or twelfth Day, but later in others which are of a worse Kind, we are to set about conglutinating the external Wound with dry Lint, or some vulnerary Balsam, not omitting every now and then gently to extend the Arm, and bend it back again; for without this Precaution there is Reason to fear lest the Arm, by the too great Stricture from the Cicatrix, or the too long intermitted Motion of the Joint, should become crooked and inflexible.

Another Method of curing Aneurysms is after the following manner:

The first Step which is made, is to place and adjust the Tourniquet, and put the Arm in the Situation above describ'd. Then an Incision is made in the outer Skin, without touching the Aneurysm; then the Artery, above and below the Tumor, is carefully separated from the adjoining Nerves, and by Help of a small Hook is so raised, that a crooked and blunt Needle, or my Instrument before-mentioned, with a double waxed Thread, may pass through under it. In straining this Thread there is always a little Bolster, or Bit of Linen, under the Knot, to save the Artery from being cut. The Artery being thus ty'd on both Sides, the Tumor situated between is open'd

open'd with the Incision-knife, and the Wound treated in the manner before-mention'd. This was the Method by which *Purmannus*, as he relates it himself, extirpated a most dreadful Aneurysm, (see *Tab. 32. Fig. 6.*) and healed the Wound in the Space of a Month.

The third Method of curing a true Aneurysm, is as follows:

First, the Tourniquet is fixed on; next, after pressing, if possible, the Blood out of the Tumor down towards the Hand, an Incision is made with the Knife in the outer Skin lengthwise, without touching the Aneurysm; then the Artery next above the Tumor being separated from the adjacent Parts, and especially the Nerve, is ty'd with a double or triple Thread, once or twice, as Occasion shall require, till the Influx of the Blood into the Tumour, after taking off the Tourniquet, be wholly stopped. This done, the Wound must be very skilfully bound up, and treated with all due Care, till the Thread loosens of itself, and falls off, and the Place is perfectly conglutinated. This Method of curing without inflicting any considerable Wound, or causing a remarkable Cicatrix, was introduced by *Anelius*, as he says himself, by which he once cured a very dangerous Aneurysm at *Rome*, within the Space of a Month. For as to the general Practice, which has hitherto obtained, of laying open an Aneurysm, and with the Help of the Fingers or Instruments, exhausting all the Blood there collected, seems more inconvenient, both as it requires more Time, and occasions greater Pain, and a larger Cicatrix. The Operation being finished, *Anelius* bled the Patient four times in the opposite Arm, which the *French Surgeons* in general also prescribe. This frequent Bleeding, as it is oftentimes of singular Service in tempering the Heat and Motion of the Blood in those warmer Regions, so in our Countries, because of a colder Air, and a different Habit of Body, I judge it less necessary; and generally improper, especially when the Patient is already weaken'd; and also because some Aneurysms are very well cured without it.

If a Tumor of an Artery, as I have sometimes observ'd it, should break of itself, and degenerate into a spurious Aneurysm, there is scarcely any sure way to save the Patient, but by the Operation. In this Case therefore, as I have elsewhere advised, the Tourniquet is first of all to be apply'd, for the Prevention of an Hemorrhage; after which an Incision is to be made in the Skin, deep enough to exhaust all the Blood and Matter; and the Wound, having been very carefully deterged, is to be cautiously conglutinated by Astringents or Corrosives, or, which is much the better way, by tying the Artery with a Thread, as in a true Aneurysm.

If the Brachial, or Cubital, or suppose the Tibial, Artery, should be wounded or cut by a Sword, or any other Weapon, so that no Medicines or Bandage can put a Stop to the Effusion of Blood, there is no readier or better Remedy, in my Opinion, than what has been proposed for an Aneurysm, which is, to apply the Tourniquet, and then search for the wounded Arteries, the smaller of which may be stopped with Astringents, and the larger ty'd with Threads, in the manner already described; for by such Means I myself have often saved Men, who, in all Appearance, were near expiring, after they had been almost totally exhausted of their Blood and Strength, and had been under the Hands of other Surgeons for ten and twelve Days, and been treated in vain with Styptic Remedies, and extremely hard Ligatures, by which their Arms were swell'd to an enormous Size. Whether such Methods will, at any time, succeed upon the Crural Artery, I have never read, nor as yet had an Opportunity of trying.

Aneurysms in other Parts are to be treated nearly in the same Manner, provided they are curable, which must be determin'd from a thorough Inspection and Consideration of their Place, Situation, and Magnitude. However, it will not be amiss to touch upon some Particulars, for the sake of young Practitioners, and because our modern Surgeons have offer'd little or nothing about them. The first I shall mention is an Aneurysm, which arose between the Thumb and Fore-finger, from the Prick of a Penknife, and which *Tulpius* cured by Compression. To this he apply'd an astringent Plaster, and sustain'd it upon the Part, by a thin Plate of Lead, and Bandage; and within the Space of four Months, the Blood being expelled out of the Tumor, and the Lips of the Wound drawn together, the Aneurysm totally vanished. The like Compression may be try'd upon any Aneurysm whatsoever, especially whilst recent, and of no extraordinary Size, first repressing the Blood into the Artery, whenever it can be done. Our second Instance is of an Aneurysm in the Head: A Woman struck her Son, seven Years old, a smart Blow with a Stick on the Left Side of the Head, where the Carotid Artery passes; immediately there arose a beating Tumour, as big as a Hazle-nut, blackish at first, and yielding to the Touch, which, in the Space of eight Days, grew to such Dimensions, as to take up one half of the Head, extending itself from the Sagittal Suture, along the Temples and Forehead, as far as the Eyes. Upon a Consultation of Surgeons it was agreed, that a dubious Remedy was better than none in a desperate Case; in Conse-

quence of which they open'd the Tumor with the Incision-knife, and taking away part of the Blood which was discharg'd abundantly, closed up the Wound with Astringents, and a tight Ligature, and healed the Patient in a short time. After the same manner was an Aneurysm of the Artery behind the Ear, not without a great deal of Trouble, conglutinated at last by Astringents and a Ligature. If an Aneurysm should arise about the Ankle-bone, such as *Ruyfch* describes, and which the Surgeon had imprudently open'd as an Abscess, it must either be laid open with the Knife, and the Wound, like the preceding, consolidated with Astringents, and a proper Ligature; or the Artery must be search'd out, and ty'd up with a Thread. In the same manner are we to proceed with Aneurysms in other Parts of the Body, where there is any Prospect of a Cure. On the other hand, *Harder* gives an Instance of Death consequent upon opening an Aneurysm in the Neck; and *Van Horne* has another which was follow'd by the like Event, from opening an Aneurysm in the Leg.

Those who are willing to form to themselves a clearer Idea of the Ligature of Arteries in Aneurysms, may consult *Tab. 32. Fig. 7.* where the Letter *A* represents the Part of the Artery situated above the Tumor, *B* the Part beneath, *C* the Aneurysm, *D* the superior Ligature, *E* the inferior. But here it is to be observ'd once more, that the lower Part of the Artery in the Flexure of the Cubit ought very rarely to be ty'd, except Necessity requires it, for the Reasons above given. To draw to a Conclusion: How the Circulation of the Blood in the Arm is perform'd after an Operation of this Kind, especially where there is but one Trunk of an Artery, as it often happens, about the Joint; and how it comes to pass, that, as in the Example alleg'd by *Anelius*, the reflux Blood in the lower Artery, which has no Ligature upon it, is not elevated into a Tumor; I have not hitherto been able clearly to determine. To be satisfy'd in these two Points, we ought to make a more narrow Search into, and inspect the dead Bodies of those who had undergone this Operation when alive. *Harris*, an Englishman, in his eighth Chirurgial Dissertation, absolutely condemns this Operation, and does not stick to call it a rash and horrid Butchering; but for what Reasons, is best known to himself. In my Opinion, that Surgeon, who, out of Fear, rejects the most difficult and noble Operations of his Art, betrays too much Pusillanimity, which is too often a fatal Obstacle to the Recovery of the Patient. *Heister*.

The following Cases, from the *Edinburgh Medical Essays*, will illustrate the Treatment due to an Aneurysm.

CASE I. By Mr. MACGILL.

James Forrest, a Coachman, forty Years of Age, a hail, strong Man, being thrown from the Coach-box, broke the Bones of his Right Leg into a great many small Pieces; and a Gangrene coming soon on, there was a Necessity to perform the Amputation in the Country where he then was. The third Day after this Operation he was let Blood by a young Surgeon there, who opened the Basilic Vein of the Right Arm. The Patient felt a very sharp pricking Pain, while the small Incision was made with the Lancet; and four Days after he observ'd a Tumor, about the Bigness of a small Cherry, at the Wound, which he believed to be the common one of coagulated Blood, called by Surgeons Thrombus, and therefore did not mention it to the Gentleman who performed the Amputation.

On the twelfth Day after his unfortunate Fall, he was carried to Town, and received into the Infirmary, where the Cure of his Stump went on as well as could be wish'd, without any Accident or Symptom to retard the Cure. After he had been eight Days in the Hospital, he told the Physician and Surgeon then attending, that he had some Uneasiness from a Swelling at the Bending of his Elbow. When it was examined, a Tumor appeared of an oval Form, as big as a small Hen-egg, situated behind the Basilic Vein. The Skin over this Tumor was of a natural Colour; no Pulsation could be felt, and it adhered as firmly to the Tendon of the Biceps Muscle, as Ganglions commonly do to Tendons. Two Days after, a Pulsation exactly synchronous to that of the Arteries, was distinctly seen and felt. When the Tumor was strongly pressed, it seem'd to be less, but could never be made to disappear. There was scarce any Pain at this Part, either in moving his Fore-arm, or when the Tumor was handled.

A Consultation of several Physicians, and of all the Surgeons who attended the Infirmary, being called, the Disease was unanimously determined to be a true Aneurysm; but the Patient being still weak, it was resolv'd to try the Effects of artful Compression, and to delay the Operation till the Patient had Strength enough to undergo it, unless the Tumor seem'd before that to be in Hazard of Bursting. Graduate Compresses, wet in Oxycerate, were therefore applied, with the proper Bandage, which at first had an exceeding good Effect in diminishing the Tumor, but it soon after began again to increase; and then several Machines, such as that with a Screw for the Fistula Lachrymalis, Mr. Petit's Tourniquet, &c. were used; but without any Success; on the contrary, the Tumor still increased,

increased, and the Skin began to inflame; and a small Suppuration was brought on the most prominent Part of it. By laying aside these more forcible Machines, and returning to the Use of the former Compresses and Bandage, after covering the small superficial Ulcer with white Ointment, the Inflammation went off, and the Ulcer was cured. The Tumor was now all firm and hard, scarce yielding at all to Pressure, except at that prominent Point where it was soft, and where only the Pulsation could be felt, when the Fore-arm was bended; when the Member was extended, no Pulsation could be observed any where in the Tumor.

The Patient was not yet sufficiently recruited, and therefore the Operation of the Aneurysm was still delayed; but to prevent any Danger from the sudden bursting of the Aneurysm, the Tourniquet was kept constantly applied to the Patient's Arm.

In the Beginning of *January* 1733, the Patient was judged to be strong enough to suffer the Operation, and the Tumor increased so fast, that there was great Danger of the Teguments yielding suddenly, and therefore the Operation was not to be delayed any longer. This happening to be the Month of my Attendance, I was of course to perform; but previously brought all the Surgeons of the Hospital together, to examine the State of the Tumor, and to determine the Method to be followed in operating.

The Tumor was of a very great Bulk and Height, its Base extending internally as far as the internal Condyle of the Humeral Bone, and externally it had pushed the Tendon of the Biceps Flexor Cubiti, as far as the Cephalic Vein; it ascended about three Inches along the internal Side of the Biceps, and descended as far below the Joint of the Elbow, being also considerably prominent forward.

Being uncertain whether this Tumor was formed without the Artery, or if it was the Body of the Artery dilated, we determined to do the Operation in the most cautious, tho' more tedious way, viz. by Dissection, having also all the Instruments and Dressing for an Amputation ready, in case there was no Hope of Success from the Operation of the Aneurysm.

Having applied the Tourniquet in the common way to prevent any Hæmorrhage, the Skin was pinched up about the Middle of the Tumor, and cut with a Bistoury; then a small Directory being pushed into the fat cellular Membrane, first upwards, then downwards, and to each Side, I cut upon it with a Bistoury, and thus made a crucial Incision on the whole Extent of the Tumor. After which I dissected the four Angles of the Teguments from the Tumor, with a convex edged Scalpel, stitching a cutaneous Artery, that would otherwise have been uneasy to me. The Tumor, thus laid bare, appeared covered, at its upper Part, with a thin cellular Membrane, but below it seemed to have a very strong tendinous-like Coat, which we soon discovered to be no other than the Aponeurosis of the Biceps Muscle; after separating the Adhesion, this had to the Tumor below it with my Fingers; I cut it through to the lowest Part of the Aneurysm, which now was all bare, and full in View. The Coat of it was only a very thin tender Membrane, which appeared eroded, as well as the firm Substance it contained, at that prominent soft Part, where, as I mentioned before, the Pulsation only was to be felt. In endeavouring to separate the Tumor from the adjacent Parts with my Finger, its tender Membrane was easily torn in several Places; and therefore, without insisting on such a Separation, I opened the Membrane from one End to the other, when several Ounces of a blackish grey-coloured Liquor, like to Coffee made of half-burnt Beans, ran out, and several Pieces of coagulated grumous Blood, and of polypous Concretions, fell down to the Floor. What remained was one large polypous-like Substance, that weighed six Ounces, below which some Spoonfuls of that blackish Liquor, mixed with pretty pure Blood, were taken out with a Sponge. There were no Bridges or fleshy Beams stretched transversely from one Side of the Cavity to the other, but the Humeral Artery, involved in all its Coats, came fully in View. About the Middle of the bare Part of the Artery we saw a Hole, large enough to receive the largest Surgeon's Probe, without any retorted Lips, or other Sign of the interior Membranes having been extended through the exterior, but exactly of the same Appearance, as if it had been made by an oval sharp-pointed Instrument. After by unloosing the Tourniquet a little, we made sure of what we saw, being the wounded Artery, one of the Gentlemen who assisted me, put in a strong Probe by the Orifice, and with it raised the Artery so, that I easily passed the Aneurysm Needle, with proper Thread, behind the Artery, both above and below the Orifice, without engaging the Nerve or Vein within the Thread. I made the two Ligatures in the common way, the Patient complaining much of Pain, while I tied the superior Threads; and then untwisting the Tourniquet, only some few Drops of Blood oozed out at the Aperture in the Artery, and the other common Dressings and Bandages were applied.

The polypous Lump we took out, was very hard and firm on the Side next to the Skin, except where, I said already, it was

eroded in the Middle; but turned softer, in a lamellated way, as it approached the Artery, till it degenerated gradually into mere coagulated Blood.

During half an Hour, after the Dressings were applied, the Right Hand remained cold, and scarce sensible; but gradually then recovered Sense and Heat. Next Day, that Hand was a little swelled; and on the second Day became so big, as to oblige me to take off the thick Compress, that was pressed on the Humeral Vessels by the exterior Bandage; after which, and fomenting the Hand with warm Water and Brandy, the Swelling decreased.

On the fifth Day after the Operation, the Dressings were removed, and the Wound began to suppurate in a very right way, and was cured entirely before the End of *March*, without any Accident, unless that on the 22d of *January*, Blood made its way through all the Dressings. It had come out from the Hole of the Artery, but stopped as soon as the Dressings were removed; and no Hæmorrhage ever happened afterwards. In the Time of the Cure, the Hand often became œdematous, and sometimes a gentle Erysipelas attacked the Skin of it, but soon yielded to an Embrocation with the Aqu. Minderi, or to Aqu. Calcis, with some Brandy. The Threads with which the Artery had been tied, did not come out till the Middle of *March*.

We never could feel any Pulse below the Elbow since the Operation. The Member is weak, but he can perform the Motions of the Fore-arm, Hand, and Fingers. He still complains of a Numbness, and Difficulty of Motion, in the Thumb and Fore-finger, more than in any of the rest, tho' it is now two Months since the Wound was skinned over. *Edinburgh, Med. Ess. Vol. 2.*

CASE II. By Mr. Monroe.

Andrew Rady, living in *Galloway*, had the Misfortune, in being bled in the Basilic Vein of the Right Arm, by some Gardener there, to have his Artery hurt, which was followed by an Aneurysm. Somewhat more than a Year after, he came to Town here, and was received into the Infirmary in *May* 1735. On the 22d Day of that Month, Mr. *George Cunningham*, the Surgeon then in Attendance, performed the Operation. After the Tourniquet was applied, Mr. *Cunningham* laid open the Tumor from one End to the other, with one longitudinal Incision; then taking out the polypous Substance, and a small Quantity of liquid Blood; the small Aperture of the Artery was so plainly seen, that I put a Probe into it, and raised the Trunk of the Artery, while he passed the Needle behind it, the Sides of the Wound being held asunder, in the mean time, by two blunt Hooks. The proper Membrane of the Tumor was considerably thicker and stronger, than in *James Forrest's* Aneurysm; and required Force to push the blunt Aneurysm-needle through it; but the Nerve was pressed by the Tumor a good way from the Trunk of the Artery, so that there was no Danger of taking the Nerve within the Ligature. After making the superior Ligature, the Tourniquet was untwisted, but no Blood came by the Orifice, which shewed the Anastomosing Canals to be very small. The second Ligature was however made below the Orifice for Security. The Cavity was filled with soft Lint, and the other ordinary Dressings applied. That Afternoon his Hand swelled, and became warm, which removed all our Fears of the Circulation being entirely stopped. No Pulse was to be felt on either Side of the Wrist for several Days; but before the 5th of *June*, when both the Ligatures suppurated off, the Pulse was plainly to be felt on both Sides of the Wrist, and he was soon cured, having as much Strength and Motion in that whole Member as ever.

To make this Operation more speedy and safe, I would propose, that as soon as the longitudinal Incision is made, and the Polypus with the Blood is removed, the Patient's Elbow being bended some way, the Operator should take hold of the Humeral Artery with the Thumb and Fore-finger of the Left Hand, and, gripping it towards the Back-part, should push the Needle close upon his own Nails, by which he has a sure Direction whereby he may shun the Nerve, which he can readily distinguish from the Artery by feeling, and can, in that Posture of the Arm, easily draw the Artery so far outwards as to keep free of the Nerve.

The Operation then of the Aneurysm, which appeared by the Description Surgeons gave of it, to be very nice, difficult, tedious, and precarious, may be done easily, quickly, and safely, by opening the whole Tumor at once, and then putting the Ligature about the Artery, as just now described. *Edinburgh, Med. Ess. Vol. 4.*

As it may be agreeable to the Reader to know the precise Method generally pursued in our Hospitals, I shall add Mr. *Sharp's* Account of it, as follows:

Having applied the Tourniquet near the Shoulder, and laid the Arm in a convenient Situation, make an Incision on the Inside of the Biceps Muscle, above and below the Elbow a considerable Length, which being in the Course of the Artery, will discover

discover it as soon as you have removed the coagulated Blood, which must be all pulled away with the Fingers, the Wound being dilated sufficiently for that Purpose: If the Orifice does not readily appear, let the Tourniquet be loosened, and the Effusion of Blood will direct you to it; then carefully carrying a crooked Needle with a Ligature under it, tie the Vessel just above the Orifice, and passing the Needle again, make a second Ligature below it, to prevent the Return of the Blood, and leave the intermediate Piece of the Vessel to slough away, without dividing it. To avoid wounding, or tying the Nerve in making the Ligature, the Artery may be cleared away from it first, and held up with a Hook; but, I think, if we are aware of the Situation of the Nerve, there is no great Danger of hurting it. After the Operation, the Arm must be laid easy, on a Pillow in Bed, and the Wound be treated in the common Method, keeping it in that Posture a Fortnight, or three Weeks, especially if it should swell much, and not digest kindly.

In doing this Operation, it will be proper to have the amputating Instruments ready, lest it should be impracticable to tie the Artery; and even after having tied it, the Arm must be carefully watched, that in case of a Mortification it may be taken off; which though from Experience we learn is very seldom the Consequence, should, to all Appearance, be the perpetual one: For these Aneurysms following always upon bleeding the Basilic Vein, must necessarily be Aneurysms of the Humeral Artery, an Inch, at least, above its Division, which being obstructed by the Ligature, one would think, must necessarily bring on a Mortification; but we see the contrary, tho' for some time after the Operation, we can hardly distinguish the least Degree of Pulse, and ever after they continue languid. If the Humeral Artery happens to divide above the Elbow, which is not uncommon, the Prospect of Cure is better, and the Pulse will be stronger after the Operation. *Sharp's Surgery.*

It is to be observed, that *Heister* esteems the inferior Ligature of the Artery generally superfluous, and often pernicious, as is specify'd above.

ANFAKA, a Coagulum. *Rul. Johnf.*
ANFIR-FILIUS, Mercury. *Johnf.*
ANFIRARTO-SPIRITUS, Salt. *Idem.*
ANGEIOLOGIA, *Ἀγγειολογία*. See ANGIOLOGIA.
ANGEION, *ἄγγειον*, a Vessel. See VAS.
ANGEIOTOMIA, *Ἀγγειοτομία*, from *ἄγγειον*, a Vessel, and *τέμνω*, to cut. A Dissection of the Vessels, as in Phlebotomy and Arteriotomy. It also imports a particular Dissection of the Vessels for Anatomical Purposes. See ANGIOLOGIA.
ANGELICA, a Plant thus called, of which *Dale* enumerates four Species. The first is,
ANGELICA, Offic. Chab. 400. P. Parad. 529. *Angelica sativa*, C. B. Pin. 155. J. B. 3. 140. Ger. 846. Emac. 999. Park. Theat. 939. Raii Hist. 1. 434. Synop. 3. 208. Boerh. Ind. A. 53. Rupp. Flor. Jen. 222. Phyt. Brit. 8. Mer. Pin. 8. Mor. Umb. 9. Hist. Oxon. 3. 280. *Imperatoria sativa*, Tourn. Inst. 317. Elem. Bot. 267. ANGELICA.

This is one of the greatest of the umbelliferous Plants; its Root is large, thick, and branched, running deep in the Earth, from which arises one large hollow round Stalk, a Yard and half, or two Yards high, spreading out into many Branches. The Leaves are large and winged, divided usually into three Partitions, or lesser Wings, each single Leaf being serrated, or indented about the Edges. On the Tops of the Branches grow large round Umbels, of small five-leaved white Flowers; the Umbels, as the Seed ripens, grow out into large globular Heads, bearing the Seed at the Ends, which is large and thick, striated, or furrowed pretty deep, of a whitish Colour, two Seeds being joined together, as in other umbelliferous Plants. Both Root, Stalks, and Seeds, are of a grateful aromatic Savour. It grows in Gardens, and flowers and seeds in June and July, the Root perishing after the ripening of the Seed, which is the second Year of its springing from the Seed.

Angelica is a Plant of many Virtues, being Stomachic, Cordial, Alexipharmic; of great Use in malignant pestilential Fevers, in all contagious Distempers, and the Plague itself: It causes Sweat, and drives out all noxious Humours through the Pores of the Skin. It is very useful in Disorders of the Womb, and Hysterical Affections; it provokes Urine, and the Catamenia, and expels the Secundines. The Root, Stalks, Leaves, and Seed are used.

Official Preparations of *Angelica* are a simple and compound Water, and the Stalks candied. *Miller Bot. Off.*

A Spirit of it cheers the Heart, and revives the Spirits to a Miracle. The Chymical Oil operates powerfully in all Intentions. Besides which, it cures Palsies, Apoplexies, Convulsions, Cramps, and Rheumatisms. *Pomet.*

It is said to be good for the Bite of a mad Dog, and for the Scurvy.

Paracelsus boasts, that at Milan, in the Year 1510: he did

little less than Miracles with this Plant in the Plague. And its Virtues in this terrible Disorder are confirm'd by a Multitude of Authors. It is also esteem'd an excellent Pectoral, and hence has been called *Herba Pectoraria*. The inspissated Juice of *Angelica* is said to prevent Putrefaction of the Gums, and Rottensness of the Teeth; and the Chymists agree, that the Quintessence of *Angelica* is the greatest Restorative and Cardiac in Nature. *Angelica* is farther recommended for the Leprosy.

The Stalk of *Angelica* sends forth a very agreeable Smell; the Seeds of it a different one; its Roots are more aromatic than any of these Parts, and its Parenchyma is filled with resinous Vesicles. It is very subject to be destroyed by Worms, which prey upon the Parenchyma, and leave the resinous Parts uncovered. This same Observation holds good in Masterwort, Ginger, Fennel, and in the Roots almost of all umbelliferous Plants. *Memoires de l'Acad. 1721.*

Aromatic volatile Salt of Angelica.

Take of the fresh small Roots of *Angelica*, dug up in February, two Ounces; cut them to pieces, put them into a Retort, pour upon them twelve times as much Spirit of Wine once rectified, and then add one Ounce of pounded Sal Ammoniac, and three Drams of Salt of Tartar. This being done, immediately lute on a Receiver, and distil with a gentle Heat, not exceeding 150 Degrees. By this means, there will come over into the Receiver a white alkaline, alcoholisated Salt. When this ceases to rise, increase your Fire a little, and the Spirit of Wine will come off, and appear in very oily Streaks. Proceed as long as you have any of these Spirits, and when the Salt begins to be dissolved by the watry Part that ascends last, desist from the Operation, and put the Liquor thus prepared into a Vessel, which must be stopped very close. What remains after the Distillation, throw away.

Take an Ounce more of the same Roots, cut very small, put them into a Retort, pour upon them the Liquor drawn off before, and distil till the Salt, which will come off first, begins to be dissolved. Shake the Salt and Spirit till they are thoroughly mixed together, and stop them in a Vessel as close as possible.

REMARKS.

The Alkali of the Tartar, absorbing the Acid of the Sal Ammoniac, sets its pure Alkali free, and so renders it volatile; which, being united with the pure distilled Spirits of Wine, makes with these the volatile Salt of the preceding Process; and with this again, from the natural Disposition of the Alcohol, the Spiritus Rector of the *Angelica* unites itself, which resides in its balsamic oily Parts, and is very volatile. Hence the Nature of the Alcohol, which equally unites with all these Kinds of Spirits, is here determined by the particular Spirit of *Angelica*. In the mean time, the volatile and fixed alkaline Salts, and the acid Spirit of the Sea Salt, help to open the Body of the *Angelica* during the Distillation; and thus dispose it to give out its Oils and Spirits more successfully. The Liquor thus produced, on account of its Fragrance, grateful Taste, Penetrability, Mobility, and saponaceous, anti-acid, and anti-austere Virtue, furnishes us with a Medicine, which, in the Hand of a skilful Physician, may be used with great Success; for it is of Service in all watry, pituitous, cold, acid; and austere Diseases, in Cases where the Bile does not perform its Office, and in almost every Disorder, where there is a Languor without any Inflammation and Putrefaction; particularly, when, at the same time, an irregular Mobility of the Nerves and Spirits causes troublesome hypochondriacal and hysterical Paroxysms; and in Flatuluses, that arise hence, it proves an excellent Remedy. It is a noble Cardiac, Stomachic, Calefacient, Sudorific, Diuretic, Diaphoretic, Antiparalytic, Antispasmodic, and Antiepileptic Medicine, where the Disorders are owing to the Causes above-mentioned. The Credit of this is particularly due to *Basil Valentine*, and *Franciscus Sylvius*, who first introduced this noble kind of Medicine into Physic. The Followers of *Sylvius*, however, by an unreasonable Use of it, have frequently brought it into Disgrace. *Baerhaave's Chymistry.*

The second Species is the

ANGELICA SYLVESTRIS, Offic. Buxb. 20. Mor. Umb. 9. Park. Theat. 940. Ger. 846. Emac. 999. Raii Hist. 1. 434. Synop. 3. 208. Merc. Bot. 1. 19. Phyt. Brit. 8. Mer. Pin. 8. *Angelica sylvestris major*, C. B. Pin. 155. Boerh. Ind. A. 51. Hist. Oxon. 3. 280. Rupp. Flor. Jen. 222. *Angelica sylvestris magna & vulgarior*, J. B. 3. 144. *Angelica sylvestris vulgarior*, 6 I

vulgatior, Chab. 400. *Angelica aquatica*, Dill. Cat. Giff. 156. *Angelica palustris*, Rivin. Irr. Pent. *Imperatoria pratensis major*, Tourn. Inst. 317. Elem. Bot. 267. WATER-ANGELICA.

It delights in watry Places, and flowers in July. The Herb is used in Medicine, and is supposed to be endued with the same Virtues as the garden Angelica, but weaker. *Dale*.

The third Species is the

HERBA GERARDI, Offic. Ger. 848. Emac. 1001. Merc. Bot. 1. 42. Phyt. Brit. 58. Mer. Pin. 61. *Podagraria Rivini*, Irr. Pent. Dill. Cat. Giff. 90. *Podagraria Rivini* & *Lobellii*, Rupp. Flor. Jen. 225. *Podagraria vulgaris*, Park. Theat. 943. *Angelica Podagraria dista*, Mor. Umb. 9. *Angelica sylvestris minor seu erratica*, C. B. Pin. 155. Raii Hist. 1. 435. Synop. 3. 208. Boerh. Ind. A. 53. Tourn. Inst. 313. Elem. Bot. 262. *Angelica sylvestris repens*, J. B. 3. 145. Chab. 400. Hist. Oxon. 3. 281. GOUT-WEED.

This grows principally in the Hedges of Gardens. It flowers in June and July. The Herb and Root are recommended for the Gout. *Dale*.

The fourth is the

ARCHANGELICA, Offic. J. B. 3. 143. Raii Hist. 1. 454. Chab. 400. *Angelica Scandiacæ*, sive *Archangelica Tabernamontani*, quæ umbellâ est flavâ, semine rotundiore. C. B. Pin. 155. Boerh. Ind. A. 53. *Archangelica seu Angelica Tabernamontani*, seu *Scandiacæ*, Herm. Prælect. *Angelica prima*, Boerh. Hist. P. 84. *Imperatoria Archangelica dista*, Tourn. Inst. 317. Elem. Bot. 267. GREAT WILD ANGELICA.

It agrees in Virtues with the former.

ANGELICUS PULVIS, Angelic Powder. Another Name for the MERCURIUS VITÆ. *Castellus*. See MERCURIUS VITÆ.

ANGELINA ZANONI ACOSTÆ. *Castanea Malabarica Angelina dista Anseli*, H. M. *An Angelina Arbor*, C. B. ?

This is a Tree of vast Bigness, sometimes above sixteen Foot thick, which grows on rocky and sandy Places in the Country of Malabar, in the East-Indies, and bears ripe Fruit in December, and continues bearing for a whole Century.

The dry'd Leaves, heated, alleviate the Pain and Stiffness of the Joints, and discuss an Intumescence of the Testes occasioned by a Contusion, or any external Violence; and also an Hydrocele, or Pneumatocèle. Being reduced to Powder, and applied outwardly with white camphorated Ointment, they cure Venereal Buboës. The same, bruised with the Root of Turmeric, and rubbed every Day on the Part, by their astringent Virtue in consolidating the Orifices of the Vessels, absolutely cure an inveterate Flux of the Hæmorrhoids. The unripe Fruit, too greedily eaten, excite a Diarrhœa, to which the Root and Bark put a Stop with the same Facility. The Oil expressed from the Fruit, boiled, taken inwardly, or applied outwardly, excites an Appetite, and helps Digestion. The same used with roasted and pounded Garlick, or fried in coagulated Milk, and applied to the Place, is an effectual Anodyne in the Pains of the Hæmorrhoids. *Raii Hist. Plant.*

ANGELOCALOS, the true Name of the twenty-fourth Antidote of *Myrepsus*, according to his Translator and Commentator *Fuchsius*, instead of the common Reading, *Alcancali*. This he infers partly from the corrupted Word, and partly from the Latin Copies of *Myrepsus*, which read *Alcancalus*, and interpret it *bonus Nuntius*, a good Messenger, the very Meaning of *Angelocalos*. See *ALCANCALI*.

ANGELUS, a Confection. *Johnson*.

ANGELYN, sive *Andira*, Pison. *Marcgrav. Arbor naci-fera Brasiliensis, Fructu Ovi Figura & Magnitudine*. Raii Hist. Plant. The same as *Andira* before.

ANGI, Buboës, or Tumors in the Groin. *Fallopis de Morb. Gall.*

ANGIGLOSSI, Stammerers. *Blancard*.

ANGINA, from ἀγγω, to strangle, a Quinsy.

OBSERVATION I.

A certain Butcher, about Noon, began to be sensible of a Pain about his Larynx and Fauces, which was accompanied with some Difficulty in eating and drinking; towards the Evening he went to an Apothecary, who gave him a Gargarism of Plantain and Lettice-water, Diamoron, and Vinegar. After he had used this Medicine, he was seized with intense Pain, and was suddenly choaked in the Night-time; but preserved his Senses to the last.

Upon opening his Body, the Substance or Parenchyma of his Lungs was found converted into Pus; and in one of his Sides there was also an Abscess filled with Pus. He had never been troubled with a Cough before, nor had a Spitting of Blood preceded his deplorable Fate; on the contrary, he had all along appeared to be blest'd with a sound and robust Body, and was so far from being meagre, that he was fat. *Dodonaus, Cap. 18. Observat.*

OBSERVATION II.

One *Abraham Perrow*, a Soldier in the French Service, and a Man of fifty Years of Age, in order to prevent the Consequences of an *Enterocely*, submitted to Castration, which Operation was successfully performed in the Beginning of September 1677. Three Weeks after, when every thing seem'd to be in a good way, when the Consolidation of the Wound was judged to be just at hand, and the Patient beginning to walk through the Town, he was seiz'd at once with a Difficulty of Deglutition and of Breathing. As he was in imminent Danger, I was called the third Day. All his Tongue, except the very Tip, was as black as a Coal. He lay with his Breast in an erect Posture; and if any thing was given him out of a Spoon, it brought on a kind of Suffocation; for which Reason, notwithstanding his great Weakness, he obstinately refused the things that were offered him. Tho' the Season was actually cold, he would allow no Part of his Body to remain covered with Cloaths, except his Feet. I forthwith ordered a Clergyman to be called, for the sake of his spiritual Interest. I perceived all the Symptoms of an Angina, tho' nothing appeared either internally, or externally, except the Blackness of his Tongue. Hence I pronounced, that there was an internal Gangrene, the Result and Offspring, as it were, of the Inflammation which I suspected to be in the Lungs. There is a remarkable Consent between the Testes and the Breast, to which Circumstance *Hippocrates* [Lib. 6. *Epidem.*] advises the Physician to give due Attention. The miserable Patient died about an Hour and an half after my Departure.

The Wound, made in this Patient's Right Groin, being carefully inspected, the Operation, which was performed by a young Man of the Name of *Colet*, had all the Appearances of its having been done by the Hand of an Artist; for no Marks of an Inflammation appeared. He proceeded from below upwards in his Operation. The interior Part of his Neck was longitudinally dissected, where the *Arteria Trachea* was found free from every kind of Phlegmon, as were likewise the adjacent Muscles. The Gland called *Thymus* was swelled, stuffed with black Blood, and pressed upon the *Trachea*. The Thorax being compressed, there pused a Sanies from an Incision that was made in it; and when it was quite laid open, we discovered most evident Marks of an uncommon Inflammation in the Lungs; for they were distended with a very black Blood, livid, bespangled with a vast Number of black Spots, and the other evident Signs of a Gangrene, especially towards the Back. Hence it appears, that the Difficulty of Deglutition and Respiration, as also the Loss of Speech, (for the Patient could only pronounce the Letters A and O) are to be ascribed, as well as to the Compression of the *Trachea* by that tumid Gland, and to its being drawn downwards by the Weight of the Matter collected in the Lungs; but we had not an Opportunity of discovering the latent Abscess from which the Sanies came, because he was buried sooner than we could have wished. His Liver, which was ill coloured, and very tumid, discovered itself thro' his Diaphragm, which it had forced upwards. I heard he had a very voracious Stomach. *Boneti Sepulch.*

OBSERVATION III.

In the Year 1618. there appeared in our own Country, an extraordinary and uncommon Distemper, which proved mortal to many People, and especially Children, by extinguishing or stopping their Breath. This was called by the *Greeks* ἀγγωνισμός, by others The Suffocating Disorder of the Fauces, or The pestilential Carbuncle; by most 'tis called *Passio Anginosa*, the Syriac Ulcer by *Aræus*, or The pestilential Tonsilla by *Aetius*. But many things plainly point out to us, that the Disorder has its Seat in some Part higher than the Tonsilla, which Part is the Brain; and this Conjecture of mine is favoured by the Dissection of many who have died of that Distemper, in whose Heads Grumes of Blood have been found diffused for a good way under the largest Sinuses of the Dura Mater [*Severinus de Abscessibus, Tract. ult.*]. We have likewise found the Nerves passing through the Foramen Occipitis, to the Muscles of the Neck, Larynx, Os Hyoides, and Fauces, very much injured in this Distemper [*Thom. Bartholinus, Comment. in dictum affectum, Exercit. 1.*]. See *EGYPTIA ULCERA*.

OBSERVATION IV.

A Man, who seemed to have been suffocated by an Angina, had nothing preternatural in his Larynx; but his Liver itself was putrified to such a Degree, that it might have been mouldered away like a Piece of Earth. The Reason was, the Abundance of Exhalations and Ichor, which flow'd from that Putrefaction, being diffused thro' the Membranes of the Larynx, so contracted it, that he died in the Space of thirty Hours, tho' there was as yet no Streightness in his Fauces; but it must be owned, that this Effect was principally owing to the excessive Load of putrid Matter contained in his Liver.

This seems to be confirm'd by a Disease incident to Horses, which we call the *Viver*, and which generally seizes them upon their drinking Water when they are over-heated by violent Exercises;

Exercises; for when they are allowed to do so, the Glands of their Necks swell, and they generally die within two Days; and, according to the Observation of *Glisson*, their Livers are found entirely dissolved into a putrified Matter. *Beneti Sepulchretum Anatomicum.*

DIAGNOSTICS and PROGNOSTICS.

That Disease which the *Latins* call *Angina*, is by the *Greeks* distinguished into several Species, each of which has its respective Name. Sometimes neither any Redness nor Swelling appear, but the Body is parch'd, the Patient breathes with Difficulty, and a general Imbecillity seizes him. This Species is called *σνάψη*. Sometimes the Tongue and Fauces swell, and become red, the Voice is intercepted, the Eyes are turned up, the Face grows pale, and the Patient is affected with Hiccups. This Species they call the *σνάψη*. Both these Species of the Distemper have these Symptoms in common, that the Patient can neither eat nor drink, and has his Respiration interrupted. The Disease is still milder, where there is only a Swelling and Redness, without any of the other Symptoms; and this Species is called *ἀσπασψή*. *Celsus, Lib. 4. Cap. 4.*

A Quinsey is a very acute Disease, as it is an Impediment to Respiration. Of this there are two Species; one is an Inflammation of the Organs of Respiration; the Cause of the other resides in the Breath, which is respir'd.

The Organs which are the Seat of the first Species, are, the Tonsils, the Epiglottis, the Fauces, the Uvula, and the superior Extremity of the Aspera Arteria; and if the Inflammation spreads much, the Tongue and Inside of the Cheeks are also affected; inasmuch that the Tongue is so enlarged, as to hang out beyond the Teeth, for want of Room in the Mouth. This is called *Cynanche*, *κυνάγχη*, either because Dogs are much subject to these Disorders, or because these Animals, even in Health, have a Habit of putting out their Tongues.

In the other Species, the Organs above-mention'd collapse, and are each more extenuated than in a natural State; and an excessive Strangulation attends it, inasmuch that the Patient seems to perceive a hidden Inflammation in the Breast. *Aræteus, πρὸς ὁξέων παθόν, Lib. 1. Cap. 7.*

The Author proceeds to prove, that the Cause of this second Species resides in the Air respir'd; but as in this he is evidently wrong, I shall omit taking more Notice of it.

In that Species of Quinsey call'd *Cynanche*, the Patients labour, under an Inflammation of the Tonsils, Fauces, and of the whole Mouth; the Tongue hangs out beyond the Teeth and Lips; a large Quantity of Saliva is discharged; and a viscid cold Phlegm flows from the Parts affected; the Face is red and swell'd; the Eyes are prominent, staring, and inflam'd; what is drank returns by the Nostrils, the Passage into the Stomach being obstructed; the Pain is excessive, but, in some measure, less perceiv'd on account of the violent Strangulation; there is a Sensation of Heat in the Thorax, and about the Heart; a perpetual Desire of fresh Air attends, tho' but little can be inspir'd, till at last the Passage thereof into the Thorax being entirely obstructed, the Patient is suffocated. In some the Disorder is readily remov'd to the Lungs, and Death is the Consequence of such a Translation: The Fever is slow, gentle, (*μαλακόν*) and not easily relieved.

If the Distemper verges towards a happy Conclusion, Abscesses are form'd here and there, either externally about the Ears, or internally in the Tonsils; and if these suppurate slowly, and without acute Pain, the Patient may recover; however, not without much Trouble and Danger: But if a larger Tumor inclines to suppurate, the Patient is suddenly strangled, just upon the Elevation of the Abscess into a Point. This is the Form of a *Cynanche*.

In a *Synanche*, the Parts above-mention'd collapse, and appear extenuated and pale; the Eyes are hollow, and sunk; the Pharynx (*φάρυγξ*, he means the Parts about the Fauces) and Uvula are drawn backward: the Tonsils retire; the Speech is lost. In this the Strangulation is much greater than in the other, because the Seat of the Disease is in the Thorax, where the Origin of Respiration resides. These Cases are very acute, and prove fatal the very Day that they seize, sometimes even before a Physician can be called; or, if he is called, he can seldom be of any Service, the Patient expiring before his Art can have any good Effect.

When the Disease takes a Turn for the better, all the Parts inflame, and the Inflammation is elevated into a Tumor externally. A large Tumor, or Erysipelas, appearing on the Breast, are good Signs. Hence a skilful Physician will invite the Disorder outwards, by Cupping-glasses upon the Thorax, or by Sinapisms apply'd to the Breast, or about the Jaws; will endeavour to draw the offending Matter outward, and thus make it perspire thro' the Pores. It sometimes, however, happens, that the Disease is by these means, for a short Time, deposited upon the external Parts; but soon after retiring, immediately suffocates the Patient.

The Causes of this Distemper are various; as Cold frequently; Heat not so often; Wounds; the Bones of Fish

sticking in the Tonsils; drinking cold Water; Intemperance in Drinking or Eating; besides the ill Qualities of the Air respir'd. *Aræteus, πρὸς ὁξέων παθόν, Lib. 1. Cap. 7.*

To this Doctrine of a Quinsey, I shall add that of *Cælius Aurelianus*, who informs us, that this Distemper is called *Lycanche*, as well as *Cynanche*, because the Patient, under this Disorder, exerts a Voice like a Dog, or Wolf. But it must be remark'd, that, as *Aræteus* distinguishes betwixt a *Cynanche*, and a *Synanche*, *Cælius Aurelianus* comprehends both Sorts under *Synanche*.

It is the distinguishing Character of these two Authors, that their Descriptions of Distempers are extremely picturesque, and in this they excel all other Authors. For this Reason, I have given both, as they may illustrate and confirm each other.

One Species of *Synanche* is attended with no manifest Tumor; in another it is visible and manifest; one affects the Inside, another the Outside of the Mouth; another both the internal and external Parts on the Right or Left, or on both Sides; some, as for Instance, *Valens* the Physician, in his third Book of Cures, have given Names to each particular Distinction. That Species, indeed, which is without manifest Tumor, they have left without a Name; but that which comes attended with a visible Tumor, if it affect both the interior Sides of the Fauces, they call a *Cynanche*; for it causes a Difficulty of Respiration, and a Prominence of the Eyes, and a Faltering of the Tongue; as it often happens to greedy Dogs, who, stimulated by a Sense of Hunger, fall fearlessly on a Piece of Meat, which, thro' their Haste, sticks in their Throat, and they can neither swallow nor bring it up again. If the Distemper only lies in one Side, they call it a *Paracynanche*. If the external Parts on both Sides be affected with a Tumour, it has the Appellation of *Hyanche*, [from *ὕς*, a Swine, and *ἄγχω*, to strangle] because the Necks of Swine are very subject to these Inflations, which the *Greeks* call *Hyai* [*ῥαι*]. If the Tumor affects both the internal and external Parts on both Sides, it is properly called, as they tell us, a *Synanche*. If it be only on one Side, a *Parasynanche*. To give Names to their specific Differences, is not material.

The antecedent Causes of this Disease are some of them occult, others evident, and common to other Disorders, but especially strained and laborious Vomiting, more particularly after corrupted Food. Ebriety also, and drinking of Snow-water, and vehement Exclamation, kept up to the same Height and Tone of Voice, which the *Greeks* call *Menotonon*, may be reckon'd among the Causes of this Disorder. It is produced also by a Catarrh, by acrimonious Food, eaten contrary to Custom, by Medicines of a hot and fiery Quality, taken inwardly, by a purging Dose of Hellebore, and in some Women by a Retention of the Menstrues. Men are more subject to it than Women; and young Men, and those of a middle Age, than Boys or old Men.

Asclepiades, in the second Book of his Commentaries on *Hippocrates's* Aphorisms, defines a *Synanche* to be a Flux of Humour, or Humectation of the Fauces, or their upper Part, usually derived from the Head. But this is an imperfect Definition; for, every Flux of Humour, which they call a Rheumatism, is the Falling down or Discharge of a copious Liquor. But in Persons afflicted with a *Synanche*, there appears, indeed, a Tumor, but no great Discharge of a Humour is perceiv'd, unless it may sometimes happen from a Pressure.

We, according to the Sentiment of *Soranus*, define a *Synanche* to be a Difficulty of Deglutition, and an acute Strangulation, proceeding from a vehement Tumor of the Fauces, or the Parts by which Deglutition is performed.

In our Definition, we join an acute or very quick Strangulation with a Difficulty of Deglutition, to distinguish this Disorder from a Tumour of the Tonsils, or Uvula. For where there is a *Synanche*, there must of Necessity be a Tumor of the before-mentioned Parts; but it does not follow, that whenever this Tumor happens, there must presently be what we call a *Synanche*: For those who are molested with a Difficulty of Deglutition in a moderate Degree, do not seem arrived to the Pitch of a *Synanche*, since the Essence of this Affection is understood to consist in the Greatness of the Tumor, which also distinguishes the Strangulation, occasioned by this Disorder, from what is caused by the Constriction of a Cord; for, in the latter Case, there is also a very acute and sudden Strangulation, but not owing to a Tumor. *Cælius Aurelianus, Acut. Morb. Lib. 3. Cap. 1.*

The Symptoms which afflict the Patient under a *Synanche*, are, at first, Pains without evident Cause, a Difficulty of moving the Neck and Throat, a considerable Discharge of Saliva, without any visible Tumor, with a dull Pain, and sensible Asperity of the Fauces; a Difficulty of swallowing the usual Fluid which gathers in the Mouth like Spit; after these, an Impediment of Respiration, as if clogg'd with some gross Humour.

As the Disease increases, the Part grows red, with a manifest Tumor; and, at last, the Fauces, Uvula, the Parts above the Tongue, and the superior Part of the Throat, are elevated

elevated by the Tumor to a remarkable Degree, which is attended with a Difficulty of swallowing: whatever is received at the Mouth; besides a Strangulation in Proportion to the Tumor, a Difficulty of Respiration, and a Nausea. If the Mouth of the Patient be open'd, a dry Tension of the Tongue, when compressed with the Finger, is perceived.

When the Distemper is increased to a vehement Degree, the Tumor spreads over the Neck and Face, the Mouth flows with Spittle, and a viscid Humour; the Eyes are prominent, bloodshot, and the Veins appear distended.

If the Patient still grows worse, the Tongue falls without the Teeth, there is a Dryness of the Fauces, a cold Numbness of the Joints, a swift and frequent Pulse, a Difficulty of lying, especially on the Back or Side, with a frequent Desire to sit, and an inarticulate confused Speech, not without Pain.

If the Disease tends to the Destruction of the Patient, as he grows worse, he becomes livid in the Face, and speechless; there is a Stertor in the Throat and Breast; whatever Liquid he takes, recurs; and there is a Failure in the Pulse, which the Greeks call ἀσπυρία. Some utter a Voice like a Dog, others froth at the Mouth. Upon these Symptoms Death necessarily ensues.

If the Disorder be without a manifest Tumor, there is a Slenderness of the Neck, with an inflexible Erection and Extension of the same; the Face and Eyes are hollow, the Forehead is distended, the Colour like Lead, Respiration is extremely difficult, but with no manifest Tumor, as I said before, or Inflammation, either in the internal or external Parts. The Patient labours under an extreme Weakness and Dulness, and dies under a very quick and acute Suffocation.

If an Erysipelas breaks out about the Neck or Breast, and continues, it is very often a good Prognostic; for it seems to signify a Translation of the Humour from the inner Parts to the Superficies. But if, in spite of all the Assistance of Medicines, the Erysipelas on a sudden disappears, it is a fatal Sign; for it shews a Translation of the Humour from the Superficies inwards. If an Erysipelas appears not while the Distemper is in its State, nor, proceeding from the inner Parts, shews itself outwardly, but is either antecedent to the Disorder, or concomitant with it, it is, on all Accounts, a bad Prognostic. Plenty of Humour, or viscid Saliva, is bad, in the State of the Disease, but good and salutary in the Decline; for, in the first Case, it signifies a very great Strangulation, but in the latter, a Relaxation. Sometimes this Disorder increases to such a Height, as to cause a Stricture in the Fauces, Throat, and Chin. Now a Stricture is an acute, quick, and violent Distemper, and very often continual, but sometimes intermittent. *Caelius Aurel. Acut. Morb. Lib. 3. Cap. 2. See STRICTURA.*

A Quinsey without any evident Tumor in the Neck or Fauces, (ἀσπυρία) but attended with violent Strangulation, and difficult Respiration, is fatal either the first Day, or the third. *Hippoc. Coac. Prænot.*

Quinseys equally troublesome with the former, as to Strangulation, and difficult Respiration, but attended with a Tumor and Redness of the Fauces, are extremely dangerous; but, however, do not threaten so immediate Destruction, if the Redness is considerable. *Hippoc. Prædict.*

If a considerable Redness appears at the same time in the Fauces, (ἐσφυγία) upon the Neck and Breast, the Case is less acute; most, who are thus affected, recover, unless the Redness suddenly disappears. *Id. Coac. Prænot.*

But if the Tumor and Redness disappear, without any external Abscess, or gentle and unpainful Expectoration of Pus; or if this does not happen upon critical Days, the Disorder is fatal. Perhaps also the Lungs suppurate. It is therefore much the safest, when the Redness and Apostemation verge towards the external Parts. *Id. ibid.*

When the Erysipelas tends from the internal to the external Parts, it is a good Symptom; on the contrary, when it tends from the external Parts inwards, it is fatal. It verges inward, when the Redness disappearing, the Breast is oppress'd, and the Difficulty of Respiration increased. *Id. ibid.*

When a Quinsey removes to the Lungs, the Patient generally perishes within seven Days; but if he escapes, a Suppuration of the Lungs ensues, unless a large Quantity of Phlegm is expectorated. *Id. ibid.*

When, by reason of the violent Suffocation, the Forces are suddenly discharged, the Case is desperate. *Id. ibid.*

In Quinseys, if the Spit is dryish, (ῥέξη, thick and viscid) without any Tumor of the Fauces, it is of bad Presage. *Id. ibid.*

In Quinseys, if the Tumor of the Tongue subsides without sufficient Reason, it is a fatal Symptom. The Pain also vanishing suddenly, and without any manifest Cause, portends Death. *Id. ibid.*

The Doctrine of the latter Part of this Prognostic cannot be too often inculcated, because it is also applicable to all internal Inflammations whatever. The sudden Disappearance of Pain, without sufficient Cause, is a Sign, that a Mortification is begun.

In Quinseys, if a well-concocted Saliva is not soon discharged, the Case is desperate. *Hippoc. Coac. Prænot.*

In a Quinsey, Pains in the Head with a Fever, without any Alleviation of the Symptoms of the Quinsey, portend ill. *Id. ibid.*

In a Quinsey, Pains in the Legs, attended with a Fever, whilst the particular Symptoms of the Quinsey remain, without Alleviation, portend ill. *Id. ibid.*

Pains in the Hypochondria, subsequent to a Quinsey, terminated without a regular Crisis, together with great Imbecillity, and a Torpor, prove fatal unexpectedly, tho' the Patient, in Appearance, is upon the Recovery. *Id. ibid.*

In Quinseys, if the tumefied Parts subside, without salutary Signs, and the Pain removes to the Breast and Belly, with Tension of the Part where it fixes, a purulent Diarrhoea ensues, otherwise there will be no Solution of the Disease. *Id. ibid.*

In Quinseys, all Pains have a fatal Tendency, which do not manifest themselves externally. Sometimes Pains are translated to the Legs, which prove very chronic, and do not cause a Suppuration, without great Difficulty. *Id. ibid.*

In a Quinsey, the Spit, which is viscid, thick, whitish, and which is brought up with Difficulty, is bad; as are all such imperfect Concoctions. In such Cases, a great Number of Stools reduces the Patient to a Paraplegia, and Death ensues. *Id. ib.*

If the Spit, which happens from a Quinsey, is dryish, (ῥέξη, thick and viscid) and is frequently discharged with a Cough, and Pain of the Side, it is a fatal Symptom. If the Patient cannot drink without Difficulty, and if what he drinks is driven back with a Cough, the Case is dangerous. *Id. ibid.*

A Quinsey is an Inflammation of the Fauces, attended with an ardent Pain, Tumor, Redness, a Difficulty of Respiration and Deglutition, and a Fever. It arises from a Stagnation of Blood, or of an acrimonious and viscid Serum in the sanguineous or lymphatic Tubes, and is not void of Danger.

In order to form a Judgment of this Distemper, we are first and principally to consider the Parts where it is seated, which are the Fauces, and especially the Pharynx and Larynx, with the adjacent Parts. In this are included many Parts, which are of very great Use, and of quick Sensation; such are, the Root of the Tongue, with the Os Hyoides, the Holes of the Nostrils, which open into the Mouth, the Beginning of the Oesophagus, the Muscles of the Pharynx, with the internal and external Muscles of the Larynx, in Number thirteen, besides the greater and lesser Glandules, the Tonsils, the Muscles that move the Jaws, the smaller sanguineous and lymphatic Vessels, with the tender Branches of the Nerves.

The Quinsey is esteemed more or less dangerous, according to the Parts affected by the Inflammation, and goes under different Names on the same Account. There is a very old Distinction of a Quinsey in general, into an inward and outward Quinsey: The first is seated in the inner nervous and muscular Membranes of the Fauces, and does not discover itself by any outward Tumor or Inflammation, either in the Neck or Face; but there is an inward burning Heat, with an acute Fever, and if the Case be worse than ordinary, not only a Difficulty of Respiration, but of Deglutition, and the Patient is in great Danger.

The external Quinsey is more conspicuous to Sight, and principally affects the external Muscles, and glandulous Parts, the Tonsils, with the Root of the Tongue, and the Uvula; it is also more easily cured.

If we consider this Disease, more particularly with respect to the Part affected, the most terrible and dangerous Quinsey is usually that which is seated in the internal Muscles of the Larynx, and does not discover itself outwardly by any Redness, or other Symptoms about the Neck or Throat; but the Patient is afflicted with a vehement internal Heat and Pain, and by reason of the Contraction of the Orifice of the Aspera Arteria, not only the Voice is suppressed, but Respiration is performed with Difficulty, and sometimes wholly stopped, often in so short a Time, if we believe Observation, as to kill the Patient within the Space of four-and-twenty Hours, or on the third Day. This the Greeks call *Cynanche*.

What they call *Synanche*, affects the internal Muscles of the Pharynx, and is, like the other, without any conspicuous external Tumor or Redness, but attended with a greater Difficulty of Deglutition than Respiration; for what the Patient endeavours to swallow, is violently discharged by the Nostrils. But when the Tumor and Redness render themselves sensible to the Sight and Touch, the Inflammation, which has its Seat in the external Muscles of the Pharynx, is, by the Antients, called *Parasynanche*, as the other, which seizes those of the Larynx, is named *Paracynanche*.

Again, a Quinsey is distinguished, by practical Physicians, into the true or perfect Quinsey, and the spurious one.

The true Quinsey arises from a Stagnation of the Blood, but the spurious one is rather owing to an inflammatory Collection of Serum, than of Blood, in the interior Parts of the Fauces and Neck. The true Quinsey is an acute Disease, and never without Shiverings and a Fever; the spurious Quinsey is attended rather

rather with a lymphatical and catarrhus, than an acute Fever. In the perfect Quinsey there is not only a burning and pungent Pain about the inward Parts of the Fauces, but the Tongue also is turgid with Blood, and of a dark red Colour; there is also a Redness of the Face, and a great Pulse of the temporal Arteries, which are attended sometimes with a Pain in the Head, and a Drowsiness and Numbness of the Senses, and sometimes Faintings. If the Disease be violent, there is a Difficulty of Respiration, with great Anxiety, Restlessness, and Coldness of the extreme Parts. This is a very dangerous Case, and requires immediate Relief. But in the spurious Quinsey, these Symptoms are some of them wholly absent, others less violent, and there is less to be feared under a right Management. Moreover, a Quinsey may be divided into a very hot and dry, and into a moist, or very mucous one. The former takes its Rise from the Blood, and is accompany'd with a very acute Fever, as was said of the true Quinsey. The other is more chronic, and comes attended with a catarrhus Fever, is familiar to cachectical and scorbutic Persons, and covers the Tongue and Fauces with a thick slimy Mucus, which causes a foetid Breath.

All these Species of Quinsey deserve to be distinguished from other Affections of the Fauces. The true and dry Quinsey must not be mistaken for that mucous Inflammation of the Mouth and Oesophagus, commonly called *Prunella Alba*. For in the latter, the whole Region of the Fauces, and the Tongue, are cover'd with a white Mucus, the Tongue contracts painful Fissures, and there is a burning Heat, which reaches even to the Diaphragm. This frequently happens in malignant Fevers, and is for the most part a bad Symptom, because it indicates an Inflammation of the Stomach and Oesophagus. Nor is every Inflammation of the Fauces a Quinsey, but that only which is attended with a Difficulty of Respiration and Deglutition. Wherefore there is a wide Difference betwixt a Quinsey, and a slight Inflammation of the Neck, and the internal Parts of the Fauces, with a Tumor and Pain of the Glandules, which frequently happens to scorbutical Persons, and those affected with the Venereal Disease, if it proves obstinate, and is accompanied with Erosion. The true and internal Quinsey must also be distinguished from those Spasms which are usually incident to hysterical and hypochondriacal Patients, which contract the Face, and cause a Difficulty of Respiration, as well as Deglutition. These Symptoms happen without a Fever, and soon remit, and leave the Patient, and easily give way to Medicines. Lastly, The Quinsey differs from those hot and painful Pustules on the Tongue, which they call *Aphthae*. For those affect only certain Parts, and are accompany'd with a Pain and Redness; nor are they so constantly attended with a Fever, as the Quinsey.

The immediate Cause, then, of a Quinsey is a Stagnation of the Blood, or sometimes an inflammatory Collection of Serum in the internal Parts of the Fauces; to produce which, many things may concur. For 'tis evident, from Observation, that it is frequently consequent upon the Suppression of a spontaneous Evacuation, as of Blood, either by the Nostrils, Uterus, Haemorrhoidal Veins, or of the Lochia, or upon the Omission of an habitual artificial Evacuation, by Scarification or Phlebotomy. In Bodies thus predisposed, the Disease is soon form'd, after a more than ordinary Commotion of the Blood, drinking freely of Spirituous Liquors, violent Exercise, or even too high straining the Voice, especially in the cold Air. I have observ'd also the Beginning of an Inflammation like that of the Quinsey, after taking a pretty strong Sudorific, follow'd by a too sudden Admission of the cool Air; or taking a Draught of cold Liquor, after coming out of an over-hot Bath; which, however, by the Help of proper Remedies, both internal and external, have in a short time been happily discuss'd. A Quinsey is no less frequently generated by oppressing the Fauces with acrimonious things, which too much irritate and overstrain the Fibres and Vessels. We know by Experience, that a fatal Inflammation of the Fauces has often surpris'd those who have lived and slept in Rooms, which have been newly plaster'd over with Lime; and I myself knew several Infants kill'd at once by the same Means. That the same inflammatory Quality belongs to Caustics, is agreed by all. Among Cathartics, White Helilebore, by a kind of specific Property, communicates its Influence to the Fauces, and causes a Strangulation. Quicksilver, and especially ill Preparations of it, are known to incommode and inflame the Fauces. The same Effect is observ'd, by Physicians, to follow the Use of the *Solanum Furosum*, and the Bite of a mad Dog. The Fumes arising from arsenical and mercurial Ores, and the Vapours of mineral Spirits, unwarily drawn in with the Breath, have a principal Tendency to promote this Disorder; for the very subtle and penetrating pointed Particles of all these Substances, deeply insinuating themselves into the Muscles which move the Cartilages of the Larynx, by there straining the nervous Membranes, and intercepting the free Passage of the Blood through the Vessels, excite an inflammatory Tumor of this kind, with a Pulsation, and a pungent Pain, which is often fatal.

That the bare Infection of sharp and pointed things in these solid Parts, is sufficient to cause this Affection, is evident from the Effects which the small prickly Bones of Fish produce by sticking in the Fauces, which are very often Inflammations of this kind. You have a remarkable Observation to this Purpose in *Hildanus, Cent. 3. Obs. 42.*

By some of the before-mention'd Ways is a Quinsey spontaneously excited: But it often succeeds some other Disease as a Symptom; which happens frequently in a Diarrhoea and Dysentery, especially if the Flux be unseasonably stopp'd; of which we have a memorable Example in *Hildanus, Cent. 3. Obs. 27.* The same Event follows the preposterous repelling of an Erysipelas, or the Application of improper Topics to the Gout. The Quinsey also frequently supervenes upon the Small-pox, and malignant and pestilential Fevers. In particular, anatomico-practical Observations upon the Distemper call'd the *Hungarian Fever*, assure us, that it commonly ended in a Inflammation of the Meninges and Fauces, which spread itself to the Stomach and Oesophagus, and carried off the Patient: But the Cause of this symptomatical Quinsey might, for the most part, be found to be a too long Constipation of the Belly, an imprudent Checking of Perspiration, or a preposterous repelling of the acrid caustic Matter, upon the inward Parts. When the Distemper is epidemical, it must be attributed to some Fault in the Air, which usually, on these Occasions, has in it some degree of Malignity. It often happens in the Spring or Autumn, after a long rainy and moist Constitution of the Air, as *Hippocrates* of old observ'd, *Sect. 3. Aph. 16. 20. 22.* and *Bartholine* confirms by his own Experience, *Cent. 1. Obs. 81.* This Disorder also usually attacks those who breathe an Air impregnated with Effluvia of the Nature of a very acrid subtle Salt, communicated to it by a Multitude of Insects there residing, especially at the Setting of the Sun. From this Cause, *Hollerus, Prax. Lib. 1. Cap. 23.* assures, that the Quinsey is very common at *Rome*, and sometimes rages like the Plague.

A Quinsey is very dangerous, not only on account of the Fever, which is often acute, but the Fear of Suffocation. The most dangerous is the true, internal, and hidden Quinsey, as we said before; and of this Sort must be understood what *Hippocrates* pronounces, *Predict. Lib. 3. Cap. 8.* "The Quinsey is a very terrible Disease, and soon proves fatal, if it shews nothing conspicuous to the Sight, either in the Neck or Fauces; for the same Day, or the second, or the third, or fourth, it strangles the Patient." The greatest Danger of Suffocation is, when the Muscle call'd the *Thyroarytenoideus*, whose Office it is to close the Larynx, is affected. The symptomatical Quinsey is also very dubious, and full of Hazard; for the Patient, by reason of the Weakness of his Body, already exhausted, and the Virulence of the Matter, seldom gets over it. It is a very bad Sign also, when the external Tumor suddenly disappears, the Symptoms not being mitigated, but rather exasperated: For, in such a Case, the morbid Matter passes over the other nervous Parts, and directs its Course either to the Brain, where it excites a Phrensy with Convulsions; or to the Lungs, where it causes a Peripneumony, which, according to *Hippocrates, Sect. 5. Aph. 10.* ends in Death. But when the suffocating Strangulation remits, and the Tumor, Pain, and Redness tend principally to the outward Parts, and vanish by degrees, it prognosticates a happy Event; if the Case be otherwise, the Disease terminates in Death, or an Abscess; if in an Abscess, and there be an Effusion of Pus into the Bronchia and Lungs, according to *Forestus, Lib. 15. Obs. 24.* the Event is very doubtful; if in Death, Frothing at the Mouth, a Tongue very much swell'd; and of a purplish black Colour, Coldness of the Extremities, an uncommon Anxiety, and Compression about the Praecordia, and a hard, convulsive, and intermitting Pulse, prognosticate its Approach.

CURE of a QUINSEY.

The Method of Cure recommended by *Hippocrates*, consists in bleeding in both Arms, and opening the Veins under the Tongue, in Lambitives capable of inciding the Humours, in hot Gargarisms, and evacuating a Part of the Humours by an increased Discharge of Saliva, and in shaving the Head. A Cerate should also, according to him, be applied to the Head and Neck, and over this Wool; and the external Parts must be fomented with soft Sponges, wrung out of warm Water. The Drink ought to be Water and Hydromel, but by no means cold; or Cremor of Pisan, when the Danger is judged, from the Crisis, to be over. *De Ratione Vietus in Acutis.*

In both Species of Quinsey, if the Strength of the Patient will permit, Blood is to be taken away, even tho' it should not abound in him. The next Step is to purge. Cupping Glasses must also be applied directly under the Chin, and about the Fauces, that the Humours, which cause the Strangulation, may be invited outwards. Moist Fomentations also must be made use of, for dry ones render Respiration more difficult: Therefore Sponges are to be applied, which are frequently to be dipp'd in warm Oil, rather than in warm Water. Warm Bags of Salt are also of great Efficacy in these Intentions. It is also advise-

able to gargle the Mouth with a Decoction of Hyssop, or Catmint, or Thyme, or Wormwood, or even of Bran, or of dried Figs, in Hydromel; after these anoint the Palate with Bull's Gall, or the Composition which derives its Name from Mulberries. Powder'd Pepper may also, with very good Effect, be sprinkled upon it.

If these have but little Effect, the last Remedy is to make deep Incisions under the Jaws, above the Neck; or in the Palate about the Uvula; or to open the Veins under the Tongue, that by these Wounds the Humours, which cause the Distemper, may be discharged.

If by these means the Patient is not eased, we may know, that the Disease will prove fatal: But if he is so far reliev'd, as to be able to eat and drink, the Transition to Health is not difficult. In some Cases, Nature will assist, provided the Disease removes from a narrower to a wider Part. Therefore, if a Tumor or Redness arise about the Præcordia, we may be satisfi'd, that the Fauces are set at Liberty.

But by whatever means Relief is procur'd, the first Aliments which are given must be liquid, and in particular Hydromel; after these, solid Foods, which are soft, and not acrid, till the Fauces recover their usual Habit.

It is commonly reported, that if any one eats a young Swallow, he will be in no Danger of a Quinsy for that Year: And it is farther affirm'd, that if the same be preserved with Salt, and burnt, upon an Attack of this Distemper, and the Ashes are powder'd, and put into Hydromel, which is given to drink, it will be of Service. This I thought worthy of inserting, tho' I have not met with it in Medicinal Writers; because it is a popular Remedy in some Reputation, and cannot possibly have any ill Effect. *Celsus, Lib. 4. Cap. 4.*

For the Cure of a Cynanche, that Species of Quinsy which is attended with a Tumor of the Fauces, *Aretæus* advises the following Method, which, he says, must be immediately pursued; because the Distemper, being extremely acute, soon proves fatal.

If the Disorder is caused by a Debauch, either in eating, or in drinking, the Intestines must be wash'd not only with one, but with two Clysters. The first must be of the common Sort, being only intended to discharge the Excrement; the second is design'd to draw a Part of the Humours from the Tonsils and Breast; therefore let it not be simple, but made of a Decoction of Centaury, Hyssop, Wormwood, Calamint, and Birth-wort, with an Addition of Honey, and a great deal of Nitre; for these draw away Phlegm. And tho' the Patient has lived temperately, the Vein in the Cubit must be open'd, and with a large Orifice, that the Blood may flow from it with Impetuosity, and in a large Quantity; for by these means it will be more likely to moderate the Heat, relieve the Strangulation, and mitigate all the Symptoms. It will not be amiss to let the Patient bleed till he is near fainting, but not till he actually faints; for some have, upon these Occasions, died in the fainting Fit: Mean time, Ligatures must be made above the Ankles and Knees, but particularly upon the Wrist near the Cubit, and upon the Cubit near the Humerus. If the Patient can swallow easily, give him as much Elaterium as is sufficient to purge him, in Hydromel and Whey; for, of all Cathartics, Elaterium is, in this Case, the best: Cneoron and Mustard [*νέτρον*] are also of Service; for both these purge the Belly.

If, by the Use of these Remedies, the Inflammation is not mitigated, bending the Tongue upwards, open the Veins on the under Side, and if a large Quantity of Blood is discharged from these, it gives greater Relief than all the rest. Let the inflam'd Parts be moisten'd with Restringtons at first, that the Inundation of Humours may be somewhat check'd; for this Purpose use Wool, greasy with the natural Sweat, and let it be impregnated with Wine, and the Oil of unripe Olives. Cataplasms also of the same Nature must be applied, as of Dates moisten'd and bruise'd with Wine, together with Rose-flowers; and that these Cataplasms may have a proper Consistence, that is, be viscid and soft, let Meal and Lin-seed, and Honey and Oil, enter their Composition.

But if it verges towards Suppuration, make use of warm Topics, as in the other Species of Quinsy: Let therefore the Meal be that of Femugreek; and let the Powder of Frankincense [*μάρρα*] and Resin be melted; and let the Tops of Poley-mountain be strew'd in: To these add hot Fomentations, by means of Sponges, press'd out of a Decoction of Laurel-berries and Hyssop. The Dung also of Doves and Dogs are powerful Promoters of Suppuration, pass'd thro' a Sieve, and applied to the Part. Proper Lotions are prepared of Hydromel, with the Decoction of Lentils, or Hyssop, or Roses, or Dates, or of all together. The Mouth must also be anointed as far as the Pharynx, either with simple Medicines, as the Juice of Mulberries, or of Pomegranates bruise'd with Water, or a Decoction of Dates; or else with Compounds, as those which take their Names from Mulberries, from Rue, the Juice of Pomegranates, or from Swallows. But if there are Ulcers in the Mouth, with Eschars, proper Lotions and Gargarisms are prepar'd of Decoctions of Hyssop in Hydromel, or of fat Figs in

Water, with an Addition of *Amylum*, moisten'd with Hydromel, or the Juice of *Ptisan*, or of *Tragus*.

But in that Species of Quinsy which is attended with an Extenuation of the Parts, and is called *Synanche*, all possible Endeavours must be used to invite the Humours, and the Heat, and the Flesh, outwards, that all the external Parts may swell: Let therefore the Embrocations be hot, and made with Rue and Dill, with an Addition of Nitre; and let the Cataplasms, above specify'd, be laid on with these. It will also be of Service to apply a Cerate, with Nitre and Mustard, in order to excite Heat; for Heat in the external Parts contributes much to the Cure of these Disorders, and to the Swelling of the Neck; and a Tumor, rising externally, preserves the Patient from a Peripneumony; but if it retires inward in a Quinsy, it is a fatal Evil.

Those who, apprehending the Suffocation in a Quinsy, make an Incision in the *Aspera Arteria*, in order to render Respiration easy, do not seem to me to have confirm'd this Practice by Experience; for the Heat, arising from the Inflammation, is increased by the Wound, and adds to the Fatigue and Danger of the Strangulation and Cough: Besides, if the Patients escape this Danger, the Lips of the Wound will not unite, because, being cartilaginous, they cannot heal. *Aretæus de Curatione Acutorum, Lib. 1. Cap. 8.*

There is, after this, something omitted in the Copies of *Aretæus* now extant; for *Aetius* quotes some things from this Author, not to be found here, as is specified below.

By Nitre, *Aretæus* means *Natron*, a Salt very different from our Nitre. See ANATRON.

Cælius Aurelianus has preserved the Practice of a great many of the ancient Physicians, which would otherwise have been lost to us; and is very free in finding Faults, for which he sometimes gives but indifferent Reasons. He was of the Methodist Sect, and as he believed the Causes of Diseases resided in the Solids, and were nothing but too tense or lax a Tone of their Fibres, he reduced most Diseases under two Heads, which were those of *Stricture* and *Solution*: Thus, for Instance, a Phrensy was, with him, a Disease of *Stricture*; but a Diarrhoea, on the contrary, was called a Disease of *Solution*.

The Patient under this Distemper must lie in a lightsome Place, moderately spacious, warm, and free from offensive Smells. Air, thus qualify'd, is of a laxative Disposition, and proper to insinuate into the tumid Parts. The Posture of Decubiture ought to be supine, the Head a little raised, in a firm and immovable Position, or one in which the Patients say they find most Ease; for all Motion is painful to Persons labouring under a Tumor. The Neck and Breast are to be cover'd and cherish'd with clean, soft, and undy'd Wool, dipp'd in warm sweet Oil, not omitting gentle Frictions of the Joints; for the Relaxation, consequent on Perspiration thus promoted, is communicated to the affected Parts.

Rest and Abstinence are to be injoin'd for the first three Days, together with a laxative Gargarism. Fomentations with warm sweet Oil are to be used, and Bladders, half-full of the same, are to be applied to the outward Parts. If the Disease be violent, Phlebotomy is to be administer'd within the three Days; for quick and sudden Bleeding is necessary for a most speedy Relaxation. If there be no urgent Necessity, Bleeding may be omitted till the third Day, or, if the Strength continue, till after it, and then used, if any emergent Occasion requires it.

The Person to whom Bleeding has been administer'd within the three Days, is afterwards to have his Head and Neck fomented with hot sweet Oil, and have some of the same instill'd into his Ears; and then to use a Gargarism. His Drink must be warm Water, or Mulsam, and not by Draughts, but Sippings, lest the tumid Parts should be irritated by a troublesome Deglutition and Percussion.

If we bleed the Patient on the third Day, he must afterwards have his Body anointed round with sweet Oil warm'd, and his Face moderately fomented with warm Water; then we may give him forbile Food, but very thin or fluid; or else some Bread dipp'd in Mulsam.

If Deglutition be difficult, so as to prevent the Sick from receiving into his Stomach what is given him for that Purpose, it will be sufficient, for supporting his Strength, to instil Mulsam, Drop by Drop, into the Fauces. We must also continue to give him Food every other Day, till the Decline of the Distemper.

It will also be convenient, for some Days after Phlebotomy, to make use of Cataplasms, which may be outwardly applied, round about the Neck, but let them be of the mild and simple Kind; such as hot Bread dipp'd in Water and Oil, or carefully mollify'd in Mulsam, or Flour of Wheat, or Barley, or Lin-seed, or Fenugreek. The fore-mention'd Simples may singly, or mix'd together, be taken out of warm Water, Oil, or Honey, or a Decoction or Infusion of the Root of Marsh-mallows, and so applied. These Cataplasms are frequently to be chang'd, lest, by long Continuance on the Part, they contract a Sourness from the corrupt Exhalations of the Body. They are

are also to be heated, that their Vapour may continue the longer; and outward Applications are to be made of Sacks of Bran boil'd in Water, or Bladders half full of hot Water and Oil. The Vaporation of Sponges, squeez'd out of warm Water, alone or mix'd with Oil, or a Decoction of the mild Laxatives, is good in this Case. Sponges are also to be applied to the Neck and Throat, and those Parts which, by their Swelling or Inflammation, hinder Deglutition, or to the Mouth and Nostrils; the Patient also is to be exhorted to suck in the Vapour with open Mouth; for Vaporations received this way descend deep, and relax the Tumor.

Gargarisms are to be used, which have a Congruity with Cataplasms, such as warm and sweet Oil, or hot Water and Oil; also Mulsum, diluted with Water, and boil'd; Milk alone, or mix'd with Honey or Water, so that there be an entire Detersion of all the curdling Parts; lest, if any should remain; they might contract a Sourness from the Heat of the Places.

We are also to make use of a Decoction of Bran and Liquorice, or of Lin-seed and Fenugreek; but never boil'd to the Thickness of a Cremor; lest by its viscous Tenacity, in Conjunction with the Viscidity of the Humours; it should occasion a Difficulty of Respiration. Besides these, the Decoctions of Marsh-mallow, Wild-mallow, Syrian Sebestens, Club-moss, fat Dates, or juicy Figs, are all recommended, as well as the Juice of Alica, or Pisan.

When the Disease begins to decline, Sybaritic, Cretic, and Raisin Wines are proper: But as for light Astringents, and what they call Inspissants, [*Stymmata*] I think them at this time inconvenient; for these are Remedies that we use in the Beginning of the Disorder, while the Symptoms are light, and the Patient only complains of a slight Pain in the Fauces and Uvula; for *Thessalus* himself orders Posca, when he is call'd to attend those who are threaten'd, but not actually seiz'd, with a Synanche.

In short, we must make use not only of Posca, but of a Decoction of gentle Astringents, such as Roses, Thebaic Dates, Lentils, Myrtle, Lentisk, and Mastich, any one of which may be boil'd in Mulsum, or some other of the fore-mention'd Juices, whenever we find, that their astringent Quality requires Correction by the Mixture of a laxative Liquor. The Juice of Rice also is of Service, and the Medicine call'd *Diacodion* dissolved in Mulsum, and oftentimes in Substance; if the Fauces are anointed with it. Of the same Virtue are Diamoron, Diaporon, Diatymrrhion, the Troches of Andron; and the Sphragis of Polyidas, Anthera with Honey, and all Medicines prepared of Quinces or Pomgranates, Roses, the Rinds of Pomgranates, Galls, the Juice of unripe Grapes, Box-thorn, and the like.

But when the Disease is form'd, we are to do as before advised; besides which, if we find the Humours, which are condensed by the Heat, become glutinous; and appear outwardly, we deterge them with a hot Sponge; but if they lie deep, the Dipyrene [an Instrument for cleansing the Throat] must be introduced, with its Head wrapp'd in fine soft Wool; for the thick and viscous Humours, if suffer'd to remain, would accelerate Suffocation. If they lie so deep as to be out of Sight, they are to be attenuated by taking Mulsum; but boil'd beforehand, which makes it of greater Efficacy; some give Pisan mix'd with a little Salt.

All Medicines endued with a sensibly biting Quality are to be avoided; for, by irritating the Tumor, they would incrassate the Humours flowing to the Part.

If the Belly does not perform its Office, Clysters are to be used of warm Water and Oil, sometimes with, and sometimes without Honey; for the Vapour which ascends from the Liquor relaxes the tumid Parts about the Neck, and an exonerated Belly causes a free Respiration, not only under a Synanche, but even in Health; whereas an undue Retention of the Fæces burdens Nature, and, by a sort of Compression, is the Cause of very acrimonious Exhalations in the Body, by which Tumors are irritated, and the Head fill'd.

After a Clyster, Cupping and Scarifying will be proper in the Time of Remission; but if there be a Continuation, and the Disease proceeds without remitting, they are best applied, as well as other *districte* Remedies, (which take away Stricture) at the Dawn of Day. Cupping Glasses then are to be applied to the Fore-part of the Neck, or to the Throat, which Places were by the *Greeks* call'd *Anthereon*; also to the hinder Part of the Neck, and those large Nerves which they call *Tenontes*, and one to each Part under the Pits of the Ears, [*sub Aurium Lacunis*] in which Places the Position of the Fauces is plainly to be observed.

But if the Disease does not abate, and the Patient is too delicate for this Method of Cure, and fearful of being touch'd with the Point of a Lancet, we are obliged to apply Leeches, which the *Greeks* call *βελωναι*, to the Places we have mention'd; and if, after they are fallen off, the Evacuation they make is not sufficient, we take care to apply Cupping Glasses to the Punctures they have inflicted, in order to draw off as much as shall be requisite; besides, we use Fomentations of Oil, with proper Cataplasms and Vaporations. After these we ply the Pa-

tient with Epithems infused in hot Oil, and vaporate with Sponges squeez'd out of the same Matter; for we disapprove the dry Vaporation by Sacks; as capable of Condensation. In an extraordinary Tumor we scarify also the Tongue, with the Fauces and Palate, by means of a slender and pretty long Bleeding-lancet [*Phlebotomus*]; for the tumid Parts are relax'd by drawing off Blood from the Places.

After Scarification we use mild Gargarisms, and if the Disease begins to decline, Unctions of the Fauces, or of the interior Parts, as with boil'd Honey, or with a Medicine prepar'd of a Decoction of the Wild-mallow, with the Seed of Fenugreek, Lin-seed, Amylum, Honey, and Oil; or with stoned Raisins bruised, with Bread; or a Decoction of Linseed; or with Honey, and Cretic Raisin-wine, in which have been boil'd the Root of the Wild-mallow; or the Flour of Alica and Lin-seed.

If the Distemper continues without Abatement, we use Scarification a second or a third time, not only of the Throat, or Parts adjacent to the Tonsils, which the *Greeks* call *Anthereon*, and the great Nerves of the Neck call'd *Tenontes*, but to the hinder Part of the Head, the Scapula, and Interscapula, which the *Greeks* call *Metaphrenon*, and to the Breast: For tho' the Parts administering to Deglutition be most eminently affected, other Places of the Body suffer by Consent.

Many there are, who, not understanding the Method of subduing the Disease, but only labouring to divert the peccant Matter, and placing the Causes in the Fluids, advise above all things to apply Cupping Glasses to the Groin, then to the Region of the Diaphragm, then upon the Breasts, with Scarification; after this they apply the same to the Throat, the Neck, and the Parts thereto belonging.

If the Disease be evidently on the Decline, we should diet the Patient upon Pulse [a Sort of Panada] and poach'd Eggs, or Hog's Brain, utterly rejecting all acrimonious, high-season'd, heating, vinous, rough or dry Food, or whatever may irritate the Parts appropriated to Deglutition; for the Disorder easily returns on a very slight Occasion. We should also apply Cerecloths, prepar'd with sweet Oil, or *Oleum Cyprinum*, or *Gleucinum*, or *Irinum*, or *Malabathrinum*, [see the Composition of these Oils under their proper Adjectives] with the Root of Marsh-mallow. Then let the Patient bathe, and afterwards drink Wine. *Cælius, Acut. Morb. Lib. 3. Cap. 3.*

Among the Antients, *Hippocrates*, in his Treatise upon the *Cnidian Sentences* (on Regimen in acute Diseases) tells us, that Patients under a Synanche are to be bled in both Arms; but this must be avoided; for a coarctated Effusion of Blood may cause a Fainting, for which Reason we are restrain'd from taking away so much as would be sufficient for relaxing the Stricture.

He also directs the Opening of the sublingual Veins, which is not only useless, but hurtful; for the Matter, flowing in great Abundance to the Passage, is there stopp'd for want of sufficient Vent, and fills the Parts; which by this means are rather loaded by the Accession, than relieved by the Recess of Matter.

Again, a Fillet is to be bound about the Neck, in order to raise the Veins, and especially when the Synanche is without any manifest Tumor. Now a Fillet, as every body knows, must increase the Difficulty of Breathing: Besides, 'tis very certain, that the Flux of Blood from the foremention'd Veins is difficult to be stopp'd; for we can apply no Restrictant to the Place without Danger, and 'tis impossible to tie the Veins. 'Tis also natural for Tumors, after opening, to incline to an Hemorrhage.

The Author afore-mention'd uses warm Gargarisms and Vaporations, but with what Ingredients, he does not tell us: He then orders the Head to be shaved, and to be incessantly vaporated with Sponges, and then cover'd with a Cere-cloth and Wool. He allows his Patients, for Drink, warm Water and Mulsum; and, in the Decline of the Distemper, feeds them with Cremor, of what Kind, he does not specify; being ignorant also, that this Decline generally happens not till after five or six Days, and Abstinence from Food during that Time would be unreasonable. Vaporation ought indeed to be used, but not to the Head more than to the Neck, and the Beginning of the Throat, which the *Greeks* call *Anthereon*. After Vaporation, the Part must be kept warm; and in the Decline of the Disease a Cere-cloth is to be applied.

Moreover, as to Drink, he does not tell us in what Quantity, nor after what Manner, nor at what Times he allows it. Again, in his second Book of *Diseases*, he says, they ought to be relieved with Clysters, and purging Medicines, which the *Greeks* call *Cathartics*, by whose Acrimony the tumid Parts are the more exasperated.

As to bleeding in the Parts situated under the Breast, we judge it hurtful and needless; hurtful, because many Bodies must be divided, for 'tis not easy to come to the Sight of the Vein; and needless, because Blood may, with Ease, be taken from the Arm to very good Purpose; besides, the continued and joint Detraction of Matter by Clysters, Purgatives, and Phlebotomy, is plainly intolerable.

Again,

Again, if there be great Danger of Suffocation, says he, the Auliscus, which we may call the Pipe of a Clyster, must be intruded into the Fauces, and the Patient must receive by this the Fumes of burnt Hyssop, Sulphur, and Bitumen. Here is certainly a Mistake; for he tries to thrust a Pipe into the Fauces, when, through the Violence of the Disease, they can't admit the thinnest Air; and he thinks the Patients ought to be fill'd with an austere Smoke, by which sound Persons are often affected with a Suffocation.

In the last Place, he approves of Phlebotomy in both Arms, and in the sublingual Veins, which we have condemn'd, and proved to be of no Service; for it cannot be done without great Molestation to the Body.

Dioscles, in the Book which he wrote upon Diseases, their Causes, and Cures, says, That sanguine Persons should be blooded in both Arms; but those who do not abound with Blood should only be scarified. Then he would have the Patients continually anointed with Bull's Gall, mixed with *Herba Pedicularis*, which they call *Staveacre*, and Nitre, and *Cnidian* Grains, and have the same used for Gargarisms. He also prescribes Pepper to be held under the Tongue, the Neck to be vaporated with Sponges, and covered with Cere-cloths, ordering the Sick to be extenuated beyond all Reason.

As for our Part, we approve of Phlebotomy, not only for the Sanguine, but for all Persons affected with this Distemper, if their Strength permit, tho' not in both Arms, as we said before; nor are we for those extremely acrimonious Ointments and Gargarisms, nor do we use any such Inunctions in Tumors of the Eyes. For *Staveacre* will bring a Synanche upon a sound Person, by causing a sudden Inflammation of the Fauces. Nor is it agreeable with Medicine to reduce the Body, or its Habit, by Extenuation, but to relax the tumid Parts by proper Remissives.

Praxagoras, in his fourth Book of Cures, treats his Patients under a Synanche, with Clysters, and extenuates them by Sweating; sometimes he uses Phlebotomy, and administers a vomiting Medicine, which they call an *Emetic*. Then he cuts off the Uvula, or sometimes scarifies it, and heals up the Wounds with Tar. We are content, that others should give their Opinion of this Method; for excessive Vomiting, by Distention and Suffocation, has often been mortal, and a tumid Uvula wants Relaxation, not Amputation, as well as other Parts of the Body, which must, of Necessity, be relaxed by soft and gentle Means.

Erasistratus, in his second Book of Anatomics, in which he treats of Diseases in particular, prescribes, in some Cases of a Synanche, Vaporation with Sponges, Cataplasms, and a Medicine, which he called a *Catapotium*, [Pill] prepared of Castor, to be taken in Wine. But he did wrong in every Particular; for Wine is an Astringent, and every one knows, that Castor is of a very acrimonious Nature, and consequently both contrary to a Tumor. *Herophilus* has said nothing of a Synanche.

Asclepiades, in his second Book of swift, or acute, Diseases, says, That Persons under a Synanche are to be treated with Bleeding, Purging, Cataplasms, Collutions of the Mouth, Gargarisms, with attenuating and opening Inunctions, such as those prepared of Hyssop, Origanum, Thyme, Melilot, Wormwood, Decoction of Figs, Nitre, *Staveacre*, Centaury, *Elaeterium*, Bull's Gall, Resin of Cedar; to which he adds, the Use of Cupping and Scarification. He denies that Blood can be drawn by Cupping, either, says he, because this Disease is attended with a Fever, or else, by the Prevalency of the efficient Cause of the Tumor, the Heat of the Cupping-glass is over-powered, and diverted the contrary way, so as to be incapacitated for Detraction. Phlebotomy he advises to be exercised in the Forehead, in the Corners of the Eyes, in the sublingual Veins, or in the Arm. If the Disease be violent, the Fauces are to be scarify'd, that is, the Tonsils, and the Parts above the Uvula; for the principal Relief may be expected from an equal and even Incision in those Parts, which he called *Homoiotomy*. Besides, he approves the Opening of the *Aspera Arteria*, agreeing with the Antients, who call it *Laryngotomy*.

In this Method of his, the Mistakes are many and various; for whatever is of an acrimonious Nature, is an Incentive to the Humours; Phlebotomy also is hurtful to the affected Parts, as we shew'd before. Besides, he is guilty of an Absurdity, in directing the Use of Clysters, in order to divert and derive the Matter from the suffering Parts, because it is contrary to the Evacuation of those Parts, by cutting their Veins, to which he gives his Approbation. He was wrong in judging, that Scarification was to be used first, and then the Veins to be cut; for we are utterly against those local ways of draining the Part, while the Disease is in its confirm'd State. Besides, it argues a Physician of little Experience, to imagine that the peccant Matter cannot be drawn out by the Attraction of a Cupping-glass, because a Fever hinders; since we commonly see those Glasses produce their Effects without Impediment in Fevers, and to extract Matter; for Flesh, Blood and Spirit, are attracted and drawn together by their Force. It is to be confi-

dered also, that we do not use Cupping-glasses whilst the Fit is increasing, when the Matter is retired into the interior Parts.

Again, Scarification of the tumid Parts is very troublesome, and also dangerous; for it causes vehement Hemorrhages, and such as cannot be stopped. For if we endeavour to restrain them, speedy Suffocation will be the Consequence; and if we let them alone, a more speedy Death appears to be the Effect of this Effusion of Blood; or if the Patient escapes an Hemorrhage, he will not avoid a Cancer, or a Gangrene, from the Increase of the Tumor: For since we very often observe, that those Parts, which are perfectly sound, and in their natural State, do yet rise into a Tumor, when scarified, tho' treated with Astringents; we may very well expect, that Parts already swelled, if they should be scarified, and have not the Assistance of Astringents, should swell to a more vehement Degree. Certainly, in so considerable a Tumor, and so exasperated as not to bear the Touch of a Finger, and where the Patient can with much Difficulty suffer the Use of Cataplasms and Gargarisms, a deep Incision, or scarifying of the interior Parts, must necessarily be hurtful and dangerous.

As to opening the *Aspera Arteria*, which they call *Laryngotomy*, for the sake of Respiration, it is a mere Fable, and has no Authority of Antiquity, but is a rash and unreasonable Invention of *Asclepiades*. But to spend no more Time in confuting this Author, nor use too few Words in shewing our Abhorrence of so desperate an Operation, we shall answer him more at large, in a Treatise we design to write on auxiliary Remedies [*Adjutoria*]. *Themison*, who approves of *Asclepiades's* Method of curing acute Diseases, which are not attended with a Fever, incurs the same Censure with him.

Serapion, in his first Book of Cures, for a Synanche, prescribes Evacuation by Clysters, and Phlebotomy, and recommends the Use of acrimonious, irritating, and aperitive Cataplasms and Ointments, which they call *Anastomatics*. He is also very rigorous in injoining Abstinence.

This Physician also lies very open to Censure; for every body knows, that Tumors are irritated by acrimonious and attenuating things; and Phlebotomy, in Conjunction with Clysters, is acknowledged to be very troublesome and embarrassing. Again, in enumerating the Names of the *Materia Medica*, he omits those which enter the Composition of Auxiliary Remedies, tho' Meat and Drink are of no less Importance than any other Auxiliary Remedy whatsoever, when under a due Regimen.

Heraclides Tarentinus, in his third Book of Cures writing of Internals, tells us, that "To those who labour under a Redundancy of Blood, we first prescribe Evacuation by Clysters, and then use Phlebotomy, sometimes in the Arm, sometimes in the Sublingual Veins. We also make use of Vaporations to the Neck and Throat, with Sponges dipp'd in warm Water, which has had Rue and Penroyal boiled in it." Then he gives his Approbation of a Cataplasma, which we call *μυκή λυσις*, prepared of Mulsam, mixed with Ground-pine, *Illyrian* Orris, or Figs. At Night, he says, we must apply a Cere-cloth prepared of *Oleum Irinum*, with Rozin and Wax, of each an equal Weight.

In Cases where he suspects a Thickness of the Juices, he orders the Fauces to be anointed with Honey and Omphacium, and prescribes for a Gargarism, Mulsam, in which have been boiled Figs, or Origanum, and Pepper mixed with it. He also uses *Elaeterium* to the Weight of seven Drains, (an immoderate Dose) and gives to many five Grains, in Hydromel or Mulsam. After these he administers a Remedy, which he calls an *Emetic*, that is, of a vomiting Quality; and is thus prepared:

Take, says he, of Origanum and *Hercules's* Alheal, each a Handful, and put them in a copper Vessel; then take of what we call *Red Sumach* [*Rhus rubrum*] two Pounds, and twenty German Onions [*Cepula Germana*, perhaps Squills] the outer Rind peeled off; and shaking them together, put them into the Vessel. Pour upon them two Pints of *Chian*, *Rhodian*, or *Cnidian* Wine, and set them to stand in the Sun twenty Days before the Rising of the Dog-star, and twenty Days after. When the Liquor is consumed, put in another two Pints, and leave it to stand in the Sun; at last, put the Whole into a Mortar, and make it into Troches, the largest of a Dram and half, others of a Dram, and the least of half a Dram, to be given one at a time, with respect to the Strength of the Patient, in Mulsam, or like an Electuary in Honey; for it promotes Evacuation of the viscous Humour by Vomiting, and loosens the Belly. Some, he says, add *Melantheria*, and half a Dram of the Juice of *Thapsia*. If the Patient be difficult to vomit, a Feather dipp'd in old Oil, and intruded into the Fauces, will promote it. Sometimes he makes use of a Medicine prepared of Omphacium, *Elaeterium*, and *Diagrydium*, with black Hellebore and Salt, if

if the Patients are difficult to vomit; or he uses Elaterium with Vinegar and Rue, or Elaterium with Mustard and Salt.

As for those who fall into a Synanche, from taking Cold, he says, we forbid them Bleeding and Clysters, but in all other Cases we use them: He also orders his Patients to be supported or dieted with nothing but Water, or Mulsium.

But all these Experiments, or Essays, seem to be nothing but ready Expedients to answer some dubious Conjectures. For an Empiric, who has nothing in View but *Observation*, which they call *rhénos*, thinks Phlebotomy proper only for the Sanguine, not considering, that all Synanchical Patients, if Strength will permit, ought to be bled, on account of the Vehemence of the Stricture. In short, when he forbids Bleeding under a Synanche, occasioned by Cold, he deserves to be laughed at, for overlooking the present Case, and inquiring into the Causes.

The Cataplasms, which he advises, are also hurtful, and so is his Vaporation, on account of the Acrimony of the Ingredients, which are of a fiery Nature. Also his vomiting Medicines, which he calls *Emetics*, cause Swellings where none were before. For the ferulaceous Plant, which they call *Thapsia*, is sufficient to burn the Parts to which it is applied, and to inflame those which are found and in their natural State. The same Judgment is to be form'd of those which are composed of Onion, Omphacium, and Red Sumach, and such-like; old Oil also has an acrimonious Quality. What he calls *Cathartics*, which we name *Purgatives*, to be administered Clysterwise, cause a great Disturbance in all Humours, and Molestation to the Stomach, and other nervous Parts. It also argues Negligence to prescribe no Time when the Patient should take his Food.

There are some Physicians also of our own Sect (*the Methodic*) who, being still addicted to the Errors of the Antients, have given their Approbation to unusual and violent Remedies; sometimes advising human Urine or Ordure, with Honey, Myrrh, and Rue; sometimes Centaury, Wormwood, Southernwood, Thyme, Birthwort, Tymbræ, which we call *Satureia*, [Savory] and Mustard; sometimes one shall prescribe the *Pythagoric* and *Isyperian* Troche, so called from their Inventor; another advises what they call the *Sphragis* of *Polyidas*, and Constrictives, with Unctions, and Cerates of the Ointments of Sampsuchus and Rosemary; all which Medicines, through their excessive Heat, with their drying and drawing Qualities, are provocative of a Tumor; whereas the Disease is vehement and precipitate of itself, and ought to be treated with gentle and simple Medicines. *Caelius Aurelianus. Lib. 3. Cap. 4.*

For the Quinsy,

Take of Laser of *Cyrene*, if it can be procured, if not, take the *Syrian* Laser, and diluting it with Water, anoint the Fauces therewith by means of a Feather, laying it on pretty thick; or use Euphorbium diluted in the same manner.

Take of Ox-gall, Salt, Vinegar, Honey, old Oil, equal Quantities; mix them well together, and therewith anoint the Fauces for a good while together, using a Feather for that Purpose: Or,

Take Fennel-flower fry'd, two Drams five Grains; Pellitory of *Spain*, one Dram two Grains and an half; Sagapenum, thirty-one Grains; powder them together, and make them into a Mass with Honey.

A very good Medicine is composed of

Ox-gall, two Drams five Grains; Elaterium, one Dram two Grains and an half; the Seed of Rosemary, one Dram two Grains and an half; powder them, and make them up with Honey. Anoint the Fauces with this diluted in warm Water, and compel the Patient to swallow as much of it as possible; for it loosens the Belly, and in so doing gives great Relief. *Scribonius Largus, Cap. 16.*

Of human Dung I have the following Experiment:

A certain Person was frequently afflicted with Phlegmons about his Throat, in such a deplorable manner, that he was in Danger of Suffocation, and to prevent it was obliged to bleed. He happened to meet with a Person, who promised him a Remedy, and desir'd, that whenever a Phlegmon arose again in any Part of his Throat, he might be sent for before Bleeding. Being called, he anointed the Part with his Medicine, and cured the Man immediately. He had the same Success upon others, who laboured under the same Disorder, till, at length, the Gentleman, who was in continual Danger of being suffocated, and was besides rich, and of a liberal Disposition, desired to purchase the Receipt. When they had agreed on the Price, the Seller says to the other, "This Medicine has its Virtue from

"Antipathy, which Antipathy consists in that the Person who is cured, should be ignorant of its Composition." He therefore prevailed with him to substitute another in his stead, on whose Fidelity he could depend, and to whom the Secret might be communicated, upon his taking an Oath to discover it to no Person while the Author lived. After the Author's Death, the Person entrusted cured not only the Purchaser, but others, with this Remedy, and freely and heartily offered to communicate the same to me, tho' I never asked him. It was the Dung of a Boy, mixed with *Attic* Honey, dry'd and pulverized. The Boy, according to the Author's Prescription, lived on Lupines, such as we usually eat with Bread that is well baked, and seasoned with a moderate Quantity of Salt and Leaven. The Boy's Drink was old Wine; but both that and the Lupines were in moderate Proportions, that he might be able to make a perfect Concoction. When the Boy had been thus dieted for one Day, he did not take his Dung the next Day, but still fed him in the same manner, and the third Day he saved his Dung. He preferred Lupines, avoiding other Food because of the Stench; but he who told me, said, that he had often, for Experiment sake, given the Flesh of Fowls and Partridges well boiled, and served in Water, or small Broth, and that the Medicine operated never the worse. *Galen. de Simplic. Medic. Facul. Lib. 10.*

A Stoppage from a Quinsy is to be looked upon as a dangerous Case, and so much the more if the Inflammation be seated inwardly, so as that no outward Sign appears, and especially if both the Tonsils and the Uvula are inflamed. In this Circumstance, immediate Recourse is to be had to Phlebotomy; but if the Patient be unfit for it, he is to be scarify'd upon the Shin-bones, and suffered to bleed plentifully, acrimonious Clysters are to be used, Abstinence is to be enjoined, and drawing Medicines are to be applied to the Neck; for if the Matter lodged in those Parts can be attracted outwardly, so as that a Tumor arises, there is good Hope of saving the Patient. The Cremor of *Ptisan*, mixed with thin Honey, is to be used for a Gargle, or a Decoction of dry'd Figs, or of Hyssop, Origanum, and Horehound, by which means the gross and glutinous Humours, fixed in those Parts, are digested. *Orribas. de Loc. Affect. curat. Lib. 4. Cap. 71.*

Archigenes says, that the Cause of a secret or inward Quinsy, in some, is to be ascribed to the Nerves which serve the Stomach: These being disordered, occasion an Inflammation in the subjacent Parts, which are the Heart and Lungs, the Principles of Respiration, from whence it is communicated to the Arteries called *Carotides*, and the Parts adjacent. The Reason why the Patients in this Case are not apoplectic, is, that the Cause of this Disease is only an Intemperies, without a Compression of the Parts. Medicines of an emetic Quality, says the same Physician, are proper in this Quinsy, such as Elaterium, and Squama *Aëris* with Honey, anointed upon the Part. "I relieve many, says he, under an inward Quinsy, with a Gargle of Mustard-seed, and soon after carry them to the Bath; by which means I have saved many, and restored them to Health by a Distribution [of the Matter] over the whole Body." *Arctæus* advises [This is not found in the Works of Arctæus, which are extant] to apply a Cupping-glass first below the Navel, and soon after to the Sides, Back, and Scapulae, still removing it from place to place, and setting it on in such a manner as to draw from the upper Parts downwards. If the Patient be much oppressed, bruise Mustard-seed in Water, and, spreading it upon an old Rag, apply it to the Breast. Let a Linctus also be prepared of Mustard-seed, Nitre, Hyssop, roasted Squills, Sulphur Vivum, of each an equal Quantity; to be well mixed with a small Spoonful of Honey, and so given. So far *Arctæus*. In Phlebotomy, the Orifice of the Vein must not be made so narrow, that the Blood being in a manner strained, the thicker Part of it, which is the Cause of the Affection, might be left behind. If any thing forbids opening of a Vein, Clysters are to be given of the Decoction of Centaury, Wormwood, Calamint, and Birthwort, mixed with Honey, and a good deal of Nitre. The Patient is also to be purged with Phlegmagogues, of which Elaterium seems most proper sometimes in a Quinsy; but it ought never to be taken but in Whey, with *Carduus Benedictus* boiled in it. Pills of Aloes and Coloquintida are also good, if the Patient can swallow them. It would be proper also to infuse three Drams of Hiera *Archigenis*, in one of the before-mentioned Decoctions, for a Clyster, when the Belly has been already cleansed by a preparatory Clyster before. After general Evacuations, Cupping-glasses are to be applied; and if there be any Tumor about the Jaws, or under the Chin, they are to be affixed on the same, and the Place is to be scarify'd, a good deal of Blood extracted, and the Incisions sprinkled and rubbed with Salt. If no Tumor appear outwardly, as in the occult Quinsy, the Cupping-glass is to be apply'd under the Tendon of the Neck, near the first Vertebra, and often removed, with a constant Attraction, by which means the Dislocation and Luxation of the Vertebrae are well prevented. After some Rest, from the Remedies above-mentioned, Cataplasms are to be used both on the same and

the next Day. But our principal Dependence for the following Days is, on Litus and Gargles; therefore if the Distemper at first be very inflammatory, we begin with mild Astringents, such as a Decoction of Roses, Lentils, and Dates, an Infusion of Rose-leaves in Hydromel, a Decoction of Sumach in Hydromel, or a Decoction of Sebestens. If there happen an Excoriation of the Parts, the Cremor of Bread is to be given warm, or the Mouth is to be washed with a Decoction of Bran, or Milk alone. "I, says *Archigenes*, am always provided " with a dry Medicine, which consists of eight Drams of common Sumach, four Drams of Rose-leaves, and two Drams " each of Costus and Saffron; these I put in Hydromel, and " use as a Gargle, with which I have very easily cured Inflammations and Ulcerations of the Tonsils, which threatened " very bad Consequences." The milder Litus are very agreeable to the inflamed Parts, such as the Cremor of common Sumach, boiled in Hydromel to a solid Consistence; but the Sumach is first to be macerated, till the Hydromel be deeply coloured, and taste strongly of the same. The Juice of a whole Pomgranate, Rind and all, bruised, and mixed with a third of its Quantity in Honey, and the affected Parts anointed with it, is a good Medicine.

If the Disease yields to none of these Remedies, but the Conflux of Humours increases, the Veins under the Tongue, or those in the Forehead, or about the great Canthi, [inner Corners of the Eye] are to be cut, the Neck is to be wrapp'd in Cloths moistened with warm Oil, which must be often renewed; or apply a Cerate, prepared with Oleum Cyprinum, or Oleum Gleucinum, or Musteum [Oil of Cyperus, and Oil prepared of Must, that is, Wine unfermented: See the Preparation of these Oils under the Words CYPRINUM and GLEUCINUM]. If the Disease continue long, you must expect an Abscess, in which Case it will be very convenient to wash the Mouth with a Decoction of Figs, which will be rendered much more effectual by an Addition of Hyssop. For Ulcerations, Saffron in Hydromel, and a Decoction of Liquorice, are proper Medicines. In the State of the Disease, there is nothing better than to wash the Mouth with the Juice of Ptisan or Alica, which frees the Patient from many Inconveniencies, and prevents an Abscess.

A Fomentation for the Quinsey, to be received at the Mouth, is as follows:

Take Origanum, Hyssop, Savory, and Fennel-seed, with a good Quantity of Vinegar and Nitre; beat them in a Pot, that is carefully stopped, with only a Hole in the Middle of the Cover, to which, and the Patient's Mouth, must be fitted a hollow Cane, through which the Vapour may be transmitted. If the Cane grow too hot for the Lips, let the Patient hold in his Mouth an empty Egg, perforated at both Extremities, for the Cane to pass into. The Fomentation will be the milder, if instead of Vinegar you put Posca or Water. Sometimes sharper and more severe Remedies are required to make the Flesh rise, and to remove the inward and deeply-seated Straightness and Compression, under which the Patient labours; for the Disease often grows so desperate, that it has been thought necessary to use things odious and abominable, such as human Dung, which, it is certain, has been prescribed for a Litus, with the desired Success; some use it fresh, others dry'd and powder'd, mixing it with Nard or Myrrh, to take off the Stench.

From acrimonious and lacerating Medicines, we are to pass to those of a milder Nature, such as *Andron's* Troches, and the like. Emetics are beneficial, especially to those who have a Sense of Weight about the Belly. *Archigenes's* Remedy, which I use for an inward Quinsey, and is admirable also in an Asthma, consists of

Four or five Grains of Elaterium, twenty-seven Grains of Spuma Nitri, and a Dram of Mustard-seed; bruise them, and make them up in Water.

Elaterium bruised with Oil or Honey, and rubbed upon the Parts as deep as it will go, excites Vomiting, and much more effectually, if it be mixed with Spuma Nitri. The same Effect has burnt Copper, bruised with Oil of Cyperus, anointed upon the Parts. Ox-gall, so used, is very good for the same Purpose, and so is Nitre drank in Oxymel, the Juice of Centaury with Honey, and Millipedes made into a Litus with Honey. Some have given a Spoonful of the bruised Seed of Nasturtium in Hydromel, and soon after the Patients have vomited up a thick and tenacious sort of Phlegm, by which they have been greatly relieved.

Take a good Quantity of the Dung of a Cock, that is of the Colour of Cerufs, dry it, and keep it, and when a Case requires, give a Spoonful of it diluted in Water or Hydromel. It cures those who are given over; but if the

Patient cannot drink it, the Parts are to be rubbed with it as deep as you can make it go: Or,

Take Centaury, Nitre, common Salt, of each eight Drams; bruise them, and lay them aside dry; when Occasion calls, mix them with Honey, and lay it on with a Feather, or as you think fit: You may confide in the Use of it; for it is an approved Medicine: Or, bruise Wormwood, and, straining the Juice, add to it some bruised Nitre, and make it into a Litus with Honey: Or, make a Litus of Elaterium, Ox-gall, and Honey.

The *Diabesafa*, in the Beginning of the Distemper, is to be taken in a moderately astringent Decoction, such as those we have prescribed: When the Disease is arrived near its Height, give it in Juice of Ptisan; in its Remission or Decline, it must be taken in Honey, Hydromel, or Mulfum; and for an inveterate, and in a manner hardened Inflammation, it is given in Oxymel.

Philagrius advises us after the aforesaid Evacuations of the whole Body, Cupping, and opening the Veins under the Tongue, to mix other things with the *Diabesafa*, partly such as will restrain the Influx of the Matter, and partly such as will discuss what is settled in the Parts: For Example;

Take of *Diabesafa*, Galls, called *Omphacitides*, White Dog's-dung, human Dung dry'd, each eight Drams; but the Dogs must be fed with nothing but Bones for two Days before.

Marcian's Emetic for inward and outward Quinseys. "Demand your Reward, says he, before you give it" [in Confidence of a Cure].

Take burnt Copper, Vitriol, each twelve Drams; Myrrh, Elaterium, Spuma Nitri, each one Dram; Ox-gall, four Drams. Make them up with Honey, and with a Feather anoint the Parts affected as far as you can reach.

Archigenes advises to take human Dung, qualify'd as before, and dry it, then burn it in an old Rag, and afterwards give it to be drank in Hydromel; it cures those that are at the Point of Suffocation.

Antonius Musa prescribes dry'd Dog's-dung, such as aforesaid, bruised and sifted, to be mixed with Honey, and anointed on the Parts so deeply, as that it may be swallowed: "For, says *Galen*, I know no better Remedy for the Quinsey, or great " Inflammations of the Tonsils, or dangerous Suffocations from " the Glandules and Tubercles of the Throat." The same is very effectual, when mixed with Oxymel and Tar, and the Parts anointed therewith.

An excellent Remedy for the Quinsey is prepared of burnt Swallows, in manner following:

Take of burnt Swallows, eight Drams; Saffron, two Drams; Spikenard, a Dram; make them up with Honey, and use it while the Distemper is strong upon the Patient. The Swallows are thus burnt: Take the young Swallows after they are feathered, and put them alive into an earthen Pot with a convenient Quantity of Salt; and, stopping the Pot close, heap burning Coals upon it, till its Contents are reduced to Powder and Ashes, which levigate, and so use it.

Another Preparation of Swallows for the Quinsey:

Take young Swallows burnt, in Number eleven; Juice of green Myrtle, a Pint and an half; Myrtle, twenty-seven Grains; Honey, a quarter of a Pint. Burn the young Swallows, and pulverize them, and then mix the other Ingredients.

A Medicine, whose Efficacy is proved by Experience.

Take of Malabathrum, Costus, Cloves, Pepper, each an Ounce; Sandarach, four Ounces; mix them with clarified Honey for a Litus: Or,

Take Snails which have no Shells, such as are found in Gardens, and burn them in a Pot to Ashes, which mix with Honey, and so use them; it gives present Relief.

In like manner the Ashes of burnt Crabs are to be used with Honey, and the Decoction of Crabs is good to wash the Mouth. I use to bruise a Crab in half a Pint of Water, and, straining off the Liquor, give it warm for a Gargle: It draws off abundance of gross Humours, by which the Patient finds immediate Relief.

Dry the Lesser Centaury, then burn it, and, with the Ashes mixed with Honey, make a Litus: Or,

Take

Take of the burnt Jaw-bone of a young Hog, an Ounce ; of Album Græcum, four Drams ; Rind of Pomgranates, Galls, each an Ounce ; Costus, four Drams ; Pepper roasted, six Scruples : Mix them with Honey.

By way of Caution, we ought to be very solicitous and careful, when the Disease seems to remit, that the Matter, which was attracted from the innermost Parts of the Body to the Fauces, does not, by an unexpected Metastasis, fall down upon the Lungs, and suddenly carry off the Patient. *Actius, Tetrab. 2. Serm. 4. Cap. 47.*

From TRALLIAN.

The most antient Physicians usually called every Kind of Inflammation about the Throat, whether inward or outward, a *Synanche* ; but their Successors have distinguish'd this Inflammation into four Kinds : Thus an internal Inflammation of the Muscles of the upper Part they named *Cynanche*, an external one *Paracynanche* ; in like manner they called an internal Inflammation of the Pharynx, or Fauces, a *Synanche* ; and an external Inflammation of the same Sort *Parasynanche*. [To these Species *P. Egineta* adds a fifth, which, tho' rarely, affects Children, and is owing to a Luxation of the Vertebrae of the Neck ; this, he says, is incurable, *Lib. 3. Cap. 27.*]

This Distinction being thus established, we are next to direct to a proper Cure for each of these Kinds. In general then we ought to know, that neither repellent nor discutient Remedies are to be used alone, but in Conjunction ; and, that with regard to Time, sometimes Repellents, at other times Discutients, are to be prescribed. In the Beginning of the Disorder, and while the Matter seems to be in a Flux, Repellents are to be chosen ; in the State of the Disease, Discutients are generally proper ; and in its Decline, stronger Discussives. They who use only a relaxing Method, either inwardly or outwardly, do a great deal of Mischief, by inducing a very acute Suffocation, or increasing the Inflammation, to the utmost Danger of the Patient. And we are not only to consider the Times, but the Nature of the Remedies. For tender and delicate Constitutions, such as Eunuchs, Boys, and Women, mild and gentle Remedies are most convenient ; but to hardy and robust Bodies, stronger and rougher Medicines are best adapted. For as strong and hardy Complexions in Health can bear Refrigerants without being sick, so, when disorder'd, they require more powerful Remedies to restore them to their natural State ; but Persons of a softer Habit experience the contrary, for they bear well enough with weak and gentle, but are hurt by strong Medicines. Wherefore we must carefully weigh with ourselves, and consider when it may be proper to increase or remit the Force of any Medicine, so as that it may be contrary to the Disease, but at the same time familiar and friendly to the Patient. We shall begin then with the most simple and weak Remedies, and proceed to the stronger, and direct when they are to be used in their pure or simple State, and when mixed.

One of the most simple Medicines in this Case is prepared of Honey, and the Juice of Mulberries, and is good in the Beginning, or for any moderate Degree, of all inflammatory Disorders of the Tonsils, Uvula, Fauces, or any of the Parts about the Throat, especially in Bodies of a soft and white Flesh. This Medicine, which we call *Diamoron*, when compounded, is good, not only in the Beginning, but in the State of the Inflammation. It is render'd a more powerful Discussive, by being mixed with Myrrh, as most indeed prepare it in the Beginning of the Distemper ; but it would be better suited to its State, which requires both Digestives and Discussives ; and if at this Time you add a little of the Antidote called *Diabesafa*, the Remedy will be much more effectual.

When the Heat of the Inflammation is asswaged, but a sort of Hardness remains, it will be proper to add a little Sulphur and Nitre ; and if there be any thing of a gross and viscous Substance deeply seated, six Drams of Nitre, and one of Sulphur, will be sufficient. But if the Patient cannot bear so penetrating a Medicine, but labours under an Imbecillity of Stomach, which he thinks is subverted by this Topic, the Nitre and Sulphur must be left out, and we must be contented with the Addition only of the *Diabesafa*, or *Penyroyal*, and *Origanum*, or *Calamint*, or *Hyssop*, or *Pepper* ; but to preserve the Fauces from being exasperated, there must be a Mixture of the Juice of Liquorice, which will render the Medicine in all respects innocent, and not the less effectual.

The Composition of the *Diamoron* for the Quinsy is as follows :

Take of the Juice of Mulberries, three Pints ; of Myrrh, Alum, Omphacium, each two Drams ; of Honey, half a Pound : Boil the Juice of the Mulberries for an Hour, and then let it cool, and thicken by Degrees ; after this add the Honey to it, and boil them again to the Consumption of Two-thirds ; and when they are cool, mix with them the dry Ingredients

The incomparable *Galen* prepared this Medicine after the following manner :

Take of Honey, a Pound ; of the Juice of Mulberries, two Pints and an half ; of Saffron, Myrrh, Omphacium, each a Dram ; of austere Wine, two Pints and an half. If Omphacium cannot be had, substitute in its room the Juice of Sumach. Let this be first boiled to a frgmentitious Consistence, and then add the Honey ; after they have boiled for some time together, remove the Vessel off the Fire ; and, putting in the dry Ingredients, boil them well together, till they are thoroughly incorporated.

The prepared Juice of the wild Mulberries is an excellent Medicine, and so is the Juice of Quinces ; and, for want of these, the Juice of wild Pears, Medlars, Damask Prunes, Services, and wild Plums. These astringent Fruits plainly require to be mixed with a good Quantity of Honey, sometimes double, sometimes triple their Weight ; and all these Medicines are friendly to the Stomach, and not at all dangerous, and may properly be taken in a moderate Degree of Inflammation. These Juices may be prepared with the same Ingredients as the Juice of the Mulberries.

The Medicine prepared of the Juice of Walnuts is somewhat more effectual, as well as what is prepared of Blackberries, Pomgranates, and Quinces, which is a Strengtheners and Stomachic.

The Medicine of Walnuts, called *Diacaryon*, is thus prepared :

Take the external Rind of Walnuts, while they are in their most flourishing State, and pound it in a Mortar ; strain the Juice through a linen Cloth, and after boiling it, mix it with a moderate Quantity of Honey, as before in the *Diamoron*, and boil it again to the Consistence of Honey. In this State, without any further Mixture, it is proper for Women and Children to take, especially in the Beginning of the Distemper ; if you add Myrrh, it may be used when the Disease is arriv'd at its Height ; and with a further Addition of Sulphur and Nitre, in the Decline of the same, and where the Aspera Arteria, and its Top, are affected with a Hardness and Constriction, as we said before.

Another excellent and very effectual Medicine, which has saved many Lives, is thus prepared :

Take of Orris, Balaustines, Pepper, Saffron, each an Ounce ; Syrian Sumach, two Ounces ; Wine, three Pints ; Must, boiled to the Consumption of a third Part, a Pint ; Honey, a Pound ; Alum, an Ounce. This Remedy may be used at any time, especially where Heating and Attenuation of some stubborn Hardness are required.

The Preparation of the *Diabesafa*, for malignant and desperate Inflammations : It is called also *Diabarmala*, from *Har-mala*, wild Rue :

Take of Anise, Seeds of Smallage, Bishop's-weed, the Flowers of common Rushes, Alum, Illyrian Orris, wild Rue, each one Ounce ; of Cassia, Crocomagma, [Dregs of the expressed Ointment of Saffron] dry'd Roses, each two Ounces ; Ivy, fresh Ashes of young Swallows burnt, each three Ounces ; Spikenard, Amomum, each four Ounces ; Saffron, an Ounce and an half ; of the Galls called Omphacitides, [the small, tuberous, solid sort of Galls, *Dioscorides, L. 1. C. 146.*] eight in Number : Pulverize them, and make them up with Honey.

Actius ascribes this Composition to *Andromachus*, and quotes him, as saying, that he used it in desperate Quinsies, and that it was also an excellent Remedy for Pains of the Stomach, and the Gripping of the Guts. His Receipt is somewhat different from *Trallian's*, and here follows :

Take Seeds of Anise, Seeds of Smallage, Flowers of the *Juncus Odoratus*, Bishop's-weed, plumous Alum, Illyrian Orris, the Seeds of wild Rue, Cinnamon, Troglodytic Myrrh, long Birthwort, Cassia, Crocomagma, dry'd Roses, of each one Ounce ; Costus, Ashes of Swallows newly burnt, each three Ounces ; Saffron, an Ounce and an half ; Spikenard, Amomum, each four Drams ; Galls called Omphacitides, eight in Number : Make them up with Honey. The Dose is the Quantity of a Bean. *Actius, Tetr. 2. Serm. 4. Cap. 47.*

This Medicine may be used alone, if the Distemper be moderate ; and its Strength may be abated, by mixing with it Amylum, or dry'd Roses, or Earth of Crete or Lemnos, or Barley-

Barley-meal, or any other thing of that Nature, according to Discretion. If a more powerful Remedy be required, its Strength may be increased by an Addition of Nitre, Elaterium, (so they call the Juice of the wild Cowcumber) and Swallow's Dung, burnt or not burnt. The Medicine may also be improved by a Mixture of the Excrements of Dogs, and much more by an Addition of human Ordure, burnt or not burnt; but the burnt is the weakest. But Regard is to be had to the Time when we make these Additions: Thus, for Instance, we mix Sal Ammoniac, when not only Repellents, but Discutients, are required; and if we add the Root of Bryony, we shall make it a far more powerfully discussive Medicine; for Remedies of this Nature are manifestly wanted, where there is no Influx of Humours, but the Inflammation is hard and scirrhus. Many have mixed Mustard-seed, prepared as they continually eat it for Sauce, with Oxymel, and so give it warm for a Gargle; and then afterwards, by anointing the Parts with Diabesasa, have discussed a scirrhus Inflammation in a surprising manner. For in every Conflux of Humours we must restrain their Course; but when they are settled on a Part, we are to use Discussives, for fear the Passage of the Breath should be obstructed, and so the Patient be strangled as with a Cord.

You may anoint the Parts to very good Purpose, if to the Diabesasa you add but three things, which have saved many without the Help of Bleeding and Purging, and they are Dogs and human Excrements, and Elaterium; but if some abominable human Excrements, the other two will suffice, for they do well with Honey; and where Inunction cannot be performed, may be blown through a Quill, with the same Effect, on the Part. That the Dung may not have a foetid Smell, the Dogs are to feed on nothing but Bones for three Days before. To correct the Factor of the human Ordure, let a Boy eat nothing but boiled Lupines, for three Days before, that his Stools may be well concocted and coherent; these Lupines are usually eaten in small Quantities, with well-baked Bread [*ελιβανίτης ἄρτος*]. The Boy's two first Stools are to be thrown away, and the third preserved; and after 'tis dry'd, to be mixed with Honey. For the Use of this we have the Authority of the very wise *Galen*, and *Philagrius*, and many others of the Antients, corroborated by our own Experience. But the Moderns reject human Excrements as an Abomination, and only make use of those of Dogs, as having nothing of a foetid Smell, and yet are effectual to the same Purpose. But if any be averse also to the Use of this, they may keep to the Lituses prepared of the Swallows, [*Diachelidonium*, the Preparation of which see from *Actius*] and what has Sumach for an Ingredient, which are admirable Remedies; the former of these may be mixed with the Preparation of the Juice of Walnuts. Observe, that the Diabesasa is not only good in Affections of the Throat, but in many others; for it cures Disorders of the Stomach and Colon, and is an excellent Stomachic and Anti-dysenteric, when mixed with Album Græcum, or Dog's Dung, which itself cures the Dysentery, if it be mixed with Milk in which heated Sea-pebbles have been quenched; and is no less effectual in Inflammations of the Fauces, Tonsils, and Uvula, if used with the Juices of austere Grapes, the Rind of Walnuts, Cornelian Cherries, Acorns of the Ilex, or Services; it is also properly mixed with *Ægyptia* and *Anthera*. In the Beginning and Increase of Inflammations Astringents are plainly indicated; but when they are come to their full State, and ought to be dissipated, Discutients are required. Dog's Dung has also many other Virtues; for it cures the Apathæ, and old Ulcers which are hard to cicatrize.

If the aforesaid Remedies are not to be had, we must make use of such as follow, which are both good and easy to be prepared:

Take the Seed of Radish, pulverized in Oxymel, for a Gargle: It has a very good Effect by generating Plenty of Humidity.

Another Gargle for the Quinsy, which I use, as did my Father *Stephen* before me, is thus prepared:

Take of *Egyptian Thorn*, a Dram; *Orris*, and *Liquorice*, each half a Dram; Bran of Bread-corn, an Handful; dry'd *Roses*, a small Quantity; *Dates*, five or seven: Boil them in Wine boil'd to a Consumption of a Third, or Water, and let the Patient take the Decoction, with a very little Honey, for a Gargle, to be renew'd every Hour.

A very good Medicine in the State of the Distemper, is the following:

Take of burnt and washed Brals, a Dram; of red Nitre, two Drams: Give them a moderate Boiling in Honey, in a copper Vessel, and so use them. Wormwood also, and Honey, give great Relief in this Case.

Another for inveterate Quinsies, that are void of Ulcerations:

Take of Euphorbium, two Drams; of Honey, a Quarter of a Pint: Boil the Honey well, and add the Euphorbium: Make them into Pills, and give two of them in the White of an Egg. They gently loosen the Belly, and prevent a Suffocation. This is a very effectual Medicine against Inflammations, proceeding from gross and viscous Humours, which are not attended with Ulcerations.

As to Bleeding in the Quinsy, it ought to be used in the first place, but not all at once; for particular Evacuations are fittest to draw off the Cause of the Disease from the affected Part; therefore Phlebotomy is to be administer'd three or four times, only taking care to stop the Blood before the Patient faints; for nothing is more improper and dangerous in a Quinsy than Fainting, which is often the Cause of a Confluence of all the Humours inwards. If there be no Relaxation after Bleeding, but the Passages of Food and Air [of the Gullet and *Aspera Arteria*] are still obstructed, we are not to scruple cutting the sublingual Veins, nor defer it till To-morrow, but do it the same Day. I myself, in a very urgent Case, have opened a Vein very early in the Morning, cut the Sublinguals at Day-break, and in the Evening administer'd a Purge of Scammony in Cremor of Ptisan, and with all these Means had much Difficulty to relax the Strangulation which the Inflammation had caused. To another, after opening the Vein of the Cubit in both Arms, I administer'd the same Day ten Grains of the newly expressed Juice of Spurge; while it was yet in its liquid State, and before Inspissation. This is the Method to be used with Persons who are of a robust Habit, in the Vigour of their Age, and vehemently affected with the Distemper, which gives no Respite, but requires immediate Help. I have also cut the Jugular Veins when I could not find the Sublinguals, and by that means very much relieved the Patient. For a Woman I have open'd the Veins at the Ankles, when I understood she wanted her monthly Purgations, which was the Occasion of the Disease. Hence she received a double Benefit, the Restoration of the Menfes to their usual Course, and Relief from the Distemper. The same is to be done for Men, if subject to the Hæmorrhoids.

Cupping is advisable in these Disorders, but it must be used after the Influx of the Matter has ceased; for while it flows to the Part, Restrictants and Repellents are more proper than Drawers. But when the Influx is over, and the Matter wants to be discussed, Cupping and Fomentations are convenient, and if needful, a Cataplasm is to be apply'd; for when the whole Body is free from Recrements of ill Humours, there is no Fear of a new Conflux to the affected Parts; and it is certain, that Cupping-glasses have the Virtue of attracting the peccant Matter, which is the sole Cause of the Danger, from the inner Parts to the Superficies.

Externally may be apply'd Wool moisten'd with Oil, or mollifying Cerates, prepared with Wax, Butter, and the Fat of a Goose.

Cataplasms are to be such as digest and discuss Inflammations, prepared, for Example, of Barley-meal, Linseed, and Dates, boiled in Water; or Saffron and Crums of Bread boiled together. But Cataplasms which only relax, or strongly repel, are to be avoided. If the Inflammation be of pretty long standing, and hard, it will be proper to add dry'd Figs, Docks, Fats, and a little Nitre; for the Matter ought to be drawn out, and Nature assisted in her Endeavours that way.

Old and scirrhus Inflammations are proper to be fomented with a warm Decoction of Chamomile or Marsh-mallows, to which if you add Bays, especially in cold and stubborn Humours, which are deeply seated, the Fomentation will be much more effectual.

As to Diet, let the Patient's only Sustenance at first be Hydromel, which of itself produces all the good Effects that can be desired; for it attenuates and purges both by Stool and Urine. It is, in a particular manner, proper to be given in a Defluxion upon the Breast or Lungs, or where those Parts are oppressed with a Streightness; and there is Reason to fear, lest an Inflammation, *Pneumony*, and in some measure another *Cynanche* should arise. Give Hydromel till the Inflammation be moderated, and Respiration more free. After the third Day, the Patient is to take Cremor of Ptisan, which is no less effectual to all good Purposes than the former; for it absterges, incides, nourishes, and has a Virtue of asswaging the Heat of an Inflammation. When the inflammatory Matter is attenuated, and the Heat moderated, the Sick is to be indulg'd with some very soft Yolks of Eggs, but not many; for the narrow Passages are soon frighten'd with copious Aliment, and are in Danger of a new Strangulation. In this Disorder we are by all means to avoid an Inflammation, which is sooner caused by a free than a sparing Diet. *Trallian, Lib. 4.*

Of those which are strangled in this Distemper, we give over all Hopes, when the Froth appears about their Mouths, relying upon the Opinion of *Hippocrates*. Others are recalled to Life by instilling Vinegar and Pepper, or the Seed of Nettles bruised in very strong Vinegar; but as they will not receive them without much Difficulty, they must be compelled. When the

the Redness about the Neck is dispell'd, they immediately look up, and are relax'd. The same Means are to be used for those who are shipwreck'd; and, in short, for all who are under Suffocation, to revive the natural Heat. *P. Aeginet. Lib. 3. Cap. 27.*

The Method of treating this Disease varies according to its different Species, and the Causes of each; to the Knowledge of which, in order to their Removal, the Physician is to direct all his Intentions. As soon therefore as it is known by manifest Signs, that there is a Congestion of the Blood in the Head, which does not only increase the Inflammation, but is also the Cause of fatal Symptoms, the Physician's first and immediate Care is to divert the Impetus of the Blood from the Part affected, which is most conveniently done by opening a Vein near it; for, in this Remedy, Physicians of all Ages, both antient and modern, have placed their principal and almost only Hope of relieving the Patient. Let *Hippocrates* speak for all, who, in his Book *de Loc. in Hom. Sect. 1.* thus directs the Cure of a Quinsy: "They who are affected with a Quinsy from Blood collected and coagulated in the Veins of the Neck, are to be bled in the Arms and Feet; and at the same time to be evacuated by Stool, in order to divert and draw off what feeds the Disease." But where, and after what manner, this is to be done, all are not agreed. There are a great many who advise opening of the Veins under the Tongue; which others reject, because if the Orifice be not made wide enough, but little Blood comes out; from a wide Orifice proceeds an Hæmorrhage, which is sometimes known to prove fatal. Among those who despise it, *Tulpius* is one of the chief, and for this Reason, because the Blood is hereby drawn to a Place narrow of itself, and a Suffocation easily induced. Others, as *Zacutus Lusitanus*, *Hist. Med. princ. Lib. 1. Hist. 76. Joh. Steph. in Hipp. de Struct. Hom.* *Trallianus*, and *Freind* in his Commentaries on the Epidemics of *Hippocrates*, are extremely zealous for opening the external Jugular Veins; especially in a desperate Disease, and where there is present Danger of Suffocation. Some commend Scarification on the Nape of the Neck, and the Chin, as *Platerus*, *Amatus Lusitanus*, *Zacutus Lusitanus*. *Riojanus* would have it done about the Larynx. *Capivaccius* and *Hollerius* are for applying Leeches behind the Ears, and on the Neck.

After Phlebotomy, according to the Advice of *Hippocrates*, the Belly is to be purg'd, by which means the Humours may be attracted to the lower Parts, and evacuated: And this is to be effected by Cathartics, not at all acrimonious, or in the Form of Powders or Pills, but of the milder Kind, and in a liquid Form: But that we may answer two Intentions at once, that is, draw off the superfluous, and at the same time attemper and sweeten the acrid and salt Humour, it will be very proper to prescribe a Decoction of two Ounces of Manna, and a Dram and half of antimoniated Nitre, in ten Ounces of Whey. If nothing can be received by the Mouth, a Clyster must be given, made of Milk, Honey, Oil of sweet Almonds, common Salt, and Nitre.

The superfluous Blood, and impure Humours, being thus evacuated, we are next to direct our Endeavours to the Resolving of the sanguineous or ferous Humour that stuffs the Vessels, by proper Remedies, both internal and external, which may at the same time allay the feverish Heat. Most conducive to this Purpose, is the frequent Use of a diaphoretic and gently anodyne Mixture of antispasmodic and perspirative Waters of the Flowers of Elder, the Lime-tree, Cowslips, Acacia, Goat's-rue, of the Herb *Carduus Benedictus*, *Scordium*, [*Water Germander*] with *Dioscordium*, diaphoretic Antimony, and *Sal Prunellæ*, Vinegar also, with Crabs-eyes, and the Syrup of the red Poppy. Very proper also are moistening and diluting Drinks, indulged in good Quantities, such as Whey, sweet and sourish, and prepar'd with the Juice of Lemon and Sugar, Ptisan of Barley cleansed, the Root of *Scorzonera*, and the Shavings of Hartshorn, with the Syrup of Lemon-juice, Water-gruel, and Milk itself, if mix'd with an equal Quantity of Water, and some Sugar, and a little Nitre.

In so dangerous a Distemper as the Quinsy, we are also to relieve the Patient, as much as possible, by Topics, applying some to the Inside of the Mouth, others externally to the Neck and Throat, that, by these means, the Pain and inflammatory Heat may be mitigated, the Acrimony of the Humours attemper'd, and the Juices, which stick fast in the narrow Passages of the Vessels, may be dissolved. The most common Topics are, Cataplasms of pargoric and discussive Ingredients, as the Flowers of Elder, Melilot, common Chamomile, Mullein, the Roots of white Lillies, Figs, Saffron, the Seeds of Anise and Fennel; the Meal of Lin-feed, boil'd in Milk; to which some add, as Specifics, Swallows Nests and *Album Gracum*. Useful also for this Purpose are lenient and emollient Plaisters, as *Dia-chylon Simplex*, or a Plaister of Melilot, mollify'd with Oil of sweet Almonds; or render'd more efficacious by a Mixture of *Sperma Ceti*, Saffron, and Camphire. I am not fond of advising Gargarisms, or syringing the Places where the great Pain, with the burning Heat and Dryness, lies. It is sufficient, now-

and-then, to wash the Mouth with some proper warm Liquor, which may be prepared of several things, as with *Rob Diamurcum*, *Diamoron*, Syrup of the sweet Juice of Pomgranates, of red Poppies, of Violets, Mucilage of Quince-seeds, Cream, *Sal Prunellæ*; any of which, as Circumstances shall require, may be mix'd with Milk, a Decoction of Liquorice, or of Figs; or with Water-gruel: Nor is there less Virtue in the fresh Oil of sweet Almonds, mix'd with *Sperma Ceti*, Saffron, and Syrup of Violets, infused in Water-gruel, and held a while in the Mouth.

CLINICAL CAUTIONS and OBSERVATIONS.

In a sanguine Quinsy, and plethoric Body, the Cure must begin with Bleeding, which in this, if in any Distemper, delivers from immediate Danger of Death; but we must be quick with our Assistance, for we have not a Moment to spare. The Patient finds most Relief by opening the Jugular Veins; but if this be impracticable, the Veins under the Tongue must be cut; taking care first to open a Vein in the Arm. When a sanguine Quinsy comes upon a burning and *Hungarian Fever*, and there is Danger of a Phrensy, but not Strength enough to bear the Loss of much Blood, the sublingual Veins are however to be open'd with all Speed: But when the Disorder owes its Rise to a caustic Acrimony, inherent in the nervous Membranes of the Fauces and Larynx, and there is no manifest Redundancy of Blood, Scarification of the hinder Part of the Neck or Chin, or Application of Leeches, are rather indicated. And in cacochymical and phlegmatical Constitutions, when, from the Plenitude of viscid Serum, a Tumour, with a Pain and a gentle Inflammation, affects the Fauces, and the external Parts of the Neck, Scarification on the Nape of the Neck, and the Scapulae, is to be prefer'd before Phlebotomy.

In the Use of Topics, due regard is to be had to the different Kinds of Inflammations in the Fauces, and proper Remedies are to be accommodated to each Kind. Thus, in every painful and hot Inflammation of the Fauces, a Julep of Roses, with Nitre and a little Camphire, swallow'd, is of excellent Service. Also Jelly of Hartshorn, with the White of an Egg, well depurated, and the Juice of China Oranges, and sweeten'd with Sugar, repeated frequently, are of wonderful Relief. If the Fauces are dry, and parch'd with Heat, the Tongue swell'd, and there is a Difficulty of Respiration, as well as Deglutition, a Linctus is to be prepar'd, with two Ounces of the White of an Egg, beaten in Water, one Ounce of Rose-water, Syrup of Pomgranates, and *Diamoron*, of each half an Ounce, and *Sal Prunellæ*, twelve Grains; with these, according to the Condition of Circumstances, twenty or thirty Drops of some anodyne Liquor may be mix'd: Outwardly the Neck, before and behind, is to be anointed with camphorated Oil, prepar'd of one Ounce of the Oil of sweet Almonds, two Drams of the Oil of white Poppy, and half a Dram of Camphire.

In the internal and occult Quinsy, attended with a violent Heat, the Mouth is, now-and-then, to be wash'd with Milk only; and its Cream, with an Addition of *Sal Prunellæ*, and Syrup of red Poppy, and Whey, is to be frequently drank. In an Inflammation of the Oesophagus, which is often accessory to a malignant Fever, when come to its State, what is commonly used is a Powder made of a Dram of Nitre, three Grains of Camphire, and an Ounce of Sugar, together with an Emulsion of sweet Almonds, to be both taken inwardly, and outwardly to be held for some time in the Mouth. And when there is any Danger of Suffocation, from receiving inwardly the acrimonious Exhalations of Metals, Minerals, Quick-lime, and Mercury, there is no room for Bleeding or Purging in such a Case; but the fittest Remedies are Moisteners and Demulcents, both internal and external, as Milk and Nitre, the Cataplasms before-mention'd, and Clysters.

The inflammatory Pain, caused by the salt acrimonious Serum, in the glandulous Flesh of the Fauces, near the Precincts of the Pharynx and Larynx, with a Redness and copious Salivation, without a Fever, is best discuss'd in the Beginning, by immediately taking a Gargarism of Spirit of *Rhenish* or *Frankonian Wine*. The present Effects of this Remedy are attested by *Walæus, Method. Med. p. 112.* "Let him who is affected with a Quinsy, says he, gargarize himself in the Beginning with Spirit of Wine, and all the Inflammation will cease in the Space of three Hours, whether he uses it by itself, or mix'd with other things." And, for this Reason, *Martianus* commends, in a true Cynanche, things which are actually hot: And I myself have known an Inflammation of the Fauces discuss'd in a short time, by gently passing down the Fauces eight or ten Drops of Spirit of Wine camphorated, in which a Grain of Nitre has been dissolved. Some recommend, for this Purpose, Essence of white Burnet, made with Spirit of Wine.

When a great Load of impure ferous Humours oppresses the Glandules of the Palate and Fauces, the milder Laxatives are to be frequently used, such as those prepar'd with Manna, Rhubarb, Tartar, and Raisins of the Sun, and Currans. There is also an excellent Gargarism for this Purpose, which has for its Basis the *Sal Pharyngeum*, described by *Zobelius* in his *Tartarologia*:

logia: It is prepared of an Ounce of Cremor of Tartar and Nitre, with half an Ounce of burnt Alum, dissolved in distill'd Vinegar; and this Solution is afterwards to be coagulated according to Art. A Dram of the Salt thus prepar'd, with two Drams of Honey, is to be dissolved in five Ounces of Plantain-water; and with this Liquor the Fauces are to be often wash'd, and the same is to be now-and-then injected with a Syringe.

In inflammatory Tumors of the Fauces and Glandules, the mollifying Plaisters above prescrib'd have justly the Preference before Cataplasms, which, on account of several Difficulties, I seldom use; but more frequently make use of a Decoction of Emollients made in Milk, and kept in a Bladder. But as to the Use of Gargarisms, observe, that they are not to be injected with a Syringe; for the too vehement Attrition of the Parts by this Method would the more exasperate the Pain and Inflammation. It is therefore the better and safer way to wash out the Mouth, now-and-then, with the Liquor appointed for a Gargarism: But if even this, by reason of Weakness, cannot be effected, the Injection is to be forced in the most gentle manner, lest there should be an Irritation to vomit; the Head also is to be bent forward, and not backward, for fear the Liquor, by slipping wrong, should pass into the *Aspera Arteria*, and endanger Suffocation; and if there be a great Quantity of Mucus inherent in the Parts, the Injection is to be renew'd. Moreover, in all these Affections of the Fauces, it is best to abstain from speaking, because the frequent and strong Agitation of the Tongue exasperates the Disease.

If the Tumors of the Fauces tend to a Suppuration, the same may most commodiously be promoted by the Application of fat dry'd Figs: And when the inflammatory Tumor of the Tonsils is full of Ichor, I find no external Remedy better than Honey of Roses, mix'd with Spirit of Vitriol, and often applied with a Pledge; it lessens the Tumor, cleanses it, prevents any further Afflux, and dissolves the Phlegm already about the Parts. In the Aphthæ of Infants, which beset the Tongue, and are attended with Pain and Heat, there is nothing better to mitigate them, than, now-and-then, to anoint the Pustules with Cream, with a little Nitre. Sometimes it will be convenient, in order to discuss the Phlegm, and restrain the Afflux of the Humours, to apply white Vitriol dissolved in Rain-water, or, what is better, Rose-water, or Elder-flower-water.

That the Inflammation of the Fauces may not return, as it often happens, we must carefully avoid such things as we said before were dispos'd to induce it. Perspiration especially must be maintain'd, and 'tis good to defend the Head, Neck, and Shoulders, from all Refrigeration, that the Humours, and acrimonious Matter, which ought to pass off thro' the Pores, and be dispersed, may not be repell'd inwardly, and take up their Settlement in the soft Substance of the Fauces. Beware also of every thing, that may put the Juices in too great an Agitation, and especially of Vociferation, and high-straining the Voice, by which the Humours are attracted to the upper Parts. If the Body be plethoric, seasonable Bleeding must be administer'd; and if spontaneous Hemorrhages observe not their stated Times, or fail in other respects, they must be regulated, and reduced to Order. Nor is less Care to be taken to keep the Belly soluble; by taking now-and-then a gentle Purge, by which Impurities may be carry'd off, and their confluent Motion upwards may be intercepted.

HISTORIES of CASES.

CASE I.

A Woman, thirty Years old, choleric, and very subject to Rheums and Catarrhs, rose out of her Bed in Autumn, thinly cloth'd, and carelessly exposed herself to the cold Air. By this means she contracted a Hoarseness, with a burning Heat and Pain of the Throat, so that she could neither swallow nor speak without Difficulty; and her Pulse, especially in the Night, was quicker than it ought to be. Her Menfes having ceased, she was first blooded in the Arm, and then had a Clyster administer'd, but received no Relief; as for Gargarisms, so great were her Pains, she could not bear them. Mean while, the Tumor of the Throat, both internal and external, extremely increas'd, and to such a Degree as to want but little of strangling the Patient; but it subsided a little on the fifth Day, and the Pain was mitigated. At this time was outwardly applied to the Neck a ripening Plaister of Melilot and Saffron, on which were laid warm Rags, and her Mouth was wash'd with a Decoction of Emollients. By these means the Tumor was brought to Maturation, and happily broke in the Night, unknown to the Patient; but the acrimonious Matter was certainly fallen down upon the Lungs, and seem'd to threaten Suffocation. To remedy this, was prescrib'd Hyssop-water, with Essence of Castor and Liquorice, with an Addition of some Drops of Spirit of Hartshorn, prepar'd with Amber; also an Infusion of the pectoral Herbs in hot Water, after the manner of Tea: Upon this a Sweat broke out over all her Body; and at the same time a tough, viscid Matter, six times at least in a Day, came off by Stool, not without griping Contractions of the Belly. But the Physician, being apprehensive, that this Diarrhœa might be hurt-

ful, consider'd how to suppress it; and for that End order'd an Electuary of Diacordium, Conserve of Roses, the Powder of the Hamatites, and Nutmeg. The Looseness was immediately stopp'd, but was succeeded by Hiccups, with a burning Heat in all the Region of the Oesophagus, a Spitting of viscid Matter, and a Decay of Strength. Under these Circumstances another Physician was consulted, who judged these Symptoms to proceed from the wrong and injudicious Suppression of the Flux of the Belly; wherefore he prescribed Pills of choice Myrrh, Diagrydium sulphurated, *Mercurius dulcis*, Saffron, Castor, and Salt of Amber, to be taken in a hot Vehicle. By these means the Hiccups were not only cured, but the Excretion of serous Matter by Stool was recall'd, to the great Relief of the Patient, who afterwards by degrees recover'd her Health.

REFLECTION.

It is very remarkable in this Case, that the Inflammation of the Fauces had a Solution by the serous and pituitous Flux of the Belly; that the preposterous Restraining of this Flux occasion'd grievous Symptoms, which vanish'd at its Return: But very often, in inflammatory Affections of the Fauces, the Oesophagus and the Stomach itself are afflicted, so that they seem to labour under the same Distemper. Of the *Aphthæ* I have often observed, that they infect the Oesophagus and the Stomach, which appears from that burning Heat which runs through the Oesophagus, and reaches even to the Diaphragm. Under this Circumstance the Patient can by no means suffer any thing that is salt, acrid, or hot; but finds Relief from Barley-broth, Water-gruel, and Infusion of dried Turneps, after the Manner of Tea, with Milk; by which means the Heat, Dryness, Pain, and Anxiety about the Diaphragm, have been removed. On the other hand, I have known, that when the Stomach has been inflam'd in burning Fevers, by Poisons, or by some of the more acrimonious Cathartics, the Inflammation has been propagated to the Fauces, and the Muscles of the Larynx. Hence we may take it as an establish'd Truth, that in Affections of the Fauces and Mouth, especially if they are infested with a viscid and thick Phlegm, laxative Medicines afford present Relief.

CASE II.

A Man, sixty Years of Age, had been long afflicted with a Quartan; and after he was cured, became very subject to Catarrhs, and Weakness of the Stomach. After travelling in a rainy Night he fell into a Disorder of the Fauces, in such a manner, that he could swallow solid Food, but not Liquids, without much Straining, Anxiety, and a subsequent copious Excretion of Phlegm. Inwardly the Fauces appear'd somewhat red, but nothing of a Tumor could be seen outwardly. We judged therefore, that the Epiglottis, which, like a Lid, covers the Orifice of the *Aspera Arteria*, was embarrass'd and turgid with a mucous Serum, and by that means render'd incapable of exactly closing the subjected Orifice: Hence, in Deglutition, the Liquids slipp'd into the *Aspera Arteria*, which was the Cause of the subsequent Anxieties. Upon this Account, I order'd, outwardly, an Application of Spirit of Wine camphorated; and inwardly, for the Mouth, a Collution of Water of Elder-flowers, mix'd with Spirit of Sal Ammoniac, and Essence of Saffron, to be used now-and-then; and my Pills to be taken every Day (of *Aloes with Balsamics*). By these Remedies the Disorder was happily removed in a few Days, and the Patient recover'd his Health.

REFLECTION.

The proper Symptom of a Quinsy is, a Difficulty of Deglutition, as well with respect to Solids as Liquids; for if a pretty large Tumor affects the Beginning of the Oesophagus, and contracts it, then Liquids, but not Solids, may be transmitted through it; but if the Tumor be seated in the Beginning of the Throat, which is cover'd by the Epiglottis, solid Substances, by compressing the tumid Epiglottis, find a Way to the Oesophagus; while Liquids, not pressing with the like Force as the others, slide through the gaping Space; by the Tumors, into the *Aspera Arteria*, and there occasion great Molestation.

CASE III.

A Woman was thought by the Physicians to be infected with the *Lues Venerea*, upon which Presumption they had order'd her to be salivated with Mercury: From that time, upon every slight Occasion, as from cold or foggy Air, a Fit of Anger, acrimonious Meats, Refrigeration of the Head, or some Irregularity in the Menfes, she would be seiz'd with an exquisite Pain, and burning Heat, in the internal Parts of the Fauces, about the Larynx and Pharynx, with a Difficulty of Respiration, but without a Fever. Now it happen'd, that this Woman slept in a low Chamber newly built, and full of the Vapours of Lime; whence she was taken not only with a Pain in the Head, but a vehement Heat and Pain in the Fauces and Neck, with Restlessness, Straightness of Breach, Anxiety, and Tossings.

Tossings. Being call'd to attend her, I omitted Bleeding, because there was no Redundancy in the Vessels, and only order'd a Cataplasim to be applied to the Neck, prepar'd of Meal of Lin-seed, Flowers of Elder, Figs, Saffron, Oil of sweet Almonds, and Milk. I advis'd also a Clyster of Milk, Nitre, common Salt, Honey, and Oil. For Drink, I allow'd Milk, mix'd with half the Quantity of Barley-water, or Ptisan, with an Addition of a proper Quantity of Nitre, or Syrup of Violets: Of this she drank plentifully, and often held it in her Mouth. By these means the Disease in a short time was discuss'd. To prevent her frequent Relapses, I advis'd the Drinking of the Spaw, or the Selteran Waters, with Milk, for a Month or more; and every Day, in the Morning, either to gargarize the Fauces, or to wash them with the *Aqua Sclopetaria*, (*Eau d'Arquebuse*) or a Decoction of Plantain in Wine.

REFLECTION.

A Quinsy is very speedily produced, when the fibrous, glandular, and tubular Compages of the Fauces, is weaken'd and deprived of its Tone, which is frequently done by a mercurial Salivation: For this Reason, those who have once or twice labour'd under a Quinsy, which has not been carried off by proper Means, and a due Regimen, very readily fall into the same Disorder again, by raising their Voice too high, Excess of Passion, or of Wine, or by drawing in a cold moist Air: But Relapses are most effectually prevented by a speedy and perfect Cure, which leaves the Parts free from all Taint.

CASE IV.

I knew an honest Man, upwards of fifty Years old, of a sanguine, melancholic, but robust Constitution, who had never any Blood taken from him, but enjoy'd an excellent State of Health, even tho' addicted to the drinking of hopped Ale, and spirituous Liquors: This Man, happening to be put into a violent Passion by his Wife, was seiz'd with an exquisite Pain in his Head, the Arteries of which became turgid, his Face red, and his Eyes stern; in fine, his Nights were pass'd without Sleep, and his Arteries beat so strong, that he complain'd of a painful Sensation, resembling the Beating of a Hammer, in his Head. Upon this, a Cataplasim made of the Crums of Bread, Bay and Juniper-berries, with Vinegar of Roses, was laid to his Head; and, by the Advice of an old Woman, the White of an Egg, beat up with Alum, was applied to his Forehead and Temples. The Patient, having used these things for some time, complain'd at last of an exquisite and pricking Pain of his Fauces, a Difficulty of Deglutition, and a Shortness of Breathing; his Tongue swell'd prodigiously, and became black: He thrust his parch'd Tongue out of his Mouth, and had an insatiable Craving after Drink; the Pulse in his Arm was quick and vehement. For removing these terrible Symptoms, the following Method was used with Success: He was blooded plentifully, and had a pretty sharp Clyster injected. A Cataplasim of Dog's Dung, Swallow-necks, Figs, roasted Onions, Elder-flowers, Chamomile, Melilot, Cummin-seed, Nitre, and Camphire, with Elder-flower-water and Wine, was applied warm to his Neck. He used internally a Mixture of Elder-flower and Rose-water, of each two Ounces; distill'd Vinegar, six Drams; of Crabs-eyes, one Dram; Nitre, half a Dram; Camphire, four Grains; dissolv'd in Oil of sweet Almonds; and a sufficient Quantity of Julep of Roses, given pretty often, in the Quantity of some Spoonfuls; and for his ordinary Drink, an Infusion of Male Speedwell, Elder-flowers, and Liquorice-root; by which means the Danger of Suffocation was happily carried off. Afterwards a laxative Preparation of solutive Syrup of Roses, Cream of Tartar, Diagrydium, and Rhubarb, was administer'd; which gave him a Stool each time. His Mouth also was frequently wash'd with Rain-water, in which a little Nitre and Vitriol had been dissolved, and to which as much Sugar was added as render'd it palatable: By these means this dangerous Disease was, in a short time, thoroughly carried off.

REFLECTION.

The Origin of this terrible Disorder justly claims our greatest Attention; for it proceeded from a Congestion of Blood in the Head. The external Applications for that Disorder were Astringents; by these the Blood was driven inwards, and towards the Fauces themselves: Here the Blood, being collected in a great Quantity, ceased to flow, and brought on the Heat, and all the Train of other Symptoms; for that the White of an Egg, beat up with Alum, is a strong Repellent and Astringent, is plain from its Use in Disorders of the Eyes; and that, from a Constriction of the external Parts, the Conveyance to the internal is easy, is plain from the mutual Communication of the Vessels: But the Cure could not fail of Success, when the Stagnation was encounter'd by Bleeding, and by internal as well as external Discutients; for if Opportunity is ever speedily to be embraced, 'tis certainly in inflammatory Congestions, which, unless speedily removed, degenerate into a sphacelous and deadly Corruption. *Hoffman. Medicin. Rational. Systemat.*

CASE from HILDANUS.

Last Autumn Mr. John Merulam, a Clergyman of great Learning and Worth, was, for two Months successively, afflicted with a violent Dysentery; from which when he was almost recover'd, he was, during my Absence, seiz'd with a new and very terrible Disorder: For Nature being in him weaken'd, both by the Distemper itself, and his great Age, (for he was now past Sixty-six) could not drive those Pustules, which generally appear on the Lips towards the End of the Disease, so far; but threw them out about the Uvula and Root of the Tongue, with very considerable Pain and Inflammation. Whilst Matters stood thus, he took the Advice of a foolish Barber, who three or four times a Day blow'd Powder of Pepper and Saffron into his Throat and Fauces; upon which the Pain, Inflammation, and Fever, were augmented, and fainting Fits seiz'd him at certain Intervals. Then, in order to dispatch the Patient the more speedily and effectually, he gave him a Medicine which operated both by Vomit and Stool; and which, from its Effects, I conceived to be Antimony. I, being call'd, went to him with all imaginable Hast, but found him as if in the Agonies of Death; for he could scarce breathe, and his Inquietudes were very great. His Tongue also and Fauces were so swell'd, that he could neither breathe, nor swallow a little Broth without the greatest Pain, accompanied with involuntary and convulsive Agitations of his whole Body.

I cured him in the following manner: First, I order'd him to wash his Mouth and Fauces with Milk, just come from the Cow; he also wash'd his Mouth, now-and-then, with Barley, Rose, or Scabious Water, mix'd with Honey of Roses: He every Hour also took a little of the Oil of sweet Almonds. We also, three or four times a Day, and as often by Night, anointed his Throat, Neck, and Breast, with Oil of white Lillies and sweet Almonds; and applied warm greasy Wool to them. We also, by means of Clysters, drew downwards the Matter which the immoderate Pain had drawn to the affected Parts; and after treating him in this Matter for about the Space of thirty Hours, an Impostumation broke in his Fauces, from which he discharg'd a purulent Matter by his Mouth.

Upon this his Pain was immediately lessen'd; and he began to breathe more freely; and sup a little Broth: Then by washing his Mouth frequently with Barley-water, and sometimes taking a little Honey of Roses; and by using a proper Regimen, and restorative Medicines, he was at last, thro' the Blessing of God, restor'd to Health in a miraculous Manner, and beyond the Expectation of all that were acquainted with his Situation. And tho' he is now in the seventieth Year of his Age, he nevertheless enjoys a good State of Health, and discharges the several Offices of his Function with Applause to himself, and Advantage to the Church. *Hildanus, Cent. 3. Observat. 27.*

The Sentiments and Practice of our Countryman Dr. Sydenham must not be omitted; it must be observed, that his Practice corresponds pretty exactly with that of *Hippocrates*, and his Transcribers.

1. This Disease comes at any time of the Year, but especially between Spring and Summer: It principally attacks the Young and Sanguine, and also red-hair'd Persons. It begins (first) with a Chills and Shivering; (secondly) a Fever succeeds; and (thirdly) immediately after, a Pain and Inflammation of the Fauces, which, without speedy Relief, hinder Deglutition, and prevent Breathing thro' the Nose; whence Suffocation is endanger'd from the Inflammation and Tumor of the Uvula, Tonsillæ, and Larynx. This Disease is extremely dangerous, and sometimes kills the Patient in a few Hours; that is, when a large Quantity of the febrile Matter is thrown upon the above-mention'd Parts, and the approaching Tumult is not timely enough prevented by proper Remedies.

2. In order to the Cure, I immediately bleed plentifully in the Arm, and presently afterwards in the Veins under the Tongue; and then I order the inflamed Parts to be anointed with Honey of Roses, strongly acidulated with Spirit of Sulphur; and prescribe a Gargarism to be used, not in the common way, but to be held quietly in the Mouth till it grows warm, and then spit out; and this to be repeated between whiles. *The Prescription for this Gargarism is specify'd in the last Paragraph of the Article ALBUMEN, which see.*

I also order the following Emulsion, or the like, to be taken daily:

Take seven blanch'd sweet Almonds, the Seeds of Melons and Pumpions, of each half an Ounce; the Seeds of white Poppies, two Drams; beat them together in a marble Mortar; then pour on, by degrees, a Pint and half of Barley-water; mix them well, and, when strain'd, add two Drams of Rose-water, and half an Ounce of white Sugar: Let four Ounces be taken every fourth Hour. *This would be much better with an Addition of Nitre.*

3. I bleed again in the Arm the next Morning, unless the Fever, and Difficulty of swallowing, be in some measure abated; in which Case I give a gentle Purge, much Experience having taught me, that this is highly necessary and useful after Bleeding.

ing. If the Fever, and other Symptoms, threaten Disturbance even after purging, which yet seldom happens, they are to be quieted by repeated Bleeding, and applying a large and strong Epispastic between the Shoulders. During the whole Course of the Disease, a cooling and emollient Clyster must be given every Morning, except on the purging Day.

4. I injoin a total Abstinence from Flesh, and Broths made thereof; allowing Barley-broth, Water-gruel, roasted Apples, and the like, for Diet; and Pilsan and small Beer for Drink. The Patient must likewise sit up some Hours every Day; for the Warmth of the Bed increases the Fever, and its Concomitants, which I endeavour to conquer by this Method. *Sydenham*.

Of BRONCHOTOMY.

As Bronchotomy is principally of Use in a Quinsey, I shall chuse to give a particular Account of the Operation in this Place, rather than under the proper Article.

Paulus is, according to *Dr. Freind*, the first Author who describes the Operation of Bronchotomy. Our best Surgeons, says he, have described this Operation; *Antyllus* particularly thus. We think this Practice useless, and not to be attempted, where all the Arteries and the Lungs are affected; but when the Inflammation lies principally about the Throat, the Chin, and the Tonsils, which cover the Top of the Wind-pipe, and the Artery is unaffected, this Experiment is very rational to prevent the Danger of Suffocation. When we proceed to perform it, we must cut thorough some Part of the Wind-pipe, below the Larynx about the third or fourth Ring; for to divide the whole would be dangerous. This Place is the most commodious, because it is not cover'd with any Flesh, and because it has no Vessels near it. Therefore bending the Head of the Patient backward, so that the Wind-pipe may come more forward to the View, we make a transverse Section between two of the Rings; so that in this Case, not the Cartilage, but the Membrane, which incloses and unites the Cartilages together, is divided. If the Operator be a little fearful, he may first divide the Skin, extended by a Hook; then proceeding to the Pipe, and separating the Vessels, if any are in the Way, he must make the Incision. Thus far *Antyllus*. *Paulus* adds, That he (*Antyllus*) thought upon this Way of cutting, by observing (when it was, I suppose, cut by chance) that the Air rush'd through it with great Violence, and that the Voice was interrupted. When the Danger of Suffocation is over, the Lips of the Wounds must be united by Suture, that is, by sowing the Skin, and not the Cartilage; then proper vulnerary Medicines are to be applied. If these do not agglutinate, an Incarnant must be used. The same Method must be pursued with those who cut their Throat, with a Design of murdering themselves.

Heister gives the following Account of this Operation. What he observes with respect to People just drown'd, is of Importance enough to deserve Regard, as it may possibly save the Lives of many, if properly practised.

The Words Bronchotomy, Laryngotomy, and Tracheotomy, are convertible Terms, and mean no more than an Incision of the Aspera Arteria, or what we commonly call the Throat; and, indeed, various are the Causes and Reasons which may render this Operation necessary; for, in the first Place, it becomes principally and indispensably so, when, in a Quinsey, the Fauces are so terribly inflamed, that the Patient is in imminent Danger of having his Respiration quite stopp'd, and a thorough Suffocation brought on. Secondly, It becomes necessary, when a Bean, a Prune, or Cherry-stone, a Pea, little Stone, or any other foreign and adventitious Substance, falls into the Aspera Arteria, and seems to threaten a Suffocation. Thirdly, The Aspera Arteria may also be open'd in such Persons as have been suffocated, in consequence of their having been immers'd in Water, or, as we express it, in newly drown'd People. For sometimes a Power of Breathing has been restored to People in this Situation, by opening the Aspera Arteria, and by that means giving the Air free Access to the Lungs (See *Detbardingii Dissert. de Methodo Subveniendi Submersis per Laryngotomiam*). I am sufficiently apprised, that a great many Physicians forbid making an Incision in the Aspera Arteria, and consequently condemn this Operation, because they think it productive of Death, and are therefore prompted by a foolish Zeal to brand their Fellow-physicians, who attempt an Operation so dangerous in their Eyes, with the odious Appellations of barbarous and inhuman. But the Gentlemen who are in this narrow and confin'd Way of Thinking, are highly mistaken. For, in this Operation, the small Incisions made in the Aspera Arteria are so far from killing the Patient, that they do not even produce that Effect, when made considerably large; and *Garengot* gives Examples of various Cures performed by this Operation: For this Reason we think ourselves justly authorized with *Casseri* [in *Traetat. de Vocis Auditufq; Organis*] to pronounce those Men unskilful, cowardly, and even cruel, who, in the Cases above-mentioned, foolishly neglecting this Operation, which is often safe in itself, and attended with the most speedy and salutary Effects, suffer the Pa-

tients to die, for want of this proper and seasonable Assistance. Instances of this Nature may be seen in *Nicolaus Fontanus Observat. Rarior. Analect.* and in *Casseri*.

Now when this Operation is to be performed, that Part of the Trachea seems most proper for making the Aperture in, which is situated betwixt its second and third cartilaginous Annuli, or Ringlets. The Incision may nevertheless be made a little lower, without any Danger. The Method of performing the Operation, especially when the Stone of any Fruit, a Bean, a large Pea, a small Stone, or any other such Substance, falling into the Aspera Arteria, and threatening a Suffocation, is to be extracted, is in this Manner: The Patient is first of all to be placed in a reclining Posture, either in Bed, or in some convenient Chair, and his Head is to be held firm by an Assistant standing behind his Back. Then a longitudinal Incision thro' Skin, Fat, and Muscles, is to be made, from about two Fingers Breadth below the *Cartilago Thyroides*, or *Scutiformis*, or the *Pomum Adami*, in the Middle of the Trachea, down to the very Sternum; so that the Length of the Incision may be equal to two or three, or even, in tall Patients, to four Fingers Breadth (See *Tab. 42. Trib. 14. A. A.*).

Then an Assistant is carefully to draw the Lips of this Orifice from each other, either with proper Hooks, or his Fingers; and having absorb'd and wip'd away the Blood, either by a Sponge, or a linen Cloth, so that the Aspera Arteria may be seen, three or four of the Annuli or Ringlets of this spiral Pipe are to be cut in such a manner, that the Incisions made in the Whole may form one continued Line: And thus, whatever Substance may have slip't into it, must be artfully and warily extricated; either by a Probe, Hook, or Forceps. This being done, the Wound is to be cleansed with a Sponge, and its Lips being kept in Contact by agglutinating Plaisters, proper Compress and Bandage are to be apply'd. 'Tis afterwards carefully to be agglutinated by means of vulnerary Balsams, as in case of Wounds in the Aspera Arteria: And in this very manner, here in *Helmstadt*, I myself happily extracted a Piece of boil'd Mushroom from a Patient, who happening to laugh whilst he was supping Broth, in which, among other things, there were Mushrooms, had the Misfortune to have a Piece of one of them slip into his Arteria Aspera, by which he was in Danger of being suffocated. *Ravius* also informed me, that, in this very Method, he happily extracted a Bean from the Throat of a Patient; but the modern Surgeons are entirely silent with regard to this Method. Some, in order to induce a more speedy and seemly Cicatrix on the Wound, recommend the Method of Agglutination by Suture, as in the Cure of Hair-lips, by passing Needles thro' them, whether the Operation be performed for a Quinsey, or for some other Disorder. But, in my Opinion, 'tis highly improper to follow a Practice which is attended with immense Pain to the Patient, when, at the same time, a Method that is far milder, and equally safe and secure, may be fallen upon.

But if in a Quinsey, after the Use of proper Medicines, and repeated Evacuations of Blood from different Veins, there is still a Necessity for making an Incision in the Trachea, in order to prevent a Suffocation, the Operation may be performed in three different Manners, a Description of each of which my present Design calls for.

First then the Patient must be plac'd in a Bed, or Chair, with his Head reclin'd at the Surgeon's Discretion, and held firm by an Assistant, as we have already said. Then let the Surgeon make an Incision in that middle Part of the Throat, and in that Manner we have above directed, till he reaches the Trachea itself; or, if 'tis thought proper, the Skin also on both Sides may be laid hold on by the Surgeon, and his Assistant. Then it may be rais'd and cut longitudinally: After which, the Fat and Muscles lying above the Trachea may be cut. Some would have these Muscles first disengaged from the Trachea, or very warily separated from each other; but there is no Occasion for all this Labour, since they may be cut safely, and without any Danger. Then the Surgeon cleanses the Wound with a Sponge wrung out of warm Wine, or warm Spirit of Wine, for the more effectual stopping of the Blood, and orders his Assistant to separate and retract its Lips, either by Hooks, or his Fingers. Then he passes his Knife between two of the Annuli of the Trachea, or, in my Opinion, he may even pass it in such a manner, as to cut one of them, since by that means any Silver or Lead Pipe, whether round or flat, such as we have represented, (*Tab. 23. T, U, and X*) may the more conveniently be inserted into the Wound. But before the Surgeon withdraws his Knife, some Probe, fit for the Purpose, ought to be inserted into the Wound, by the Side of the Knife, that by its Assistance a Pipe may afterwards be more commodiously put into it. This Pipe is fixed in the Wound, by means of a Ligature pass'd thro' its Annuli, or small Holes, and carry'd round the Neck, and by a perforated Plaister. But great Care is to be taken, that the End of the Pipe, which is inserted into the Wound, be not allow'd to touch the posterior Part of the Aspera Arteria, lest by that means a troublesome Cough should be created. But that the Lungs may not be

be injured by the external Cold, or by any Filth falling upon them, 'tis highly proper to lay upon the Pipe a Sponge often impregnated with warm Wine, and again wrung out; or, as *Garengeot* advises, a thin linen Cloth, and afterwards a perforated Plaster. These Directions being duly observed, Blood is to be drawn from the Veins in the Arms, or those of the Feet, those under the Tongue, or those situated in the Neck. Then Clysters, Gargarisms, Injections into the Fauces, Malagmas under the Chin, deep Cuppings on the Sides of the Neck, and on the Insides of the Thighs a little above the Knees, with such other Medicines as are effectual against a Quinsy, are diligently to be applied and continu'd, till such time as the Respiration either becomes free and easy, or the Patient dies; one or other of which generally happens within four Days after the Operation is performed. When, after the third or fourth Day, the Disease is found milder, and Respiration more easy, which may be most quickly and expeditiously judg'd of, by stopping up the Pipe with one Finger, the Pipe is to be taken out, and the Wound to be agglutinated and treated in the manner already directed. But when the Difficulty of Breathing at the Mouth is as yet found considerable, the Pipe ought to be allow'd to remain for some time longer in the Wound, and the other Medicines to be continued, either till Respiration becomes more free, or the Patient expires.

Another and more expeditious Manner of opening the Trachea is this: A two-edg'd Knife (represented Tab. 22. I) is apply'd to the above-mention'd Part of the Throat, and cautiously pass'd thro' Skin, Fat, and Muscles, into the Cavity of the Trachea itself, and a Pipe is forthwith inserted into the Wound, and artfully fix'd and secur'd in the Manner already directed. This Method of Operation is not only quicker, but the Cicatrix is less, than in the former Method.

The third and last Method of Operation is by an Instrument which the Surgeons call a *Trocar*, (see Tab. 42. Fig. 15, 16.) and is to be performed in such a Manner, that this Instrument, apply'd to the very Middle of the Trachea, may, as it were, at one Thrust, be pass'd thro' the Skin, Fat, and Muscles, into its very Cavity, and, having drawn out the perforating Part, let the Pipe remain in the Orifice, till the Patient breathes freely, or dies. This Method of Cure I learnt from the worthy *Fredericus Decker*, some time Professor of Physic at *Leyden*, and my old Master, who has also described it in Page 243. of his *Exercit. Pract.* This Method of performing the Operation seems, in one respect, to have the Advantage of all the rest, which is, that it is soon over, and the Pipe, at the same time, introduc'd into the Wound with far less Pain to the Patient, than by any other Method. But even in this Case, the same Caution ought to be used, and the same Directions follow'd, which we have above specified.

Nor ought this material Caution to be forgot, that the Operation is to be performed as soon as possible, and whilst as yet the Strength of the Patient lays a Foundation for the Hopes of the Surgeon: For, when the Patient's Strength is too far exhausted, and he already sinking, as it were, under the Agonies of Death, 'tis then too late, and, generally speaking, to no Purpose, to attempt the Operation for his Relief. It also seems to be a safe and prudent Step, in a Case of imminent Danger, to call in the Aid and Advice of the most skilful Physicians that can be had, before the Operation be attempted: For, since this Operation is by most, who are ignorant of its real Nature, esteem'd so dangerous, and pronounced so fatal to Life, 'tis highly probable, that if the Cure does not succeed so well as could be wish'd, the Surgeon shall be said to have murder'd the Patient, who is, in Reality, cut off by the Violence of his own Distemper; and thus the innocent Operator shall be loaded with all the Infamy and Reproach that Ignorance, and popular Prejudice, can throw upon him.

If Persons drown'd in Water are already, tho' but just dead, their *Aspera Arteria* is to be open'd with all Expedition, either with an Incision-knife, or any other Instrument the Physician shall judge fitting. Then 'tis proper strongly to blow into the Orifice made, either with the naked Mouth, or by means of a Pipe, if any such Thing is at hand, because, in this Case, above all others, Delays are dangerous. For that justly celebrated Physician *Detbardingius*, some time Professor of Physic at *Rostock*, now at *Copenhagen*, in a Dissertation upon this very Subject, publish'd not long ago, informs us, that by this Method, if speedily put in Execution, Life returns to the suffocated Patient with the injected Air, and that he is, in a manner, miraculously rais'd from the Dead. For this Reason I think the Operation is not, in Cases of this Nature, to be neglected, but performed, whenever the Opportunity offers, with all the Haste and Expedition imaginable.

I must here likewise observe, that this Operation, as it is neither performed in the *Larynx*, nor in the *Branchia*, but in the *Aspera Arteria*, or *Trachea*, ought neither to be called *Laryngotomy*, nor *Branchotomy*, as it commonly is by most Physicians and Surgeons; but rather, and that too more properly, *Tracheotomy*.

Fredericus Montanus, and *Seacherus*, Professor at *Leipsic*,
VOL. I.

have each of them published a Book on Bronchotomy; and *Julius Casserius* has treated of Laryngotomy in the Book above quoted, where he illustrates this Operation by a Variety of elegant Cuts. *René Moreau* also, in his *Epistola de Laryngotomia*, and *Th. Piemus*, in his *Chirurgical Books*, have written very learnedly upon this Operation.

Mr. *Sharp* observes, that this Operation is easy to perform, and utterly void of any Danger whatsoever, notwithstanding the frightful Cautions laid down by Authors.

The Manner of doing it is by making a longitudinal Incision thro' the Skin, three Quarters of an Inch long, between the third and fourth Ring of the Trachea, if you have the Choice of the Place; and when you cannot make it so high, the Rule will be to wound a little below the Tumor. It is always advis'd to pinch up the Skin for this Process, which, however, may be left to the Discretion of the Surgeon. When the Skin is cut thro', you must make a small transverse Incision into the Wind-pipe, and immediately introduce a crooked Cannula near half an Inch long, of Silver or Lead, with a couple of little Rings at the Top of it, thro' which a Ribband may be pass'd round the Neck to keep it fix'd in the Wound.

Some have prescribed making an Incision thro' the Skin and Trachea at once, with a Lancet, or Knife, as the more easy and expeditious Method, and I once saw it perform'd in that Manner; but it prov'd very inconvenient; for the Wind-pipe in Respiration, moving up and down, slipp'd from the Orifice of the Skin, and made it very difficult to introduce the Cannula, and afterwards to maintain it in its Situation: Wherefore I think it absolutely necessary to make the external Incision longitudinal, and even pretty large, as I have directed above.

The Caution laid down of raising the *Sternohyoidei*, and *Sternothyroidei* Muscles, before cutting the Wind-pipe, is not to be regarded; and as to the Division of the recurrent Nerves, and great Blood-vessels, so much apprehended in this Operation, 'tis not in the least to be feared, since they are quite out of the Reach of the Instrument, as any one skill'd in the Anatomy of those Parts must very well know.

The Method of Dressing will be easily understood, since after the Patient can breathe by the natural Passage, if you withdraw the hollow Tent, the Wound will become a simple one; and, notwithstanding its Penetration thro' a Cartilage into a large Cavity, require a superficial Application only. *Sharp's Surgery*.

The following Case, communicated to the Royal Society by Dr. *Martyn*, contains something new and ingenious, and must not, for that Reason, be omitted.

A young Lad, being in a good State of Health, was all of a sudden taken ill with a violent Disorder in his Throat; in which, however, I could see nothing wrong, the Amygdalæ, and other Parts in View, being in all Appearance sound enough, but only looking a little drier than ordinary, without any external Tumor appearing about the Larynx, and no considerable Frequency or Strength in his Pulse: But he had great Pain and a Dyspnoea, with an Impossibility of swallowing either Liquids or Solids; every thing returning forcibly by the Mouth and Nose, when he made an Effort to get it over. From all which I reckon'd it an Angina of one of the worst Kinds, without any apparent Tumor, and the Seat of the Disease in the Larynx and the Fibres common to it, and the Top of the Gullet.

Notwithstanding repeated Bloodings, Blisterings between his Shoulders, Cupping, &c. the Disease continu'd so obstinate, and the Patient so like to suffocate, that next Day in the Afternoon his Friends, altho' very averse in the Morning, when I first propos'd the piercing the Wind-pipe, at length, earnestly desired, that the Operation might be performed; and the poor Lad bad us try any Experiment to preserve his Life. He had good Reason so to do; for, indeed, in all Probability, in a few Hours he would have been strangled to Death most miserably. We directly set about the Operation, which was done with such Success, that in less than four Days his Breathing being perfectly easy, and his Deglutition being almost so, we remov'd the Cannula, and left the Glottis to do its own Office.

According to *Caelius Aurelianus*, and the Author of the *Liber Introductorius*, ascribed to *Galen*, Bronchotomy was propos'd by *Aesclepiades*, (however inconsistent with his Delicacy, and the rest of his Character, the seeming Harshness of this Operation may appear) and is described and earnestly recommended by almost all the Systematical Writers of Surgery, from *Paulus of Ægina*, and, as he says, *Antyllus*, and some others of the best Surgeons before him, down to the present Times. But when they are at so much Pains to defend the Reasonableness of it, and when they shew so much Fondness of citing and telling Examples of healing accidental Wounds of the Trachea, without ever mentioning their own regular Performance of the Operation (which would have been a shorter, and much more effectual Recommendation of it); when, I say, I consider all this, I find myself oblig'd to think, that it has very seldom been reduced to Practice. So rare had it been, that *Aræteus*, a Man of vast Judgment and Skill in Diseases, thought the Operation had never been actually done with Success. And *Caelius Aurelianus*

Lianus looked on it as an impracticable Whim of *Asclepiades*. Neither *Avenzoar*, nor *Albucasis*, knew any thing of their Countrymen who had undertaken it. And the *Arabians* are reputed to have been hardly Surgeons enough. The most I know of amongst them of this Kind is in *Avenzoar*, who try'd the Experiment on a Goat, and cured the Wound, which shews the Ingeniousness and Industry of the Author: For as to what you will find some Writers telling you, that *Rafes* saw *Andrusius* the Physician do it (the Copy I looked into, printed at Venice 1505. calls him *Ancilifus*; and, perhaps, it should be *Antyllus* for them both); I think this flows from a mistaken Interpretation of that Author's Meaning. If you read the whole Context, I think you will easily conceive, that all he says of the Operation is upon Hearsay; and consequently, that he had only seen in Books, that such an one had done it. That most accomplished Anatomist and Surgeon *Fabricius ab Aquapendente* frankly acknowledges, that neither he, nor any of his Contemporaries, had ever ventur'd to perform it: Neither does his Successor in the Profession of Surgery, and his Rival in Anatomy, *Julius Casserius* of *Placentia*, pretend to have done it, tho' he has endeavour'd to illustrate the Operation by some very neat Figures, which you will not readily suspect to be from any but dead Bodies. And next to him *M. Aurelius Severinus*, who was a very judicious and learned Man, and the best and boldest Surgeon of his Time, though he recommends it with a great deal of Warmth and Keeness, yet it seems, even in his latter Days, he never had Occasion to try it; so that the first undoubted and distinctly recorded History I can find of this Operation being actually practised, is in the learned *Anton. Musa Brasavolus*, who performed it in a desperate Quinsy, when the Surgeon refused to do it; and repeated it again in the like Case. *Mr. Arnaud*, the Frenchman, did it, but his Patient died: However, his Countryman, *Mr. Binard*, had better Success. *Dr. Freind* cites *Purman* doing it; and tells us of another Case communicated to him by a Surgeon, whom he does not name. And besides these, I believe there are but few Instances can be produced, of any who really performed the Operation on a living Person. I hear now, that *Mr. Baxter*, a Surgeon in *Coupar*, of *Fife*, not far from us, and *Dr. Oliphant*, in *Gask* in *Perthshire*, did it with very good Success within these few Years.

In the actual Performance of the Operation they certainly did, or might have observed some things omitted by Authors, and even some not perfectly agreeing with the common Accounts that are given of it. I think it worth while to observe, that in the very Cutting, before we got a free Aperture into the Trachea, and the Pipe introduced, the Patient felt some Relief; which, I thought, might be ascribed to the Effusion of Blood in the Operation; a small Quantity whereof, evacuated so near the Part affected, could not, according to the true Laws of Hydraulics, and the Observations and Practice of the Antients, (however disagreeing with *Bellini's* Theory) but make a more considerable Revulsion, than a much greater, taken away at a great Distance. Whence the judicious *Fabricius ab Aquapendente*, with very good Reason, supposed, that by the Derivation here, the Patient would be more apt to feel some Relief, than Trouble; of which *Julius Guastavinus* too made no Doubt in his Dispute upon this Subject against *Arctaeus*. And now their Supposition and Conjecture is confirmed by Experience. And since there continued a greater Flux of Blood to the Wound while it was suppurating, I reckoned the Circulation in the Muscles of the Larynx to be with less Force than ordinary, and so probably to contribute to the diminishing the Strength of the Voice, which, for a good many Days after the Operation, was observed to be much weaker than it used to be; which I all along thought was rather owing to this, and the Lowness of his Body by his slender Diet, than to any Hurt of the recurrent Nerves, which, being cut, do indeed destroy the Voice; but by their Deepness, are in less Hazard than some in old Times used to think.

In doing the Operation on a living Person, one cannot but remark at the very first, that the Cannula should not be made near so short as is ordinarily proposed in Books and chirurgical Lectures: For we found, that, upon cutting, the Parts, especially the Thyroid Gland, (which is not so much minded in most of the common Descriptions of this Operation as should be) soon become so tumified, that it will require a Pipe above an Inch long, to penetrate sufficiently into the *Aspera Arteria*, which is double *Garengot's* Allowance of six Lines; who is one of the recentest Writers, and has communicated to us all the Surgery the French are Masters of. The leaden Pipe we had prepared not answering the Design, that which we made use of was too long, and too small, being the common Cannula for tapping in the Dropsy, flattened a little at the End, and hindered by a very thick Compress, perforated in the Middle, from penetrating too deep into the Trachea.

The mucous Particles, and Steams arising from the Lungs, made a constant Weeping of a thin slavery Liquor, from the Mouth of the Pipe, Part whereof thickening, and stuffing its Cavity, sometimes very much incommoded the Patient's Respi-

ration by it, so as to render it necessary to have it taken out and cleaned. And hence, when some Moderns very precisely bid us put a thin Slice of Sponge, or a Bit of Muslin, &c. close over the Orifice of the Cannula, to prevent the Ingress of Dust, Down, or the like, into the Lungs, it confirms what I said before, of the Unusualness of the Operation, and looks as if they had only contemplated the Matter in Abstraction, as the Metaphysicians say, without considering they had not to do with a pure thin dry Air, but with a heterogeneous Fluid, that is moistened and thickened with viscid Particles, which are apt to run together in stiff Concretions. And therefore, though it must be acknowledged, that there would have been less Hazard of a Stoppage, if our Cannula had been shorter, and wider, especially at the Mouth, I cannot but think it an ingenious Proposal of one of our Ministers here, to make the Pipe double, or one within another, that the innermost might safely and easily be taken out and cleaned when necessary, without any Molestation to the Patient: For it is no small Trouble to him, to be obliged to have the Bandage frequently removed, and the Pipe fitted anew to the Orifice made in the Trachea.

And indeed we found no Inconvenience in our Patient's breathing the Air as it passed through the Pipe, without any cleansing or intercepting Medium, though the House was none of the cleanest, being an ordinary Tradesman's here. But if by a larger, and consequently a more patent Tube, one, especially of more delicate and ticklish Lungs, should be incommoded that way, I think the Access of Dust, &c. might conveniently enough be hindered by a Piece of Muslin, or thin Hair Crape, tied slackly about the Neck over the Orifice of the Cannula, so however, as not to touch it, or to be wetted by the Liquor coming from it.

The Patient was soon perfectly recovered: He breathes, speaks, eats, drinks, and performs all the other Offices of Life, and goes about his Calling as formerly. And now I cannot but take Notice of the needless Pains some Writers are in about healing up the Wound by Bandaging, Stitching, &c. For we found it easily to fill up of itself, in a very few Days, by only dressing it every other Day, or so, with a soft Tent, made less and less every Dressing, and armed in the common way with *Linimentum Arcei*. I believe indeed it would have taken a little more Time to heal, if our Patient had been older. *Phil. Trans. Abr. Vol. 8.*

In the preceding Account of a Quinsy, I have purposely omitted *Boerhaave's* Sentiments concerning this Distemper, which I reserved for this Place, that they may serve as a Recapitulation of what has been already specify'd; and that the Reader may have in one View, the Sum of what has been delivered by a Multitude of Authors; and at the same time the Opinion of this Author, an excellent Judge of Medicinal Subjects.

A very difficult and excessively painful Deglutition, or Respiration, or both together, which happens from any morbid Cause acting upon the Organs subservient to these Functions situated above the Lungs and Stomach, is called a Quinsy, of which two Species have been observed; one without any manifest Tumor, either internal, or external; in the other, some sort of Tumor is always discovered in some of the Organs before-mentioned.

The first Species usually happens at the End of Chronical Distempers, principally after great and frequently repeated Evacuations. It is attended with a Paleness, Extenuation, and Dryness of the Fauces; whence 'tis evident, that the Nerves and Muscles of the Parts affected are paralytic. It is almost always a Sign of approaching Death, and very seldom admits of any Cure; but, whenever it does, it must be performed by Remedies which are warming and corroborating, and which fill the empty Vessels with good vital Juices, such as nourishing Aliment taken in Quantities proportioned to the digestive Powers, and Wine.

This Species also sometimes appears without any manifest Signs of a preceding Distemper, and then is generally fatal. Dissections of Bodies after Death, have discovered that this Case is almost always attended with a Suppuration of the Lungs.

That Species which appears with a Tumor, takes different Denominations, either from the Nature of the Tumor, or the Part which it affects. Hence Quinsys are distinguished into Oedematous, Catarrhus, Inflammatory, Purulent, Scirrhus, Cancerous, and Convulsive.

These Tumors affect the Tongue, and its Muscles; the Palate, Tonsils, the Uvula, and its Muscles; the Cavities of the Os Frontis, the Maxilla superior, and Os Sphenoides, when a Polypus, arising in any of these, increases to such a Degree as to stop up the Nostrils, depress the pendulous Veil of the Palate, streighten the Fauces, and obstruct the Passages of the Pharynx and Larynx; either some or all the Muscles of the Os Hyoides; the Muscles of the Larynx, whether internal, external, proper or common; the internal Muscular Membrane of the *Aspera Arteria*; the superior Muscles of the Pharynx, and Oesophagus, otherwise called *Sphincter Gulae*; the muscular Parts of the Oesophagus; and those Glands which are situated

situated so near the Aspera Arteria and Oesophagus, that, by their Tumefaction, these Conduits may be compressed, amongst which are all the Salival Glands, and others dispersed about these Parts, and lastly, the Thyroide Glands.

From this History of the Disease, Reasons may be readily assigned for all those various, unforeseen, and fatal Accidents, which sometimes attend a Quinsy.

But as this Distemper is attended with a Variety of Circumstances, which are productive of various Events, it will be necessary to specify Particulars.

Of a Quinsy arising from a watry, oedematose, and catarrhus Tumor.

This is a laborious and painful Exercise of Respiration and Deglutition, from a lymphatic or oedematose Tumor of the Parts destined for these Functions, or those adjacent to them.

The Seat of such a Tumor, like that of every Coacervation of Lymph, is in that Part of the Glands, where the Lymph, secreted by the Arteries, is separated from the Mass of Blood, and deposited.

The Cause therefore of such a Tumor is, whatever prevents a free Discharge of the Lymph from these Reservoirs; and the Causes of such Obstructions are manifold and various, as,

Any Compressure of the Vessels into which the excretory Ducts of these Glands naturally discharge the secreted Fluid.

An Obstruction formed in the Follicule of the Glands, from chalky, pituitous, calculous, fungous, or such-like Concretions.

The same Kind of Concretions in the Emissaries, or excretory Ducts, of these Glands.

A Compressure of any of the Parts above-mentioned.

Cold apply'd to the Extremities of the Excretory Ducts.

A languid Circulation of the Humours.

The Effects of these Obstructions are a watry, white, cold Tumor; a Compressure of the adjacent Parts; and consequently an Impediment of those Functions, which depend upon the natural State of these Parts.

Hence the Diagnostic Signs will be easily known; and also the Prognostic, which is, that if the Tumor is suffered to advance much, the Patient will soon be suffocated.

The Cure is to be attempted by resolving and removing the obstructing Matter, by means of emollient, aperient, and relaxing Remedies, apply'd either in the Form of Fomentations, Cataplasms, Gargarisms, Injections, Collutions, or Vapours; or if necessary, by Frictions apply'd to the Part affected, Caustics convey'd through a Cannula to the Part, or by Incisions, which are preferable to Caustics.

Mean time, such Remedies as diminish the Quantity of Lymph, by evacuating a Portion of it either at the Mouth, or distant Parts of the Body, are by no means to be neglected. Such are,

Apoplegmatisms, which consist of such Ingredients as by stimulating the Parts affected; or those adjacent to them, incline them to discharge a considerable Quantity of the morbid Matter, or of Lymph easily convertible into it. Of this Sort are the Roots of Pellitory of Spain, and Horse-radish, Mastich, Ginger, Pepper, and particularly Nitre. In the *Pharmacopœia Pauperum*, there is a Powder under the Title of *Pulvis Synechicus*, which is very well adapted to these Purposes, and should seem of Efficacy in an oedematous Quinsy, tho' for one of the inflammatory Kind, for which the Author recommends it, much too acrid.

Take Salt of Prunella, (or Nitre) an Ounce and an half; white Pepper, three Drams; white Sugar, four Ounces; make into a Powder for the Patient to hold in his Mouth, and swallow gently. This causes a large Evacuation of Saliva.

As Vescicatories draw off a considerable Quantity of Lymph, and direct it from the Fauces to distant Parts, where it is less capable of doing Mischief; these are also of singular Use in a Quinsy of this Kind. They are to be apply'd to the Back, under the Ears, or to any other Part.

Such gentle Sudorifics also as are not accompany'd with any considerable Degree of Heat, as they contribute to the Discharge of the serous Humours, are of Service, if administered internally, or apply'd externally, in a dry Form. As are, for the like Reasons, Diuretics of the same Kind. But those Kinds of Cathartics, which are called *Hydragogues*, from their Efficacy in evacuating watry Humours, are, in this Case, of singular Use. Of this Sort are Jallop, Scammony, and their Preparations.

Mean time, the Patient must avoid large Quantities of Fluids, and take Aliments which are warm and drying; for by this means he will be carrying on the End proposed, that of diminishing the Quantity of Lymph in the Habit.

Lastly, the Circulation of Blood must be considered; and if this be found too languid, it must be accelerated by means adapted to that Purpose; amongst which are Frictions of the exter-

nal Parts; and volatile oily aromatic Salts administered internally.

A Scirrhus Quinsy.

It sometimes happens, that a scirrhus Tumor occupies the Tonsils, or some other of the Glands mentioned above; and this is said to be frequently caused by exposing these Glands, weakened by a preceding Tumor, before they have recovered their natural Tone and Strength, to the cold Air, or too cold Applications.

This Case may be distinguished by the ordinary Signs of a Scirrhus (See SCIRRHUS). And if it be foreseen, that it will be, or if it actually is, any Impediment to Deglutition, or Respiration, or both, the safest way is to extirpate the Scirrhus by Excision, if it can be easily come at. Or it may be wasted by Degrees with corroding Applications. For this Purpose, let a Pledget of Lint, fitted to the Shape of a Quill, be impregnated with Oil of Tartar *per Deliquium*, and apply'd immediately to the Part affected, by means of a Cannula.

A stronger Cathartic may be prepared of Quick-lime; but there is more Danger in the Application.

An inflammatory Quinsy.

When the Muscles and Glands employed in Respiration and Deglutition, or those adjacent to them, are by any means inflamed, an inflammatory Quinsy is formed, which is particularly to be regarded, because of its excessive Acuteness, and often insuperable Violence.

The Causes of this, in general, are the same as those which are productive of Inflammations in other Parts (See INFLAMMATIO). But a great many Causes may contribute to determine the Inflammation to the Parts above specify'd, particularly to the Larynx, Pharynx, Os Hyoides, and their Muscles, and to the superior Part of the Aspera Arteria, which, just under the Glottis, is furnished with a prodigious Number of Blood-vessels, running in Directions somewhat peculiar.

Amongst these Causes may be numbered, a natural Disposition, which principally prevails in young Constitutions, abounding with Blood, and particularly in those who have red Hair.

Frequent and violent Exercise of the Parts above-mentioned, either in Declaiming, Singing, or Vociferation; riding briskly against a cold Wind; blowing into musical Instruments; great Heat succeeding intense Cold, in the Spring; Dryness of the Fauces, occasioned by respiring hot Air, in the Summer; or in an inflammatory Fever.

When an Inflammation is produced by the Causes above-mentioned, very terrible Symptoms are excited, which are various, as the Disorder happens principally to affect different Parts.

Thus, if the internal Muscular Membrane of the Aspera Arteria is only affected, a Tumor, Heat, Pain, and burning acute Fever are excited, without any external Signs of the Distemper. In this Case the Voice is small, shrill, and uttered with a hissing Noise. Inspiration is excessively painful; Respiration is small and frequent, and scarcely performed but in an erect Posture, and then not without much Difficulty; hence the Circulation of the Blood through the Lungs is much obstructed, the Pulse begins to sink surprisingly soon, great Anxieties come on, and the Patient quickly expires. This is one of those fatal Cases, which destroy without any external Appearance; and the nearer the Seat is to the Glottis and Epiglottis, the more fatal it is.

If the Larynx is affected with an acute Inflammation, which principally seizes the Musculus Albus of the Glottis, together with the fleshy Muscles, which, when they act, close it, a most terrible and strangulating Quinsy arises, because, upon this Occasion, the Passage of the Air from and to the Lungs is utterly obstructed by the closing of the Glottis.

The Signs of this Species of Quinsy are much the same as those of the preceding, except that the Pain is intolerable during the Elevation of the Larynx, in order to swallow; and is remarkably increased by Speaking, or Vociferation; the Voice is extremely acute and shrill; excessive Anxieties come on, and Death quickly ensues. This is, of all those Quinsys, without any external Signs, the most dangerous.

If the Muscles only, which are employ'd in elevating the Os Hyoides and Larynx, suffer an acute Inflammation, it may be distinguished by these evident Signs: Respiration is tolerably free and easy; but the first Part of the Action of Deglutition is attended with excessive Pain, because on this Occasion the Muscles above-mentioned act. Add to these the general Signs of an Inflammation, which will appear evidently in these Muscles upon Examination.

When the Pharynx alone is affected, the specific Signs of it will appear upon inspecting the Fauces. In this Case, Respiration is tolerably easy; but Deglutition extremely painful, or utterly impossible; for upon any Attempt to swallow, the Substance intended to be convey'd to the Stomach, is return'd by the Nose, or sometimes forced into the Aspera Arteria, there exciting a violent Cough. Hence arises an Impossibility of taking

taking any Aliment, either solid or fluid, the Consequence of which is, that the Body must become extenuated and dry; and that the Fluids must contract an Acrimony, for want of a fresh Supply of balsamic Chyle. The Fever, however, in this Case, is not so intense, as in those preceding; nor does it so suddenly terminate in Death.

If the Tonsils, Uvula, and pendulous Veil of the Palate, together with the Muscles called *Pterygostaphylini*, are much inflam'd, nearly the same Symptoms will arise as in the preceding Case. Respiration is, however, somewhat laborious, and is little, or not at all perform'd thro' the Nose, and by the Fauces not without some Difficulty; whatever is attempted to be swallowed, is forced back again thro' the Mouth, by reason of the Obstruction it meets with, and the excessive Pain it excites; there is a perpetual Discharge of Saliva by hawking, and a continual and copious Diffusion of Phlegm into the Cavities of the Tonsils; an acute Pain is perceiv'd in the internal Ear, and the *Tuba Eustachiana*, which passes from the Fauces to the Ear; a crackling Noise is perceived in the Ear, during Deglutition, and sometimes utter Deafness ensues. This Case is in our Days frequent from the Venereal Disease, and is attended with much Danger.

If all or most of these Parts are inflam'd, the Disease is in Proportion more severe, as the Inflammation affects the greater Number of the Parts above specify'd; and hence more Symptoms may be expected to arise, and those of a worse Kind.

For the Return of the Blood into or thro' the external Jugulars now compress'd, being intercepted, the Fauces, Lips, Tongue, and Face, swell; the Tongue hangs out of the Mouth, is intorted and inflamed; the Eyes are red, prominent, and ghastly; the Brain is, as it were, suffocated by an Abundance of Blood retained in it; hence the Sight, Hearing and Feeling, are rendered dull; hence also a Delirium, a perpetual Gaping of the Mouth, a Stertor, an Impossibility of lying down, because of the Strangulation attending that Posture; and a manifest Redness, Tumor, Pain, and Pulsation, in the Breast and Neck; whence the Jugular, and Frontal Veins, and those under the Tongue, called *Ranina*, becoming varicose, are distended.

These inflammatory Quinsies run thro' the same Stages as other Inflammations, are susceptible of the same Alterations, and, like them, terminate in Resolution, Suppuration, a Gangrene, or Scirrhus, unless they strangle the Patient before any of these can happen. See INFLAMMATIO.

Therefore as soon as we are satisfied by the Signs above specify'd, that the internal Muscular Membrane of the Aspera Arteria, or the Muscles about the Glottis and Larynx, are affected, we must immediately inquire, whether the Distemper is still in a State of Inflammation, which may be discovered by the Signs mentioned under the Article INFLAMMATIO; and, if we find it is, Resolution must by all possible means be instantly attempted. See INFLAMMATIO.

Therefore let Blood be immediately taken away by a large Orifice, and in great Quantities, and let this be repeated, till such time as a general Weakness, Paleness, Refrigeration, and Subsiding of the Vessels, shew that the Force of what remains is not capable of augmenting the Tumor and Rigidity of the small Vessels about the Parts affected.

This is nearly the Direction of *Hippocrates*, who, in his third Book of Diseases, advises, as the first Step in the Cure of a Quinsy, to take away Blood, which, he says, is of most Service, if drawn from under the Breast. He also orders Blood to be taken from the Cubit.

Next, strong Purges must be administered, either by the Mouth, or by Clysters, and these must be repeated.

The following Purge is adapted to this Intention:

Take of Diagrydium, eight Grains; make an Emulsion with half an Ounce of Water; to which add an Ounce and an half of Syrup of Sena, for a Draught.

A proper Clyster may be thus prepared:

Take Sena-leaves, an Ounce; boil these in a sufficient Quantity of Water to eight Ounces; and to the strained Liquor, add of Nitre and Syrup of Sena, each an Ounce. *Boerb. de Mat. Medic.*

This is exactly conformable to the Advice of *Hippocrates*, who, in the Place above quoted, says, that the Belly must be purged downwards with a purging Medicine, or a Clyster.

The Regimen must be extremely slender, both with respect to solid and fluid Aliments.

Hippocrates also orders the Patient to abstain entirely from Wine, and to sup the strained Juice of Pissan, in the Treatise above-mentioned.

The other Medicines should be principally nitrous and subacid; for Nitre is of all Remedies, perhaps, the most powerful for resolving Inflammations.

Mean time, let the Patient receive some tepid, moist, resolving Vapour at his Mouth; let Fomentations be used externally; and let Vesicatories be apply'd, in order to derive a Portion of the offending Humours from the Parts affected.

The following Form may serve for an Example of a Vapour:

Take Elder, Rose, and Marigold Vinegar, each an Ounce; Elder-flower Water, six Ounces: Mix together; let the Vapour of this be convey'd to the Fauces by means of a Funnel. *De Mat. Medic.*

Hippocrates also advises Fumigations of the Fauces, with *Cilician Hyssop*, Sulphur, and Asphaltus.

When the Muscles which are employ'd in elevating the Os Hyoides and Larynx, are only affected, the Case is not so dangerous; the same Sort of Remedies, however, are required, tho' not so powerful. In this Case, anodyne, relaxing, and emollient Cataplasms, apply'd externally, are particularly useful. For this Purpose,

Take of the Lens Palustris, (Ducks Meat) six Ounces; of the Flowers of Water-lillies, five Ounces; Flowers of Poppies, eight Ounces; of Marsh-mallows, six Ounces; of Elder and Melilot, each four Ounces. Boil these in Water, adding at the End of the Decoction, two Swallows Nests, and a sufficient Quantity of Meal of Lin-seed; make a Cataplasma with three Ounces of Oil of White Lillies.

The strained Liquor may be used for a Fomentation. *De Mater. Medica.*

If the Disorder affects the Pharynx only, or the Tonsils, Uvula, and pendulous Veil of the Palate, with the *Musculi Pterygostaphylini*, or many of these Parts together, and the State of Inflammation still subsists, all the Remedies above specify'd are to be called in to our Assistance, that by their united Force they may relieve the Patient. But besides these, the Mouth and Fauces must be kept continually moist, by mild attenuating nitrous Liquids, diluting aqueous Fluids, or relaxing Decoctions of pinguious Ingredients; these must be kept perpetually in the Mouth, without Motion, or they may be gargled gently, or injected with a Syringe. But the Benefit arising from these depends upon their continual Use; for otherwise the Parts grow immediately dry.

Take of the Decoction of the Ingredients, specify'd in the preceding Prescription, twelve Ounces; Elder Vinegar, Syrup of Marsh-mallows, each two Ounces; purify'd Nitre, two Ounces; mix for a Gargarism: Or,

Take of fat Figs, twenty-two; Leaves of Marsh-mallows, two Ounces. Boil for a considerable time, and use the strained Liquor in the Manner above directed.

But if the Remedies above-mentioned are not at all made use of, or are applied too late, or without Effect, provided the Distemper is recent, threatens Strangulation, and resides in any Part above the Place where the Incision is to be made, the Operation of Bronchotomy must be performed, after prognosticating the Danger of the Distemper.

After this Operation, the Causes of the Difficulty in Respiration, which rendered it necessary, must be removed by the Methods above specify'd; and if, during the Cure, the Patient is not able to swallow sufficiently for his Nourishment, nutritive Clysters must be frequently administered, after emptying the Intestines by one which is cathartic.

Take of good Broth of Flesh-meat, ten Ounces; Nitre, ten Grains; Spirit of Salt, six Drops; make a Clyster to be injected every eight Hours, and retain'd as long as is possible.

If the Inflammation has proceeded so far, that the Part affected begins to suppurate, which may be known by the Signs of an Abscess, (See ABSCESSUS, and INFLAMMATIO) Resolution being no longer possible, we must endeavour to free the Patient from the offending Matter, by promoting an Abscess. See ABSCESSUS.

Use therefore emollient Gargarisms perpetually; apply large relaxing Cataplasms; and, when the Matter of the Abscess is perfectly formed, and the exact Situation of it is discovered, let it be opened. Mean time, if it should be absolutely necessary for the sake of Respiration, the Operation of Bronchotomy may be performed.

It must be remark'd, that the Species of Quinsy which affects the internal Membrane of the Aspera Arteria, and the Larynx with its Muscles, can very seldom arrive at Suppuration, because, if not resolv'd, it must be fatal before this can happen.

As all Inflammations may terminate in a Gangrene, that which causes any Species of inflammatory Quinsy may do so likewise. This Case may be distinguish'd by the general Signs of a Gangrene (see GANGRENE) apply'd to the Parts affected, and whose Functions are impair'd; and also by Signs which are peculiar to this Disease.

Thus if a Tumor, and Redness, which were before conspicuous, suddenly disappear without evident Cause; if the Pain vanishes in like manner; if the Fauces on a sudden become equal, smooth, dry, and livid; we may be certain, that a Gangrene is begun; and if so, it admits of no Remedy.

An Inflammation of the Tonsils, Uvula, and Palate, may terminate in a Scirrhus, which may be readily discover'd by the general Signs of a Scirrhus, (see SCIRRHUS) but is not so easily cur'd, especially when it degenerates into a Cancer.

If the Nerves which convey Sensation and Motion to the Organs of Deglutition and Respiration, are by any means prevented from exercising their Functions upon those Parts, a nervous or paralytic Quinsy is form'd: This is said sometimes to happen from a Luxation of the Tooth-like Process of the second Vertebra of the Neck inwards.

If the Muscles of the Larynx or Pharynx are convulsed by any Cause whatever, a sudden and suffocating Quinsy may arise. This frequently happens in Epileptic, Spasmodic, Hypochondriac, and Hysterical Cases, where it frequently goes off, and returns, without any great Danger. As it is only a Symptom of the original Disorder, and depends upon that, it is to be cur'd by Remedies adapted to remove its Cause.

The Musculus Oesophageus, or Sphincter Gulæ, when it acts, presses the Pharynx to the back Part of the Larynx, and stops the Orifice of the Pharynx; now this also happens in involuntary Contractions of this Muscle, so that Wind coming from the Stomach, and not being able to pass the Orifice of the Pharynx, swells the Oesophagus, and causes a Sensation of a Swelling in the Throat.

From the preceding History of Quinsys, all the Prognostics related above are readily accounted for, and confirm'd. I shall only remark farther in this Place, that any artificial Compressure of the Jugular Veins will cause a Discharge of frothy Saliva from the Mouth, as well as that Compressure of these Veins, which happens from a Quinsy.

ANGIOSPERMOS, Ἀγγειόσπερμος, from ἀγγείον, a Vessel, and σπέρμα, a Seed, an Epithet for such Plants as have their Seed or Fruit inclosed in two Membranes, not easily separable from the Nucleus, by way of Distinction from the Gymnospermoi, γυμνόσπερμοι, derived from γυμνός, naked, &c. which have their Seed for the most part surrounded with three Integuments. *Castellus* from *Volcamer's Flor. Noremberg*, and the *Acta Erudit. Lips.*

ANGLICUS SUDOR. See SUDOR ANGLICUS.

ANGOLAM, H. M. P. 4. T. 17. p. 39. *Arbor Indica baccifera, Fructu umbilicato rotundo, Cerasi Magnitudine, dicocco.*

It is a very tall and beautiful Tree, running up to an hundred Feet in Height, and about twelve Feet in Thickness, and grows in the rocky, sandy, and mountainous Parts of *Malagatti*, and other Provinces of *Malabar*; it is an Evergreen, bears a Fruit like a Cherry, and lives a long time.

This Tree is accounted by the *Malabarians* an Emblem of Royal Majesty, because its Flowers stick along upon its stiff Thorns in the Form of an Imperial Diadem.

The expressed Juice of the Root kills Worms, and purges bilious and phlegmatic Humours, and evacuates the Water of hydropical Persons. The Root pulverized is accounted good against the Bites of Serpents, and other venomous Creatures. *Raii Hist. Plant.*

ANGOR, Ἀγρία, ἀδυναμία, is a Contraction and Concentration of the natural Heat, the Consequence of which is a Pain of the Heart, Palpitation, and Sadness; and if it happens in the Beginning of acute Fevers, it is a very bad Prognostic. *Galen. in Hippocr. Epid. L. 1. See AGONIA.*

ANGOS, ἄγγος, the same as ἀγγείον, signifying a Vessel in general, and a Receptacle of Humours. Used once by *Hippocrates, Lib. 6. Epid.* as *Galen* expounds him, in a special Sense for the Uterus.

ANGSANA, Offic. *Angsava*, Ephem. Germ. *Anno 13. fœe Decur. 11. Anno 13. p. 107. Draco arbor Indica siliquosa, Populi folio, Angsana vel Angsava Javanica*, Commel. Hort. Amst. 1. 213. Tab. 109. *Raii Dendr. 113.*

It grows in the *East-Indies*; the Part used in Medicine is the Liquor which distils from the wounded Tree, and condenses into a red Tear, wrapt in thin, reedy Coverings, as sold in the Shops.

The Gum of this Tree, as the very learned and ingenious *Commelin* says, is sold in the Shops for Sanguis Draconis. Hence I cannot but observe, that either our Botanical Authors are at a great Loss, and in much Confusion and Perplexity, about what Kind of Tree this should be, or else there are several Sorts of Trees which produce this Gum.

It is esteem'd an Astringent, and an excellent Remedy in Aphthæ. *Dale. Raii Hist. Plant.*

ANGUILLA, the Eel, thus distinguish'd:

Anguilla, Offic. Schrod. 325. Mer. Pin. 188. Aldrov. de Pisc. 544. Gefn. de Aquat. 40. Charlt. de Pisc. 34. Salv. de Aquat. 75. Rondel. de Pisc. 2. 198. Schonef. Ichth. 14. Bellon. de Aquat. 295. *Raii Ichth. 109. Ejusd. Synop. Pisc. 37. Jons. de Pisc. 81. THE EEL.*

There are two Sorts of them, the large and the small, of both which you are to chuse those that are tender, fat, well fed, and that have been taken in a fine clear River.

They are very nourishing, and well tasted; they are sometimes salted for the better keeping of them, and then they are more wholesome, than at any other time.

They produce a viscous and thick Juice, are hard of Digestion, cause Wind, are injurious to those who are afflicted with the Gout, or Stone, and have a bad Stomach: It is also pretended, that they hinder the Catamenia. *Hippocrates, L. de intern. Aff.* would have them used by those that are lean and wasted, and subject to the Spleen. Lastly, there are some who will not eat the Head of an Eel, because they fancy it is prejudicial to their Health.

The Eel contains much Oil, volatile Salt, and viscous and gross Phlegm.

It agrees at all times with young People of a bilious and hot Constitution, who abound with thin and sharp Humours, provided they have a good Stomach, and that they use it moderately.

REMARKS.

The Eel is a fresh-water Fish well known; sometimes it is found in the Sea, not that 'tis produced there, but because it goes often out of Rivers into the Sea, and so back again into Rivers; it delights in pure and running Waters; and they assure us she grows lean, poor, and dies at last, when confined to muddy Water. She requires also a great deal of Water, for otherwise she dies; as also it happens to many other Fishes. It is said she cannot bear any considerable Difference of living; for in Case she should in Summer-time be conveyed into a much colder Water than that wherein she was before, she is soon destroyed. In the mean time, they say, she can live out of the Water five or six Days, provided the North Wind blows at that time; she feeds upon Roots, Herbs, Fish, Insects, and any thing she can find in the Bottom of Rivers. *Athenæus* says, he had seen Eels in a certain Country, which were so far tamed, that if they offered them any thing to eat, they would come and take it out of the Persons Hands. This Fish lives commonly seven or eight Years. *Aristotle* assures us, that in dissecting Eels, he found no Difference of Sex in them; that they had neither Seed, Eggs, Matrix, nor Seminal Pipes; and that they did not ingender, inasmuch that 'tis pretended, they were generated out of the Corruption that is in Mud. *Pliny* frames another Symptom for the Explication of it: He says, that when the Eels rub themselves against Rocks, the Off-scouring of their Bodies comes afterwards to take Life, and so gives Being to an Infinity of small Eels; but neither of the Explications seem to be easily apprehended. I am confident, if those two famous Authors were now alive, and acquainted with the new Anatomy, they would be more cautious of advancing Notions, that have so little Resemblance of Truth in them. It is now discover'd, that they are viviparous.

The Eel is good Aliment, and much used; she is tender, soft, and nourishing, because she contains many oily and balsamic Parts: She has also a great many that are dull, viscous, and gross, which makes the Eel hard of Digestion, and apt to produce the many ill Effects we have before-mentioned. In the mean time the Eel that has been salted to keep, doth not produce so many bad Effects; because one Part of its viscous and gross Phlegm is spent, and the other attenuated and scattered by the Salt.

They eat Eels either roasted or boiled: Those that are roasted, seem to me to be more wholesome than the other; and the Reason is, because they are thereby the more divested of their viscous Phlegm, than by the other way. They should also be well season'd, and you should drink good Wine upon them, in order to help the digesting of their Phlegm in the Stomach.

The Fat of an Eel is looked upon to be good to take away the Signs of the Small-pox in the Face, to cure the Piles, and to make the Hair grow: It is also put into the Ears to help Hearing.

They make a kind of Mucilage of Eel's Skin, by steeping and boiling it in Water, which is applied to Swellings, in order to the softening and dissolving of them: It is good for *Hernia's*. *Lemery on Foods.*

The Oil of the Eel is so offensive to some Stomachs, that they cannot bear it without being sick.

As the Eel is a Fish of Prey, the Salts for that Reason must be more plentiful and exalted.

ANGUIS.

Serpens, Offic. Schrod. 5. 305. *Serpens Anguis*, Schw. Rept. 137. *Anguis*, Gefn. de Serp. 43. *Anguis Caluber*, Mer.

Mer. Pin. 204. *Natrix torquata*, Aldrov. Hist. Serp. 287. Jonf. de Serp. 89. Raii Synop. A. 334. Charlt. Exer. 35. THE SNAKE.

The Fat and Slough, or last Skin, are used in Medicine. The Fat mollifies stumous Swellings, cures Redness of the Eyes, clears them of Specks, and sharpens the Sight; it mitigates the Pain of the Gout. *Dale*. See ANGIUM SENECTA.

Snakes are not so venomous or terrible in Italy, and the colder Countries, as in warmer Climates. For a Remedy against their Bites, it will be sufficient to make use of Betony, Cantabrica, [Lavender-leav'd Bindweed, according to *Dale*] or Centaury, or Agrimony, or Germander, or Burdock, or Water-parsnips. One or two of these Simples bruised, the Juice drank in Wine, and the Herb apply'd to the Place, are enough to work a Cure.

We ought to know, that the Bites of all Serpents are most venomous, when they are hungry, and do most Harm when the Patient is fasting. Therefore these Creatures are most pernicious in the Time of their Incubation; and the best way, when you are under any Apprehensions of Danger from them, is not to stir out of your House upon an empty Stomach. *Celsus*, Lib. 5. Cap. 27.

Our Snakes are perfectly innocent, as is generally believ'd, and their Bite is not attended with any Danger; tho' they have sometimes been blam'd for the Mischief which Vipers have done, by Mistake.

ANGUIS ÆSCULAPII, *Johnston*,

Is the only Species of Serpent now known, which can be made so tame; as to do no Harm. It is found in many Parts of Italy, Germany, Poland, Spain, Asia, Africa, and America; it is of a gentle Nature, and People confide so much in its Gentleness, that they sometimes leave it in their Beds, where it is found, without Fear of being bit; it is full of volatile Salt and Oil; they prepare it in the same manner as the Vipers.

It is good against the Plague, resists Poison, and carries off Humours by Transpiration. *Lemery de Drogues*.

ANGUIUM SENECTA. The cast Skin, or Slough, of a Serpent, boiled in Wine, and the Decoction instilled into the Ears, eases their Pains; and, used as a Collution, helps the Tooth-ach. It is also an Ingredient in Medicines for the Eyes, especially the Slough of the Viper. *Dioscorides*, Lib. 2. Cap. 19.

The Slough of a Snake, burnt and pulverized, then mixed with Oil, and reduced to the Consistence of Honey, is an admirable Remedy for the greatest Pain of the Teeth, if apply'd to them, and thrust into their Cavities; or rub the unfound and aching Teeth with the Slough itself not burnt, and they will fall out. *Aetius*, Teir. 2. Serm. 4. Cap. 33.

ANGULI OCULI, *Kavdoi*, the Corners of the Eyes. See CANTHUS.

ANGURIA, a Plant of the cucurbitaceous Kind. See CITRULLUS and CUCUMIS.

ANGUSTIA, in the common Sense, imports an Anxiety or Restlessness in Distempers; but ANGUSTIA, or ANGUSTATIO, also signifies a Narrowness of the Vessels, or Passages.

ANHALDINUM, an Epithet of a Corrosive described by *Hartman*, Praxis Chym. Tom. 1. *Castellus*.

ANHALTINA REMEDIA, Medicines which facilitate Respiration, such as vulnerary Plants, some Preparations of Sulphur, &c.

ANHALTINUS, an Epithet of a very rich and comforting medicinal Water and Spirit, describ'd in some old foreign Dispensatories.

ANHELATIO, ANHELITUS, *Ἀσθμα*, a Shortness of Breath, or a difficult, and small, but quick Respiration, which happens to sound Persons, but especially to Valetudinarians, after vehement Exercise, getting up an Ascent, running or dancing. Fat Persons, with prominent Bellies, are much subject to this Disorder, which also happens after Repletions, especially with the cruder or flatulent Sorts of Aliment, whether the Patient be sitting or lying; and worse, if he be running, or getting up an Ascent; and worst of all, if it be in the Summer Season. In Fevers, Dropsy, Tumors of the Viscera, Pleurisy, Cardialgy [Heartburn], and Asthma, there is always an Anhelatio, or Shortness of Breath. See ASTHMA and ORTHOPNOEA.

ANHELITUS, with the Chymists, signifies Smoke, and sometimes Horse-dung. *Rulandus*.

ANHIMA.

Anhima, *Johnston*, is an Aquatic Bird of Prey, of Brasil, bigger than a Swan; its Head is no larger than a Cock's, and its Beak is black, and crooked near the Point; it has fine Eyes of the Colour of Gold, surrounded with a black Circle; the Ball of the Eye is black; on the Top of its Head, near the Root of the Beak, arises a Horn, as thick as one of the largest Strings of a Fiddle, and about the Length of two Inches, crooked at its Extremity, round, as white as a Bone, surrounded with small and very short Feathers, black and white;

its Neck is above seven Inches in Length, and its Body near a Foot and an half; the Wings are large, and of different Colours; its Tail is ten Inches long, and as large as that of a Goose; each Foot hath four Toes, armed with Claws; it has a strong Voice, crying *vibu, vibu*; they never find it alone; the Female is always accompanied with the Male; and when one of the two dies, the other presently follows. It is the Female that I am here describing, the Male is as big again. She makes her Nest with Dirt, in Form of an Oven, in the Trunks of Trees, upon the Ground.

The Horn of this Bird is esteemed a good Remedy to resist Poison, for Suffocation of the Matrix, and to provoke Labour; they infuse it for a Night, and next Day order the Infusion to be taken. *Lemery de Drogues*.

ANHUIBA. See SASSAFRAS.

ANIADA, the Term by which the Alchymists express what they call the Fruits and Powers of Paradise and Heaven; also the Christian Sacraments. In Physics it means the astral and celestial Powers; which, by Influence, Imagination, Estimation, and Phantasy, promote in us long Life. *Rulandus*.

ANIADAY, in the Jargon of the Alchymists, the eternal Spring, and the new World and Paradise to come. *Johnson*.

ANIADON, ANIADUM, ANIADUS, Terms in *Paracelsus*, signifying either the Efficacy and essential Forces of things, or the celestial Body planted in Christians by the Holy Spirit by means of the Sacraments, or the spiritual Man regenerated. *Castellus*.

These seem the same as Aniada and Aniaday.

ANICETON, *Ἀνικητός*, Invincible, an Epithet of a Plaster ascribed to *Crito*, and so called, because it was an infallible Remedy for the Achores. It is thus described by *Galen*, de Camp. Pharm. Sec. Loc. L. 1. C. 8.

Take of Litharge, three hundred and twelve Drams; Rha, [a sort of Rhubarb] an hundred and four Drams (some put but fifty-two); of Cerufs, an hundred and four Drams; Frankincense, twenty-six Drams; plumous Alum, sixteen Drams forty Grains; Turpentine, twenty-six Drams; white Pepper, three Drams seven Grains; Oil, one Pint: Pound the dry Ingredients, but boil the Oil, Litharge, and Cerufs, in a new earthen Pot; and when they have received an Alteration, put in Wax and Rosin, and stir them about till it will no longer foul the Hands; then take it off the Fire, and when it is somewhat cooled, add the dry Ingredients, and beat them well together in a Mortar. Spread it on Linen, and shift the Plaster every third Day.

Another *Emplastrum Anicetum* describ'd by *Aetius*.

It is very much in Use; for it draws, breaks, cleanses, conglutinates, extracts Pus thro' the Bolster, and is used as a Collyrium. It dissolves Hardnesses, and helps contracted Nerves, if applied without Embrocation, that they might not be refrigerated. Being dissolved, it serves instead of an Ointment for Lascitudes, removing such as arise in the Beginning of a Disease, or from an obscure Cause. Apply'd on large Bolsters, it mollifies the extreme Parts. It is an Agglutinant of bleeding Wounds, after a Suture, or Imposition of Hooks; a folded Piece of Linen, moisten'd only with Vinegar, being laid upon the Compress, which must be cold in the Summer, and warm in the Winter. It is good for Soreness or Putridness of the Soles of the Feet, or Maladies of the Fingers, and for Wounds and Fractures; and you may safely rely on it for an Incarnative and Cicatrizer, without any other Medicine. It cures the Bites of Men, Dogs, and wild Beasts: But one extraordinary Effect it has, which is, to prevent any secret Abscess from forming in the Colon or Peritonæum, if there be yet no Suppuration; or, if there be one to attenuate it, and divert its Rupture upon the Intestines; but a Bolster must be laid upon the Place, and upon that a Lock of Wool, moisten'd with Vinegar or warm Oil; which Moistening must be renew'd twice in a Day, but the Plaster must not be removed till after three or four Days; and then, after fomenting the Place, laid on again. It takes its Name from its manifold and wonderful Effects, and is thus prepared:

Take of Squama Aris, fifty-eight Drams; Pellitory of Spain, Staveacre, Cnidian Grains, Mustard-seed, Rosemary-seed, Pigeons Dung, long Birthwort, Verdegrise, Cyprian Misy, Rocket-seed, Cummin, each sixteen Drams; Nitre, Sal Ammoniac, each thirty-two Drams; Manna of Frankincense, Bay-berries, Orris, each one hundred and twenty Drams; of the strongest Vinegar, sixteen Pints; of a Decoction of dry'd Figs, half a Pint: Let five Pounds of fat dry'd Figs be boiled in six Pints of Water to one Third. Let all these, together with the Vinegar, be bruised and sifted, and then levigated in the Heat of the Dog-days. When the Medicine is grown dry, and looks green, pour upon it the Decoction of the dry'd Figs, and soften it, and then lay it up in a Box of red Copper.

When

When Occasion requires, mix one Part of this Medicine, diluted with Vinegar to a frumentitious Consistence, with six Parts of Wax and Colophony melted in a moderate Quantity of Oil. If you would have it harder, take four Parts to one of Wax and Colophony; if you like it softer, take eight to one of the same. It is said to be good for malignant Tetters, if used with little Mixture. *Aetius, Tetr. 4. Serm. 3. Cap. 16.*

ANIDROS, ἀνιδρῶς, sweatless. From a Neg. and ἰδρῶς, to sweat. *Ἀνιδρῶς πυρετὸς ἐξ ἀνείδου*, in *Hippocr. de Rat. Viſi. in Morb. Acut.* signifies a Fever protracted to a great Length, without critical Sweats; because Nature has been disturbed by purging Medicines.

ANIDROSIS, ἀνιδρῶσις, a Nullity or Privation of Sweat. *Hippocr. L. 7. Epidem.*

ANIDROTI, ἀνιδροτῖ, an Adverb expounded by *Galen* in several Places of his *Comment. upon Hippocr.* and by *Hesychius*, to signify without Sweat.

ANIL. *Anil*, Garz. *Acoft. Nil*, *ſive Anil*, *Cam. Agnil*, *Fragoſo. Coachira Indor. Anil ſive Indigo, Gali ſive Nil, herba rorifmarini facie*, *Linſc. 4. Part. Ind. Orient. Herba Anil, ſive Enger*, 4. Part. *Ind. Orient.*

It is a Plant of *Braſil*, about the Height of two Feet, reſembling Roſemary; the Leaves are round, thick, the Flowers reſembling thoſe of Peas, and reddiſh; they are ſucceeded by long and crooked Pods, containing Seeds like thoſe of a Radish, of an Olive-colour. All the Plant hath a bitter and pungent Taſte: They extract from it Indigo. It is vulnerary, deterges and cleanses old Ulcers, being applied in Powder on the Part: It is uſed alſo as a Frontal for the Head-ach. *Remery de Drogues.*

Anil alia Species, *Marcgrav. Coachira ſecunda*, *Piſon. An Glaſto affinis*, C. B.

It grows to the Height of two or more Feet; the Stalk is round, full of Joints, of a viscid, juicy, ſpongy, or Reed-like Subſtance. At the Joints of the Stalk and the Branches ſtand two Leaves, directly oppoſite, without Pedicles, of the Length of three or four Fingers Breadth, and narrow like the Leaves of yellow Willow-herb, green, and ſet with ſhort white Hairs on both Superficies, feeling a little rough. At the ſame Joints where the Leaves are, on each Side, grow two Pedicles, near one another, ſtanding upright, two or three Fingers Breadth long, and bearing at Top a round white Flower, of the Bignefs of a Daisy, with ſmall white Leaves, ſet round about with minute white Stamina. The Root is half a Foot long, or a little more, ſomewhat bent, with few Sprays, of a viscid and ligneous Subſtance, and cover'd with a Bark of a dark Colour, which may be ſtrip'd off. The whole Plant, with its Root, is full of Juice; and if any one breaks the Stalk or Root, there immediately iſſues a Juice of an azure Colour.

They make *Anil* of it, only by bruſing the Herb, and pouring Water on it. They then leave it to ſubſide; and after drawing off the Water, dry the Sediment in the Sun.

This Plant is of a quite different Kind from the other *Anil*, of which they make Indigo. *Raii Hiſt. Plant.*

The Plant *Anil*, the Method of extracting its ſeculent Parts, and the ſeveral Uſes to which they are applied, have been ſo often, and ſo fully, inſiſted on by Phyſicians and Travelers, that we have no Occaſion to enter upon theſe Points at preſent.

Since the Medicinal Uſes of *Anil* in the *Indies* are unknown to us, becauſe of the Scarcity of this Plant; and ſince the ſeveral Authors who have handed down their Accounts of it to us, differ from one another, not only with regard to its Deſcription, but its Medicinal Virtues, we ſhall only mention ſuch of its Properties as are moſt univerſally agreed upon by Botanists and Phyſicians. 'Tis then generally concluded, that a Decoction of its Root is good againſt a Nephritic Colic; that its Leaves, bruſed and macerated in Water, are ſucceſsfully applied to the Belly in Suppreſſions of Urine; and that, applied by way of Cataplaſm, they aſſuage and mitigate Pains of the Head. *Mem. de l'Acad. A. 1718.*

ANIMAL. Every organiz'd Body endowed with Life, and ſpontaneous Motion, is call'd an Animal. Hence all Subſtances which are procured from Animals, are ſaid to belong to the Animal Kingdom, in order to diſtinguiſh them from others, which belong to the Vegetable and Mineral Kingdoms.

The Earth of Animals is not found to differ from that of Vegetables in any reſpect; but the Salts of Animals differ remarkably from thoſe of Vegetables, in being volatile; that is, in riſing by the Force of Fire in Diſtillation; whereas thoſe of moſt Vegetables, before they have undergone Putrefaction, are fixed, ſo as not to be capable of being elevated by the moſt intense Fire. See ANALYSIS.

The Oils of Animals alſo are different from thoſe of Vegetables in many Particulars; which are ſpecified in the following Obſervations of *Hoffman*, with reſpect to Animal Oils.

In all Bodies produced by the Earth there is a fat, oily, and inflammable Subſtance contain'd; but this Subſtance is not confined to theſe Bodies alone, for 'tis found in great Plenty in all Animals, of every Species; neither is it poſſible to find an Ani-

mal, that has not ſome Portion of Fat lodged in its internal Parts. In all their ſolid Parts alſo, in their Fleſh, in their Bones, and even in their Fluids, duly dry'd, this inflammable Principle diſcovers itſelf; ſince they are very eaſily made to flame, and alſo yield a great Quantity of Oil in Diſtillation: But there is this Difference between Vegetable and Animal Oils, that the finer of the latter Sort are not, like the former, procured by a moiſt, but by a dry Diſtillation, that is, by Combustion; and for this Reaſon, all Animal Oils have an empyreumatic Smell, and ſtrike the Nerves of the Noſtrils in an ungrateful and diſagreeable Manner.

Then again, all Fats and Oils, drawn from Animals, differ much in another reſpect from thoſe of Vegetables; ſince the latter have a ſubtile Acid intimately mix'd with them; whereas the former contain, inſtead of that, a certain alkaline Principle. An Acid manifeſts and diſcovers itſelf in Oils expreſs'd from Seeds and Fruits; ſince theſe Oils, by remaining any conſiderable time in Copper Veſſels, extract a greeniſh Colour from them, which can only be done by an Acid; whereas the Fats of Animals, if kept for any time in Copper or Silver Veſſels, aſſume a beautiful blue Colour, which Effect can only be produced by an alkaline Principle.

Befides, that the æthereal Oils of Vegetables contain a certain acid Salt, is plain from the following Experiment: Let Salt of Tartar be levigated very finely on a Marble; let ſome diſtill'd Oil, that of Juniper, for Inſtance, Turpentine, or even Lavender, be dropp'd into it; continue the Trituration for ſome Hours, till ſuch time as the ſmalleſt oleous Particles are mixed with the lixivial Salt, and the Maſs aſſumes the Form of a Pulvis, without the Oil being any more diſcovered. This Maſs is to be expoſed to the free Air, upon the Marble, for a conſiderable time, till the Salt, becoming dry, is again render'd capable of being levigated; after which, let it be a ſecond time impregnated with Oil. Let this Method be follow'd, till, at leaſt, two Pounds of the Oil are abſorb'd by one Pound of the Salt of Tartar. This Maſs, when become dry, is to be diſſolved in common Water; and, after Filtration, let the Water be drawn off; and then there remains a Salt of a neutral Nature, ſuch as the *Arcanum Tartari*, or vitriolated Tartar.

Now there is no Doubt to be made, but this Acid, by means of which the Alkali was converted into a Subſtance of a neutral Nature, was originally contained in the Oil pour'd into it, ſince the Air alone could not poſſibly produce ſuch an Effect; however, I don't deny but the univerſal Acid, contained in the Air, concurs, and has its proper Influence in this Affair.

That an Acid enters the Composition even of the fineſt Oils, is plain from an Experiment, in which is ſhewn, that the moſt highly rectified Spirit of Wine may, by the Addition of the moſt acid Oil of Vitriol, be converted into the moſt ſubtile and penetrating Oil.

But in the diſtill'd Oils of Animals the Caſe is quite different; for they are richly impregnated with a volatile Salt, which may be drawn from them in great Plenty; and, which is more, the diſtill'd Oils of Animals, that of Hartſhorn, for Inſtance, or Ivory, if long digeſted with a lixivial Salt, are themſelves converted into volatile Salts.

The volatile alkaline Salt, therefore, contained in the Oils of Animals, is the Reaſon why they are far more ſubtile and penetrating than the diſtill'd Oils of Vegetables, and have a more immediate Tendency to put the Maſs of Blood into a Commotion; for 'tis well known, that the moſt highly rectified Spirit of Wine quickly imbibes and reſolves Oils extracted from Animal Subſtances, that of Ivory, for Inſtance, Worms, or Hartſhorn; but yet in ſuch a Manner, that a few Drops of theſe Oils not only tinge a great Quantity of this Spirit, but alſo communicate an adventitious Taſte and Quality to it; for three or four Drops of theſe Oils are ſufficient for tinging at leaſt three Ounces of the Spirit of Wine with a browniſh Colour.

Hence we plainly diſcover the ſubtile Nature, and the Smallneſs of the Parts, of theſe Oils, which entirely preſerve their original Texture and Qualities; for two ſmall Drops of the Oil of Hartſhorn, intimately mix'd with half an Ounce of highly rectified Spirit of Wine, are ſufficient to produce a copious and plentiful Sweat, if divided into four Doſes, and exhibited to four different Men. Hence we learn, how cautious Phyſicians ought to be in preſcribing theſe Oils, eſpecially for young People, and in Diſtempers accompanied with intense and preternatural Heat: Hence we alſo diſcover the Reaſon, why Oils are ſo powerful and efficacious in diſcuſſing and reſolving Tumors, which will not yield to any other Medicines.

But what moſt of all deſerves our Attention is, that all Oils, extracted from Animal Subſtances, may, by a frequent and reiterated Rectification, acquire ſuch a Degree of Subtility as to be able, if exhibited in a pretty large Doſe, to eradicate the moſt terrible and inveterate Diſorders.

The Preparation is made thus:

Take any Oil diſtill'd from Animal Subſtance, that of human Blood, for Inſtance, that of Worms, Ivory, or Hartſhorn;

horn; and, without the Addition of any thing, let it be drawn off from a Glass Retort, and rectified to such a Degree, that no black and burnt Fæces may remain in the Bottom, which can scarce be obtain'd by twelve repeated Distillations.

This Oil, which was formerly thick, and of a disagreeable and foetid Smell, gradually assumes a more grateful one, and becomes more pungent to the Taste.

Twenty or more Drops of such an Oil, taken on an empty Stomach, before the Access of an Intermitting Fever, bring on a calm and gentle Sleep, and wonderfully carry off feverish Disorders. This is also an efficacious Medicine for the Cure of Epilepsies of long Standing, and allaying convulsive Motions, especially when taken before the ordinary Time of the Access, and when such Medicines are previously used, are as proper for evacuating the too great Quantity of Humours.

It produces its Effects by its gentle, safe, anodyne, and somniferous Qualities; for it induces a calm and pleasant Sleep, which often lasts for twenty Hours, and which is so far from being followed by Drowsiness, Torpor, and Weakness, that it rather exhilarates and enlivens the Body. Besides, it promotes a gentle Sweat, without increasing the Heat of the Blood. The Effects produced by this Medicine are owing to the prodigious Smallness of its sulphureous Parts, occasioned by its frequent and reiterated Rectifications; and since its sulphureous Particles, in consequence of their Subtlety, penetrate all the smallest Meanders of the Parts, and diffuse themselves thro' the whole Mass of Humours, the Tenuity and Elasticity of the *Dura Mater*, and of the whole nervous and membranous System, the depraved and preternatural spasmodic Motion of which is the very Essence and Cause of Intermitting Fevers, and Epileptic Motions, are by this Medicine so much changed and diminished, as afterwards to become unsusceptible of such spasmodic Motions.

By this chymical and practical Observation, we are taught, that uncommon Medicinal Virtues are treasured up in the minutest Particles of sulphureous and oily Substances; which Circumstance is owing to their reaching the inmost Recesses of the solid Parts, especially those of the Nerves and Membranes; upon the due Tone and Motion of which, almost all the Functions and Motions of our Bodies depend.

This Experiment, and practical Observation also, proves, that the hottest Medicine, and such as, when administer'd in a very small Dose, is sufficient to throw the whole Mass of Blood into a vastly quick Motion, may be render'd so mild and safe, that, when exhibited in a larger Dose, it shall be so very far from increasing the Motion of the Blood, that it will rather quell it, and induce a moderate Calm; and we plainly find, that this Circumstance is owing only to the Change produced in the Texture of the Medicine; that is, by rendering the tenacious viscid Oil as subtle as possible.

In fine, this Experiment explains and accounts for the anodyne and somniferous Qualities of Camphire, which is no more than a most subtle coagulated Oil, when used prudently, and as Exigencies require. *Hoffman. Observat. Physico-Chym. L. I. C. 15.*

The rectified Oil, above describ'd, is certainly possess'd of many and considerable Virtues. Its Character is, that it is a most excellent Remedy against the Plague, or any pestilential Disorder: It cures the Pleurisy, it strongly fortifies Nature, it cheers the Heart, and revives the Spirits; it causes a free Circulation of the Blood, and thoroughly purifies the whole Mass, and clears the Skin from Erysipelas, Scurs, and Scabs. It cures the Itch, scald Heads, Tetters, Ring-worms, &c. It is most powerful in the Cure of the Leprosy and Elephantiasis; it opens the Obstructions of the Liver and Spleen; it cures all the Disorders of the Head and Brain, as Lethargies, Apoplexies, Megrims, Vertigos, Convulsions, Palsies, &c. It strengthens the Stomach, and helps Digestion; it surprisingly prevails in Faintings, Swoonings, and Palpitation of the Heart. A safer, speedier, better, or more effectual Medicine, is not to be found in the whole Art of Physic: Its Dose is from twenty to thirty Drops upon a Lump of Sugar, drinking after it a Glass of Wine.

ANIMAL BEZOARTICUM Orientale. The Bezoar Goat. See BEZOAR.

ANIMAL BEZOARTICUM Occidentale. The lesser American Deer. See BEZOAR.

ANIMAL MOSCHIFERUM. The Musk Animal. See MOSCHUS.

ANIMAL ZIBETHICUM. The Civet Cat. See ZIBETHUM.

ANIMALCULA. Those who have made the most minute Researches, and the most accurate Inquiries, into the Natures of the several Objects subjected to their Senses, have found, that the Substances upon which they employ'd their Curiosity, were often quite different from what, at first View, they appear'd to be. Thus, for Instance, the whole Earth has been found replenish'd with an inexhaustible Store of what we should least of all suspect, that is, an infinite Number of Animalcules float-

ing in the Air we breathe, sporting in the Fluids we drink, or adhering to the several Objects we see and handle. The Conjectures and Hypotheses relating to the Production, Generation, Structures, and Uses of these Animalcules, have been as various, and perhaps as far remote from Truth, as any that ever were either contrived by the Caprice, or embraced by the Credulity, of Mankind: But Conjecture, Obscurity, and Darkness, are now, in a great measure, banished from this Branch of Learning; since, by the Assistance of Microscopes, we not only know, that these Animalcules exist, but are also enabled to discover their particular Shapes, and various Degrees of Motion.

Water, the simplest and least compounded of any Fluid we are yet acquainted with, not only contains a large Number of these Animalcules, but also proves a proper Medium for their Multiplication.

This is confirmed by a Story told of a Gentleman, in the *History of the Royal Academy of Sciences for 1707*, who imagined, that, in some of the Experiments he had made, the Animalcules, discovered by a Microscope in Water, did not multiply in it, but that they proceeded from certain small and invisible Flies, which laid their Eggs in the Air; and that since these Animalcules were a Species of small Worms, they might naturally be supposed, as well as some other Worms, to proceed from some wing'd Species of Insect. But he was convinced of his Mistake by the following Experiment: He boiled Water and Dung, mixed together, and filled two equal Phials with it: When the Liquor, contain'd in these Phials, was become tepid, he put into one of them two small Drops of Water, taken from a Vessel, the Water of which was stored with Animalcules; and eight Days after he found that same Phial stock'd with an infinite Number of Animalcules, of the same Species with those contain'd in the Liquor, from which the two Drops of Water had been taken. As for the other Phial, nothing of the like Nature was discovered in it, tho' the Dung, as one would have thought, might have, in all Appearance, produced some Animalcules. Both Phials had been very carefully stopp'd. This Experiment, then, establishes the Multiplication of these Animalcules in the Water; but it will be more effectually confirm'd, if what this Philosopher asserts be true, that he saw them copulate. True it is, he saw them unite by Pairs; one may readily say, but it was perhaps to beat one another; but why should they never beat one another, except in Pairs?

If then Water, the most simple of all other Fluids, thus abounds in Animalcules, and proves, if I may so speak, a proper Medium for their Production and Multiplication, how much more must we suppose this to be the Case with other Fluids of a richer Texture, and a more compound Nature? What, for Instance, must we think of the vast Store, and surprising Variety, of Animalcules contained in that heterogeneous Fluid the Air? What Numbers of them must be contained in fermented Liquors, generous Wines, and Acids of every Kind? How must they abound in the Testicles, the Seed, and other Juices of Animals? What must their Number be in Fowls and Fishes, and even in Reptiles, and in Insects of the most small and inconsiderable Size? However romantic this may appear to one unaccustomed to pry into the hidden Wonders of the Works of Nature, 'tis nevertheless far from being one of those curious Hypotheses, which tantalize the Mind with delusive Appearances of Truth for a while, and leave it at last to sit down in a dejected State, and bewail its want of Evidence; for Mr. *Lewenhoeck*, that great Enricher of Natural History, and accurate Observer of the minutest Works of God, has subjected these Matters to the Evidence of Sense; and even given an irrefragable Demonstration that the Number of Animalcules contain'd in the Seed of one Cod-fish, is more than ten times that of all the Men living upon the whole Surface of our Globe.

In short, Animalcules abound so much in every Part of Nature, that the very Food we use is mix'd and incorporated with the Eggs laid by them. Thus Mr. *Hornberg* (in the *History of the Royal Academy of Sciences for 1707*) acquaints us with the Case of a young Man of his Acquaintance, who enjoy'd a very good State of Health, and discharged every Day by Stool, for the Space of four or five Years, a great Number of Worms five or six Lines long, tho' he eat neither Fruit nor Salad, and us'd all the Medicines that could possibly be thought of, in order to perfect his Cure. He once or twice also discharged an Ell and a half of a flat knotted Worm, call'd by the *French, Solitaire*. From this he thinks we have Reason to conclude, that there are vast Stores of the Eggs of Insects mix'd with, and treasur'd up in, all those Aliments, where we least suspect them; and that nothing is wanting but a Stomach, or an Oven, as it were, to hatch them.

Our own Philosophical Transactions give very surprising Accounts of small Animals found in various Substances, and of different Sorts. Thus an anonymous Author takes notice of a very extraordinary Insect found amongst Sand.

As we examin'd, says he, with an excellent Microscope, some little Grains of Sand searced, we perceived an Animal with many Feet, its Back white and scaly, but less than any of those hitherto observed. For altho' the Microscope shew'd every

every Grain of Sand as big as an ordinary Nut; yet this Animal appeared no bigger than one of those Grains of Sand seen without a Microscope.

Mr. J. Harris also gives the following Account of Animalcula July 7. 1694: I examin'd a small Drop of Rain Water, that had stood in a Gally-pot in my Window for about two Months. I took it (with the Head of a small Pin) from the discolour'd Surface of the Water, and in it I observ'd four Sorts of Animals. In the clear Part of the Drop were two Kinds, and both very small. Some were of the Figure of Ants Eggs; these were in continual Motion, and that very swift: And I find, that this Kind of oval Figure is the most common to the Animalcula found in Liquors. The other Sort, that were in the Clear of the Drop, were much more oblong, about three times as long as broad: these were exceeding numerous, but their Motion was slow, in comparison of the former.

In the third Part of the Drop (for the Water, from whence I took it, had contracted a thickish Scum) I found also two Sorts of Animals, as a kind of Eels, like those in Vinegar, but much smaller, and with thin Extremes more sharp. These would wriggle out into the clear Part, and then suddenly betake themselves back again, and hide in the thick and muddy Part of the Drop, much like common Eels in the Water. I saw here also an Animal like a large Maggot, which would contract itself up into a spherical Figure, and then stretch itself out again: the End of its Tail appeared with a Forceps, like that of an Earwig; and I could plainly see it open and shut its Mouth, from whence Air-bubbles would frequently be discharged. Of these I could number about four or five, and they seemed to be busy with their Mouths, as if feeding.

These four Kinds of living Creatures I found afterwards also in many other Drops of the same corrupted Water; that is, in its Film, or Scum which was on the Surface. For under that, in the lower Parts of the Water, I could never find any Animals at all, unless when the Water was disturbed, and the Surface shaken down into, and mingled with, the lower Parts.

April 27. 1696. With a much better Microscope, I examined some Rain-water that stood uncover'd a pretty while, but had not contracted any such thick and discolour'd Scum, as that before-mentioned had. In this, where it was clear, I could not find any Animals at all: But a little, thin, white Scum, that, like Grease, began to appear on the Surface, I found to be a Congeries of exceeding small Animalcula of different Shapes and Sizes, much like those produced by steeping Barley in Water.

At the same time I look'd on a small Drop of the green Surface of some Puddle-water which stood in my Yard: This I found to be altogether compos'd of Animals of several Shapes and Magnitudes; but the most remarkable were those which I found gave the Water that green Colour, and were oval Creatures, whose middle Part were of a Grass-green, but each End clear and transparent. They would contract and dilate themselves, tumble over-and-over many times together, and then shoot away like Fishes: their Head was at their broadest End; for they still moved that Way. They were very numerous, but yet so large, that I could distinguish them very plainly, with a Glass that did not magnify very much. Among these were interspers'd many other smaller and transparent Animals, like those mention'd but now, as found in the whitish Scum that was on some Rain-water which had stood a while uncovered.

April 29. 1769. I found another Sort of Creatures in the Water (some of which I had kept in a Window, in an open Glass); they were as large as three of the other, with a green Border about their Middles, but these were perfectly clear and colourless.

Then also examining more accurately the Belts, or Girdles, or Green, that were about the Animals mentioned above, I found them to be compos'd of Globules, so like the Rows or Spawn of Fish, that I could not but fancy they served for the same Use in these little Creatures. For I found now, since April 27. many of them without any thing at all of that green Belt or Girdle; others with it very much, and that unequally, diminished, and the Water filled with a vast Number of small Animals, which before I saw not there, and which I now look'd on as the young animated Fry, which the old ones had shed. I continued looking on them, at times, for two Days; during which Time, the Number of the old ones, with the green Girdles, decreased more and more, and at last I could not see one of them so encompass'd, but they were all clear and colourless from End to End.

May 18. 1696. I look'd on some of the Surface of Puddle-water, which was bluish, or, rather, of a changeable Colour, between Blue and Red; in a very small Drop of which I found prodigious Numbers of Animals, and of various Bignesses; but among those were none with those Girdles before-mentioned, either of Green or any other Colour.

I then also examined the Surface of some other Puddle-water, that look'd a little greenish; and this I found stock'd with such

infinite Numbers of Animals, that I never saw the like anywhere, but in the Genitura Masculina of some Creatures. Among these there were very many of a greenish Colour; but they all moved so strangely swift, and were so near to each other, that tho' I tired my Eyes, I could not distinguish whether the green Colour were all over their Bodies, or whether it were only round their Middle in Girdles, as before. But from the Roundness of their Figure, and their Smallness, I judge that they chiefly consist of the young animated Spawn of that Kind of Animals I mention'd above. I found, that the Point of a Pin dipp'd in Spittle would presently kill them all, as I suppose it will other Animalcula of this Sort.

The same Day also I looked on the Surface of some Mineral (Chalybeate) Water, which had stood in a Phial stopp'd for about three Weeks: in it I saw two Kinds of Animals, one exceeding small, and the other very large; which latter Sort had on the Tail something that looked like Fins. There were but very few of either Sort.

The compounded Salt, or Vitriol of the Water, was shot into pretty Figures, but all irregular. They looked all like a small Heap of little Sticks, laid across each other at all Angles and Positions; only they were transparent, and a little greenish, as Crystals of a chalybeate Nature use to be.

I infused whole Pepper-corns, Bay-berries, Oats, Barley, and Wheat, in Water, whose Scum, after two or three Days, afforded Animals, as hath been often already found by others, at least, as to some of them: But I found the greatest Numbers and Variety in Wheat and Barley Water; and the fewest in that wherein Bay-berries had been steeped.

How such vast Numbers of Animals can be thus (as it were, at Pleasure) produced, without having recourse to equivocal Generation, seems a very great Difficulty to account for. But though the solving of it that way makes short Work of the Matter, (for 'tis easy enough to say, they are bred there by Putrefaction) yet the asserting equivocal Generation seems to me to imply more Absurdities and Difficulties, than perhaps may appear at first Sight: I wish therefore, that this Matter would a while employ the Thoughts of some ingenious and inquisitive Man. In the mean time, I have conjectured, that these Animalcula may be produced by one or both of the following ways:

1. I have thought, that the Eggs of some exceeding small Insects, which are very numerous, may have been laid or lodged in the Plicæ, or Rugæ, of the Coats of the Grain, by some Kinds that inhabit on those Seeds, as their proper Places. For that Insects of the larger Kinds do frequently thus deposit their Eggs on the Flowers and Leaves of Plants, is often experimented; and 'tis very probable, that the smaller or microscopical Insects do the same. Now these being washed out of the Seeds, by their Immersion in Water, may rise to the Surface, and there be hatched into those Animals which we see so plentifully to abound there.

2. Or the Surface of the Water may receive the straggling Eggs of some microscopical Insects, that perhaps were about in the Air, and being fitted and prepared for this Purpose, by the Infusion of proper Grain, or a proportionable Degree of Heat, may compose so proper a Nidus for them, that they may by the Warmth of the Sun be easily hatched into living Creatures, which, it is probable, (like the strange Water-insect, from whence a Gnat is produced, mentioned by the learned Dr. Hook, in his *Micrographia*, whose Metamorphosis I have often with Pleasure seen) may afterwards turn into Flies, or winged Insects of the same Species of the Animal Parent. And, perhaps, sometimes, both these Circumstances, and other of the like Nature, concur for their Production.

Mr. Gray's Account of Animalcula.

I have observed in Hæmispærules of Water, duly apply'd to the End of a Wire, two Sorts of microscopical Insects, globular and elliptical. Those of a globular Form are but little less transparent than the Water they swim in; they have sometimes two dark Spots diametrically opposite, but these are rarely seen; there are sometimes two of these globular Insects sticking together; where they are joined, 'tis opacous: possibly they may be in the Act of Generation. They have a twofold Motion, a swift progressive irregular one, and at the same time a Rotation on their Axes at Right Angles to the Diameter that has the dark Spots: But this is seen only when they move slowly. They are almost of an incredible Minuteness.

I have examined many transparent Fluids, as Water, Wine, Brandy, Vinegar, Beer, Spittle, Urine, &c. and do not remember to have found any of them without more or less of the Bodies of these Insects; but I have not seen any in Motion, except in common Water, that has stood for sometimes a longer, at others a shorter time, as has been observed by M. Leewenboeck; though I do not remember he has observed, that they are existent in the Water, before they revive. In the River, after the Water has been thickened by Rain, there are such infinite Numbers of them, that the Water seems in great part to owe its Opacity and Whiteness to these Globules. Rain-water,

water, so soon as it falls, has many; and Snow-water has more, of these Globules. The Dew, that stands on glass Windows, has them; and so far as Rains and Dews are continually ascending or descending, I believe we may say, the Air is full of them. They seem to be of the same specific Gravity with the Water they swim in, the Dead remaining in all Parts of the Water. Of many Thousands that I have seen, I could discern no sensible Difference in their Diameters, they appearing of equal Bigness. In Water that has been boiled, they retain their Shapes, and will sometimes revive.

There is another Sort of Insects I have this way seen, but these are not so frequently (at least this Winter-season) to be found; they are much longer than the former; they can transform themselves into many Shapes; they are for the most part elliptical; but sometimes they contract themselves so as to be almost globular; and sometimes they contract themselves so, as to be twice or three times longer than broad; these sometimes turn themselves round on their Axes and Diameters as they go; they consist of transparent and opacous Parts. *Philos. Trans. Abr. Vol. 3.*

Sir Edmund King's Observations of Animalcula.

Having steep'd Oats in Rain-water some Days, (perhaps nine or ten) and looking upon it with my bare Eye, I saw a Substance, that seemed to me like that usually called a *Mother* (on other Liquors); and laying as much of it as a small Pin's Head upon the Object Plate of my best Microscope, I could very easily discern seven or eight Sorts of *Animalcula* of different Sizes and Shapes (or more) swimming in this Substance. Their Shapes and Sizes were after this manner, as near as I could guess: They were all very nimble in their Motions, by Computation, seven thousand times magnified.

The thin Scum upon a Pepper-water, that resembled Flakes of Salt upon some Sorts of human Urine, applied in the same manner to the Object Plate of the Microscope, was only Clusters of *Animalcula*, that had liquid Matter enough to swim in; and I was in Admiration at their Numbers, Motions, Variety, and Minuteness.

In a Decoction of Herbs, that was strained, and set by for a particular Use; in a little of the Settling of that, (as much as a Pin's Head) I saw Creatures like little Eels, which seemed to be sharp at both Ends, with a wriggling Motion.

I observe these small Creatures above-mentioned (if I may so call them) resemble the Nature of Fish, in several respects:

1. They'll flock together, and lie close together, as if they were in Shoals like Carps in a Pond, that has been shallow, as I have often seen, sometimes in one Place, sometimes in another; but when disturbed, they are, as to your Sight, all dispersed and lost in a trice; and so are these little Creatures in their original Liquor, if you shake the Liquor before you look to find them in Shoals, or after; at least, I am sure I did, and could never find any in that Parcel of Liquor, till next Day, or till they associated again.

2. They will follow their Liquor, to act in, to the last Particle of it, till they have no more to swim in, and then will seem to struggle for want of it, till their Strength fails them, and then after a Minute they will seem dead upon the Object Plate, when the watry Parts are dried away.

3. They will lie as if they were dead, near half an Hour, or more; then put a little Water to them, in half a Minute they will begin to move themselves again, and by Degrees begin to swim faintly and feebly at first (as Fish will do); then recovering their Strength again, will perform their brisk Motion as vigorously as ever.

4. Those that are almost dead, will look flat, as if pressed thin; but when they move, turn themselves over and over, without any regular Motion; so that you might see them as thin as the thinnest Spangle you ever saw, and like it in Shape; and they will continue so, so long as they are faint and sick: But within about an Hour's time, they will grow plump and well again, if you add fresh Liquor to them in time.

These *Animalcula* chuse, for the most part, the Top of the Liquor; I suppose, for the sake of the Air.

If you perceive them lie dead upon the Object Plate, as I did, and do not remember to add Water to revive them, within an Hour, they will be dead indeed: But you may see them in the Posture you left them, many Days after.

Now to give farther Testimony, that they are *Animalcula*, which some doubt, I have noted the following Observations:

If you take a fine Needle, and put the Point into Spirit of Vitriol, though you can see none of the Spirit with your bare Eye upon its Point when you take it out, yet if you prick the same Point of that Needle into the Middle of that Drop, no bigger than a small Pin's Head, when some Hundreds of these *Animalcula* are swimming, very nimbly frisking about, you shall immediately see these minute Creatures (if I may so call them) presently affected from the acid Particles, so as to spread themselves, and tumble down seemingly dead.

If you dissolve Salt, and, with the Point of the same Needle, repeat the Experiment (in the same manner) in some of the

same Liquor that contains some of the same Parcel of *Animalcula*, you shall see the Creatures afore-mentioned be affected too, stop in their Motion, but in another manner quite; not spread flat, as those with Spirit of Vitriol did, but shrink long and round, in Form and Figure of that we call whole Oatmeal, or an excoriated Oat. And whereas the first with the Spirit fell down flat without turning; these, as soon as affected, turn round, when they begin to be sick, and wabble, as we say, before they fall down to the Bottom and die, unless you quickly recover them with fresh Water, and then you will perceive them get a new Life by Degrees.

Tincture of Salt of Tartar, put into them in the same manner, kills them more immediately; but yet they will be first so sick, or so affected, call it what you please, as you may see by a surprising convulsive Motion, they will grow faint and languid apace, as you may see them fall to the Bottom of the Drop upon your Object Plate dead, but in their own Shape, as they were before you applied your Needle; and will neither be flat, as with Spirit of Vitriol, nor cylindrical, as with common salt Liquor.

Ink kills them as soon as Spirit of Vitriol, but makes them seem to shrink divers ways; I suppose by the Solution, of Copperas, which is in its Composition.

Blood (newly pressed from a Prick purposely made in your Finger) kills them almost as soon as Spirit of Vitriol, by reason (I suppose) of the Salt therein: But it is a fine and surprising Sight, to observe them swimming and bustling, first among the Globules of the Blood jostling one another, like Fish that are suddenly deprived of Water, and bustle together amongst Mud; for so they appeared to me.

Urine kills them too, in a little time, tho' not so soon.

Sugar, dissolved like Salt, kills them also, if used in the same manner, and with that some die flat, and some die round.

Sack will kill them, but not so speedily as the other Liquors. *Phil. Trans. Abr. Vol. 3.*

Animalcula in the Itch, by Dr. Bononio.

I found an itchy Person, and asking him where he felt the greatest and most acute Itching, he pointed to a great many Pustules not scabbed over; of which picking out one with a very fine Needle, and squeezing from it a fine Water, I took out a very small white Globule, scarcely discernible. Observing that with a Microscope, I found it to be a very minute living Creature, in Shape resembling a Tortoise, of whitish a Colour, a little dark upon the Back, with thin and long Hairs, of nimble Motion, with six Feet, a sharp Head, with two little Horns at the End of the Snout.

Not satisfied with the first Discovery, I repeated the Search in several itchy Persons of different Age, Complexion and Sex, and at differing Seasons of the Year, and found in all the same Animals, and that in most of the watry Pustules; for now-and-then, in some few, I could not see any.

And though by reason of their Minuteness, and Colour the same with the Skin, 'tis hard to discern these Creatures upon the Surface of the Body; nevertheless I have sometimes seen them upon the Joints of the Fingers in the little Furrows of the *Cuticula*, where with their sharp Head they first begin to enter, and, by this gnawing and working in with their Body, they cause a troublesome Itching, till they are got quite under the *Cuticula*; and then 'tis easy to see, how they make ways from Place to Place by their biting and eating, one single one happening sometimes to make several Pustules, of which I have often found two or three together, and for the most part very near to one another.

I examined whether or no these *Animalcules* laid Eggs, and at last, from the hinder Part I saw drop a very small and scarcely visible white Egg, almost transparent, and oblong, like the Seed of a Pine-apple. I oftentimes found these Eggs afterwards, from which, no doubt, these Creatures are generated.

From this Discovery it may be no difficult matter to give a more rational Account of the Itch, than Authors have hitherto delivered; it being very probable, that this contagious Disease is no other than the continual Biting of these *Animalcules* in the Skin, by means of which some Portion of the Serum oozing out through the small Apertures of the Cutis, little watry Bladders are made, within which the Insects continuing to gnaw, the Infected are forced to scratch, and by Scratching increase the Mischief, and thus renew the troublesome Work, breaking not only the little Pustules, but the Skin too, and some little Blood-vessels, and so making Scabs, crusty Sores, and such-like filthy Symptoms.

From hence we come to understand how the Itch proves to be a Distemper so very catching, since these Creatures, by simple Contact, can easily pass from one Body to another, their Motion being wonderfully swift, and they as well crawling upon the Surface of the Body as under the *Cuticula*, being very apt to stick to every thing that touches them; and a very few of them being once lodged, they multiply apace by the Eggs which they lay. Neither is it any wonder, if this Infection be propagated by the means of Sheets, Towels, Handkerchiefs, Gloves,

Gloves, &c. used by itchy Persons; it being easy enough for some of these Creepers to be lodged in such things as those; and indeed I have observed, that they will live out of the Body two or three Days.

Nor shall we be at a Loss to know the Reason of the Cure of this Malady, by Lixivials, Washes, Baths, and Ointments made up with Salts, Sulphurs, Vitriols, Mercuries Simple, Precipitate or Sublimate, and such Sort of corrosive and penetrating Medicines; these being infallibly powerful to kill the Vermin lodged in the Cavities of the Skin, which Scratching will never do, partly by reason of their Hardness, and partly because they are so minute as scarcely to be found by the Nails: Neither do inward Medicines perform any real Service in this Case. And if in Practice we oftentimes experience, that this Disease, when we think it is quite cured by Uction, does nevertheless in a short time return again, this is not strange, since though the Ointment may have killed all the living Creatures, yet it may not probably have destroyed all their Eggs, laid, as it were, in the Nests of the Skin, from which they may afterwards breed again, and renew the Distemper. And upon this Account, 'tis very advisable, after the Cure is once performed, still to continue the Anointing for a Day or two more; which it is the easier to do, because these Liniments may be made agreeable enough, and of a good Smell, as particularly is that compounded of the Ointment of Orange-flowers, or Roses, and a small Quantity of red Precipitate. *Phil. Trans. Abr. Vol. 4.*

Leeuwenhoek calculates, that a thousand Million of Animalcula, which are discovered in common Water, are not, altogether, so large as a common Grain of Sand. This Author, upon examining the Male Sperm of various Animals, discovered, in many, infinite Numbers of Animalcula, not larger than those above-mentioned. The white Matter also, which sticks to the Teeth, abounds with Animalcula of various Figures, to which Vinegar is fatal. And we have seen under the Article *ACETUM*, that Vinegar contains Animalcula in the Shape of Eels. In short, there is scarcely any thing which corrupts, without producing Animalcules; but I am not yet satisfy'd, that Animalcula are discoverable in any Animal Substance in Nature, which is not in a State of Putrefaction, notwithstanding what the Author above quoted has asserted. It is certain, that Animal Substances very soon incline to Putrefaction, and the Sperm the soonest of all others, that is, in a very few Minutes, or perhaps Moments. I would not from hence infer, that Animalcules are generated by Putrefaction; but I am inclined to think the Heat necessary to Putrefaction may hatch the Seeds of Animalcula deposited in various Substances thus putrefy'd; and perhaps these Substances may afford them a convenient Medium to subsist in.

But as most Discoveries in Natural Philosophy have laid a Foundation for the warm Imaginations of some Men to build a lame Theory upon, to the great Prejudice of real Knowledge; so those relating to Animalcula have been drawn in, however improperly, to support the most whimsical and chimerical Systems.

Thus some have asserted, that the Animalcules found in the Sperm of Male Animals, were the future Animals in Miniature; and that by these Generation was perform'd. Others have attempted to prove, that all Diseases were produced by Animalcula, not considering that these, when found in the putrid Parts of Animals, were the Effects, and not the Causes of Distempers. Thus *Desault* has with much Labour endeavour'd to make it appear, that the Venereal Disease, and Hydrophobia, were caused by Animalcula; and I remember somewhere to have met with a Theory of the Plague, which makes that terrible Disorder produced by Insects brought by the East Wind.

ANIMALIS FACULTAS, vel VIRTUS. The Animal Faculty, or Power. See *FACULTAS*.

ANIMALIS MOTUS, Animal Motion.

ANIMALIS SPIRITUS, Animal Spirit. See *SPIRITUS*.

ANIMATIO, Animation; an enigmatical Word used by the Alchymists in the Affair of Transmutation of Metals, when the white foliated Earth is to be fermented with the philosophical or celestial Water of Sulphur. Mercury is said to be animated, when, by Conjunction with a perfect Metal, it is reduced to a certain Species. *Libav. Apoc. Hermet. Part. 1. Cap. 10.* Such a Mercury is wanted by the Spagirists to help them to the Philosopher's Stone. *Castellus.*

ANIME. *Animi gummi, Gummi Amineae, Serap. Minea, Galeni. Amineae, Myrrba, Cels. Animum, Amato.*

Is a Gum, or white Resin, brought to us from America; it flows from an Incision made in a Tree, of a moderate Bigness, the Leaves of which are much like those of Myrtle; its Fruit is of a good Size, and called *Lobus*.

The best Gum Animé ought to be white, dry, friable, clean, of a good Smell, that soon consumes when thrown into the Fire: It contains a great deal of Oil, and essential Salt.

It is proper to discuss, to soften and dissipate cold Humours, for the Head-ach; to strengthen the Brain, they apply it to the

Top of the Head, and perfume Night-caps with it: It is also used for cleansing and cicatrizing Wounds. *Lemery de Drogues.*

Its principal Use in Medicine is external, in cold, painful, rheumatic, flatulent Affections of the Head; Nerves and Joints, Palsies, Contractions, Relaxations, Contusions, &c. It is an Ingredient in Plaisters and Cerates for these Purposes. *Raii Hist. Plant. 1846.*

There are two Sorts of Gum Animé, the Oriental, and the Western.

The Western Animé is the Tear, or white Resin, of a Tree that grows in New Spain. It is somewhat inclining to the Colour of Frankincense, [pellucid, white, inclining to a Citron-colour] but more oleaginous than Copal. We have it imported in Grains like Frankincense, but they are bigger, and, if broken, appear of a yellow Colour like Rosin. It is of a most grateful and fragrant Smell; and, thrown upon hot Coals, is easily consumed. It differs from the Oriental, in that it is not so white or shining. The Oriental also is imported in great transparent Lumps.

The Oriental is of three Kinds; first, the white; secondly, the blackish, which is somewhat like Myrrh, sweet-scented; and reckoned, by *Dioscorides*, a bad Species of Myrrh. He calls it *Minaea*, from the Country where it principally grew. *Serapio* calls it *Aminaea*, which Word the Portuguese corrupted into Animé. A third Kind is added by *Clusius*, which is the pale, resinous, and very dry and scorch'd Sort. All the Kinds exhale a grateful Odour in Suffumigations.

J. Bauhine reckons up five Species of Gum Animé.

1. The Animé of the Colour of yellow Amber.
2. What is like Rosin, being of a White inclining to Yellow.
3. The white, pellucid Sort, of the Taste of Vernix, [the Gum of the Juniper-tree] and the Smell of Mastich.
4. What is of the Colour of Colophony.
5. The white Species, which the Indians call *Copal*.

Raii Hist. Plant. See *BDELLIUM*.

ANIMELLÆ. The Glandules seated under the Ears, and all along under the lower Jaw. They are otherwise called *Lacticia*. *Castellus* from *Vesalius*.

ANIMI & ANIMÆ DELIQUIUM. See *DELIQUIUM*, *LIPOTHYMIA*, and *SYNCOPE*.

ANIMI PATHEMATATA. Affections of the Mind.

ANIMUS, Νῆς, νῆς, θυμὸς, γράμην, διάνοια. The same as *Mens*, the MIND. It is usually taken, in a strict Sense, for that Power and Faculty of the human Soul, whereby it discerns, judges, and ratiocinates.

As there is a very strict Connection betwixt the Mind, or Soul, and the Body, insomuch that it is impossible, that one should be disturbed without Injury to the other, the following Observations, with respect to their Effects upon each other, will not be foreign to a Work of which Medicine is the Subject.

A laudable and temperate Blood, duly carried through the Vessels of the Brain, imparts Vigour and Strength to the Faculties of the Soul.

'Tis confirmed to us, by daily Experience, that Presence of Mind, Moderation of Passions, and even Brightness and Force of Genius, in a great measure depend upon the due and moderate Circulation of a laudable Blood thro' the Brain; for as soon as its Motion begins to grow impetuous, or too much accelerated, so soon a Propensity to Rashness, and Excess of Passion, lays a Foundation for Wrath and Discord: When its Motion becomes too quick, Madness is to be dreaded as the Consequence, as may be observed in Fevers. If the Quantity of the Blood is too small, Dread and Terror ensue; if it moves too slowly, a mournful and dejected State of Mind is the Result.

The various Inclinations and Propensities of our Minds, either to Virtue or Vice, depend very much on the Circulation of the Blood thro' the Head.

This accounts for the Affections of the Mind being influenced by the Temperament and Constitution of the Body; for we observe, that the Actions, commonly called *Animal*, are regulated, as it were, by the Motion of the Blood. Choleric People, whose Blood flows very rapidly, are exceeding prone to Rashness, Ambition, Factions, Seditions, Enmities, and Hatreds. People of sanguine Constitutions, whose Blood flows in a gentle, easy Stream, are inclined to Pleasures, Luxury, Ease, Lust, and all the other Means of gratifying the Senses. Those of phlegmatic Habits, whose Blood flows in a faint and languid Manner, are prone to Sloth, Laziness, Nastiness, Baseness, and a Turn for esteeming or valuing nothing. And those who have a Tincture of Melancholy in their Constitutions, and whose Blood moves very slow, are cowardly, jealous, and obstinate.

The Dispositions of our Minds, and the Operations of our Souls, receive a different Turn, and are variously modified, not only by the Quality and Motion, but also by the Quantity of our Blood.

As there is a wide Difference betwixt the Quantity and Effects of that Degree of Motion wherewith a small Body, and that

that whereby one larger, is moved; so likewise, in the Animal Economy, a certain Degree of Force is impress'd on the Mind by the Circulation of a large Quantity of Blood, and a proportionably less, by the Circulation of a small Quantity of Blood. Thus we observe, that if a choleric Man abounds in Blood, all the Operations of his Mind are vehement; hot, and impetuous; by which means his Vigour of Mind, his Courage, his Solidity, his Constancy, and his vehement and indefatigable Inclination to bring about his own Measures, are augmented; all which are proportionably impair'd and lessen'd, by diminishing the Quantity of the Blood. In melancholic Constitutions, if a large Quantity of thick Blood is carried thro' the Membranes of the Brain, and their minutest Vessels, a great Steadiness or Composure of Ideas, sure and lasting Impressions of Objects, and uncommon Constancy and Resolution in acting, are the Result. When Persons of sanguine Constitutions abound in Blood, they are voluptuous, lustful, and fierce; but if a scanty Portion of Blood flows in their Veins, they become cowardly, fluctuating, and inconstant.

As a large Quantity of thick Blood contributes to Strength of Body and Fortitude, so a small Quantity of thin Blood lays a Foundation for Cowardice, and is, as it were, the Instrument of a quick and lively Sensation.

The Sentiments of *Aristotle*, upon this Point, are excellent, when [*Lib. 2. De Partibus, Cap. 4.*] he talks in this Strain: "Those Animals whose Blood abounds with many thick Fibres, are bold and furious; for all solid Bodies, when heated, convey a strong Degree of Heat: Hence it is, that Bulls and Boars are courageous, wrathful and fierce; for their Blood is replenish'd with Fibres." The same venerable Author asserts, [*Lib. 2. De Partibus Animalium, Cap. 2.*] "That a thick hot Blood contributes to Strength, but not to Understanding; and that a thin Blood is better calculated for the several Purposes of Sensation and Understanding."

Thus the Circulation of the Blood not only unites the Soul with the Body, but also governs and directs its Operations.

So long as the Circulation of the Blood is duly carried on, the vital and animal Functions are regularly and exactly performed; or, in other Words, the Man perceives, sees, hears, thinks, and reasons: But as soon as the Circulation of the Blood is impaired, diminished, or quite stopp'd, so soon his Senses, and his Memory, the Force of his Imagination, and the Faculty of his Reason, are proportionably diminish'd, impair'd, or lost. Whoever is desirous, therefore, that his Soul and Body should long maintain their darling Union, and carry on their mutual Intercourse; or that his Soul should perform her Operations with Ease, Delight, and Freedom; ought to bend all his Thoughts, and direct his principal Care, to this one Point, the preserving sound and entire the Circulation of the Blood, and those vital Motions, which, as it were, influence and govern it; which End is most effectually obtained by a proper Regimen, with regard to the Non-naturals. Whoever also is fond of that happy State, which is the genuine Result of a sound Mind in a healthy Body, must be at due Pains to preserve the Circulation of his Blood temperate, or in a due Medium; for just and excellent is that Observation of *Hippocrates*, [*Lib. de Flatibus*] where he talks in this Strain: "I am of Opinion, that nothing in the whole Body is more conducive to Wisdom than the Blood; therefore, so long as it remains in a good and natural State, Wisdom and Prudence are not wanting; but when the State of it is changed, Prudence shares its Fate, and vanishes. This is very observable in Persons that are drunk, where, by the sudden Increase of the Blood, the Mind itself, and its Prudence, receive, as it were, a sudden Shock; and they become insensible of present Evils, and bless themselves in the flattering and delusive Prospect of a future Good." There is a very remarkable Passage, to this Purpose, in a certain Letter which *Democritus* wrote to *Hippocrates*, where he says, "That the Understanding is increased by the Presence of Blood, of which those who think aright are bless'd with Store; but when the Body is diseased, and the Mind void of sufficient Force to think on Virtue, the Disease darkens the Mind herself, and draws her Prudence into Consent." *Hoffman's Medicin. Rational. Systemat. Vol. 1.*

There is so noble and sublime an Harmony and Consent between the Economy of the vital and animal Motions, that the least Defect in the Circulation of the Blood, forthwith produces a proportionable Alteration in the animal Functions; as, on the other hand, a depraved Imagination not only influences, but even vitiates and spoils, the Functions of the whole Body.

This Truth might be illustrated and confirm'd by numberless Instances; a few of which will well enough answer my present Purpose. Whenever the Motion of the Heart ceases, the Mind forthwith forbears to exert her several Operations, and all Reflection and Thought are at an End with her. A due Circulation of the Blood thro' the Brain maintains the Powers of the Soul, and the Force of the Genius, in their native Splendor and Vigour; but as soon as this due Circulation is disturbed or changed, either by a Diminution or an Acceleration of Motion,

the Mind is forthwith disposed to inordinate Affections; and Deviations from the Laws of Reason: Hence it is, that the Dispositions and Propensions of the Mind depend upon the Temperament of the Body, or the due Circulation of the Blood thro' the Brain. The drinking Wine, or taking any other Substance, which can impart a brisk and lively Motion to the Blood, uses generally to brighten the Genius, and advance the Wit above its common Standard. Medicines which, by their ungrateful Steams, contaminate the Juices, such as Narcotics, impair and sometimes quite destroy, the Reason, the Memory, the Genius, and all the Senses. How great the Influence of a depraved and ill-governed Fancy is, in changing the Motions of the Parts, may be proved from the vehement Passions of the Mind, the obstinate Fancies of melancholy People, and all the disquieting and uneasy Train of unreasonable and ill-grounded Desires and Aversions. *Hoffman. Medicin. Rational. Systemat. Vol. 1.*

The Passions and Affections of the Mind plainly prove, that the nervous Fluid, when ill-disposed, or put into a preternatural Commotion, induces a Change upon the Tone, the Elasticity, and the Strength of the Parts.

Thus we observe, that Fear or Terror contract and compress the external Parts so strongly, that the Blood is forced from the Circumference to the large internal Vessels about the Heart and Lungs; which sufficiently accounts for the Palpitation of the Heart, the Uneasiness in the Bowels, and the Cold in the extreme Parts, which are found in People upon such Occasions. By Sadness the Influx of the nervous Fluid is considerably intercepted; hence almost all the Parts of the Body lose their Tone and Strength, and a great Disposition to chronical Disorders ensues. Besides, Disorders, that are otherwise benign and gentle, easily acquire a dangerous Malignity, by reason of the Loss of Strength. The Passion of Anger, by putting the nervous Fluid into a violent Commotion, occasions a strong Stricture in all the nervous System: Hence the Pulse and Breathing become quick, the natural Heat is increased, and Men are at that time possess'd of most Strength and Vigour. *Hoffman. Medicin. Rational. System. Vol. 1.*

Since the Blood and its Motion have, by means of the Fluid of the Brain, such an Influence on the Operations of the sensitive Soul, it must of course follow, that all such Things as are possess'd of a Power of altering the Quality or Motion of the Blood, must have a proportionable Influence on the Mind.

We are not therefore to be surpris'd, if particular Climates, Regimens, or Medicines, are capable of inducing a Change in our Minds, Dispositions, and Understandings; for *Hippocrates* has very justly maintained, [*Lib. 1. de Diet.*] that the Mind may be improved and rendered wiser by Diet; and in the same Book he asserts, that if the Body be sound, and free from Diseases, the Frame and State of the Mind must, in Consequence of that, be bless'd with Wisdom; and that the Temperament of the Blood conduces much to Wisdom, is likewise asserted by the same Author. Besides, Experience teaches us, that, among the People of different Climates, some are acute, others dull; some excel their Neighbours in Force of Genius, and Reach of Thought; and others are addicted to various Vices, almost unknown to People of other Climates. It is also confirmed by Experience, that rich and generous Wine renders Men chearful and witty; whereas flatulent Substances, such as Peas and Beans, and also foetid Substances, such as Opium, and Henbane-seeds, render Men dull and mad; and 'tis well known to every Physician of Skill or Experience, that ardent Fevers produce Deliriums, and the Flatulencies of hypochondriac Persons Melancholy, and even Madness. *Hoffman. Medicin. Rational. System. Vol. 1.*

The Power of Fancy exerts itself also very strongly in changing the natural Actions. How pernicious to the Fetus the fantastical, sudden, and strong Impressions of Women with Child are, especially when accompanied with any Degree of Fear, is sufficiently proved from the Deformity of the Parts, the Marks and Spots left upon their Bodies; and how destructive of Health all vehement Desires are, is abundantly shewn from the Effects of a furious and distracted Love, the Longings of Women during Gestation, and the intense Desire of seeing one's native Country, and Relations. The Loathings, excited either by the Smell or Sight of ungrateful and disagreeable Substances, so disorder the Stomach, as to produce painful and uneasy Vomiting. Daily Experience shews us, what violent Commotions are raised through the whole Body by the innate Aversion to Cheese, Cats, Effusion of Blood, or other disagreeable Objects. Profound Meditation, and strong Application of Mind, weaken the whole Body, and the Stomach itself. We likewise observe, that they so contract, or sometimes relax, the Membranes of the Brain, as to prove the fruitful Sources of some very terrible Disorders of the Head. Accounts of Physicians, every-where to be met with, inform us, that on the bare Sight of epileptic People, or such as have the Small-pox, many have fallen into these very Distempers. Nothing is more certain, than that some People, from the very Dread of the Plague, have been seiz'd with it, even tho' it did not rage in the Country where they lived;

lived; and Experience has several times convinced us; that some have been purged, vomited, sweated, and even salivated, by pure Force of Imagination. These Accidents principally happen to delicate Constitutions, or such as have been previously weaken'd and enervated by the Shocks of some Distemper, or by some other Cause.

Hence it follows, that the more disengaged and calm the State of the Mind is, the less it disturbs and injures the Motions of the Body, the Operation of Medicines, and the salutary Effects of Aliments; and, for this very Reason, the Philosophers of all Ages, and all Countries, have, with one Voice, recommended Tranquillity of Mind, as the best and most effectual Means of lengthening our Life, and preserving the Constitution sound and vigorous. *Hoffman. Medicin. Rational. Systemat. Vol. I.*

The Female Sex, as daily Experience shews us, suffer generally very much by the menstrual Discharge being either disturb'd or obstructed; but enjoy a good State of Health when this useful and necessary Evacuation is duly and regularly carried on.

For this Reason a Physician ought to make it his principal Care to promote this Discharge in sufficient Quantities, and at due and proper Seasons; But nothing is more fatal to the due Excretion of this Recrement than violent Commotions of Mind, and more especially an Excess of Dread and Terror, the Influence of which is often powerful enough to put an immediate Stop to the Discharge, when going on in a natural, undisturb'd, and easy Manner. *Hoffman. Medicin. Ration. Systemat. Vol. I.*

As a further Confirmation of the general Doctrine here laid down by *Hoffman*, I cannot help mentioning the real, tho' scarce credible, Case of a young Lady, "who, from her natural Turn, or the Strictness of her Education, had become a remarkable *Devotee*. Her Disease, for such it was, at last degenerated into that most fatal of all Calamities, a religious *Melancholy*. Her false Apprehensions of the Supreme Being, and the Measures of his Administration, filled her Mind with all the black and ghastly Ideas of Gloom and Terror: Upon this, such a Suppression of her Menses ensued, as would yield to no *Emmenagogue*, even the most efficacious and best chosen. This unlucky Circumstance was attended with such fatal Consequences to her Health, that Life itself became a Burden, rather than a Blessing. During this disconsolate and deplorable State, she happily got acquainted with a Clergyman of a free and rational Turn of Thought, who, partly by the Graces of his Person, which sometimes are very effectual in convincing, and partly by the Strength of his Arguments, banish'd her religious Horrors, convinced her of the amiable Character of her Maker, reconciled her to Life, and reduced her clouded Mind to an easy and comfortable State: Upon this her Menses began to flow regularly, and in a due Quantity; she resumed her fresh Complexion, and her former Sprightliness returned. Her Regimen and Diet, in the mean time, were the same in both these so opposite States. But as the Diseases of the Mind, as well as those of the Body, are apt to recur on certain Occasions, so this Lady had a Relapse; her former State of Mind return'd, and brought along with it the same Disorder, with all its concomitant Train of Symptoms: She got cured a second time, by Means of the same Nature; upon which her Menses, together with her Health, return'd. In short, her Life, for some Years, was a Scene diversify'd with various Intervals of Superstition, and rational Religion: When she was under the direful Influences of the former, her Menses were obstructed, and her Health sensibly impair'd; but when under the benign Influences of the latter, her Menses flow'd regularly, and the State of her Health was good."

This, in my Opinion, is an Argument hitherto not insisted on, why young Ladies should be taught early to divest themselves of those unreasonable Fears, and gloomy Prejudices, which those who have the Care of their Education in their tender Years too frequently instil into them; for what is the Case with one of the Sex, may possibly be so with another. By this I do not mean to encourage that indecent and unpolite Scoffing at Things sacred, which has of late become too fashionable among the gayer Part of the World; but only to strip the Mind of those dark and narrow Notions, which represent God and Religion in a gloomy and disadvantageous Point of Light. The Physicians of the Platonic Sect were so sensible of the happy Influences even of natural Religion upon Health, that they used only a few simple Remedies, and ply'd their Patients with moral Precepts, and Arguments against Bigotry and Superstition, Enthusiasm, and ill-founded Horrors of the religious Kind.

This is so singular a Case, that I could not forbear inserting it as a Confirmation of *Hoffman's* Sentiments, with regard to the Influence of the Passions on the menstrual Evacuations of Women. The Account is Part of a Letter from a Gentleman, who has both Knowledge enough to represent the Case as it really was, and Candour enough to say nothing but what he knows to be true.

VOL. I.

The following Case will farther illustrate the Effects of the Mind upon the Body:

A Musician, who was a Connoisseur in his Art, and famed for his Compositions, was seiz'd with a Fever, which, gradually augmenting, became at last of the continued Kind, and was accompanied with terrible Paroxysms. On the seventh Day he fell into a very violent and almost uninterrupted Delirium, accompanied with Shrieks, Tears, Horrors, and a perpetual Want of Sleep. On the third Day of this Delirium one of those natural Instincts, which are commonly said to prompt Animals, when in Distress, to seek for those Herbs that are proper for their Case, made him desire to hear a small Concert in his Chamber. His Physician did not consent to the Proposal without some Reluctance. The thing, however, being agreed to, the *Cantatas* of Mr. *Bernier* were sung to him: No sooner had the soft melodious Strain touched him, than his Countenance assumed an Air of Sweetness and Serenity, his Eyes became calm, his Convulsions ceased entirely, he shed Tears of Joy, and was more affected with that particular Music than ever he had been with any before his Disorder, or has been with any he has heard since his Cure. He was free from the Fever whilst the Concert lasted, but, when it was at an End, relapsed into his former State. The Use of a Remedy, whose Success had been at once so happy and unexpected, was continued; the Fever and Delirium were always suspended during the Concert; and Music was become so necessary to the Patient, that in the Night-time he made a Relation of his own, who sometimes attended him, sing; and even dance, to him: This Relation, being pretty much afflicted, paid him such Pieces of Complaisance with a Kind of Reluctance. One Night in particular, when he had but his Nurse along with him, who could only blunder out the harsh and unharmonious Notes of some Country Ballad, he was obliged to put up with her Music, and even felt some Effects from it. A Continuation of the Music for ten Days cured him entirely, without the Assistance of any other Remedy, except once letting Blood from his Ankle, which was the second time that Operation had been perform'd on him during his Disorder, and which was follow'd with a very liberal Evacuation. Mr. *Dodart* acquaints us with this Case, which he says is a genuine one, but does not pretend, that it is to be set up as a Model or Standard in Cases of a like Nature. But 'tis worth while to observe, how effectually Concerts restored the Spirits, by little and little, to their natural Course in this Patient; in whom Music, by a long and protracted Habit, had become the very Soul. 'Tis not, however, probable, that a Painter should be cured by viewing the exquisite and masterly Touches of his Neighbour Artist in a Piece of Painting; since Performances in that way are not found to have the same Influences on the Spirits with Music: Neither, indeed, can the Productions of any other Art come up to it in this Particular. *Hist. de l'Acad. 1707.*

ANINGA-IBA Pisonis et Marcgr. *Arbor Brasiliensis aquatica, folio Nymphaeae, fructu reticulato, pulpa alba humida.*

It grows in the Water to the Height of five or six Feet, with no more than one brittle Stem, which is divided by a sort of Joints, and is of an Ash-colour like the Walnuts; on its Top are large, thick, smooth Leaves, of a chearful Green, shaped almost like the Leaves of Water-lily, or Sagittalis, [Arrow-head] and remarkably conspicuous for their strait main Rib, and Fibres that run off transversely from it; each Leaf is supported by a juicy Pedicle, above a Foot long; between the Leaves shoots forth one large, concave Flower, consisting of a single incarnated Leaf, of a pale-yellow Colour, with a thick yellow Style in the Centre, which is succeeded by a Catkin, that grows to be a Fruit, of the Shape, and about the Size, of an Ostrich's Egg, green, and full of a white moist Pulp, which, matured and dry'd, becomes of a farinaceous Savour, and in a time of Famine is eaten, but is dangerous, if taken to Excess; because by its Coldness and Flatulency, like Mushrooms, it threatens Suffocation.

The Wood of those that are grown to the Bigness of a Tree is used for various mechanical Purposes; for the Trunk, being light, tenacious, and of a corky Substance, is what is most used by the Natives, and the Negroes, to make their *Jangadas*, which are Rafts consisting of three Pieces of Wood join'd together for the hasty passing of Rivers; but the Medicinal Virtue consists in the bulbous Root, as specify'd below. *Raii Hist. Plant.*

ANINGA simpliciter dicta, seu J. Pisonis,

Grows in the same Place, and to the same Height, as the former. It has also one Stem, but which soon runs out into various, thick, soft, and reedy Branches, like the Plantain-tree, from every one of which grows out a very large oblong Leaf, conspicuous for its Veins here-and-there interspersed. It has only one large white Flower, which produces an extraordinary Fruit, first green, then ash-coloured inclining to yellow, of an oblong Figure, thick, compact, marked over with a sort of Grains and Points. The Natives eat it for want of better Aliment.

Both Aningas have a thick, bulbous Root, which is of more Use in Medicine than the Leaves or Fruit; for being of fine Parts, and a Deobstruent, it is apply'd to various Uses by the Portuguese, and the Natives. It is used in Fomentations against Inflammations and Obstructions of the Reins and Hypochondria. The expressed Oil is accounted excellent in the same Disorders, and supplies the want of Oil of Water-lily, or of Capers. A hot Bath, made of the Decoction of the Root in Urine, and several times renewed, affords the highest Relief under the Gout, whether recent or inveterate. *Raii Hist.*

ANINGA PERI. *Pison.*

A shrubby Plant, which grows plentifully in the thick Woods, and bears a small whitish Flower, which is succeeded by a few Grapes resembling Elder-berries, but of an azure Colour, inclining to black. The Leaves are downy, of an oval Figure, of a sad green Colour, but very pleasing to the Sight, soft to the Touch, feeling like Dead-nettle, and distinguish'd by numerous and thick Fibres.

The fresh Leaves bruised, or pulverized, cure both recent and inveterate Ulcers by the first Intention. *Raii Hist. Plant.*

ANISCALPTOR, from *Anus*, the Breech, and *Scalpo*, to scratch; that very broad Muscle, which, with its Fellow, covers almost the whole Back; so call'd, because it is in Use when that Office is perform'd. See LATISSIMUS DORSI.

ANISOS, *Ἀνίσος*, from *a* Neg. and *isos*, equal; unequal.

ANISOSTHENES, *Ἀνισοσθένης*, from *a* Neg. *isos*, equal, and *sthenos*, Strength; unequal in Strength.

ANISOTACHYS, *Ἀνισοτάχης*, from *a* Neg. *isos*, equal, and *tachys*, swift; unequal in Celerity, an Epithet of the Pulse.

ANISUM, a Plant thus distinguish'd:

Anisum, Offic. Ger. 880. Emac. 1035. Park. Theat. 911. *Raii Hist.* 1. 450. *Anisum veteribus*, J. B. 3. 92. *Anisum vel Anesum*, Chab. 396. *Anisum Herbariis*, C. B. Pin. 159. *Anisum vulgare*, Mor. Umb. 25. Buxb. 21. *Anisum officinarum*, Rupp. Flor. Jen. 229. *Anisum vulgatum minus annuum*, Hist. Oxon. 3. 297. *Apium Anisum dictum, semine suaveolente*, Tourn. Inst. 305. Boerh. Ind. A. 59. ANISE. *Dale.*

Anise, in general, is of a heating and drying Quality, makes the Breath sweet, is an Anodyne, Diaphoretic, Diuretic, and Discutient. Being drank, it restrains Thirst in a Dropsy, is good against the Poisons of venomous Creatures, and Inflammations; it stops a Looseness, and the Fluor albus; draws Milk to the Breasts, and stimulates to Venery. The Fume received up the Nostrils eases the Pain of the Head. The Powder, mixed with Oil of Roses, and distilled, cures Rup-tures in the Ears.

The best Seed is what is fresh, full, free from Mouldiness, and has a very strong Smell. The Anise of *Crete* is accounted the best of the Kind; and next to that the *Egyptian*. *Diosco-rides, Lib. 3. Cap. 65.*

Anise, drank in Wine, is good against the Venom of Scor-pions. It is one of those Simples which are most highly com-mended by *Pythagoras*, whether raw, or in Decoction. Green or dry it is an usual Ingredient in all Pickles and Sauces, and is put in the lower Crufts of Loaves, and in medicated Bags. It is used with bitter Almonds to add a Briskness to Wine. Eaten in the Morning with Alexanders and a little Honey, and washed down with a Draught of Wine, it takes off a stinking Breath, and makes the Countenance youthful. Put in a Pillow, so that it may be smelled, it relieves a Person under want of Sleep. It gives an Appetite to Food; for Luxury, among other Inven-tions, has found out a Method to render Labour unnecessary for procuring a good Stomach. For these Virtues some have called it *Anicetum* [insuperable]. It serves instead of Ligusticum [Lovage] in Pickles. *Jollas* applies its Root bruised in Wine to sore Eyes afflicted with Rheums: He also uses Anise bruised with Wine and Saffron, or bruised alone, and made into a Pul-tis, for great Defluxions on the Eyes, or to extract any thing that may have fallen into them. Used with Water, it con-sumes the Polypus in the Nose; mixed with Honey and Hyf-sop, and gargarized with Vinegar, it asswages the Quinsey; being roasted, it expectorates Phlegm, and the more effectually, if it be mixed with Honey; with half a quarter of a Pint of Anise bruise fifty bitter Almonds cleansed in Honey, for a Cough. A very easy Prescription is, to

Take three Drams seven Grains of Anise, and two Drams five Grains of Poppy; mix them with Honey to the Size of a Bean, and take one for three Days together.

It is particularly serviceable in Eructations, and therefore cures Inflammations of the Stomach, the Gripes, and the Colic. Being smelled to, or the Decoction of it drank, it represses the Hiccups. A Decoction of the Leaves digests Crudities; the Smell of the Decoction, with Smallage, stops Sneezing; being drank, it procures Sleep, represses Vomiting, and Tumors of the Præcordia, and is very useful in Disorders of the Breast and Nerves: There is nothing thought more friendly to the Belly

and Intestines; wherefore it is given roasted in the Dysentery and Tenefmus: Some add Opium, and prescribe three Pills of it in a Day, of the Size of a Lupine, diluted in a Glass of Wine. *Dieuches* gave the Juice of it for Pains in the Loins; and the Seed, bruised with Mint in Wine, to Persons afflicted with the Dropsy or Colic; and the Root in Diseases of the Kidneys. *Dalian*, the Botanist, apply'd a Cataplasm of this Herb and Smallage to Women in Labour, and for Pains in the Pudenda; and order'd it also to be drank with Dill in the Time of their Labour. In a Phrensy they rub the Patient with the green Herb and Polenta, and treat Infants under an Epi-plepsy or Convulsions after the same manner. *Pythagoras* affirms it impossible for one to be seized with a Fit of the Epilepsy, while this Herb is held in the Hand; that therefore it ought to be very much cultivated in the Gardens of such as are liable to this Distemper; and that the Smell of it facilitates the Birth; and advises, that the Woman should drink it mix'd with Po-lenta, immediately after Delivery. *Sosimenes* used it with Vine-gar for all Hardnesses, and also for Lassitudes; for which last Purpose he boiled it in Oil, and added Nitre. The Seed, drank, infallibly relieves the Traveller under Lassitude. *Heraclides* prescrib'd as much of the Seed as may be taken up with the Thumb and two Fingers, and eighteen Grains of Castor, to be taken in Mulsum, for Inflammations of the Stomach. In the same manner is it given in Inflammations of the Belly and Intestines. For the Orthopnea (a kind of Asthma) the same Quantity of Seed is given, with as much Seed of Henbane, in Ass's Milk. Many will advise half a quarter of a Pint of its Seed, with ten Bay-leaves bruised in Water, to be taken at Supper, by those who are inclin'd to vomit; eaten, and anointed warm, or drank with Castor in Oxymel, it appeaseth the Strangulation of the Uterus. Taken with the Seed of Cowcumbers and Lin-seed, each as much as may be grasped with three Fingers in a quarter of a Pint of White-wine, it cures the Vertigo that comes after Childbirth. *Tlepolemus* used the same Measure of the Seed, with the like of Fennel-seed, in Vinegar and a Glass of Honey, for a Quartan. It eases the Pains of the Gout, if the Place be anointed with it, and bitter Almonds. Taken in Wine, it gently promotes Sweat; it also preserves Garments from the Moths.

The newest and blackest is the best. It is not proper for the Stomach, except in case of Inflammations. *Pliny, L. 20. C. 17.*

It is a small tender Plant, producing one Stalk, seldom arising above two Feet high, whose lower Leaves are whole, round, and indented about the Edges; but those which grow upon the Stalk, are winged, and finely divided, of a pale green Colour; the Top is branch'd into several Umbels of small white Flowers, which are succeeded by round longish Seeds, swell-ing toward the Bottom, and ending in a bluntish Point of a greenish Colour, which are of a pleasant Smell, and of an hot but very sweet Taste. It flowers and seeds in July, the Root dying every Year, after it has yielded Seed. It is cultivated in Germany; but the best Seed, which is a smaller Sort, comes from Spain. The Seed only is used, being one of the four greater hot Seeds.

Aniseed is Carminative, expelling Wind out of the Stomach and Bowels, both given at the Mouth, and in Clysters. It is frequently put into Childrens Viçuals, for the Gripes and Wind. It is very useful against cold Affections of the Lungs, Difficulty of Breathing, and Asthma. Some commend it much to be taken frequently by Nurses to increase their Milk. It is often used as a Corrector of the stronger purgative Medicines. The Oil, distill'd from the Seed, is used for the same Purposes, and often applied outwardly in Carminative and Anodyne Lini-ments, and particularly for the Pleurisy, and other Pains in the Side.

Officinal Preparations are only the Chymical Oil distill'd from the Seed. *Miller's Bot. Off.*

The Moderns have added nothing to the Virtues specify'd by the Antients, except that it is a Corrector of Scammony.

For the Method of making Oil of Anise, see OLEUM.

ANISUM CHINÆ. See ZINGI.

ANISATUM, an artificial Wine, prepared of ten Pints of Honey, thirty Pints of Wine of *Ascalon*, (a maritime City of Syria) and five Ounces of Aniseeds. *Oribas. Med. Coll. Lib. 5. Cap. 33.*

ANNETESTES. The *Galenists* so call'd by *Paracelsus*, *Frag. de Morb. Gall.* by way of Derision, as ignorant and blind with respect to the Principles and Causes of things. *Castellus.*

ANNORA, calcin'd Egg-shells, or Quick-lime. *Rul. and Jehn.*

ANNOTATIO, the very Beginning of a febrile Paroxysm, when the Patients use to shiver, to be refrigerated, to yawn, stretch, and be drowsy, &c. *Gal. 2. Aph. 1.* It is also called *ἐπιπνοια*, and *ἐπὶ πρὸς τὴν πρῶτην*, the Attack of the Pa-roxysm.

There is another *Annotatio* or *Episemasia*, which is proper to Hætic Fevers, and happens when the Patient, an Hour or two after

after eating, feels an Increase of Heat, with a swifter and fuller Pulse than before, but without a Shivering, Refrigeration, or any of the forementioned Symptoms. Hence it is called by *Gal. Lib. de Diff. Feb. Cap. 9. ἐνσυνασία ἀβυσσῶς*, an inoppressive Annotatio. *Castellus*.

ANNUENTES MUSCULI, the same as *Relaxi Interni minores*, which see.

ANNUITIO. So *Pliny* calls the Motion of the Head forward.

ANNULARIS CARTILAGO, the Ring-like Cartilage or Gristle at the Head of the Larynx. See *CRICOIDES*.

ANNULARIS DIGITUS, the Ring-finger, or fourth Finger of the Hand.

ANNULARIS VENA, the Vein between the Ring-finger and the little Finger, which *Actius* advises to be open'd in Affections of the Spleen. *Actius, Tetrab. 1. Serm. 3. Cap. 12.*

ANNULUS, *Δακτυλίδιον, κέικον*. A Ring. *Quercetan de Med. Hermet.* and from him *Libavius*, mention a purging Ring prepared of Glass of Antimony. You find also in *Trallian*, and *Marcellus Empiricus*, several superstitious Rings recommended to be worn as Amulets against the Colic and Epilepsy. *Scultetus*, in his *Armament. Chirurg.* gives us the Descriptions and Figures of several Chirurgical Rings; and *Zecchius de Morb. Gallic.* writes, that a Gold Ring held in the Mouth extracts Quicksilver out of the Body.

ANNUS, *ἔτος, ἐνιαυτός*, the Year. The Antients divided the Year into Summer and Winter, as *Lind. Ex. 11. Sect. 196.* demonstrates out of *Theophrastus*; but those who came after them made a new Division of it into four Quarters, by adding Spring and Autumn.

Annus Philosophicus, the Philosophical Year, is a common Month. *Dorn. and Ruland.*

Annus Amadin, is long Life. *Dorn.*

The Seasons of the Year, and their Vicissitudes, are the Occasion of various Changes of Diseases, as *Hippocrates* observes; for which Reason their Temperatures and Alterations are to be well observed.

Annus Tempora Constantia, *καθεστῶτες καιροί*, consistent Seasons of the Year, are such as keep their usual and expected Temperature, and promise none but Diseases of a favourable Kind, and easy to be judged. On the contrary, the *Tempora Inconstantia*, *καίροι ἀκατάστατοι*, inconsistent Seasons, are unconstant, unstable, and unfit for forming a Judgment. *Hip. Aph.*

Annus unius Opus, the Work of one Year, is said of the Philosophers Stone, because it may be brought to Perfection, and the whole Process finished, in one Year, being no more than changing Gross into Subtile, and Fixed into Volatile. *Castellus.*

ANO, *ἄνω*, upwards. It is opposed to *κάτω*, downwards, and imports the superior Parts. In *Hippocrates*, and others, this Adverb is often join'd with *κοιλία*, the Belly; or *κοιλία* is understood when it implies Vomiting; as *κάτω* join'd with it, or understood, implies Purging. Of purgative Medicines also some are term'd *ἄνω*, which are Emetics, others *κάτω*, which purge downwards.

ANOCHEILON, *Ἀνώχειλον*, from *ἄνω* and *χείλος*, a Lip. The upper Lip, which is opposed to *κατώχειλον*, the under Lip. *Castellus.*

ANODIA, *Ἀνοδία*, from a Neg. and *ὁδός*, a Way. An unpassable Way. Metaphorically it signifies an improper Method of Teaching or Learning, *Hippoc. ἐν ᾧ δαΐσσει*. and is opposed to *ευοδία*, Euodia, an easy and expeditious Way of arriving at Knowledge, *Hippoc. ἐπὶ ευοδημον.*

ANODINA, narcotic Medicines. *Johnson.*

ANODMON, *Ἀνοδμων*, from a Neg. and *ὀσμὴ*, a Smell. Without Smell. Thus *ἀνοδμων πόνος* in *Hippoc. Coac.* is Pus that has no Smell, or at least no foetid Smell. It is the same as *Anosmon*, *ἀνοσμων*, and is opposed to *dysodes*, foetid.

ANODON, *Ἀνοδον* in *Hippocrates* is expounded by *Erotian* *βαθμὴν καὶ δῖον ἑδῶν*, the Threshold and Step of a Door; or a Stone at the Threshold of the Door, by which an Entrance opens into the House. The same, he says, is also called *ἐλάτ*. But if this Interpretation of *Erotian* be right, he seems to have in View that Passage *Lib. de Art.* where *Hippocrates* orders *τὴν κλίνην τὰς πόδας ἐρηρῆσαι πρὸς τὸν ἑδῶν*, the Feet of the Bed to be fasten'd to the Threshold of the Door. And also another Passage in the same Book, which runs thus: *τὸ μὲν ᾧ δὲ τὸ ἑδῶν ἐρεῖσθαι, τὸ δὲ ᾧ δὲ τὸ ξύλον τὸ ᾧ δὲ βαλμῆναι*, One of them (the Levers) is fasten'd to the Threshold, and the other to a Piece of Wood set up for the Purpose: So that *Erotian* seems to have read *ἀνοδον* for *τὸ ἑδῶν*. In *Suidas*, *ἑδῶς* signifies *βατήρ*, *ἐλάτ* καὶ *βαθμὴς*, and *τὸ κάτω τὸ βύρας*, the Stone, or wooden Step or Threshold, at the Foot of the Door, by which you enter the House. *Hesychius*, *ἑδῶς βατήρ* ὁ πρὸς τὴν βύραν, the Step before the Door: It is also called *ἑδῶς*, (*Odos*). *Foefius.*

ANODUS is the Chymists Word for what is separated from the Nourishment by the Kidneys. *Rul. Johnson.* The Greek Word *Ἀνόδης*, Anodus, from a Neg. and *ὀδός*, a Tooth, signifies Toothless.

ANODYNA, *ἀνόδυνα*, from a Negat. and *ὀδύνη*, Pain. Anodynes.

Medicines which procure Sleep, and Ease from Pain, were by the Greeks called *Hypnotic*, and *Anodyne*; and, if of a stronger Nature, *Narcotic*, or stupifying; and are such Substances as by their subtile, nauseous, and disagreeable Exhalations sometimes diminish, and sometimes quite destroy, the Motion and Sensation of the solid Parts.

Among the principal of the Hypnotic and Anodyne Medicines, are all the medicinal Preparations of the Poppy, especially Opium, which was by the Antients called the Tears of the Poppy, or Meconium, and is an Extract of the Poppy procured by boiling. But as for the Narcotic, or stupifying Medicines, all those of stronger Qualities may be reckon'd among them, such as the Preparatives of Mandrake, Henbane, Nightshade, Thorn-apple, and Dutory. (*Datura*).

Narcotics and Anodynes are justly rank'd in the Class of Poisons; for they quickly prove hurtful when given in a very small Dose, and kill entirely when exhibited in a little larger. Besides, they exert their Influences, and produce their Effects, principally upon the more noble Parts of our Bodies, in which the Powers of Sensation and Motion reside.

Celsus is of Opinion, that these should never be given without absolute Necessity, because they are of a violent Nature, and hurtful to the Stomach. And *Galen* says of Narcotics, that they are called Anodynes as improperly as a Man who was dead would be said to feel no Pain.

It is recorded of *Sylvius*, that he said he would not practise Physic without the Use of Opium; but notwithstanding this great Encomium, I am satisfy'd, that for one who receives any Benefit from Opium, a hundred lose their Lives. As Opium and its Preparations seldom fail to induce Ease from Pain, they too often lay a Temptation in the Way of People in the lower Class of Physic, to satisfy the Impatience of those they attend, tho' at the Expence of Life; insomuch that I was once a Witness of the Destruction of three People in this Way, by one and the same Person, and that in less than six Months: And in such Cases Physicians are usually called in too late to remedy the Evil.

It must, however, be confessed, that Anodynes are, in some Cases, of great Importance, if administer'd with Prudence and Judgment. Thus, if in Miscarriages the Placenta, or any Part of it, remains in the Uterus, Anodynes, by relaxing the Parts, and removing the Stricture, which is increas'd by Pain, make room for the Expulsion of what is retained. In like manner also, Anodynes are of Service, when a Stone is fixed in one of the Ureters, after proper Evacuations. And when a Suppression of Urine is caused by a painful Stimulation, and consequent Contraction, of the Sphincter Muscle of the Bladder, Anodynes, by removing the Cause, make way for a ready Discharge of Urine.

Hoffman is of Opinion, that Sleep and Anodyne Medicines quench Thirst, because they remove the Stricture from the Glands, and relax the Ducts of the Fauces, by which means a more plentiful Affusion of Moisture to them is procur'd.

But by Anodynes, in a more lax Sense, may be understood, all Remedies which relieve Pain. Thus a Lancet may, not improperly, be said to be an Anodyne, because, by evacuating a Part of the Blood, it mitigates inflammatory Pains. Thus all relaxing Remedies, Diluters, and Medicines which by any means destroy Acrimony, or expel Wind, are, in their Effects, Anodynes, when properly apply'd.

ANODYNIA, *Ἀνοδυνία*, Indolence, or Absence of Pain. *Castellus.*

ANODYNUM minerale, Sal Prunellæ. *Castellus.*

ANOEIA, *Ἀνοεία*, from a Neg. and *νῆς*, the Mind; the same as *Amentia*, Madnefs.

ANOMALIA, ANOMALUS, *ἀνομαλία, ἀνόμαλος*, from a Neg. and *ὁμαλός*, equal, smooth. Irregularity, Inequality, unequal, irregular.

An unequal or irregular Pulse is one, that falling higher in one Part of the Artery, which swells and dilates itself to a greater Degree, than in another Part which is more narrow; and, in a manner, contracted, beats with unequal Force, so that one Part of the Artery seems to be lifted up with vigorous, the other with weak Efforts. *Galen. in Definit. Med.*

An unequal Pulse is one that gives sometimes a stronger, sometimes a weaker Stroke. *Galen. ibid.*

We call that an irregular or unequal Pulse, which consists of one, two, three, or more Kinds of Pulses. This Irregularity lies sometimes in one Pulse; sometimes in more. We call it an Irregularity in one Pulse, when, feeling the Pulse with our Fore Fingers, we find a different Pulsation under each Finger. Sometimes we feel one kind of Pulse under two Fingers, and another kind under the other two Fingers; and sometimes one kind of Pulse under one Finger, and a different one under the other three. *Aetarius, Lib. 1. περὶ διαφόρων παθῶν; Cap. 1.*

Of unequal Pulses, some destroy the Equality in one Pulsation of the Artery, others in more; this latter Inequality is commonly called by Physicians Systematic (*collektive*). *Galen de Caus. Pulsf.*

ANOMOEOMERES, Ἀνομοιομερές, from a Neg. ἄνους, like, and μέρος, a Part. Dissimilar in Substance, or consisting of Parts of a different Kind. *Blancard.*

It is also called ἑτερογενές, heterogeneous.

ANOMOEOS, Ἀνόμοιος, dissimilar, or heterogeneous. The Word is apply'd by *Hippocrates* to preternatural and vicious Humours generated in the Parts, which, if they tend upwards, he advises, by way of Revulsion, to purge downwards; if downwards, to endeavour their Solution by Revulsion upwards. *Foetus.*

ANOMPHALOS, Ἀνόμφαλος, from a Neg. and ἰμφαλός, a Navel. Without a Navel, as were *Adam* and *Eve*, being created, and not nourished by the Umbilical Vessels, as some of the Learned have been at much superfluous Pains to prove.

ANONA.

The Characters are:

It is a Tree growing to the Height of an Apple-tree; the Leaves are for the most part single and oblong; the Flowers, for the most part, consist of three thick narrow Petals or Flower-leaves, and are produc'd single upon their Foot-stalks: These Flowers are succeeded by conical, squamous, or-netted Fruit, which have a pulpy Substance surrounding the Cells, in which are contain'd oblong hard Seeds.

The Species are,

1. *Anona maxima, foliis latis splendentibus, fructu maximo viridi conoide, tuberculis seu spinulis innocentibus aspero.* Sloan. Cat. Pl. Jam. THE SOUR-SOP; *vulgô.*

2. *Anona maxima, foliis oblongis angustis, fructu maximo luteo conoide, cortice glabro, in areolas distincto.* Sloan. Cat. Pl. Jam. THE CUSTARD-APPLE; *vulgô.*

3. *Anona foliis odoratis minoribus, fructu conoide squamoso parvo dulci.* Sloan. Cat. Pl. Jam. THE SWEET-SOP; *vulgô.*

4. *Anona aquatica, foliis laurinis atrovirentibus, fructu minore conoide luteo, cortice glabro, in areolas distincto.* Sloan. Cat. Pl. Jam. THE WATER OR SWEET-APPLE; *vulgô.*

5. *Anona foliis subtus ferrugineis, fructu rotundo majore laevi purpureo, semine nigro, partim rugoso, partim glabro.* Sloan. Cat. Pl. Jam. THE STAR-APPLE; *vulgô.*

6. *Anona foliis laurinis glabris viridi-fuscis, fructu minore rotundo viridi-flavo scabro, seminibus fuscis splendentibus, fissura albâ notatis.* Sloan. Cat. Pl. Jam. THE SAPPADILLA OR NASEBERRY-TREE; *vulgô.*

7. *Anona maxima, foliis laurinis glabris viridi-fuscis, fructu minimo rotundo viridi-flavo, seminibus fuscis splendentibus, fissura albâ notatis.* Sloan. Cat. Pl. Jam. THE BULLY-TREE; *vulgô.*

These Trees are the Produce of the warmest Parts of the West-Indies, as in *Jamaica*, *Barbados*, &c. where they are cultivated for their Fruits, which are in those Countries in very great Esteem, especially the *Sappadilla*, which they value more than any of the other Sorts, and hath been but lately introduc'd into some of those Islands. It is very probable, that none of these Trees were originally Natives of these Countries, but have been transplanted from some other Parts of the World; but being there planted, they thrive equally as well as if it were their native Soil, the *Sappadilla* only excepted, which is of a tenderer Nature than the others. *Miller's Dictionary.*

I take the first of these to be the *AHATE DE PANUCHO RECCHI.*

ANONIS, a Plant thus distinguish'd:

Anonis, Ononis, Aresta bovis, Offic. Chab. 168. Anonis fœve Rosta bovis, Ger. 1141. Emac. 1322. Anonis fœve Rosta bovis vulgaris, purpurea & alba, spinosa, J. B. 2. 391. Anonis spinosa, flore purpureo, C. P. Pin. 389. Park. Theat. 994. Raii Hist. 1. 957. Synop. 3. 332. Tourn. Inst. 408. Elem. Bot. 325. Boerh. Ind. A. 2. 33. Rupp. Flor. Jen. 214. Buxb. 21. Anonis, Rivin. Irr. Tetr. Dill. Cat. Giff. 147. Anonis, fœve Ononis, Rosta bovis, Remora aratri, Merc. Bot. 1. 19. Phyt. Brit. 8. Anonis purpurea vulgaris spinosa, flore purpureo, siliquis erectis lentiformibus, Hist. Oxon. 2. 169. REST-HARROW. Dale.

Miller enumerates twenty-six Species of this Plant.

Anonis, which some call *Ononis*, (I read ὀνώνιδα, according to *Theophrastus* and *Galen*) has Branches three Quarters of a Foot or more in Length, shrubby, full of Joints, and running out into many lesser Branches, or Sprays, with round Heads, and little thin Leaves like those of Lentils, and shaped like the Leaves of Rue or Meadow Trefoil, somewhat hairy, scented, and not of an unpleasant Smell.

Being gather'd before it produces Prickles, it makes a very grateful Pickle. The Branches are thick set with sharp, stiff Thorns, like a Palisade.

The Root is heating and attenuating. The Bark hereof, drank in Wine, provokes Urine, and breaks the Stone; the same absterges Ulcers which are crufted over. The Root boiled in Oxycras, and the Mouth washed therewith, cures the Tooth-ach. *Dioscorides, Lib. 3. Cap. 21.*

It is like Fenugreek, only more shrubby and hairy; after the Spring it shoots forth Prickles. The fresh Herb absterges the Margins of Ulcers. The Root is boiled in Posca for the Pain of the Teeth; and, drank in Wine, expels Stones and Gravel. Boiled in Oxymel to one half, it is given to those who are subject to the Falling Sickness. *Pliny, Lib. 21. Cap. 4.*

The Roots of Rest-harrow are very tough and woody, of a white Colour, running deep into the Earth, and sending out many shrubby Twigs or Branches, smooth and tender at the first springing, but afterwards tough, and full of long sharp Thorns, one growing at every Setting-on of the Leaves, which grow several together at the Joints, each being made of three Parts like Trefoil, and fastened to the Stalk by a flat Appendix: They are small, about half an Inch long, and crenated about the Edges; among these, towards the Tops of the Branches, grow the Flowers which are papilionaceous, or like the Flower of a Pea, but less and flat, of a reddish-purple Colour, growing in hairy five-pointed Calyces. After these are fallen, come small flat Pods, each containing two or three small kidney-like Seeds. It grows in waste Grounds, and by the Road-sides, and frequently among Corn, flowering in June and July.

This Root, which is one of the five opening Roots, is the only Part that is used, chiefly the cortical Part, and is a good Medicine against the Stoppage of Urine, Gravel, and Stone, to cleanse the Reins and Ureters from tough slimy Humours. It opens Obstructions of the Liver and Spleen, and helps the Jaundice. A Decoction of it in Vinegar and Water, used as a Gargle, helps the Tooth-ach from a Defluxion of Humours. *Miller Bot. Off.*

ANONTAGIUS, the Philosophers Stone, the Gift of God, the Sulphur fixed by Nature. *Dornæus.*

ANONYMOS, Ἀνώνυμος, from a Neg. and ὄνομα, a Name. It was formerly an Epithet of the second Cartilage in the Throat, afterwards called *CRICOIDES*, or *ANNULARIS*.

ANONYMOS is also an Epithet of several Exotic Trees or Shrubs; as

ANONYMOS Ribesii foliis is a particular kind of Shrub, with Leaves like those of Currans, and pentapetalous Flowers, of a faint-whitish Colour, and set together on the Extremities of the Sprays, in Form of an Umbella, and supported by small oblong Pedicles, the Flower-cup consisting of five Leaves. Each Flower is succeeded by two, and sometimes three Seed-vessels, or Pods, like those of Comfrey, but void of Seed, in our Gardens, because of the Inclemency of the Season. It is brought from *Virginia* and *Canada*. *Raii Hist. Plant.*

ANONYMUS flore Coluteæ Clusii, Myrto-genista quibusdam. Chamæbuxus fœve Chamæpyros quibusdam, J. B. Chamæbuxus flore Coluteæ, Ger. C. B. Pseudo-chamæbuxus, Park. It grows in several Parts of Germany. *Idem.*

ANONYMUS frutex Brasiliæ, flore keiri, Marcgrav. Its Bark is ash-coloured; the Leaves grow alternately opposite, keel-shaped, indented about the Extremity, of a chearful Green, bright, and elegantly distinguish'd with oblique Fibres; the Flowers grow in Spikes at the Extremities of the Boughs; and the Spike, before the Flowers open, is of a very fine carnation Colour, but then becomes yellow, as the Flowers are in opening, which are pentapetalous, each Petal supported by an acuminate pale-coloured Leaf; the Flower contains many yellow Stamina, and has a sweet Smell like our Wall-flower. *Idem.*

ANONYMOS Brasiliæ, floribus umbellatis albis hexapetalis.

ANONYMOS baccifera, foliis salignis, Brasiliæ, Marcgrav.

ANORA. See *ANNORA.* *Idem.*

ANORCHIDES, Ἀνὸρχιδες, from a Neg. and ὄρχις, a Testicle. Such as are born without Testicles. *Castellus.*

ANOREXIA, Ἀνορέξια, from a Neg. and ὄρεξις, Appetite. Inappetency, a want of Appetite, or Loathing of Food. *Paulus, Lib. 3. Cap. 27. Ἀνορέξια αἰσίων ἐστὶν ἀπορροῆς, ἢ τοῦ δυσχεραῖας ὑπερεχούσης κατὰ τὸν σῶμα, ἢ χυμῶν περιστάσεως.* "An Anorexy is an Aversion to Food, occasion'd either by a Distemperature of the Stomach, or a Redundancy of Humours." Hence ἀνὸρεξις (Anorecti) are called ἀνὸροι, such as will take no Food for want of Appetite. *Galen. Comm. i. in Lib. 1. Epidem. τοὺς ἀνὸρεκτοὺς ὃ ἀσῖτους ἐνομάζουσιν οἱ Ἕλληνες τοὺς μὴ προσεγεγμένους σιλία, τοὺς δ' ἀπετραμμένους προσέειδ' καλῶν ἀποσίτους.* "The Greeks call such as take no Food Anorecti and Asiti; but such as have an Aversion to Food when offer'd, are named ἀποσίτοι."

ANORGISMENON, Ἀνοργισμένον, in *Hippocrates*, is explain'd by *Galen* in *Exeg.* by ἀνήμεμα, ἀνήμερον, (anamemalagmenon) mollify'd afresh. It is from ἀνὰ, and ὀργίζω, the same as ὀργάζω, to prepare by mollifying, or other means. Thus ἀνοργισμένον, or ἀνοργισμένον σῶμα, signifies a Body mollified and prepared for taking of Medicines. *Foetus.*

ANOSIA, Ἀνοσία, from a Neg. and νόσις, a Disease. The Absence of a Disease. *Castellus.*

ANOTASIER, Sal Ammoniac. *Ruland. Johnf.*

ANOTHEN, *Anothen*, an Adverb, as well as *ano*, of Time and Place, according to *Galen*, being significative of the Beginning of a Disease, and the upper Parts in the Body. *Foefius*.

ANSER, a Fowl very well known, and of much Use, of which there are two Sorts, the tame, and the wild. The tame Sort is thus distinguish'd:

Anser, Offic. Charlt. Exer. 103. Bellon. des Oyse, 157. *Anser domesticus*, Schrod. 5. 314. Raii Ornith. 358. Ejusd. Synop. A. 136. Will. Ornith. 273. Aldrov. Ornith. 3. 102. Gefn. de Avib. 125. Jonf. de Avib. 92. Mer. Pin. 179. **THE GOOSE.** Dale.

The wild Sort is thus distinguish'd:

Anser ferus, Offic. Schrod. 5. 314. Aldrov. Ornith. 3. 147. Mer. Pin. 179. Raii Ornith. 358. Ejusd. Synop. A. 136. Will. Ornith. 274. Gefn. de Avib. 140. Jonf. de Avib. 93. Charlt. Exer. 103. *De L'Oye sauvage*, Bellon. des Oyse, 158. **THE WILD GOOSE.** Dale.

Lemery says you are to chuse of either of them; that which is tender, neither too young nor too old, well fed; and that hath been bred in a pure and serene Air.

Geese are nourishing enough, and very solid and durable Food.

A Goose is a little hard of Digestion; and when it is too young, its Flesh is viscous, and apt to produce gross and excrementitious Humours; whereas, on the contrary, when 'tis too old, it is dry, hard, has a bad Juice, and causes Indigestions and Fevers.

Goose contains much Oil, and volatile Salts. The tame one also contains much Phlegm, but the wild one has not so much.

Both the one and the other, in Winter-time, agree with young bilious People, who have a good Stomach, and are used to Exercise and Labour.

R E M A R K S.

Goose is a Food that is pleasing enough to the Taste. The wild one tastes better than the tame one; because that being much more upon the Motion than the other, its Flesh is not so full of viscous and gross Juices.

The Goose lives in cold, moist, and watery Places. You meet with this Bird almost in all Countries; they live long, especially the wild Goose, if we believe some Authors. *William Gratarolus* observes, that they'll live to be twenty; and *Albertus* says sixty Years old. The tame Goose flies but little, and rises not far from the Ground; whereas the wild one flies high and swift.

A Goose lives by Land and Water, as amphibious Animals do: But the tame one lives more upon Land than the other. In short, wild Geese are almost always found in moist and marshy Places; and there are a great many of them in *Ethiopia*, which make great Havock in the Country.

It's observed, that a Goose is very vigilant; and sleeps so slightly, that the least Noise awakes her; and some People pretend, that this Bird is at least as useful as a Dog in the Night; to watch a House; for as soon as it hears any thing, it ceases not to make a Noise, when she seems to call the People of the House to her Relief, of which there is indeed a remarkable Example: When the *Gauls* were in the Night upon entering the Capital of *Rome*, they gave the Dogs that were therein some Victuals, to prevent their barking, which had the desired Effect; but nothing of Food that they threw before the Geese could hinder their Clamour; which awak'd the *Romans*.

It may be said in general, that the Flesh of a Goose is more agreeable to the Taste, than it is wholesome. In short it always abounds with heavy and gross Juices, that make it hard of Digestion, and therefore it ought to be very moderately used; however, 'tis proper enough for robust People that have a good Stomach, because it is nourishing, and a durable and solid Food.

Some pretend to tell us, that Goose-flesh, on which the Jews frequently feed, does not a little contribute to make them of a melancholy Temper, of a dull, sad, gloomy Humour, and of a bad Colour. The antient *Britains* scrupled to eat Geese; but the *English* do it now with Pleasure.

Of all the Parts of a Goose, *Galen* approves of none but the Liver and Stomach for Food; however, the Wing is also very good. Some pretend, that *Scipio Metellus*, a Roman Consul, was the first who used Goose-liver; others ascribe this Honour to *M. Sestius*, a Roman Knight.

The Skin of a Goose's Feet is looked upon to be astringent, and good to stop Bleeding; or immoderate Fluxes of the Menstrues, if taken to the Quantity of half a Dram inwardly, after it has been first reduced to Powder.

Goose's Blood is looked upon to be good against Poison, of which two or three Drams are prescribed.

The Fat of a Goose is used in Physic. It is of a dissolving and mollifying Nature. It eases the Piles; and Pains in the Ears, if put into them. When taken inwardly, it loosens

the Body; and those Parts of the Body, which are affected with the Rheumatism, they rub with it.

They reduce Goose-dung into a Powder; and half a Dram of it is prescribed, in order to rarefy and attenuate the Humours; to provoke Sweating, Urine, and the Menstrues; as also to hasten Delivery. *Lemery on Foods*.

Dale, from *Schroder*, farther relates, that the Fat of a Goose is good in an Alopecia; and that it cures Fissures in the Lips (see *ADERS*); that the Dung dries, incises, and opens to a very great Degree; promotes the Discharge of the Secundines; and is excellent in the Jaundice, Dropsy, and Scurvy; and that the Cuticle of the Feet is a good Application to Chilblains.

The Salts of the wild Goose must be more highly exalted than those of the tame Sort, by reason of their habitual Exercise; and the Food of both Sorts, which consists of Worms, and other Insects, as well as Vegetables, furnishes their Flesh and Fat with a highly volatile and penetrating Salt: Hence they are subject to be very rank.

ANSERINA. See **POTENTILLA**.

ANSJELI. See **ANGELINA**.

ANTACHATES, *Ἀσάχης*, Amber, or a bituminous Stone of another Colour, which in burning smells of Myrrh, as *Agricola* writes of it. *Gorræus*.

ANTACIDA. Such Remedies as resist or correct the Acidity of the Humours.

ANTAGONISTA, *Ἀνταγωνιστής*, from *ἀντί*, against, and *ἀγωνίζω*, to strive. Antagonist, a Word apply'd to such Muscles as are contrary to others; for Instance, the *Musculus Abductor*, and the *Musculus Adductor Brachii*, are Antagonists.

ANTALGICUS, *Ἀνταλγικός*, from *ἀντί*, against, and *ἄλγος*, Pain. 'Tis apply'd in general to such Remedies as ease Pain. *Castellus*.

ANTALIMUM, *five Antale, Tubulus Marinus.* *Rondel*.

Is a little Shell like a Pipe, about an Inch and an half long, of the Bigness of a large Quill at the thick End, and that of a little Quill at the other, having little strait hollow Lines, reaching from one End to the other, of a white or greenish-white Colour. It is found upon Rocks, and at the Bottom of the Sea. It incloses a small Sea-worm; and contains a little fix'd and volatile Salt, with a very little Oil, and a great deal of Earth.

It is alkaline, resolute, and desiccative. *Lemery de Drogues*.

ANTAPHRODISIACOS, *Ἀνταφροδισιακός*, from *ἀντί*, against, and *Ἀφροδίτη*, Venus. Antivenereal, an Epithet of such Medicines as extinguish amorous Desires.

ANTAPHRODITICA, the same as *Antaphrodisiaca*.

ANTAPODOSIES, *ἀνταποδosis*, from *ἀνταποδίδωμι*, to reciprocate. I think this may properly be translated Returns, or Periods, or Vicissitudes of the Paroxysms of Fevers. *Hippocrates*, *Aph.* 12. Section the first, says, That the Paroxysms and Forms of a Distemper are made evident from a Consideration of the Disease in itself, the Seasons of the Year, and the Reciprocations of the Periods, (*ἀνταποδosis τῶν περιόδων πρὸς ἀλλήλας*) that is, the Manner of; or Time in which they succeed each other, whether every Day, or every other Day, or at longer Intervals.

ANTARTHRITICUM, *Ἀνταρθριτικόν*, from *ἀντί*, against, and *ἀρθρίτις*, the Gout. A Medicine against the Gout. *Blancard*.

ANTASTHMATICA, *Ἀντασθματικά*, from *ἀντί*, against, and *ἄσθμα*, an Asthma. Remedies against the Asthma. *Blancard*.

ANTATROPHON, *Ἀντατροφόν*, from *ἀντί*, and *ἀτροφία*, a Consumption. An Epithet of some Medicines against Consumptions.

ANTECEDENS, *Προηγμένη*, from *πρὸ*, before, and *ἵκωμαι*, to lead. Preceding, commonly apply'd to Cause. See **CAUSA**.

Antecedentia Signa, preceding Signs, are such as are observ'd before a Disease, as a bad Disposition of the Blood, which is the Cause of infinite Diseases.

ANTELABIA, *Πρόχειλα*, from *πρὸ*, and *χείλος*, a Lip. The Extremities of the Lips.

ANTEBALLOMENOS, *Ἀντεβαλλόμενος*, from *ἀντί*, instead of, and *ἐμβαλλω*, to contribute. Substituted, spoken of such Medicines as may be substituted in the room of others. They are also called *succedanea*, succedaneous. *Castellus*.

ANTEBASIS, *Ἀντεβασίς*, from *ἀντί*, mutually, and *ἐμβαίνειν*, to enter. A mutual Insertion, or Ingress, apply'd by *Galen* to the Bones.

ANTEMETICA, *Ἀντεμετικά*, from *ἀντί*, against, and *ἐμεῖναι*, vomitory. Remedies against preternatural Vomiting.

ANTEDEIXIS, *Ἀντεδείξις*, from *ἀντί*, against, and *ἐνδείκνυμι*, to indicate. A Contra-indication; as when any thing happens in a Distemper contrary to the primary Indication; as, for Instance, an inflammatory Pleurisy indicates Phlebotomy, but the Weakness of the Patient indicates the contrary.

ANTENEASMUS, or **ANTENEASMUM**, a particular Kind of *Mania*, or Madness, when the Patients are furiously irritated, and endeavour to lay violent Hands on themselves.

ANTEPHIALTICUS, *Ἀντεφιαλτικός*, from *ἀντί*, and *ἐπι-ἀλγος*, the Incubus, or Night-mare. An Epithet of Remedies adapted to the said Disorder.

ANTEPILEPTICA, *Ἀντεπιληπτικά*, from *ἀντί*, against, and *ἐπιληψία*, the Epilepsy. Remedies against the Epilepsy, and convulsive Disorders.

ANTEPRIMA MATERIA, in *Paracelsus*, *Chirurg. Mag. Lib. 3. Cap. 11.* is a Name for that Tincture, which has a Power of tincturing and altering the *Prima Materia* (first Matter) of the Body, agreeably with, or contrary to Nature. *Castellus*.

ANTERA. See **ANTHERA**.

ANTEREISIS, *Ἀντερείσις*, from *ἀντί*, and *ἐρείδω*, to prop or sustain. The Renitency, or Resistance, which a firm and hard Body makes against an Impression. In this Sense the Word is used with respect to the Bones of the Ribs by *Hippocrates*, *Lib. de Artic.*

ANTERIT, Mercury. *Ruland. Johnson.*

ANTEROS, *Ἀντερός*, the Stone properly called **AMETHYSTUS**, which see. *Goræus*.

ANTHEDON, the Name of a Tree in *Theophrastus*, which *Ray* takes for the *Mespilus Aronia*. See **MESPILUS**.

ANTHELIX, *Ἀνθελίξ*, from *ἀντί*, and *ἑλξ*, the Helix. The inward Protuberance of the external Ear; within the **HELIX**, which see.

ANTHELMINTHICA, *Ἀνθελμινθικά*, from *ἀντί*, and *ἑλμινς*, a Worm. Remedies against Worms.

ANTHEMIS. See **CHAMÆMELUM**.

ANTHERA, *Ἀνθήρα*, from *ἀνθός*, a Flower. A compound Medicine, so called from its florid and very red Colour. Of this there are various Compositions. The following are from *Celsus*, which he prescribes for incrustated Ulcers in the Mouth:

Take of *Juncus Quadratus*, (round-rooted *Cyperus*, according to *Parkinson*) Myrrh, Sandarach, Alum, each an equal Quantity: Or,

Take Saffron, Myrrh, each two Drams five Grains; Orris, Plumous Alum, Sandarach, each four Drams ten Grains; *Juncus Quadratus*, eight Drams twenty Grains: Or,

Galls, Myrrh, each two Drams five Grains; Plumous Alum, two Drams five Grains; Rose-leaves, four Drams twelve Grains. Some, he says, take

Saffron, Plumous Alum, Myrrh, each one Dram two Grains and an half; Sandarach, two Drams five Grains; *Juncus Quadratus*, four Drams twelve Grains. The three former Compositions are pulverized, and sprinkled on the Parts affected; but this last is made into a Litus with Honey. *Celsus*, *Lib. 6. Cap. 11.*

An *Anthera* for incrustated Ulcers in the Mouth, and for swelled and stinking Gums:

Take *Iris Illyrica*, (*Florentine Orris*) Sandarach, *Cyperus*, each four Drams ten Grains; Plumous Alum, (some Copies add Myrrh) Saffron, Crocomagma, each two Drams; pound them, and mix them together. *Galen. de Comp. Medic. Sec. Loc. Lib. 6. Cap. 2.*

An *Anthera*, or *Collyrium*, for Defluxions and Pains in the Eyes, which gives Relief within an Hour:

Take of Saffron, four Drams ten Grains; Frankincense, two Drams five Grains; Cinnabar, four Drams ten Grains; Gum Arabic, two Drams five Grains. Infuse them in Wine, and when there is Occasion, bruise them till you have reduced them to a solid Mass, which make into a Litus with Honey. *Idem ibid. Lib. 4. Cap. 7.*

This Composition, as prepared by *Oribasius* and *Aetius*, *Aetii Tetr. 2. Sem. 4. Cap. 22.* is little different from the preceding, and recommended by them in Ulcerations of the Mouth.

This Medicine *Anthera* is recommended by *Caelius Aurel. Acut. Morb. Lib. 3. Cap. 3.* as good in a Quinsey.

The same is recommended by *P. Æginet. Lib. 3. Cap. 66.* in an Ulceration of the Womb.

ANTHERA in *Galen*, *Celsus*, *Paulus*, *Aetius*, and others, is the Name of a compounded Medicine appointed for different Parts of the Body, as *Anthera Stomachica*, &c. some in the Form of Powders, and some made up with Honey, still keeping the same Name, not taken from the Flowers of Roses, whereof in many of them there were none, but from the lively Colour of the Ingredients.

ANTHERÆ, in Botany, signifies the Summits, or little

Heads, in the Middle of the Flower, supported by the Stamina, but properly those of Roses.

ANTHEREON, *Ἀνθέρων*, the Chin, and that Part of the Face where the Beard grows. *Hesychius* takes it for that Part under the Chin whence the Beard begins to sprout. *Pollu. Lib. 2.* understands it much in the same Sense. *Suidas* explains it of the Beginning of the Neck and Throat; and in this Sense it is taken by *Caelius Aurel. Lib. 3. Cap. 3. & 4. Acut.* where he renders it *Gutturis Exordium*, "the Beginning of the Throat." And again, *Lib. 1. Cap. 3. Tard.* he says, *Utramque Gutturis Partem, quam Græci Ἀνθέρων vocant*, "both Parts of the Throat, which are called by the Greeks, *Antheron*, by the Latins, *Ruma*." *Hippocr. Lib. 5. Epidem. and Lib. περὶ ὁρίων φάρ.* seems by *Ἀνθέρων* to mean the Chin.

ANTHERICOS, *Ἀνθέρικος*, the Name the Antients gave to the Stalk or Stem of the Asphodel. "Theophrastus, as *Pliny* says, *Lib. 21. Cap. 17.* and the Greeks for the Generality, and amongst them their principal Leader *Pythagoras*, call'd the Stalk of this Plant, which is a Cubit, and oftentimes two Cubits long, with Leaves like the Wild Leek, by the Name of *Anthericos*; and its bulbous Root they call'd *Asphodelos*. We, says he, call the Stalk *Albus*, and the Asphodelos is "our *Hastula Regia*." *Dioscorides, Lib. 1. Cap. 199.* makes *Anthericos* to be the Flower of the Asphodel. *Hesychius* expounds *ανθέρικας*, the Stalk of the Asphodel, and also a Kind of Herb. *Eustathius*, *Varinus*, and the Scholiast on the first Idyl of *Theocritus*, make it the Fruit or Stalk of the Asphodel. *Hippocrates (Coaca Præ.)* seems to take it for the cubital Stem of the Asphodel, when, in order to examine whether there be any Bone of the Head broken or not, he advises the putting of the Stalk of Asphodel, or of Galbanum, *ανθέρικον ἢ γάλβανον*, between the Teeth, and bidding the Patient to chew it.

Suidas tells us, that the Stalks of the Asphodel were called by *Theocritus* and *Herodotus*, *ανθέρικες*, which he says, were of so tenacious a Substance, that they could not be broken. The same Author says, that *ανθέρικξ*, (*Antherix*) is so to be taken in the Scholiast on *Theocritus*, in *Theophrastus* and *Idæus*. *Apollodorus Dorienfis* will only have the Stalk called by that Name. Some take *ανθέρικξ* for the Tops of the Beards of Corn, or for the Stalks.

Plutarch, in his Banquet of the Seven Wise Men, when he explains that noted Passage in *Hesiod*, "Ὅσον ἐν μαλάχῃ τε καὶ ἀσφodelῷ μέγ' ὄνειαρ," "What great Refreshment there is in Mal-lows and Asphodel," seems to take *Ἀνθέρικος* for the Asphodel.

ANTHERON, *Ἀνθέρων*, florid. See **ANTHOS**.

ANTHEROPHYLLUS, **ANTHOPHYLLUS**. See **CARYOPHYLLUS**.

ANTHIA, *Ἀνθία*, a kind of Fish, as appears from *Oppian*, *Aristot. Rondeletius*, and *Aldrovandus*; but they disagree in their Descriptions. The Gall of this Fish is recommended by *Kiramesides*, as he is quoted by *Aldrovandus*, as good against *Exanthemata*, and the Fat against Tumors and Abscesses. *Castellus*.

ANTHINES, **ANTHINOS**, *Ἀνθίνης*, *ανθίνος*, from *ανθός*, a Flower. An Epithet of some medicated Wines and Oils. Such Wines had Flowers infused, or were sweet-scented, and called *Vina Odorata*, smelling like Flowers. The Oil that had this Epithet, was *Oleum Liliaceum*, or *Lirinum*, or *Susinum*, which are all the same. There was also the *ανθίνον μέγρον*, *Anthinum Unguentum*, the same also as the *Susinum* or *Liliaceum*, and differed from the Oil of that Name only, as *Galen* says, by the Mixture of some Spices.

ANTHONOR, the same as **ATHANOR**, which see.

ANTHORA. See **ACONITUM**.

ANTHOS, *Ἀνθος*, a Flower. *Ἀνθος*, in *Hippocrates*, signifies not only all Sorts of Flowers, but sometimes, according to *Galen*, signifies Seeds also; and in *Coac. Præn.* *Ἀνθρα* (in the plural Number) means the same as *ἐρυθρόμαλα*, Rednesses. He also frequently puts *ανθός*, for the *Flos Æris*. The Adjective *Antheron*, *ανθέρων*, in *Hippocrates*, is used to signify florid, very red, and bloody. Thus, *Lib. 6. Epid.* *Galen* explains *ανθέρων πύσμαλα*, (florid Spit) by *ἐρυθρὰ καὶ ὕδαμα*, red and bloody; and so in many other Places. *Aræteus* also, in *Peripn.* has *πύσμαλα διαμύρον, ανθέρων σπέρμα*, "bloody Spit, extremely florid." Such as are of a very red Complexion, are called by *Hippocr. in Prorrh.* *Ἀνθέρων*, "florid;" and *ανθέρων σῶμα*, "a florid Body," in *Epid. 6. Aph. 3. Sect. 3.* is a Body that has a Redness diffused over it, by the Increase of the natural Heat, and recalling the Blood and Spirits to the external Habit, which is the Sign of a plentiful and laudable Supply of Aliment.

ANTHOS, when used alone, signifies the Flowers of Rosemary; and is sometimes taken for the Plant, tho' improperly.

ANTHOSMIAS, *Ἀνθοσμίας*, from *Ἀνθος*, a Flower, and *σμία*, Smell. An Epithet applied to Wines that are sweet-scented, and of a most fragrant Smell. *Foefius*.

ANTHOUS, properly *Rosemary*; but, transferr'd to Metals, signifies the fifth Essence, or Elixir of Gold. *Rulandus*.

ANTHRACIA, **ANTHRACOSIS**, **ANTHRAX**. See **CARBUNCULUS**.

ANTHRA-

A N T

ANTHRACITES, 'Ανθράκις. See SCHISTOS.

ANTHRISCUS. See SCANDIX.

ANTHROPE, 'Ανθρωπὴ, or 'Ανθρώπιν, from ἄνθρωπος, a Man. The human Skin, so called by Herodotus, as Vesalius observes, Lib. 2. Cap. 5.

ANTHROPOLOGIA, 'Ανθρωπολογία, from ἄνθρωπος, a Man, and λόγος, a Discourse. A Description of Man. *Blancard*.

ANTHROPOMETRIA, 'Ανθρωπομετρία, from ἄνθρωπος, a Man, and μέτρον, a Measure. A Survey of Man in all his Dimensions. *Castellus*.

ANTHROPOMORPHOS, 'Ανθρωπομορφος, from ἄνθρωπος, a Man, and μορφή, Shape. A Name for the *Mandragoras*, or *Mandrake*.

ANTHROPOSOPHIA, 'Ανθρωποσοφία, from ἄνθρωπος, a Man, and σοφία, Wisdom, or Knowledge. The Knowledge of the Nature of Man. *Castellus*.

ANTHYLLIS is a Plant, of which there are two Species: The first is,

ANTHYLLIS PRIOR, Offic. *Anthyllis leguminosa marina* *Bætica*, vel *Cretica*, sive *Auricula muris Camerarii*. Park. Theat. 1094. *Anthyllis falcata Cretica*, ejusd. *Loto affinis*, siliquis hirsutis circinatis, C. B. Pin. 333. *Loto affinis*, siliquis hirsutis circinatis, C. Bauhini, Hist. Oxon. 2. 181. *Loto affinis*, *Anthyllis falcata Cretica Parkinsoni*, Ejusd. *Tripholium falcatum*, Alp. Exot. 257. *Auricula muris Camerarii*, J. B. 2. 387. Chab. 167. Raii Hist. 1. 922. *Medicago Cretica*, *Vulneraria facie*, Elem. Bot. 328. Tourn. Inst. 412. *Medicago Vulneraria facie*, *Hispanica*, Ejusd. & Boerh. Ind. A. 2. 35. **SEA KIDNEY-VETCH**.

It grows in Candy and Sicily, &c. by the Sea-shores, and flowers in the Summer. *Dale*.

ANTHYLLIS LEGUMINOSA, *Vulneraria*; Offic. *Vulneraria rustica*, J. B. 2. 362. Raii Synop. 3. 325. Tourn. Inst. 391. Elem. Bot. 311. Boerh. Ind. A. 2. 48. Dill. Cat. Giff. 128. *Vulneraria rustica*, *Anthyllis magna*, *Anthyllis leguminosa*, Chab. 167. *Anthyllis leguminosa*, Ger. 1060. Emac. 1240. Raii Hist. 1. 922. Mer. Pin. 8. *Anthyllis leguminosa Belgarum*, Merc. Bot. 1. 20. Phyt. Brit. 9. *Anthyllis leguminosa vulgaris*, Park. *Anthyllis leguminosa*, *Loto affinis*, *Vulneraria pratensis*, Hist. Oxon. 2. 182. *Anthyllis*, Rivin. Irr. Tetr. *Anthyllis Rivini*, Buxb. 22. Rupp. Flor. Jen. 208. *Anthyllis Loto affinis*, *Vulneraria pratensis*, C. B. P. 332. **KIDNEY-VETCH, LADY'S-FINGER**.

It grows in Pastures, and flowers in June. The Herb is in Use, and accounted a Vulnerary. *Dale*.

There are two Species of *Anthyllis*; one has soft Leaves very like those of Lentils, a Palm in Height; the Root is small and slender. It grows in sandy and sunny Places, and is of a saltish Taste.

The other Species has Leaves and Branches resembling Groundpine, but more hairy, shorter, and rougher. It bears a purple Flower, which has a very strong Smell, and has a Root like Succory.

The Herb, drank to the Quantity of four Drams ten Grains, is a powerful Remedy against a Difficulty of Urine, and Diseases of the Kidneys. Both Kinds bruised, and applied as a Pessary with Oil of Roses and Milk, assuage Inflammations of the Uterus, and are also Vulneraries. That Species which is like Groundpine, besides other Virtues, being taken in Oxymel, cures the Falling-sickness. *Dioscorides*, Lib. 3. Cap. 153.

I find no Virtues attributed to the *Anthyllis*, but what are transcribed from *Dioscorides*. *Dale* translates φλεγμονάς, τὰς ἐν ὕτῃ, Uteri Pituitas, which is a Mistake; for it signifies Inflammations of the Uterus.

ANTHYPNOTICA, 'Ανθυπνωτικά, from ἄντι, against, and ὕπνος, Sleep. Medicines against excessive or preternatural Sleep. *Blanc*.

ANTHYPOCHONDRIACA, 'Ανθυποχονδριακά, from ἄντι, against, and ὑποχόνδρια, the Hypochondria. Medicines against Disorders in the Hypochondria. *Blancard*.

ANTHYSTERICA, 'Ανθυστερικά, from ἄντι, and ὕστερον, the Uterus, Medicines against the Hysterical Passion. *Blanc*.

ANTIADDES, 'Αντιάδες, the Tonfils. It sometimes signifies the Tonfils when inflamed.

ANTIAGRI, from 'Αντιάδες, and ἄγος, a Prey. Tumors of the Tonfils.

ANTIARTHRITICA, 'Αντιαρθρικά, from ἄντι, and ἀρθρίτις, the Gout. Medicines against the Gout.

ANTIBALLOMENA, 'Αντιβαλλόμενα. See ANTEBALLOMENOS.

ANTICACHECTICA, 'Αντικαχετικά, from ἄντι, against, and καχεξία, a Cachexy. Remedies which amend a Cachexy. See CACHEXY.

ANTICADMIA, a Species of Cadmia, called also *Pseudocadmia*; ἄντι is here joined with it, to express its being substituted for the true Cadmia. See CADMIA.

ANTICAR, Borax. *Dorn*. *Rulandus*, *Johnson*, *Castellus*.

ANTICARDIUM, the same as SCROBICULUM CORDIS, which see.

A N T

ANTICATARRHALIS, the Epithet of any Remedy for a Catarrh.

ANTICAUSOTICUS, from ἄντι, against, and αἰσός, a burning Fever. An Epithet for Remedies against a *Causus*, or burning Fever.

ANTICHEIR, ἀντίχειρ, from ἄντι, over-against, and χεῖρ, the Hand. The Thumb. See POLLEX.

ANTICIPANS, this the *Greeks* express by προπαύειν. It is applied to Diseases, whose Paroxysms anticipate the Time of the preceding Paroxysm; that is, each of whose Fits begin somewhat sooner than the preceding. Thus, if a Quotidian comes one Day at Four in an Afternoon, the next Day at Three, and the next at Two, it is said to anticipate.

If the Catamenia also arrive sooner than the ordinary Period, they are said to anticipate.

ANTICNEMION, ἀντικνήμιον, from ἄντι, over-against; and κνήμη, the Leg, or Calf, of the Leg. In *Hippocrates* it signifies the Fore-part of the Tibia, which is bare of Flesh.

ANTICOLICA, Remedies against the Colic.

ANTICONTOSIS, ἀντικόνσις, from ἄντι, against; and κόνις, a Staff, or Pole. In *Hippocrates* it signifies the supporting a Person with a Staff, or Crutch.

ANTIDINICA, from ἄντι, against, and δίνη, Circumgyration. Medicines against a Vertigo, according to *Blancard*.

ANTIDOTARIUM, a Book wherein Antidotes are described, or the Place where they are made. It is much the same as *Dispensatory*.

ANTIDOTUS, or **ANTIDOTUM**, from ἄντι, against; and δίδωμι, to give. An Antidote. This Word is explained under the Article ANDROMACHUS, which see.

The Philosopher's Stone also is called by some Chymical Authors **ANTIDOTUS**, by way of Excellence.

ANTIDYSENTERICA, Remedies against a Dysentery.

ANTIFEBRILE, an Epithet for a Remedy against a Fever.

ANTIFIDES, the Calx of Metals. *Rulandus*.

ANTIGONI COLLYRIUM NIGRUM, the black Collyrium, invented by *Antigonus*, is thus prepared:

Take of Cadmia, thirty-six Drams twenty Grains; Antimony, twenty-five Drams; Pepper, eight Drams twenty Grains; Verdegris, eight Drams twenty Grains; Gum Arabic, twenty-five Drams; bruise them, and make them up in Rain-water. *Cosmus* added to this Remedy, ten Drams twenty-five Grains of the Juice of Centaury; in which he did right, in my Opinion. *Marcellus Empiricus*.

ANTIHECTICA, Remedies against a Hectic Fever. *Blancard*.

ANTIHECTICUM POTERI, a Medicine invented by *Poterius*, called also *Antimonium Diaphoreticum Joviale*. It is thus prepared:

Take equal Quantities of Tin, and Martial Regulus of Antimony, melt them in a large Crucible; then put to them; by little and little, three times the Quantity of Nitre; after the Detonation and Noise is over, wash the Whole with warm Water, till no Saltiness remains.

This is accounted a forcible penetrating Medicine; inasmuch as to make way through the minutest Passages, and search even the nervous Cells; whence, in all Disorders of that Original, it is reckoned very effectual. In those Heavinesses of the Head, Giddiness, and Dimness of Sight, whence proceed Apoplexies and Epilepsies, it does great Service. And in all Affections and Foulnesses of the Viscera of the lower Belly, it is reckoned inferior to nothing in cleansing away and discharging their Impurities. Thus it obtains in the Jaundice, Dropsies, and all Kinds of Cachexies. It is likewise esteemed of great Service even in obstinate Venereal Cases, in clearing the Blood from all Impressions of Contagion, and cleansing the Glands from those corrosive Recrements which such Distempers frequently lodge upon them, and occasion Blotches, and ulcerous Deformities. In short, there is hardly a Preparation in the Chymical Pharmacy, of greater Efficacy in most obstinate Chronic Distempers; but it is not often met with in Prescription, although constantly kept in the Shops. The Dose is from six Grains to a Scruple in grown Persons; for it is seldom given to Children, their tender Vessels not well bearing the Force of such Medicines. *Quincy's Dispensatory*.

ANTILEPSIS, ἀντιληψις, from ἀντιλαμβάνειν, or ἀντιλαμβάνομαι, to lay hold of. *Hippocrates* in his Book κατ' ἰντρεῶν, speaking of Bandages, says, that if there is any Danger of a Bandage slipping upwards, the **ANTILEPSIS** must be below; but if the Danger is of its slipping downwards, it must be above. By **ANTILEPSIS**, therefore, he means the Hold or Fixation of a Bandage upon a sound Part, either above or below the Part to be defended, in order to secure it from slipping off.

ANTIOBIUM, ἀντιόβιον, that Part of the Ear which is opposite to the Lobe. I suppose it means the Tragus.

ANTIOLOGIA,

ANTILOGIA; from *ἀντί*, against, and *λέγω*, to speak. Contradiction.

ANTILOMICA, from *ἀντί*, against, and *λοιμός*, the Plague. Remedies against the Plague.

ANTILOPUS, Offic. *Gazella Africana*, Raii Synop. A. 79. *Capra strepsiceros*, Aldrov. de Quad. Biful. 740. Charlt. Exer. 10. *Strepsiceros*, Bellon. Obs. ed. Clus. 21. Cui de Animal. 56. Gafn. de Quad. 294. **THE ANTELOPE**. Dale.

This is an African Beast like a Deer, remarkable for Swift-ness. The Hoofs and Horns are used in Medicine, and are esteemed good against the Epilepsy and Hysterics.

ANTILYSSUS, from *ἀντί*, against, and *λύω*, that Species of Madness which is caused by the Bite of a mad Dog. An Epithet for a Composition against this Madness. Thus a Composition of equal Parts of the *Lichen Cinereus Terrestris*, Greyground Liverwort, and black Pepper, is given in the College Dispensatory, under the Title of *Pulvis Antilyssus*.

ANTIMONIUM, Antimony. A great many excellent Medicines are furnished by this Mineral, to the regular Practice of Physic; and most of the empirical Nostrums which have made any considerable Figure, have been found to be Preparations thereof. Hence it has become a very important Subject, inasmuch that many Volumes have been written concerning it. Amongst these are *Basil Valentine's Currus Triumphalis* of Antimony, which, by the way, is not always to be depended on; and *Lemery's Traité de l'Antimoine*. *Angelus Sala* has also written well upon it.

Stibium, or Antimony of the Shops, *στίβιον* of *Dioscorides*, probably the *τρίβιον* of *Hippocrates*, *Lapis Spumæ candidæ nitentisque, non tamen translucentis*, of *Pliny*; *Ailmad*, or *Alamad*, of the *Arabians*; is a metallic, solid, heavy, brittle Substance, of a Lead-colour, with long shining Streaks, fusible by Fire, but not ductile. Native Antimony is of different Kinds; some is dug up with the Appearances of polished Iron or Lead, but brittle, and mixed with white or crystalline Stones. Some is composed of fine shining Lines-like Needles, sometimes disposed in regular Ranks, sometimes without any observable Order, which is termed Male Antimony. Some is disposed in thin broad Plates, or *Laminae*, called Female Antimony by *Pliny*. Some is a Congeries of small Lead-colour'd Rods, got from a tender white Stone, and easily melting in the Fire like Sulphur, which enters its Composition in great Quantities. Antimony of this Kind is found in several Parts of *Italy*. Some is marked with Saffron-colour'd or reddish Spots, as the *Hungarian* Antimony, mightily esteem'd by Chymists, because of the Golden Sulphur with which they imagine it to be stor'd. Antimony is sometimes found in a particular Ore, but most commonly mixed with other Metals; and hence its Name may have been derived, Antimony being the same as *ἀντιμύω*, an Enemy to Solitude.

Ores of Antimony are found in many Countries, and very plentifully in several Provinces of *France*, as *Auvergne*, *Poitou*, *Britany*, and others. The Glebes of Antimony are dug out of the Earth, mixed with a stony Matter, and the pure Mineral or Metal is separated by breaking the Glebe into small Pieces, and afterwards treating it in the same Manner as in refining other imperfect Metals.

The *French* Antimony consists of almost equal Parts of common Sulphur, and of a Reguline Substance. The Sulphur in Antimony is discover'd by the Smell, and the blue Flame which it emits, when calcin'd in a dark Place; and when thrown into a Crucible with Nitre, it fulgurates in the same manner as a Mixture of Nitre and Sulphur. By distilling Antimony with corrosive Sublimate, we get the Cinnabar of Antimony, which consists of the Sulphur of Antimony, and the Quick-silver of the Sublimate. If Antimony be boiled in common Water, mixed with four times its Quantity of Quick-lime, or Pot-ash, the Sulphur it contains, being dissolved in the Water, by means of the alkaline Salts, may be precipitated by Vinegar, or any other Acid. The Reguline Substance is fusible, not ductile, shining like polish'd Iron, and seems to consist of broad *Laminae*; which, when the Regulus is rightly prepared, are disposed in a radiated Manner, so as to exhibit the Appearance of a Star on its upper Surface. This Regulus may, by being calcin'd in the Sun, be separated from almost all its Sulphur, and turned to an ash-colour'd, true, vitrifiable Calx; which, being melted by a strong Fire, is converted into a hyacinth-colour'd Glass. If to this Glass, while in Fusion, any sulphurous or other inflammable Substance be added, it presently recovers its Reguline Form and Splendor. Because of the great Quantity of Sulphur which Antimony contains, an acid Liquor may be extracted from it, in nothing different from Spirit of Sulphur. From all which Observations, it is evident, that Antimony consists of a sulphurous Acid, of a bituminous, inflammable Part, and of a vitrifiable, metallic Earth. The Regulus of Antimony is dissolved by *Aqua Regia*; but is only calcined by the other Dissolvents of Metals. Antimony dissolves and destroys all Metals, except Gold, when melted with them. From this Property of Antimony, many Names have

been given it by Chymists; such as, the devouring Wolf; *Saturn*, who eats his Children; the Lead of the Wife; and the Sugar of the Sun; because Gold, melted with Antimony, is purified from all other Metals with which it is mixed, and comes out brighter and cleaner than before. Antimony is commonly thought by Chymists to contain a true, but unripe, solar Sulphur; and hence it has been called Leprous Gold, and the *Ens primum solare*; but the Sulphur of Metals is not different from the pure, original Sulphur, or Oil of Animals and Vegetables.

Among the Antients, Antimony was used to dye the *Supercilia* and *Cilia* black. Accordingly we find in Scripture, that the wicked Queen *Jezebel*, in order to charm the King her Husband, painted her Eyes with Antimony; and the Women, who used that Practice, are also reproved by the Prophets; and from thence it was, that this Mineral got the Name of *γυναικῶν*. See **ALCOHOL**.

Antimony, according to *Dioscorides*, is astringent, obstructs the Passages, cools, prevents Excrescences in the Flesh, cicatrizes Ulcers, stops Bleeding, and cleanses the Filth and Ulcers of the Eyes. *Galen* mentions its astringent and drying Virtue, and says, that it was used by Oculists in their dry Collyriums in that Intention. It was the Custom of the Antients to burn it, then to quench it in Womens Milk, or Wine, and, having afterwards reduced it to Powder, to make it up into little Pastils, which being perhaps of a quadrangular Figure, it was from thence called *τρίβιον* by *Hippocrates*. The emetic Virtue of Antimony seems to have been unknown to the Antients, or, at least, they seldom used it as such, or as a Cathartic. *Dioscorides*, indeed, mentions it in one Place, as an Ingredient in a purging Medicine made of *Elaterium* and Salt; but the Antimony seems to have been there ordered only to give a Colour to the Composition. Its cathartic Quality became generally known about the twelfth Century, in which a *German* Benedictine Monk, named *Basil Valentine*, published a Book called *Currus Triumphalis Antimonii*, where he extols the Virtues of that Mineral, and its Preparations in the Cure of an infinite Number of Diseases. In the 15th Century, *Paracelsus*, following the reigning Opinion, made the Fame of the Virtues of Antimony become still more universal; however, Physicians disputed afterwards with great Warmth and Virulence, concerning the beneficial and deleterious Qualities of Antimony. At present they are all agreed, that it is a very powerful and safe Medicine; and they acknowledge two Virtues in it, depending on its different Preparations, one emetic, or cathartic, the other diaphoretic; for all Medicines prepared from Antimony do either purge upward or downward, or are diaphoretic and sudorific. Crude Antimony is seldom used in Physic; tho' it is certain, that it possesses no hurtful Qualities, since it may be taken inwardly in the Quantity of a Dram or two, without exciting any Nausea, and is often boil'd in sudorific and drying Apozems, without communicating to them any emetic or other prejudicial Quality; and, indeed, that Way of treating Antimony has no Effect at all, since it communicates nothing to the Water, at least nothing that the Water can retain, how long soever it be boiled in it. The active Qualities of this Mineral are therefore entirely owing to its Preparations, except it be render'd emetic by some acid Juices which it meets with in the Stomach.

Crude Antimony, taken inwardly, in the above-mentioned Quantity, dissolves Viscidities in the Fluids, opens Obstructions, and is commended by some as a safe Remedy in cutaneous Diseases, in Consumptions and Epilepsies. It is likewise of great Use in fattening Brutes. The external Use of it is likewise recommended for drying Ulcers, in curing the Itch, and other Diseases of the Skin, when mixed in Ointments; in Plaisters for resolving Tumors; and in *Collyria* for Inflammations, and other Affections of the Eyes.

The most common Preparations of Antimony are the *Hepar*, or Liver of Antimony; *Crocus Metallorum*, *Vinum Stibiatum*, Emetic Tartar, Glass of Antimony; the Golden Sulphur of Antimony; and the Flowers, Butter, and Cinnabar of Antimony; the Powder of Algaroth; the universal *Panacea*, Bezoar Mineral; Diaphoretic Calx, or Diaphoretic Mineral; and the Tincture. *Geoffroy*.

Mr. Reaumur gives the following Account of the Contexture of Antimony.

Nothing is more common than to observe, as it were, long and shining Needles on the Surface of broken Antimony; and that on which they are most distinct and visible, is esteem'd the best. Sometimes these Streaks are rang'd with so much Order, and branch out with so much Regularity in certain Directions, that even those who have daily Opportunities of observing this Phenomenon, can't help being struck with its Beauty. The Figures of the constituent Molecules of this Mineral may possibly contribute something to the Formation of these Needles: But the Texture and Configuration of the constituent Parts will not alone account for the Disposition of these Streaks, and their Arrangement with regard to each other; since upon breaking different Lumps of the same Antimony, and of the same

same Shape, we often observe quite different Arrangements of these Streaks or Needles. Let us take, for Instance, equal Masses of Antimony, of a regular conical Figure, because this Mineral is generally melted in a Species of Crucibles which resemble a Funnel, or an inverted Cone. Let several of these conical Masses be broken, each into several Parts; and we shall find the Needles of the same Cone disposed in different Directions, and varying in each different Piece. In one of these Masses, from a certain Height, we may observe all the Needles directed to the Point of the Cone; a little higher, the Needles shall be horizontal, or nearly perpendicular to the former; above these we shall observe others which shall sometimes be all directed to some Point of the Base of the Cone, and sometimes divide themselves into Cones, which shall have different Summits. In another of these Masses we shall not find the Needles disposed in an horizontal Direction, but running into conical Parcels, in Directions quite the reverse of each other; that is, one conical Parcel shall have its Summit pointing to the Apex of the Cone, and that of the other shall be directed to the Base. In some Lumps we shall perceive Needles every-where; in others we shall discover none at all. Often these Needles appear in one Part of the Lump, when no such thing is to be seen in the rest. Very commonly we see them disposed in Parcels of a conical Figure, whatever the external Form and Shape of the Lump is; for the internal Cones have no Dependence upon the external conical Form of the common Mass. Sometimes the Needles are disposed along the Sides of the Cone, and their Direction seems to follow the Sides of the Vessel in which they became fixed.

Notwithstanding these Varieties, the Cause which contributes to the Production and Arrangement of these Needles, is manifest; and however little we may advert to it, seems to be owing to nothing else but that Refrigeration, by means of which the mineral Substance is changed from a fluid into a solid State. It is to this Refrigeration, and its Progress, that the Needles of Antimony owe their Production and Direction: Any Substance, whose Fluidity depends only on the gross Particles of the Fire, which separate and agitate its constituent Molecules, resumes its former Solidity, when 'tis left to itself, and when the Particles of the Fire are dissipated: Now these cannot possibly be dissipated but successively, and in a certain Order, which is generally such, that those Parts of the melted Substance, which are either next to the Sides or the Mouth of the Crucible, first assume a Consistence; then the Molecules next to these become fixed, and so on till the whole Mass loses its Fluidity: Now each fixed Molecule applies itself so much the more effectually and necessarily to that which is contiguous, as the Contact of each fix'd Molecule with that which is contiguous, contributes not a little to fix it, and deprive it of Motion.

Molecules, successively added to each other, form a kind of Fibres, Threads, or Needles, the Directions of which shew the particular Order in which the Refrigeration has been carry'd on. If the Crucible was of the Shape of a hollow Bowl; if its Sides were every-where equally thick, equally warm, of the same Consistence, and equally acted upon by an Air equally cold; and if the melted Substance was of the same uniform Nature in all its Parts, all the Needles or Fibres would be so many Rays terminating in the Centre of the Bowl. If the Substance was such, that its fix'd Particles were almost all of a Length, we should find also concentrical Beds of Needles, form'd by Parcels of each Ray, and lying at equal Distances from the Centre.

But so many remarkable Circumstances do by no means concur in the ordinary Refrigeration of Antimony; neither is it possible they should: Hence the Irregularities, of which we have been talking, must necessarily arise. I have, nevertheless, made some Experiments in Crucibles of a conical Form, in which I have generally given the Needles Directions pretty near those I intended they should have. When the Crucible, immediately after it is taken off the Fire full of fluid Antimony, is plac'd upon any Substance more capable of cooling it than the common Air, then the Bottom and the Top of the Antimony contained in the Crucible, must necessarily become cool first. Accordingly, I have, upon trying the Experiment, often found the Needles divided into two Cones, one of which had its Apex at the Bottom of the Crucible, and the other its Apex near the superior Surface of the Antimony. When, after taking the Crucible from the Furnace, I have put it upon some Coals, and also laid some upon the superior Surface of the Antimony, that the Sides might cool as soon, if not sooner than the rest, I have then found a Part of the Needles disposed horizontally, or, at least, there were Parcels of them which form'd Cones, some of which were almost perpendicular to certain Parts of the Sides of the Crucible. I have also more surely produced the same Effect, by accelerating the Refrigeration of particular Parts of the Crucible by touching them with a wet linen Cloth. Sometimes there is a Hollow form'd in the Middle of the conical Mass of Antimony,

and in that Case we see Needles directed from the Sides of this Hollow; the first Beds which have become fixed, have serv'd instead of the Sides of the Crucible in this Case.

That the Needles may be arranged with Regularity, 'tis above all things necessary, that the Refrigeration be carried on slowly, or otherwise one Molecule becomes fixed before it can be well adapted and adjusted to the End of another fix'd Molecule. If, nevertheless, the Refrigeration is too slowly made, we shall have no more Needles than if it had been too precipitately carry'd on; that same Arrangement, which existed during the State of Fusion, remaining, the Particles of the Fire make their Escape insensibly, and almost equally, from all the Parts of the Mass: In this Case, all the Molecules owe their Dispositions, as well as their State of Rest, to the Fire's ceasing to agitate them; and here the Contact of the Molecules already fixed, does not any more contribute much to stop the Motions of the other Molecules. Thus when I have left the Crucible full of melted Antimony upon live Coals, till they were extinguished, it has sometimes happened that I have not found a single Group of Needles in all the Mass; and even when I found any, they were very few in Number.

In short, it seems so probable, that the Formation and Disposition of the Needles of Antimony are the Effects of a Refrigeration, that is neither too quick, nor too slow, that it would be superfluous to support and maintain this Opinion by a longer Detail of Experiments. Instead of being surpris'd at such a Phenomenon in this Mineral, methinks we ought rather to be astonish'd, that we do not find the same Appearances in all other Substances, which have been melted by the Fire, and afterwards become fixed. The Refrigeration in them must be made in the same Order as in Antimony, and must consequently produce similar Arrangements. This is, indeed, a plausible Dilemma, and a Circumstance, which throws a kind of Diffidence into the Mind, with regard to the Truth of a very specious and probable Hypothesis: For Masses of Metal, upon being broken, do not present us with the same Appearances that Antimony does. I am not ignorant, that curious and skilful Naturalists have purposely cool'd Masses of Metal as slowly as possible, without ever being able by that means to render the Arrangement of their Parts sensible. But because the Arrangement of the Parts is not perceptible in a Mass of Metal, as it is in Antimony, does it thence follow, that there is no such Arrangement in the former, as well as in the latter? Surely not. The Mass of Antimony is a brittle Substance, and its Parts are so much the more easily and thoroughly disengaged, as they do not mutually yield to each other. If one strikes a Mass of Antimony, it flies into Pieces, every one of which retains the same Arrangement of Parts it did before the common Mass was broken. This is not the Case with Masses of Metal; for they yield to Blows, a Circumstance which makes their Parts assume new Arrangements. One cannot break them till these new Arrangements have put the Parts into such a State, as that it is more easy for them to separate from one another, than to dispose themselves otherwise than they are; and consequently this State is very different from that which they were in originally. All the Parts then may be as regularly arrang'd in a ductile Mass, as in a brittle one, without our being able to discover that Arrangement, which we must necessarily conceive to be in it. But there are Means, notwithstanding the Ductility, and even the greatest Ductility, of observing this Arrangement of Parts which has hitherto escap'd our Eyes. Lead itself will even discover its Arrangement, if observ'd in the favourable Moment. All Metals are more or less ductile when cold; they also are so, when hot in a certain Degree, beyond which they are no more, properly speaking, ductile; their Molecules, being too far removed from each other, cohere but slightly, and may be entirely separated by the first Blow they receive, provided it is but moderately severe. What happens to all brittle Bodies, happens partly to them on this Occasion; so that their being broken, when in this State, allows us to discover the Disposition and Arrangement of their internal Parts. This Observation I made first upon Lead. If it is broken when cold, we observe no Granulations in it; but I happen'd to break a Mass of it when pretty hot, and was surpris'd to find it as much granulated as a Piece of temper'd Steel when broken. The same Lead, when become cold, could not be broken without reiterated Blows, neither did Granulations appear any more in the Parts where it was broken: Now since Lead, when hot, has Granulations; since it retains them at the very Time it acquires a perfect Consistence, and when its Heat is too faint to keep it in a State of Fusion; hence it is evident, that it must also have Granulations when entirely cold. There is no Cause to reunite these Granulations, and reduce many of them into one, in the one Case more than in the other; but the Blows of the Hammer will occasion such a Reunion in the cold Lead, whereas they will produce no such Effect in that which is hot.

Having observed the Granulation of Lead, I imagin'd I might also discover a regular Arrangement of Parts in it: With this View I melted some of this Metal in a conical Crucible, and allow'd it to

assume a Consistence by little and little; and when it had acquired a sufficient one, I took it, as yet very hot, from the Crucible; then a Blow of a Hammer easily divided it into some large Lumps; the fractured Parts of which discovered to me those Needles and Fibres which I wanted to see: The Granulations, applied one against another, in certain Directions, formed these Fibres; there were Groupes of them parallel to each other, and almost perpendicular to the Sides of the Crucible. In other Groupes all the Fibres were perpendicular to the Bottom of the Crucible; and, in a Word, I saw, in the Lead, Fibres, such as are observed in Antimony, and whose Arrangement and Disposition were the same.

But, at the same time, I observed certain Differences between the Fibres of Lead, for I shall give them that Name, and the Needles of Antimony: These latter are very shining, have a lively sparkling Gloss, and are like so many Mirrors, or small Glasses, applied to each other's Ends; whereas the Fibres of the Lead are less sparkling, and are so very far from being flat, that they are visibly round: To the naked Sight; or even with a Glass that magnifies moderately, they only have the Appearance of a Groupe of small Bowls, arranged like the Grains of a Chaplet: A Glass which magnifies more, or a Microscope, represents each of these Fibres not as very round; and by their means it appears, that the Fibre is form'd of Grains applied one against another, only by a small Part of their Ends; and that, whereas the Sides of the Needles of Antimony are strait, those of the Fibres of Lead are denticulated. When this Affair, which I only hint at, at present, is more narrowly inquir'd into, it will perhaps be found, that it is upon this Figure of the Granulations, and their Arrangement, that the Ductility of Metals, and some other Substances, depends. We perceive already, that this Disposition leaves empty Spaces, which are filled up by the Parcels put out of their former Situation by the Blows of the Hammer; that, by the Force of Blows, these Vacuities, or empty Spaces, must be in some measure filled up; and that the Substance then becomes less malleable. In fine, Laminæ, applied one above another, or one against another, without leaving between them Interstices proportion'd to their Largeness, must necessarily compose brittle Masses, such as that of Antimony. I have already hinted, but I here repeat it again, that, in order to see the Disposition of the Fibres of Lead, it is necessary to catch it in the favourable Moment. If a Metal is struck when too hot, it is too much divided by the Blows of the Hammer, and crumbled into Parcels, most of which are no larger than Grains of Sand: If, on the other hand, the Metal is struck when it is not sufficiently hot, it yields to the Blows, and discovers neither the Arrangement of the Granulations, nor the Granulations themselves. By repeating the Experiment twice or thrice, one may find the exact Moment.

I have broken Masses of Tin, Copper, and Zinc, when hot, and was at no great Loss to find, in each of them, the same Granulation, and the same Fibres, I had discovered in Lead. We have no Reason to doubt, but the same Filaments are to be discovered in Gold and Silver; but I have not, as yet, made any Experiment with that View.

All soft Bodies, or such as are easily soften'd, as Wax, Tallow, Fat, Butter, have no Occasion for such a Disposition of Parts; or if they have, we can never perceive it, because they never become brittle.

All Masses which have been melted, tho' brittle, may possibly not discover this Arrangement of their Parts upon their being broken. We have already observed, that too quick, or too slow a Refrigeration, may prevent their being discovered, even in Antimony. In those Salts which are most disposed to form themselves into Crystals, if they are made to crystalize too quickly, or agitated whilst the Crystalization should be carrying on, none will appear. The Parts of melted Bodies, in like manner, do not assume a regular Arrangement, if they are too quickly refrigerated, or agitated during the Refrigeration. Another Cause may, as yet, concur to disturb, or even totally prevent this Arrangement; which is, when the melted Body is not an uniform Fluid; when it is composed of Parts, some of which have a greater Disposition to become fix'd than others, which have only the same Degree of Heat with themselves. The Formation of Fibres, Filaments, and Needles, is the Effect of a successive Refrigeration; or, to speak more accurately, of the Parts acquiring a successive Consistence. If those Parts of any melted Substance, which are remote from the Sides of the Vessel, should become fixed, before such Parts as are nearer them have lost their Fluidity, there is no more any Reason, why these Parts should form a continued right Line with the others. The more any Fluid is mixed with these Parts, which have an equal Disposition to become fixed, the more difficult it will be for Needles to form themselves in it; and when it assumes a Consistence, the Threads will be the more interrupted in it. *Mem. de l'Acad. Roy. 1724.*

Mr. Geoffroy makes the farther following Remarks upon Antimony, and its Preparations:

Vegetable Acids, being, of their own Nature, more attenu-

ated than those which belong to Minerals, easily unite with the rarefied Sulphur of Antimony; and thus separating that Sulphur from the vitriolic Acid contained in the Antimony, an emetic Compound is formed; but mineral Acids, being more dense, fix and wrap up the sulphurous Parts of Antimony, so as not to stimulate the Stomach and Intestines, but to let them pass freely into the Blood, before they can be disengaged, and act according to their own Nature. Spirit of Wine destroys the emetic Quality of Antimony, because of the too great Proportion of sulphurous Parts, by which the saline *Spicula* are so much involved, as not to be able to act on the Stomach.

Antimony is the most excellent Emetic we have, and the most sovereign Remedy in many Diseases, when rightly exhibited. In giving Emetics, three things are to be considered; the Patient, the Disease, and the Medicine. We ought, first of all, to be informed, whether the Patient vomits easily: Some Persons cannot be made to vomit with any Dose of an antimonial Medicine; some are so weak as not to be able to bear the Fatigue and Straining of a Vomit at all; some are so subject to a Spitting of Blood, that, by giving them a strong Emetic, a fatal Hæmorrhage might ensue. We ought likewise to know, whether the Patient has any considerable *Hernia*, in which Case violent Vomiting might produce very dangerous Consequences; whether the Vessels be so full, as that a Rupture of any of them may be apprehended; and lastly, whether the Patient, if a Woman, be with Child. In all these Cases, Vomits seldom ought to be ventured upon, and never without taking the greatest Precautions before-hand.

The second Thing to be considered, is the Disease itself; and especially, whether the Seat of it be in the Blood, or in the *Præputia*; the last of which may be discovered by a bitter Taste in the Mouth, Nausea, bilious Eructations, acid Vomiting, &c.

Some imagine, that Emetics can be of no real Service when the morbid Matter has reached the Mass of Blood, or when the Disease proceeds from an *Ataxia*, or Depravation of the Spirits, as in many spasmodic, hysterical, and hypochondriacal Affections: But this is a Mistake; for we find, antimonial Vomits are given with very great Success in such Cases; not so much as they evacuate what was before contained in the Stomach, as by deriving the morbid Matter from the principal Parts, the Lungs, for Instance, or *Pleura*, when threaten'd, or actually affected, into the Abdomen, from whence it is easily and readily carried out of the Body. And, for this Reason, *Hippocrates*, very wisely, advises to have recourse to Vomits in the Beginnings of such Diseases. In Convulsions an Emetic, by applying a Stimulus to the Fibres, of a contrary Nature to that from whence the Disorder proceeds, very often gets the better of that morbid Cause, and thus cures the Disease: For the same Reason *Hippocrates* gave Emetics in Diarrhoeas and Dysenteries, that the Tendency of these Evacuations might be directed upwards, and so destroyed. In Comatose Affections, Emetics powerfully shake the Viscera, increase the Oscillations of the nervous Fibres over the whole Body, and accelerate the Motion of the Fluids, or restore it, when lost, in any particular Part, so as to make them pass through the smallest Canals to their proper Emunctories. Thus we often see one Dose of an antimonial Emetic prove likewise cathartic, sudorific, &c. in a very plentiful Degree. In giving these Emetics great Care ought to be taken, that none of the abdominal Viscera be inflamed; because such Inflammations might very probably be increased by the Strain of Vomiting. We must not likewise be misled by all kinds of Reaching, or Attempts to vomit; for these are many times owing to convulsive Contractions of the Stomach, which by giving an Emetic may be increased, or perhaps that whole Bowel may be inflamed.

Thirdly, such Preparations of Antimony are to be chosen as may be given with Safety, of which the Dose may not be too great for the Strength of the Patient, and yet may answer the Intention of the Physician. Antimonials given in Powders often disappoint Physicians, either by vomiting too much, or not at all. The Effects of Antimonial Wines are very uncertain, because of the different Qualities of Wines: But the most excellent Preparation of this kind is Emetic Tartar, which ought always to be given, dissolved in a proper Liqueur, and not in too small a Dose; because if it is not strong enough to have the desired Effect, it will be apt to fatigue and torment the Patient with fruitless Nauseas and Reachings. Too great a Dose may likewise be dangerous, by exciting too violent Contractions in the Stomach, and Strainings of other Viscera, so as to cause spitting or vomiting of Blood, long-continued Reachings without bringing up any thing, Convulsions, and Inflammations of the Viscera.

If from any Dose of Antimonial Preparations, either too violent or too long-continued Vomittings should happen, the best Method is to drink a Glass of Water or Pilsan, acidulated with a few Drops of *Ol. Sulphuris per Campanam*, or Spirit of Vitriol; which will presently check the emetic Quality of the Antimony, and stop the Vomiting much more safely than Opium.

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While the Emetic works, the Patient ought to drink very plentifully, either luke-warm Water, Whey, or Vcal or Chicken-water, with a View both to dilute the Contents of the Stomach, to be thrown up, and to make the Vomiting more easy, and less straining. On the other hand, Oils, and all fat Substances, check the Force of the Emetic too soon, and prevent the Dilution of the Contents of the Stomach, and are therefore to be guarded against.

Besides the medicinal Uses of Antimony, it is employed by several Artificers, to give the Silver Sound to Tin, in casting Bells, making metalline *Specula*, and Types for Printing, &c. It is likewise used by Goldsmiths in refining Gold; for when melted with that Metal, it destroys all other Metals that can be mixed with it, Silver itself not excepted, and turns them to Dross. *Geoffroy*.

PROCESSES upon ANTIMONY.

PROCESS I.

The Solution of ANTIMONY in Aqua Regia.

Take of the purest Antimony, collected from the Tops of the Cones, half a Pound; reduce it to Powder, and put it into a glass Vessel that is low, and pretty large, and cut off in such a manner as to have a wide Mouth. Set the Vessel, with the Antimony, under a Chimney that will carry the Fumes up without dissipating them; and then pour upon it half a Pound of Aqua Regia. By this means there will be excited an incredible Effervescence, with a prodigious Heat, Noise, and very red and dense Fumes, all which will soon be over. There will then remain at the Bottom a moist, thick, pappy Matter, of an Ash-colour, inclining to Yellow. Dry this with a very gentle Fire, keeping it now-and-then stirring with a Stick.

REMARKS.

This is called an immerfive or humid Calcination of Antimony, by which this Fossil, which before was neither emetic nor purgative, acquires the most virulent Qualities. The yellow Matter interspersed through this Calx, is a true Sulphur of Antimony, which the Acid not being able to dissolve, is discharged from the other metalline Part of the Antimony, which is corroded by the Aqua Regia. Hence, therefore, in this Operation, there is both a Calcination and Separation. This Process is necessary to those that follow.

PROCESS II.

True Sulphur of ANTIMONY.

Upon the Calx of the preceding Process pour some clean Water, shake them together, and pour off the turbid Liquor into another Vessel; add more Water, shake and decant as before; and proceed in this manner, till the yellow lighter Part, being thus dispersed thro' the turbid Waters, is separated from the more heavy metalline Portion. Mix the decanted Waters together, pour off the whitish Water at Top from the sulphurous Matter that falls to the Bottom, which dry with a very gentle Fire, and it will be a true Sulphur in every Character. If you put larger Lumps of Antimony into Aqua Regia, and so perform the Solution, then the Masses of Sulphur will be larger; for the Aqua Regia, penetrating to the larger Portions of the Metal, that lie concealed in the Sulphur, will dissolve and extract them, and so render the Masses of Sulphur more visible.

REMARKS.

Hence it appears, how intimately Sulphur may lie concealed under the Appearance of a shining Metal, and how surprisingly the Aqua Regia can find out the metalline Part amongst the Sulphur. But how wonderfully does the Sulphur here retain its proper Nature, without any Alteration? This is that Sulphur of Antimony which *Van Helmont* orders to be extracted, and which, he says, scarcely differs from the common Sulphur, except that it is a little more upon the Greenish; and, indeed, there is scarcely any Difference: Nor, perhaps, does the Cinnabar that is made with it, in regard of its Virtues, deserve so much Trouble: Certainly, the subliming it seven times, as he directs, is not so easily done as directed. In this Operation, however, we have an ocular Demonstration, that Antimony consists of a sulphurous and a metalline Part.

PROCESS III.

Glass of ANTIMONY.

1. Take of the purest Antimony, reduced to Powder, two Pounds; put it into a large earthen Dish that is not glazed, and, in the open Air, place it over a Fire, in such a manner, that the Powder shall fume, but not melt. The whole Art depends on thus moderating the Fire: Keep

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the Powder continually stirring with an earthen Rod: A white, thick, foetid Fume will arise, which is prejudicial, and therefore must be cautiously avoided by the Operator's standing so, that the Wind shall blow it from him. Carefully continue this Calcination, in an equable manner, till the Matter fumes no longer. Then increase your Fire a little, and, if it begins to fume, keep it up till it ceases; and then make your Fire pretty strong, till the Dish begins to be red-hot, and the included Matter emits no more Fumes; and you will, by this means, have a Calx of a greyish Colour. If you proceed to calcine this with a still greater Degree of Fire, till the Powder grows red-hot, you will then have a yellow Calx, which is more purified from the volatile Part. If, in the Beginning of the Operation, your Fire should happen to be so strong as to melt the Antimony, and make it run into Lumps, you must immediately slacken your Fire, and reduce these again to Powder. This is the Calcination of crude Antimony, by means of Fire alone, and it is of great Use.

2. Put this Calx into a Crucible, round which place Fire at a Distance, gradually bringing it nearer and nearer, that the Crucible may gently and equably grow warm, hot, very hot, and at last red-hot, it being all the time close covered with a Tile, that no Coals or Ashes may fall into it. Increase your Fire till the Calx is put in Fusion, in which State let it stand for half a Quarter of an Hour, and then pour it out upon a very hot, dry Marble, and you will have a brittle, sub-pellucid, hard Cake, of a dark-yellow Colour, which is called Glass of Antimony, and is so much clearer as it stands longer in the Fire.

REMARKS.

Antimony consists of common Sulphur, and a metalline Glebe. All the Sulphur becomes volatile, by the Fire made use of for this Calcination; but the metalline Part bears a melting Fire, as appears when it is melted into Cones; but then it always yields a white suffocating Fume. Hence we know, that when powdered Antimony is sublimed with such a Fire as is not sufficient to melt it, then the external Sulphur is gradually expelled; by which means the metalline Part is purified, and at last is converted into a torrifed Calx, which, tho' the Antimony was innocent before, is a most virulent Emetic: How this should happen, is not hitherto well explained. This Calx, being put in Fusion, is Antimony converted into Glass. The Adepts say, that there is a great Agreement betwixt Lead and Antimony, which is confirm'd by the melting this Calx into Glass. This is almost a fatal Emetic: If it is infused in a soft Wine, not too acid, it yields an Emetic with very little Loss of its Substance. The Virtue, however, may be pretty soon drawn out, by repeating the Infusion: This makes the Emetic Wine every-where sufficiently known. This Glass of Antimony consumes almost all metalline Bodies in the Test, but to Gold it gives a beautiful Colour. *Boerhaave*.

This, *Geoffroy* says, is of a Hyacinth-colour; but it may be made white, yellow, red, or black, by the Addition of Borax, Sulphur, Sal Gem, or Orpiment. Glass of Antimony is a very strong Emetic, but may be weaken'd by powdering it on a Marble, and then burning Spirit of Wine upon it, for three or four times: Thus deflagrated, it may be given in the Quantity of ten or twenty Grains, which will either vomit or purge gently, and sometimes only cause a Sweat; on which Account it sometimes cures intermitting Fevers, if given a little before the Paroxysm. If this Glass, reduced to an impalpable Powder, be digested, for two or three Days, with Spirit of Wine, in which half an Ounce of Mastich has been dissolved, shaking the Vessel often; and the Spirit be afterwards evaporated by a gentle Heat; the remaining Glass of Antimony and Mastich, incorporated in this manner, will have no emetic Quality: This Powder may be taken in the Quantity of six Grains. *Geoffroy*.

PROCESS IV.

A Regulus of ANTIMONY, with Salts.

1. A Regulus is procured from Antimony by every Method in which the metalline Part is separated from the sulphurous; and the more accurate this Separation is, the purer always is the Regulus. In order to this, then, the fossil Antimony, in its native Glebe, is sometimes put into conical earthen Pots, and melted with a moderate Fire, that only makes it a little red, and thus is formed into Cones; the lower Parts of which, or those towards the Vertex, are heavy, purer, and more metalline; whilst the broader Parts, towards the Base, are less solid, darker, and more sulphurous. In this manner is Antimony depurated to a Regulus, by Fusion alone.
2. Take of common crude Nitre, two Parts; of good Tartar, three Parts; and of pure Antimony, four Parts: Dry these well, and separately reduce them to a fine Powder; and

and whilst they are exceedingly dry, mix them intimately, by rubbing them together. Make the Mixture moderately hot, and by all means very dry. Take a large Crucible, heat it gradually in the Fire till it is perfectly red-hot, and then throw into it two Drams of this dry hot Powder, which will take Fire violently, and with a great Noise, and throw out Sparks on every Side. When every thing is quiet, throw in the same Quantity more, and you will again have the very same Phenomena. Proceed in this manner till you have consumed all your Powder. And here the following Cautions are absolutely necessary: Let the Crucible be a large one, that the Matter, when it is violently agitated, may not run over: Throw in but a little at a time, lest the Mixture, when it takes Fire, should fly in large Sparks out of the Vessel: Let the preceding Portion be always thoroughly on Fire, be at Rest, and perfectly red-hot, before you throw in another; for fear the Matter, being hotter underneath, and colder at Top, should form a Crust, under which the Fire, being confin'd, would cause an Explosion much louder, and more violent, than that of a Cannon: For you have here a true *Pulvis tonitruans*, from the Nitre, Tartar, and Sulphur of the Antimony. And lastly, let the Crucible be thoroughly red-hot, for fear of the same terrible Accident. If a young Beginner, not aware of these things, goes about to make a Regulus, according to the common Directions, he runs a Risque of his Life: If he observes these Cautions, he may perform the Operation safely. After the Detonation is completed, in the manner described, cover the Crucible with a Tile, and increase your Fire till the Matter flows like Water: Have by you, at the same time, a metal-melting Cone, perfectly dry, a little warm, and rubb'd over on its Inside with Tallow, into which pour the melted Matter with one Stream, and immediately strike the Cone. Upon pouring in the Matter, a sudden Flame will burst out from the lighted Tallow. Let the Whole stand quiet and cool, and then invert the Mould, and with a Hammer strike it at the Base, and the Antimonial Cone will drop out; the lower or vertical Part of which will be the metalline Part of the Antimony, whilst that towards the Base will consist of the Salts and Sulphur. The upper Surface of the metalline Mass, where it is covered with the Scorizæ, will be marked with the Figure of a Star. The Scorizæ will liquefy, and swell in the Air.

R E M A R K S.

As this Process discovers to us the true Principles of the Metallurgic Art, it is worth while to consider it a little attentively: First, the fossil Antimonial Glebe, being melted with a proper Fire, becomes liquid and heavy: Hence the lighter Bodies that are in it, as Stones and the like, and which do not adhere to the metalline Part, according to the Laws of Hydrostatics, are cast upwards; and so the heavier metalline Part is rendered purer. And thus, in the Metallurgic Art, the metalline Matter is often, by Fusion, separated from the rest.

But, by another Metallurgic Operation, the metalline Part of the Antimony is now freed from that Sulphur, from which it could not be separated by simple Fusion, but which still remained closely combined with it; and this is done by the Help of the Powder of Tartar, and Nitre, which is therefore a fluxing Powder. When the Antimony, which consists of a sulphureous and metalline Part, is mixed with the Nitre and Tartar, and committed to the Fire, then the Nitre, Tartar, and Sulphur of the Antimony take Fire with a prodigious Impetus; and by this means there is produced a fix'd Alkali from the Nitre and Tartar: But this fix'd Alkali, being agitated with this intense Fire, greedily attracts the Sulphur, and intimately unites it with itself; and then the metalline or mercurial Part, as it is called, which is unaffected by an Alkali, being freed from its Sulphur, and put in Fusion, subsides from the lighter Parts, and collects itself at the Bottom into a Mass, which goes by the Name of *Regulus*. And as the long sharp Spicula of the Antimony dispose themselves horizontally, from the Centre to the Surface, hence they form a Star, which the Alchemistical Magi call a *Stella Signata*, and have in great Veneration. This Regulus, tho' it appears pure, will, upon being fused again with an Alkali, produce fresh Scorizæ: Nor, perhaps, can it be ever entirely freed from its Sulphur; and hence, probably, it always remains brittle; for Sulphur will render Metals so. The Scorizæ are the Sulphur of the Antimony, dissolved in a fixed Alkali; and hence their Virtues are easily understood. The Regulus is emetic, as is the Glass, and, by Infusion, yields an Emetic Wine in the same manner. This, then, is another Method of purifying Metals, by the Help of Salts, from every thing sulphurous, oily, and arsenical, which render the metalline Glebes brittle and volatile; and which being entirely separated, the Metals become pure and fixed. *Berhaave*.

The Proportions of the other Ingredients to the Antimony, and to each other, are somewhat different, in the Receipts of different Authors.

Lemery says, this may be given from two to eight Grains internally; and *Wilson*, transcribing from him, is of the same Opinion. However, a Person that ventures to give it internally, should be very well acquainted with the Effects of the Remedy, as well as with Diseases and Constitutions.

Of this Regulus of Antimony Cups are made, which communicate an emetic Quality to Wine which has stood in them for a Night's-time. It is likewise made into little Balls or Pills, which are both emetic and cathartic, though swallowed a thousand times, from whence they have the Name of the *Perpetual Pills*.

Reguli of Iron, Copper, Tin, Lead, Silver, and Gold, are made by melting these Metals with the *Regulus* of Antimony. The *Scorizæ* found above the *Regulus* in the Cone, are of a yellow or saffron Colour, and fully impregnated with the Sulphur of Antimony. *Geoffroy*.

P R O C E S S V.

Martial Regulus of ANTIMONY.

Take of new Filings of Iron, half a Pound; make them red-hot in a Crucible, and then gradually add of Antimony, very finely powdered, and made hot and dry, sixteen Ounces. Keep these in a strong Fire till they are thoroughly melted; and, whilst they are in this State, throw in gradually, of the purest, driest, fine Powder of Nitre, made very hot likewise, four Ounces. Urge this Mixture with the strongest Fire, till it flows like Water, and keep it in that Condition for a Quarter of an Hour; and then, whilst it is perfectly fluid, pour it into a melting Cone, exactly as in the preceding Process. By this means I have had a starry Regulus, as bright as Silver, to the Quantity of seven Ounces and a half. The Scorizæ are of a very different Nature from the former, dry, hard, irony, sulphurous, saline, and acrid, and scarcely dissolve in the Air.

R E M A R K S.

The Sulphur of the dissolved Antimony here greedily unites with the ignited Iron; and hence produces sulphurous Scorizæ of Iron. Upon adding the Nitre, this is strongly deflagrated with some Portion of the same Sulphur; and hence the Whole is made to flow by the Intensity of the Fire. When the Matter, then, is in this very liquid State, the metalline Part of the Antimony, which is heaviest, sinks, by its proper Weight, to the Bottom; whilst the Sulphur of the Antimony, the corroded Iron, and Nitre, are cast to the Top. *Paracelsus* asserted, that Iron would more intimately separate the sulphurous Part of Antimony from the mercurial, than could be effected by a vegetable Alkali; and hence that this Regulus was much the fittest to furnish us with the Mercury of Antimony, for the profounder Chymical Operations. And certainly, we see, by this Experiment, that Iron is capable of extracting the Sulphur from metalline Glebes, and giving them Fixity and Malleability. *Alexander Suchtenius*, a Scholar of *Paracelsus*, wrote two whole Treatises of Antimony, from which is borrowed the following Process.

P R O C E S S VI.

Another Regulus, called the Alchemistical Regulus of ANTIMONY.

1. Take of Iron Nails, half a Pound; put them into a strong, large, sound Crucible, cover it with a Tile, place it in a Wind-furnace, and cautiously raise a Fire till the Nails are perfectly ignited. Then, by a little at a time, add of the best powdered Antimony, made very dry and hot, sixteen Ounces, and cover the Crucible a little with the Tile. As soon as ever the Antimony is thrown in, it emits a white Fume; and, not a great while after, is put into Fusion, and at the same time causes the Iron to melt also. When they are reduced to a very liquid State, which may be examined by a long Tobacco-pipe, throw in, gradually, of the hottest, driest Powder of Nitre, three Ounces. Upon every Injection, there is excited a prodigious Ebullition, Noise, and Conflict, and sometimes a Crackling; and if a Person should unwarily throw in the Nitre damp, the Whole would fly about with imminent Danger to the Operator. When they have stood in this Condition some time, the Matter casts out lucid Sparks. Let it flow, like Water, for the Space of four or five Minutes, and then pour it out into a melting Cone, which strike gently; and when the Mass is grown cold, knock it out. In this manner I have had eleven Ounces six Drams of Regulus, and eleven Ounces of Scorizæ; so that, with what stuck to the Crucible whilst it was pouring out, there were lost four Ounces two Drams.

2. Put this Regulus into another Crucible, set it in the Fire, melt it, and, when it is in Fusion, add to it three Ounces of Antimony, reduced to Powder, and made very hot and dry; and when this is melted, throw in, by degrees, three Ounces of Powder of Nitre, very hot and dry also; and then fuse them with an intense Fire, and keep the Matter in a perfect liquid State for the Space of five Minutes; after which pour it into a melting Cone as before. By this means I have procured ten Ounces and six Drams of Regulus, which were purer than the former.
3. Take this second Regulus, put it into a fresh Crucible, melt it again, and throw into it three Ounces more of Nitre, with the same Caution as before. Melt the Mixture with a very intense Fire, for otherwise it will not flow, and then pour it into a Cone. By this third Fusion I have had nine Ounces two Drams of an exceeding white Silver-colour'd Regulus, that was surprisingly starry, and two Ounces seven Drams of Scoriz; so that there was lost one Ounce five Drams.
4. Once more melt this third Regulus in another Crucible, and then add three Ounces of Nitre as before, which will then require a prodigious strong Fire to melt it, tho' the Regulus flows at the Bottom of the Crucible like Water. Keep them in perfect Fusion for the Space of an Hour, and then pour them into a Cone. Thus then I have obtained seven Ounces three Drams of an exceeding pure and beautiful starry Regulus, that looked just like Silver, together with two Ounces seven Drams of Scoriz, of a golden Colour, and a perfect fiery Taste; which is a pretty extraordinary Phenomenon.
5. For this Operation, the Crucibles must be very sound, strong, and large, and must be heated very gradually: The Fire must be equally kept up to its greatest Strength, for otherwise the Nitre will not melt; and the Cones must be moderately warm, very clean, and perfectly dry, and, within, rubbed over with Tallow. If you attend to these Cautions, you will meet with Success.

R E M A R K S.

There are many useful things to be learned from this Operation: Iron, which is extremely difficult of Fusion, melts in Antimony, as all other Metals do in Lead; and then the Iron, being corroded by the melted Antimony, becomes combined with its Sulphur; whilst both the mercurial Part of the Iron and the Antimony are expelled, and, uniting into one Mass, fall to the Bottom; and the Sulphur of them both rises together to the Top. The Nitre that is thrown in burns furiously with these sulphureous Bodies, agitates the melted Elements to their very inmost Parts, and hence unites those that are similar, and separates the heterogeneous: By the Force of the Antimony the Iron is destroy'd, and its metallic Sulphur, which is the Gold of the Alchemists, unites with the internal metallic Sulphur of the Antimony, and thus both remain combined with the mercurial Part of the Antimony; and hence you have a Regulus, which is beautified with a Star, and by its fine silver Colour teaches us the exceeding Purity of its Mercury. The Scoriz contain Iron, Sulphur of Antimony, and Nitre, united together, and changed into a wonderful Body, whose secret medicinal Virtues, when it is properly managed, and rightly applied, those who are acquainted with these things greatly extol. These Scoriz puff up surprisingly in the Air: But let this suffice concerning the first Fusion. In the second, the external Sulphur is still farther extracted, and the metalline Sulphurs of the Iron and Antimony are more fixed, with their Mercuries, into a purer Regulus. In the third Fusion, the surprising Power of the sulphureous metallic Fire, that lies concealed in the Regulus, begins to discover itself, which, by fixing the Nitre, renders it exceeding difficult of Fusion, tho' it was before melted by a more gentle Fire than any other native Salt; and impresses upon it a remarkable igneous Quality, so that, upon being applied to the Tongue, it truly burns it, tho' its proper Taste is naturally exceedingly cold; it makes it, moreover, alcalicent, without the Addition of any vegetable Substance, and causes it to run spontaneously in the Air, tho' it would remain dry in it before. The fourth Fusion discovers the same things more evidently: Here the pure Sulphur, only by its odorous Exhalation, as it were, and simple Contact, changes the Nitre more powerfully, and thus demonstrates the secret Power of metallic Sulphurs. This Regulus has almost turned the Heads of some of the profoundest Chymists. Consult *Paracelsus*, *Suebenius*, *Philaletha*, *Pantaleon*, *Becher*, and *Stahl*. For my own Part, when I reflect upon the Time and Pains I have employed in examining into the Nature of this Regulus, I cannot forbear being surprised at my own Patience, and can scarcely help being ashamed to think, that so great a Part of my Life should have been spent in this Inquiry.

The Colour of Gold is exalted, or restored, when impaired, by means of this Regulus; as the exceeding white Nitre, by

being thrown into this Regulus, in Fusion, immediately contracts a golden Hue. The Regulus, depurated even in this manner, will vomit. The Scoriz give a beautiful Tincture to Alcohol.

P R O C E S S V I I

Golden Sulphur of ANTIMONY.

Boil the Scoriz of Process 5. till they are all dissolved; into the inodorous Liquor drop Vinegar, and there will instantly arise a most noisome, stercoraceous Smell, and the Liquor, which, before was thin, will become very thick. Drop in more Vinegar, stir the Mixture about, and proceed in this manner, till nothing more will precipitate. Let the Vessel stand quiet, and a Precipitate will gradually subside to the Bottom, which will be reduced to a much less Compass than one would expect. Pour off the Liquor that swims at Top; wash the Precipitate with Water till it is absolutely insipid, dry it gently, and keep it under the Title of SULPHUR AURATUM ANTIMONII.

R E M A R K S.

The Sulphur of Antimony mix'd with an Alkali, makes the Scoriz of Process the fifth. These, boil'd in Water, make a sulphureous Lixivium; and from this, by the Acid, the Sulphur is precipitated. This has a mild emetic Quality. If this is rubbed upon Silver, it makes it of the Colour of Gold, and hence it is called *Auratum*. *Boerhaave*.

Boerhaave, we see, directs the Golden Sulphur of Antimony to be made with the Scoriz of the Martial Regulus above described; but it is usually made with the Scoriz of the common Regulus.

Dr. Plummer has, in the *Edinburgh Medical Essays*, given a different Method of preparing the Sulphur of Antimony, from *Angelus Sala*, which is somewhat like that of the first and second Process above, tho' not exactly the same.

Reduce Antimony to a gross Powder, or rather break it in small Pieces like Grains of Barley; separate the fine Dust by a Searce, and lay it aside; then put the small Pieces into a flat-bottom'd Glass, pouring in Aqua Regia, till it rises a Finger's Breadth above the Antimony. Let the Solution go on without Heat; and when there appears a sulphureous or pitchy Matter swimming on the Liquor, and the Antimony is covered with a yellowish Crust, gently pour the Aqua Regia into another Vessel, keeping back the sulphureous Matter, and wash the remaining Antimony several times with fresh Water, till it acquires no Acidity; then pour upon the Antimony Oil of Tartar *per deliquium*, to the Height of two Fingers; place the Vessel in warm Sand, and increase the Fire till the Liquor boils; pour out this Tincture, and add new Oil of Tartar, proceeding as before. To these Tinctures or Solutions, while warm, add distilled Vinegar, till the Effervescence ceases. Place the Vessel again on warm Sand, and a Powder will fall to the Bottom, which separate by a Filtre, and dry upon brown Paper. This Sulphur, or rather *Lac Sulphuris Antimonii*, *Tachenius* imagines, is the same that *Helmont* hints at in some obscure Expressions, where he says, the true Sulphur of Antimony very much resembles common Sulphur, only its Colour has more of a greenish Cast; with this Sulphur he prepares a Cinnabar, which, when six times sublimed, and infused in Wine, produces most surprising Effects; and this Cinnabar seems to be the same with the *Mercurius Diaphoreticus*, which he mentions in the same Treatise. *Tachenius* also affirms, that he found by Experience this Sulphur to be an admirable Remedy in the Tympany: Of the same he prepares a Liniment, with two Simples not named, which, rubbed upon the Spine, Wrists, and Soles of the Feet, infallibly cures Tertian Agues. *Angelus Sala* likewise reckons this Sulphur a powerful Aperient, Discutient, and Sudorific. *Edinburgh Med. Ess. Vol. 1.*

The Sulphur of Antimony is prepared different ways; and, on account of its excellent Qualities, has been called by different Names. It is termed *Sulphur*, because it is inflammable like common Sulphur, and emits a foetid Smell; but it differs from it in this, that it always retains some reguline Parts, and is therefore specifically heavier. It is called *Golden Sulphur*, because Chymists have imagined, that it came near the Nature of the Sulphur of Gold; and because, when mixed with Silver over the Fire, it gives it a gold Colour. Chymists likewise name it *Sulphur Embryonatum*, procured from the Saturnine *Magnesia*, believing it to contain some Portion of the Sulphur of Gold got from Antimony, which they term *Magnesia Saturnina*. *Glauber* calls it *Panacea*, and the universally purging Sulphur; and it was given, for a long time, by *Cardilucius*, a famous German Chymist, by the Name of the *Lesser Centaury*. It is likewise the same Powder which has lately been so much in Vogue, by the Name of *Kermes Mineral*, or Powder of the *Carthusians*.

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Carthusians, because it was first disguised under that Title by the Monks of that Order; and it is the same with *Russel's Powder*, which has been so famous in *England*. All the Ways of preparing this Golden Sulphur may be reduced to two. The first and most common is, by first dissolving the Sulphur of Antimony by some alkaline Salt, and then precipitating it by distilled Vinegar, or some other Acid. The second is, by precipitating the same Sulphur of Antimony, at first by an Alkali, without the Help of an Acid.

PROCESS VIII.

Crocus of ANTIMONY.

Take of Antimony and Nitre, equal Parts, and reduce them to a very fine Powder. Set an iron Ladle on the Fire, and make it almost red-hot, and throw into it a little of this Powder, which will take Fire like Gun-powder. When all is grown quiet, throw in a little more, which will go off like the former, and so proceed till the whole Mixture is deflagrated. You will then have a Matter of a brown yellowish Colour, the Bottom of which will somewhat resemble Glass, upon which there will be some lighter Scoriz. Reduce the Whole to a fine Powder, and then wash it with hot Water, till the Calx, of the Colour just mentioned, remains insipid. The Waters this is washed with, being filtered, are pellucid; but, upon dropping a little Vinegar into them, become of an orange Colour, and let fall a fine Powder, very much like that of the preceding Process, but more subtil.

REMARKS.

The Sulphur, Nitre, and black Antimony, make a sort of Gun-powder, which therefore goes off in the same manner. The metalline Part is by this means calcined into Glass and Scoriz, both which are violently emetic; and being infused in Wine, will give that the same Quality. The Change of the Colour is here remarkable. If this Operation is performed in a large Crucible, with an intense Fire, and a large Quantity of Ingredients, and the Matter is then made to flow, you will have an extemporaneous Glass at the Bottom; which, being separated from the Scoriz, has the same medicinal Effects with the laborious Preparation of Process 3.

Geoffroy's Method of making the *Crocus Metallorum* is exactly the same.

This is called also *Terra Sancta Rulandi*. When given in Substance, from two to five Grains, it is a strong Emetic, and from it is prepared the Emetic Wine, by infusing it to the Quantity of three Ounces in three Pints of White or Spanish Wine, for two or three Days, shaking the Vessels often. The clear Wine swimming at the Top is given for a Vomit, from one to four Ounces. *Geoffroy*.

I shall give an Account of another Sulphur of Antimony, under the Title of *Kermes Mineral*, or *Powder of the Carthusians*, in the latter Part of these Processes upon Antimony.

PROCESS IX.

A milder Emetic of ANTIMONY.

Mix one Part of Powder of Antimony with two of Nitre, and throw them by a little at a time into a red-hot Crucible, and you will have the same Detonation as in Process 8. but the Matter will be white, which, being thoroughly washed, gives you a white insipid Calx of Antimony. The Water with which it is washed, when it is filtered, is salt.

REMARKS.

The Proportion of the Nitre here being increased, produces another Colour, though the Deflagration happens in the same manner. This Calx is much milder than the preceding, often exciting Nausea's only, and slight Vomiting, with a Discharge of a good deal of Saliva, and a thick Urine from the stimulated Viscera. The Lixivium of this, upon dropping in of Vinegar, precipitates a white Calx, nearly of the same Virtues.

PROCESS X.

A Diaphoretic nitrated ANTIMONY.

Take of Antimony, one Part; of Nitre, three Parts; reduce them to Powder, throw a little of the Mixture into a red-hot Crucible, and it will deflagrate as before. Proceed in this manner till you have used all your Powder, taking a great deal of Care not to throw in any of it till the preceding Portion is perfectly deflagrated. Keep the Matter in the Fire for the Space of a quarter of an Hour, the Cru-

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cible all the time being perfectly red-hot; and then let it cool, and you will find in it a hard, white Mass. Take this out, powder it, and keep it under the Title of *Antimonium Diaphoreticum Nitratum*.

REMARKS.

If you take half a Dram of this Medicine well prepared, it produces scarce any sensible Alteration, except that on account of the fixing Nitre which adheres to it, it moderately opens, and hence in acute Distempers does some Service. The Chymists call it a Diaphoretic, and think that the arsenical Poison of the Antimony is fix'd by means of the greater Quantity of Nitre. But in the Antimony there was at first nothing emetic, tho' you took it without any Preparation, or the Addition of any Nitre; and yet an equal Quantity of Nitre gave it an emetic Quality. As we may conclude safely therefore from Experiments, let us not give too much into Hypotheses. Let the Followers of *Basil Valentine* here learn, that there is no Need of so much Caution to free this Diaphoretic Antimony nicely from its fixing Nitre; for it neither produces Anxieties, Nauseas, or Vomiting, but stimulates kindly and safely. There is more to be feared from the Calx after washing.

PROCESS XI.

The common DIAPHORETIC ANTIMONY, called SWEET ANTIMONY.

Take the calcined Antimony of Process 10. reduce it to a fine Powder, pour hot Water upon it, and stir them about with a Stick, by which means the fixing Nitre, that adheres to it, will be dissolved. Let the white Calx subside, pour off the saline Liquor, put on more Water, and thus render the Calx perfectly sweet, so that there shall be no Nitre sensibly adhering to it; and then dry it, and it will be white, insipid, and heavy, and is the thing you want.

REMARKS.

This is called Diaphoretic, for the Reason given in the preceding Process. But it is an inert, noxious Calx, without any thing active in it, as far as one can judge by its Effects; and wants every thing valuable that it had before. It acts only in a sensible manner, when it is mix'd with half as much of a Purgative; for then it truly quickens its Operation, as appears by undoubted Experiments in the *Pulvis Cornachini*. But otherwise I dissuade the Use of it. How surprisingly are the Colours chang'd in the Antimony, by simply varying the Proportion of the Nitre in the Calcination? And what a surprising Alteration do we find in the Strength?

Boerhaave, we see, has a much better Opinion of Diaphoretic Antimony before the Nitre is wash'd out of it, than afterwards; and in this I believe he is right. But his representing the common *Diaphoretic Antimony* as noxious, seems to favour much of Whim, or Love of Contradiction; for I never met with an Instance myself of any ill Consequences from the taking it, nor ever heard of any one that did.

Geoffroy's Character of Diaphoretic Antimony is, that it is an excellent Diaphoretic, when given inwardly in a sufficient Dose, resolving Obstructions, attenuating thick and viscid Fluids, and forcing them, either sensibly or insensibly, thro' the Pores of the Skin. It is prescribed with Success in all malignant Diseases, in a Pleurisy, Erysipelas, and Diseases of the Skin; and it makes an Ingredient in the *Pulvis Cornachini*, and *Pulvis Febrifugus* of *Morton*. *Vigani* says, it has no more Virtues than Tobacco-pipe Clay.

PROCESS XII.

Nitrum Stibiatum. Antimoniated Nitre.

Take the Waters with which the preceding Calx was washed, filtre them, put the Lixivium into a clean Urinal, and exhale to a Dryness, keeping it constantly stirring to the End. By this means you will have a white saline Matter, of a singular, and not disagreeable Taste, not like that of Nitre, but softer, which keep under the Title of *Nitrum Stibiatum*.

REMARKS.

Hence we learn, that Nitre, by Detonation with Antimony, is converted into a new Salt. This Salt is gently aperient, and in a phlogistic Disposition of the Blood, agreeably dissolves the inflammatory Density without Violence, and happily disposes to Perspiration, gentle Sweats, and a Discharge by Urine; and hence cools, and proves of Service in the Small-pox, Measles, Pleurisy, and Peripneumony. How unseasonably therefore is this Water thrown away, as being of a hurtful Nature!

Fix'd Sulphur of ANTIMONY.

Into the filtered nitrous Liquor of Process II. put into a Urinal, whilst hot, and very pellucid, drop some very strong distilled Vinegar, and it instantly grows milky, and precipitates an exceeding white, and very fine Powder. Shake them together, and proceed to drop in more; shake them again, and repeat this till the Liquor will not be affected by the Vinegar any longer. Let the Vessel stand quiet till all the Powder is subsided to the Bottom; pour off the Liquor into a clean Vessel, wash the Powder with Water till it is perfectly insipid, and then dry it, and you will have a very white, insipid, fine Powder, which is called *Sulphur fixum Antimonii*.

R E M A R K S.

In the Deflagration of the Antimony with the Nitre, the Sulphur of the former unites with the latter, as in Process 8. And the Sulphur, thus resolv'd and combin'd with the Nitre, is dissolv'd with it in Water; but as soon as ever an Acid comes to it, it precipitates from the Nitre, as we see here upon the Infillation of Vinegar, and at the same time the Acid unites with the Nitre without any Sign of an Effervescence. The Powder then that falls to the Bottom, being wash'd, is true Sulphur of Antimony. *Tachenius* extols this Powder taken in Vinegar, as the most powerful anti-peffential Medicine. But for my part, I confess, I think it ought to be look'd upon as an absolutely inert Calx, noxious on account of its Weight and Indissolubility, or at least doing no manner of Good. The Vinegar, however, taken along with it, I acknowledge to be particularly serviceable in the Case mentioned. In this manner are the Chymists too apt to cry up the Preparations of their Art, particularly those from Antimony, and then especially when they do not produce any sensible Effects. But that acetose, nitrous Liquor, that swims above the precipitated Powder, has the most efficacious Virtues in acute febrile Disorders, both on account of the Vinegar, and the soft Nitre, which is now freed from the inactive Sulphur: Thus, in the Chymical Art, is the best Part frequently thrown away. From all these Instances we perceive, how surprisingly Sulphur is dissolved, lies conceal'd, and is resuscitated in various Forms, and various Colours.

P R O C E S S XIV.

The Distillation of ANTIMONY into an icy Butter, and Cinnabar.

Take of corrosive Sublimate of Mercury, two Pounds; rub it in a warm dry glass Mortar with a glass Pestil, till it is reduced to a very fine Powder. Then take of the best Antimony, one Pound, which also powder separately very fine. Mix these as nicely as possible in a glass Mortar, and they will grow warm, and emit a Fume, of which beware with the utmost Caution. Have by you at the same time a clean, dry, glass Retort, that will hold three or four times as much as your Powder, which should have a large Neck, and be cut off so low, that the Mouth may be very wide. Dry the Powder very well, and then put it into the Retort made hot and dry likewise, taking care that nothing black adheres to the Inside of the Neck. Place the Retort thus charg'd in a Sand Furnace, so contriv'd for this Purpose, that the Belly of the Retort may almost touch the Bottom of the Pot, and yet its Neck may lie in a declining Position. This being done, apply a large Receiver, so cut that the Mouth of it may exactly admit the Neck of the Retort, and cover the Retort with Sand. Let the whole Apparatus stand under a Chimney that will carry up the Fumes without dispersing them; make a little Fire, and when the Retort is grown moderately hot, with a Paste made of Clay and Lime lute the Joint; then raise your Fire very gradually, and in the first place the Receiver will begin to be clouded, and there will be a small Quantity of a Liquor collected in it. Carefully keep up your Fire in this Degree, till nothing more of this Liquid will come over: When this ceases, increase your Fire, but very cautiously, till you perceive a pinguious Matter rise into the Neck of the Retort, and distil into the Receiver, coagulating whilst it passes from one to the other; keep up this Fire to the same Height, and there will be a white icy Matter concreted in the Neck of the Retort. On both Sides of it therefore lay some live Coals, first at a Distance, and afterwards nearer and nearer, till the Neck of the Retort is grown as hot as the Belly of it; and then the Matter will melt, and drop into the Receiver. Proceed with this Degree, and then very gently increase it till no more Butter rises into the Neck, and all that has risen, is distill'd into the Receiver; then remove the Receiver, taking all possible Care, that none of the Vapour

comes to your Lungs; and presently stopping it, set it by. Lute on another properly fitted for this Purpose, and increase your Fire, and you will have a Matter come off, of a yellow, red, blackish, and various other Colours; upon which raise your Fire to the highest Degree, and at last place Fire upon the Sand at the Top of the Retort, that the Sand may be almost red-hot, and so leave them for the Space of two Hours. Let the Whole spontaneously cool, and then remove the Receiver, in which you will have some Quantity of crude Mercury, and a Butter rendered impure by the sulphureous Fumes of the Sulphur of the Antimony. In the Neck of the Retort too you will find a Matter of various Colours made up of the Mercury, Sulphur, and Butter; and upon breaking the Retort, there will be some antimonial Fæces at the Bottom; but at the Beginning of the Neck, you will find a dense, hard, opaque, and very heavy Mass, the Surface of which, that is contiguous with the Glass, will have a shining Appearance, whilst the other is rough, and which, being reduced to Powder, is true Cinnabar of Antimony, and is sufficiently costly. In this Process there is need of a great deal of Patience and Caution; for if the Fumes should insinuate themselves through the cracked Glass, or Lute, or any other way, and be received into the Lungs, by their caustic Quality, they would prove fatal.

R E M A R K S.

If we consider the Nature of Antimony, and of Mercury Sublimate, the Chymical Ratio of this Process is easily understood. Whilst the Fire acts on the Sublimate, the Aqua Regia that is in it, unites itself with the mercurial, metallic, reguline Part of the Antimony; and thus leaving the Mercury, with which it was combined before, that returns to its original Form, and runs at the Bottom of the Retort: Hence the Regulus is sublimed with the Spirit of Salt, and becomes a volatile Vitriol of Antimony, call'd a Butter, consisting of an exceeding pure Regulus, and Spirit of Sea-salt, combined together. When these are separated and sublimed, then the Sulphur of the Antimony discharged from the reguline Part, and the crude Mercury freed from its Acid, remain at the Bottom of the Retort, and by the Action of the Fire become united together, and sublime into Cinnabar. This Butter of Antimony is the most speedy Caustic we are acquainted with, producing an Eschar the soonest of any thing, which separates in a very short time; for the most part, the same Day it is made. It easily dissolves with the Moisture of the Air, and then it loses its Pellucidity, grows white, and precipitates a very white Powder. It dissolves with Heat, but in the Cold returns again to its icy Form. The Variety of Colours, in this Process, arises from the Sulphur of Antimony. If instead of crude Antimony you take the very pure Regulus of Process 6. and proceed exactly in the same manner, you obtain only a Butter, and a Mercury, both exceedingly pure, because then there is no Sulphur; and the Acid being intirely received into the Regulus, the Mercury returns in its greatest Purity. Here then we see what a singular Effect the Spirit of Salt, which adhered to the Sublimate, has, whilst it sublimes the fix'd Regulus of Antimony in a Sand Heat: But it has the very same upon all metalline Bodies, Gold itself not excepted. How wonderful a Body then is Sea-salt? The Chymist certainly can never too much employ his Art upon it, as he will always discover something that will make him Amends for his Trouble.

Geoffroy says, the Cinnabar, which sticks in the Neck of the Retort, is powdered, mixed with its own *Caput Mortuum*, then sublimed by a gentle Fire. It is of a dark-red Colour, and is recommended in all Diseases of the Head, especially in Epilepsies. It is likewise used in Venereal Cases, and operates by Sweat. The Dose is from six to fifteen Grains.

Cinnabar of Antimony may also be extracted from antimonial Mixtures, and from several other Preparations of Mercury, besides the corrosive Sublimate; and among those there is not one from which we may extract so much, or with so great Ease, as from an equal Mixture of crude Antimony, and *Æthiops Mineral*, prepared by Calcination; because this Preparation of Mercury is, as it were, a Cinnabar half made, which readily unites itself to the Sulphur of Antimony, and which rises with it to the Neck of the Retort: For this Operation 'tis necessary, that the Neck of the Retort be considerably long.

Cinnabar of Antimony is generally much more esteemed as a Medicine, than the common Cinnabar. Yet after examining the Effects of both, upon many Occasions, I have found them alike, only that of the Antimony, when exhibited in a large Dose, sometimes excites a *Nausea*. Care must be taken, that a Drop of the Butter of Antimony has not fallen upon this Cinnabar, during the Operation; for in that Case, it may become somewhat emetic.

Cinnabars often produce good Effects in such Disorders of the Brain, as are caused by a gross and corrupted Phlegm, which intercepts,

intercepts the Motions of the Spirits; because these Medicines, mounting to the Brain in Consequence of their volatile Nature, attenuate and colligate the pituitous Humour, which afterwards finds proper ways for dissipating itself. But these Remedies must be exhibited in small Doses; for the excessive Colligation of the Humours occasioned by them, either when administered in large Doses, or too often, frequently brings on more terrible Disorders than those they were design'd to remove.

Cinnabars are also used in Asthmas; and in these Cases they act not only by their Sulphur, which is well calculated for promoting Respiration, but also by the Mercury contained in them, which contributing to rarefy and dissolve the Obstructions of the Lungs and Diaphragm, restores to the Fibres of these Parts a Power of dilating and extending themselves. *Lenery Cours de Chimie.*

PROCESS XV.

The Distillation of Butter of ANTIMONY into a Liquid Oil.

Take the Butter of Antimony of the preceding Process broken to Pieces with some glass Instrument, the Neck of a Phial, for Instance, and put it into a clean glass Retort, taking care that it does not dissolve in the Air, nor offend you with its Vapour. With a gentle Fire, gradually increased, draw it off into a dry clean Receiver, raising it till all the Butter is come over, which at last will require a Heat considerably intense, and you will have it nearly in the Form of a liquid Oil of Antimony. If you distil this Oil a third time, it will still become more limpid; and if it is rightly secured in a close Vessel, will continue in this Condition. May not this, which is a pretty surprising Experiment, illustrate some obscure Places in *Paracelsus*?

REMARKS.

This beautiful Experiment gives us a great Insight into the Method of rendering Metals volatile, and converting them into the true Form of a liquid Oil, and discovers to us the wonderful Power of Sea Salt in giving Volatility to Metals, and its surprising Quality, whilst it remains united with Antimony; for so long it is extremely poisonous, sending forth a truly arsenical Vapour; and yet, when it is separated from the Antimony again, it becomes quite innocent. Is there not some room therefore to suspect, that there lies hid here something of an alchemical Virtue? Certainly it renders all Metals distillable in a Retort, without any Alteration in their Weight, and is recovered from them again almost in its full Power. This Oil is extremely caustic, and supplies skilful Surgeons with the most speedy Escharotic. This Process has been ranked amongst the profoundest Arcana. If you have a mind therefore to try it, whatever you do, be sure take care of the Fumes: I knew a very worthy and famous Man, to whom they proved fatal. Again therefore let me caution you to beware of them.

PROCESS XVI.

Mercurius Vitæ of ANTIMONY, and its REGULUS, otherwise called PULVIS ALGAROTH, from Victorius Algaroth, its Inventor.

Put some Water in a clean clear Glass, into which let fall one Drop of the Oil of Antimony of the preceding Process, melted and depurated. You will observe the very Instant it comes to the Water, from pellucid, it becomes white, and falls to the Bottom. Proceed to drop in the Oil, till a Quantity of it equal to One-fourth of the Water, is instilled into it, and it is all converted into an exceeding heavy white Powder, which is collected at the Bottom. Stir them well together with a glass Rod, so as to mix them as thoroughly as is possible; and when they have stood quiet for some time, there is a very limpid acid Liquor swimming at the Top, which gently pour off. Upon the Powder then put more Water, and when by this means you have washed it till it is perfectly insipid, dry it with a gentle Fire, and you have a white, insipid, heavy Powder.

REMARKS.

Thus we see, that the Acid of Sea Salt adheres to the Antimony so long only as it continues exceedingly strong, receding from it as soon as ever it comes to be lowered with the least Quantity of Water, and then is attracted into the Water. This Powder, given to two or three Grains, is a violent Emetic; and from the fatal Effects it has sometimes had, has been called *Mercurius Mortis*. If it is laid upon Glass, and exposed for a good while to a gentle Fire, being kept constantly stirring all the time, it loses its Strength, and becomes less active, and then is thought by many Persons to be the *Arcanum* of *Riverius*. This Powder contains nothing of Mercury in it, whatever *Billichius* says to the contrary in his *Paradoxa Chymiatricæ*, but the purest Regulus of Antimony. I took eleven Ounces of this *Mercurius Vitæ*, pre-

pared with my own Hands, and, putting it in a strong large Crucible, placed it in a Wind Furnace; and by this means the Powder was melted as soon as ever the Crucible came to be thoroughly red-hot. When it was perfectly in Fusion, I poured it out into a melting Cone, and had ten Ounces of a shining Regulus, but a little upon the greyish, consisting of Spicula surprisingly disposed amongst each other.

PROCESS XVII.

Philosophic Spirit of VITRIOL.

Take of the limpid acid Liquor of the preceding Process, filtre it, and inspissate it to one half, and you will have the *Spiritus Vitrioli Philosophicus*.

REMARKS.

This very limpid, and gratefully acid Liquor, has the Taste of Spirit of Sea Salt, and has the very same Effect in every Chymical and Medicinal Operation. Nor is there any thing in the least emetic in it, but it is an exceeding pure Spirit of Sea Salt, which through all the Operations it has undergone, with the Sublimate of Mercury, the Antimony, its Butter, Oil, and the Water, has still retained its proper Nature, nor is so much as tainted by any Admixture, but has an admirable salutary Acidity. It is improperly therefore called a *Vitriolic Liquor*; for it contains nothing at all of Vitriol; but with the alkaline Salt of Tartar, it regenerates Sea Salt. As I am a great Admirer of Sea Salt, on account of its surprising Effects in Chymical Operations, I had a mind to examine into the Nature of this Production of it. To this Purpose I took a large Quantity of this Liquor, and distilled it in a tall, clean, glass Cucurbit, and the Liquor came off exceedingly pure, nor left any thing at all at the Bottom. Hence therefore I learned, that the Water, by simple Affusion, in an Instant extracted the Spirit of Salt, in such a manner, from the Butter of Antimony, that nothing at all of the Antimony remained united with it, though it before rose out of the Retort combined with the Regulus, in form of a Butter. I then distilled all the Liquor again in a tall Cucurbit, and afterwards once more with a gentle Fire of one hundred Degrees, and there then came off a pure Water, which had not the least Taste of an Acid: This Degree of Heat I kept up, till nothing more would rise. The remaining Liquor I urged with a Fire a very little stronger, so that there rose a Liquor that was somewhat acidish; I carefully separated what was thus elevated, and kept it under the Title of *An acidish Phlegm of Philosophic Spirit of Vitriol*: This is of considerable Service, where acidish Medicines are wanted. The Liquor that was left, I distilled with a Cucurbit, and I found it a very acid, limpid, pinguious Spirit of Sea Salt, that fum'd a little. Thus then I learned the wonderful Nature of this Salt, its easy Combination, and easy Separation.

PROCESS XVIII.

Van Helmont's Flowers of ANTIMONY.

1. Take of Antimony, dissolved in Aqua Regia, according to Process the first, one Pound; put it into a low, open, glass Vessel, and expose it for a good while to a gentle Fire, keeping it continually stirring with a glass Rod, till the Matter is become very dry; then in a glass Mortar, and with a glass Pestil, reduce it to a very fine Powder; to which add as much of the driest Sal Ammoniac, as there is of the Calx, and then rub them together, the longer the better, that they may be mixed as intimately as is possible. Put this Mixture into a low glass Cucurbit with a wide Mouth; fit on a very large clean Alembic, and lute the Joint with a Lute made of Lin-seed Flower. Place the Cucurbit in a Sand Furnace, in such a manner as to stand a little leaning forwards, that the Water in the Sublimation may easily pass out of the Alembic into the Receiver. Then cover the Cucurbit with Sand up to the Rim of the Alembic, raise a gentle Fire, and there will come over a limpid, acid Water, which, by increasing your Fire a little, will be all expell'd. Gently raise your Fire, and something white will begin to rise, upon which keep it up to such a Degree, that you can just bear your Hand upon the Head; and then Substances of all kinds of Colours will ascend into the Alembic. Continue the Fire in this Degree, for the Space of eight Hours, and you will be entertained with the Beauty of the Appearance. Let the Whole cool, very gently take out the Cucurbit, clean both this and the Alembic from the external Dirt, and then carefully remove the Head, taking care of the first Vapour, and you will find almost all the Antimony sublimed with the Sal Ammoniac into a variegated Matter. Take this out presently, and put it into a dry, hot, glass Vessel, under the Title of *Helmont's Salt Flowers of Antimony*. These, if they are taken in the smallest Quantity, are a very powerful Emetic. At the Bottom you will

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will find something that may be sublimed with fresh Sal Ammoniac.

2. Put these Flowers into Water, and stir them well about, and the Water will grow milky. Let it stand quiet, and settle, and at Top there will swim a saline, ammoniacal Liquor, which pour off. Wash the Flowers in this manner till they are quite insipid, and then dry them with a gentle Heat, and you will have a very fine, red, insipid Powder, which is greatly emetic. These are called *Van Helmont's sweet emetic Flowers of Antimony*. If the Lixivia these are wash'd with, are inspissated, you have a Sal Ammoniac fit for the same Use again.

REMARKS.

Here we have an Instance of the Manner in which *Paracelsus* thought a Chymical Death and Resuscitation, as he express'd himself, opened Metals, and by this means made them exert themselves efficaciously in the human Body. Here we see a fixed Body become volatile; and here we observe the Production of all Sorts of Colours. Thus the black Powder of Antimony, or Head of the Crow, being reduced to a white Calx, becomes the Neck of a Swan; and afterwards acquiring a great Variety of beautiful Colours, is changed to the Tail of a Peacock. But it is emetic, under all these Alterations.

PROCESS XIX.

Van Helmont's fixed Diaphoretic Flowers of ANTIMONY.

Take of the sweet Flowers of the preceding Process, one Part; of the purest and driest Nitre, three Parts; and rub them well for a good while in a glass Mortar. At the same time, have a clean Crucible standing in the Fire red-hot, into which throw a little of this Powder, first heated, and it will deflagrate, but very weakly. When every thing is quiet, throw in a little more, and so proceed till you have made use of all your Powder. When the Matter in the Crucible is grown cold, it will be of a white Colour, inclining to yellow. Take this out carefully, pound it, wash it with Water, and dry it, and you will have a fine white Powder. Put this into a China Dish, pour *Alcohol* upon it, set it on fire, and whilst it is burning, keep the Powder continually stirring about with a Tobacco-pipe. When the *Alcohol* is burnt out, there will remain *Van Helmont's Diaphoretic*, thirty-six Grains of which are said, by promoting Sweat, to cure all intermittent, and continued Fevers.

REMARKS.

Here we have an Instance of fixing a volatile Body, for Chymical Uses. This Diaphoretic its Author greatly extols. I have made it myself, however, and tried it frequently; but I could never find any such extraordinary Virtues in it, as he mentions in his *Aurora Medicinæ*, written in *Dutch*; and hence I am inclined to believe, that, in other Cases likewise, he has indulged himself a little too much in extolling his own Preparations.

PROCESS XX.

The Purgans Diacelatesson of Van Helmont with fixed Flowers of ANTIMONY.

Take of the fixed Diaphoretic Antimony of the preceding Process, eighteen Grains; of Resin of Scammony, sixteen Grains; of Cream of Tartar, seven Grains; mix them, and reduce them to a fine Powder: Or, take of the fixed Diaphoretic Antimony, nine Grains; of Resin of Scammony, nine Grains; of Cream of Tartar, three Grains; and make them into a Powder. This is the Description of the Purge given us by *Helmont*, which *Paracelsus* called the *Diacelatesson*: The first is the greatest, the last the least Dose for an Adult. It must be taken without any Acid, and may be stopp'd by an Acid, if it operates too violently. It must be given in Intermittents in such a manner, that it may finish its Operation as nearly as possible by the Time the Fit is expected. The Author says, it always cures Quartans before the fourth Day, and proves efficacious in all intermittent, and continued Fevers. *Auror. Medicin. published in Dutch, p. 187, 188, 289.*

REMARKS.

Here we have another Chymical Arcanum, under the Name of a *Purgans Diacelatesson*, as you may find in the *Dutch* Edition just cited. Concerning this, *Van Helmont* says, that it radically cures the Gout and Fevers, that it heals Ulcers of the Larynx, Bladder, and Oesophagus, and that it purges the Body only so long as it is not found, and no longer. See the *Latin* Edition, p. 775, 776. where he says the Dose is eight Grains; so that the Account in the *Dutch* Edition does not agree with this. But I am always ready to suspect, that this great Man, by a Subtlety of Reasoning, extended the Virtues of these Arcana farther than could be fairly warrant-

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ed by Experiment. These things I have prepared myself, and, upon making use of them, have seen very good Effects from them, but not such superlative ones as he insinuates. *Boerhaave.*

From Geoffroy. PROCESS XXI.

The Universal Antimonial Panacea is prepared from the Butter of ANTIMONY in this manner:

Take of Butter of Antimony, half a Pound; Crystals of Tartar, well powdered, a Pound; pour on them a Pint of common Water in a large Matrafs; mix, and boil them in a Sand-heat for eight Hours; and while the Liquor is hot, drop into it a Pound of Oil of Tartar *per Deliquium*. After the Effervescence is over, strain the Whole through Cap-paper, and evaporate it to Dryness, in a glass Vessel, over a slow Fire. A Salt will remain at the Bottom, which is to be set in a cool Cellar, till it runs into a limpid Liquor, which must be carefully separated from the Fæces. It purges gently upward and downward, being given from eight to twenty Drops, in a proper Vehicle. It differs from Emetic Tartar only in running *per Deliquium*.

PROCESS XXII.

EMETIC TARTAR.

Take Liver of Antimony, Crystals, and Cream of Tartar, of each equal Parts; boil them in a sufficient Quantity of common Water, for six or eight Hours; then strain the Liquor, and evaporate it to Dryness. The dry Mass is Emetic Tartar, which is given as a Vomit from two to six Grains.

This is by far the best Emetic, that can be prepared from Antimony, and may be given in any Form; and as the Doses of it are easily adjusted, they may be safely increased or diminished in any requisite Degree, that the Physician shall judge the Strength of the Patient, or Nature of the Disease, to require; whereas the same Quantity of the Emetic Wine may be more or less emetic, according to its Acidity, or other Circumstances. In making the Liver of Antimony, some add to the Antimony and Nitre, decrepitated *Sal Ammoniac*, and thus make what is called the *Opalin*, or *Ruby-coloured Magnesia of Antimony*, from its red Colour, which is a much weaker Emetic than the Liver of Antimony, and does not cause Vomiting in Horses, and other Quadrupeds, but only makes them sweat, or increases Perspiration. It is given to such Brutes from one to three Ounces, once every Day, for several Weeks together, to fatten them, and cure their cutaneous Diseases, or other Indispositions. *Crocus Metallorum* is likewise used to take away Spots in the Eyes, and to cure Ulcers, Itchings, and *Psores* of the *Cornea Adnata*, or Eye-lids.

PROCESS XXIII.

BEZOAR MINERAL.

Antimony has neither any emetic, or cathartic Quality, (all its Effects being to increase insensible Perspiration, or provoke Sweat) if its Sulphur be fixed by mineral Acids; as is seen in the Preparation of Bezoar Mineral, which is in this manner:

Put into a Retort any Quantity of Butter of Antimony, and drop upon it Spirit of Nitre, till the Effervescence ceases. Having then digested them for twelve Hours, draw off the Spirit in a Sand-heat. On the remaining Mass pour the same Quantity of fresh Spirit, and distil as before. Then calcine the remaining Mass in a Crucible, till it ceases to emit Fumes; wash the Powder in warm Water, and then dry it.

This Preparation is commended by *Van Helmont* in the Plague, and other malignant and contagious Diseases, as a most excellent Diaphoretic, given from half a Scruple to half a Dram.

It may be made a shorter way, by pouring four Ounces of *Aqua Regia* on an Ounce of *Regulus of Antimony*, and digesting them for some Days in a gentle Heat, shaking the Vessel every now-and-then, till all the *Regulus* is turned to a very white Powder, which is to be washed and edulcorated by a large Quantity of common Water.

Various Tinctures are drawn from Antimony, and Authors are of various Opinions about them. We shall give one simple, and one more compounded Tincture, as Specimens of the rest.

PROCESS XXIV.

Take of Salt of Tartar, eight Ounces; melt it in an ignited Crucible; and then immediately throw into it, by Spoonfuls, six Ounces of crude Antimony. Cover the Crucible, and let the Whole be calcined in a strong Fire for half an Hour; afterwards throw the Mass into a Brass Mortar, and, as soon as it hardens, reduce it to Powder. Throw this Powder into a large Matrafs, and pour upon it as much

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much rectified Spirit of Wine, as will cover it to the Height of four Fingers Breadth. Then stopping the Vessel very close, digest for several Days, till the Spirit is tinged with a deep-red Colour. Afterwards filtre the Tincture, and keep it for Use.

This Tincture excites Sweat, seldom excites a Nausea; sometimes purges gently, and proves diuretic. It is recommended in Hysterical Affections and Melancholy; to break the thick Parts of the Blood, in Apoplexies and Palsies; and to open Obstructions in the Viscera, in malignant Fevers. The Dose is from four to twenty, forty, or even sixty Drops, in a proper Vehicle.

PROCESS XXV.

The more compound Tincture, much celebrated by the Name of *Lilium*, or *Tinctura Lilii Paracelsi*, is made from Metallic Reguli, in this manner:

Take of thin Copper-plates, an Ounce; ignite them in a red-hot Crucible; and then throw in upon them half an Ounce of powdered Martial Regulus of Antimony; and, the Whole being presently melted, add four Ounces of Tin, stirring the Mass now-and-then with an iron Rod; and when it is in perfect Fusion, throw it into a well-greased Cone, and it will soon harden into a reguline metallic Mass. This Mass, being reduced to Powder, is to be mixed with a Pound and half of Nitre, and half an Ounce of powdered Charcoal. Throw this Mixture by Spoonfuls into a red-hot Crucible; and after each Projection, cover the Crucible, till the Fulmination is over. Calcine the Whole in a very strong Fire, for two or three Hours, stirring it at times with an iron Spatula. Then pour it into a brass or iron Mortar, and, before it has time to cool, powder it well, and immediately throw it into a proper Matrafs, and pour upon it as much Spirit of Wine, as will stand four Fingers Breadth above it. Digest in a Sand-heat for fifteen Days, and the Tincture will be what is called *Tinctura Lilii*, or rather, *Tinctura Metallorum*, which is both sudorific and diuretic; given from ten to an hundred Drops, in a convenient Vehicle.

It is much commended in malignant Fevers, Apoplexy, Palsy, Scab, Rheumatism, Scurvy, Dropsy, and a Suppression of the Menfes.

PROCESS XXVI.

From the *Martial Regulus* of Antimony, the Silver Flowers, known by the Name of *Antimonial Snow*, are prepared in this manner:

Take of the *Martial Regulus*, a Pound; put it into a large earthen Pot, placed in the midst of burning Charcoal: Let a Cover be perforated in the Middle, and so placed, as that there may be the Breadth of two Fingers between it and the reguline Powder; and place another Cover over the Mouth of the Pot. Give a very strong Degree of Fire for an Hour, till the Regulus is perfectly melted. Then, the Vessels being suffered to cool, the Silver Flowers are found in Form of small *Spicula*, in the void Space between the first Cover and the Regulus.

These Flowers cause a Diaphoresis and Sweat, and are therefore prescribed in malignant Fevers, and other Diseases where a Diaphoresis is required. They often cure intermitting Fevers, given from ten to forty Grains, a little before the Fit.

PROCESS XXVII.

On the 19th of December 1700. Mr. Charas laid the following Method of drawing an acid Liquor from Antimony before the Academy:

He reduces the Mineral Antimony to a Powder, mixes it with three times the Quantity of common Sand, and distils it, by a large Fire, from a Retort, into a capacious Receiver half full of River-water, which he afterwards rectifies by a second Distillation. It often happens, that Antimony in this Process yields an acid Liquor, and often none at all. Mr. Charas maintains, that the Success of the Process depends upon the Application of the precise Degrees of Fire proper for this Operation; and that, when these very Degrees are applied, the Experiment must necessarily hold.

This Process is described in a Treatise of Antimony, written by John Agricola, and printed at Leipsic 1639. I have often tried this Experiment, but I can't say, that I have found Mr. Charas's Assertion true in its whole Extent. Certain it is, that in this Process an Acid is produced; but this Acid is by no means yielded by the Antimony, but by an Earth of a whitish Colour, and a clayey Nature, which is almost always found in Mineral Antimony, and which, by a strong Distillation, yields an acid Spirit, as other Clay, under the like Circumstances, generally does; but if we take pure Mineral Antimony, with-

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out any Mixture of this whitish Earth, or even the best common Antimony without any *Scoria* or Dross, we cannot possibly extract an Acid from it, whatever Degrees of Fire are applied to it. This Acid therefore cannot be said to be a Vinegar of Antimony.

For my own part, I am persuaded, that the Acid of Antimony does not differ from the Spirit of common Sulphur; and as Antimony abounds with a burning Sulphur, which resembles the common Sulphur, I believe that the Acid yielded by it is nothing more than the Spirit of that burning Sulphur, or common Sulphur, contained in the Antimony; and that the reguline Part, which alone is the true Antimony, contributes nothing to the Production of this Acid.

I do not advance this at random, and without a sufficient Reason; for, having extracted the Acid of Antimony without Addition in different Manners, and with uncommon Pains, I have employed it in several Processes; but always found, that it bore a perfect Resemblance to the Spirit of common Sulphur; that is, it produced no Effect but what was produced precisely in the same manner, by the Spirit of Sulphur.

One of the Methods I used to extract this Acid, is as follows: I reduced the Antimony to a small Powder; I put it into an unvarnished flat earthen Pan, about a Foot in Diameter; I covered this Pan with an earthen Pot without a Bottom. I placed three Aludels upon this earthen Pot, and covered the Mouth of the uppermost with a large glass Bell, the Edges of which were supported about three or four Lines above a Reservoir of warm Water, which by its Steams moisten'd the internal Side of the Bell; and the Water, which ran down from its Sides, fell back again into the Reservoir.

I had made a Hole about a Finger's Breadth in Diameter, about the Middle of the earthen Pot, through which I had pass'd the Stalk of an iron Spoon, in order to stir the Antimony under the Bell, just as when one calcines Antimony, in order to transform it into Glass. By this means I had Flowers of Antimony in the Aludels, a small Quantity of Acid in the Reservoir of Water under the glass Bell, and calcined Antimony in the Pan under the earthen Pot.

In this Process, a small Quantity of Acid is indeed drawn, but one may be sure of its being unmix'd. It also very often happens, even when this Method is follow'd, that no Acid at all is yielded. But this depends, first, upon the Accuracy of the Chymist; secondly, and principally, upon the Temperature of the Air, and the State of the Weather, at the Time the Process is carrying on. The colder and moister the Air is, the greater Quantity of Acid is yielded; but when it is hot and dry, none at all can be obtained. Upon the Whole, the Chymist must follow all the Circumstances and Directions necessary to be observed in extracting the Spirit of Sulphur *per Campanam*, and take it for granted, that this Process is still more difficult than that which yields the Spirit of common Sulphur without Addition. *Mem. de l'Acad. Royale 1700. by Mr. Homberg.*

PROCESS XXVIII.

KERMES MINERAL, or PULVIS CARTHUSIANORUM,
Poudre des Chartreux.

Take of Antimony, four Pounds; Solution of fixed Nitre, one Pound; Rain-water, three Pounds; and boil them for two Hours. Then the boiling Decoction is passed through Cap-paper, and set in a quiet Place for twenty-four Hours, till a yellowish, or Saffron-coloured Powder sinks to the Bottom of the Vessel, the Liquor remaining clear. This Liquor being poured off by Inclination, the Powder is first washed by frequent Affusions of warm Water, till it is deprived of all its Salts; and then about four Ounces of Spirit of Wine are burnt upon it, and it is afterwards dried, and kept for Use.

This Powder is looked upon as a kind of *Panacea*, or universal Remedy. It sometimes excites Vomiting, especially when it meets with any Acid in the Stomach, and is sometimes cathartic, diaphoretic, and sudorific, according as it is determined by the Disposition of the Patient to act upon any one Humour more than on another. It is given from one to four Grains, or sometimes, when it is designed only to attenuate and divide any Viscidities in the Fluids, in the Quantity of half a Grain, repeated every three, four, or six Hours. In acute Fevers, where there is a great Crudity and Spissitude of the Humours, it is given in small Doses with Success. It changes the crude and ferous Evacuations by Stool, into a more bilious Consistence, by attenuating the viscid Bile, and so disposing it to pass off by Stool. It is often given with Success in the Beginning of the Small-pox, and Measles, when they are apprehended to be of a bad Kind, at small Doses mixed with Bezoardic Powders, or Absorbents, such as Crabs-eyes, red Coral, Pearl, Egg-shells, Crabs-claws, and the like; for thus it excites a Spitting and Diaphoresis, removes Anxieties, corrects the Lympha, and coagulated Serum, and raises such an Effervescence in the Blood as tends to purify it. Glauber confirms these Virtues by the Examples of seven Children in the Small-pox. *Frederic Hoffman* commends the Use of this Powder

Powder in stubborn autumnal Agues, because it powerfully opens Obstructions, particularly of the Liver, by which these Fevers are produced, especially when taken in the Quantity of a Grain, mixed with detergent anti-febrile Salts; such as the Salt of Wormwood, the febrifugous Salt of *Sylvius*, vitriolated Tartar, and the like. *Schroder* ordered it in the Quantity of half a Grain, or a Grain, three or four times a Day, in the Intermitting Fevers of Children; and commends it very much in correcting the Acrimony of the Serum, and especially that of Tears, which give Pains in the Eyes, and produce very bad Ophthalmias. The same Author mentions a Woman labouring under scorbutic Symptoms and Defluxions of so acrid a Kind as to corrode her Lungs, and bring on a Spitting of Blood, who, by using this Sulphur of Antimony in very small Quantities, corrected the Acrimony, and stopped the Motion, of this Serum; and thereby prevented the Growth of a Disease, which must otherwise have been of very fatal Consequence. *Hoffman* says, it is a most effectual Remedy in such Chronical Diseases as arise from long Obstructions of the Viscera. In a Dropsy, for Instance, it is very properly mixed with Filings or Crocus of Steel and Nitre; in Epilepsies, with all the Cinnabars; in the Scurvy, with the *Arcanum Duplicatum*; in Dysenteries, with the *Confectio de Hyacintho*; in a Dysury, or Complaints of the Stone, with white Nettle, or Pellitory-water; and even in Pleurisies and Peripneumonias, he frequently gives it, in the Quantity of three or four Grains, in a Glass of strong Spanish Wine, in Carduus-water, in an Infusion of red Poppies, or in the Juice of Dandelion, or Borage. *Junker* observes, that this Powder has in many Patients suspended, in one Moment, the Effects of a suffocating Catarrh, sometimes by producing a gentle Vomiting, sometimes by Sweating, and sometimes without any sensible Evacuation; and he advises it to be mixed in these Cases with a certain digestive Salt. It may be given very advantageously to cachectic Girls, in the Quantity of a Grain, mixed in ten Grains of *Crocus Martis Aperiens*, and of the *Arcanum Duplicatum*, the Dose being repeated twice a Day. This Powder may be given either alone, or mixed with a little Sugar, and diluted with Wine, or Water, or any other proper Liquor. It is likewise sometimes given with Oil of sweet Almonds, or in Conserve of Violets, Borage, &c. in form of a Bolus.

It is however to be carefully observed, that this Powder is not to be given till the Quantity of Blood has been lessened, and all the Fluids sufficiently diluted and attenuated; for, as by the Use of it the Blood is very suddenly rarefy'd, and put into a kind of Effervescence; if the Vessels are before full, they must be still more distended; by the increased Heat and Motion of the Blood and other Fluids, and hurtful Congestions may be form'd in the Viscera. It ought therefore never to be given, till the Dangers from a Plethora are taken off, and till the Humours have been rendered fluid by great Quantities of Diluents often repeated.

The Lixivium in which Antimony has been boiled, passed through Cap-paper, is recommended by some in Scabs, and other Diseases of the Skin.

The Fumes which arise from ignited Antimony, may be collected in white, yellow, and red Flowers, if proper Vessels are made use of, and, by adding powdered Glass, Sal Ammoniac, or Nitre, that they may rise in greater Quantities; and these Flowers being edulcorated by frequent Lotions, are emetic, cathartic, and sometimes sudorific, being given from two to twelve Grains. *Geoffroy*.

History of KERMES MINERAL.

In the Year 1714. a new Medicine appeared in Paris, and not only then acquired, but still preserves, an uncommon Character for its Virtues and Efficacies. It is called the *Carthusian Powder*, because at that Time one *Dominic*, a Frier of the *Carthusian* Order, was seized with a violent Defluxion in his Breast, which increasing more and more in spite of a due and careful Administration of all the known Medicines against that Disorder, seemed to threaten the Patient with certain and unavoidable Death. Upon which one *Simon*, a Frier of the same Order, begged, that since the Patient's Life was despaired of, he might be permitted to give him a newly invented Medicine, which he had in his Possession, and which at that time succeeded so well, that Frier *Dominic* was soon cured of his Disorder by its means, to the great Surprise of all that knew his Case. This Remedy was before in the Hands of Mr. *De la Ligerie*, of whom the *Carthusian* frankly acknowledged he had it. But for want of some remarkable Cure to command the Attention of Mankind, and a Concurrence of such other lucky Circumstances as are requisite in an Affair of that Nature, the Powder had not, in his Hands, become so famous, as it afterwards did in the Possession of the *Carthusian*. The Reputation of this Medicine growing pretty universal, the Secret of its Composition was soon discovered by some skilful Physicians, and, among the rest, by Mr. *Lemery*, who confided so much in its Efficacy, and was so sure of his being in the Right, with regard to the Method of its Preparation, that he used it in a Case of great Importance, an Account of which we shall give in his own Words,

Towards the latter End of December, in the Year 1718. the Marquis of *Bayers* was seized with a violent continued Fever, accompany'd with terrible Paroxysms, a severe and frequent Cough, a Spitting of Blood, a smarting Pain of his Side, and a considerable Difficulty of Breathing. Nothing that Art can do in a Case of this Nature, was forgot; and though all the Means, commonly judged proper, were used, both with the greatest Care and Expedition imaginable, the Patient nevertheless, in the very Beginning of the next Year, and upon the seventh Day of his Disorder, was reduced to a truly deplorable State: His Belly swell'd, and became prodigiously tense; his Spitting was entirely suppress'd, which produced an uncommon Oppression, and a Rattling of his Throat; his Pulse became small, unequal and intermitting. His Reason left him; he neither spoke to any one, nor made a Reply to any one who spoke to him: In a word, he was in just the same Condition that People on the very Verge of Death, and in their last Moments, use to be. I shall not here exaggerate the Matter, or insist upon the Importance of some Circumstances, such as that the Patient was a Person of Distinction, and a Branch of the House of *Rocheaucault*, or that he was continually surrounded, during his Indisposition, by a Crowd of Persons of Distinction, and others who were interested in his Life and Health, and who can attest the Truth of the Facts I advance. Mr. *Pradignac*, the Apothecary, and Mr. *Momblau*, the Surgeon, who attended the Patient on this Occasion, can also vouch the Truth of what I say. In fine, tho' the Extremity to which the Marquis of *Bayers* was reduced, seemed to cut off all Hopes of a Cure, I nevertheless, in spite of unfavourable and discouraging Appearances, thought it incumbent upon me, both in point of Duty and Prudence, to repeat my Attempts to the very last Period of the Patient's Life. I therefore had recourse, upon this Occasion, to the *Carthusian Powder*, the good Effects of which I had formerly experienced, especially in Disorders of the Breast; and as, of all the considerable Distempers I have known cured by this Powder, none, even that of Frier *Dominic* not excepted, had gone such a Length, or demanded so speedy Assistance and Relief, as this, I gave the Patient, at different times indeed, but very soon after each other, nine or ten Grains of this Powder; and perceiving, that it neither operated by Vomit, Stool, nor Sweat, and that his Pulse, in the mean time, became a little better, and his Oppression less, I repeated every fourth Hour, for twenty-four Hours, a Dose of three Grains of the same Powder, which, at the End of that time, produced no other Effect, than to render the Pulse a little better, and the Oppression a little less; and all this without any Evacuation either by Stool, Vomit, or Sweat. The Patient, in the mean time, remain'd without his Reason, and without Spitting, and his Belly continued preternaturally tense. But as we afterwards continued to give him some Doses of the Powder, his Breast began to grow easy, by discharging a considerable Quantity of Spit, which was hard, baked as it were, and mixed with black coagulated Blood, and which the Patient expectorated for three or four Days. And as soon as this remarkable Crisis came on, the Patient's Reason returned, his Oppression, the Tension of his Belly, and, in a word, all the other Symptoms, disappear'd; and in a short time, the Marquis of *Bayers* was completely cur'd. But what is particularly remarkable in this Cure, is not only the Recovery of the Patient from so desperate a State, but also the Manner in which the Medicine operated, and the Quantity necessary to be successively given, in order to produce the Cure; and, indeed, the Patient took thirty-six Grains of this Powder in the Space of forty-eight Hours; and these thirty-six Grains, instead of working by Vomit, by Stool, or by Sweat, as the Medicine generally does, when exhibited in a much smaller Dose, in Cases where it is attended with Success, insensibly cleared the Parts serving the Purposes of Respiration, and the Expectoration becoming, by that means, much more easy, the Patient found himself, all on a sudden, able to expectorate that prodigious Quantity, which remaining there for some Days, had become dry by the feverish Heat of the Patient, just as if it had been exposed to the Influences of the Air and Sun.

This surprising Cure, perform'd upon a Person of such Distinction as the Marquis of *Bayers*, gain'd the *Carthusian Powder* such an high Reputation, that in short, the King purchased the Secret of its Composition from Mr. *De la Ligerie* in 1720. since which Time the Public has been well enough acquainted with it. It is a Sulphur extracted from Antimony, by means of the Alkali of Nitre fixed by Charcoal. It is less emetic than the ordinary *Golden Sulphur of Antimony*, employ'd for Purposes of that Nature. It purges gently, and sometimes operates only by Transpiration, though its Effects are even then sufficiently sensible. It is principally adapted to Disorders and Indispositions of the Breast. Mr. *De la Ligerie* did not pretend to be the Inventor of this Medicine; he openly acknowledged, that he had it of Mr. *Chastenei*, to whom it had been communicated by an Apothecary, who was Scholar to the famous *Glauber*. Thus *Glauber* should, in Justice, be esteemed the original Inventor; and, indeed, this Medicine is actually described in

in his Writings, but in so enigmatical a Manner, as cannot fail to disgust People of Sense and Taste.

It is also contained in the late Mr. *Lemery's* Treatise of Antimony, not that this Chymist caught the Hint, or decypher'd the Secret in the mysterious *Glauber*; but, as he design'd in that Work to discover the Qualities of Antimony, by turning it into all the various Shapes imaginable, and combining it with all Substances from which any Effect might be expected, it was impossible but he must light upon a Combination so simple and so natural. 'Tis nevertheless certain, that Mr. *Lemery's* Process is different from that of *Glauber*. The Intention is to extract the Sulphur of Antimony. *Glauber* extracts it by the Alkali of Nitre fixed by Charcoal; then, in order to free the Sulphur of Antimony of that Alkali, with which it is impregnated, he employs Spirit of Wine, and digests it for some Days upon the nitrous Liqueur; after which he evaporates the Spirit of Wine, which leaves the Sulphur of Antimony, at the Bottom of the Vessel, either in a liquid Form, if the Spirit of Wine is not totally evaporated, or in a dry one, if it is. In the latter Case it is a red Powder, and is what is called the *Carthusian Powder*. But the deceased Mr. *Lemery* did not use the Spirit of Wine in his Process, since, by only leaving his Materials at Rest, and, as it were, to themselves, he had the same Powder, which precipitates of its own accord. Mr. *de la Ligerie's* Method is intirely the same; and Mr. *Lemery* the younger has found by Experiments, that the Spirit of Wine is of no Use, unless for the sake of having the Medicine either in a dry or liquid Form; for without the Spirit of Wine it can only be obtain'd in a dry Form.

Besides, in order to extract the Sulphur of Antimony, *Glauber* knew of nothing except the Alkali of Nitre fix'd by Charcoal: But the late Mr. *Lemery* found, that every Alkali was proper for that Purpose. Hence *Lemery* the younger concludes, that as Oil of Tartar is the strongest of all fixed Alkalies, it must of consequence be of all others the most proper in this Preparation; and a great Number of Experiments made with this very View, concur to prove his Assertion. The peculiar Property of this Medicine consists in its not being too emetic. If its emetic Quality was as strong as that of the other Preparations of Antimony, it would be thrown up by the Stomach as soon as they are, and would not have sufficient Time to diffuse and insinuate itself into all the small Vessels, where it produces its most considerable Effect, or, at least, that Effect which is peculiar to itself. Now, in order to render it less emetic than the other Preparations of Antimony, there must necessarily remain in it a certain Quantity of Alkali to bind up, and, as it were, entangle the Sulphur. And there remains more or less of this Alkali in the Sulphur, or its Action is stronger or fainter, in proportion as the fix'd Alkali, which originally acted upon the Antimony, is stronger or weaker.

In fine, the late Mr. *Lemery* has not, like *Glauber*, made this red Powder an universal Medicine, but very accurately determin'd its particular Uses, and the precise Cases in which 'tis proper, which he learnt from Experience, and in the Course of his Practice, long before the *Carthusian Powder* was heard of in the World. So that if Mr. *Lemery* has not the Glory of being the original Inventor, he has at least an Equivalent accruing from the Additions and Improvements he has made to this famous Medicine. *Hist. de l'Acad. R. 1720.*

Memoir on EMETIC TARTAR, and KERMES MINERAL.
By Mr. GEOFFROY.

The Use of emetic Tartar, when the Intention is to vomit, and of *Kermes Mineral*, when the Design is to prepare and dispose the Humors to a salutary Evacuation, can possibly be liable to no just Exceptions, if those Medicines are prescribed on proper Occasions, prepar'd with all the necessary Precautions, and the best Method of Preparation uniformly and universally follow'd: But this is not the Case; for it often happens, that three Grains of some emetic Tartar produce very considerable Effects, whereas six or seven Grains of another emetic Tartar, differently prepared, shall produce no Effects at all, and that in Constitutions nearly alike.

The Case is the same with the *Kermes Mineral*: Three or four Grains of some Kinds of it excite very faint Nausea; whereas one Grain of another Sort actually vomits, and this too in Cases where we cannot ascribe this Difference of Effects to the greater or smaller Quantity of Acid lodg'd in the Stomach, or introduced into it.

This surprising Variety calls aloud for our Attention, and deserves to have its Causes inquired into, since 'tis a Point wherein the Good of Society, and the Welfare of Mankind, are nearly concern'd.

That I might therefore discover the Causes of this Variety, I collected twelve different Parcels of different emetic Tartars, and a like Number of different Preparations of *Kermes Mineral*. The Manner in which I analysed them, and the Differences of the Substances they yielded, make up a considerable Part of this Memoir; because these Differences will be certain and infallible *Criteria*, or Marks by which we may know

the Effects to be expected from such and such an emetic Tartar, or such and such a *Kermes Mineral*, taking it for granted, in the mean time, that the Constitutions of the Patients are nearly equal. I shall, at the End of the Memoir, propose a very simple Remedy, which may in many Cases be substituted in the room of the *Kermes*, and that very often with less dubious Success.

Antimony, of which 'tis well known that emetic Tartar and *Kermes Mineral* are two Preparations, is a Mineral compos'd of a small Quantity of easily vitrifiable metallic Earth, a considerable Portion of a vitriolic Acid, and a Bitumen, or Oil of the Earth.

This Acid, in Conjunction with the Bitumen, forms the inflammable Sulphur, which sometimes abounds so much in mineral Antimony, that some of it is frequently found to burn like common Sulphur. It is this Sulphur, united with the metallic Earth of Antimony, which, when this Mineral has only undergone its Meltings for Purification, discovers, and renders observable, that surprising Multiplicity of Needles of which it is compos'd; but 'tis to the vitriolic Acid, united with the Bitumen, and forming the common Sulphur, that these Needles are owing, and not to the oily Matter alone: For, if one melts Glass of Antimony with a simple Phlogistic, such as Charcoal, reduced into a Powder, the Glass is revived into a Regulus, which is not like Antimony, adorn'd with Needles, but full of little shining Plates or Laminæ. If, on the contrary, we employ common Sulphur to revive the Glass of Antimony, we shall find in the Crucible an Antimony adorn'd with Needles, like the common Antimony; because all that this Mineral had lost, during its Calcination, is by this means restored to it; that is, its vitriolic Acid, and the Fat of the Earth, which, in Conjunction, form that common Sulphur which is necessary to constitute it Antimony.

That a vitrifiable Earth is contain'd in Antimony, may be prov'd from its being so easily vitrify'd, when by Calcination one evaporates the Overplus of the vitriolic Acid, and of the Phlogistic which hinder'd the Continuity or Contact of the constituent Parts of this metallic Earth.

1. Thus it follows, from what I have said, that this Earth, disjoin'd and divided by a great deal of inflammable Sulphur, is Antimony.

2. That some Part of the inflammable Matter being carry'd off, so that no more of it may remain than what is sufficient to continue a metallic Form to the Antimony, in that Case, a Regulus is produced.

3. That if that inflammable Matter is almost intirely carry'd off by a moderate Calcination, the metallic Earth of Antimony assumes the Form of Glass, when put in a melting Heat.

4. and lastly, That if this Calcination is carry'd on gradually, till the highest Degree of Fire is employ'd, we shall have a disanimated or inert Calx or Earth, which will be entirely destitute of the emetic Virtues of Antimony itself, of its Regulus, and of its Glass.

Some Authors, and among the rest *Kunkel*, suppose, that in Antimony there is a mercurial Principle concurring with the Sulphur and the vitrifiable Earth, to the Formation of this Mineral. This Author even describes, but in an enigmatical Manner, several Ways of discovering this Mercury; but I dare not admit this mercurial Principle, till, by some clear and unexceptionable Process I have convinced myself, that there is a liquid Mercury in Antimony.

Upon the Authority of *Kunkel*, who was an excellent Chymist, I have already begun some of these Processes, by which 'tis said this Mercury is obtain'd; and if my Experiments succeed, they will furnish me with Materials sufficient for another Memoir.

At present, I only know of three secondary Principles, which discover themselves in Antimony; a vitriolic Acid like the Spirit of Sulphur; a sulphureous, bituminous, or oily Substance, no matter which, provided, in Conjunction with the vitriolic Acid, it is capable of forming a common Sulphur; and, lastly, a vitrifiable metallic Earth.

Common Sulphur, the vitriolic Acid, and most of those oily Liquors with which it is capable of producing Sulphur, have no emetic Quality; and the inert Calx of Antimony produces no Nausea; but yet, of all these Substances combin'd together, a Mineral is form'd, from which a Regulus, a Glass, and other Preparations, may be obtain'd, which are of a violent emetic Quality.

If pounded Glass of Antimony be digested in White-wine Vinegar, till the Vinegar is so fully saturated as to receive no more Tincture from it; if this Powder is again melted, so as to vitrify; if after this it is pounded afresh, and digested in fresh White-wine Vinegar; and if this Operation is repeated several times, to a fourth or fifth Vitrification, the Glass will in this Case be black, scarce transparent, and entirely destitute of an emetic Quality, tho' the two or three first have a considerable one.

All these Vinegars are emetic in different Degrees; the first are a little more salt than the last, which seem to have an astringent Taste. They all assume a reddish Colour, by digesting upon the pulverized Glass of Antimony; but if digested upon any purely sulphureous Matter, they would assume the same Colour, but would not, on that Account, acquire an emetic Quality. The oily Part of the Vinegar must then have extracted the Tincture from that Part of the sulphureous Matter, or Phlogistic, which was concentrated in the Glass of Antimony; and the Acid of the same Vinegar must have corroded or dissolved a Portion of the Reguline Part of the Glass, or, in other Words, of that Part which is most easily reduced into a Regulus. Now 'tis already known, and I shall farther prove, that it is the Reguline Part of Antimony, in which its emetic Quality consists; or, in other Words, its emetic Virtues reside in some Combination of Sulphur, composed of a very small Quantity of vitriolic Acid, and a Portion of inflammable Matter united to a vitrifiable Earth. If this Earth has few Interstices filled with Sulphur, it will be very emetic. This is the Case with Glass of Antimony, which is one of the most emetic of all the Preparations of this Mineral. If these Interstices are either large, or very numerous, as is the Case with Regulus of Antimony, which contains more of Sulphur than its Glass, the Preparation will be a little less emetic. In fine, if these Interstices are so large as to contain more gross Sulphur than there is of this vitrifiable Earth, it will retain no emetic Quality at all, unless convey'd to it by some accidental Circumstance; as in Antimony, which does not vomit without the Aid and Assistance of some Acid.

The principal Reason why crude Antimony is not emetic, is, because the vitriolic Acid contain'd in it, is united to an unctuous Phlogistic, with which it forms a gross and bituminous Sulphur, which so ties up the Particles of the metallic Earth, that they cannot act upon the Stomach, without some foreign and adventitious Aid. But when the greatest Part of this Acid, and this bituminous Phlogistic, are carried off by Fire, or any other Means, then there only remains in the Regulus a Sulphur capable of Expansion, and consequently in a Condition to carry along with it some Particles of the metallic vitrifiable Earth, which by their Rigidity are capable of irritating the Nervous System, and exciting violent Contractions; for I suppose, that this Irritation is the first Cause of Vomiting.

It will, perhaps, be objected to me, that all I have said upon the emetic Quality of Antimony, was in a great measure known before: That may possibly be true; but, considering the relation these Things bear to what I am afterwards to advance, I could not forbear shewing, that the phlogistic or inflammable Principle of Antimony is not emetic, but so far as, after its Disengagement from its vitriolic Acid, it is united to its vitrifiable Earth; that is, so far as it approaches the Form of the Glass, or, at least, that of the Regulus; and that, in Consequence of this, the more the emetic Tartar and the Kermes contain of a Regulus that is easy to be reviv'd, the more emetic they must of course be. I now come to give an Account of the Experiments which prove this Truth.

I made use of an Ounce of each of the different emetic Tartars I collected: I beat them separately with an equal Quantity, or a little more, of black Flux-powder, compos'd of two Parts of red Tartar, and one of Nitre, calcin'd together: I put these Mixtures into different Crucibles, shap'd like inverted Cones; I held them in a melting Heat, till the Salts, being melted, had sunk down and appear'd like a settled Oil at the Bottom of the Crucible: I allow'd the Fire to go out, and the Crucibles to cool; then I broke them, and found the Regulus, which had been revived, collected at the Bottoms of the Crucibles.

I had from an Ounce of the weakest emetic Tartars, from thirty Grains to one Dram eighteen Grains of Regulus; from those of a middling emetic Quality, a Dram and an half; and from such as were most violent in their Effects, two Drams ten Grains.

The Scorize of these Essays, which were at first yellow, became afterwards green; then they assumed a blackish Colour; last of all, they were dissolved per Deliquium.

The Action then of the strongest emetic Tartars depends upon the Quantity of the Regulus of Antimony, which the Cream of Tartar has dissolved; and the more Antimonial Preparations, which have been boil'd in the Solution of Cream of Tartar, approach to the Form of the Regulus or Glass, the more violent the emetic Tartar is; because then the vegetable Acid of the Tartar acts more immediately, and dissolves more of the emetic Part of the Antimony.

If, on the contrary, this Solution of Tartar is boil'd with crude Antimony, the Reguline Parts of which are sheathed up, and defended by the gross Sulphur, this Acid will scarcely act upon it.

I powder'd two Ounces of the Cream of Tartar with one Ounce of Antimony, which had already been levigated: I boil'd that Mixture, in a large Quantity of Water, for eighteen Hours. The Liquor having assum'd a yellowish Colour, and a styptic Taste, resembling that of Vitriol, I filtrated it, whilst

as yet hot, thro' a double Paper. The Mass, remaining in the Bottom of the Matrafs, sent forth a sulphureous Smell. This impregnated Liquor being evaporated, I had Crystals of Tartar; two Grains of which, when given for a Dose, only excited a slight Nausea.

I took an Ounce of these Crystals of Tartar, thus slightly impregnated with the emetic Part of Antimony; I melted it, like other emetic Tartar, with the black Flux-powder, and found in the Crucible, when cold and broken, a great many yellow Scorize, intermingled here and there with some Grains of Regulus, which were so minute, and in so small a Quantity, that they could not, by their own Weight, collect themselves at the Bottom of the Crucible.

Tho' it is evident from this Experiment; that the Acid of Tartar acts upon Antimony, and that it corrodes a little of its Reguline Part, yet this Corrosion is so weak, that it is not possible by the Reduction to collect the Particles of the Regulus carry'd off by this vegetable Acid: It is also certain, that however fine the Powder of the Antimony is, every one of its small Parts remains always wrapt up in its gross Sulphur, and that this Sulphur defends it, and proves, as it were, a Covering against the Action of the Acid of the Tartar.

It is then proved, that before a vegetable Acid can become sufficiently emetic by its remaining upon Antimony, that Mineral must be freed as much as is possible from its gross Sulphur; that it is reduced into a very pure Regulus; and that the nearer it approaches to the Form of the Glass, without the Addition of any foreign Matter to facilitate its Vitrification, the more the Acid of Tartar, in Conjunction with the Sulphur, will carry off these rigid Parts of the metallic Earth, which I formerly said was the Cause of Vomiting. Thus all emetic Tartar, which has been prepared with the Glass of Antimony, and the Liver of Antimony wash'd, which is a Species of Vitrification, will be much more emetic than any other emetic Tartar, that has not been so prepared.

I have already shewn, by the Quantity of Regulus contained in the different emetic Tartars, which I reduced, that it is a Matter of Importance to know to what Degree this Remedy is emetic, and that very considerable Accidents may be produced by those random Prescriptions, in which four, five, or six Grains of emetic Tartar are order'd for a Vomit. If then it should be thought proper to follow my Method, in order to know in what Degree any Emetic ought to vomit, without the Operation being follow'd with any troublesome Accidents; I shall here draw up a Table of what was yielded by my several Reductions. I made Choice of emetic Tartar upon two different Extremes, that is, the weakest and the strongest; to these I always added that which to me appeared to contain the most suitable Proportion of the Regulus.

An emetic Tartar, from an Ounce of which thirty-two Grains of Regulus may be produced, contains four Grains of the Regulus in each Dram, and each Grain the eighteenth Part of a Grain, and consequently may be look'd upon as too weak.

That which yields two Drams of Regulus in an Ounce, contains eighteen Grains of it in each Dram; that is, each Grain the fourth Part of a Grain. This works very violently, unless given in a very small Dose.

Lastly, that which yields a Dram and an half of Regulus in an Ounce, contains thirteen Grains and an half in each Dram, that is, three Sixteenths of a Grain in each Grain. This is a due Proportion, and I know two Grains, or two Grains and a half of it, will vomit sufficiently; since by that Dose six or seven Sixteenths of a Grain of the Regulus are convey'd into the Stomach.

Tho' I here determine the Quantity of Regulus contain'd in each Grain of emetic Tartar, with relation to the total Product of a simple Reduction by the black Flux-powder, I do not from that mean to conclude, that each Grain of unreduc'd emetic Tartar contains precisely the Dose above specified. I know that it contains a little more: But as this Surplus remains in the Scorize of the Reduction; it would be necessary to dissolve them in Water, to precipitate the Powder of them, commonly called *Sulphur of Antimony*; and then to reduce this Powder by the black Flux-powder; in this Case we should also have from it a little Regulus. But I omit this Reduction, that my Process, serving as a Proof, may be the more short and easy.

Examination of KERMES MINERAL.

This Preparation, published by Order of the King in 1720. is made by boiling Antimony in Rain-water, quickened by the Liquor of Nitre fixed by Charcoal; which is the Alkalest of Glauber. After the Filtration of the Liquor, as yet warm, a Powder is precipitated, which, when well edulcorated, is the very Remedy of which we are treating.

The *Kermes Mineral* was, for some time, look'd upon as a Sulphur of Antimony; and, taking it for such, I examin'd it first by Desflagration, in order to know whether it burn'd in a

different Manner from Powder of Antimony, or from Golden Sulphur of Antimony.

I made three Pieces of thick China red-hot in the same Fire; upon one I let ten Grains of levigated Antimony drop; upon another I let fall ten Grains of the Golden Sulphur of Antimony of the fourth Precipitation, because that is the finest; and upon the third, as much well-chosen and high-colour'd *Kermes*. The *Kermes* affords a more bluish Flame than the other two; it consumes sooner than the Golden Sulphur of Antimony, which in burning boils like Antimony itself; these two last sending up Vapours, or a Smoke much thicker. The Smell of the *Kermes* was, in this Experiment, much less sulphureous and pungent than those of the other two. By continuing the Fire these three Substances were evaporated, and when they ceas'd to smoke, the Antimony left upon the China a reddish-brown Spot, of a Coffee-colour.

The Golden Sulphur of Antimony left a reddish Substance intermix'd with some white Points.

As for the *Kermes*, it only left a thin, white, spongy Earth, interspersed with some little yellow Spots.

I have already said, that I made Choice of high-colour'd *Kermes*, because 'tis necessary to observe, that if this red Powder has not been sufficientlyedulcorated by frequent Ablutions in Water, and that if too much alkaline Salt remains in it, it loses its Colour, when exposed to the Air, and becomes colour'd with a Flower, or white Stratum. I myself have a Mass of *Kermes* of this Sort, the Whole of which is become white, and which, as it whiten'd, lost almost all its sulphureous Odour; which Circumstance is a strong Presumption, that there is a great deal of Volatility in the sulphureous Part of this Powder; for Sulphur of this Preparation is no longer of the same Nature with the gross Sulphur of Antimony, because in it the vitriolic Acid has had its Nature alter'd by the Alkali of the fixed Nitre. In order to be satisfy'd as to this, I took of welledulcorated *Kermes*, one Part; with this Powder I extinguished in a Glass Mortar two Parts of very pure Mercury, which I had revived, without Distillation, from corrosive Sublimate, by Filings of Iron. From this Mixture there was a black Powder or *Æthiops* formed, just as when one extinguishes Mercury with common Sulphur. Yet there was this Difference between these two Preparations: The *Æthiops* made by common Sulphur is a Preparation which always yields an artificial Cinnabar by Sublimation. If the *Kermes* had been a Sulphur of the same Nature, that is, if it had contained a vitriolic Acid at Liberty to act, I should have obtain'd from my *Æthiops* of *Kermes* a Cinnabar of Antimony. Notwithstanding this, after having subjected it to the Fire in a Retort till it was almost melted, the Mercury pass'd into the Recipient without any Diminution of Weight. Only in that Part of the Neck of the Retort where it comes immediately from the Furnace, there was a small red Circle, which, by the way, was only a kind of Tincture, almost without any Consistence. At the Bottom of the Retort I found the *Kermes* melted into several small Masses detached from one another, and of a darker Colour than Liver of Antimony; some of these Masses were full of Bubbles of Air, and all of them were brittle. None of these Masses had either the Needles of Antimony, or the Laminæ of its Regulus. I believe that what facilitates this Fusion of the *Kermes*, tho' so imperfect as that it cannot be look'd upon as a Reduction, is the Portion of alkaline Salt necessarily contained in this Powder, but which is not sufficient to produce a complete Revivification of the Regulus. All these Masses were rough, with small, transparent, rigid, and brittle Needles. The Arch of the Retort was cover'd with a very fine, white Powder, interspers'd with small Groupes of the like Needles rang'd almost like a Star, with many Rays darting out from it. These Groupes of Needles were most apparent near the Neck of the Retort, where they had stopp'd upon a Bed of yellow Dust. The Difference of Colours in this sublim'd Dust and Groupes of Needles, was not easy to be discover'd, unless when I made the Experiment with a small Quantity of Matter; for when I employ'd a large one, the Fire, in melting the *Kermes*, rais'd a more turbid and brownish Substance to the Top of the Retort.

If then a Cinnabar produced by *Kermes* and Mercury is desired, we must either add a vitriolic Acid to them, or disengage that which has been laid hold on by the Alkali of the fixed Nitre, that, in Conjunction with the inflammable Part of the *Kermes*, it may act like a common Sulphur reproduc'd.

First EXAMPLE.

I took an Ounce of *Kermes*, and, during Trituration, pour'd upon it sixteen Drops of the Oil of white Vitriol, which was not sulphureous. After Trituration for an Hour, the Powder did not to me appear acid; afterwards I extinguish'd in it, by little and little, four Grains of purified Mercury: I continued the Trituration for fifteen or sixteen Hours; for the Mixture was a long time before it assumed the blackish Colour of *Æthiops*. Then, upon putting this *Æthiops* into a Retort, a yellow Sulphur, in a

small Quantity, rose into the Neck of the Retort, and then a very black and bituminous Substance; the Mercury, in the mean time, pass'd in a liquid Form into the Receiver. When I observed, that nothing ascended any longer, I augmented the Fire, melted the Bottom of the Retort, and next Day found, upon the Top of the Retort; and on the Surface of the Mass which remain'd at the Bottom, a pretty considerable Quantity of a very beautiful Cinnabar of Antimony; but it required a Melting-heat in order to sublime it.

Second EXAMPLE.

In order to disengage the vitriolic Acid from the *Kermes*, entangled and wrapp'd up in the alkaline Salt of the fixed Nitre, I took three Parts, or nine Drams, of *Kermes*; and four Parts, or twelve Drams, of corrosive Sublimate; for these are the Proportions fix'd by the late Mr. Lemery, who analysed Antimony so accurately: I put this Mixture into a Retort, and forced it by a reverberatory Heat. The Distillation yielded me Butter of Antimony in a liquid Form; which is a Proof of a Regulus being contained in *Kermes*; then a revived Mercury, and, last of all, a true Cinnabar of Antimony. I also found, at the Bottom of the Retort, a Substance like melted Antimony, with few *Scoriae*. The Top of the Retort was covered with white Flowers of Antimony.

By this Experiment it appears, that the Acid of the Sea-salt, which was contained in the corrosive Sublimate, has quitted its Mercury, in order to attack the Reguline Part of the *Kermes*, dissolve it, and convert it into Butter of Antimony: It also appears, that this Regulus, converted into Butter, has left at Liberty the Portion of vitriolic Acid, which, in the *Kermes*, before the Process, was united with the Alkali of the fix'd Nitre, with the sulphureous Part, and with the metallic Earth of the Antimony; for these are the four Ingredients in this Powder. It also appears, that at this time the Portion of vitriolic Acid, being partly disengaged from the Substances with which it was entangled, has resumed that Proportion of the Phlogistic, which was necessary for its being again converted into common Sulphur, and rising in Cinnabar, by uniting with the Mercury. I took the Mass in the Bottom of the Retort, and having reduced it by the black Flux-powder, I had twelve Grains of Regulus from the nine Drams of *Kermes*, which I used in this Experiment; that is, one Grain and a Third of Regulus were yielded by each Dram of the *Kermes*. As I repeated the whole Steps of this Process twelve different Times, upon twelve different Sorts of *Kermes*, the Products of the Reduction varied; for I have found two Sorts of *Kermes*, which, by the reductive Flux-powder, have yielded two Grains and an Eighth for each Dram of Powder, upon which the Experiment was tried: Thus that *Kermes*, the Regulus of which is so easy to be revived, is of all others the most emetic. To these Products of revived Regulus, we must add that Portion of the Regulus which has pass'd into the Butter of Antimony, and that which remained in the *Scoriae* of the Reduction.

In order to prove, still more effectually, that there is no common Sulphur in the *Kermes*; or, at least, if it contains any in the Form of common Sulphur, that it is in too small a Quantity to rise in Cinnabar with the Mercury, I put into a Retort half an Ounce of *Kermes*, well wash'd, without any Addition: I augmented the Fire by degrees, and, with a moderate Heat, there was formed, at the Neck of the Retort, a yellow Circle of real Sulphur; but it was in as small a Quantity as the red Circle without Consistence, in my first Experiment upon *Kermes* triturated with Mercury.

I have then shewn, that the *Kermes* and Mercury, joined together, cannot yield Cinnabar without the Aid of a vitriolic Acid, or the Help of corrosive Sublimate: Let us now inquire, what it will produce with the vitriolic Acid concentrated in Mercury.

For this Purpose, I put into a Retort a Dram of Turbith Mineral, rubb'd with an equal Quantity of *Kermes*: The Retort being placed in a reverberatory Heat, a little insipid Phlegm was first yielded; afterwards there was fix'd, about the Mouth of the Retort, a Vapour, which was at first white, then yellow, afterwards a pale Red, and, last of all, a deep Red, like Cinnabar. This red Colour was a little on the brownish Cast, in that Part of the Neck which was most exposed to the Fire: The interior Sides of the Retort were cover'd with a yellow and red Stratum, upon which were sublimed Groupes or Clusters of Needles, resembling those I have already mention'd. Upon taking away the Receiver, there came forth a sulphureous and very penetrating Smell: I took from the Receiver fifty-two Grains of revived Mercury; and the Retort being cut, I found at its Bottom a Mass, divided into several Parts, which, as to their Colour, had a Metallic Appearance; but were spongy and rough, with many white and shining Needles.

Thus, in this Experiment, the vitriolic Acid of the Turbith Mineral abandons its Mercury, in order to seize or attack the

the Phlogistic, the Alkali, and the Metallic Part of the *Kermes*; a Part of this Acid, being united to the Phlogistic, was again converted into burning Sulphur: This made up the yellow Circles about the Neck, and at the Top of the Retort; for, upon taking some of it off, I saw it burn like Sulphur. A Part of this regenerated Sulphur was joined to some Portion of Mercury, and sublimed into Cinnabar; at least the red Circle to me appear'd a true Cinnabar. At last the rest of this Acid was concentrated with the Reguline Part, and was the productive Cause of all those Needles with which the Masses, in the Bottom of the Retort, appear'd rough.

This same vitriolic Acid of the Turbith Mineral finds, in the red precipitate Mercury, Materials for subliming another Substance, which is neither a Cinnabar, nor a corrosive Sublimate. Tho' the two following Experiments seem to have little relation to our present Subject, they nevertheless deserve our Attention.

I put into a Retort a Mixture of one Dram of Turbith Mineral, and one Dram of red Precipitate: These two Substances, at first, yielded an Acid, which was of a nitrous Taste and Smell; afterwards there appear'd a Steam of a very strong sulphureous Odour; which must have proceeded either from the Phlogistic of the Mercury, or from that of the Spirit of Nitre, no matter which.

One Dram and twenty-four Grains of Mercury pass'd into the Receiver, and the Remainder was sublimed to the Neck of the Retort, in the Form of a white Mercurial Salt; which is not a corrosive Sublimate, but a Turbith sublimed, since it does not dissolve in Water, but becomes yellow in it, just as Turbith Mineral does.

Turbith Mineral, put alone into a Retort, only yielded thirty-one Grains of liquid Mercury each Dram: Besides, it was necessary to augment the Fire so far as to melt the Retort, at the Bottom of which there remain'd a white Spot, which had penetrated the Substance of the Glass; and in the Neck of the Retort, I found, sublimed, a little yellow Sulphur, regenerated, probably, with the Phlogistic of the Mercury, and a white compact Substance, which neither dissolved nor changed its Colour in Water; which was also the Case with the white Spot at the Bottom of the Retort. This white indissoluble Substance is, according to *Kunckel*, the Salt which was lodged in the Oil of Vitriol, and which the Mercury had Strength enough to raise. This may possibly be what the same Author, in several other Passages, calls the Salt of Metals; for, according to him, that Salt is contained in the Oil of Vitriol. It is well known, that the red Precipitate, forced by a great Fire, revives of itself without Addition: Each Dram of it yields from sixty-five to sixty-six Grains of Mercury: There remains in the Bottom of the Retort a reddish-grey Earth; and about its Neck there appear three Circles, one red, another yellow, and the third white.

A Dram of the same Precipitate, being distill'd with an equal Weight of well-washed *Kermes*, yields an acid sulphureous Liquor: There appears on the Top, and about the Neck of the Retort, a very small Tincture of Red, and sixty-five Grains of Mercury are revived.

A Dram of the same red Precipitate being distill'd with an equal Quantity of levigated crude Antimony, the Mercury was less quickly revived than in the two preceding Experiments; because the Flowers which rose from the Antimony being in great Quantity, the interior Sides of the Retort were, by that means, render'd less smooth, and the mercurial Vapours must of Consequence have slipp'd over them with the more Difficulty: Nevertheless, when all the Mercury was collected, it amounted to sixty-six Grains, full Weight. Thus it appears, from these three Experiments, that in one Dram of red Precipitate there are only six or seven Grains of the Acid of Nitre.

But to return to *Kermes*; I have shewn, that this Powder, which one would be inclined to take for a Sulphur, is the very Metallic Part of Antimony, since both a Butter and a Regulus of Antimony may be procured from it; but the inflammable Sulphur of Antimony has changed its Nature: The Alkali of the fixed Nitre has, in Conjunction with it, formed a Liver of Sulphur, which is divided and suspended in the Liquor, during the Ebullition, by which the *Kermes* is to be extracted. It is sufficiently known, that Liver of Sulphur has a Power of dissolving all Metals, Gold not excepted, when fused with it. It is true, *Kermes* is not prepared by a Liver of Sulphur in Fusion; nevertheless, when simply dissolved in Water, there is nothing to hinder it from attacking the Metallic Part of Antimony: And this is so true, that if Rain-water be too much charged with alkaline Salt, there is precipitated from it a *Kermes*, from which, by the black Flux-powder, one procures a great deal more of Regulus, than if the *Kermes* had been prepared by a less acid Liquor. *Kermes*, then, is nothing more than a Liver of Sulphur, impregnated with the Metallic Part of Antimony; but this Metallic Part is, in it, divided into extremely small Particles; and the finer these are, the less emetic will the *Kermes* be: Thus, after the *Kermes* is prepared according to the Process published by the King's Order, which is, of all others, the best,

if a Species which shall only act, as it were, by colliquating the Humours, without exciting a Nausea, be desired, we must take a Dram of *Kermes*, put it into a pretty large Matrafs, pour four Pounds and an half of Water upon it, in which two Drams and an half of fix'd Nitre must be dissolved, which has been before dissolved, filtrated, evaporated, and reduced into a dry Form, in order to depurate it from a pretty considerable Sediment, which it leaves upon the Filtre; lastly, it must be boil'd: A greyish Earth, and the grossest Portion of the Regulus will precipitate, and by pouring off the Liquor, and allowing it to cool, we shall have a *Kermes* very fine, very red, and much surer in its Operation, when it is not given with a View to vomit; for this corrected or rectified *Kermes* can never prove emetic, unless by Accident, when some other Circumstance concurs to make it so. It is true, by this Rectification near one half of it is lost.

As to unrectified *Kermes*, as we often find some of it, which is not prepared with all the necessary Precautions, that the Reguline Part may be sufficiently divided and attenuated in it, I believe one may, with Safety, substitute in its room Antimony itself, prepared in the following manner:

Take Hungarian Antimony, in small Pieces; make Choice of that which has beautiful shining Needles; reduce it to a Powder, and pass it thro' the Searce; then levigate it with Water till it ceases to crackle under the Teeth: Afterwards put it in a Bowl-full of Water; stir the Water with a wooden Spatula; and after having allowed the grossest of the Powder to subside for twelve or fifteen Seconds, pour off the Water, by Inclination of the Vessel, upon one or more Filtres. Take the subtle Powder which remains upon these Filtres, and dry it in a Stove: When it is sufficiently dry, levigate it afresh, adding a Dram of very dry Sugar-candy, powder'd, to each Ounce of the Powder of Antimony; and continue to pound it till such time as when you spread a little of the Powder with a Knife, you may not, in a clear Light, perceive any shining Particles.

'Tis long since the Powder of Antimony was extoll'd as an excellent Remedy against Disorders of the Lungs, as a fine Resolvent in an Asthma, and in many other Disorders.

In 1674. *Kunckel*, being racked with very smart Pains in his Right Arm, consulted *Sennertus*, a Physician in *Wittemberg*, and Son to the famous *Sennertus*, who ordered him to use Antimony; which he did for the Space of a Month, and by its means had his Pains removed.

In 1679. the same *Kunckel* had recourse to levigated Antimony, for severe Gout-pains both in his Hands and Feet. He formed it into Troches, and got cured by its means. These Antimonial Troches are still known in some Towns of Germany, by the Name of *Kunckel's Troches* (particularly at *Frankfort and Nuremberg*).

If my Testimony can add any Sanction to this Matter, I can boldly venture to assure the World, that this Mineral, in fine Powder, is a sovereign Remedy for Rickety Children, or such as have Knots on their Joints, and for all those who have obstructed Glands. It produces very good Effects in Children tormented with Worms; and I have known Women labouring under a *Fluor Albus*, who, after using the common Remedies in vain, have been cured by this Powder: But, at first, it should only be given in very small Doses, not exceeding a Grain. And tho' Antimony is not of itself emetic, it is, nevertheless, proper to add to the Powder of it three or four Parts of some Alkali, such as Crabs-eyes, or any other of the like Nature. The Dose should be augmented by degrees; and thus one may, at last, venture upon eight or ten Grains a Day. If the Doses were increased too fast, they would produce Gripes in the Intestines, purge the Patient, or bring on a Nausea: The Patient must also be cautioned against the Use of Wine, except it be very mellow. He must also abstain from Vinegar, and every other Acid, and even from Soups, in which acid Herbs, such as Sorrel, &c. have been boiled.

From what has been said, it follows:

1. That the emetic Quality of Antimony is lodged in its metallic vitrifiable Earth, which is already well enough known to Chymists; that emetic Tartar does not vomit, but because it is impregnated with a great many gross Particles of this Earth; and that by reducing it, by the black Flux-powder, we may know in what Degree it is emetic.

2. That the *Kermes* is a Liver of Sulphur, which has dissolv'd a Portion of this Metallic Earth, but more subtly than the Acid of Tartar does: That one may rectify Antimony so as to render it simply resolvent and diaphoretic: And lastly, that a fine Powder of Antimony may be substituted in the room of the *Kermes Mineral*. *Mem: de l'Academie Royale, 1734.*

Farther Observations on KERMES MINERAL, by Mr. Geoffroy.

In 1734. I presented a Memoir in two Parts; the first on Emetic Tartar; the other on *Kermes Mineral*. This second Part

Part not containing a sufficient Examination of that Preparation of Antimony, I thought it necessary to add thereto the Supplement which follows; in which I first examine the *Kermes* prepared by Ebullition, then the *Kermes* prepared by Fusion, but both with the Assistance of Alkaline Salts; after which, I hope to shew, that Antimony, treated with Acids, yields a Preparation not much different, as to its Effects, from the Preparations obtained by Alcalis:

Antimony, tho' already analysed by an able Hand, may still supply us with a Set of Facts, which, if sufficiently adverted to, will only confirm what the late Mr. *Lemery* has published concerning it, and render our Chymical Examination of this Mineral the more complete.

KERMES prepared by Ebullition.

The following Experiment required an indefatigable Patience, since the Process was seventy-eight times repeated upon the same Antimony, and with the same Lixivium of Alkaline Salts. There are not, indeed, any dazzling Circumstances in such a tedious Operation; but the Mind is sufficiently recompensed for its Labour, by being satisfied with regard to the Truth of a Fact which was formerly dubious; and by being put in a Capacity of proving, that, by a still greater Degree of Patience and Perseverance than I used, it is possible to reduce the Whole of Antimony into *Kermes*, except some Sediments, which shall be examined separately.

I shall shew, at the same time, that *Kermes* is no more than a Magistery, or a Precipitate of the Reguline Part of Antimony, divided into extremely fine Particles, which are cover'd, as it were, with a Stratum of Liver of Sulphur, and consequently with a sort of Varnish, composed of an alkaline nitrous Salt, and a gross or inflammable Sulphur of the Mineral: That the alkaline Salt may be disengaged from the *Kermes*, and subjected to the Senses, by being made a Basis for regenerating the Nitre, and the Sea-salt, in order to form a vitriolated Tartar: That we may also separate from the *Kermes* a white Earth, difficult to be perfectly known, and which belongs either to the alkaline Salt, or to the Antimony, or to the Water employ'd in the Ebullitions, or perhaps to all the three.

In order to procure this Magistery, I have exactly followed the Process published by the King's Order; that is, I took a Pound of *Hungarian* Antimony, broken in small Pieces, according to the Direction of its Needles; four Ounces of the Liquor of Nitre, fixed by Charcoal, and well filtrated; and a Pint of Rain-water. After two Hours Ebullition I filtrated the Liquor, whilst as yet hot, which precipitated the *Kermes* as it cool'd. At a second Ebullition I added three Ounces of fresh Liquor of fixed Nitre, and one Part of Rain-water. At a third Ebullition I pour'd, upon the decanted Lixivium, two Ounces more of the same alkaline Liquor, and a Pint of Rain-water. This is the Process published by the King's Order, strictly followed. I extracted from it a *Kermes*, which, when welledulcorated, and sufficiently dried, weighed only one Dram sixty Grains, tho' the Antimony had lost two Drams.

I repeated the same Process with four Pounds of fresh Antimony, one Pound of the Liquor of fix'd Nitre, and four Pints of Rain-water. At the second and third Ebullitions, I added, first, twelve Ounces of alkaline Liquor, and four Pints of Water; afterwards eight Ounces of the same saline Liquor, and four Pints of Water more. These three Preparations yielded an Ounce and two Drams of *Kermes*; and the four Pounds of Antimony lost seven Drams and an half.

If the Products of these two Processes, when compared, had born a Proportion to the Substances employ'd in them, I should have only had, by the second Operation, seven Drams and twenty Grains of *Kermes*, and the four Pounds of Antimony should have lost an Ounce. But 'tis probable, that this Difference in the Diminution of the Weight of the Antimony proceeds from the Difference of the Surfaces of that Mineral; which, in the second Operation, did not amount to four times the Sum of the Surfaces in the Pound of Antimony employ'd in the first Operation: As for the Augmentation of Weight in the *Kermes*, in the second Operation, may not one account for it by saying, that a large Quantity of alkaline Salt sooner forms a proportionably greater Quantity of Liver? That the more Liver there is, the more Reguline Particles will be disengaged; and that the more of these Particles are disengaged, the more there is of this saline and sulphureous Varnish, which I mentioned; and that there must consequently be more Weight, since more Circumstances concur to augment it? Besides, 'tis well known, that the Products of a great many Operations, when perform'd upon small Parcels, are never equal, in Proportion, to the same Operations when performed upon large ones.

That I might still more effectually discover what passes in the Process of *Kermes*, and what Substances are separated from the Mineral, I took the Antimony of the two preceding Operations, weighing five Pounds all but nine Drams and an half of Loss. I also took the Liquor of the fixed Nitre, which had served in the six preceding Ebullitions, and of which I had two

Pounds thirteen Ounces; and, without adding any thing to it at each Operation, except well filtrated Rain-water, I made thirty Ebullitions, and as many Precipitations, one after another. From the Vessel there arose a sulphureous Steam, which blacken'd Silver when held above it: One might also not only discover this sulphureous Smell, but likewise that of a strong Lixivium, mixed with a small Quantity of an urinous volatile Substance.

This Steam, being condensed and collected in a Glass Head, turned the Syrup of Violets green, slightly render'd the Solution of corrosive Sublimate milky, and precipitated into a bright citron Colour the Solution of Mercury in the Spirit of Nitre.

At each Ebullition the Liquor of the Nitre, as I have already observed, disengaging some of the Particles of the gross Sulphur of Antimony, there was a Liver of Sulphur form'd by them. This Liver dissolves or divides the Reguline Part of the Mineral, and this Division is facilitated and promoted by the Attrition of the Parts of the Antimony, which the Ebullition keeps in continual Agitation.

This Attrition, caused by the Ebullition, appears to be necessary in this Process of the *Kermes*, because the alkaline Salt of the Lixivium cannot act upon the Reguline Part till the gross Sulphur of the Mineral is disengaged from it, in order to join itself to this Alkali, and form the Liver, which proves a Dissolvent to this Reguline Part: Now, without this Attrition, the Alkali could only form the Liver, with the Sulphur of the first Surfaces of the Pieces of Antimony. In this Case there would be a small Quantity of Liver, and consequently a small Dissolution of the Reguline Part. For this Reason, the first Ebullition never yields so much Precipitate as the second, nor the second so much as the third. This Progression has, nevertheless, its Bounds, beyond which it does not go.

The alkaline Liquor, being sufficiently impregnated with the Sulphur, and the Regulus of Antimony, ceases to act, and must be filtrated; first, that, upon the Filtre, it may disengage itself from the gross and unattenuated Parts of the Antimony, which have been detach'd from that Mineral by the reiterated Attritions during the Ebullition; and secondly, that, as it cools, it may deposit the Parts of the same Mineral, which have been sufficiently divided by the Liver, and which are become fine enough to pass through the Filtre with the Liquor as yet warm.

As long as the Liquor is hot, it is kept in a Motion rapid enough to hinder the fine Particles of the *Kermes* from reuniting into too large Molecules. In this Case the Particles pass thro' the Pores of the Paper with the same Ease the Liquor does: But, in proportion as the Liquor grows cool, the Rapidity of the Motion ceasing by degrees, these same Particles are collected, agglutinated to each other, and compose Molecules of such a Size, that they can no longer be suspended in the Liquid, but fall to the Bottom in a Magistery. It is impossible but the Lixivium must, at each Ebullition, lose a small Portion of its alkaline Salt; since this Portion must have been employ'd to compose the Liver, which has corroded the Reguline Part of the Antimony, precipitated with this same Portion of the Liver, under the Form of a red Magistery: For I shall afterwards shew, much more clearly than I have hitherto done, that *Kermes* is a Magistery of the Regulus of Antimony, united to the gross Sulphur of that Mineral, and to a small Portion of the alkaline Salt, which may be disengaged from it; or, in other Words, it is an Antimony which is not, strictly speaking, destroy'd, but of which the Arrangement of the Parts is changed by disengaging the gross Sulphur from the Interstices it possesses, which occasions a Rupture of the Sides of these Interstices, which, changing both their Situation and Form, mix with the new Compound of the Liver, and make it appear a Magistery, more or less coloured, in proportion to the Quantity of Alkali and Sulphur which is united with it.

But if it is not possible, that the alkaline Liquor shall not lose a small Portion of its Salt at every Ebullition, one may easily conceive, that it must only lose very little at each time; since, without the Addition of fresh Salt, it is able, after the Filtration, to act again upon the Antimony for a considerable Number of Times; and since thirty repeated Ebullitions of five Pounds of Antimony yielded seven Ounces of *Kermes*, always as beautiful and fine as the *Kermes* yielded by the first six Ebullitions, performed upon one Pound, and afterwards upon four Pounds, of this Mineral.

Observing that, at the thirty-sixth Boiling, this Liquor acted almost as well as at the six first, I made it serve for twenty more Boilings, without any other Precaution than putting aside the small Needles of Antimony, which increased, in Quantity, in proportion as the Boilings were multiplied. These twenty additional Ebullitions still yielded me five Ounces three Drams and an half of *Kermes*; whereas I had only seven Ounces from the first thirty Ebullitions.

I made ten Ebullitions more, which still yielded me four Ounces one Dram and an half of *Kermes*. Thus these thirty last Ebullitions yielded me two Ounces and five Drams of *Kermes* more than the first thirty. This Augmentation of the Product proceeds, as I have above observed, from this, that the Attritions

Attritions of the Pieces of Antimony being multiplied, new Surfaces are thereby discovered, which furnish a new Sulphur to the alkaline Liquor; and this Sulphur, being added, renders the Liver more active and penetrating; or, in other Words, makes, as it were, a new Liver at each Ebullition.

There remains, as I have said, upon the Filtres a pretty considerable Quantity of fine Needles, mixed with a sort of earthy Sediment: I boiled this Sediment, which weighed near eight Ounces, twelve times, with the same alkaline Liquor, and it yielded me two Ounces three Drams and an half of *Kermes*.

By these seventy-eight Ebullitions I had, from my five Pounds of Antimony, one Pound four Ounces four Drams and twenty-four Grains of *Kermes*. It is not easy to tell, precisely, how much the Antimony lost of its Weight; for, perhaps, it retained, in the Interstices of its Needles, a certain Quantity of alkaline Salt, since it still weighed three Pounds six Ounces; which, joined to the Weight of all the *Kermes* drawn from the seventy-eight Ebullitions, yields an Augmentation of two Ounces four Drams and twenty-four Grains, including the Weight of the muddy Substance, deposited on the Filtres: Thus 'tis evident, that this Augmentation must be owing either to the Union of a Portion of the alkaline Salt with the rest of the Pieces of Antimony, or to the Union of this same Salt with the precipitated Magistery. There is no Doubt to be made but the alkaline Salt is united to this Magistery: This I asserted in my former Memoir, but shall prove it in this: But I cannot, in like manner, prove the Union of this Salt with the Antimony; so that this Point must remain conjectural. I shall now examine the Lixivium, which remained, of the seventy-eight Ebullitions: I distill'd it, and the first Steams furnished a gently sulphureous Liquor, which gave Marks of an urinous Volatile, of which I shall afterwards speak. About the Middle of the Distillation, a small Quantity of white Earth was precipitated.

After the Separation of this first Earth, I continued the Distillation of the Liquor, till a Pellicle appeared on its Surface, upon which long Crystals were formed in it, the finest of which melted a little on the Coals, and consequently must have been nitrous.

But as these Crystals were still mixed with a muddy, fat, and coarse Matter, I made a fresh Solution of them in Rain-water, and there was precipitated a second white Earth like the first, and which weighed four Drams sixty Grains. The Liquor which was separated from this Earth being evaporated, new Crystals were formed in it, but like those of a foliated Earth, that is, in flat Leaves almost square, some of which were nevertheless triangular. They only preserve this Figure so long as they are kept dry; for as soon as they are exposed to the Humidity of the Air, they quickly run *per Deliquium*, and in that State, tho' indeed slowly, crystallize themselves again; and in a fat Sediment which is deposited, resume the Forms of prismatic Crystals, no Part of which is any longer fusible upon Coals; upon which they crackle, and break like vitriolated Tartar; tho' that Crackling does not in the least resemble the Decrepitation of Sea-salt.

However hot the Coals may be render'd by blowing them, these Crystals do not melt upon them, but are converted into an earthy white Substance, which has the same Appearance with that Earth which had subsided before their first and second Crystallization.

These Crystals, as I have said, were form'd in a fat and unctuous Sediment proceeding from the Solution *per Deliquium*, or Mother-water of the Crystals, in the Form of foliated Earth. I shall now examine this Solution by Distillation. I made use of five Ounces of it, which at first yielded an aqueous Liquor, which smell'd like animal Substances when under Distillation. There was afterwards yielded a volatile urinous Spirit, which was sufficiently pungent, of a beautiful Yellow, and which weigh'd two Drams. And lastly, there remained in the Retort two Ounces two Drams and an half of a Caput Mortuum, which, being subjected to a greater Fire, yielded six Grains of a volatile Salt, in a concrete or dry Form. After having broken the Retort, I found a white and red Mass, from which exhal'd an ammoniacal Smell, like that which comes from Vessels in which Sublimations of Sal Ammoniac have been made.

This Mass, when broken, resembled the *Scoriae* of Regulus, and was full of Bubbles or Cavities, which were interspersed with small Grains of a fine and sparkling Regulus, which had been reviv'd during the Fusion. These *Scoriae*, or saline Masses, as they became moist by being expos'd to the Air, assum'd a greenish Colour, and smell'd like Liver of Antimony. They would have been entirely dissolv'd *per Deliquium*, if I had left them long expos'd to the moist Air; but that I might produce this Effect the sooner, I pour'd boiling Water upon them, which assum'd a brownish-green Colour. Upon filtrating it when hot, there remain'd upon the Filtre a green Matter, which consisted of Sulphur; and there pass'd thro' the Pores of the Paper a Liquor, which, as it became cool, allow'd a pretty considerable Quantity of *Kermes* to subside.

VOL. I.

This saline Liquor, swimming above the new *Kermes* when evaporated, yielded me Crystals of different Nature from those of the foregoing prismatic Salt. These Crystals melt pretty soon, and appear to be a crystalliz'd Alkali, or an alkaline sulphureous Salt, which, while it remains in that State, may be call'd a Salt of the Liver of Antimony; for it has at one and the same time a lixivial Taste, and a Taste of the Liver; but if that sulphureous Salt is dissolv'd with cold Water, there remains a true vitriolated Tartar at the Bottom of the Solution.

This sulphureous Salt or Liver bubbles upon burning Coals, and becomes yellow, which is a Proof, that there is Sulphur contained in it. It blackens and corrodes the Plate of Silver upon which it is melted by the Fire, and turns the Syrup of Violets green. It makes an orange-coloured Precipitation in the Solution of corrosive Sublimate, and on the Surface of the Liquor leaves a sulphureous Pellicle floating, which, when taken off, burns like the common Sulphur. In a Word, it has all the Characters necessary to give it the Denomination of a sulphureous Salt, or Salt of the Liver of Antimony. It is different from the Salt which may be extracted from the Liquor of fixed Nitre, which has not pass'd thro' the Ebullitions with the Antimony; for from that Liquor evaporated, I had only some few long and prismatic Crystals, like those I have above described, and which, like them, became white upon the Fire, without either melting or decrepitating; and which also, like them, burst with a crackling Noise.

I now return to the white Substance deposited during the Crystallization of the sulphureous Salt, or Salt of Liver of the Lixivium of seventy-eight Ebullitions of *Kermes*. To look at it, one would take it for diaphoretic Antimony; but it is no such thing, because Aqua Regia dissolves it, but has no Effect upon common diaphoretic Antimony. It ferments with the Acids of Nitre and Vitriol. A Regulus is reviv'd from it upon burning Coals; and before it rises, one sees small Flashes break from it of the same Colour with the Flame of Sulphur, and which disappear instantly. As this Powder is not diaphoretic Antimony, so neither is it the *Materia Perlata*, since Acids do not act upon this last Preparation, any more than on diaphoretic Antimony. All the white Substances which I separated from melted Antimony, with different alkaline Salts, were of the same Nature with that I have now mention'd. And as I know no Preparation of Antimony to which I can compare it, why may we not call it a white *Kermes*, or a white antimonial *Magnesia*, since, when taken internally, in a small Dose, it proves diaphoretic, and does not excite a Nausea?

I now resume the Examination of *Kermes*, which I propos'd to make, and which is a necessary Supplement to my former Memoir.

This Powder is always found of different Colours, in proportion as the alkaline Liquor employ'd has been more or less concentrated. If it is richly impregnated with Salts, the *Kermes* will be of a very deep Red; or, which amounts to the same, if the Ebullition has only lasted for a short time, the *Kermes* will be pale; because there will not be enough of Phlegm evaporated from the Liquor, in order to concentrate the Salts. In order to prove this, we need only pour a fresh, pure, boiling Water upon the Filtre, on which the boiling Liquor which contains the *Kermes* was pour'd, and the *Kermes* will by that means be much paler than it would have been without this Addition of Water.

When we let a Dram of *Kermes* drop into three Drams of Aqua Regia made of the Spirit of Nitre, and the Spirit of Salt, the Dissolution is made with a great Ebullition, and an intense Heat, and from the Spirit of Nitre arise very red Vapours. When the Ebullition is at an End, the Smell of the Mixture is chang'd, and becomes sulphureous. After the Fermentation is totally over, there remains a yellow Sediment, above which there is a Liquor upon whose Surface a sulphureous Pellicle appears, which, when taken off with a Piece of Paper, burns like common Sulphur. I wash'd and dry'd this Sediment, and next Day found a Globule of liquid Mercury, weighing somewhat more than the Fourth of a Grain. Now, on Supposition, that this Globule of Mercury was found there, without any Circumstance that could lay a Foundation for our suspecting, that it exist'd formerly in the Antimony, it would be no more than the two hundredth and eighty-eighth Part of the Dram of *Kermes*, upon which this Experiment was made, which is far from being the Quantity of Mercury which several Authors maintain may be extracted from Antimony, by raising it in Flowers with Sal Ammoniac, and by reducing these Flowers by fixed Salts. I can affirm, by the way, that the Glass Vessels I used on this Occasion, had never been employ'd in any Process where the least Mercury had been an Ingredient: But I must at the same time confess, that having repeated the same Process with other *Kermes* of the same Preparation, and the like Aqua Regia, I could never see any more Mercury.

The white Powder, in the Middle of which this Mercury was found, weigh'd forty-two Grains. I put it into a Retort, in order to raise the Quantity of Sulphur it might contain.

This Sulphur rose with the first Fire, and adher'd to that Part of the Neck of the Retort, where it comes out of the Furnace. Afterwards there appeared a black Circle, then a third white Circle of the Flowers of Antimony, or rather of the Regulus, interspersed with small Needles. The Liquor in the Receiver was charg'd with sulphureous Flakes. In fine, the red Mass, at the Bottom of the Retort, was a Species of *Crocus Metallorum*, or rather a *Magnesia Opalina*, which is made, as is well enough known, with Nitre and Sea-salt. Now in this Experiment, I employ'd an *Aqua Regia*, compos'd of the Acid of Nitre, and of the Acid of Sea-salt. These two Acids reassum'd a Basis in the alkaline Salt of the *Kermes*, became regenerated, and operated during the Fusion; which Effect these two Salts, mix'd with Antimony, produce in the ordinary Process of the *Magnesia Opalina*. The Regeneration of these two Salts with the Alkali of the *Kermes* will be more fully prov'd afterwards. From this long Detail it follows, that the *Aqua Regia* does not dissolve the whole reguline Part of the *Kermes*; that, in all Appearance, it only attacks those Particles of it, some of whose Surfaces present themselves naked to the Action of this Acid; that such of them as are cover'd with a continued Layer of the sulphureous Matter of the Liver, resist the Action of the *Aqua Regia*; that one cannot by means of this Acid exactly separate the sulphureous Parts of the *Kermes*, because the white Powder which precipitates from it, contains, together with the gross Sulphur, a considerable Portion of the Regulus, which may well be supposed to make up the half, or thereabouts, of this Powder. But notwithstanding this Inconvenience, *Aqua Regia* is the most proper Acid for making the Separation of the gross Sulphur which is still naturally in the *Kermes*; for if I employ the Spirit of pure Salt, it corrodes the reguline Part, and subtilizes and attenuates the Sulphur so strongly, that for the most part it evaporates; so that when I pour Rain-water upon this Dissolvent, all the Regulus of the *Kermes*, and that which remains of the Liver, and of the alkaline Salt, are confusedly precipitated into a white Powder, which would be a true Powder of *Algaroth*, (or *Mercurius Vita*) if we had not Reason to suspect, that it precipitated itself with a Portion of the alkaline Salt of the *Kermes*. In fine, there is no floating Sulphur separated from this Precipitate, as happens when I make use of *Aqua Regia*.

If instead of the Spirit of Salt I employ the Spirit of pure and concentrated Nitre, there happens, so soon as it is poured upon the *Kermes*, so great an Effervescence, that there is no Doubt to be made, but the Mixture would take Fire, if the oily Principle of the gross Sulphur of this Powder was more disengaged from the vitriolic Acid which retains and clogs it. The red Vapours of the Spirit of Nitre even become impregnated with a Part of this Sulphur, which volatilizes itself during the Effervescence, since being collected by a Glass Head, or any other means, they turn to a Spirit of Nitre of a greenish Tincture. But notwithstanding this great Effervescence, there is no Dissolution of the reguline Part of the *Kermes* made; since, if the Mixture is allow'd to settle after the Effervescence is over, and if after this you pour off the Acid which swims above the Powder now become white, you precipitate nothing of that Regulus by pouring Oil of Tartar upon it.

This *Kermes* becomes white by the Action of the nitrous Acid, and, forc'd by the Fire in a Retort, yields a great deal of burning Sulphur, and red Flowers of Antimony, and leaves a whitish Mass of the Calx of Antimony; yet this Mass being still united to a considerable Portion of the gross Sulphur of Antimony, which it quits with Difficulty, remains a little yellowish, and interspersed with red Points on its Surface. If it is strongly forced by the Fire, it vitrifies in some measure; and the Acid of the most fixed Sulphur, or even the entire Sulphur, which the Fire has not been able totally to expel, forms antimonial Needles, with the rest of the reguline Part, which is not become vitrified.

By substituting in the room of *Aqua Regia* the Spirit of Salt, and the Spirit of Nitre, a well concentrated Oil of Vitriol, there only ensues a Smeil of Sulphur, which the Fermentation augments; but no gross inflammable Sulphur is separated, as it happens, when *Aqua Regia* is employ'd. We must then use a Menstruum capable of dissolving the reguline Part of the *Kermes*, if we incline to prove the Existence of a gross Sulphur united with the *Kermes*; and this Menstruum or Dissolvent is *Aqua Regia*. I now go on to other Operations.

I shew'd, in my former Memoir, that from an *Æthiops* compos'd of *Kermes* and Mercury, I had a Cinnabar of Antimony, especially when I employ'd a certain *Kermes* among the Number of those I had bought. I can now affirm, with a kind of Certainty, that this *Kermes* was chang'd by an Addition of common Sulphur, since with the Mercury and *Kermes* of my seventy-eight Ebullitions, I could not sublime a true Cinnabar, but a red, sulphureous, or bituminous Substance, which, by a violent Fire, melts and runs along the Sides of the Retort like *Spanish Wax* melted, which it resembles in its Colour and Lustre. This same Experiment laid a Foundation for my examining the following Phenomenon:

I mixed two Drams of my *Kermes* with two Drams of very pure Mercury. We have pretty good Reason to suspect, that during the Trituration, which lasted for a considerable while, there might have been some small Globule of the Mercury lost. Nevertheless, by forcing this *Æthiops* with a strong Fire, two Drams and five Grains of Mercury were reviv'd. We can only ascribe this Augmentation of Weight to the *Kermes*; and this I had observed in my Experiments made in 1734: tho' I made no mention of it in my Memoir. I do not from this pretend to conclude, that the *Kermes* supply'd the Mercury I employ'd with this additional Mercury, but that there was an Amalgama form'd of five Grains of the Regulus of *Kermes* with the two Drams of Mercury. This is prov'd by the Mercury's remaining fat, less shining, and leaving a Tail, as all Mercury incorporated with any metallic Substance does. Thus this might be a way, tho' indeed a pretty tedious one, of making the Amalgama of Regulus of Antimony and Mercury, which is known to be a pretty difficult Affair, and for which the late Mr. *Homburg* employ'd a Regulus of Antimony, in the Preparation of which Copper was an Ingredient.

The Mass of *Kermes*, reduced to a *Crocus Metallorum*, which remained in the Retort, being separated from some sublim'd Parts of the inflammable Sulphur, and from some of the antimonial Flowers, weigh'd only one Dram and thirty-nine Grains. I boiled this in Rain-water, in order to dissolve its Salt; and this Lixivium precipitated into a yellow turbith Colour the Solution of Mercury in the Spirit of Nitre. Now this yellow Colour shews, that I was not mistaken, when, in my former Memoir, I advanced, that by the Assistance of a great Fire, and by the Interposition of Mercury, which yet only serves in this Case to divide the different Substances composing the *Kermes*, one might disengage from the gross Sulphur united to this Matter a Portion of the vitriolic Acid essentially join'd to this gross Sulphur, transfer this Portion of Acid to a Part of the alkaline Salt of the same Powder, and form by this new Union a vitriolated Tartar, since in the present Experiment I precipitate the Mercury into a yellow turbith Colour, as happens when a Solution of common vitriolated Tartar is used for that Purpose.

This same Mass, when its Salts were thus dissolv'd, weigh'd only eighty-four Grains and an half; so that there were in my two Drams of *Kermes* twenty-seven Grains of a Salt which I cannot ascertain to be entirely a vitriolated Tartar, because there might have still remain'd in it a Portion of the alkaline Salt, which might not have been acted upon by the Acid of the Sulphur. But this Precipitation of the Mercury into a yellow turbith Colour is sufficient to prove what I have said upon this Point, which is, that the Acid may be disengaged from the inflammable Principle, since in the present Case it quits it, in some measure, in order to unite itself with the alkaline Salt of the *Kermes*. And indeed it is shewn not only by this, but also by the preceding Experiments, that *Kermes* is a Mixture of the Regulus of Antimony, of the gross Sulphur of that Mineral, and of a perceptible enough Portion of alkaline Salt. It is by these Experiments also shewn, that this gross Sulphur may be decomposed by Fusion in a strong Fire, as common Sulphur is decomposed in the Operation for the Spirit of Sulphur. From this Phenomenon a Reason may be easily drawn, why we cannot extract Cinnabar from this Mixture of *Kermes* and Mercury, which is, because in this Operation the gross Sulphur of the Antimony being decomposed, at least in a great measure, by the Force of the Fire, the Acid, which with the Bitumen of the Earth, or, if you will, an oily Principle, compos'd common Sulphur in the entire Mineral, has quitted this fat Substance, in order to unite itself with the alkaline Salt, which greedily receives an Acid, and form a vitriolated Tartar, whilst the rest of the undecomposed Sulphur remain'd united with the Surplus of the Alkali under the Form of Liver. Now so long as the Sulphur remains united with a fixed Salt, it cannot leave it in order to join Mercury, and rise with it in Cinnabar.

There is yet another Experiment which proves this; and tho' I have already given an Account of it in my former Memoir, yet for the sake of Perspicuity I shall here repeat it. I took one Dram nine Grains or eighty-one Grains of *Kermes*, and a Dram and an half of corrosive Sublimate; the Mixture, when well rubb'd together, was put into a Retort. The Butter of Antimony came off first, the Mercury came next, which was follow'd by a little Cinnabar sublim'd to the Arch of the Retort, and by a Sulphur which was sublim'd in yellow Flowers; and which burned upon Charcoal. The Mercury reviv'd weigh'd seventy Grains, so that there were thirty-eight Grains of Acid concentrated in my hundred and eight Grains of corrosive Sublimate, that is, twenty-five Grains and one Third in each Dram, exclusive of the Acid which was united with the Alkali of the *Kermes*, as I shall afterwards shew.

We have therefore no Reason to be surpris'd, if Sublimate is the most corrosive Preparation of Mercury, since the red Precipitate, for Instance, contains only seven Grains of Acid in each Dram. The Mass, almost of a blackish-brown Colour, which

which remain'd at the Bottom of the Retort, weigh'd thirty-two Grains and an half, tho' by its Strata it resembled fus'd Antimony; it nevertheless contain'd fifteen Grains of Salt, since after beingedulcorated with distill'd Water, it only weigh'd seventeen Grains and an half. The Water of this Lotion gave a deep-green Colour to Syrup of Violets, just as a Solution of Sea-salt does, tho' it produc'd its Effect more slowly. It makes a white and plentiful Precipitation with the Solution of Mercury in the Spirit of Nitre. It produces no Change in the Solution of corrosive Sublimate. It precipitates Silver into a Luna Cornea, and at last, crystallizing, it yields a cubical Salt which decrepitates on Charcoal. Thus it is a common Salt, regenerated by the Union of a Portion of the Acid of the Salt, which has quitted the Mercury of the corrosive Sublimate, with an alkaline Basis, and this Basis could be nothing else than the alkaline Salt of the KERMES. This Experiment then is an additional Proof, that this Salt is contained in the KERMES. It is now my Business to determine how much the KERMES contains of each of the three Ingredients which enter its Composition. The preceding Experiments could give me no Satisfaction in this Point, but the following seems to decide the Matter pretty exactly. I levigated twenty-four Grains of the Filings of Needles, which I afterwards mix'd in a Crucible, with a Dram of KERMES MINERAL. The Fusion was made as in the common Process of Regulus, and there were *Scoriae* form'd in it; but during the Fusion there rose to the Edges of the Crucible, which was cover'd, a white Powder interspersed with Needles, which was nothing but Regulus. I separated the Regulus from the *Scoriae*, and found that I had of it ten Grains and an half. When these *Scoriae* were put into Spirit of Nitre, the Iron dissolved, and the sulphureous Part of the *Kermes* continued separate from the Solution of the Iron. I poured off the Liquor, and precipitated the Iron by Galls; and the inflammable Sulphur being separated, I then had ten Grains and an half of pure Regulus in a Lump, and near four Grains of Reguline Flowers, which in all amount to fourteen Grains and an half.

Two Grains at most made up the Reguline Portion, which might have remained in the *Scoriae*, since to me they appeared to contain nothing but Iron, alkaline Salt, and Sulphur. Thus, according to this Experiment, there must have been sixteen or seventeen Grains of Regulus, in a Dram of *Kermes*; thirteen or fourteen Grains of alkaline Salt, and forty or forty-one Grains of common Sulphur.

I here finish the Examination of *Kermes* made by Ebullition, and come to consider a quicker Method of preparing it by Fusion, observing at the same time both the Choice and Proportions of the alkaline Salt, without which the *Kermes* would neither have the Fineness, the Lightness, nor the Colour, which are essential to it. *Mem. de l'Acad. R. 1735.*

Continuation of Mr. GEOFFROY's Observations on KERMES MINERAL.

That no Circumstance might be defective in our Chymical Examination of the KERMES MINERAL, it was necessary to imitate the Practice of some Chymists, who have substituted the Fusion of Antimony with an alkaline Salt, instead of the Ebullition of that Mineral with the same Salt; and this will, at the same time, determine the Proportion of Salt necessary to be used, for obtaining the *Kermes* as fine, beautiful, and well-colour'd, as by means of Ebullition.

In order to arrive at a greater Certainty, with respect to this Proportion, I always used Hungarian Antimony, very finely pulverized, which facilitated its thorough Mixture with the alkaline Salt; and performed all my Fusions in Glass Retorts, that nothing might be lost of those Substances which might separate from the Compound during the Operation. At last, after I had try'd Experiments with Antimony, I substituted instead thereof its Regulus, and put it in Fusion in like manner with an alkaline Salt.

An Ounce of Antimony levigated, and half an Ounce of Nitre fixed by Charcoal, having been well mixed, and put in a Retort, yielded a Phlegm with white and thick Vapours. The Surface of the Matter, after some time, took a red Colour, which was a sure Sign, that the gross Sulphur of Antimony began to unite with the alkaline Salt, and to form a Liver. Afterwards it distilled some Drops of a yellow Liquor, and then there appeared, in the Neck of the Retort, a concrete, volatile Salt, which was as penetrating as common volatile Sal Ammoniac.

If you have a Mind to separate this Salt, you must take the Retort off the Fire as soon as it is formed, or else the Continuance of the Heat, with the succeeding nitrous Vapours, will make it disappear; and then the Liquor in the Receiver, being no longer acid or alkaline, smells of nothing but an Empyreuma. When you have taken away the volatile Salt, in order to make Experiments of it, and to be assured, that it has all its due Properties, if you replace the Retort over the Fire, and augment it by Degrees, the Matter heaves and puffs up, and be-

comes of a lively Red, over all its Surface, and at last some white and farinaceous Flowers arise to the Top of the Retort.

This Proportion of two Thirds of Antimony to one of fixed Nitre, leaves no Regulus in the Bottom of the Retort. This I am assured of, by repeating the Operation five or six times.

If you make use of equal Parts of Antimony and fixed Nitre, for Instance, an Ounce of each, the Mass sooner becomes red upon the Surface, runs more equably in Fusion without swelling, and deposits at the Bottom a Regulus, which, in this Quantity, usually weighs eighteen or nineteen Grains, besides the small Particles which are not reunited to the main Lump, but remain dispersed in the saline and sulphureous *Scoriae* that are found above the little Mass of Regulus.

In performing the same Operation with two Parts or one Ounce of Antimony, and three Parts or an Ounce and half of the same nitrous Alkali, we shall find, for one Ounce of Antimony, forty Grains of Regulus, besides the scatter'd Particles. It is remarkable, that more white Vapours are elevated with this, than with the two preceding Proportions; and also, that more volatile concrete Salt is thence extracted.

That I might render my Account of Processes on the *Kermes* complete, I try'd the Fusion of Antimony with other alkaline Salts, substituted in the room of Nitre fixed by Charcoal. I knew very well, that they all formed a Liver with the gross Sulphur of the Mineral; but it was necessary to know if there were any Difference, and whether the Products were uniform.

First then I made use of Nitre fixed by Tartar: This alkaline Salt had been dissolved, filtrated, and afterwards reduced to a white, dry, saline Mass. Half an Ounce of this I mixed with an Ounce of Antimony, reduced, as I said, to a very fine Powder. After the Phlegm there arose red Vapours, which had the Smell and Taste of Spirit of Nitre, but lasted not long. These were succeeded by white Vapours, and these again by a volatile Salt in a dry Form. When I lifted up the Dome of the Furnace, I perceived, that tho' the Salt which I used had, in common Essays, shew'd all the Signs of a true fixed Alkali, there were yet some Particles of Nitre, which had not been alcalified by the Detonation of that Salt with the Tartar; for they ran into Fusion anew with the Sulphur of the Antimony, and kindled one after another. This Fulmination was much more sensible in another Experiment, where I used four times the Quantity of the Mixture. I observed, moreover, that in the Places where the Nitre fulminated, it left white Spots, which, taken off with Care, consisted of a diaphoretic Antimony. But I took no Care to prosecute my Observations this way any farther.

The Mass which at last remained in the Retort afforded me no more collected Regulus, than in the first Operation which I made, in the same Proportion, with Nitre fixed by Charcoal. When I augmented the Proportion of the Nitre fixed by Tartar, I recover'd a Regulus, as in the preceding Experiments.

Thus these two Alkalies, proceeding both from fixed Nitre, either by means of Charcoal, or Tartar, afford us no perceptible Difference in their manner of acting upon Antimony. This, indeed, ought to be the Case, but it was good to be assured of it from Experiments.

Let us now proceed to the Trial of Salt of Tartar, which we know is the purest of all Salts. When it is well made, we find in it nothing of a foreign or of a volatile Salt, which we almost constantly meet with in Nitre, in whatever Manner it is alcalified. This Salt of Tartar, when I used four Drams of it with an Ounce of Antimony, separated nothing at all of a Regulus; but every time I repeated the Operation with six Drams or an Ounce of that Salt, I obtained forty or fifty Grains of fine Regulus from every Ounce of Antimony.

In this Operation, no volatile Salt is sublimed, because I use a pure fixed Alkali, whereas when I make use of Nitre, fixed either by Charcoal or Tartar, I meet with Particles not alcalified, which still retain all their Acid. These Particles of Nitre, completing their Decomposition, abandon their alkaline Salt to the Acid of Sulphur, which together make a kind of vitriolated Tartar; and the Portion of nitrous Acid, when disengaged from the other Parts of the Nitre, unites with another Portion of the inflammable Principle of Sulphur, and forms with it the volatile Salt which I found, and just now spoke of. Perhaps we might account for this in a more simple way, by supposing something Ammoniacal in the Nitre; and in this Case, the Explication I just now gave of it would be useless.

The Salt extracted by Lixivation from the calcin'd Lees of Wine, after it is dry'd and calcin'd, ought to be a pure Alkali of the same Nature as Salt of Tartar, because it has an Original almost like it; and hence also this Salt, being melted with the Antimony, produced no Alteration. There appeared, as in the Experiment with the Salt of Tartar, a white Vapour, some farinaceous Flowers, and a salt Liquor somewhat urinous, and such as I had obtained from a Process with Salt of Tartar. Both of them produce a white Precipitate in a common Solution of Mercury in Spirit of Nitre, which Precipitate afterwards becomes greyish. As long as I used but one half Ounce

of this Salt of Wine-lees, with an Ounce of Antimony, I found no Separation of a Regulus; but when I put six Drams, it produced forty Grains of Regulus, as the six Drams of Salt of Tartar had done before.

It remain'd to know what Effect the Salt of Pot-ash would produce. Half an Ounce of this Salt, which had been purify'd by a Solution in cold Water, in order to separate it from the vitriolated Tartar which it contained, afterwards dry'd, and then mixed with an Ounce of Antimony, shew'd no Sign of volatile Salt. But the slight farinaceous Dust, which was sublimed, as in the preceding Experiments, was of an Orange-colour, which shew'd some small Difference between this Salt and the other alkaline Salts which I had made use of before. The Liquor, convey'd into the small Receiver, had a weak, volatile Smell, and precipitated a Solution of Mercury to a white Coagulum, which afterwards assum'd the yellow Colour of Turbith. Hence we may conclude, that it contains a little of the Acid of Sulphur, which was disengaged during the Fusion of the Mixture; and that besides these Acids, there is also in the Liquor a small Quantity of an urinous, volatile Spirit, since it makes a white Precipitation in a Solution of corrosive Sublimate: Besides, after Precipitation, it forms upon the Liquor a Pellicle with all the Colours of the Rainbow, which is a sure Mark of a sulphureous Acid. In this Operation, where we took two Parts of Antimony for one Part of Salt of Pot-ash, we obtained no Regulus.

Being sensible therefore, that this Proportion of alkaline Salt, of whatever Kind it may be, afforded no Regulus, which, when that Proportion was augmented, gather'd into a Mass sufficiently sensible, I was willing to try what would happen from the Diminution of that Proportion, and, in pursuance of this Resolution, took but two Drams of Salt of Tartar for one Ounce of Antimony.

There was no sulphureous Matter sublimed, but there were always some white Vapours; and that small Quantity of Liquor which pass'd into the Receiver, was in a slight Degree urinous; the Mass melted in the Retort was half vitrify'd, and the Needles of the Antimony were totally destroy'd. One might compare it to those Livers of Antimony which are prepared for Horfes, in the Preparation of which we have been saving of Nitre, in not allowing the common Proportion, which is of equal Parts of that Salt and Antimony.

To make it appear, that the Comparison is exact enough, I melted an Ounce of Nitre with four Ounces of Antimony in a Crucible. The Nitre, in fulminating, carry'd off from the Mineral a Part of its Sulphur, and even of its Regulus; for, during the Detonation, there was an Elevation of Flowers, and these Flowers were very red. The Detonation being at last ceased, I kept the Mixture for some time in Fusion, and there remained a *Crocus Metallorum*, resembling that which was the Result of my Operation by the Retort: But this last had lost nothing of its Sulphur, nor of its Share of Regulus, because I used an alkaline Salt, which does not fulminate, whereas, in the Experiment which I made in the Crucible, I made use of Nitre which fulminated.

When I augmented the Proportion of alkaline Salts to three Drams, for one Ounce of Antimony, I found in the Retort a reddish Mass nearly of the Colour of Liver of common Antimony, with its interior Substance divided into little Surfaces, striated, in form of Needles, like the Lapis Hæmatites. Thus it appears, that the Proportions of two and three Parts of Nitre, to eight Parts of Antimony, are too weak to open the Antimony to a sufficient Degree; for the Mass which remains after Fusion, contracts no Humidity from the Air. There must be, at least, four Parts of alkaline Salt to eight of Antimony, that the melted Mass may be capable of Solution; and it plainly appears, that it ought to be soluble, and soluble in all its Parts, that it may afterwards be capable of precipitating the *Kermes* by Ebullition in common Water, without any Separation of its Portion of Regulus.

This Proportion being settled as the Standard, throughout all the Experiments which I made, most of which I have suppressed, that I might not make this Paper of an unnecessary Length, I go on to examine the *Kermes* precipitated from Masses capable of Solution.

I boil'd them two Hours, or thereabouts, in two Pints of Rain-water, and when the Liquor was reduced to Half, or a Quarter, I filtrated it. It must be observed, that, in the Time of Boiling, the Liquor had a very sulphureous Smell, and shew'd Signs of something volatile and urinous, as in the simple Operation on the *Kermes*, performed in the ordinary way by Ebullition.

The Liquor, having been filtrated boiling-hot, thro' a double Paper, into a China Basin, into which, by way of Precaution, I had before poured two Pints of boiling Water, for Reasons which I shall declare hereafter, as it cool'd, there was commonly precipitated a red Powder. I decanted and filtrated the cold Liquor, and poured it again upon the Residuum, and boiled them together; I filtrated again, and repeated the Boiling and Filtration three times.

As to the Masses, which contract not the least Humidity from the Air, as those where I put but three Drams of alkaline Salt to an Ounce of Antimony, after long boiling, there was precipitated nothing but a gross Magistery of the Colour of Oker, which is always the Colour of *Kermes*, when it is ill prepared, whether it be by Fusion, or in the ordinary Way, by simple Ebullition. This proves, that the Proportion of three Drams of alkaline Salt to an Ounce of Antimony is no good Proportion.

The Mass which results from hence, is to be look'd upon as a *Crocus Metallorum*, since we also find some Particles which resemble it upon the Filtre. 'Tis true, if we repeat the Boilings, and add a little alkaline Salts to each Boiling, we shall come at last to reduce the whole Mass to a colour'd *Kermes*; but the Work would be as long as what I spoke of in my preceding Memoir, and the Chymists, who prepared the *Kermes* by Fusion, had no other View than to shorten this Labour.

However, tho' this Proportion be not sufficient to reduce Antimony to a *Kermes*, it opens it enough to render it of some Service in Ptisans made of the sudorific Woods, in which it is customary to boil crude Antimony ty'd up in a Knot, without considering that it can communicate nothing to the Decoction, if it be not first open'd by some acid or alkaline Salt. For this Reason a famous Empiric, whose Ptisans were in great Repute during his Life, prepared his Antimony by Fusion with Salt of Wormwood, and then boiled it with the Woods.

If the Liquor be too much evaporated before Filtration, there is precipitated, during Refrigeration, a gross Matter like a grumous Mucilage; because the *Kermes* is not dispersed in a sufficient Quantity of Liquor to admit of its precipitating by Degrees; besides the Concentration of the alkaline, saline, sulphureous, and reguline Liquor in this Case, the great Quantity of Sulphur, collected into too small a Space, is much more disposed to reunite, and the Molecules of this Sulphur, approaching one another, form, in spite of Lotions, a kind of resinous and shining Covering upon the Mass of these Magisteries, which is very perceptible after drying.

But the Proportion of alkaline Salt being such as is agreed, and such as my Experiments have taught me, there is no greater Quantity of Liver formed than what is necessary to divide the Reguline Part, to reduce it into Particles fine enough to pass thro' the Pores of the Filtre, and to keep those Particles clean and free from that glutinous Pellicle, which would reunite them in gross Molecules, and render the Precipitation grumous. Besides, if there be too much alkaline Salt, the Excess of that Salt reduces the Regulus; and this Regulus, so reduced, is purely lost, as to the *Kermes*, the Preparation of which we have in View.

In order to remedy this Inconvenience, of the too sudden Coalition of the Particles of the *Kermes*, I put, as I have already said, boiling Water into the Bowl placed under the Filtre, that if the Evaporation of the Liquor has been carry'd too far, the Salt, which by that means alone would be too much concentrated, may extend itself afresh in this warm Water, and become more capable of keeping the Parts of the Antimony, which it has attenuated, at a Distance from each other. This Method I propose, retards the Condensation occasioned by the Cold of the external Air, which, without this, would be too sudden. And, indeed, Experience has convinced me, that, by this means, the *Kermes* was precipitated much finer, and of a much more lively Colour, than when I put no boiling Water into the Bowl. Besides, the *Kermes* must be dry'd in the Shade, because a too brisk Heat makes the Particles of the Sulphur coalesce, and form the above-mentioned Varnish.

I shall not give the Preference to any one of the Salts in particular which I employ'd in these Processes of the *Kermes* by Fusion, because, with each of them, I procur'd a Magistery equally beautiful, when I us'd them in the same Quantity.

I have also observ'd, that whatever alkaline Salt I employ'd, whether in the Preparation of the *Kermes* by Ebullition, or by Fusion, there was always a considerable Quantity of white Earth, separated from the Mixture when dissolved in boiling Water. I have spoken of this Earth in the former Part of this Memoir.

From all I have said, it should seem, that the precise Quantity of alkaline Salt, which must be mix'd with two Parts of Antimony, in order to reduce it to a fine *Kermes* by Fusion, cannot be discovered but by making Experiments. I confess it was in this Manner that I arriv'd to a Certainty about it; but I might have also discover'd it, by reflecting on the Analogy which this Process bears to the common Manner of preparing the *Liver of Sulphur*; which, if well made, ought to dissolve Gold by Solution, or render it, if I may so speak, soluble, so that it may pass thro' the Filtre, when the Mixture has been dissolved in Water: Now this Proportion of a Liver of Sulphur, well prepared, consists in equal Parts of alkaline Salt and Sulphur mix'd together; and the entire Mass, resulting from the Mixture, dissolves totally in Water, without any Part of the Sulphur separating from it. The Truth of this is well enough known; but however exact the Analogy, or, rather, the Relation

lation between these two Processes may be, it was still necessary to know the precise Quantity, or at least very near so, of the inflammable Sulphur that Antimony can contain. This can no otherwise be done, than by finding by different Experiments, what Quantity of common Sulphur must be used in order to restore a purified Regulus to an Antimony richly furnished with Needles. This Attempt I myself made; however, I gave a Detail of my several Essays for that Purpose. By making all my Experiments in Retorts, that I might lose none of the Mixture, I was assur'd, that by mixing two Drams of Sulphur with one Ounce of Regulus, we shall find a Piece of Antimony regenerated, with beautiful Needles, and which does not differ from the best chosen *Hungarian* Antimony, without any Part of the Sulphur being sublim'd, or raised to the Neck of the Retort, which happens when a larger Quantity of it is used. There is still another Method of ascertaining the Proportion of Sulphur contained in Antimony, which I shall reserve for another Memoir, where I shall lay down the Method of trying Antimony, and the distinguishing Characteristics of its Purity.

Not satisfied with having regenerated the Regulus into a true Antimony, by a just and exact Proportion of Sulphur, resembling a Piece of well-chosen *Hungarian* Antimony, to which I chose to compare it; I made use of this regenerated Antimony, in order to make *Kermes* by Fusion: I took an Ounce of it reduced to Powder, to which I added half an Ounce of Nitre fixed by Charcoal; and I had the same Sublimations, and the same Masses, I used to have, when I made use of *Hungarian* Antimony. All the Difference I could possibly observe was, that the Substance was more difficultly fused, and the Mass was of a more brownish Colour; but when I dissolved it in boiling Water, a Magistery precipitated from it almost as beautiful as when *Hungarian* Antimony was used.

After the entire Precipitation of the *Kermes*, the Liquor or Lixivium yielded me a white Earth perfectly like that before-mentioned.

That I had given the Regulus the Proportion of Sulphur, necessary to regenerate it into Antimony, is proved from this, that if there had not been a sufficient Quantity of it, I should have found a Regulus in melting this Antimony with half the Quantity of alkaline Salt; because an alkaline Salt does not destroy the Regulus when it acts alone. If, on the other hand, there had been too much Sulphur, its Excess would have been sublim'd in Flowers during the Regeneration. Now in order to shew, that the alkaline Salt alone does not attack the purified Regulus, and cannot separate from it a Magistery like the *Kermes*, let it only be observed, that if we melt Powder of Regulus mixed with fixed Nitre, the unfixed Part only of that Salt acts by fulminating gently, and reduces the Parts of the Regulus, which touch it, into a Powder of a yellowish Colour, which is a Species of *Diaphoretic*; the Remainder of the Regulus is fused, and rises above the Salt in little Drops, which being collected by the Solution of the Salt in the boiling Water, amounted almost to the Weight of the Regulus employ'd; what is wanting of it, is that Part of the Regulus which has been reduced to a *Diaphoretic* by the momentaneous Detonations; and from the Solution of the Salt, not one Particle of *Kermes* is precipitated. The whole Process is finished without any sensible Loss of the Regulus, if, instead of the fixed Nitre, we employ a purer alkaline Salt, such as that of Tartar: But the momentaneous Detonations prove, that in the common Process of the Regulus, the Regulus itself, however well purified it may have been by reiterated Fusions, still contains a considerable Portion of sulphureous Matter, more subtle indeed than the gross and inflammable Sulphur separated from it; but which is still sufficient to make the Nitre, which is not alcalized, fulminate; and, in all Probability, this sulphureous Principle is the Vehicle of the rigid Parts of the vitrifiable Earth, and assists them to stimulate and twitch the nervous System, and thereby produce Vomiting.

Having then shewn, that the alcalized Part of the fixed Nitre does not attack the Regulus during the Fusion, we have no Reason to be surpris'd, that the *Deliquium* of the same does not act upon this Regulus in the Ebullition, and that from a Pound of Regulus we can scarce separate and disengage one Grain of *Kermes*.

From all I have said, I conclude, that in order to procure *Kermes* by Fusion, we must employ a very pure fixed alkaline Salt; that the Proportion of that Salt is, one Part to two Parts of Antimony reduced to a fine Powder, that they may be the more intimately mixed; that the Mass drawn from the fused Mixture after it is reduced to a Powder, when hot, ought to be put into boiling Water, and remain in it for an Hour or two, before it is filtrated; that there ought to be boiling Water in the Bowl which receives this saline and antimonial Liquor, for the Reasons above-mentioned; that every Ounce of Antimony, thus treated, yields, after three Ebullitions of the Mass dissolved in Water, from five Drams sixty Grains to six Drams thirty Grains of *Kermes*, almost as beautiful as that which is yielded by Ebullition, according to the Process published by the

King's Order; that it is not nevertheless so smooth to the Touch, and that it wants that downy Softness, which is always the distinguishing Characteristic of that which is prepared simply by Ebullition: As to the Effects both of the one and the other, considered as a diaphoretic Medicine, I believe them perfectly alike.

I have said, in the Beginning of the first Part of this second Memoir, that from Antimony treated by Acids, we might have a Remedy, which, if exhibited in a small Dose, should produce the same Effects with the *Kermes*: As the Preparation of it is very easy, it might be substituted in its room, especially in the Hospitals. In this Case, Acids act upon this Mineral in the following manner:

I took for my Experiments *Hungarian* Antimony, split into Laminæ, according to the Direction of its Needles, that I might the better observe the several Phenomena that should occur.

Neither the white and concentrated Oil of Vitriol, nor that which has been weakened and diluted with common Water, act, when cold, either upon these Laminæ of Antimony, or upon the Pieces of Regulus; this Acid only darkened the Lustre of the shining little Surfaces of the Regulus. But if we put into a Retort half a Dram of the like pure Regulus, and pour upon it four Parts or two Drams of white and concentrated Oil of Vitriol, with the first Degree of Heat, the Oil of Vitriol will become brown, a suffocating sulphureous Smell will arise from it, which will augment in proportion as the Regulus is penetrated and corroded by the Acid; for there is no true and real Dissolution happens to it.

By augmenting the Fire, an apparently mucilaginous Matter is separated from it; and when the Oil has begun to boil, the Regulus is reduced into a white saline Mass, just as it happens to Mercury in the Process for Turbith Mineral; a true Sulphur is sublimed, or raised to the Neck of the Retort; and lastly, all the Oil of Vitriol passes into the Receiver, and leaves in the Retort the Regulus reduced to a white, tumified, and saline Mass: The Fire being extinguished, I separated the Retort from its Receiver, and as soon as the external Air enter'd, there burst out a sulphureous Vapour as white and thick as the Steam of that Liquor, which is prepared with corrosive Sublimate and Tin.

The white and saline Mass remaining in the Retort weigh'd seventy Grains; so that it had augmented thirty-four Grains, which must have come from the vitriolic Acid which was concentrated in the Regulus; and the Oil of Vitriol, conveyed to the Receiver, had lost almost as much, and had, besides, become considerably less acid. This saline Mass to me appeared to be too much of a caustic Nature for internal Use.

I did not perform this Experiment with Antimony, because it is described in the Observations of *Frederic Hoffman*, and because I could say no more concerning it than he has there done.

The purest Spirit of Salt does not act sensibly either upon Antimony, or its Regulus; but it disengages, tho' slowly, from Antimony reduced to small Pieces, some light sulphureous Flakes.

The Case is not the same with the Acid of Nitre; it attacks by little and little these Laminæ of Antimony, and there arise from it a great many Bubbles of Air; the Spirit of Nitre, during this Fermentation, gradually assumes a greenish Colour with a faint Cast of Blue; and if more of this acid Spirit than is necessary is not put into the Vessel, it is almost wholly absorb'd by these Laminæ, which it penetrates, and separates from each other, according to the Direction of their Needles. If there is too much of this Acid, that is, if it swims above the Antimony, it destroys these Laminæ, and reduces them to a white Powder.

But if the Absorption of this Acid is slowly made, we discover among these distended Laminæ, little saline and transparent Crystals, which grow gradually in the same manner with the *Pyrites*, in which we often perceive little Crystals of Vitriol, which have not as yet assumed very determined Shapes and Figures. These little Crystals of the antimonial Laminæ are intermixed with the yellow Parts, which, being carefully disengaged, burn like common Sulphur.

I used all my Endeavours to separate a certain Quantity of these little Crystals, but my Attempts were in vain; for they disappear soon after they are formed, and are apparently cover'd with a white Powder or Magistery, which is successively form'd in proportion as the Acid of the Nitre disengages and separates the spiculated Particles of the Antimony. But though I cannot shew these little Crystals formed by the Union of the Spirit of Nitre with the Antimony, the Formation of that nitrous antimonial Salt is not for that Reason the less real. Besides, I find the like Appearances, when I substitute the Regulus instead of the Antimony itself. A good deal of Attention is nevertheless requisite to separate these Crystals; as soon as the Air acts upon them, they lose their Transparency; and if the Regulus is allow'd to reduce itself into a Magistery to a certain Degree, they are no longer distinguishable.

Thus, in order to observe these Crystals, it is necessary to break the Regulus into Pieces, to put these Pieces into a small glass Vessel, and pour Spirit of Nitre upon them, to the half of their Height only, that they may not be all covered by it. This Acid penetrates them, makes them exfoliate into white Scales; and it is upon the Surfaces of these Scales that these white unpolished Crystals are formed. These Crystals grow and increase, in the Form of Collyflowers, in the Space of two or three Days. It is then necessary to withdraw them, that they may not be confounded in the white Magistery, which is still forming itself, and which would prevent their being distinguished.

The Spirit of Salt, which alone does not appear to attack the Antimony, yet reduces it to a white Magistery, when Spirit of Nitre is added to it. But the Mixture of these two Acids with this Mineral produces no Appearance of Crystals. The Laminæ of the Antimony soon become yellow, and very foetid; nitrous Vapours rise from them, and yet the acid Liquor does not seem to retain a great many Parts of the Mineral; or, which amounts to the same, it very quickly precipitates what it had retain'd; after which, Oil of Tartar, poured upon it, no longer produces any Precipitation.

Thus 'tis not enough to say with some Chymists, that Aqua Regia is the Dissolvent of the reguline Part of the Antimony; we must add, that the Aqua Regia ought to be poured upon the Antimony and its Regulus in large Quantities. Besides, the Aqua Regia, which produces this Dissolution, ought to be composed of four Parts of the Spirit of Nitre, and one Part of the Spirit of Salt. The Spirit of Nitre, converted into Aqua Regia by Sal Ammoniac, does not dissolve without Precipitation, as this Aqua Regia does.

In two Ounces of an Aqua Regia, composed as I have now said, I dissolved a Dram of Regulus broken in small Pieces; and that the Dissolution might be made without a Precipitation, I was oblig'd to wait till one small Piece was totally dissolved, before I put in another. The Experiment takes up a great deal of Time; but 'tis reasonable to have recourse to all Means, in order to satisfy ourselves of a Fact which may be contested. 'Tis necessary I should also observe, that this Liquor, in proportion as it is impregnated with the Regulus, assumes a beautiful gold Colour, which it insensibly loses by the Evaporation of the white Vapours which are continually rising.

The same Aqua Regia, used with the same Precautions, also dissolves in Antimony the reguline Part, which is in the Pieces of this Mineral, when thrown into it one after another. The Dissolvent having carried off this reguline Part, the remaining Pieces of Antimony, becoming by that means lighter, swim above. If we take them off, and examine them, we shall see, that they are Part of the Sulphur which the Antimony contained.

Hitherto I have found nothing but this Aqua Regia, composed, as I have said, of four Parts of the Spirit of Nitre, and one Part of the Spirit of Salt, employ'd to the Weight of sixteen Drams upon one Dram of Regulus, and upon a somewhat less Weight of Antimony, which occasions a total or complete Dissolution of the Regulus; whereas the Spirit of Nitre, made with Sal Ammoniac, quits, and soon allows the small Quantity of Regulus it had dissolved, to precipitate, as the late Mr. Lemery has observed.

Mr. Lemery made many Experiments with this Magistery; and I am surpris'd the Use of it is not continued in Hospitals, and Country Places, where this Remedy, which costs little, and which is easily prepared, may be substituted in the room of a great many other antimonial Medicines, more difficult to be prepared. I have often observed, that the Precipitate of Antimony produced by the Spirit of Nitre, when well edulcorated by several Affusions of boiling Water, purges and vomits like the *Kermes*, when given in a Dose of three or four Grains. I have also observed that prepared by common Aqua Regia, when well washed, to operate by Stool, if given in the same Dose; and that a Grain of it, given for a Dose, operates as a Diaphoretic. Many poor Peoples Children, attack'd with Disorders, Obstructions and Fevers, have been first relieved, and afterwards thoroughly cured, by taking a Grain of this Medicine for a Dose. Besides, it may be swallowed with less Reluctance than any other Preparation which should be either unpalatable, or more bulky. *Memoires de l'Acad. Royale, 1735.*

Continuation of Mr. Geoffroy's Remarks on ANTIMONY.

In the Memoir which I read last Year upon the *Kermes*, I oblig'd myself to examine what might be the Quantity of common or inflammable Sulphur, which the different Antimonies, which we meet with in *Paris*, contain; and, at the same time, to determine the Quantity of pure Regulus, which might be expected from that Mineral by Operations attended with less Loss, than in the ordinary Methods.

Such an Inquiry is the Subject of this Memoir, and that you may know before-hand what I design to illustrate, my Business shall be,

1. To reduce Antimony to a Calx, as much desulphurated as

possible, in order to know, by the Diminution of the Weight, how much Sulphur is evaporated, I mean inflammable Sulphur.

2. To make it appear, that every Calx of Antimony, that is well exhausted of inflammable Sulphur, is scarce any more than a Regulus; and that what is not such is an Earth, which may be regarded as foreign to that Mineral, and a Remainder of Sordes, from which it was not thoroughly purg'd in the Furnace.

3. To propose a Method whereby we may obtain a much greater Quantity of Regulus from Antimony, of whatever Kind it be, than by the way of Process so celebrated by M. Stahl, and by those that have copy'd it from him. And,

4. lastly, To teach a way of purifying the Regulus, without an Addition of Salts, and with inconsiderable Loss.

All this supposes long Details, but then these Details will be accompany'd with Observations which will render them the more supportable. And tho' the Means which I use may not be proper for those who perform these sorts of Operations by the Great, and have nothing in View but to work quick, and to get Money by it, yet they who prefer Exactness before such Views, will, perhaps, thank me for my Labour.

We commonly meet with three Sorts of Antimony in this Place (*Paris*): One comes from the old Mine of *Auvergne*; this, as it was formerly worked, was so salt, and so little depurated, that it was used in nothing but gross Preparations, and it was almost impossible to make the diaphoretic Antimony of it. This grew out of Use, and the *Antimony of the new Manufacture* became in Repute, which, for Purity, may vie with the choicest *Hungarian* Antimony. If the Undertakers, who work that Mine, continue to furnish us with as good Antimony, as that upon which I have performed my Operations, and if the Mine be rich, we may be almost sure, that there will be no Occasion to get it from *Hungary*, which would be a considerable Advantage to the Kingdom. Those Authors who have written best upon Antimony, generally say, that this Mineral ought to yield about half its Weight in a Regulus; but it is possible to obtain a far greater Quantity. This I shall prove in the Course of this Memoir, by describing the different Methods which have been most successful in collecting the Reguline Part of Antimony into one single Mass.

While I was in the Course of my Essays on the Reduction of the various Preparations of Antimony, I discover'd by chance a new Phosphorus, being a Preparation of Antimony, which fulminates with a Noise and Explosion, as soon as it comes into Contact with the Air; this I try'd by repeating the Operation several times one after another, and always with the same Success. I believe the Invention is new, and I shall give it as such at the End of this Memoir.

According to the Order of operating, of which I have already given an Account, I begin with the calcining of Antimony. I have nothing to add with respect to the ordinary Method of Calcination, except that the finer this Mineral is pulverized, the better does the common Sulphur evaporate from it. The Reason of this is obvious: I always made use of it thus prepared: As I was to compare the Weight and Colour of the Calxes of different Antimonies, it was necessary for me to fix an equal Time to each Calcination of an equal Quantity of every one of those Antimonies.

I found by Experience, that ten Hours was the most convenient Time for the perfect Calcination of twelve Ounces of this Mineral pulverized. The Proportion of Fire was not so easy to be fixed; however, I came as near to it as possible, by using in every Calcination, the same Vessel, the same Furnace, and the same Quantity of Charcoal, and employing the same Operator, who always kept stirring the Powder of the Antimony, to prevent it from running into Lumps.

It may be proper to observe in this Place, that the Vapours of Antimony are not so dangerous as is generally imagined, and as they would really be, did Antimony contain an arsenical Sulphur, as most of the *German* Chymists pretend; for the Person whom I employ'd in this Work, perform'd above fifty Calcinations, almost continually one after another, without feeling the least Inconvenience, tho' the Chimney, under which the Furnace was placed, was none of the best for drawing of Smoke.

The different repeated Calcinations of *Hungarian* Antimony, of which I always took the Weight of twelve Ounces, being the Quantity which suited the Capacity of my Vessel, constantly reduced that Mineral to nine Ounces two Drams, and sometimes to nine Ounces three Drams.

The same Number of Calcinations of the old Antimony of *Auvergne* made greater Variations. I had Calxes which weigh'd ten Ounces wanting twelve Grains, some ten Ounces one Dram, others ten Ounces three Drams. I also bought this old Antimony, which I calcined, from different Shops. These Variations do not proceed from the Time of the Calcination, which was always the same, nor from the Degrees of Fire, as you may see by the Precautions which I always took to keep it nearly equal. I can impute them therefore to nothing but the greater or less Impurity of those different Antimonies purchased of different

ferent Druggists; for tho' they all came from the same Mine, 'tis plain they were smelted at different Places. By *Impurity* here, I mean, that Portion of Sordes which is more considerable in them than in those Antimonies which we call pure, and remains fixed in the Fire without diminishing its Weight; because, being a pure Earth, it contains no Matter for Evaporation.

The Calcinations of the Antimony of the new Mine, or new Manufacture, reduced the Calx to nine Ounces two Drams and an half, nine Ounces three Drams, and nine Ounces four Drams; so that I may with Reason affirm, that it was almost as pure as *Hungarian* Antimony. Besides, the Calx, when stripp'd of its Sulphur, is of a light-grey-ash Colour, like the Calx of *Hungarian* Antimony, whereas that of the old Antimony of *Auvergne* is of a much more brownish Colour: The Purity of the Antimonies we are now examining, is known from what I have now said, concerning the greater or less Loss they sustained during Calcination; the more it loses, the more it contains, *ceteris paribus*, of common Sulphur, which, as is sufficiently known, is an essential Ingredient in the Composition of this Mineral; and the less it loses, the more it contains of heterogeneous Parts, which do not yield to the Action of the Fire in Calcination; that is, its Fusion has been ill performed, or the Mine from which it has been taken, has been very poor. There is no Occasion for my enlarging further on this Observation. The thing required was to arrive at a Certainty, that these Calxes of Antimony were as thoroughly divested of Sulphur as they could possibly be; for this Purpose I calcined them with Nitre; their Detonation was more languid than that of the Regulus treated in the same manner, for the same Space of Time, by the same Fire, and with the same Salt. The Mass thrown into the Water yielded me a diaphoretic Mineral full as white as the Diaphoretic prepared with Regulus, and almost in the same Quantity, which Circumstance contributes in some measure to prove, that the Calx of a good and well prepared Antimony is all Regulus; and that, in order to make it so, nothing is wanting but to collect its divided Parts.

These same Calxes with corrosive Sublimate, in the Proportions ordinarily employed to make Butter of Antimony, are with Difficulty attack'd by the Acid of the Sublimate.

The Translation of this Acid from one Matter, so as to lodge it upon the other, is so difficultly performed, that only a very small Quantity of Butter of Antimony is distill'd: The Remainder of the Sublimate is sublim'd afresh. There arises neither Cinnabar nor Sulphur, because these Calxes are entirely divested of the latter of these. But why, may one say, does not the Sea-salt act upon this Calx? Why is not the Translation I have spoken of, made? I answer, that this happens, because in calcining the Antimony there is a Commencement of Vitrification, and because the greatest Quantity of the Particles of the Calx being covered with a Stratum of Glass, the Acid slips over them without finding any Pores at which it may enter; and if it has reduced any small Portion of it to Butter, 'tis because this small Portion has not been vitrified. This may also probably happen, because a Portion of the Acid of the Sulphur is concentrated in the Calx, in which Case the Acid of the Sea-salt could not attack it.

By the common Method of preparing Regulus, too well known to stand in need of a Description here, the late Mr. *Lemery* extracts six Ounces one Dram of it from each Pound of Antimony. Mr. *Stahl*, in his Tracts, says, that a fourth Part of it is only extracted when we use equal Parts of Tartar, Saltpetre, and Antimony; but that the Product of the Regulus is more considerable, if to six Ounces of Antimony we add five Ounces of Nitre, and six Ounces of Tartar. Then he subjoins his Discovery, which consists in separating or reducing the Antimonial Powder from the Scorizæ, by casting them into the Crucible with half their Weight of Nitre, in order to make a gentle Detonation, and by throwing Powder of Charcoal upon them immediately after. We shall, continues he, by this second Operation, have another Regulus, which shall almost be equal in Weight to the Regulus first extracted from it. But he does not precisely determine the Weight of that first Regulus: Besides, this Process is difficult; there are two Detonations, and consequently some Loss. The Sulphur is so intimately united with the crude Antimony, that in these Detonations of the Nitre with the Tartar, especially in the first, a considerable Portion of the Antimony is carried off partly in Smoke, and Part of it entire, whilst the other Particles stripp'd of the Sulphur which they contained, by Detonation, collect themselves into a Regulus.

I myself went otherwise to work, and quitting my Supposition, that the Calx of Antimony is a Regulus divided into extremely fine Particles, my Business was only to find a Dissolvent or Reductive, which might at one and the same time restore to the Particles of the Calxes, too much stripp'd of the Phlogistic, that inflammable Principle in which they were defective, and reduce itself into a Flux, liquid enough for allowing these Particles to pass through it easily, and precipitate below it by their proper Weight; and that, being thus precipitated, the Reunion should be made by Fusion. I have tried

the reductive Salts, the Oils, the Fats; but nothing has succeeded so well with me as black Soap. This Reduction is also made by Charcoal; for nothing ought to be omitted, and Charcoal is even a Reductive employed in the Preparations of Regulus in great Quantities. As for the Oils and Fats, they reduce also; but they ferment too much, and inflame; and as they are reduced to a Coal, no fluid *Scorizæ* are form'd; what floats above the Antimony in the fluid Part is rugged and coarse, and the fused Mineral being naked, the Evaporation of it is carried on with a considerable Loss.

Nitre too quickly carries off the Sulphur of the Antimony in Detonation: Besides, 'tis known, that it reduces it to a Diaphoretic; and we cannot afterwards reduce this Diaphoretic into a Regulus, without a great deal of Loss to the whole Mass of the Antimony, with which the Operation has been begun.

Salts already alcalized, when fused with the crude Antimony, reduce it into that Form which we call *Kermes by Fusion*, or *Golden Sulphur of Antimony*; if they are fused in equal Quantities with the Calx of the Mineral, they reduce it to a Species of Glass.

Red Tartar, or white Soap, may be employ'd; but I have found, that neither the one nor the other collected so much of the Regulus as black Soap. I wave an Account of the Essays of this Kind I have made, in order to avoid a superfluous Prolixity: I shall then confine myself to this Reductive. 'Tis well enough known, that it is composed of a strong and whitest Lixivium of Pot-ash and Quick-lime, united by Ebullition to Lin-seed Oil, Rape Oil, Hemp-seed Oil, and sometimes even to Fats. I am not indeed the first who used this Method; for I have seen in the *English* Edition of Sir *Kenelm Digby's* Chymical Experiments, that this Philosopher recommended Soap and Tartar, for the Reduction of a Regulus of Antimony, which he calls *Spirituos*; and which, according to him, is the precipitated Butter of Antimony, and the Mercury probably reunited; for he says no more of it. Whatever the Case is, if it was a Reduction of the *Mercurius Vita*, which he was talking of, the Soap was sufficient without the Tartar.

But since black Soap is so good a Reductive of the Reguline Part of Antimony, it may be asked, why this Mineral is converted into a Calx in order to reduce it afterwards, and why the Powder of Antimony is not mixed all at once with the Soap; since by this means the Operation would be less tedious: As I was apprised before-hand of this Objection, I prepared myself to answer it by an Experiment, which proves, that crude Antimony does not yield; even with this Reductive; all the Regulus that may be separated from it by my Method. I took two Ounces of *Hungarian* Antimony, like to that which I had reduced to a Calx; when reduced to a fine Powder, I mixed it with two Ounces and an half of black Soap, and had a Mass of Regulus well reduced, and very clean, but it only weighed two Drams six Grains; so that two Ounces forty-eight Grains would be yielded by each Pound of Antimony: By the Process of Mr. *Stahl*, seven Ounces and an half, or at most, eight Ounces, can only be extracted; and by mine, I have very near ten Ounces, as may be seen afterwards. Thus the Soap, which well enough reduces the Calx of the Antimony, cannot in the least separate the Regulus of that Mineral when crude.

The Scorizæ which float above this small Part of the collected Regulus, are, when cold, a sort of black compacted Glass, which resembles Jet, melts at the Flame of a wax Candle, like Bitumen, and diffuses a sulphureous Smell: These Scorizæ, which do not become moist by being exposed to the Air, would have been of the Colour of Liver of Antimony, if the alkaline Salts, which are contain'd in the Soap, had only been employ'd: But in using the Soap, we see its oily Part must burn, unite itself to the Acid of the Sulphur of the Antimony, and with it form a Bitumen: The alkaline Salt is covered and wrapt up in it which so defends it, that the Action of the Air cannot dissolve it. What I have now said, is sufficient to prove, that there is more Advantage in reducing the Calx of Antimony into a Regulus, than in attempting the Reunion of the Reguline Parts in crude Antimony.

The Process of *Kunkel* is not more advantageous than that of Mr. *Stahl*. He takes a Pound of the Calx of Antimony, which he reduces into a Paste with Suet, or any other Fat, and Charcoal. He puts the Whole into a Crucible slightly covered, till nothing rises in Smoke; after which he gradually puts into it a Pound of Nitre; by this means we have seven Ounces three or four Grains of a very beautiful Regulus; but I draw a great deal more from it by the Soap: *Kunkel* joins to the Fats, which already form of themselves a slight Coal and Soot, another grosser Charcoal, which obliges him to add Nitre to it, in order to destroy these two different Charcoals by Fulmination: This Nitre melts, alcalizes, and becomes fluid: The Grains of the Regulus, already reduced by the oily Principle, easily precipitate through that Salt when in Fusion, which they could not have done through the Scorizæ, which would have remained in an almost solid Mass, without the Addition of the Nitre; for every one knows, that the whole

whole Art of Reduction consists in reuniting into weighty Molecules the too much divided Particles of the Metals, and in keeping these weighty Molecules in a liquid Medium, thro' which they are capable of passing.

But the Nitre, becoming alkaline, has not, in fulminating, carried off all the fat Part of the Mixture; it becomes therefore *Liver*, with what remains of the Sulphur; and under this new Form, it converts into *Kermes* the smallest Parts of the Regulus, which it corrodes. If this same Salt prevails over the Sulphur, it reduces another Portion of the Regulus into a *Diaphoretic*. Thus two Subtractions must be made from the Quantity of Regulus, which should have been collected at the Bottom of the Crucible, without taking into the Account what rises in Smoke during the Operation, which is sufficiently long, and during the Detonation.

We have formerly seen how much Calx, without Sulphur, twelve Ounces of the different Antimonies I calcined, yielded: 'Tis therefore unnecessary to repeat in this Place, what was said on that Occasion. I reduce this Calx with the Soap in the following manner:

I take two Ounces of every one of these Calxes, of which I form a somewhat liquid Paste, with an Ounce and an half or two Ounces of black Soap. I put this Mixture by little and little into a Crucible, which I make moderately red-hot in the Middle of burning Coals, in order to burn the Soap slowly, to give the Oils a greater Propensity to imbibe every Part of the Calx of the Antimony, and to avoid the Loss of the Reguline Particles, which, being then very much divided, would rise so much the sooner into Smoke, if the Fire should happen to be too hot at first.

When the whole Mixture is put, by little and little, into the Crucible, and when I perceive, that the Fat of the Soap is burnt, I cover the Crucible: Then I apply a very hot Fire, in order to put the whole Mixture in Fusion. It is, at first, heard to ferment or boil considerably; but at last that Noise ceases: Then I allow the Crucible to become cool in the Middle of the Coals; and find, upon taking off its Cover, congeal'd Scorizæ, with Circles of different Colours. The Middle of these Scorizæ is sometimes rough, having Cavities, in which we may discover white and saline Vegetations.

Then I break the Crucible, and find a Lump of Regulus well collected; which is not indeed, as yet, pure, but which must be purified, as I shall afterwards direct; and which, internally, appears to be an Assemblage or Collection of small shining Grains, as yet not sufficiently reunited, nor placed in a sufficiently compact Arrangement, for forming *Lamina*, or little Surfaces.

Two Ounces of the Calx of the Antimony of *Auvergne*, of the new Company, yielded me, in three repeated Fusions, always the same Weight: An Ounce five Drams and some Grains of the imperfect Regulus, I have just now mention'd.

Two Ounces of the Calx of the old Antimony of *Auvergne*, which I had lying by me useless since 1712. when melted also with two Ounces of black Soap, yielded only an Ounce and four Drams of Regulus.

Other Antimonies of the same Mine, bought at different Shops, yielded me an Ounce and five Drams, all but twelve Grains; but it was less pure than the former.

Lastly, the Calx of the *Hungarian* Antimony yielded an Ounce four Drams and forty-eight Grains of a purer Regulus than that I just now mentioned, having, on its Surface, Furrows in the Form of Fern; and, internally, some little Surfaces already well formed.

When I put these Lumps of Regulus, as well cleaned of the adherent Scorizæ as they possibly could be, into a *China* Bowl full of pure Water, I observed a very strong Ebullition, which, in some of the Lumps, lasted for twenty-four Hours: Being surprised at this, I discovered, with a magnifying Glass, that there were in the Regulus little Holes, imperceptible to the naked Eye. I endeavoured to find out what might be the Cause of this strong Ebullition, and at last found, that it was a Portion of the Quick-lime, precipitated by its Weight with the Reguline Parts, which occasioned this Ebullition; because it had been calcined afresh with the Regulus, in a State of Fusion, at the Bottom of the Crucible. If it should be asked, whence this Earth, of the Nature of a Calx, proceeds; I answer, 'Tis from the Soap; for the acrid Lixivium, with which it is made, is composed, as I have said, of alkaline Salts and Quick-lime.

The above Reductions, being made in larger Quantities, yielded Products, in proportion, differing very little; so that I can say, that one Pound of *Hungarian* Antimony, reduced, by Calcination, to twelve Ounces three Drams and twenty-four Grains of Calx, furnished me with nine Ounces six Drams and fifty-four Grains of Regulus, which Quantity is not much short of ten Ounces; that the Fire carried off from that Mineral, when crude, during Calcination, three Ounces four Drams and forty-eight Grains of inflammable Sulphur; that the twelve Ounces three Drams and twenty-four Grains of Calx ought to be looked upon as a Regulus, mixed with a Portion of Earth; and that, without this superfluous Earth, all the Calx would be

converted into a Regulus, with a little oily or inflammable Principle. This Supposition, however, cannot amount to a Certainty, except we could be sure of the Quantity of the Regulus evaporated during the Fusion, which to me appears impossible; but it is of no great Importance, whether what is wanting of the Weight of the reduced Regulus, compared with the Weight of the Calx of the Antimony, was an Earth reduced to Scorizæ by the Salts of the Soap, or was evaporated: It will, however, follow, from my Experiments, that by the Method of calcining Antimony into a Calx, and reducing this Calx into a Regulus by Soap, I extract more Regulus than by the Methods of *Stahl* and *Kunckel*.

I now come to consider how this Regulus may be purified without Loss: For this Purpose I use a Method, which, I believe, is entirely new; at least, I know of no Author who has made mention of it. I take the Regulus, well clean'd of the Scorizæ: I reduce it to a Powder, and mix it with half its Weight of the Calx of Antimony, as well purified from the Sulphur as that of which I made that Regulus. I fuse them together, in a cover'd Crucible, till the Scorizæ, which ought to float above the Regulus, are in a smooth and even Flux. The Result of this is, that a Lump of Regulus, weighing, when impure, one Ounce five Drams and some Grains, and which was procured from two Ounces of the Calx of Antimony of the new Manufacture, was reduced to one Ounce three Drams and sixty-two Grains of pure Regulus; that is, with $\frac{7}{8}$ of Loss. The Calx reduced to Scorizæ, and which covered the Regulus, became an opaque Glass, a Sort of *Enamel* of a greyish Colour, lying in the fine Furrows of the Surface of the Regulus.

Another Lump of Regulus, yielded by the Antimony of the old Manufacture of *Auvergne*, weighing, when impure, one Ounce four Drams, purified in the same manner, was reduced to one Ounce two Drams and forty-eight Grains; that is, with $\frac{1}{2}$ of Loss. The Scorizæ were reduced to a black Enamel.

The Lump of impure Regulus, yielded by the Calx of the common Antimony of *Auvergne*, bought at different Shops, weighing, when impure, one Ounce five Drams, was reduced to one Ounce four Drams eighteen Grains; that is, with $\frac{1}{4}$ of Loss. The Scorizæ were less black than in the former Case.

Lastly, the impure Regulus of *Hungarian* Antimony, which weighed one Ounce four Drams and forty-eight Grains, was reduced into a pure and starry Regulus, weighing one Ounce four Drams and fifteen Grains, in which Case there were thirty-three Grains, or $\frac{1}{6}$ of Loss. The Scorizæ were a rough Enamel of a greyish Colour, a little inclined to the Yellow, and pretty like the Scorizæ of the purified Regulus of the Antimony of the new Manufacture of *Auvergne*.

These Scorizæ, which I call Enamel, were blacken'd by the impure Matter, which they carry off from the Regulus during the Fusion: When they are opaque, and of a greyish Colour, it is a Sign, that they have not found enough of sulphureous Matter to convert them into transparent Glass; for 'tis known, that a Calx of Antimony, that has been deprived of all its Sulphur, vitrifies very difficultly without some Addition: That, for this Purpose, a Fire of the most violent Heat is requisite; and that 'tis necessary to add a little crude Antimony, or common Sulphur, if we are inclin'd to have a Glass of Antimony that is transparent, and of a fine Colour. I have lately found this Observation to hold good upon the Calx of *Hungarian* Antimony, which I could never transform into Glass without the Addition of a little Portion of Antimony. For this Reason, when I purify my first Regulus, I make use of a Calx of Antimony, very well freed from Sulphur; because I only stand in need of a Substance, which, without vitrifying entirely, might become impregnated with the impure Substances which prevented the Reunion of the Reguline Parts of the first Calx, reduced by the Assistance of the oily Matter of the Soap.

'Tis true, I may also purify that first granulated Regulus, by melting it alone, and without the Addition of the Calx; but its Surface, in that Case, is never clean; it is always sullied by Scorizæ, which adhere very strongly to it, and no Stars are form'd in it. Besides, it must be a long time kept in a very liquid Flux, that the drossy Matter, which hindered the Reunion of the truly Reguline Parts, may have sufficient time to gain the Surface, in Consequence of their Lightness: Now the longer it is kept in Fusion, the more it loses; so that this is not the most expeditious Way of purifying it.

But the Addition of the Calx makes a Difficulty arise. I shall, undoubtedly, be told, that what blacken'd these Scorizæ can be nothing but the fuliginous Matter of the Oil contained in the Soap; or that Oil reduced to a Coal, which before stain'd the internal Part of the Lump of my first Regulus, and hinder'd the Reunion of the Reguline Parts, as I said above; that as I myself admit the Presence of an actual Matter, which really contains an inflammable Principle, it necessarily follows, that a Portion of the Calx, which I only take to be productive of Scorizæ, ought to be reduced to a Regulus by that inflammable Principle; and augment, so much the more, the Weight of the Regulus, which I put a second time in Fusion with this Calx; and that thus, tho' I there find a Diminution of some Grains,

Grains, yet nothing is thereby proved, because the Diminution would have been greater, if I had not added to it a Calx, a Portion of which might be reduced into a Regulus. I have not sunk any Part of the Force of this Objection, which has been, and may still be made.

I shall answer it, by giving an Account of two or three Experiments. In the room of Calx of Antimony I substituted factitious Crystal, reduced to Powder; and, in another Essay, alkaline Salt. In the first Essay made with the Crystal, the impure Regulus, which weighed two Ounces two Drams and thirty-six Grains, was reduced to two Ounces two Drams and six Grains, that is, with thirty Grains of Loss. In the second Essay, made by Salt of Tartar, the same Weight of impure Regulus was reduced to two Ounces one Dram and sixty-six Grains; that is, with forty-two Grains of Loss. If I perform the same Operation by mixing the Calx of Antimony with the Regulus, in the same Proportion, in order to purify it, I have forty-nine Grains of Loss; that is, the same Weight of Regulus, consisting of two Ounces two Drams and thirty-six Grains, is reduced, pure, to two Ounces one Dram and fifty-nine Grains. Thus, if with the alkaline Salts, which always corrode some of the Reguline Particles, I had only forty-nine Grains of Loss; if, with the Calx of Antimony, I lost fifty-nine, this is a Proof, that the Calx only acts in this Purification like a Flux-powder, which reduces the Impurities of the first Regulus into Scorizæ; and that it does not supply it with any Addition of Reguline Parts.

If, nevertheless, any one should obstinately deny it to be productive of Scorizæ only, this Denial could not possibly destroy the Usefulness of the Operation; and the End I aim at, is to draw from Antimony the greatest Quantity of Regulus possible. I have shewn, that, in order to obtain this End, it must be reduced to a Calx. It is a Matter of no Moment after what manner I regulised this Calx: If a Part of that which I put upon the Regulus, to purify it, is converted into a Regulus, the Affair is so far completed; the Remainder is reduced to Scorizæ, which I easily melt into a Regulus with the black Soap.

Whatever Precautions the Chymist takes, there is always a considerable Loss of the Reguline Portion of the Antimony: That Mineral, whose volatile Nature is demonstrated by so many Experiments, ought to be fused with Care and Attention, if we design to lose little of it. If, in my Essays, I had made the Reduction of my Calx into a Regulus, and the Purification of that Regulus, with one and the same Fire, I should have lost much more of it. I therefore perform the Operations by two different Fires; and as soon as I perceive, by the Fluidity of the Scorizæ, that the Reduction is about to be made, I take the Crucible from the Middle of the Coals, that the Fumes of the Regulus may cease.

Besides, I have observed, that by holding it for some time in the Fire, after the Calx is reduced to Scorizæ, this Enamel corroded the Sides of the Crucible, so as to pierce them.

I shall put an End to this Part of the Memoir by repeating what I said above; which is, that the best Means I have hitherto known, of extracting the greatest possible Quantity of Regulus from Antimony, is to calcine it till its Calx, when put upon live Coals, affords no longer any sulphureous Smell; to reduce this Calx into a Regulus, by uniting it with a Reductive, which may, at once, furnish a fat Matter, and yield liquid Scorizæ, such as black Soap; and to purify that Regulus with the same Calx of Antimony. By this Method I extract two Ounces of Regulus from each Pound of Antimony, more than *Kunckel* and the late *Mr. Stahl* have extracted by their Processes: And I shew, at the same time, that there is not, in this Mineral, such a large Quantity of inflammable Sulphur as is generally thought, and as I myself believed there was, when I publicly read my former Memoirs upon the *Kermes*; since, in calcining it with Attention, no more than three Ounces and five Drams, at most, are burnt or evaporated. If the Mineral, of which I am speaking, was more fixed when subjected to the Fire than it really is, I should have come nearer to the Exactness of Proportions; but as the greatest Chymists have not been able to check its Volatility, I hope Impossibilities will not be required at my Hands.

I now proceed to some other Observations, which to me appear independent of the Operation, and which I have reserv'd for the End of this Memoir, that I might not interrupt the Order I propos'd to myself.

I have shewn, that by reducing the Calx of Antimony by black Soap, I obtain'd a Regulus, which I call'd *impure*, because it was not compact. If a Quantity of this Regulus, of a moderate Size, is look'd into, it is found full of Cavities; and in the largest, by the Assistance of a magnifying Glass, we perceive Laminæ of Regulus, full form'd, which the Air, shut up and rarefied in these Cavities, has hinder'd from embracing each other: Some of these Laminæ are triangular, but the greatest Number of them are *hexagones*. Lastly, some of them are considerably long, which, joining themselves in right Angles by one of their Sides, form a kind of small Canals; some Needles are also observed in them, but very few. As to the external Surfaces of these Quantities of Regulus, we observe nothing

remarkable in them, except some Furrows diverging, as it were, from a common Centre, and forming a Species of Rays. The unpurify'd Part of these Masses of Regulus, which appears the most compact, are possibly no more than the same Laminæ fasten'd to each other, and which discover themselves by their sharp Edges, and by the Summits of their Angles. Whether these Laminæ are the original and constituent Particles which ought to compose the Regulus, or whether they are only the Result of an accidental Arrangement of Particles, previously smaller, are Points which I will not take upon me to determine.

In Regulising the Calx of Antimony by black Soap, I have twice or thrice had saline Vegetations, in the Form of small Trees, rais'd considerably above the Surface of the Scorizæ: These were undoubtedly occasioned by the sudden Refrigeration of the Matter in Fusion. I shew'd one of these Vegetations to the Academy, that they might be sure, that it corresponded exactly to the Representation given of it. But I cannot lay down certain Rules for producing such Vegetations at Pleasure; for whatever Pains I could take, I could not afterwards succeed in procuring others.

All these Reductions of the Calx of Antimony into Regulus are not made without the Rising of a sensible Quantity of silver Flowers, which are ordinarily call'd the Flowers of Regulus: These are long, slender, and rigid Filaments, as pungent as very fine Needles. If they are view'd thro' a Microscope with a single Lens, but furnish'd with its *Corrector*, they appear opaque; but when the *Corrector* is removed, and they are exposed to the clearest Light possible, they appear to be diaphanous Filaments of Glass: Yet this Observation does not absolutely prove, that they are really Glass; since most Objects, view'd thro' a fine Lens, appear transparent, provided they are considerably small. *Newton* has observed, that by placing a very small opaque Body before the Hole thro' which the Light enters into a darken'd Chamber, that same Body appears to be transparent. The Microscope, in this Case, produces almost the same Effect with the darken'd Chamber; so that what I take to be Glass, may only to me appear so thro' an Error of Vision.

I also succeeded in reducing the Glass of Antimony by Soap, by treating it in the same manner with the Calx; but as this might be expected, I wave giving any farther Account of it: I imagin'd I might have, in like manner, succeeded with the *Diaphoretic*, excepting some small Difference which would have regard'd the Weight: But the *Diaphoretic Antimony*, prepared in the common Way, being mix'd with black Soap, and then forced by the Fire, like the Calx of that Mineral, was converted into a Mass, which I allowed to cool, hoping to find a Regulus at the Bottom of the Crucible when I should break it. Having examin'd it when almost cold, in a Place expos'd to the open Air, I perceived, that the Mass became hot in proportion as it absorb'd the Humidity of the Air. I applied some Pieces of it to the Flame of a wax Candle, upon which they kindled and crackled: Upon throwing back some of these kindled Pieces into the Crucible, they kindled the rest of the Mass, which also burnt and crackled.

I repeated this Operation, and made use of a very beautiful *Diaphoretic Mineral*, which I had prepared, some Days before, of two Parts of Regulus and three Parts of Nitre: I mix'd an Ounce of it with two Ounces of black Soap: This Mixture, when put by little and little into the hot Crucible, kindled and was very much puff'd up: When the Flame was over, the Mass subsided, and assum'd a reddish Colour, like that of a live Coal; whilst luminous Vapours, of a bluish Green, arose from it: All these Circumstances happen'd, without Variation, upon every Projection of the Matter. When all the Mixture was projected, and ceased to send up Flames, and luminous Vapours, there was a Sort of reverber'd Mushroom form'd, which was hollow, porous, and black. I crush'd the Edges of it, and added a fresh Ounce of black Soap, that I might the better cover the Matter I intended to reduce. When this last Soap was burn'd, and I perceived a small bluish Flame on the Surface of the Mass, I cover'd the Crucible with its Lid, and a great deal of Charcoal; after which I produced a strong Heat, by about an hundred Puffs of the Bellows: But notwithstanding the Violence of the Fire, which was both stronger, and longer continued, than in all the Operations I have hitherto mentioned, there were no fluid Scorizæ form'd, and the Mass remain'd spongy. I allowed the Fire to go out, and carried the Crucible to a Corner of my Laboratory, where it remained for five Hours without being touch'd: Towards Night I was inclin'd to examine this Matter: Accordingly the Person who held the Crucible, which was quite cold, not guarding against an Effect, which indeed could not be foreseen, uncover'd the Top of the Mass with a Piece of Iron; but as soon as the Air had Access to it, it took Fire, and there was a sudden Explosion made, with a Noise, which threw a very considerable Quantity of Fire upon his Cloaths, and burnt several Holes in them: There was a strong Smell of Sulphur diffus'd, resembling that of those Phosphori in Powder, of which the late *Mr. Lemery the Younger* has given several Descriptions in his Memoir of 1714: See ALUMEN.

I did not obtain the Reduction of the Diaphoretic I wanted, but Chance afforded me a very singular Phosphorus, which I did not seek after. I repeated the same Experiment since, with the same Success, whether I used the common *Diaphoretic*, or my own *Diaphoretic of Regulus*: 'Tis true, the latter succeeded better than the former, provided neither too strong nor too weak a Fire was applied, after the Addition of the last Ounce of Soap.

When, in order to make my *Diaphoretic*, I detonate the Regulus with pure Nitre, I wash it generally, in order to separate from it the Nitre alcalized during the Deflagration. Its Lixivium, which is of a very caustic Nature, assumes a bluish Colour; which probably proceeds from a Portion of the inflammable Principle, which that Salt has carried off from the Regulus: And as a Proof of this, that Lixivium blackens Tin and Silver, which it would not do, if it was not sulphureous. If instead of throwing this Matter into Water, after the Detonation, I throw it into Spirit of Wine, it assumes, almost immediately, a beautiful red Colour, which, by Digestion, is still heighten'd more and more. This Liquor, which *Stahl* has called *Tinctura Alcalica acris*, is a Tincture of Antimony, not of an emetic Quality, but only simply alkaline and diaphoretic, which, by means of the Nitre, has carried off from the Antimony a Portion of its Metallic Sulphur; if, by the way, a Metallic Sulphur has an Existence in Nature; from whence it follows, that a well prepared *Lilium* is not simply a Tincture of alkaline Salts, as some People imagine. It is true, that Spirit of Wine, digested upon a simple fixed Salt, well alcaliz'd, assumes at last a reddish Colour; but that same alkaline Salt, when it is pure and unmixed, will never give a bluish Colour to Water, as Nitre alcalized with Regulus does.

This Digression is not so unseasonable as at first Sight it may possibly appear to be; for it serves to prove, that there is a considerable Quantity of an inflammable Principle in the Regulus. Besides 'tis well enough known, that by converting the Regulus into a *Diaphoretic*, its Weight is considerably increased. Eight Ounces of Regulus, for Instance, yielded me eleven Ounces and two Drams of *Diaphoretic*, even when well edulcorated, and sufficiently dried. This Augmentation can proceed from nothing else than the Concentration of the Acid of the Nitre in the Parts of the Regulus: Now, upon this Supposition, I can discover the Cause of the Deflagration of my Phosphorus.

I account for it in this manner: There is a great Quantity of the Parts of the Calx, which was formerly Quick-lime, in that gross and unfiltered Lixivium, of which the black Soap is made: When I calcine the Mixture, of which my Phosphorus is made, I burn some Part of the inflammable Matter of the Soap, and the remaining Part is reduced to a Coal. During the Action of the Fire, the Acid of the Nitre, by little and little, quits the Reguline Parts which retained it, in order to unite itself to the alkaline Salt of the Soap, with which it is formed into a regenerated Nitre: But all the alkaline Salt is not employ'd in this Regeneration; because there is not, in all Probability, enough of the nitrous Acid. By the same Fire the earthy Particles of the Calx, scattered up and down in the Soap, are calcined afresh, and once more become a *Calx Viva*. As all these Particles of different Natures are contiguous to each other in the Crucible, they will, by their Actions, contribute to produce the Effect we speak of, as soon as an external Cause shall concur to its actual Production. Taking this for granted, I raise the Crust which covers the Mass of Phosphorus, upon which the Moisture of the Air, or those aqueous Particles with which it is impregnated, and which are greedily absorbed by the alkaline Salts contained in the Mixture, are introduced. Upon this the Calx becomes moist, grows warm, kindles, and lays hold of the Parts of the Charcoal, and regenerated Nitre, which are contiguous to it; and hence follows the Detonation of the whole Mass. That Nitre is actually contained in this Mixture, whether by Regeneration, which I believe to be the Case, or by some other Means, is proved from this Circumstance, that upon trying the same Experiment three times, with Powder of *Algaroth*, it did not succeed; because, in that Powder, the Antimonial Parts are not united to the nitrous Acid, but to the Acid of the Sea-salt.

If this is not looked upon as a sufficient Proof, I shall here subjoin an additional one. When, with an Intention to reduce the *Diaphoretic* into a Regulus, I continued to augment the Fire, there happened a Detonation of that Nitre, which was fused with the Coal of the Oil of the Soap, like that which would have been produced by a Mixture of Nitre and common Charcoal: The *Diaphoretic*, in the mean time, was dissipated in white Vapours; and there only remained in the Crucible a black hard Crust, which adher'd to its Sides, without any Marks of Detonation. For this Reason, the Success of my fulminating Phosphorus depends upon the Degree of Calcination which I give to the Mixture; for this Reason we must also take care, not to carry the Fire to such a Height as to fuse the Nitre.

As to the Probability of the Concurrence of a Matter,

which is become a *Calx Viva*, and which kindles and burns, I shall relate the following Fact: About five Years ago, upon the breaking of the Ice on the River *Seine*, a Boat full of Lime was flayed by the Ice; upon which the Water, getting Access to the Lime, kindled it. The Lime burnt the Boat, and the Fire was convey'd from that to the Boats that were next it, so that a considerable Fire ensued; and my Situation at that time gave me an Opportunity of being satisfied, as to the Truth of its Origin.

We have several Chymical Mixtures, which take Fire as soon as they are exposed to the Air; such as sulphureous, vegetable, and animal Substances, calcined with Alum.

The Mixture of Regulus of Antimony, and corrosive Sublimate, sometimes takes Fire.

Mr. *Stahl*'s Antimonial Crocus of Mars took Fire in the King's Garden, where Mr. *Boulduc* exposed it to the Sun, in order to dry it with the greater Expedition.

Aurum Fulminans fulminates by the Heat produced by a somewhat rapid Trituration.

The Rod of Iron, used in stirring the several Mixtures in the Reduction of my Calces of Antimony, being scraped with a Knife, yielded Sparkles of Fire.

Mr. *Reaumur* observed, that from an almost equal Mixture of Antimony and Iron, a Metallic Mass is produced, which, when filed down pretty strongly, yielded a great many Sparkles of Fire capable of kindling any combustible Substance.

Thus it seems, in order to prepare Phosphorus, nothing more is required than to concentrate a Matter, capable of taking Fire, in certain *Cellulæ*, where it may remain calm and dormant, till, by some Cause or other, the Sides of these *Cellulæ* are broken, and Access given to a more subtle Matter, capable of communicating an extremely rapid Motion to it. Whether this Theory sufficiently accounts for the Inflammability of Phosphorus, or whether more ingenious Hypotheses are invented for that Purpose; yet still it must be owned, that Speculations of this Nature are more curious than useful. *Memoires de l'Academie Royale*, A. 1736.

Of the REGULUS ANTIMONII MEDICINALIS, from Hoffman.

The Regulus of Antimony has not been exempted from the Fate of other chymical Medicines; for upon its appearing some Years ago, it was at first looked upon as an *Arcanum*, or Secret of the last Importance, especially in the *Netherlands*. Who its Inventor might have been, is a Point as yet not fully agreed upon; for some ascribe the Discovery to *Cranius*, and others to *Mæstius*, who has inserted the Preparation of this Regulus in his *Chymia Rationalis*: It is also to be met with in the *Med. Chym.* of *Vigani*. As Mankind are not agreed, with regard to the Inventor of this Medicine, so they also run into opposite Sentiments, with regard to its Qualities and Effects; for there at first were, and still are, a great many who rank it among the principal and most important Secrets of Physic; whereas others assert, that it is of no Use at all, or, which is worse, ascribe a noxious and poisonous Quality to it.

For these Reasons, I thought it would be no unuseful Task, briefly to inquire into the Nature of this Medicine, that we may be the better able to judge, which of these two Classes of Men, who run into so opposite Extremes, are in the Right, and which in the Wrong; and as no profess'd Attempt of this Kind has been made before, I hope I shall the more readily meet with a favourable Indulgence, if I handle the Subject with less Accuracy than its Importance deserves. Now, that I may execute my Design with the greater Perspicuity, I shall first briefly touch upon the Principles of which this Regulus is made up; secondly, I shall give its Preparation; and, lastly, its various Uses.

The constituent Principles, then, of this Regulus, are, first, Antimony itself, which is indeed the principal, since it constitutes the very Matter of the Regulus. Secondly, common Salt, whose Acid is very fine, and of a highly volatile Nature. Thirdly, and lastly, an alkaline Salt, which produces very singular and remarkable Effects upon sulphureous Substances, especially of a Mineral Nature; as also upon the sulphureous or oily Parts of animal and vegetable Substances.

Of the Preparation of the MEDICINAL REGULUS.

Having thus enumerated the several Principles of which the Regulus is composed, it now remains, that we take a View of the Method of preparing it. But tho' several Authors, and among the rest *Mæstius*, in his *Chymia Rationalis*, & *Alf. Curiof. Leyd.* *Koenig* in his *Regnum Minerale*, *Barkhyisen* in his *Pyrotophia*, have laid down Directions with regard to this Particular; yet I think myself obliged, in like manner, to give an Account of it.

Take then five Parts of pure Antimony, four Parts of common Salt, and one Part of Salt of Tartar. Some, indeed, alter the Proportions of the Ingredients, and take eight Parts of Antimony, seven of common Salt, and one of Salt

Salt of Tartar; but the former Proportions are most generally adher'd to. These Ingredients, when beat and mix'd together, are to be successively put into a red-hot Crucible: Let the Action of the Fire be rais'd to such a Height, that the Matter may be sufficiently and thoroughly fused; that is, let the Fire applied be a *moderate fusory one*. Then after the Matter is sufficiently fused, which generally happens in a Quarter of an Hour, if right Measures are taken, let it be pour'd into a Vessel of a conical Form, besmear'd with Tallow, or smok'd with a Candle: This Vessel is to be shaken in the manner observed in other Fusions of *Regulus*, that by this means the *Regulus* may be sufficiently separated from the Scorizæ, and carried to the Bottom of the Vessel: Some reckon this Circumstance of shaking so much the more necessary, because as this *Regulus* is lighter than any others prepared from Antimony, it must of Consequence be separated from the Scorizæ, and fall to the Bottom with more Difficulty. Thus, if such a Concussion, or Shaking, should be neglected, and the Mixture pour'd when boiling, as it were, from the red-hot Crucible into a cold conical Vessel, it frequently happens, that during the Continuation of the Ebullition, a Portion of the Scorizæ is intermixed with the *Regulus*; and, *vice versa*, a Portion of the *Regulus* remains in the Scorizæ; so that, by this Oversight, we do not obtain it so pure and uncontaminated, or at least so beautiful and shining, as it would otherwise be. The *Regulus*, when separated from the Scorizæ, resembles polished Steel or Iron; but if either in a Mortar, or upon a Marble, with or without the Addition of Water, it is reduced to a Powder so fine, that the shining Particles entirely disappear, it assumes a reddish, or rather a purple Colour.

But since there is no great Difficulty in the Whole of the Process, I shall not, at present, spend more Time in enumerating or describing any more of its Steps: But 'tis to be observed, with regard to the Addition of the alkaline Salt, that some who maintain, that there is a vast Difference betwixt Alcalis, adhere so inviolably to Salt of Tartar, either for the sake of its superior Purity, or on account of its nobler Effects, or occult Qualities, that they will not allow any other Salt to be substituted in its room. I have some Reason to think, that the Observation of *Vigani* may have laid a Foundation for the Doubts of People, with regard to this Matter; since, in *Med. Chym. p. 20.* he brings an Experiment for establishing the Difference of Alcalis; and affirms, that he himself, by preparing Antimony with common Salt and Salt of Tartar, obtained a reddish *Regulus*; whereas by a like Fusion of Antimony with Salt of *Carduus Benedictus*, instead of Salt of Tartar, a simple *Regulus* was only yielded. But I must own, that tho' I have with this very View made several Experiments, and that with a great deal of Caution, yet I could never observe so considerable a Difference between the *Reguluses* produced, but obtained the same, with Salt of *Carduus Benedictus*, and other Alcalis, as that procur'd in the common way by means of Salt of Tartar. I therefore suspect, that this simple *Regulus* of *Vigani* was produced by a fortuitous Intermixture of Charcoal, and some other sulphureous Concretion. As I have not therefore been able either *à priori*, or *à posteriori*, to discover the Difference of alkaline Salts, so I think we have no Occasion to be over-scrupulous in our Choice, provided we only make use of an Alkali that is pure, duly prepared, and not adulterated by any adventitious or heterogeneous Substance.

It is still more superfluous to hesitate about our Choice of common Salt, or make nice Disquisitions, whether Sea-salt, Sal Gemmæ, or Fountain-salt, are most proper for this Purpose, since the End seems to be equally well obtain'd by all of them.

This then is the most common and usual Method of preparing the *Medicinal Regulus*; but it is not always adher'd to by some, who either add or omit Ingredients, or alter the Proportions of the Weights, just as Caprice, or some particular View, directs them. Thus some omit the alkaline Salt, and substitute in its Place crude Tartar, but in a larger Quantity. They therefore take eight Parts of Antimony, seven Parts of common Salt, and six Parts of Tartar. This Mixture is put into a red-hot Crucible for Fusion, which indeed is more difficultly brought about, than in preparing the common *Medicinal Regulus*. By this Method a *Regulus* resembling the medicinal one is yielded, and I take it to be of the same Species, tho' it is not so beautiful, being of a darker Colour, and of a more porous Contexture: But when reduced to a Powder, it assumes a purple Colour, just as the *Medicinal Regulus* does. Its Scorizæ are light, porous, and resemble the Flakes which fly from hot Iron when hammer'd. Others, who in the Production of *Regulus* perhaps ascribe too much to common Salt, order the Salt of Tartar to be entirely omitted, and the common Salt to be augmented by the Addition of a Quantity equal to the omitted Salt of Tartar. This is ordered by *Barkhyisen in Pyrosophia, Libro 3. Sectione 3. Capite 2.* where he maintains, that the same *Medi-*

cinal Regulus may be obtained from Antimony slightly fus'd with an equal Portion of common Salt; but upon Trial, the Effect promis'd is so far from being produced, that there is not so much as a perceptible Change induc'd upon the Antimony, by means of the common Salt. Lastly, among the several Methods of preparing *Reguluses* of this Kind, we may reckon that, in which, for correcting the *Crocus Metallorum* of *Rulandus*, Chymists add common Salt, and thence promise a like *Medicinal Regulus* as to its Effects. For this Purpose, they therefore order three Parts of Antimony, two Parts of Nitre, and one Part of common Salt: See *Le Mort in Artis Curiosis Leidens.* Others reject this Proportion, and prefer equal Quantities of each Ingredient. Now these Ingredients, when beat and mixed together, are to be put into a red-hot Crucible, and reduc'd to a due Degree of Fusion, which is soon obtain'd. After this, the Matter is to be pour'd into a conical Vessel, or as *Le Mort* intimates, in the above-cited Passage, it may be left in the Crucible, from which, when cold, it is to be taken. The *Regulus* yielded by this Process, is not unlike the *Crocus* of *Rulandus*; it is, like the *Medicinal Regulus*, of a porous Consistence, not very smooth, but clean and beautiful. When reduced to Powder, it acquires a dark-reddish Colour like that of red Bole. Its Scorizæ are light, of a yellowish-amber Colour, and not unlike those obtain'd by the Depuration of *Regulus* of Antimony with Nitre.

Of the Use of this REGULUS.

The Medicinal *Regulus* may be apply'd, first, to a chymico-physical, secondly, to a pharmaceutic, and, thirdly, to a medico-therapeutic Use, upon each of which I shall briefly touch.

Its Use then in Chymistry may be plainly perceived, from an *Ætiological* Research into its Nature, and the Manner of its Production; so that I shall say no more upon this Point, but proceed to a View of its Use in Pharmacy.

And tho' Chymists have not hitherto been solicitous about extracting other Medicines from this *Regulus*, yet I shall briefly enumerate such Preparations of it as are in Use. Our learned President then, in his Notes to *Poterius, Cap. 12.* has propos'd a Preparation of antimonial Sulphur from the *Medicinal Regulus* boiled in Lime-water, and which is to be precipitated with Spirit of Vitriol. This Sulphur, he says, is of the same Efficacy and Virtues with the *Panacea* of *Glauber*; he also prefers it to the *Regulus* itself, because, as he says, in it the arsenical Virulence, being corrected by the Spirit of Vitriol, is weaker than in the *Regulus*. In the same Work he also gives Directions for the Preparation of an antimonial Tincture, to be extracted from the *Medicinal Regulus*, fus'd with an Alkali, by means of Spirit of Wine, either tartariz'd, or drawn off from antimonial Scorizæ. He also teaches us how to prepare an anodyne Tincture from the *Regulus*, which is done by dissolving Opium in a Decoction of the *Medicinal Regulus* with Lime-water, and by extracting the Essence from the inspissated Solution by means of *Malmsey-wine*, or Spirit of Wine. Concerning the Virtues of this Tincture he speaks thus: "This Medicine is exquisitely calculated for easing Pains, and procuring Sleep; for by the Lixivium of the Quick-lime impregnated with the antimonial Sulphur, the narcotic and stupifying Qualities of the Opium are corrected, and thus the Symptoms usually brought on by the Use of Opium are prevented, whilst, in the mean time, the attenuating and anodyne Qualities of the antimonial Sulphur, which check the impetuous Motions of the Spirits, prove a happy Balance for each other." Here we may also take Notice of what is said by *Basil Valentine*, in his *Currus Triumphalis ANTIMONII*, concerning an antimonial Tincture and Balsam, which are prepared from a Mixture of Tartar and Antimony, in Form of a Liver, not unlike the *Medicinal Regulus*. Besides, an antimonial Calx, and a Cerus of Antimony, may be easily prepared from the *Medicinal Regulus*; a Glass may also be prepared from it, if after washing out the alkaline Portion, it is gently calcin'd, and the Sulphur by that means carried off, upon which the calcareous Remains are easily fus'd into a Glass. Let this suffice for the Use of the *Medicinal Regulus* in Pharmacy. The Subject might indeed be much farther protracted; but as that is not necessary, I shall only repeat, that in many Shop Preparations the *Medicinal Regulus* may be us'd, as a proper Succedaneum to Antimony itself.

I now come to the third and last thing propos'd, which was, to inquire into the Use of this *Medicinal Regulus* in the Practice of Physic; and here I cannot help condemning those who with exaggerated Encomiums extol this *Regulus* as an universal and divine *Panacea*; as for my own Share, I can with greater Cheerfulness go into the Sentiments of those who observe a due Medium in this Point. Its Efficacy is highly extoll'd in chronic Disorders, and such as arise from long-continued Obstructions of the Viscera: Hence our learned President, in his Notes upon *Poterius*, commends it in Dropsies, Epilepsies, Scurvies, and Fevers; for as these Disorders are of a stubborn and obstinate Nature, they require Medicines which do not, like vegetable Substances, too quickly produce their Effects, but remain

for a considerable time in the Body; and by often impelling the tenacious Matter, at last entirely break and subdue it. Hence we may easily conceive why this *Regulus* must be a Medicine of singular Efficacy in surmounting the Obstinacy of chronical Disorders. There are also not a few who highly extol its Efficacy against Fevers. *Maetsius*, in his *Chym. Ration. & Actis Curios. Lugd.* says, that it is a *Specific Diaphoretic in Fevers of all Sorts*. The same Author commends it in all Disorders where, to use his own Words, *Sweats are wanted, because it does not, like vegetable Substances, inflame the Blood*. I myself am inform'd by People who were acquainted with this Author when alive, that he made daily Use of this *Regulus*; and his own *Praxis Chymiatrica* is a concurring and additional Proof, that he did so; for in that Work he maintains, *That it is of uncommon Efficacy in all Diseases where the Motion of the Lymph, and insensible Transpiration, are to be promoted*. Thus he commends it in the Gout, the Apoplexy; &c. but more particularly in Fevers. This he has also done in *Actis Curios. Lugd.* where he orders it to be used with a diaphoretic Regimen. *Barkhyisen* joins Issue with *Maetsius*, and highly extols its sudorific Virtues in Fevers, and cutaneous Disorders. *Keenig* declares himself of the same Sentiments in his *Regnum Minerale, Cap. 9.* where he also proposes a Form of a Medicine consisting of the *Medicinal Regulus* reduced to a Bolus, with *Peruvian Bark*, and *Theriaca*; to be taken a few Hours before the Paroxysm of the Fever. But notwithstanding the high Encomiums bestow'd upon this Medicine by its Inventor, I should not advise any one to use it in violent Quartan Fevers; because Dropsies, and other Disorders, are very often brought on by the Use of Medicines that are so astringent, and capable of producing such strong Commotions. This Medicine is also commended by some in Cases where the State of the Lymph is bad, in Dropsies, Anasarca, &c. as I have already observed. But particularly with regard to its Use in an Anasarca, I have been satisfied by the learned and judicious Mr. *Hennike*, who mixed it with *Mercurius Dulcis*, and used it under that Form with uncommon Success. Our learned President, in his Notes upon *Potterius*, orders it to be prescribed in small Doses, with the Bezoardic Powders, in the first Stages of malignant Fevers, Small-pox, and Dysenteries, *Because, says he, by its Means a gentle Salivation and Diaphoresis are brought on, and the Mucus of the Primæ Viæ being attenuated, the Heaviness and Uneasiness of the Præcordia are remov'd*. I also remember, that when malignant Fevers rag'd pretty much in my own Country, that excellent Chymist *Rollwagius* often us'd this *Regulus* with the greatest Success; of it, together with some other earthy Absorbents, he compos'd an alexipharmic Powder, which is in constant Use at this very Time. This Powder is accurately describ'd by the learned *Apinus*, in his *Traëtatus de Febribus epid.* where, from his own Experience, he ascertains the Efficacy of it, but particularly of the *Regulus*, in malignant and epidemical Fevers. I also know, that the *Regulus* was used by the above-mentioned Dr. *Hennike* in these Disorders; but in Process of Time he desisted from using it so frequently as he had formerly done, on account of some Inconveniencies that arose from its being negligently prepared; and chose the *Bezoardicum Joviale*, or the *Antibædæicum Poterii*, as a Succedaneum to it. *Maetsius* commends the Lixivium of its Scoræ apply'd externally as a proper Medicine for the Itch; and I remember, that, by my Father's Advice, not only I myself, but a great many others, labouring under this Disorder, us'd this Medicine with incredible Success. I also remember to have seen the *Regulus* itself mixt with earthy Substances used in the Itch, and have known it in that Form, and in Conjunction with a sudorific Regimen, to remove oedematous Swellings, especially of the Feet. Hence we may plainly perceive the Efficacy of this *Regulus*, in augmenting the Motions of the Humours, which, in this Case, were hinder'd from rising to their greatest Height, by the Addition of the earthy Astringents. Having thus said something concerning the Use of the *Medicinal Regulus* in the Practice of Physic, I shall now subjoin a few Hints relating to the Manner in which it operates.

Now, as the *Medicinal Regulus* produces two Effects, which are promoting a Diaphoresis, and removing the Lensor of the Humours, so it seems to operate in two different manners, one of which consists in promoting the several Motions, and the other in correcting the Qualities of the Humours; but this latter does not exert itself so strongly as the former. It acts in the former of these manners both in Consequence of its sulphureous and its reguline Parts. As for Sulphur in general, 'tis sufficiently known, that it not only contains the very Matter of Fire, which is itself easily susceptible of the quickest Motions, and sufficiently capable of augmenting the Motion of the Humours; but also, that from its being a Mixture of a phlogistic with a vitriolic Acid, it possesses a tonic Force, as daily Experience teaches us, upon observing its Efficacy in repelling the Itch. By this tonic Force the relaxed Vessels recover their natural Tone; and by this means the Blood being not only put into a more violent Motion, but also forc'd thro' narrower Ducts, must of course be more attenuated, and acquire a greater

Degree of Subtily. As to its *Reguline* Part, we are to observe, first, that it receives a stimulating Force from an Addition of the arsenical Parts, and thus becomes capable of exciting strong and brisk Motions in the Spirits. Secondly, That by reason of its mercurial Nature it is capable of penetrating and dissolving not only the thick and viscid Humours lodg'd in the Primæ Viæ, but also those which are intermix'd with the Mass of Blood itself, and retard its progressive and intestine Motion. Hence we see in what manner it may correct the Defects of the Lymph, clear the Viscera, when obstructed with Crudities of this Kind, promote the several Secretions, and render the Juices fit for Motion. In these last mentioned Effects, or in changing the Qualities of the Fluids, its second Manner of operating consists.

It now only remains, that I say something concerning the Method of administering this *Medicinal Regulus*. It may then be commodiously enough exhibited in the Form of a Powder, since the Dose necessary for any Purpose is neither large nor nauseous. If it should happen to be a little too heavy, it may be mixed with the lighter Absorbents, as they are call'd, prepared of Mother of Pearl, Crab's-eyes, &c. Such other Substances may also be mixed with it, as the Diversity of Disorders shall be judged to require. Thus our learned President orders it to be exhibited with gentle Chalybeats in Dropsies; in Epilepsies, with cinnabarine Preparations; and in intermitting Fevers, with digestive Salts, Absorbents, &c. I have above taken Notice of its uncommon Efficacy in an Anasarca, when mixed with *Mercurius Dulcis*; for by its Means, half a Scruple of *Mercurius Dulcis* has sometimes prov'd of more Efficacy, than two Scruples would have done without. Some add it to Vomits as a Stimulus, and by way of a Digestive. In Form of a Potion it may be mixed with other Diaphoretics, Anodynes, &c. with *Diafcoridium*, the *Theriaca Cœlestis*, the Bezoardic Tincture, the Tincture of Opium corrected with Salt of Tartar, and with the diaphoretic Waters of Germander, Chervil, and Cherries. *Maetsius* in his *Chymia Rationalis*, and *Apinus*, in his *Treatise de Febribus Epidem.* have given Formules of this Kind. It may also be exhibited in the Form of Pills, with resinous and solvent Gums, and with the aperient bitter Extracts of Wormwood, *Carduus Benedictus*, Germander, Fumitory, Scurvygrafs, Saffron, Gum Ammoniac, Sagapenum, Hedera, Myrrh, Aloes, &c. When the *Regulus* is prudently and skilfully mixed with such Substances, it becomes a far from despicable Medicine in menstrual Disorders, and Infarctions of the Viscera. Its Dose is from six Grains to one Scruple, and upwards, as the State of the Patient shall require. But before this *Regulus* is used, it must be so thoroughly triturated, and, upon a Marble, reduced to a Powder so fine, that none of the shining Sparkles may in the least appear: For this Reduction of it to so fine a Powder is absolutely requisite, both to its easy Solution, and its speedy Operation; and if this Caution should not be observed, it remains too long in the Intestines, and may possibly give Rise to very terrible Symptoms; and it also even passes off with the Excrements, which is often the Case with cinnabarine Preparations. *Hoffman. Medicin. Rational. System. Vol. 4.*

Dr. *John Pringle* has, in the *Edinburgh Medical Essays*, oblig'd the World with an Account of an antimonial Remedy for a Dysentery, made public by Dr. *Young*. This at the first Appearance seems to be one of the most unlikely Remedies that could be contriv'd to answer the End propos'd. But as I have it from very good Hands, that Experience, the only thing which can determine the Value of a Medicine, is much in favour of this, I apprehend an Account of it ought not to be omitted in a Treatise of Antimony, tho' I have not myself been a Witness of its salutary Effects.

Vitrum Antimonii Ceratum.

Take Glas of Antimony in Powder, one Ounce; Beeswax, one Dram: Melt the Wax in an Iron Ladle; then add the Powder; set them on a slow Fire without Flame, for the Space of half an Hour, continually stirring them with a Spatula; then take it from the Fire, pour it upon a Piece of clean white Paper, powder it, and keep it for Use.

When I prepared this Quantity, it lost a Dram of its Weight. The Glas melts in the Wax with a very slow Fire.

I was at first so scrupulous in preparing the Medicine, that I wish'd the Degree of Heat had been assign'd, as well as the Space of Time necessary in the Preparation; but I have since found, that I both vary the Time and Degree of Heat, without perceiving any Difference in the Operation of the Medicine.

After it has been about twenty Minutes on the Fire, it begins to change the Colour; and in ten more, comes pretty near the Colour of Snuff: By that Colour I know it is sufficiently prepared, without attending to the Degree of Heat, or Space of Time.

The ordinary Dose for an Adult, is ten or twelve Grains ; but for the greater Safety, I commonly begin with six ; to a strong Man I have given a Scruple, which sometimes works so mildly, that I have thought it too weak.

To weakly Constitutions give five or six, increasing the Dose afterwards, according to the Operation.

To a Boy of ten Years of Age, give three or four Grains.

To a Child of three or four Years, two or three.

This Medicine has been practised with Success for the Dysentery, and the Preparation of it was kept a Secret for many Years.

When first it was communicated to me, I thought it so harsh and dangerous a Medicine, that I had no Courage to try it for some Years ; and even then I began the Dose with one Grain, and increased it gradually to twenty, which is the largest I have yet given. As soon as I was convinced, by a Number of Experiments, that it was both mild and efficacious in curing the Dysentery, I published the Receipt in our *Edinburgh News-papers*, being under no Promise of Secrecy with regard to this, and being resolved never to make a Secret of any Medicine whatever.

I do not expect, that any Physician will incline to give a full Dose at first, without better Authority than I can give to Strangers ; but the Cautious may give a small Dose as they please, and make first Trials almost in any Disease where Purgatives will do no Harm, and increase it gradually as they find it operate.

I gave it in Dysenteries with or without Fever, whether epidemic or not.

I have tried it often where Bleeding and Vomits have been premised, and where they have not, with very good Success.

I never chuse to give Opiates in the Beginning, especially where there is a great Sickness ; because, altho' Opium gives great Relief to some, yet at other times I have thought both the Sickness and Purging thereby increased the following Day.

I never began with a larger Dose than ten Grains, because it frequently operates as violent at first, as twenty Grains at last, even upon the same Patient.

In its Operations, it sometimes makes the Patient sick, and vomits ; it purges almost every Person, but I have known it cure without any sensible Evacuation or Sickness ; nay, in violent Dysenteries, they purge seldom with it, than without it.

If it purge sufficiently, or fatigue the Patient any way, I intermit a Day or two betwixt each Dose, the same way as I do with other Purgatives.

As I have cured some with one Dose, I have been obliged to give others five or six, especially when the first Doses have been too mild, and I have often thought a weak Dose did no good in Chronic Cases.

After the second or third Dose, the Stools are seldom bloody, the Gripes and Sickness are much abated, and the mucous Stools are less viscid.

Give it with an empty Stomach ; for then, I think, it operates most mildly.

Forbid drinking any thing after it for three Hours, unless the Patient is very sick, or disposed to vomit, in which Case give warm Water as in other Vomits.

Beware of giving it for a Diarrhoea in the End of a Consumption. I have cured some other Diarrhoeas of long standing with large Doses of it ; but it has failed oftener here than in Dysenteries.

I forbid the Use of all fermented Liquors, and recommend a Milk-diet with Rice or Bread, Chicken-broth, or Water-gruel.

I give nothing cold, unless it be a Tea-spoon-full of Gelly of Hartshorn, as often as the Patients please ; and sometimes I indulge them with the Gelly of Currans to refresh their Tongue.

It may be given safely to Women with Child, and to Children on the Breast you may give half a Grain. *G. Y. Edinburgh, Med. Essays, Vol. 5.*

Antimony has in all times, since its Medicinal Virtues were first discovered, afforded the Empirics their most boasted Secrets, as may be known by the Irregularity of their Operations ; for *Antimonial Remedies* have this singular Property, that they will sometimes operate with great Violence ; and sometimes even in the same Dose, and same Person, without any apparent Alteration of Circumstances, shall have no visible Operation.

This, if there was no other, is a sufficient Evidence, that the Pill Mr. Ward first set out with, was *Antimonial*, of which there is now no room to doubt : As to the specific Preparation he makes use of, it is not very material, since there are many different Sorts of them made, by depriving this Mineral of a Part of its Sulphur, and laying the Reguline Part naked, which will have much the same Effects, in the same small Dose.

I shall conclude this Article of *Antimony* with an Account of a Remedy, which has lately been advertised, and for which a Patent has been obtained ; I mean, Mr. Hayward's Powder for the Rheumatism and Gout, which promises no less than

the Cure of the last-mention'd Distemper, after it has puzzled all the Physicians in the World for so many Centuries. It seems therefore to be of some Importance to examine how far this Remedy is likely to answer the Character given of it by the Persons concern'd in point of Interest to promote the Sale, because these may be prejudic'd in its Favour. I must, however, first inform those who are unacquainted with it, that every one who takes out a Patent for any Invention, is oblig'd by Act of Parliament to specify the Particulars of it, and enroll them in the Court of Chancery, within four Kalendar Months, that the World may have the Advantage of the Discovery, and the Monopoly for fourteen Years is the Reward for making it. After this Specification is enrolled, I apprehend every body, who thinks it worth while to pay the Fees, has a Right to have recourse to the Enrollment.

Mr. Hayward's Remedy then, is a Preparation of *Antimony* and Nitre, made by rubbing them together, till no shining Particles of the *Antimony* are apparent. Of this each Dose for an Adult is twenty-seven Grains.

I have before observed, that *Kunckel* found some Relief in Pains with which he was afflicted, by taking, pursuant to the Advice of the younger *Sennertus*, crude *Antimony* ; and that *Kunckel's Troches* are, at this Day, famous for erratic Pains, at *Frankfort* and *Nuremberg*, which are prepar'd of crude *Antimony* ; and I cannot doubt but that crude *Antimony*, join'd with Nitre, may sometimes do Service in slight Rheumatic Cases, if duly persisted in. But I am far from believing, that it is possible to cure any Degree of the Gout by such a Remedy.

With respect to Patents for Medicines in general, it is to be observed, that it is not very easy to come at a Knowledge of the real Efficacy of such Remedies ; for, in the first Place, it is not always certain, that the Cases which are published by the Proprietors, are literally true in every Circumstance ; or, tho' they are, we should only hear of those Cases which were attended with Success, whereas a thousand Cases, where the Remedy had no good Effect, would be suppressed.

There are, however, People enough in the World of more Faith than Understanding, to make it worth the while of designing Men, to vend for Secrets the most common Preparations of the Shops, to their own Benefit at least, because the Prices of these Secrets are usually very exorbitant.

I don't know, that the Price of the Remedy I have spoken of above is more extravagant than those of other Nostriums ; if not, we may judge of the rest by this.

The Price of crude *Antimony* is Four-pence a Pound, and never above Six-pence, when bought in Quantities. Nitre is, I believe, at this time, worth a Shilling a Pound, tho' seldom so much. Supposing then a Pound of each to be sold at five Shillings, for every twenty-seven Grains, the whole two Pounds will sell for 142 l. and some little more, enough to pay for the Ingredients.

Stahl calls that Tincture of *Antimony*, which is made by throwing *Diaphoretic Antimony*, immediately after Detonation, into Spirits of Wine, and digesting it, *Tinctura Antimonii Alcalica acris*.

I omitted mentioning above, that the *Liver of Antimony* and *Crocus Metallorum* are the same, except that the former is unwash'd, the latter wash'd.

ANTIMONIUS LAPIS. The *Antimonial Stone*. *Myrepus*, *Serapion*, and some others, reckon *Antimony* among the Kinds of Stones ; and *Myrepus* particularly, in *Sec. 1. Cap. 470.* as *Fuchs* observes in his Notes thereon.

ANTIMOROS, ἀντιμωρός, from ἀντί, against, and μωρός, Death, or a Disease. The true Name, according to *Fuchs*, of an Antidote in *Myrepus*, *Sec. 1. Cap. 25.* instead of *Diatamaron*, as it is there read ; which plainly shews, that *Myrepus* translated this Composition from some barbarous Author, who miserably corrupted the Word ; for some of the more correct Latin Copies read *Antimoros*. *Fusch. Note on the Place above named.*

ANTINEPHRITICA, ἀντινεφριτικά, from ἀντί, and νεφρός, a Pain in the Kidneys. Remedies against Disorders of the Kidneys. *Blancard.*

ANTIOCHI HIERA, the *Hiera of Antiochus*. A compound Medicine, prepared as follows :

Take of *Germander*, *Agaric*, the Pulp of *Colocynthis*, *Stechas*, each ten Drams twenty-five Grains ; *Opopanax*, *Sagapenum*, *Parley*, *Birchwort*, white Pepper, each five Drams twelve Grains ; *Cinnamon*, *Spikenard*, *Troglodytical Myrrh*, *Indian Leaf*, each four Drams ten Grains ; Honey a sufficient Quantity. It is good against *Melancholy*, *Madness*, *Epilepsy*, and for all those whose Blood abounds with Impurities. *Actius Tetr. 1. Ser. 3. C. 114.*

ANTIOCHI THERIACA. The *Theriaca* which King *Antiochus* the Great used against all sorts of Poison, the Prescription of which was cut in Stone, at the Entrance of the Temple of *Æsculapius*.

Take of *Thyme*, *Opopanax*, *Millet*, each two Drams five Grains ; *Trefoil*, one Dram two Grains and a half ;

the Seeds of Dill, Fennel, Anise, Bishops-weed, and Smallage, each sixteen Drams fifteen Grains; Meal of the bitter Vetch, twelve Drams thirty Grain. Pound them, and sift them, and afterwards, with the best Wine, make them up in Troches of half a Dram, one of which in a quarter of a Pint of Wine, is a Dose. *Pliny, Lib. 20. Cap. 24.*

ANTIPARALYTICA, ἀντιπαρηλυτικά, from ἀντί, and παράλυσις, the Palsy. Medicines against the Palsy.

ANTIPATHES, ἀντιπαθής. What they call *Antipathes*, is to be accounted *Coral*, tho' of a different Kind from the common Sort. It is of a black Colour, has the Form of a Tree, and is more branched than the other. It agrees in Virtues with the common Coral. *Dioscorides, Lib. 5. Cap. 140.*

ANTIPATHIA, ἀντιπάθεια, from ἀντί, against, and πάθος, an Affection. Antipathy. It is said to be a kind of occult Quality, opposite to Sympathy, when there is a natural, but unaccountable Hatred or Aversion between two Things, which endeavour to remove or destroy one another. Thus *Galen, Lib. 11. de Simp. Med. Fac. §.* says, that some have written, that old Leather, burnt, cured Galls by a sort of Antipathy.

Charlton thinks, that the whole Affair of Sympathy and Antipathy might be accounted for from the various Motions and Configuration, the mutual Cohesion and Combination, or the reciprocal Embracing or Repulsion, of the perpetually exhaling Corpufcles or Effluvia which meet together. *Castellus.*

ANTIPATRI THERIACA, *Antipater's Treacle*. It is thus prepared :

Take of Gentian, four Drams ten Grains; Trifolium, (stinking Trefoil) four Drams ten Grains; Seed of the fame, two Drams five Grains; Poley, four Drams ten Grains; Sowbread, two Drams five Grains; Hog's-fennel, Galbanum, each two Drams five Grains; Parsley, four Drams ten Grains; Wood-rue, three Drams seven Grains; Pellitory of Spain, one Dram two Grains and a half; Staves-acre, two Grains and a half; Mace, three Drams seven Grains; the Root of the white Vine, two Drams five Grains; as much white Pepper; Gum Ammoniac, one Dram thirty-four Grains; Mullein, Ground-pine, Mezereon, small Horehound, the lesser Fleabane, Ethiopian Cummin, Opium, Castor, Fennel-seed, Agaric, Cassia Rufa, the Flower of Juncus Odoratus, Rhubarb, each two Drams five Grains; *Cretan* wild Carrot, one Dram thirty-four Grains; as much Opopanax, Sagen, two Drams thirty-six Grains; Southern-wood, one Dram thirty-four Grains; Styra, Dittany, each one Dram thirty-four Grains; Cinnamon, Spikenard, each three Drams seven Grains; Myrrh, four Drams ten Grains; Frankincense, one Dram two Grains and a half; Saffron eight Drams twenty Grains; Anise, one Dram two Grains and a half; Cyrenaica Lacryma, (I suppose he means *Asia Foetida*) one Dram two Grains and a half; Hind's-runner, three Drams seven Grains; *Attic* Honey, a sufficient Quantity. The Dose is the Quantity of a Hassle-nut. It prevents or cures the Bite of an Asp. *Scribonius Largus, Cap. 42.*

ANTIPERISTASIS, ἀντιπερίστασις, from ἀντί, and περίσσεια, to surround. A Strengthening, Cohibition, or Compression all around, as for Instance, by the circumambient Air or Water; and thus there is an Antiperistasis, or Compression of Heat or Cold by the circumfus'd contrary Quality. Thus *Theophrastus, Lib. de Igne*, imputes the Cause why Men are more robust, and have better Digestions in the Winter, to a more potent Collection of Heat by an Antiperistasis, συνέστασις ἐν τῷ χειμῶνι καὶ συγκύκλιξις τοῦ θερμῶν πρὸς τὴν πέριξ αὐτοῦ, καὶ τὰ σώματα πέριξ τὰς τετραὰς μάλλον, καὶ ὅλας ἰσχυροῦσι τοῖς χειμῶνιν ἐσιν, ὅτε συνιθροῦνται καὶ ἀντιπερίστανται τῷ θερμῷ. "In the Winter Heat is contracted and inclosed by the circumambient Air, and Bodies better digest their Food, and are on all Accounts stronger and more robust in cold Seasons, from a Coacervation and Antiperistasis of the Heat." *Theophrastus.*

ANTIPHARMACUM, ἀντιφάρμακον, from ἀντί, against, and φάρμακον, Poison, Medicine. An Antidote or Preservative against Poison. Thus *Dioscorides, Lib. 2. Cap. 185.* speaking of Nasturtium, or Water-crelles, says, ἐπεὶ δὲ ἐστὶν ἀντιφάρμακον, "It is a Remedy against the Poison of Rep-tiles." In this Sense it is the same as **ALEXIPHARMACUM**.

ANTIPHTHISICA, ἀντιφθισικά, from ἀντί, against, and φθίσις, a Phthisis, or Consumption. *Blancard.*

Tinctura Antiphthisica, a Tincture against a Consumption.

Take of Saccharum Saturni, and Vitriol of Iron, each an Ounce; French Brandy, a Pint; and, without Heat, draw a Tincture. *Edinburgh Dispensatory.*

Quincy, in his *English Dispensatory*, gives it thus :

Take Salt of Steel, and Saccharum Saturni, each four Ounces; put them into a Matrafs with two Pints of good French Brandy. Twenty Hours Digestion will make a beautiful Tincture.

This is by some accounted a Specific in Hectic Fevers: And it is not an unlikely Medicine in such Cases, because it will astringe and draw up the Fibres, whereby their Tone will be render'd more rigid, and the Pores and secretory Passages streighten'd, so that the Juices and Nourishment itself will not so soon run off by those Ways. It will also procure a firmer Texture to the Blood itself, which, in those Diseases, is almost fused and broken. This is also good in many Hysterical Affections.

ANTIPTHORA, ἀντιφθορά, from ἀντί, against, and φθορά, Corruption. A Species of Wolf-bane, so called because it resists Corruption. *Blancard.*

ANTIPHYSCA, ἀντιφυσκα, from ἀντί, and φυσάω, or φυσάω, to blow. Remedies against the Wind. See **CARMINATIVES**.

ANTIPHYSON, a Name for the Loadstone in *Marcellus Empiricus, Cap. 1.*

ANTIPLERICUM, ἀντιπλερίκον, from ἀντί, against, and πλερίτις the Pleurisy. A Remedy against the Pleurisy. *Blancard.*

ANTIPODAGRICA, ἀντιποδαγρικά. The same as *Antiarthritica*, which see before.

ANTIPRAXIA, ἀντιπραξία, from ἀντί, and πράσσω, to work. A Word which signifies a Contrariety of Functions and Temperaments in different Parts, and was used by the Antients to express the Variety of concurring and often contrary Symptoms in Hypochondriacal Affections, as when a cold Stomach is join'd with a hot Liver. *Castellus.*

ANTIPTYRETON, ἀντιπυρέτων, from ἀντί, against, and πυρετός, a Fever. A Febrifuge, or Remedy against a Fever. *Castellus.*

ANTIPTYREUTICON, or, **ANTIPTYRETICON**. The same as the preceding. *Blancard.*

ANTIQUARTANARIUM, **ANTIQUARTIUM**. A Medicine against a Quartan. *Blancard.*

ANTIQUI MORBI, old or inveterate Diseases, which are lengthen'd out beyond the fortieth Day, perhaps to very many Years; Chronical Diseases.

ANTIRRHINUM, Offic. *Antirrhinum minus*, Ger. 439. Emac. 549. *Antirrhinum sylvestre medium*, Park. Theat. 1334. Mer. Pin. 9. *Antirrhinum primum Matthiolo*, Merc. Bot. 1. 20. Phyt. Brit. 9. *Antirrhinum arvense*, Rivin. Irr. M. 82. Dill. Cat. Giff. 127. *Antirrhinum arvense majus*, C. B. Pin. 212. Tourn. Inst. 168. Elem. Bot. 137. Boerh. Ind. A. 233. Rupp. Flor. Jen. 196. *Antirrhinum arvense minus*, Hist. Oxon. 2. 505. *Antirrhinum angustifolium sylvestre*, J. B. 3. 464. Raii Hist. 1. 760. Synop. 3. 283. *Antirrhinum angustifolium quibusdam, minus aliis*, Chab. 483. **SNAP-DRAGON**, or **CALVES-SNOUT**.

Antirrhinum is also called *Anarrhinum*, and by some *Lychnis Sylvestris*. The Stalk and Leaves of this Plant resemble those of Pimpernel; the Flowers are purple, and like the Stock-gilly-flower, but smaller, for which Reason it has the Name of *Lychnis Sylvestris*. It bears a Fruit like a Calf's-Snout, and of a carnation Colour.

The Plant, worn as an Amulet, is said to have a secret Virtue against Poisons, and to confer Gracefulness on the Person who is anointed with the same, together with the Oil of Lillies, or of Cyprus. *Dioscorides, Lib. 4. Cap. 133.*

Antirrhinum, apply'd as a Pessary, with Honey, and Oil of Roses, helps the Strangulation of the Uterus, and a Difficulty of the Menses. *Plin. Lib. 26. Cap. 15.*

Antirrhinum has the Virtues of the *Bubonium*, (Starwort) but in a weaker Degree. *Paulus Aeginet.*

Of this Herb there are several Species, such as the *Antirrhinum Officin.* the *Primum Matth.* the *Minus Tab.* the *Minimum Lob.* the *Sylvestre Dod.* the *Sylvestre Medium*, Park. the *Arvense majus*, C. B. and some others. It is the *Bucranion* of *Galen*, the *Cynocephalon* of *Apuleius*, and the *Os Leonis* of *Columella*.

It is found in great Abundance in the Fields, and sometimes in Gardens; but this latter Species is larger than the former, and must be renewed by fresh Seed. Its various Species are of various Colours, yellow, for Instance, red, purple, and carnation, but all of them have prickly Mouths: For this Reason *Columella, Lib. 10.* calls it *Saxa Leonis Ora*.

The Whole of this Fruit is sometimes found in Apothecaries Shops. But it is never used except by some foolish and superstitious Women, who fondly imagine it to be a Preservative against Spectres, Sorceries, and Witchcraft. For this Reason they put it into their Childrens Cradles, perfume their Beds with it, put it into their Shoes, and keep it in their Houses, in order to banish Spectres, and prevent Witchcraft. *Theophrast. H. Plant. Lib. 9. Cap. 21.* says, that it contributes, in some measure, to a Person's acquiring Fame and Reputation. It is also said to cure the Falling-sickness, when worn about

Inside; the Figure of the Leaves resembles those of Chervil, or that of *Hemlock*, beautiful, almost insipid; the Flowers are form'd in Umbels at the Top of the Branches, each compos'd of five white Leaves; the Seeds are slender, longish, black, of an aromatic Taste, resembling those of Chervil, but smaller; the Root is simple, woody, white, and aromatic, of the Taste of a Parsnip: it grows under Hedges. It contains essential Salt, Oil, and a great deal of Phlegm.

It is aperitive, but little used in Physic. *Lemery des Drogues.*

ANTRUM BUCCINOSUM, the Cochlea, or Labyrinth of the Ear. *Castellus.*

ANTYLION, ἀντίλιον, the Name of a very astringent Malagma described by *P. Æginet. Lib. 7. Cap. 18.*

ANTYLLUS, or ANTILLUS, a very famous ancient Physician, cited by *Oribasius, Lib. 2. Euporist. by Aetius, Tetrab. 1. Serm. 3.* and in many other Places; by *P. Æginet.* who calls him the SURGEON, *Lib. 3. Cap. 40. and Lib. 6. Cap. 33. and Lib. 7. Cap. 10. and 33. by Stobæus, Serm. 99. Avicenna, Lib. 5. and Rhazis, Lib. 2. Continentis, Cap. 2.* and in many other Places, being I suppose the same Person as his *Antilis*, or *Antiles*; for this Diversity in proper Names, in him and other Arabian Authors, proceeds from the Fault of the Translator, as well as the Transcribers. *Fabricius.*

ANUCAR. Borax. *Rulandus.*

ANUS. The Orifice of the *Intestinum Rectum*, by which the excrementitious Fæces are discharg'd out of the Body, by Stool.

Affections about the Anus are difficult to be cured for many Reasons. The Part is endued with a very tender Sense, and therefore is easily irritated by acrimonious and austere Medicines. Besides, the Superfluities of the Aliment in their Passage are not only acrid in themselves, but much more so on account of the bilious, and sometimes serous Humours, which pass along with them. Moreover, the Physician can fix no certain Times for attending his Patients, who sometimes go forth to ease Nature this way at an inconvenient Season. The Humidity and Heat of the Places also, which require drying as well as cooling Remedies, are no small Obstacle to the Cure of Ulcers in those Parts. For Astringents are acrid, which the Place, by reason of its exquisite Sense, is not able to bear. Wherefore such Medicines agree with them as are astringent without Asperity; of which Quality are principally Metals, which are neither acrimonious, nor extremely rough; these, washed, answer the Intention, and do the Work effectually without Mordacity. *Aetius, Tetrab. 4. Serm. 2. Cap. 1. from Galen.*

Of the RHAGADES of the ANUS.

The Anus is subject to many, and those very troublesome Diseases, which are cured by Methods not much different from one another. First of all, the Skin often chaps in many Places, which Disorder is by the Greeks called *paydæia*. If it be recent, the Patient ought to keep himself at Rest, and sit in warm Water. Pigeons Eggs also are to be boiled, and when they are hardened, are to be cleansed, and while one lies in hot Water, the Place is to be fomented with another, that the Patient may for some time use them both in their Turns. Then the Tetrapharmacum, or Rhypodes Plaisters, [See the Composition of Tetrapharmacum under ABSCESS, and of RHYPODES, under that Word] are to be diluted with Oil of Roses, or fresh greasy Wool is to be moistened with liquid Cerate made of Oil of Roses, or Lead washed is to be added to the same liquid Cerate, or Myrrh mixed with Resin of Turpentine, or old Oil with Litharge, and the Place is to be anointed with any one of them. If the Disorder lies all outwardly, and the inner Parts are sound, Lint impregnated with the same Medicine is to be laid upon the Place, and whatever else is apply'd must be covered with a Cerate. In this Case we must abstain from tart and acrimonious Meats, and such as bind the Belly. No dry Food is proper, but in very small Quantities; but liquid, smooth, fat, and glutinous Aliments are best. Nothing hinders but that the Patient may drink the mild Sorts of Wines. *Celsus, Lib. 6. Cap. 18.*

Of a CONDYLOMA.

A Condyloma is a Tubercle usually generated from an Inflammation. When it is form'd, the same Directions as to Meat, Drink, and Rest, are to be observed as were before prescribed for the Rhagades. It will be proper to foment the Tubercle with the same Eggs; but before this, the Patient must sit in a Decoction of some Repellent, as Vervain; after this, you would do well to apply some Lentils with a little Honey, Melilot boiled in Wine, or Leaves of the Bramble-bush bruised with Cerate made of the Oil of Roses; or a Quince; or the inner Part of the Rind of Pomegranates bruised with the same Cerate; or Vitriol first boiled and bruised, and then mixed with greasy Wool, or Oil of Roses; or the following Composition:

Take of Frankincense, one Dram two Grains and an half; Plumous Alum, two Drams five Grains; Cerufs, three Drams seven Grains and an half; Litharge, five Drams

twelve Grains and an half; bruise them, and while you are so doing, infill thereto Wine and Oil of Roses by Turns. The Bandage for the Place must be of Linen, or a square Piece of Woollen, which at two of its Angles has Loops, and opposite to them as many Fillets. The Piece being placed underneath, the Loops come against the Belly; and the Fillets, being brought about behind, are passed through the Loops; and where they are streightened, cross one another; and proceed the Right towards the Left, and the Left towards the Right, and, being brought about the Belly are at last ty'd together in a Knot.

If the Condyloma be grown inveterate and hardened, and will not yield to the Remedies before-mentioned, it may be consumed by the following Caustic:

Take of Verdigris, two Drams five Grains; Myrrh, four Drams ten Grains; Gum Arabic, eight Drams twenty Grains; Frankincense, twelve Drams thirty Grains; Antimony, Opium, Acacia, each sixteen Drams forty Grains.

Some use this Composition to renew Ulcers in the Rhagades. If the Condyloma resists this Medicine, a stronger Caustic may be apply'd. When the Tumor is consumed, we must exchange it for gentle Remedies. *Celsus, Lib. 6. Cap. 18.*

Of RHAGADES and CONDYLOMATA.

A Tubercle in the Anus, which they call a *Condyloma*, consists in a preternatural Intumescence of some Wrinkles of the folded Bodies of the Anus; for the Anus being sinuous, or full of Folds, must be set with Wrinkles. When this Wrinkle is elevated into a considerable Tumor, it becomes a *Condyloma*, which is sometimes without an Inflammation, and sometimes attended with an Inflammation, Pain, and Hardness.

The Rhagades, or Fissures, sometimes affect the *Sphincter*, sometimes the Anus, and owe their Original sometimes to the Acrimony of the Humours, sometimes to a *Condyloma*, which, being inflamed and distended, causes a Rupture, or Fissure, in the Parts about it.

They are cured in the Beginning by Medicines; but, if neglected till they grow hard and callous, will require the Assistance of a Surgeon. In this Case, for the *Condyloma*, the Patient must be placed in a fit Posture; and the *Condyloma*, being taken up and distended with the Forceps, must be cut quite away; but for the Rhagades, they must have their callous Lips scraped with the Knife, that there may be a new Ulceration, which shall be more easily cured. After the Operations, Digestives, Mundificatives, and Cicatrizers, are to be apply'd.

Medicines proper in the Beginning are, for a *Condyloma*, which contract and consume it, the following:

Put Misy roasted into liquid Turpentine, and make them into a Plaister, and apply the same, after fomenting the Place with warm Water. This is an admirable Remedy.

Another; the Author, *Lucius*, for Inflammations, Rhagades, or Condylomata of the Anus; it is good also for inflamed Rhagades of the Pudenda:

Take of Cerufs, six Ounces forty Grains; Litharge of Silver washed, two Ounces fifty Grains; Recrements of Lead washed, Plumous Alum, Frankincense, each two Ounces forty Grains; bruise them in old white Wine, and mix them with Cerate of Myrtle and Roses. It is good for foul Ulcers of the Anus, but especially about the Corona Glandis, and the Præputium, which cannot be deterged with Lint, and are exasperated by Medicines adapted to the Nomæ. In short, astringent Embrocations are to be used in Condylomas, and their Remedies ought to participate of an astringent Quality.

Another of *Andromachus*, which he uses, as he says, for inflamed Rhagades and Condylomas:

Take of the Lapis Hæmatites, or Blood-stone, Gum Ammoniac, Frankincense, Round Alum, each twelve Drams thirty Grains (in another Copy, sixteen Drams forty Grains); Galls, Saffron, each one Dram two Grains and an half; Turpentine, four Drams ten Grains; Tyrrhenian Wax, twelve Drams thirty Grains; Oil of Roses, ten Drams twenty Grains; use it for the Anus with Oil of Roses; for the Uterus with Oil of Salca. [See SALCA]. *Aetius, Tetrab. 4. Serm. 2. Cap. 3.*

Of CONDYLOMAS, EXTUBERANCES, and RHAGADES.

A Condyloma in the Anus differs only in the Place from a Condyloma in the Pudendum Muliebre, being a rugous Excrescence consequent upon an Inflammation or Fissure. First, it is called a *Tubercle*; but when it is grown callous, a *Condyloma*.

loma. Both the one and the other are to be taken with the Forceps, and cut off; and the Cure is to be managed with Cicatrizers. As for the *Rhagades* which are caused by hard Fœces, and are slow of healing on account of their Callosity, we heal them; or by scratching them with the Nails, or the Knife, dispose them the more readily to cicatrize. *Paulus Aeginet. Lib. 6. Cap. 80.*

Of a THYMUS of the ANUS.

The Appellation of *Thymus* is taken originally from the Tops of the Herb of the same Name, [*Thyme*] which grows upon Hills. A *Thymus* in the Body is a rough, reddish, oblong, tuberculous Eminence, which, when it is taken off, discharges more Blood than in proportion to its Bigness. It very commonly affects the Parts about the *Anus* and *Pudenda*, and also the Middle of the Thighs, and sometimes it appears in the Face. This Sort of Excrecence, when small, is called a *Thymus*; when of an excessive Bigness, a *Ficus*; and sometimes it is mild, sometimes malignant. The mild *Thymus* is a small uneven Caruncle, which has its Superficies exasperated by obscure, or scarce perceptible Eminences, of a whitish Colour, or somewhat red, and void of Pain. But the malignant *Thymus* is harder, rougher, and larger, and of a fœculent and livid Colour, painful, and causing a pungent Sensation, and is very much exasperated by Handling, or the Application of Medicines. A mild *Thymus* is easily cured, but a malignant one is incurable; tho' this latter is sometimes cured not by local Excision, but by taking off the Part in which they grow.

For a *Thymus*,

Take dry'd Sage, and pound it with dry'd Figs, and let the Patient eat thereof, and the *Thymus* will disappear. For the same Disease in Cattle, expose Barley to the Dew, and strew the same Herb among it, and let them feed thereon, and you will see Wonders.

For a THYMUS in the ANUS, PUDENDUM, or any other Part of the Body.

Take of Plumous Alum, Vitriol burnt, Glew, each one Ounce twenty Grains; of Squama *Æris*, two Ounces forty Grains; bruise them, and put them in Glew that has been before dissolved in Water, and anoint the Place. *Actius, Tetrab. 4. Serm. 2. Cap. 4.*

Of a FUNGUS of the ANUS or UTERUS.

An Ulcer, like a Fungus, frequently affects the same Parts, which, if it happens in the Winter, must be fomented with warm, in the Summer, with cold Water. After this, the Place must be sprinkled with Squama *Æris*, and upon this must be apply'd a Cerate made of Oil of Myrtle, mixed with a little Litharge, Soot, and Lime. If it cannot be removed by these or such-like Medicines, or by others of greater Vehemence and Force, it must be cauterized with a hot Iron. *Celsus, Lib. 6. Cap. 18.*

Of the HERPES and NOMA of the ANUS.

Sometimes the *Anus* is infested with a *Herpes* and *Noma*: If a *Noma* affect the Sphincter of the *Anus*, the Disease must be carefully treated in a Method adapted to the Cure of a *Noma*; for the Sphincter, being one of the interior Parts of the *Anus*, and very nervous, cannot bear cutting or burning, an Abcision of any Part of that Muscle being followed with Convulsions, with a Wasting and Decay of the Caruncle. This we know by Experience; for oftentimes when, for want of due Surgery, the Sphincter has been consumed by the *Noma*, the Wasting of the Caruncle has been the Consequence. We must therefore have recourse to such Remedies as are proper for a *Noma*; such are daily Embrocations with the Decoction of Myrtles, Rind of Pomgranate, the Bramble, and the like. And first let us cauterize the preternatural Corpuscles with the Troches called *Faustine*, [See *FAUSTINE*] or some such thing; then use burnt Paper, and afterwards apply the Plaster *Isis*, [See *ISIS*] dissolved in Plenty of Oil of Roses, and spread on Linen.

When a Phagedenic Ulcer in the *Anus* spreads by eating, something must be attempted, and a Stop put to it by dividing the corrupted Parts from those which are sound; with the Knife; after which, apply an actual Cautery to the Place; for the *Podex*, being a fleshy Part, can easily bear the Operation. The Cure, after the Operation, is to be managed like that of other Ulcers; but where Burning has been used, it will be proper to use the same Remedies as we have before prescribed in the like Circumstances under a *Prolapsus Ani*. *Actius, Tetrab. 4. Serm. 2. Cap. 10.*

Tubercles, Condylomas, Cristas, Ficus, and Fungus, of the ANUS.

Sometimes the *Anus* is infested with Tubercles at the Extremity of the Intestinum Rectum, which arise both on the Inside and Outside. Though these Tubercles are divided into various Species according to their Magnitude and Figure, and are

sometimes called *Condylomata*, sometimes *Crista*, sometimes *Ficus*, or *Fungi*, yet they all seem to agree in owing their Original partly to a Redundance, and partly to a Corruption of the Blood, that stagnates about these Parts, and especially the Glandules, whence they insensibly increase in Magnitude like a Polypus in the Nose, or those Tubercles which arise in the Uterus. They often molest those who are subject to the Hæmorrhoids; nor are they only troublesome, but sometimes accompany'd with acute Pains; so that the Patient cannot sit down without much Difficulty, and is forced to implore the Help of a Surgeon. Such Tubercles in the *Pudenda* are judg'd by *Celsus* to be of the worst Kind; and I have often discovered in them some Seeds of the Lues Venerea. Hence it is no Wonder, that the Antients, who knew no Remedies for the Venereal Distemper, judged these to be the worst Sort of Tubercles.

The Cure of these must be managed like that of other Tubercles, and carnosus Excrecences, which is by Extirpation, by means of a Ligature, or Abcision with the Knife or Scissars, except their Root be too large; by this Operation I have cured several Sorts of them. If their Root be so large as to admit of no Ligature, the Tubercle is to be distended with the Hook or Forceps, and most exactly cut off with the Knife or Scissars. The Wound being made, the Blood must be suffered to run for some time, according to the Strength of the Patient, in order to prevent an Inflammation; then, after the Use of Styptics, Lint and Bolsters are applied, and the Wound is bound up. The Cure is carried on with Vulnerary Balsams, and some drying Ointment, and at last with dry Lint, to promote Conglutination. If in the subsequent Dressings any foreign Matter is observed to remain after the first Operation, Care is to be taken, that it be exactly cut off with the Scissars, or eaten quite away with blue Vitriol, Lapis Infernalis, or such-like Caustics. In many Cases the entire Tubercles themselves may conveniently enough be extirpated by the Use of Corrosives, as *Celsus* formerly advised, if Care be taken, that they do not hurt the Intestine or Sphincter. The Antients, when they could not remove them by Medicines, advised the Application of actual Cauteries. *Heister. Instit. Chirurg.*

Of an imperforated ANUS.

Sometimes in new-born Children the *Anus* is naturally imperforated, being closed up with a Membrane. In this Case the Membrane is to be broken with the Finger, if it be possible, or else cut off with the Knife, and the Place must be healed with Wine.

Often also in grown Persons, by means of an Ulcer ill cured, there happens a Coalition of the *Anus*. In this Circumstance also the Part must be opened with an Instrument, and for the more convenient Management of the Cure, and to avoid a new Coalition, a leaden Pipe, or Cannula, anointed with some Epu-lotic, is to be put in the *Anus*, and worn till the Cure be perfected. *P. Aeginet. Lib. 6. Cap. 81.*

The Method of making an Aperture in the *Anus* when imperforate.

It sometimes happens, that a Child is born with the *Anus* quite closed up, contrary to the Disposition of Nature. These are called by Physicians *Atreti*, [from a Neg. and *rete*, to perforate] *imperforate*. The Child is immediately perceived to labour under this Defect, if it has not been observed before, by voiding no Excrements the first Days after its Birth. It might indeed be sooner known, if the Midwives, immediately after washing and cleansing the new-born Infants, did, according to their Duty, inspect this Part, and observe whether it is rightly conform'd. If this be neglected, the Physician often comes too late, as *Roonhuysen, Observ. 5. Part. 1.* well remarks.

The Quality and Degree of this Defect vary according to the different Thickness of the Tegument that closes up the *Anus*. Generally some Sign or other, as a Prominence or Pit, shews the Place where Nature designed a Perforation; but sometimes no such Mark can be perceived; sometimes only a thin Membrane comes over the Part; sometimes solid Flesh, either thicker or thinner, obstructs the Passage of the Excrements. Whatever may be the Cause of the Disorder, 'tis certain, that if the *Anus* be not speedily perforated, and a Way laid open, it cannot be avoided, but that the Excrements, call'd *Meconium*, being retained beyond their due Time, the Child will be seized with dreadful Gripes of the Belly, Vomiting, Jaundice, Convulsions, Epilepsy, and at last, vomiting up the Excrements, and so perish in a miserable manner. If only a Membrane, or thin Piece of Flesh, stops up the natural Passage, the Place where the Aperture is to be made, will be marked by a sort of Cicatrix, or shewn by the Protrusion of that Membrane, or Flesh, by the Excrement of the Child. In this Case the Cure is easily performed: On the contrary, it is with great Difficulty, and not without Danger, that the *Anus* is perforated, when a pretty thick Piece of Flesh shuts up the Rectum in such a manner, that neither Pit nor Prominence can be perceived. In the last Place, as I have more than once myself observed, either the whole Intestinum Rectum, quite up to the Colon, or highest

Part of the Os Sacrum, is closed up, or is wholly wanting, and the Intestines end about the lowest Part of the Loins, or Top of the Os Sacrum. In such a Case, we are to lay aside all Thoughts of a Cure. *Roonhuysen* relates an Instance, where the Rectum terminated in the Bladder.

If the Nature of the Defect be such as to admit the Hopes of a Cure, all we have to do is to make a convenient Aperture in the *Anus*, or Extremity of the Rectum. That this Operation may be successful, observe the following Directions: First of all, the Child is to be laid, or held in a Lap by an Assistant, in such a manner, that the Surgeon may have a clear View of the *Anus*, and have it in his Power to treat it as he pleases. Then with a Lancet, or a two-edged Incision-knife, a little bigger than a Lancet, he is to make an Incision through the Membrane, or thin Flesh, into the Rectum, almost in the same manner as in opening Abscesses. That the Operation is effectually performed, will be shewn by the Efflux of the Mæconium, or black Fæces, which must be suffered to run till they stop of themselves. This done, he is next to thrust his Finger, rubbed with Oil, through the new-made Aperture into the Rectum, and nicely feel whether the Passage be wide enough for the Excrements. If he finds it is too narrow, it will be necessary to lengthen the Incision either upwards or downwards, or both ways, as he shall see most convenient; or to enlarge the Aperture by making a new Incision crosswise, by which means the *Anus* will be the better disposed to assume its annular Figure. After this, the Surgeon is still to wait till the Child discharges whatever Fæces may be yet left behind; which being evacuated as much as shall be thought necessary, he is to thrust a pretty large Tent anointed with Oil, or some vulnerary Ointment, and ty'd with a strong Thread, or small Cord, into the fresh Wound, that there may not be a new Coalition of the *Anus*, the Thread hanging out, that if the Tent should happen to slip inwards, it may serve to draw it back, as often as the Child shall evacuate by Stool: Afterwards it will be convenient to use a new Tent, which after some Days should be rubbed over with some drying Ointment, such as that of Cerufs, till the Lips of the Wound are dried up, and there is no Danger of a new Coalition of the *Anus*. *Hildanus*, about the End of the Cure, instead of a Tent put up a leaden Pipe, anointed with Ointment of Cerufs. But that the Tent, or Pipe, may not easily fall out, a fit Bolster is to be applied to the Wound, and firmly fasten'd upon it by the Bandage. Lastly, if, perhaps the next Day, or the Day after, it be perceived, that the Aperture, which was made the first Day, is yet too small, nothing ought to hinder the Surgeon from dilating it, as much as may be convenient.

What we have often recommended in other Operations, which is, that all things pertaining to the Dressing of a Wound, should be provided before it is inflicted, is not so necessary in the present Case, and sometimes is pernicious; because Delays in this Circumstance are often dangerous, especially when the Child has lived some Days in this Condition. For as the miserable State of the Infant often requires the most expeditious Opening of the closed *Anus*; let us forthwith make the Incision, and the Things, necessary for Dressing, may be conveniently enough provided while the Fæces flow out of the Aperture.

If a thick Membrane, or Piece of Flesh, intercept the natural Passage of the Excrements, it will be more difficult to save the Life of the Child. But it seems better, tho' perhaps in vain, to attempt the Operation, while any Hope remains, than to abandon the miserable Infant to certain Death, without the least Help. Under this Circumstance our Method of Cure must proceed in the following manner: First, let the Surgeon try, with the Help of his Finger, to discover some Mark of the *Intestinum Rectum*, as a Cavity or Passage; then the Place, under which they are perceived, is to be marked with Ink, and an Incision made therein of the Length of a Finger's Breadth. If no Fæces issue from the Wound, the subjacent Passage of the Rectum is to be anew investigated by pressing with the Finger; and, as soon as it is discovered, the *Anus* is to be perforated, either with one Stroke, or by Degrees, to the very open Passage of the Intestine: But this must be done with Discretion, and the Instrument must not be carried with its Edge towards the Pubes and Vesica, but towards the *Os Sacrum*; for, otherwise, there is Danger of hurting the Bladder in Boys, or the *Vagina*, or both, in Girls. The *Anus* being perforated, the Patient is to be treated as before directed.

If there be no Sign at all of an Opening in the *Intestinum Rectum*, then either that Part is solid, or, as I myself have seen, is wholly wanting; and this consequently renders the Cure extremely difficult, if not desperate. However, even in so deplorable a Case, it is not fit to leave the Infant destitute of all Assistance, lest we should seem to chuse rather to wait for a most certain Death, than to attempt a doubtful Cure; wherefore, fixing on a Place, which seems the safest and most convenient for the Purpose, we enter it with a triangular perforating Instrument, (*Tab. 45. Fig. 2.*) or a narrow Incision-knife, which we plunge so far in the *Anus*, till some Perforation of an Intestine discovers itself by the coming out of the Fæces. *Saviar-*

us has an Example to this Purpose, where he was obliged to thrust in a Knife to the Depth of three Fingers Breadth, by which he saved the Child's Life, *Observat. 3.* The Aperture, thus made, is to be enlarged with the Knife, upward or downward, as much as shall be thought fit; and the Fæces, as was before directed, being evacuated, Care is to be taken, that if there should happen a more than ordinary Profusion of Blood, from the cutting of so many Vessels, a proper Remedy may be applied. For this Purpose it seems necessary to thrust into the Wound a Tent that is big enough, and fitted with a small Cord, and rubb'd over with a proper Medicine to stop the Blood; after this we are to follow the Directions before given. At the End of twelve, or four-and-twenty Hours, it will be proper to take out the Tent, if it has not fallen out of itself, and, immediately after evacuating the Fæces, to supply its Place with another; which at first, for some Days, must be rubb'd over with a digestive Ointment, and afterwards with one which is drying, till the Conglutination be perfected: But if the Intestine cannot be opened, even by so deep an Incision, the Child can by no means be preserved; but, after long and violent ster-coraceous Vomiting, will die in Convulsions.

ROONHUYSEN, in the Appendix to his Observations, *Part 2. Obs. 1.* relates an Instance of a Female Child, four Months old, who had a Perforation in the *Anus*, but so small and streight, that the Mother was always obliged, with a great deal of Pains, to extract the Fæces with her Hands. The *Anus* at last swelling, because, perhaps, of the frequent Compression, the Passage of the Fæces closed up in such a manner, that there was not the least Vent: Of consequence the Belly swelled, and violent Pains, together with a Fever and Restlessness, arose, which threatened the Life of the Child. He made no Delay therefore, but first cut the *Anus* with a Lancet, and then enlarged the Incision both Ways with the Scissars; upon which issued out a vast Quantity of Excrements; the Belly soon after fell, and the rest of the Symptoms remitted, and the Wound was healed by the Method before prescribed. So *Scultetus*, in his *Armamentarium Chirurgicum*, *Obs. 71.* gives us an Example of an *Anus*, that was not sufficiently perforated. In some Girls, who have naturally a closed *Anus*, the Fæces make their Way from the Rectum to the *Vagina*. This Misfortune very seldom finds a Remedy; but the miserable Patients, if they survive, are afflicted with the same during Life. *Heister, Institut. Chirurg.*

Mr. Jussieu, according to the History of the Royal Academy of Sciences, for 1719. mentions a Girl of seven Years old, whose *Anus* was imperforate, and who discharged the Excrements by the Vulva.

How to cure a Falling down of the ANUS, or the Orifice of the Uterus.

If the *Anus* itself, or the Orifice of the Uterus, which sometimes happens, falls down, we are to consider, whether the prolapsed Part be clean, or encompass'd with a mucous Humour; if clean, the Patient is to sit in Water, either salt, or what has had Vervain, or Rind of Pomgranates boiled in it; if it be humid, it must be washed with austere Wine, or anointed with burnt Lees of Wine. When you have done either of these, the Part is to be replaced, and Plantain bruised, or the Leaves of Willows boiled in Vinegar, are to be laid upon the Place; upon these, Linen and Wool; and over all must come a Bandage, the Legs being also bound together. *Celsus, Lib. 6. Cap. 18.*

For the Falling down of the ANUS.

We use, first, to foment the prolapsed *Anus* with Brine or Sea-water, and oftentimes there needs no other Remedy. Sometimes we sprinkle the Part with pounded Salt, the Patient being conveniently placed for that Purpose, and wait a sufficient Time till the distilling Humidity comes forth. Then, after using Embrocations, and astringent Lituses, as Acacia or Hypocistis, in Wine, we put back the prolapsed Part into its Place. The next Day we prepare an Infusion, or astringent Infusion, such as a Decoction of Myrtle, or Olive-leaves, or Bark of Pomgranate, in harsh black Wine. But, for Children, we must avoid Astringents, and use milder Remedies: If the Case be urgent, we apply astringent Cataplasms, of Dates, Quinces, and the like, to the Loins, and also to the *Anus*. The Diet must be of good Juice, as Milk-meats, Rice-milk, and the like; and the Patient must drink Milk. Remedies for this Disorder are as follow:

Boil a Gall, and, reducing it to Powder, sprinkle therewith the *Anus*: If you want a strong Remedy, boil it in Wine; if a more gentle one, boil it in Water. Or,

Take of Bark of Pine-tree, eight Drams twenty Grains; Pills of Cypress, Plumbage, each two Drams five Grains; first wash them with four astringent Wine, then pulverize them, and sprinkle therewith the Part affected. Or,

Take

Take of the Recrement of Lead, eight Drams twenty Grains; Frankincense, two Drams five Grains; wash and pulverize them.

Take of Balaustines, one Dram two Grains and a half; Bark of Pomgranate, two Drams five Grains; Seeds of Henbane, Cerufs, each eight Drams twenty Grains; Myrrh, two Drams five Grains; wash and reduce them to Powder.

Another Remedy, which is my own, for a prolapsed *Anus*.

Take of the Fruit of Heath, Galls, Acacia, Cerufs, Juice of Hypocistis, Bark of Pine-tree, Myrrh, Frankincense, each a like Quantity; pulverize them, and sprinkle the Powder, after you have washed the *Anus* with austere Wine.

Take burnt Lentils, burnt Bread, Meal of the bitter Vetch, each a like Quantity; apply them with Vinegar and Soap.

First, wash the *Anus* with Wine; then sprinkle thereon the Powder of dry Pitch, or of calcined earthen Pots.

Wash the Part with the Decoction of Cypress; then sprinkle it with the Powder of *Album Græcum*; and make a Suffumigation of dry Pitch, Bitumen, and Cypress. Or,

Anoint the Part with Coriander-seed and Laser in Wine; and every Day apply a Cramp-fish, and it will contract.

Take of Bitumen and Galls, an equal Quantity; dry and pulverize them, and sprinkle the Part with the Powder. This is a very celebrated Remedy. *Aetius, Tetr. 4. Serm. 2. Cap. 7.*

Of curing the PROLAPSUS ANI by Burning, from Leonides.

When the Disorder is grown inveterate, and next to incurable, and no Relief is to be had from Physic or Diet, recourse must be had to Burning: For tho' the rest of the Intestines are reckoned among the principal Parts, the outward Extremity of the *Intestinum Rectum* is not of that Number; but may be cut and burnt without Danger, as Experience shews. It will be convenient therefore to apply an actual Cautery, in form of a Nucleus, (or Fibula) to the external Part of the *Anus*, at moderate Intervals of Time; which, by raising a solid Eschar round the *Anus*, causes in it a Constriction capable of repressing the Part, and retaining it in its due Place. After the Burning, apply Lint, moisten'd with Milk and Honey, to the Place, and bind it up: When the Crust is fallen off, apply Lentils and Honey; and when you have destroyed the Ulcer, use a Plaister of Barley, or any other Cicatrizer proper in Affections of the *Anus*. *Aetius, Tetr. 4. Serm. 2. Cap. 8.*

In some Persons, as well Infants as Adults, the *Intestinum Rectum* (strait Gut) often falls through the *Anus* in a surprising Manner, so as to hang out some Inches, a Hand's-breadth, or more. *Muraltus* has a remarkable Example of a Woman, who, after difficult Labour, had the *Intestinum Rectum* fallen out an Ell in Length: And *Saviardus* gives an Instance of another, who was but an Infant, in whom the same Part hung out no less than a Foot. This is not only a troublesome, but usually a very painful Disorder, especially to those whose Business requires Labour and Travelling; and sometimes a dangerous Inflammation, and a Tumor, with a Gangrene or Cancer, seizes the prolapsed Part of the Intestine; an Example of which kind you have in *Meckrenius*, at the End of his Chirurgical Observations.

The original Cause of this Disorder is, without Doubt, the too great Laxness or Debility of the *Rectum Intestinum*, which is afterwards promoted by the Accession of other concomitant Causes; such as some great Vociferation, or, in Infants, vehement Crying; also a Tenesmus, excessive Pains of the *Anus* from the Hemorrhoids, a Dysentery, Stone in the Bladder, or Exulcerations of the same, difficult Child-birth, Costiveness, and the like. The Disease, in the Beginning, is, for the most part, easy to be cured; but the more inveterate it grows, the more difficult is the Cure, especially if the Patient be infirm, and of an ill Habit of Body; and if it proceeds from an inveterate Debility of the Intestine itself, there is but little room to hope for a perfect Restoration: But when a Gangrene or Cancer has seized the prolapsed Part, the Surgeon can do no more than apply to it lenient Remedies, and Fomentations; or, if it may be done with Safety, that is, when only a small Part protrudes, entirely cut it off.

The Surgeon who attends the Patient is to make no Delay, but restore the prolapsed Part of the *Anus* into its natural Situation, without much troubling himself about inquiring into the

Causes of the Disorder, or the Method of Dressing; for the longer the Intestine hangs out, the more are the Tumor and Inflammation exasperated, and the more difficult is the Cure.

In order to the replacing of the Intestine into its proper Place, the following Method is to be observed: First of all, the Patient is to lie flat upon his Face, either upon a Bed or a Table; then the prolapsed Intestine is to be very carefully fomented, especially where it is dry, with warm Wine, or common Spirit of Wine, or Milk, or with warm Water, by means of a Sponge, or folded Linen, squeeze'd out of some such Liquor warmed: Soon after let the Surgeon, with his two Fingers wrapp'd in fine Linen, gently put back the Intestine into its Place, in the same manner as he would the Intestines in a Perforation of the Abdomen. This is done without much Difficulty, if the Tumor and Inflammation are inconsiderable: But if the prolapsed Part of the Intestine be very much tumefied, we are to use, besides Phlebotomy, digestive Fomentations, till the Tumor be entirely repressed, and the Part in a Condition to be restored. However, the Operation is sometimes so difficult, that one Surgeon alone is not able to reduce it without calling in another of the same Profession to his Assistance. Where the Intestine, through Debility, has been long and often subject to a Fall-down, which to some happens as often as they go to Stool, the Patients may themselves replace the Part with their Fingers, without the Help of a Surgeon, or at least the Surgeon may easily do it for them. In this Case, the Method of Cure turns wholly upon corroborating the Intestine by proper Remedies, that it may be enabled to preserve its right Situation, without Danger of a new Prolapsus.

To answer this End, and to keep the Intestine in its Place by convenient Strengtheners, so as that it may fall down no more, greater Art and Industry are required than for the Replacing of it. The Means to be used for this Purpose are such as follow:

First of all, two pretty thick Bolsters are to be provided; one of which, of an oblong Form, is to be applied lengthwise between the Buttocks; the other, which must be square, is laid over the former and the *Anus*, and carefully secured by a linen or cotton Fillet. It would be proper also, that the Bolsters should not be laid on dry, but moisten'd with some warm corroborative Decoction: A very powerful one, in this Case, is prepared of the Roots of Bistort and Tormentil, with the Bark of Pomgranate and Oak, Galls, and Oaken Leaves, and other things of that Nature, boiled in Wine, especially red Wine. The prolapsed Intestine is also, on Occasion, to be fomented with the Decoction; that is, whenever it falls down again, which, to some Persons who have been long afflicted with this Disorder, happens, as I said, almost as often as they go to Stool, or whenever they walk, or any way exert their Strength. If the Disorder be somewhat above the ordinary Degree, an excellent Powder, for corroborating the Intestine, may be prepared of Mastich, Colophony, Japan Earth, and Dragon's-blood, which, after Fomentation, must be plentifully sprinkled on the Part that hangs out, before it be replaced, and secured with a Bandage. *Saviardus*, after replacing the Gut, thrust up a Tent, sprinkled over with Astringents, through the *Anus*. Strengthening Clysters are also of good Use, such as those prepared of a Decoction of corroborating, aromatic, and astringent Herbs in red Wine, particularly what is commonly call'd *Pontiac*. These Directions being carefully observed, the Patients, except the Disease be grown inveterate and desperate, are very often restored.

If the Disease will not give way to the Remedies mentioned, the Patient must not only be treated with Suffumigations of Mastich, Frankincense, Amber, black Pepper, and other powerful Drugs of that Kind, placed under a perforated Chair; but all hard, gross, dry Food, and such as binds the Belly, must be strictly forbidden, lest in Over-straining, by reason of Costiveness, the Intestine should be again protruded. The Fomentations above-mentioned, with the Bandage, must be renewed after every Stool. The Patient must abstain, as much as possible, from Vomiting and Sneezing, and all violent Motion of the Body, and must resolve to live in a State of Rest till the Disease be subdued. *Dionis*, with some other Authors, tells us, that the Patient may effectually guard against a new Prolapsus, by taking care, whenever he eases Nature, to sit on a Stool that has a Cleft of about two Fingers Breadth, or is perforated with a Hole of the Compass of a large Piece of Money; by which Means he will restrain the Falling-out of the Intestine. Some, after replacing it, intrude a leaden Pipe into the *Anus*, and endeavour, that way, to prevent a new Prolapsus: But if the Disorder be grown inveterate, and occasioned by a remarkable Debility of the Parts, all these Kinds of Remedies, and Artifices of the Surgeon, are of no Use; but the Patients are to be treated with Bolsters and Bandage, that the Intestine may be constantly retained in its natural Place, unless we have a mind to expose them to greater Danger. *Heister, Institut. Chirurg.*

Of a Fistula of the Anus, from Leonidas.

An Ulcer ill cured, especially about the *Anus*, is often succeeded by a Fistula. When this happens, let the Patient be placed on a Couch, or some other plain Place; and let the Surgeon seat himself before him, somewhat on the Right: Then let him take a Probe, and, introducing its Head into the Fistula, thrust it forwards through the Cavity. After this, let him intrude the middle Finger of his Left Hand into the *Anus*, and, with it, taking hold of the Head of the Probe, bend it; and bringing both Extremities of the Fistula upon a Level, distend them with his Left Hand, and so cut off all the callous Corpufcles round about them, at one Stroke, if it may be done: If there remains any Callosity after the Section, it must be scraped with the Knife. A Callus is known by its whitish Colour and Renitency. If there appear any Rhagades near the Place, they must be distended with the Forceps, and cut off, that the Sore, being made plain and smooth, may the more easily be healed. After the Operation the Wound must be filled with *Manna Thuris*, on which Lint must be laid, and a proper Bandage must be made upon it; and the Cure managed like that of common Ulcers.

If the Patients, out of Tendernefs or Timidity, intreat us to cure them by Medicines, we are, first of all, to use such as are proper to dry and close up a Fistula. If these are ineffectual, we must have recourse to those which have the Virtue of corroding and consuming the callous Particles, and are called *Fistular Collyriums*. Medicines adapted to dry up a Fistula are, a Plaister prepared of Litharge of Silver, Vinegar, and Oil, *Galen's Emplastrum sine Cera*, the Plaister called *Harmonia*, *Emplastrum ex Salicibus*, *ex Lolio*, and such-like. The following is a good Remedy for *Rhagades*, *Condylomas*, and in the Beginning of a *Fistula*:

Take of the Root of Peony, burnt, four Ounces; Bitumen Judaicum, two Ounces forty Grains; crude Sulphur, one Ounce twenty Grains; Wax, two Ounces forty Grains; Oil of Myrtle, a sufficient Quantity. Or,

Burn Quinces to Ashes, and strew them upon the Orifice of the Fistula; then apply Lint, and upon that a Plaister of Wine or Oil, or some such thing, and bind it up: Dress it once in two Days.

Troches for a Fistula of the *Anus* are thus prepared:

Take Chalcitis burnt, eight Drams twenty Grains; Copper burnt, Cadmia, Earth of *Crete*, each four Drams ten Grains; Pompholyx, Box-thorn, each three Drams seven Grains; Aloes, Saffron, each two Drams five Grains; Gum *Arabic*, two Ounces forty Grains: Bruise them in the Juice of Groundsel, or that Species of *Serapias* which has a Root resembling three Testicles; and make them into Troches, which may be used dry, or with Vinegar, or Cerate. *Aetius, Tetr. 4. Serin. 2. Cap. 11.*

Fistulas in the *Anus*, which are of the occult Kind, and have no apparent Orifice, are known by a Pain, and a purulent Humidity issuing from the *Anus*: They are also very often the Consequences of an Abscess: The conspicuous Sort are discovered by introducing a Probe, or a Hog's Bristle, which, penetrating the Cavity, meets with the Fore-finger, supposed to be introduced into the *Anus*, the Fistula being perforated towards the internal Parts; but in Fistulas not internally perforated, the Instrument and Finger are hindered from mutual Contact, by the imperforated Medium. Fistulas are known to run obliquely, and winding like a Labyrinth, when the Instrument meets with Resistance, and can penetrate but a little Way; and yet a more than proportionable Quantity of Sanies is discharged. Fistulas seated near the Intestine are known by the coming off sometimes of Worms and Fœces through the Orifice. They have all, or most of them, their Orifice surrounded with a Callus: A Fistula which has perforated the Neck of the Bladder, or is seated by the Joint of the Thigh, or has proceeded to the *Rectum*, is incurable. Those which have no Orifice, are occult, end upon a Bone, or spread into Branches, are difficult of Cure; but all the rest are easily cured.

The Operation for a Fistula is performed in the following manner: The Patient is laid upon his Back, with his Legs raised aloft, and his Thighs bent towards his Belly, in the same Posture as when he is to take a Clyster; and if the Fistula terminate in the Superficies, with the Knife or Probe introduced through the Orifice, we cut the incumbent Skin with a plain Incision: If the Fistula terminate deep within the *Anus*, with one Hand we introduce a Probe through the Orifice; and, if the Fistula be perforated, we lay hold of the Head of the Probe with the Fore-finger of the other Hand, and, bending it, bring it forth thro' the *Anus*, and cut thro' the Substance, betwixt the

two Sides of the Probe, with a plain Section. If the Fistula be not yet perforated, but has deeply penetrated into the *Anus*, and the Head of the Probe is hinder'd from meeting with the Finger, only by the Interposition of some squamous and membranaceous Body, we violently perforate it with the Head of the Probe, which we bring out through the *Anus*, and cut the intermediate Substance as before: Or, we first perforate the Bottom of the Sinus, in the *Anus*, with a Falx (*σφαλερ*) made on purpose for cutting of Fistulas, and, transmitting it through the *Anus*, cut through all the intermediate Parts with the Edge of the Falx; then taking hold of the circumjacent Substances, which are all callous, with a Forceps, we cut them off, taking care to avoid hurting the Sphincter: For some, in making a deep Incision, after an unskilful manner, have wounded that Part; whence the Patient has been molested with involuntary Excretions of the Fœces. If any, through Fear, refuse the Operation, we must have recourse to *Hippocrates's* Line, and make use of a Ligature of Thread. For *Hippocrates* orders us to take a double-headed Needle, perforated, and threaded with a five-fold Thread of raw Flax, and pass it through the Fistula; then tying the Ends of the Thread in a Knot, to strengthen it, every Day, till the Thread has cut through all the intermediate Substances between the two Orifices, and falls off. If the Parts are slow in separating, the Thread may be sprinkled with dry Sand, and so drawn through the Place. Some put a Thread through a Hook, made hollow like a Pipe, and pass it as above related: But these are Methods which I can by no means approve; for while they avoid the Operation, and refuse to be cut, besides other Inconveniencies, they greatly prolong the Cure.

As for occult Fistulas, *Leonides* says, "When the Fistula, which has perforated the Sphincter, lies deep, whether it began from the *Anus*, or, after making a great Progress, has seated itself in that Muscle, the Part being first searched as before, the *Anus* is to be dilated with an Instrument called a *Speculum*, in the same manner as the *Sinus Muliebris* is dilated; and when you can discern the Orifice of the Fistula, the Head of the Probe is to be introduced, and carried to the Bottom of the Fistula; and the whole Fistula, thus discovered, must be laid open with the Knife or Instrument appointed for cutting of Fistulas." But we, for our Parts, when we happen'd to meet with an Instance of this Kind, could not perform this Piece of Surgery; because we could have no Sight of the Place where the Fistula resided, which was on the Right, between the *Anus* and the Sphincter. But after we had dilated the *Anus* with our Fingers, a Fissure appeared, which was seated near a Wrinkle of the *Anus*, and seemed to be a Vent-hole for the Fistula; for it discharged Pus. Through the Fissure we introduced the Head of the Probe, as the ready Way to the Fistula; then intruding the Fore-finger of the Right Hand within the Sphincter, and finding but a thin Substance between the Finger and the Instrument, we pushed the Probe, with some Force, towards the Finger, and so perforated the Bottom of the Fistula; and, with the Finger, brought out the Head of the Probe through the *Anus*: This done, with an Incision-knife we divided the whole Substance between the two Orifices of the Fistula; that is, between the Fissure where we enter it, and the Perforation we had made; and so freed our Probe. *P. Aegineta, Lib. 6. Cap. 78.*

Ulcers which infest the *Anus*, and the Parts about the *Rectum*, while recent, and discharging a laudable Pus, are called Abscesses of the *Anus*; but when grown inveterate or callous, and continually running with a thin foetid Sanies, which is sometimes more, sometimes less copious, they have been by Physicians, from the most early Times, called *Fistulas* of the *Anus*, and distinguished into various Species, according to the Condition of the Distemper: For some of them are small and recent, or at least not so inveterate; some penetrate deep, but are of narrow Extent; others, on the contrary, are grown inveterate, and so severe, deep, and extensive, as to render the *Rectum* conspicuous, and quite bare of Skin and Fat. Some very bad Instances of this kind I remember to have observed. Sometimes a *Fistula*, while recent, is without any remarkable Callus; but most of them are observed to have a Hardness, or Callus, of a thinner or thicker Substance, especially about the Orifice. Sometimes a *Fistula* takes but one strait Course; sometimes it makes its Progress by a Multiplicity of Ways, that turn and wind about. For the more convenient and distinct Consideration of them, we shall, in Imitation of the most noted Surgeons, make a three-fold Division of these Fistulas.

The first Sort are those which, from one or two conspicuous Orifices near the *Anus*, discharge, as we said, a thin and foetid Matter, and almost constantly appear hard, the *Intestinum Rectum*, and *Sphincter* of the *Anus*, not being yet perforated, but remaining intire. How deep, and towards what Parts, they penetrate, is best discovered by introducing a Probe into the Sinus, and the Fore-finger of the other Hand, first rubb'd with Oil, into the *Anus*: For, if there be no Perforation, the Instrument and Finger will be prevented from coming together by the sound

found and unperforated Intestine; whose Thinness or Thickness may, at the same time, be discovered. But when we are determin'd to probe these *Fistulas*, the Finger is first to be introduced into the *Anus*; for otherwise the Intestine is in Danger of being easily perforated by the Probe, and in an improper Place. Sometimes these Sinuses wind and turn in so intricate a Manner, that 'tis impossible with the Probe, how skilfully soever directed, thoroughly to investigate the Condition of the inner and smaller Sinuosities; tho' we may perceive, by the daily copious Discharges of Sanies or Pus, when the Cavities are many or great: Wherefore it seems necessary, for the better Examination into this *Fistula*, to syringe it with warm Milk, taking Notice how much enters, by which you estimate the Capacity of the Cavities; and observe whether any of the Milk returns by way of the *Anus*: If none comes back by this Passage, we judge the Intestine to be unperforated, as, on the other hand, the contrary appears, when the Milk is return'd by the *Anus*, or the introduced Finger feels the naked Probe. We are taught, however, by Experience, that tho' the Intestine be not penetrated quite through; its external Coats may be very thin and corroded, and loosen'd or disjointed from one another by intermediate Sinuses, in which Case we can never warrant a Cure without cutting the Intestine.

Another Species of *Fistulas* is known by an Efflux of Sanies from two or more Orifices, one or more of which open into the Rectum, and the rest are outwardly conspicuous near the *Anus*. Such a *Fistula* is in some measure represented *Tab. 56. Fig. 1. C. C.* The same is more manifest, if the Head of the Probe introduced with one Hand into the *Fistula* meets with the bare Finger of the other Hand intruded into the *Anus*; or if a Clyster, Milk, or any other Liquor, injected into the *Anus*, is return'd by the external Orifice of the *Fistula*; or, as it sometimes happens, when the Excrements, Wind, or Worms, are voided the same way.

The third and last Species comprehends those *Fistulas* whose Orifice opens into the Rectum, the external Parts contiguous to the *Anus* remaining sound; represented *Tab. 56. Fig. 1. F. G.* These are usually called secret, blind, or imperfect; the former, manifest and perfect *Fistulas*. The blind, or secret, are known by an Efflux of corrupt Matter every Day from the *Anus*, especially if no Ulcer affects the external Parts, or if the Patient complains of a Hardness or painful Tumor near the *Anus*. Sometimes the internal Orifice of the *Fistula* is found to be very deeply situated in the Intestine, but, for the most part, it is conspicuous near the Sphincter of the *Anus*, or in it; as they are both represented *Tab. 56. Fig. 1.*

However it be, the affected Place ought to be very carefully searched out, which may be done by cautiously intruding the Finger, rubbed over with Oil or Butter, into the *Anus*, and, with all the Skill requisite, exploring the internal Orifice of the *Fistula*; or if this be not sufficient, a *Speculum Ani* may be used, such as is represented *Tab. 55. Fig. 15.* or any other fit for the Purpose. But sometimes this internal and troublesome Investigation is unnecessary, as when the Seat or Sinus of the *Fistula* is evident enough from the external Tumor and Hardness.

Fistulas which have a double Orifice, one of which opens into the Intestine, and the other outwardly, are called *perfect* or *complete*; the rest, which have only one Vent, *imperfect*; the French call them *incomplètes*. The last Species is subdivided into two Inferiors; for, with respect to the Situation of the Orifice, imperfect or incomplete *Fistulas* of the *Anus* are some of them *external*, some *internal*. Moreover some *Fistulas* are called *simple*, others *complicated* or *compound*.

The first Denomination comprehends those which only penetrate the softer Parts, which are the Skin, Fat, and the Intestine itself: Some of these *Fistulas* make their Progress towards either Side of the Podex; some forwards, towards the Perineum, Urethra, Bladder, or Scrotum; others backwards, towards the Os Sacrum, or Os Coccygis.

By the Name of *complicated* we understand those *Fistulas* by which the Os Coccygis, the Os Sacrum, the Os Ischii, or the Bladder, or the Urethra in Men, or the Vagina in Women, as *Mustanus* observed, are so miserably corroded, that the Passages of the Fæces and Urine are become promiscuous. Sometimes the small Sinuses of these *Fistulas* reach even into the Belly; and these are the most dangerous of all. Some *Fistulas* are small, and give but little Trouble, and are supported to a great old Age, without any remarkable Inconvenience, of which I know some Examples. Others, on the contrary, are not only attended with most intense Pains, as I have very lately seen; but with a Decay of Strength and Extenuation of Body, a small Fever, and many other Inconveniencies. Again, I knew a Man who was well while his *Fistula* was open; but when that was consolidated, was soon after seiz'd with the Gout; the *Fistula* being again opened, he recover'd his Health; and thus it happen'd several times. Some *Fistulas* have an Orifice so narrow, that it can hardly be seen, or search'd with a Probe, and only now-and-then manifests itself by a Tubercle, in which, after a very curious Search, you meet with a small Hole, which is the Outlet to the *Fistula*. Others gape with a

large Orifice. Some *Fistulas* make their Progress only by one simple and plain way; others spread themselves into many Branches, which are as so many Rivulets derived from one Fountain. Some again proceed farther, and penetrate deeper, than others. Lastly, some move direct along by the Rectum; others take their Course under the Skin obliquely, or athwart, forming a Multiplicity of very crooked Sinuses, which are extremely difficult to be investigated, and consequently not easy to be cured.

The modern Way of searching a *Fistula* of the *Anus* is much after the following manner: The Patient is laid on a Table, or a Bed, upon his Belly, with his Legs spread. Then one of the Assistants strongly distends the Buttocks from one another, that the Operator may the more conveniently intrude his Finger rubb'd with Oil or Butter into the *Anus*. For in all Searches, that are ever made, of *Fistulas* of the *Anus*, which are near the Intestine, it is, as we said before, a necessary Caution, that the Probe be not far introduc'd into the *Fistula*, before the Finger is intruded into the *Anus*; for otherwise it is to be feared, that the sound Intestine will be pierced by the Probe in an improper Place, and so render the Disorder greater, and the Cure more difficult. When the Probe is thus cautiously introduced, the Buttocks are to be let go, that they may resume their natural Posture, and not by their Sides and Angles, when distorted, hinder the Progress of the Probe. If the Buttocks are in their natural and right Posture, and the Probe, being gently introduced, and softly directed every way, can make no farther Progress, there usually the *Fistula* terminates.

The Original or Cause of this Disease is commonly an Exulceration of the Hemorrhoidal Veins, or an Abscess howsoever generated near the Intestinum Rectum, especially in the copious Fat which surrounds it. This kind of Abscesses generally arises either from a Contusion of the Podex, a Stroke, a Fall, a Wound, or an Inflammation of the Rectum, a Dysentery, difficult Childbirth, the Venereal Disease, hard Riding, and a thousand other Causes, which may injure these Parts. The Distemper is very common among the Cavalry in an Army, from their frequent and hard Riding, especially in hot Weather, as is well known to those Physicians who attend Camps; and I myself have formerly seen a Multitude of Horsemen labouring under *Fistulas* of the *Anus*. And it is not at all strange, that Abscesses of this Part, if neglected, either out of Modesty, or for any other Reason, or open'd too late, or not carefully cleansed, should degenerate into *Fistulas*. For it can scarce be otherwise; but that the corrupt Matter, which remains within, must by Degrees so severely corrode and exulcerate the Fat and adjacent Intestine, and other neighbouring Parts, and affect the *Anus*, and its Region, with Sinuses and Callosities, in so surprising a manner, that all the Remedies which can be apply'd are of no Use without cutting. An illustrious Proof of this we have in the Person of *Lewis* the Fourteenth, the late King of France, who, after he had for a long time try'd all the Remedies that could be advis'd by the most able and experienced Physicians and Surgeons in France, was forc'd at last to have recourse to the Knife for the Cure of his *Fistula*. This being the true State of the Case, a prudent Surgeon, as soon as he shall perceive, either by outward Inspection, or introducing his Finger into the *Anus*, that his Patients, labouring under an Inflammation or Abscess of that Part, have also a Collection of Pus inwardly, will think himself oblig'd to use his Knife.

The more severe a *Fistula* is, the deeper it is situated, the greater Quantity of the Fat, of the Rectum, and especially of the Sphincter, is corrupted and corroded, the larger the Sinus, and the harder the Callus that surrounds it, the longer the Disease has affected the Parts, and the weaker, the older, and the worse the Habit of the Patient, the more difficult is the Cure, inasmuch as sometimes to render it impossible and desperate. But, what is principally to be regarded, the deeper the Aperture or Orifice of the *Fistula* is seated in the Intestine, the greater is the Danger of cutting asunder the larger Blood-vessels, whence fatal Hemorrhages have been observed, which can neither be restrain'd by Ligature, nor by Compression or Styptics, for want of a harder Body to make Resistance, and consequently the less Hope there is of a Cure. And really if the Finger intruded into the *Anus* cannot reach the Orifice of the *Fistula*, because it is so deeply situated, the Section cannot be undertaken with Safety, for fear of injuring the larger Veins, and consequently all the Art of the Surgeon is of no Importance in this Case. It is not strange, therefore, that *Garengot* should advise a Surgeon in such a Case to desist from the Operation, rather than by inflicting a terrible Wound in cutting the large Veins, which are in this Part of the Intestine, to cast the Patient into the utmost Danger of his Life by an Hemorrhage. For my Part, I am so far from contradicting him, that I am rather of Opinion, that it is the Part of a prudent Surgeon to promise nothing, but to be always dubious, whatever Appearances there may be of Success in the Beginning. For oftentimes it happens, that after Section there appear not only many Sinuses to the *Fistula*, but these so deeply seated, and so much Injury is done to the adjacent Bones, to the

Bladder, Urethra, Vagina, and the Womb itself, as will render the Cure extremely difficult, if not impossible. Abscesses of the *Anus*, that often recur, are to be treated as true *Fistulas*; for they cannot be cured without cutting the Intestine, and the Sphincter of the *Anus*. In Women big with Child the Cure of a *Fistula* of the *Anus* is not to be undertaken, but we must wait till they are deliver'd, and well recover'd. For *Mauriceau* observes, that Abortion and Death have been the Consequences of such an Operation. If in these *Fistulas* there be any Corrosion in the Bladder, the Urethra, the Womb, or the adjacent Bones, the Disease is usually desperate, and admits of no Remedy. The blind or secret *Fistulas* are also commonly more difficult of Cure than those which discover themselves. On the other hand, if the *Fistula* be recent, and only external, or if it be perfect, as in *Tab. 56. Fig. 1. C C*; but the Corrosion has only affected a small Part of the Intestinum Rectum, or Sphincter, with a little of the Fat; if the Disease has not spread itself to the adjacent Parts just named; if it has not penetrated deep; if the Sinuses are not many, and their Sides are but slightly hard and callous; if there be a good Habit of Body, and the Patient young, or not past the Vigour of his Age, the Cure is, for the most part, happily accomplish'd, but yet so, that more Relief is to be expected from the Knife, than from Physic. The same Judgment is to be formed of secret and internal *Fistulas*, which have their Orifices not far distant from the Extremity of the Sphincter of the *Anus*; as in *Tab. 56. Fig. 1. F G*.

Small external *Fistulas* in some Bodies are endur'd for a long time, without any remarkable Inconvenience; and when Nature is accustomed to them, they serve instead of an Issue to evacuate noxious Humours, and preserve the Patients from Distempers to which otherwise they would have been obnoxious. I know some who have liv'd under *Fistulas* to a vigorous old Age; therefore it is better oftentimes to let them alone, than undertake their Cure; as it is in the Case of old Ulcers. When the Rectum is so much corroded by an Exulceration from an external *Fistula*, or an Abscess, that, upon Examination by the Finger in the *Anus*, and the Probe in the *Fistula*, it is found to be very thin, there is no curing the Distemper, without cutting open the Intestine in that Place, together with the Sphincter, tho' the Intestine be not perforated by the Ulcer. But when the Intestine by the same Method of Trial is found to be substantial and thick, the Ulcer may often be cured without wounding or perforating the Part. So a recent *Fistula* combin'd with the Lues Venerea, or owing its Rise to it, is often cured by Mercurial Remedies without cutting.

Hitherto we have treated of the Nature and Properties of *Fistulas*. Now as to their Cure, we think it not improper, in the first place, to speak of perfect or complete *Fistulas*, and of the rest in their Order. For when we have proposed such Ways and Means as are proper for the Cure of complete *Fistulas*, it cannot be doubted but the Method to be taken with other *Fistulas* will be the more readily understood. In order to the Cure of a complete *Fistula*, the following Directions are to be observed. When the Circumstances of the Patient, as well as of the Distemper, are such as we before declar'd were necessary to give us Hopes of a Cure, the first Business of the Physician is to prepare his Patient for the Operation. Therefore it will be convenient, some Days before, to give a Purge; and, if the Strength will permit, to take away some Blood. But if the Patient be weak, these things are to be omitted, and Corroboratives are rather to be used, a strict Regimen of Diet, and such as is most convenient for the Condition of the Person affected, being, as far as is possible, all the while observed, and proper Medicines being taken to correct the Blood, and render it mild. And that the Surgeon may not be incommoded in the Section by the Excrements, nor the first Bandage be too soon taken off, it seems necessary some Hours before the Operation to evacuate the Belly by a Clyster; and immediately before the Section, let the Patient make Water, that the distended Bladder may not be in Danger of being injur'd. As to the Posture of the Patient, it must be such as before prescrib'd, that is, he must lie on his Belly. The Antients, as appears from *Paulus Aegineta*, placed the Patient on his Back, with his Thighs spread; but the most modern *French Surgeons*, as *Garengot* informs us, think him in the best Posture for this Operation, when he lies on his Side, after the manner of those who take Clysters in Bed, near the Edge of the Bed, with his Breech exposed, and his Knees drawn up. But tho' the Section may be sometimes well enough performed in this Situation, yet I have known Cases where, on account of the peculiar Constitution of the *Fistula*, the Operation succeeded best in the former Posture.

The Patient being placed, as shall be thought most convenient, the next thing is to perform the Section with some fit Instrument, of which there are many invented for this Purpose. In antient Times they used a peculiar sort of Knife, almost like a Hook, in the Cure of these Diseases. This they called by a *Greek Term Syringotomus*, from *Syrinx*, a *Fistula*. Some of the most common Kinds of these are represented *Tab. 56.*

Fig. 4, 5, 6, 7. where the Letters A B represent the sharp or cutting Part; B C, the obtuse and smooth Part, or Style, which ought to be flexible; and D D, the obtuse and convex Back. Tho' these Instruments are rejected by some as useless, I have learn'd by Experience, that what is necessary to be done in these Cases, may very often, especially when the *Fistulas* are of no great Depth, be most commodiously perform'd by them. They are to be taken, greater or less, according to the Depth of the *Fistula*, and are used in the following manner: Introduce the Head C of your Syringotomus into the external *Fistula*, and with the Fore-finger of the other Hand, first anointed with Oil, and then intruded into the Rectum, direct it thro' the internal Orifice of the Sinus, and along the Intestine, till it appears out at the *Anus*. Then taking hold of both Ends, whatsoever is between the two Orifices of the *Fistula* must be cut; in which Section the Sphincter of the *Anus*, in Persons otherwise sound, is always cut with Safety. Many have imagin'd, with *Albucasis*, and others of the Antients, that a Section of the Sphincter of the *Anus* must be followed with an involuntary Efflux of the Fœces, and therefore directed it to be avoided: But Experience has shewn, that it may be cut, not only once, but several times, if it be necessary, in Patients who are sound in other respects, without doing any Mischief. But if this Disorder be consequent upon this Method of Cure, it is to be rather ascribed to some extraordinary Corruption and Destruction of the Sphincter by an Ulcer or Erosion. But where the internal *Fistula* lies so deep, that the Head of the Syringotomus, which passes through it, will, with Difficulty, be made to appear at the *Anus*, the Finger in the *Anus* is to be more busily, but warily employ'd in bending and directing it till it comes out at the *Anus*, when the Surgeon is to make a Section as before. But as the upper Part of the Orifice of the *Fistula* in the Intestine is generally callous, and is not cut in this Way of Cure; and yet if it be not cut, this Part of the Callus does not coalesce with the rest, but easily gives Occasion to a new Disorder; the adjacent Part of the Intestine is to be perforated with the Head of the Syringotomus, two or three Lines above the Orifice of the *Fistula*, and so be cut together with it; or, if this be not done, then soon after the Incision, or, if the Blood be an Obstacle, some Day after it, the callous Part must have an Incision made in it with the Scissars, or be quite cut off.

But it is here to be observ'd, that some Physicians are of Opinion, that the falcated Instrument with a blunt Point, represented *Tab. 26. Fig. 3.* or any other like Instrument, are far more commodious than the Syringotomus above-mentioned, for cutting a *Fistula* in the *Anus*, because the Handle is of considerable Advantage to the Surgeon in the Operation. I am indeed so far of their Opinion, from my own Experience, and that of others, that I dare pronounce it to be most handy and useful in *Fistulas* which have no great Depth; for, to say no more, I have myself, on several Occasions, used this Knife with good Success. The *French Surgeons*, that they might accomplish in the best manner possible the Cure of their King's *Fistula*, made use of some such Knife, but furnish'd with a Head or Knob at the Point, which, however, is not necessary; which, from the Person in whose Case it was us'd, acquir'd the Name of the *Royal Bistory*. However, I should not care to apply my own above-mentioned, or that Royal Incision-knife of theirs, to all *Fistulas* indiscriminately; for they are not the most convenient for those which are somewhat deeply seated. The celebrated *Bassius* therefore, Professor of Surgery at *Hall*, did very well in giving us, in his Dissertation of a *Fistula* of the *Anus*, a Description of an Incision-knife, with a very long flexible Silver-Head, of which some make *Le Maire*, the Head-surgeon of *Straßburg*, to be the Inventor (see *Tab. 56. Fig. 8.*).

Here the Break or Head C being introduc'd into the *Fistula*, in the same manner as before directed, and made to pass thro' its Sinus and the *Anus*, the intermediate Parts, between the internal and external Orifices of the *Fistula*, may sometimes with far more Convenience be cut, than by the Instruments before-mention'd. For the same Purpose may we use the Syringotomus, (*Tab. 56. Fig. 3.*) which *Garengot* has describ'd, but delineated only in part, and which is used in the same manner as the other Syringotomi, but, by means of the Strap E E added to it, may with more Firmness be held, and the Section may the more easily be made. But I found the Inconvenience of its enormous long Beak C D, and took care to have another made, with a Beak no longer than what reached to F, by which I perform'd the Operation with more Convenience.

Some, instead of a Syringotomus and Incision-knife, introduce a flexible Silver Probe, Wire, or Style, into the external Orifice of the *Fistula*, which, after passing through the internal Orifice in the Intestine, they so bend and direct with the Fore-finger in the *Anus*, that Part of it comes out from thence (see *Tab. 56. Fig. 1. D D*). Then taking hold of the two Ends H H, of the Silver Wire, they gently draw the Flesh comprehended betwixt C C B E, and with an Incision-knife, principally a falcated one, or a convenient Pair of Scissars, divide it. This way of Operation, tho' it be very antient, and

and described by *Paulus Aegineta*, seems to *Garengot* extremely convenient, and so much the more to be preferred to others, as it prevents a Return of the Disease. For my part, I have a great Esteem for this very antient Method; but what Argument should induce this Author to think it a more effectual way to prevent the Return of the Distemper than any other, I do not as yet clearly comprehend.

Others use a flexible Probe with a Groove (see *Tab. 22. M.*, or *Tab. 56. Fig. 2.*). This is introduced into the external Orifice of the *Fistula*, and with all possible Exactness directed to the Intestinum Rectum, and reflected back through the *Anus*; after which, with a Knife, or a convenient Pair of Scissars, they cut the Flesh upon the Groove. Some modern Surgeons prefer this way of Operation to all the rest, in the Cure of those *Fistulas*, which are very deeply seated in the Intestine; but why it should be preferable to the former, I am at a Loss to conceive. But in whatever Method it be performed, it certainly requires a great deal of Skill and Caution, lest by cutting the larger Branches of the Vessels of the Rectum, as it sometimes happens in very deep *Fistulas*, we excite a dangerous or fatal Hemorrhage. To proceed, the Wound being thus inflicted, the Blood must be first carefully wiped away; which done, the Part must be very curiously search'd, and inspected whether there be any Sinus, or Callus, or corrupted Fibres remaining. For if you find any Sinus, the Probe or Finger must be nicely introduc'd, and the incumbent Flesh divided with the Scissars or Knife, that the corrupted Parts may the more accurately be view'd and absterged. We are not always allow'd to accomplish the Operation at the first Essay, because of the Moroseness, Debility, or Pusillanimity of the Patient. For pusillanimous or morose Patients can by no Reasons be persuaded to admit of a farther Search and Section the first Time, as I know by Experience; and the Infirm, or such as have lost much Blood, are sometimes unable to bear them, so that we must necessarily proceed to the Dressing. Whatever internal Remains there may be of a Callus, or vitiated Fibres, must with the like Instrument, if it may safely be done, be partly cut off, partly scarify'd, or receive frequent Incisions from the Knife or Scissars. The Consequence of this will be a quick and plentiful Suppuration, and all unnatural Hardnesses, with whatever is putrid and corrupt, will with far greater Convenience be extirpated by cathartic and mundificative Applications. In the mean while, to speak my own Sentiments freely, the Wound is much more happily, as well as speedily, mundify'd and conglutinated, if the corrupted and hardened Fat be first entirely cut away by the Knife or Scissars.

When I resided at *Bremen*, where I had Patients under Cure for the Stone, *Rungius*, a Surgeon of that Place, communicated to me another Method of curing these *Fistulas*, with some peculiar Instruments, which he had invented for that Purpose, and which I never found described elsewhere. He makes use of three Instruments, the first of which is a peculiar Sort of Probe with a Groove, (*Tab. 56. Fig. 9.*) represented in a Side View, by the Letters (A. B.) and made either of Iron or Silver, with a Handle, (C. D.) which at (E) is bent outwards in such a manner, that the Probe and Handle there form an obtuse Angle. The Groove of the Probe is shewn in a direct View (*Fig. 10.*). Another Instrument is a Canal, about a Finger's Breadth in Diameter, made also either of Iron or Silver, (*Fig. 11. A. B.*) with a like Handle, and forming with it an obtuse Angle at (B), but bent a contrary way to the other, as there shewn. The Groove of this is represented in a direct View at (*Fig. 12.*). The third Instrument is a strait Knife, long, narrow, and sharp (*Fig. 13.*). When we have occasion to use these Instruments, suppose there be a *Fistula* in the Left Side of the *Anus*, as in (*Fig. 1. C. C.*), the Instrument, or Pipe, (*Fig. 11. A. B.*) first dipped in warm Water, and then anointed with Oil, is gently introduced into the Intestinum Rectum, and its Handle (D) held firm and steady by an Assistant. The Surgeon takes the grooved Probe (*Fig. 9.*) dipped and anointed like the other, and introduces it through the external Orifice of the *Fistula*, and carries it the whole Length of the same to its external Orifice (C. C.) in an oblique Direction; so that the Point (A) falls upon the Hollow, or Bottom of the Pipe, (*Fig. 11.*) and there firmly fixes itself, as may be known partly by the Touch, partly by Hearing, and partly by introducing the Finger into the *Anus*. These things being rightly managed, the Surgeon takes the Handle of the Probe in his Left Hand, and with the Knife (*Fig. 13.*) cuts upon the Groove of the Probe through the *Fistula* (C. C.) as far as the Pipe (*Fig. 11.*), by which means he lays open the *Fistula* from the interior Part of the Intestine, to the exterior, or *Anus*. The *Fistula* being cut after this manner, as to its Mundification, Dressings, and whatever else is to be done in order to cure it; the same general Method is to be pursued, as is specify'd below. This Method seems to be suited to *Fistulas* of considerable Depth, because the Top of a Syringotomus, or a flexible Probe, cannot without great Difficulty, and Laceration of the Intestine, and sometimes, in the deeper Sort of *Fistulas*, not at

all, be inflected so as to return by the *Anus*. But the greatest Care is to be taken, that the Knife does not go out of the Canal, because the Rectum and the adjacent Parts might receive considerable Injury thereby; to avoid which, the Canal (*Fig. 11.*) is made so large. If the *Fistula* were in the Right Side of the *Anus*, the Instruments must have been applied in a contrary way, as Reason itself directs. There have been, I confess, others in former Times, who in cutting these *Fistulas* have introduced a strait Tube into the *Anus*, and afterwards, by means of a strait or hooked Knife, have opened the Sinus; and I remember, that *Ravius* in his Chirurgical Demonstrations recommends this Method of Cure. But those Instruments of *Rungius*, by their inflected Shape, render it easier for the Surgeon to direct his Knife, and consequently to avoid cutting any thing besides the Sinus of the *Fistula*; wherefore I am of Opinion, that they deserve to be preferred to any thing of that Kind known before.

If the *Fistula*, or Abscess, be only external, and recent, and seated betwixt the Fat and Skin, the Intestine and Sphincter of the *Anus* being no ways affected, the Cure is to be managed as follows: First of all, the *Fistula*, if it be not large enough, but, as it often happens, very narrow, is to be gradually enlarged by a prepared Sponge, a Piece of Gentian-root, or any other thing that is subject to swell. After this, it is to be cleansed by corroding Medicines, and then conglutinated by the general Method of treating *Fistulas*. Sometimes it is better to use the Knife immediately, and, as *Paulus Aegineta* advised, to divide the incumbent Skin by a simple Section, or to do the same when the *Fistula* cannot be sufficiently dilated by swelling Tents, and to enlarge the Incision, till the Place be laid open as it ought, and the Callus at the same time removed. After this, the *Fistula*, at the first Dressing, is to be stuffed with Lint, that it may be dilated; and if more Sinuses of the *Fistula* offer themselves to View at the first Dressing, that they may be cut. If any thing of a Callus, or of hardened or corrupted Parts, be found in the succeeding Dressings, it is to be all cut away with the Knife, or the Scissars, or to be gradually eaten off with Corrosives, particularly red precipitate Mercury. *Monnierius* asserts Ointment of the Apostles to be the most effectual and convenient Remedy in this Case. The vitiated Parts being thus extirpated, a digestive Ointment, mixed with Oil of Eggs, is to be apply'd to the Place, and a very accurate Bandage to be made upon it. In short, if no more secret Sinuses are to be discovered, if the Sanies thickens to a Pus, if new, firm, and sound Flesh increases, if the thin Matter decreases, and begins to alter its Colour and Smell for a better, there seems nothing wanting to make a perfect Cure, besides dressing the Part every Day with a vulnerary Balsam, Lime-water, Spirit of Wine, or dry Lint. Sometimes, as I said before, and as I have seen it, instead of an Aperture to an external *Fistula*, a small Tubercle shews itself, which, if narrowly examined, will be found to have a very small Perforation, which serves for an Outlet to the Sinus, and is more or less difficult to be discovered. In this Case, before all things I cut off the Tubercle with the Scissars, by which means the Duct or Sinus of the *Fistula* is soon discovered, in order to its enlarging, cutting, and curing, as before specify'd.

If the external *Fistula* has penetrated so deep as to affect the Sphincter of the *Anus*, or the Rectum, or, at least, has so much corroded the adjacent Parts, as to leave the Rectum very thin; we can scarce hope to make a perfect Cure, without perforating and cutting the Intestine and Sphincter, as we before advised. This Operation is performed in the best manner, by placing the Patient in the most convenient Posture; and then, after the Finger is inserted into the *Anus*, introducing a Syringotomus, especially one furnished with a Head, (see *Tab. 56. Fig. 5.*) or a Needle, (*Fig. 2.*) or a Stylus, or a Probe, not too blunt, through the external Orifice of the *Fistula* to the Bottom of it, towards the Intestinum Rectum, and perforating it where the Fore-finger meets with the Head of the Probe; but the Instrument must be so warily directed, as not to hurt any other Part of the Intestine; much less the Bladder. The Intestine being perforated, the thing to be done is, to direct and bend the introduced Instrument in so skilful a manner, that it may come out through the *Anus*, and so this imperfect *Fistula* may be cut according to the Rules before prescribed for the cutting of perfect *Fistulas*, whereby it becomes itself a perfect *Fistula*. When the *Fistula* lies near the *Anus*, but the Sinus under the Skin has not its Course so much towards the Rectum, as towards the Peninxum, or one Side of the *Anus*, the most convenient way seems to be, to cut it quite open with the Knife, or Scissars, and to mundify and heal the Wound, as before directed. In the last Place it is to be remarked, that, in cutting these *Fistulas*, especially if they lie deeper than ordinary, and the Operation cannot commodiously be performed by the Instruments mentioned, the Canal (*Tab. 56. Fig. 11.*) or one like it, may be introduced into the *Anus* after the manner above described, and the whole Sinus laid open by means of the Knife (*Fig. 13.*).

Internal;

Internal, secret, or blind Fistulas, usually make a third Species of this Disease. In these, since they appear not outwardly, but lie covered and concealed, the Method of Cure must certainly be difficult, without the Help of a Knife, in making a Wound or Perforation, that may lay open the hidden Sinuses. The most proper Place for the Incision is what is distinguished by some Tumor, Hardness, Pain, or Redness, especially if the Finger by Compression feels a subjacent Sinus, with a Collection of corrupt Matter, as in Abscesses. These things being well examined, and the Patient placed in a right Posture, as above, and firmly held by the Assistants, either an Incision is to be made in the Tumor perceived by the Fingers at the Side of the *Anus*, till we come to the Sinus; or, if we would act more cautiously, the affected Part with the Tumor within contained is, by Help of the Finger introduced into the *Anus*, to be forcibly thrust outwards; and then with a large Lancet, or a Knife fit for the Purpose, to be perforated as shall be thought necessary. For by this means a blind and imperfect *Fistula* is changed into a perfect or complete one, and so the Cure is rendered more commodious. The Wound thus made is afterwards to be enlarged with the Knife, either upon the Finger, or a grooved Probe; and, when large enough, is to be stuffed with Lint, on which must be laid Bolsters, and the Whole must be secured with a proper Bandage for the first time. When the Bandage is taken off, the Wound, if there be Occasion, is still more enlarged; and after a skilful Investigation of every Sinus, and the corrupted Parts within, the Intestine is also cut asunder, and the same Method of Cure pursued, as is above prescribed for complete *Fistulas*.

If there are none of the before-mentioned Signs, or, at least, such as are thought insufficient, but the introduced Finger, with or without the Assistance of a Speculum Ani, (*Tab. 55. Fig. 15.*) perceives a *Fistula* in the Intestinum Rectum, the Cure may be thus conducted: First of all, let a pretty big Silver Wire, or flexible Silver Style, (*Tab. 56. Fig. 14.*) bent one or two Inches, be intruded into the *Anus*, by a Finger of the Left Hand, in such a manner, that the bent Part (A) may by Degrees be introduced into the inwardly seated *Fistula* (*Fig. 1. G*) found, if need be, by Help of the Speculum Ani. This done, let the Right Hand, take hold of the Wire, or Style, by the other Extremity (B), and pull it, till the Head (A) manifests itself to the Sight or Touch, by a Tubercle excited near the *Anus* at the Letter (F). Then the Silver Wire is held with the Hand near the Extremity (B), and the Part of the Skin near the *Anus*, which was somewhat raised by drawing the Head (A) of the Wire, is dexterously cut with a Knife, till that Head appears in the Wound. Moreover, laying hold of the Part (A) now appearing out of the *Fistula*, this Wire is to be more bent, as at (D D, *Fig. 1.*), that by it the interjacent Parts may be drawn outwards, and cut asunder. But perhaps it would not be amiss, in these Sorts of blind *Fistulas*, which do not lie deep, but near the *Anus*, instead of this Silver Style, or Wire, before described, to make use of some kind or other of Syringotomus, (*Tab. 56. Fig. 3, 4, 5, 6, 7.*) that is well bent for the Discovery and cutting of them.

But in whatever manner the Incision is made, and cleansed of all Hardnesses and Impurities, the following things are to be done in order to a perfect Cure: First, the whole Wound is to be filled up, as exactly as possible, with Lint, and twisted Rags, that the Sinus of the *Fistula* may be the more commodiously enlarged and deterged. If the Hæmorrhage be excessive, let the Lint which is at first apply'd, contain some Powder, or Liquor, proper to stop the Flux. So when the *Fistula* lies deeper than ordinary, let the twisted Rags, which are pressed down to the Bottom of the Sinus, be always tied with some strong Thread, or small Cord, lest, in renewing the Bandage, any of the Lint should be left within. Let triple Bolsters be laid upon Plenty of Lint, the first or undermost narrow, but long and thick; the second a little broader; and the third, or uppermost, almost square, as in the falling down of the *Anus*. Every thing lying in just Order and Smoothness, a T Bandage, made of Linen or Cotton, is to come over all and bind them together with due Firmness and Neatness. Then let the Patient be put to Bed; and if there be a Redundance of Blood, or there was but little lost during the Operation, let him be blooded in the Arm, for fear of an Inflammation. Be not too forward in taking off the first Dressings till the second or third Day, unless some Necessity of going to Stool requires it; but when there is only a Desire, as is very often the Case, it is better to abstain a while than immediately to unloose the Bandage. But whenever the Patient feels himself under a real Necessity, it is convenient to take off the Bandage, as well for the more commodious exonerating the Belly, as to preserve the Bandage clean from the Fæces; and if any of these in going to Stool should happen to get into the *Fistula*, they must be very carefully wiped away, either with a Sponge moistened with warm Wine, or with dry Linen Rags. That the Lips of the Wound may not too soon come together, but may always be kept duly open, let the Wound be often well stuffed with fresh Lint. If any thing of a Callus, or any hard or corrupted

Particles, should be found left in the succeeding Dressings, the Ulcer is first to be well searched to the Bottom, and then the Lint is to be spread with a digestive Ointment, mixed with a little red Precipitate, or *Ægyptiacum*; and this is to be done every Day, till you find the vitiated Parts are quite extirpated from the red and sound Flesh. But observe, that for the first fourteen Days after the Operation, the utmost Caution is to be used, that no Sinus of the *Fistula* be left unsearched; nor must we, without good Reasons, forbear to use our Instruments in the Abscission, or laying open of those infected Parts, which the Moroseness or Weakness of the Patient prevented us from doing in the first Operation. That a Sinus or two of the *Fistula* have not been thoroughly searched and opened, may be known partly by the Sight, partly by introducing the Probe, but principally by the Plenty of the Matter issuing from thence, and the Colour, Smell, and Consistence of the same remaining unaltered. For as soon as the Wound looks pretty clean, and the *Fistula* begins to heal, the Matter grows less and less fetid. In this Case, it will be proper to promote the Growth of Flesh by Incarnatives and Balsamics, and at last, to perfect the Agglutination with dry Lint. The Diet under all these Cases must be temperate, sparing, and of Fluids; nor must the Patient, especially in the Beginning, be indulged the Use of solid Food, but only Broths, lest the frequent Desire of going to Stool should as often occasion the unloosening of the Bandage, which would be very troublesome to the Surgeon, and a very great Hinderance to Conglutination.

Fistulas complicated with a Caries, or with an Ulcer of the Bladder or Urethra, are very difficult, and generally impossible to be cured, as we said before. However, when the Os Ischii, or Os Coccygis, are affected with a Caries, not only the Ulcer is to be dilated, that we may have free Access to the Part, but proper Topics are to be used to take off the Caries. I have found the Essence of Round Birthwort most effectual for this Purpose. Nor must we neglect the Use of internal Mercurial Remedies, and Decoctions of the Woods, to purge and free the Blood from the Scurvy and Lues Venerea, which are often joined with this Disease, till the foul Orifice be cleansed, and the Bottom again covered with sound Flesh, and the Ulcer at last conglutinated by the same Remedies as simple Ulcers are treated with.

Fistulas complicated with an Ulcer of the Bladder or Urethra, are still worse than the others, and seldom admit of a Cure; yet if the external Ulcer be diligently cleansed, and plied with Balsamics, in Conjunction with the Use of the internal Medicines above-mentioned, the Defects in these Parts, if not quite desperate, if the Patient be healthy and robust in other respects, are now-and-then restored.

I am not ignorant, that there is a Multiplicity of Methods for curing a *Fistula* of the *Anus*, proposed by the Antients, as *Hippocrates*, *Celsus*, *Paulus Ægineta*, *Albucasis*, &c. such as by Ligature, hot Irons, and Corrosives, which I have on purpose omitted, because they are so far from being preferable to what I have mentioned, that upon Comparison they will be found not so convenient and proper. One thing however I must not pass over in Silence, which is, that when the Sphincter of the *Anus* is corroded, destroyed, or debilitated by some adjacent *Fistula*, the Patient, for the most part, labours under a Difficulty of retaining of the Fæces. But in Persons of a strong Constitution, and where the Sphincter is not considerably corroded, it may be cut asunder twice or thrice, or even oftener, if there be Occasion, without much Inconvenience, or Danger of the before-mentioned Infirmary. Sometimes the Age of the Patient, Imbecillity, the Severity of the Distemper, especially when the *Fistula* is very deeply seated, prevent the Operation from being undertaken. We must then endeavour to mitigate the Disease and the Pain by cleansing Injections, and Applications of lenient and balsamic Medicines. In short, the more to be pitied the Condition is of those who are forced to undergo the Operation for a severe *Fistula*, the more ridiculous is the Folly of some Frenchmen, who, though they felt nothing of a *Fistula* in the *Anus*, yet, that they might have the Reputation of going through the same Disease, and Way of Cure, with their King *Lewis* the XIVth, glorying in Misfortunes, and making an Ostentation of Misery, were earnest with the Surgeons to have the Operation of cutting for the *Fistula* performed upon them, as we are informed by *Dionis*, a very skilful French Surgeon, who, at the same time, very gravely censures this most absurd Passion in his Countrymen.

Since the right Management of a bad *Fistula* of the *Anus* is one of the most difficult Works belonging to a Surgeon, it will certainly be worth our while to propose some Cautions, that are of singular Use for the rectifying and better performing the Operation.

First then a severe *Fistula* ought to be cut in such a manner, that the external Wound may be always wider than the Bottom of the Sinus of the *Fistula*; for by so doing, this as well as other *Fistulas* are more thoroughly cleansed, and easier to be healed. For this Purpose it may even sometimes be necessary to make two Incisions across the affected Part, and then with

the Knife, or Scissars, to cut out whatever you find hard or corrupted, especially at the Bottom of the *Fistula*; for except this be done, the *Fistula* cannot be well cured, and easily returns. This may sometimes be more conveniently and safely performed, by taking up the vitiated Parts with a Hook, or Forceps, and so cutting them off.

2. To avoid injuring the Intestine in dilating the *Fistula* with the Knife, it ought to be directed with its Edge, not towards the Intestine, but outwardly towards the Os Iſchii.

3. If the external Orifice of the *Fistula* be not situated near the *Anus*, but in the Middle of the Buttocks, so that the Sinus is next to the Skin, and proceeds by Degrees towards the Rectum, a grooved Probe is to be introduced into the Bottom of the *Fistula*, upon which the incumbent Skin is to be dexterously cut with the Knife, or Scissars. Then the Wound is to be well stuffed and dilated with Lint, and the next Day the Nature of the *Fistula* is to be thoroughly examined; the rest of the Proceedings are to be regulated according to the Directions given before.

4. If the Intestine be exulcerated and perforated, as it commonly is in complete *Fistulas*, the Style or Head of the Probe, or Syringotomus, is to be thrust into the Intestine rather two Lines above, than through the internal Orifice of the *Fistula*, that the hard and callous Parts within it may the more commodiously be cut out. But when the Instrument passes through the internal Orifice of the *Fistula*, it will be necessary, after cutting through the Intestine and Sphincter, to cut off with the Scissars the hardened Part of the Intestine, that is next above the *Fistula*, to the Breadth of two Lines, or of a Straw.

5. If at the same time you should happen to perforate a Vessel, which discharges Plenty of Blood, your best way is to pass under it a crooked Needle and Thread, and so to tie up its Extremity. But if this cannot be effected, let a Bolster, squeezed out of some styptic Liquor, be applied to the divided Vein, and closely compressed with the Finger for half an Hour, till a Crust be induced; then filling up the Wound with Lint hard twisted, lay upon them some pretty thick Bolsters, and secure the Whole with a firm Bandage; let the Patient also observe to keep himself at Rest, and let an Attendant be ordered strongly to compress the Bandage with his Hand for some time, because sometimes it has been observed, that when the bleeding Vein has not been sufficiently compressed, the Blood has not flowed out through the Bandage and the *Anus*, but taken its Course into the Intestines, and killed the Patient.

6. When the Bandage is made, if the Patient some Hours after feels a Pain in making Urine, he must be exhorted to bear it with Patience, since it usually goes off in a short time.

7. If the *Fistula* of the *Anus* be complicated with the Lues Venerea, there is no easy nor safe Management of the *Fistula*, without first curing the other Distemper; but when this is extirpated, the *Fistula* often heals without Section.

8. *Arnoldus* invented and recommended a particular Bandage for a *Fistula* of the *Anus*, which *Garengot* has carefully described, and given the Preference to it before all others, by many Degrees. See a Description of it under the Word FASCIA.

9. Lastly, when the Wound begins to heal by Degrees, *Garengot* advises us to intrude into the *Anus* a Tent of Lint of a Finger's Bigness, and covered with Pompholyx, for the better drying of the Wound as it heals. But this is often unnecessary; for I commonly find dry Lint, when the Ulcer is well cleaned, and filled with Fleth, sufficient for this Purpose. *Heister*, P. 2. Sect. 5. Cap. 169.

It must be remark'd, that the Cure of a *Fistula* in the *Anus* is not always to be attempted; for in Bodies of a very bad Habit, an entire Interception of the habitual Discharge made by the *Fistula* would be attended with very ill Consequences, and precipitate the Patient into a Consumption, or some other Distemper more fatal than the original Disorder, of which I have seen Instances. This is the general Doctrine; but I can form no Idea of any Humours so inveterately riveted in the Constitution, but that a proper Regimen, and Medicines judiciously apply'd, together with other succedaneous Evacuations, may so far subdue, as to render the healing up a *Fistula* in the *Anus* in due time, curable, without any Prejudice.

Of an ABSCESS of the ANUS.

Since the Original of a *Fistula* of the *Anus* seems, for the most part, to be an Abscess near the *Anus*, when we come to know the Nature and Way of treating this Abscess, we shall clearly comprehend the Properties of this Sort of *Fistulas*, with the Method how to preserve ourselves from them, and to cure them. Therefore we cannot but think it worth while to bestow some Remarks upon an Abscess of the *Anus*.

The Beginning of this Abscess is twofold; for it either attacks the Patient on a sudden, or comes on him slowly and insensibly. The former is like a Boil in the Beginning, but soon after increases very fast, and in a very short time excites a Variety of violent Symptoms, and especially Pains.

At first a sort of sharp Tubercle, scarce so big as a Bean, or Hasle-nut, with a remarkable Hardness, appears. About this Hardness, which uses to lie deep near the *Anus*, a Redness is commonly perceived. Sometimes the outward Skin has the Marks of an Erysipelas, or Ignis Sacæ, while it is red without a Tubercle, but with so severe an Inflammation, that, unless it be speedily digested, in little more than four-and-twenty Hours, it turns to an Abscess, and is often attended with such excessive Pains, as to induce a Fever with Thirst, want of Sleep, Nausea, extreme Weakness, and other bad Symptoms.

The other Kind of Abscess, which is of slow Progress, is by some denominated a *Fistula* from the very Beginning, and is known, as other Abscesses, by the Pain and Tumor, but tends more slowly to Suppuration.

But in whatever manner the Abscess is generated, certain it is, that the corrupt Matter, after Suppuration, prepares itself by Degrees a Way to be discharged, and at last either perforates the Skin near the *Anus*, or the Intestine. Before this can be effected, the adjacent Fat is more or less corroded, and converted into Sanies, by the pent up acrimonious Matter, whence are formed a Variety of Sinuses, sometimes single, small, and direct, at other times large, crooked, and deep; and at last, penetrating through the external Skin, or Intestine, sooner or later, according to the different Nature or Quality of the Matter collected within; so that it is no Wonder, that *Fistulas* generated of Abscesses are some of them more severe than others.

For the Cure of an Abscess of this Kind, in the Beginning, Digestives, in the Form of a Fomentation, or Cataplasm, may be apply'd; but because the Disease is seldom cured by such means, and more Dependence is to be had on manual Operation than Medicines, recourse is to be had, in Season, to the Knife, and the following Method is to be observed: First, the Patient is to be placed in the same Position as we directed for the Operation under a *Fistula* of the *Anus*; then let the Surgeon, by pressing with his Finger near the *Anus*, or introducing it into it, very carefully search the vitiated Part, and thoroughly explore the Bottom of the Sinus of the corrupt Matter, though no outward Sign of a Suppuration as yet appears; but if only a Hardness or Tumor be perceived, the Matter is to be brought to some Degree of Ripeness, before the Instrument is used.

As in every Abscess Suppuration is to be promoted and accelerated by the Application of some emollient Cataplasm, such as that prepared of Crums of Bread with Milk and Saffron, or by a Plaister of Diachylum with the Gums; so a very necessary Caution is to be observed, which is, that the Cataplasm, or Plaister, be not left too long upon the affected Part, which may cause the Suppuration to proceed farther than it ought into the inward Parts, by which means the circumjacent Bodies being wasted and consumed, the Disease may be rendered desperate, or at least more exasperated and dangerous. Therefore we ought not to wait till the contained Matter shews some external Sign of Maturation; but the Cataplasm is to be removed after every two or three Hours, and, the Skin being wiped, we are to examine with a Finger of each Hand, one introduced into the *Anus*, and the other press'd on the external Parts, whether by Compression between the Fingers any corrupt or mature Matter can be discover'd. No Credit therefore is to be given to those who determine, that it is only proper to open an Abscess, when the malignant Matter is plainly perceived to be perfectly matured; for in such a State it would destroy the adjacent Parts.

As soon as there is any Sign of a Collection of corrupted Matter within the Tubercle, by means of the Finger introduced into the *Anus*, is to be pushed outwards towards the Skin, on the Side of the *Anus*. Then with the Incision-knife, or Lancet, let an Incision be made through the Middle of the Tubercle quite to the Receptacle of the Matter, and, raising a little the Instrument, let the Sanies, which is commonly mix'd with Blood, run into a Vessel placed underneath, and let the external Parts be gently press'd on all Sides, in order to force out the remaining Matter.

The Matter being evacuated in a Quantity sufficient to demonstrate, that the Abscess is perforated, let the Knife, or Lancet, be drawn out in such a manner as to cut the tumid Parts above the Abscess in a strait Line, and so make the Wound a little larger. This done, thrust in a Finger to the Bottom, in order to distend the Wound, and explore its Cavity, or Sinus; then above or near the Finger, cautiously introduce the Knife, or Scissars, and, carrying it near the *Anus* lengthwise, dilate the Wound to a sufficient Largeness; and, lastly, that there may be the freer Access to the Root of the Evil, the Part affected, if necessary, must have transverse Incisions made in it, and whatever shall be found within preternaturally corrupted and hard, must be cut out, in the same manner as directed for *Fistulas*.

In order to a right Treatment of this Wound, it will be necessary, according to *Garengot*, to observe the following Cautions: First of all, let the Wound be filled up, as exactly as possible, with three or four large Tents of Lint, each with a Thread

Thread or String ty'd to it, which must be distinguished from each other, either by their Places on the external Surface of the Wound, or by their Colour, lest, when we come to unloose and change the Dressings, we should happen to pull out the lower Tents before the superior, and so excite a pernicious Hæmorrhage. Over these Tents must be laid plenty of Dossils of Lint, and by drawing a little, as *Garengeot* advises, the Thread of the lowest Tent the Dossils, are united in close Conjunction; then placing several narrow Bolsters in such Order, that the upper Bolster may be always wider than the next under it, over all must be brought a proper Bandage, such as is described for a Fistula under the Article FASCIA. But, to speak my Mind freely, I do not see the Necessity of such a Multitude of Tents with their Strings in a simple Abscess, nor of so troublesome and operose a Dressing. For my part, I take care to have this sort of Abscesses, as well as others, well filled up with plenty of twisted Lint; and then applying Bolsters, make the Bandage in the most simple manner with the common Fillet. In the following Dressings I do not pull out the Lint by Force, but apply to the Ulcer a digestive Ointment, and a Plaister of Diachylum, and wait till a Suppuration coming on, they fall off of themselves; and by this Method there is no great Danger of an Hæmorrhage. After this, I deterge the Abscess, as I do other Abscesses, and at last heal it with Balsamics.

If any considerable Vein happens to be cut in the Operation, it seems necessary either to tie the Vein, or, if this cannot be done, to apply a small Bolster squeezed out of some styptic Liquor, and to compress the same with the Fingers for a while till the Blood is stopped. The Wound afterwards is to be more filled with twisted Lint, more and thicker Bolsters are to be laid on, and an Assistant is to be appointed to attend the Patient, that with his Hand he may compress that Part of the Bandage which is just over the bleeding Vessel. As for Conglutination of the Wound, though *Garengeot* has said nothing about it, I perform it exactly by the same Methods as in other Abscesses, and *Fistulas* of the *Anus*. Oftentimes these Abscesses are maintain'd by a Venereal Cause, and Funguses and Calluses arise in them, so that they cannot be healed.

To conclude, it seems strange, that *Garengeot*, who, like us, divided *Fistulas* of the *Anus* into *perfect* and *imperfect*, and gave the Characteristics of each, should yet, in treating of the Cure, pass over in Silence the blind and imperfect *Fistulas*, though these require a singular, and, I may say, a more artificial Management than the others, as, I think, appears in the preceding Chapter. Neither has *Garengeot* said a Word about the Method of treating complicated *Fistulas* of the *Anus*, though they are not so scarce and rare to be found, as to deserve to be passed over in Silence. *Heister*, P. 2. *Secl.* 5. *Cap.* 169.

Mr. Sharp's Observations on the FISTULA in ANO are as follows:

If the Surgeon has the first Management of the Abscess, and there appears an external Inflammation upon one Side of the Buttock only, after having waited for the proper Maturity, let him with a Knife make an Incision the whole Length of it, and, in all Probability, even though the Bladder be affected, the Largeness of the Wound, and the proper Application of Dossils lightly pressed in, will prevent the Putrefaction of the Intestine, and make the Cavity fill up like Imposthumations of other Parts.

If the Sinus is continued to the other Buttock almost surrounding the Intestine, the whole Course of it must be dilated in like manner, since, in such spongy Cavities, a Generation of Flesh cannot be procured but by large Openings; whence also if the Skin is very thin, lying loose and flabby over the Sinus, it is absolutely necessary to cut it quite away, or the Patient will be apt to sink under the Discharge, which, in the Circumstance here described, is sometimes excessive. By this Method, which cannot be too much recommended, it is amazing how happy the Event is likely to be; whereas from neglecting it, and trusting only to a narrow Opening, if the Discharge does not corrupt the Gut, at least the Matter, by being confined, corrodes the Gut, and, insinuating itself about it, forms many other Channells, which, running in various Directions, often baffle an Operator, and have been the Cause of a Fistula being so generally esteemed very difficult of Cure.

Here I have considered the Imposthumation as possessing a great Part of the Buttock; but it more frequently happens, that the Matter points with a small Extent of Inflammation on the Skin, and the Direction of the Sinus is even with the Gut: In this Case, having made a Puncture, you may with a Probe learn if it has penetrated into the Intestine by passing your Finger up it, and feeling the Probe introduced through the Wound into its Cavity, though, for the most part, it may be known by a Discharge of Matter from the *Anus*. When this is the State of the Fistula, there is no Hesitation to be made, but immediately putting one Blade of the Scissars up the Gut, and the other up the Wound, snip the whole Length of it.

This Process is as advisable, when the Intestine is not perforated, if the Sinus is narrow, and runs upon, or very near

it; for if the Abscess be tented, which is the only way of dressing it, while the external Orifice is small, as I have here supposed, it will almost certainly grow callous; so that the surest Means of Cure will be opening the Gut; that proper Applications may be laid to the Bottom of the Wound. However it should be well attended to, that some Sinuses pretty near the Intestine neither run into, nor upon it; in which Case they must be opened, according to the Course of their Penetration. There are abundance of Instances where the Intestine is so much ulcerated as to give free Issue to the Matter of the Abscess by the *Anus*; but, I believe, there are none where there is not by the Thinness and Discoloration of the Skin, or an Induration to be perceived through the Skin; some Mark of its Direction, which, if discovered, may be opened into with a Lancet, and then it becomes the same Case as if the Matter had fairly pointed.

If the Sinuses into and about the Gut are not complicated with an Induration, and you can follow their Course, the mere opening with Scissars, or a Knife guided on a Director, will sometimes suffice; but it is generally safer to cut the Piece of Flesh surrounded with these Incisions quite away, and, when it is callous, absolutely necessary, or the Callosities must be wasted afterwards by escharotic Medicines, which is a tedious and cruel Method of Cure.

When the Fistula is of long standing, and we have Choice of Time for opening it, a Dose of Rhubarb the Day before the Operation will be very convenient; as it not only will empty the Bowels, but also prove an Astringent for a while, and prevent the Mischief of removing the Dressings in order to go to Stool.

It sometimes happens, that the Orifices are so small, as not to admit the Entrance of the Scissars, in which Case Spongetents must be employ'd for their Dilatation.

In performing these Operations on the *Anus*, I do not think any Instrument so handy as the Knife and Scissars; almost all the others, that have been invented to facilitate the Work, are not only difficult to manage, but more painful to the Patient: Nor do I caution against cutting the whole Length of the Sphincter, Experience having shewn it may be done with little Danger of an Incontinence of Excrement; and, in Fact, the Muscle is so short, that it must generally be done in Dilatations of the Intestine.

The worst Species of Fistula is, that communicating with the Bladder, where the Prostate Gland is primarily concerned. This generally takes its Rise from a former Gonorrhœa, and appears externally first in the Perinæum, and afterwards increasing more towards the *Anus*, bursts out in various Orifices through the Skin, which soon becomes callous and rotten; and the Urine, passing partly thro' these Orifices, will often excite as much Pain, and of the same Kind, as a Stone in the Bladder.

Having met with none of these Instances, that I could not trace from a Clap, I have been induced, in the Trial of Cure, to practise Salivating, which assists very much in healing the Wound after the Operation. The Manner of opening this Fistula is by cutting out the callous Skin and Eminences, down as deep as the *Accelerator Urinæ*, and somewhat deeper between that Muscle and the *Erector Penis*, if the Indurations lie there. The Operation is severe, but very well rewards the Pain. It is not to be expected however, if there are many Sinuses into the Bladder, that they will all certainly be healed; but they will be reduced to one or two, almost all the Urine come by the Urethra, and the Pain be quite removed, of which Success I have had two or three remarkable Instances under my Care. See HÆMORRHOIDES.

CASE I. from Le Dran.

Of a blind internal Fistula in ANO.

Though all *Fistulas in Ano* begin by smaller or larger Abscesses, formed in the Fat covering the Rectum, yet they differ in various respects.

Authors mention blind internal *Fistulas in Ano*; but some have not described the proper Operation in that Case, and others are not sufficiently instructive in an Affair of so great an Importance. This Observation may serve as a Rule, at least, in Cases nearly parallel to this.

On the 13th of February 1726. a Man was received into the Hospital, who had evacuated Matter by the *Anus* for the Space of eighteen Months, more or less, according to the Distance of Time between his Stools. He could not inform me how it began, having never felt any remarkable Pain (It is not astonishing, that a small Abscess should be formed in the Fat near the Rectum, without creating much Pain, the Pus being capable of extending itself without meeting any Resistance). In examining the Distemper, I found an Hardness on the Left Side, within an Inch of the *Anus*, which seemed to be three Fingers Breadth deep; the Buttock appeared sound, and there was no Alteration in the *Cuticula*, or *Panniculus Adiposus*.

When I had prepared the Patient by two copious Bleedings, as he was robust, and purged him once, I performed the Operation.

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A N U

Having placed him with his Belly against the Side of the Bed, his Feet upon the Ground, his Legs and Thighs asunder, and there held fast by two Assistant Surgeons, I thrust an Imposthume Lancet into the Hardness which I had felt with my Finger, and thus made a complete Fistula of a blind one: Then withdrawing the Lancet, I introduced a Probe in its Place with my Left Hand, and passed it as far as the Callosity; in the Midst whereof was a Cavity, round which I could move my Probe: Then I introduced the Index of my Right Hand into the *Anus*, and discovered the Sinus that passed from the Callosity into the Rectum.

That I might leave no Source of a Fistula behind, I pierced the Intestine with my Probe a little above the *Fistula*, and, drawing it out by the *Anus*, finished the Operation in the usual manner, cutting off, or destroying the Callosities.

The Patient left the Hospital in the Beginning of *April*, perfectly cured.

REMARK.

The most preferable Method is, to pierce the Intestine above the callous Perforation; for want whereof you run a Hazard of leaving a Part of the Callosity, which may retard the Cure, or even render the Operation ineffectual.

CASE II. from Le Dran.

In the Month of *April* 1725, the King having done me the Honour to nominate me Surgeon Major of the Hospital of *La Charité*, I saw a Man there, upon whom the Operation for a *Fistula in Ano* had been performed three Weeks before. The Wound seemed to be in good Condition, and lessened every Day, inasmuch that the Cicatrix seemed almost formed. Nevertheless, examining it with Attention, I observed a little fanious Pus to proceed from a small Sinus in the Wound near the Cicatrix. Startled at this, I passed my Probe into the Hole, and found a Sinus along the Intestinum Rectum, four Fingers Breadth deep, which terminated in a Cavity surrounded with Callosities, and the Intestine was denuded the whole Length of the Sinus. I began the Operation again, performing it in the usual manner, by dividing the Intestine in the whole Extent, where it was bare. I destroyed the Callosity as much as I possibly could; and to become Master of the Bottom of the Wound, I made an Incision into the Buttock, taking off the Angles. This furnished little Blood for that Instant; but an Hæmorrhage succeeded six Hours after. I went immediately, and, removing the Dressings, placed a small Compress dipped in styptic Water upon the Vessel that furnished the Blood, which I held with my Finger near half an Hour, that the Styptic might produce its Effect. The Hæmorrhage being stopped, I supported the Compress with a threaded Dossil, and that by many others, and secured the Whole with Compresses, and a proper Bandage. I did not remove the Dressing for two Days, and then the Patient was dressed according to Art, and recovered in six Weeks. I was informed, that he bled five times in the same manner after the first Operation.

REMARKS.

There are two essential Precautions in the Cure of Fistulas. When the Operation is performed, all the Callosities must be effectually destroyed, especially those at the Bottom, because it will be too late to consume them some Days after, upon account of the external Lips approaching.

I think I ought to make a short Remark in this Place, in favour of young Students in Surgery. You must take care in the Dressing not to rub or irritate the Edge of the divided Intestine, in placing the first Dossil. For which Reason, at each Dressing, especially during the first ten or twelve Days, you must introduce your Finger to the Intestine, fixing the Edge with it; then passing the Dossil, with your Forceps, between your Finger and the sound Buttock, till it reaches the Intestine itself, withdraw your Finger, and fix the Dossil in its Place, so that half may be in the Wound, and half in the Rectum. The Neglect of this last Precaution is enough to prevent the Cure, even when the Operation has been well performed.

With regard to the Hæmorrhage, which either accompanies or follows the Operation, many Methods are proposed to stop it. I have practised all, and find none more certain, or less painful, than what I used to the Patient, who is the Subject of this Observation.

CASE III.

Of a VENEREAL FISTULA in ANO.

The Suppuration of Venereal Tumors is different from those not proceeding from the same Cause; and the Symptoms attending them are, generally, not so active; because the Venereal Virus is more disposed to fix, than to ferment those Fluids wherewith it is confounded.

A N U

On the 27th of *April* 1725, a Servant came to me to the Hospital, who had a considerable Abscess on the Left Side of the *Anus*, which was not accompanied with Symptoms in proportion to its Magnitude. We know that large Abscesses, at the Beginning, are very troublesome to Patients by their excessive Pain, Tension, and Fever; Symptoms which subsist, and even increase more and more, till the Pus is formed.

When the Patient was sent to the Hospital, the Pus was already formed, and the Skin like Dough, wherein the Impression of my Finger remained; and it was with Difficulty that the Fluctuation was to be felt.

I opened it, and found the Rectum denuded more than three Fingers Breadth above the Verge of the *Anus*, I cut through all that Portion of the Intestine which was denuded, and cut away all the Skin that was altered and separated from the adipous Substance.

The Wound proceeded very happily, and the Lips approached, and in all Appearance a certain Cure was to be expected, when, in fifteen or twenty Days, an hard Fungus appeared at the Bottom of the Wound, which rising in the Form of a Crown, seemed to be carcinomatous. I took it off with my Bistorty, but in a few Days it pushed out again; and then I began to interrogate the Patient, and, by the Description he gave me of the Venereal Infections he had before, I knew it to be the Lues. Sudorific Pilsans and Æthiops Mineral were administered in vain; the Fungus visibly returned as I consumed it; therefore I advised him to a Salivation.

He went from the Hospital to a proper Place, where he was salivated; and when he came from thence, only a small Portion of the Wound remained to be cicatrized.

CASE IV.

Of a FISTULOUS and VENEREAL ABSCESS.

In the Month of *September* 1725, a Patient was sent to *La Charité*, who had a gangrenous Abscess in *Ano*, which began in the same manner as that mentioned in the preceding Observation. I interrogated him as to his manner of Life; but he was discreet, and confess'd nothing that could give me the least Reason to think his Case Venereal; therefore, after he was prepared, according to Custom, I performed the Operation.

In twelve Days the Lips of the Wound grew callous, and a Fungus rose at the Bottom. To discover the Truth of what he had concealed from me, I thought I could deceive him in my Turn; and told him, that those Symptoms were certain Signs of the Lues Venerea, and that he could not be cured without taking proper Remedies to subdue the Cause of his Disease, and the Use of proper Dressings at the same time. He imagined that he should stay at the Hospital to pass through this Course, and confess'd, that he had two Chancres and a Gonorrhœa two Months before. Then I told him, that he could not stay in the Hospital; and by my Advice he went to the *Petits Maisons*, where he was salivated, and perfectly cured.

REMARKS.

Abscesses formed near the *Anus*, and that break off themselves, degenerate into Fistulas in time, and occasion Callosities: The same thing would have happened to those two, of whom I have been speaking, had I not performed the Operations that seemed necessary.

If then old Fistulas, not Venereal, are callous, as well as those that are, the Surgeon ought first to examine his Patient, that he may take his Measures accordingly.

If it be a simple Fistula, the Operation may be performed; but when you know it to be Venereal, I think it most prudent to begin by treating the Patient for the Lues. Some of the last Kind, that were recent, have been known to be cured with all the other Venereal Symptoms, and have had no farther Occasion for an Operation.

If by a methodical Course the Fistula does not heal, the Operation must be afterwards performed.

CASE V.

Of a complete FISTULA in ANO, caused by an extraneous Body in the Rectum, communicated by Mr. D'Estendau, Surgeon, at the Hague.

In the Month of *December* 1728, I was called to a Gentleman of fifty Years, to heal him of an external *Fistula in Ano*, with which he had been afflicted for eight or nine Months. He was emaciated, and become almost hectic, partly from the Pain he endured, and partly from a slow Fever that never ceased; so that his Life was not long expected.

When I had probed and carefully examined it, I judged there was no Time to lose before the Operation was performed, especially, because this *Fistula*, whose external Orifice was two Inches from the *Anus* on the Right Side, could not make farther Progress, without rendering the Operation impracticable, since the Fistula already pierced the Sphincter as far as I could reach,

reach, with my Finger. I prepared my Patient immediately, and then performed the Operation, in Presence of a Doctor of Physic, and Professor of Anatomy at the *Hague*.

When I thought the Operation was finished, I thrust my Finger into the Wound, to examine whether I had sufficiently open'd the Sinuses, and scarified the Sides of the Fistula, and was much surpris'd to feel an extraneous Body at the Bottom of the Wound, which was hard, pointed, and wedged in it. This oblig'd me to make an Incision, in order to disengage it, without which it could not be extracted; and I then drew a Scale of Bone, pointed at each End like a Lancet, two Fingers-breadth long, and a little broader and thicker than the Blade of a Penknife. It seem'd by its Hardness and Appearance to be the Scale of a Beef-bone. I inquired of the Patient, whether he remembered to have swallowed that Bone, who answer'd in the Negative; but he remember'd very well, that some time before the Manifestation of the *Fistula*, he felt a Pain on a sudden like a Stab with a Dagger near the Rectum, and thought he should have fainted away by the Excess of it. It was at this Time, without Doubt, that the Bone pierc'd the Intestine, prick'd the neighbouring Parts, caus'd an Inflammation, and at last an Abscess, which degenerated into a *Fistula*.

I dress'd the Patient, and afterwards prescribed him proper Medicines, by which Means he recover'd the 30th of January 1729, which was the fiftieth Day after the Operation. *Le Dran*.

It is proper to take Notice, with respect to the *Anus*, that many Substances of an extraordinary Nature are discharg'd by this Emissary. Thus calculous Concretions form'd in the biliary Ducts and Cystis, sometimes pass this Way; and we have an Instance in the Philosophical Transactions of a great Number of Stones, one of which weigh'd upwards of two Ounces, which, after a great deal of Pain, came away by the *Anus*. But the Passage of the *Fœtus* by the *Anus* is, of all others, so extraordinary a Case, that I must not omit the following Account communicated by Mr. *Giffard* to the Royal Society.

I was sent for, about the Middle of August last, to a Woman, who then judg'd herself to be between three and four Months gone with Child: She had all the Symptoms preceding a Miscarriage, and, upon touching, I found the *Os Tincæ* somewhat dilated and spread, from whence I concluded a Miscarriage would ensue, and therefore order'd what I thought proper to promote it; but I was sometime after inform'd by her Husband, that altho' she before believ'd, that she had miscarry'd, yet, that she now thought herself quick, as feeling somewhat to move within her Belly, agreeable to what she had perceiv'd after former Quickenings. Thus it pass'd on for about six or seven Weeks; in which Time she grew much bigger, and the Motion more perceptible; so that there remain'd no Doubt of her being with Child. About the third of October, she was seiz'd with violent Pains in her Belly and Back; which daily increasing, her Sister, by her Desire, came to me on the sixth, when I went to her, and found her labouring under very great Pains, and other Complaints like those preceding a Miscarriage or Delivery: But, to be better satisfy'd, and to strengthen my Opinion, I pass'd up two Fingers into the *Vagina*, to examine, by the Touch, whether the *Os Tincæ* began to open and spread. I there felt a large and unusual Fulness and Tension, which I judg'd to be the Body of the *Uterus* sunk low into the *Vagina*, and much distending it, and extending backwards, and pressing against the *Rectum*, so that the Excrements could not readily pass, neither could she, from its Pressure upon the Neck of the Bladder, freely make Water. I could not find the *Os Tincæ*, altho' I very carefully examin'd all about with the Ends of my Fingers; wherefore I then judg'd, that the *Fundus Uteri* must have receded from its natural Position, and be bent backwards towards the *Rectum*: In which Opinion I was more strengthen'd, from the Fulness I before observ'd, stretching backwards; and therefore concluded, that the *Os Tincæ* must be very forward: Wherefore I endeavour'd to pass my Fingers between the *Os Pubis*, and the Fulness which press'd against the upper Edge of the said Bone. This, with some Difficulty, I effected, and, at length, about two or three Inches above the said Bone, I felt the *Os Tincæ* with the Ends of my Fingers. The Cause of this Situation will more clearly appear in the Pursuit of this Account: I order'd her anodyne and quieting Medicines to relieve her Pains, which she was oblig'd to take every twelve Hours, with proper Cordials to support Nature, and sometimes Clysters. Thus Matters continu'd to the 20th of the said Month, only that for some Days before, a Water, tinged with Blood, came away, as she imagin'd, thro' the *Anus*, and which she believ'd proceeding from the Piles, with which she was sometimes troubled.

On the 20th, her Husband came to me, about Six of the Clock in the Evening, telling me that the Midwife had brought away a *Fœtus*, but could not complete her Business; whereupon I immediately went to the Midwife, who, upon my coming, told me, that a *Fœtus* was protruded thro' the *Anus*; and to confirm it, desired me to examine; which I did immediately, and found the *Funis Umbilicalis* hanging out about two or three Inches beyond the *Anus*, and passing up thro' the

same. I therefore pass'd my two Fore-fingers by the String into the *Anus*, when I found, about three Inches up, an Opening, as I then judg'd, into the *Uterus*, wide enough to admit the Ends of three or four Fingers, and the *Funis Umbilicalis* passing into it; from hence I was assur'd, that the *Fœtus* came out that way. I endeavour'd, with my Fingers pass'd into the Opening, to bring away the *Placenta*; but as it was very rotten, it tore away between my Fingers, so that I was forced to bring it in small Pieces, and was at last oblig'd to leave a large Part of it. The *Septum*, or Partition between the *Anus* and *Vagina*, was entirely whole, and no Perforation through it. From these Appearances I then concluded, that a Mortification must have begun in the *Uterus*, and so from its Contiguity be communicated to the *Rectum*; so that Nature, endeavouring to expel what was contained, and forcing it against this Part already mortified, and consequently ready to give way and separate upon any Pressure made against it, produced this Opening, and the Protrusion of the *Fœtus* thro' it into the *Rectum*, and so on thro' the *Anus*.

There was a large Discharge of grumous Blood, and other Substances, thro' the *Anus*, which continued coming away until the 26th of the aforesaid Month, when the Woman died about Three of the Clock in the Afternoon.

I should have observ'd, that there was a Fulness and Hardness very perceptible, to be felt outwardly on the Fore-part of the Belly, some Distance below the Navel, from the Time that the *Fœtus* came away, to her Death, which, upon opening the Body, I was well assur'd, was the *Uterus* forced upwards and forwards by a *Sacculus*, which being large and distended, fill'd up the *Pelvis*, and by its Bulk press'd the *Uterus* forwards. The *Fœtus* was perfect in all its Parts, but much wasted and shrunk, from its being some time dead, and consequently putrified.

Upon Dissection, the *Vagina*, *Uterus*, *Ligamenta Rotunda*, Left Ovary, Fallopian Tube, and *Ligamentum Latum* on that Side, together with the Hypogastric and Spermatic Vessels on the same Side, were found in a natural State. The Fallopian Tube on the Right Side we trac'd from the *Fundus Uteri* almost to the *Morus Diaboli*, where it was confusedly united with, and open'd into the *Sacculus* hereafter to be described. The Ovary on this Side, with the *Ligamentum Latum*, was dilated into a large *Sacculus*, of an irregular Form, extending itself behind the *Uterus* (to the posterior Parts of which it adher'd); and passing on towards the Left, was connect'd to that Part of the Colon that terminates in the *Rectum*. In this *Sacculus* we found great Part of the *Placenta*, and the Remains of lacerated Membranes, besides the Aperture of the Fallopian Tube mention'd before, and another about four Inches in Diameter into the Middle of the *Rectum*; that Part of the Ureter on the Right Side, which lies between the Ovary and the Kidneys, was dilated, and so was that Part of the *Rectum* between the Aperture into it, and the End of the Colon; both which were caus'd from the Contents of these Canals being obstructed in their Passage. *Phil. Trans. Abr. Vol. 8.*

ANUS, in Botany, signifies the posterior Opening of a Monopetalous Flower. This Name was originally us'd by Mr. *Vaillant*.

ANXIETAS, Anxiety, Restlessness. See *ALYSMOS*.

ANYADEL, an eternal Spring, the new World, the future Paradise. *Ruland*.

ANYDRIA, ἀνύδρεια, from *α*, Neg. and ὕδωρ, Water. In *Hippocrates* it signifies a dry Season: Thus, *Εν καύματι ἀνύδρεια*, *Lib. 2. Sect. 1. Epid. 4.* "In burning hot and dry Weather." Such a Season is said to be *Anydron*; as *Lib. 2. Epid. Sect. 3.* τὸ ἐὰρ καὶ τὸ θερινὸν πᾶν ἀνύδρον. "The Spring and Summer were extremely dry;" and *Aphorism. 14. Lib. 3.* Βόρεον καὶ ἀνύδρον. "Attended with Northerly Winds, and dry Season."

ANYDRON, a Species of *Sclanum*. *Blancard*.

ANYPERBLETOS, ἀνυπερβλήτος, from *α*, Neg. and ὑπερβάλλω, to conquer, insuperable: Thus, *Ἀνυπερβλήτος γὰρ ἡ φύσις τοῦ βοείου κρέως, καὶ ἡ τῆς τυχεύου καλῆς καλαπιδίας* "For the Beef is of an insuperable Nature, and not to be digested by an ordinary Stomach." *Hippoc. de Rat. Vita. in Morb. Acut.*

ANYPEUTHYNA, ἀνυπεύθυνα, from *α*, Negative, and εὐθύνομαι, obnoxious. Things for which we are not accountable. The *Anypeuthyna*, in Medicine, are Events that cannot be charged on the Physician, nor render him accountable for them. *Hippocrates*, ἄρρατα, speaking of ignorant and upstart Physicians, says, *Καταχλιδῶσι καλαμεμεληκότες τὰ τέχνης ἀνυπεύθυνα, ἐφ' οἷς ἂν ἰητὴς ἀγαθὸς ἀμάρτυς ἡμῶν τε καὶ ἰατρῶν* "They live voluptuously, never troubling themselves about the *Anypeuthyna* of the Art, in which a good Physician, who deserves the Name of an Artist, shews his greatest Skill." In this Place *Anypeuthyna* seems to import those things which are out of the Limits of Reason, and cannot be accounted for.

ANYSTOS, ἀνυστος, from ἀνύσσω, to perfect. Ready, expert. *Hippocrates*, περὶ ἰατρικῆς, requires, as a Qualification in Physicians, that they be ἀνυστοι περὶ λόγου, "of prompt Elocution."

AOCHLESIA, ἀοχλησία, from α, Neg. and ὀχλῶ, to disturb. A Calmness, or Quietness.

AOCNIA, ἀοκνία, from α, Neg. and ὀκνεῖν, slow, lazy. Diligence, or Alacrity. To undergo Labour with Alacrity, and eat without Satiety, are reckon'd by *Hippocrates*, *Lib. de Epid. Lib. 6. Sect. 4. T. 20.* two great Preservatives of Health.

AONCON, ἀονκον, from α, Neg. and ὄγκω, a Tumor. Not tumid. *Hippocrates*, πρὸς φύσιν ἀνθρώπου, advises, for the Cure of Epidemic Diseases, τὸ δὲ σῶμα ὅρην ὅπως ἔσται ἀογκότατον καὶ ἀδυσχεστόν. "To take care, that the Body be very low in Flesh, and much debilitated." Some understand by ἀογκότατον σῶμα, a Body of the most solid Constitution, and least exposed to the Injuries of the Air, not of a fluxile humid Substance, but dense and compact, and so less liable to external Impressions. Not bloated.

AORGESIA, ἀοργησία, from α, Neg. and ὀργή, Anger. An Absence of Anger. Mildness of Temper.

AORNOS, ἀορνός, from α, Neg. and ὄρνις, a Bird. Spoken of Places void of Birds, on account of malignant Exhalations, as formerly the Lake *Avernus* in *Campania*. *Castellus*.

AORTA, ἀορτή, the great Artery proceeding from the left Ventricle of the Heart, from which all the other Arteries either mediately or immediately proceed, and by which the whole Mass of Blood is convey'd to all Parts of the Body. See **ARTERIA**.

The Aorta is subject to many Disorders, some of which have been taken Notice of under the Article **ANEURYSMA**; and the following Cases will give some Light into the Nature of others, which it is necessary to know, in order to distinguish them, and make a proper Prognostic, for they are always incurable.

Mr. *Littre* having open'd the Body of a Woman who died suddenly in the Street, and who had, till the very Moment of her Death, been vigorous, found, besides other things, the Coats which form the Trunk of the Aorta ossify'd in several Places, its interior Part full of Ulcers and fungous Excrecences, but yet without any Inflammation: The Sigmoid Valves were likewise become hard and callous.

This State of the Aorta, besides other concurring Causes, may have contributed very considerably to the sudden Death of the Patient; for the Arteries are all along in their Course furnished with fleshy Fibres, which, by their Action and Spring, continue to the Blood that Momentum or Impulse, which it at first received from the Heart; for 'tis plain, that the contractile Force of the Heart, considering its Weakness, could not, without this continued Impulse, throw the Blood so far, and that too in Canals so winding and so small; but 'tis in a particular Manner impossible, that, without this Impulse of the Arteries, the Contraction of the Heart should propel the Blood with such a Degree of Force, as to make it enter the imperceptible Orifices of the distant Veins. Thus the Arteries, and all their Ramifications, are, as it were, so many CONTINUED HEARTS, seconding and promoting the Action of the chief and principal one. Now 'tis plain, that in this Woman the Ossification and Consumption of a Part of the Substance of the Trunk of the Aorta, must have absolutely taken away its Spring, and consequently deprived the Heart of that Assistance, without which it could not carry on the Circulation of the Blood.

Mr. *Merry* says, that having open'd a Man who died suddenly, he found his Aorta so dilated, that it had begun to separate itself from the Base of the Heart, in which Case, the Circulation of the Blood must have necessarily had an immediate Stop put to it. *Hist. de l'Acad. 1710.*

Mr. *Morand* the younger, upon opening the Body of a Merchant in *Paris*, who died suddenly, after having been for some time subject to Palpitations of the Heart, was not surprised to find polypous Concretions formed in the Aorta, and in the Branches of the pulmonary Arteries and Veins; but was astonish'd with some other uncommon Circumstances; for, on the Left Side of the Heart, one of the two *Valvulae Mitrales* of the pulmonary Sack was transform'd into a kind of Cystis, the Bottom of which lay towards the Sack itself, and the Mouth towards the Ventricle of the Heart. This Cystis was the Valve itself, dilated to such a Degree as to be able to contain one's Thumb, thicken'd; and having small Bones in several Parts of it. The three Sigmoid Valves of the Aorta, in like manner, being considerably thicken'd; had each of them, in several Places, small Bones, very solid, irregularly ranged, and rising like so many Rocks. Now 'tis easy to conceive, that, of the Blood, which flow'd from the pulmonary Sack to enter the Left Ventricle, some Part must remain in this Cystis, preternaturally form'd; and that the other Part could not, without a great deal of Difficulty, make its Way thro' the Aorta, the Valves of which, being thicken'd and ossified, did not become flat, as they ought to have done, in order to perform their Functions duly. *Hist. de l'Acad. A. 1729.*

AORTA, ἀορτή. The Lobes of the Lungs, suspended on each Side. This Sense of the Word, if not the Word itself,

depends upon a Criticism of *Foesius*, on a Passage in *Hippocrates*, *Lib. 2. de Morbis*, where he reads: "Αορτὴ τὸ πνεῦμον σπασμένη ἐπὶ τὴν ἀορτὴν σπασμένη τὴν πνεύμονα." "If the Aorta are seized with Convulsions." Here all the Copies, says *Foesius*, by the grossest of Blunders, read ἀορτὴν, instead of ἀορτῶν; for there can be no Doubt, he says, but this is the Place explained by *Galen* in his *Exegesis*, as follows: "Αορτὴν τὸ ἀπὸ τῶν πνεύμων ἐκαστὸν ἑκάτερον." "Aortron is a Part of the Lungs suspended on each Side."

AOVARA, C. *Biron*. Is a Fruit as large as a Hen's Egg, which grows with many others in a Cluster, inclosed in a great Pod, fasten'd to a Species of very high and prickly Palm-tree, which grows in the *East-Indies* and in *Africa*.

When the Pod is ripe, it bursts, and lets appear the Cluster of Fruit, which, being ripe, are fleshy, and of a golden yellow Colour: The *Indians* eat them; the Flesh incloses a Stone very hard and bony, as large as a Peach-stone, having at its Superficies three Holes at the Side, and two lesser near each other. The Bark of the Stone is two Lines thick; it contains a fine white Kernel, which, being chew'd, at first hath an agreeable Taste; but, at the End, it becomes of a sharp Taste, which approaches that of some Sorts of Cheese. They extract from the Kernel a sort of Palm-oil.

The Kernel of *Aovara* is astringent, and good to stop a Looseness, being eaten. *Lemery de Drogues.*

APAGMA, ἀπάγμα, of ἀπὸ, from, and ἀγω, to draw, Abduction. See **ABDUCTIO**.

APALLAGE, ἀπαλλαγὴ, from ἀπαλλάσσω, to change. Any Alteration in general; but, in *Hippocrates*, it sometimes strictly signifies such a Change as is caused by a Deliverance from a Disease: As, for Instance, *Aph. 45. Lib. 2. Τῶν ἐπιληπτικῶν τοῖσι νέοισι ἀπαλλαγὴν, ὅτε ποιεῖται*: "Young Persons are freed from an Epilepsy, &c."

APANCHOMENOI, ἀπαγχόμενοι, strangled. The Word is used by *Hippocrates*, *Aph. 43. Lib. 2.* and is derived from ἀγχω, to strangle.

APANTESIS, ἀπάντησις, from ἀπασθάνω, to meet. A Meeting. The Word occurs in *Hippocrates*, πρὸς ἐννομήν, and is one of the Qualifications he requires in a Physician. It is taken in different Senses: *Foesius* joins it with the preceding Word ἡσυχία, and would have them to mean Affability, and easiness of Address; others, by ἀπάντησις, understand Reprehension, and a Severity in censuring and reproving the Faults of others; and some think *Hippocrates* intends by it that Qualification which puts a Physician upon his Guard against Errors, and upon teaching every Person about the Patient the Duties of their Place, and what ought to be done, or omitted, from time to time.

APANTHISMUS, ἀπανθισμός, a very fine, and scarce perceptible Line, properly in Painting; to which *Galen*, *de Ven. & Arter. Cap. 8.* resembles the small Ramifications of the Veins, no bigger than Hairs, or the Threads of a Spider's Web, which are called *Capillary Veins*.

APANTHROPIAI, ἀπανθρωπῖαι, from ἀπὸ, from, and ἀνθρώπος, a Man. An Aversion to Company, and Love of Solitude. We find the Word in *Hippocr. Coacæ Præ.*

APANTICRY, ἀπαντικρύν. Openly, manifestly. *Hippocrates de Artic.*

APARACHYTUM VINUM, ἀπαράχυστον οἶνον, Wine not mixed with Sea-water. *Galen de Comp. Med. Sec. Gen. & Meth. Med.* Hence *Athalassus*, ἀθάλαστος, (from α Negative, and θάλασσα, the Sea) is the same as *Aparachytus*.

APARAQUA, *Hernand.* seems to be a Species of Briony growing in *Brasil*. *Raii Hist. Plant.*

APARASCEUASIA, ἀπαράσκευσιν, from α Negative, and παρᾶσκευάζω, to prepare. Unpreparedness; as when the Things necessary for Bathing are unprovided. *Hippocr. de Ratione Viæ. in Morb. acut.*

APAREGORETOS, ἀπαρηγόρητος, from α Negative, and παρηγορέω, to comfort, mitigate. What affords no Comfort or Relief. *Hippocr. πρὸς ἐννομήν.*

APARINE, Offic. Ger. 963. Emac. 1126. *Raii Hist. i. 484. Synop. 3. 225. J. B. 3. 713. Dill. Cat. Giff. 67. Hist. Oxon. 3. 331. Phyt. Brit. 9. Merc. Bot. 1. 20. Mill. Pin. 9. Aparine vulgaris, C. B. Pin. 333. Park. Theat. 567. Boerh. Ind. A. 150. Tourn. Inst. 114. Elem. Bot. 93. Rupp. Flor. Jen. 4. Buxb. 23. CLEAVERS, or GOOSE-GRASS. Dale.*

Aparine, otherwise called *Ampelocarpus*, *Omphalocarpus*, *Philanthropus*, and *Ixus*; has many slender, square, rough Branches. The Leaves lie round the Stalks in Circles, at Intervals like those of Madder. The Flowers are white, the Seed hard, white, round, and sunk in the Middle, in form of a Navel: The Herb sticks to Cloaths; and the Shepherds use it instead of a Skimmer, to take off Hairs from Milk.

The expressed Juice of the Seed, Leaves, and Stalks, drank in Wine, cures the Bites of the Phalangium [a venomous Sort of Spider] and Viper; and, instill'd into the Ears, eases the Pains thereof. The Herb, beaten up with Hog's Fat, [ἔξωγ-γιστον, render'd, by *Herm. Barbarus*, Lees of Vinegar]

and the Parts anointed therewith, discusses strumous Swellings. *Discozides, Lib. 3. Cap. 104.*

Pliny adds, that the Leaves, applied, stop the Bleeding of Wounds. *Nat. Hist. Lib. 27. Cap. 5.*

Aparine is moderately drying and deterfive, and is of fine Parts. *Oribas.*

This is an annual Plant, arising yearly from Seed, having many weak square Branches, not able to support themselves, having at every Joint eight or ten long narrow Leaves, set round about the Stalks like a Star: From among these grow out smaller Branches, with the like Leaves growing on them; and on the Tops of these come forth several Flowers, small and white, of one Leaf, divided into four Parts, each of which is succeeded by two globular rough Seeds, growing close together: The Root is small and fibrous. The whole Plant is rough, and almost prickly, sticking to the Cloaths of any that come in its Way.

This Herb goes by a great many different Names, but is most commonly known by *Aparine*, *Asparine*, or *Gratterona*. It grows almost every-where in the Fields, especially about the Roots of Bushes, and Hedges. It has many rough little Twigs, which bear Leaves, and a whitish Flower, upon which the Seeds grow in Pairs. It is an Enemy to most other Herbs that grow near it, and either lays fast hold of them with its rough Leaves and Twigs, or extirpates them entirely. Upon the Alps the Shepherds use it, in order to cleanse the Milk of any Filth that may have fallen into it. It is of a subtle Nature, opens, expels, putifies, and dries. When boiled in Water, and often drank, it removes Obstructions of the Liver and Kidneys, cures the Dysentery, and is wonderfully beneficial in a simple Gonorrhoea. Its Juice, depurated and mixed with white Wine, may, with Success, be drank in the Beginnings of Dropsies. *Sr. Th. Mayerne, L. 3. Prax. Med. Cap. 10.* If its Juice is taken in Wine, it cures the Bites of venomous Animals: Its Juice also cures Pains of the Ears, when it is made warm, and dropp'd into them. If the Herb itself is boiled with Salt, it cures Excrecences, when applied to them by way of Plaister. If reduced to Powder, it cures Ulcers and Wounds; and, according to *Pliny*, stops Hemorrhages. *Tragus* assures us, that its distilled Water cures the Jaundice and Dysentery: It is also very efficacious in Disorders of the Kidneys. It eases racking Pains of the Breast and Hypochondria. *Paul. Quadr. Botan. Class. 3. Fr. Joel, L. II. Pract. Sect. 4.* commends it against a Cardialgia in Children.

APARTES, ἀπαρτής, from the Ionic ἀπαρτίω, for ἀπαρτάω, to be suspended. Suspended, penfile. *Hippocr. περὶ ἀφθ.*

APARTHIOSIS, ἀπαρτίωσις. See ABARTICULATIO.

APARTI, APARTIS, ἀπαρτί, ἀπαρτίως, Adverbs used by *Hippocrates*, *de Rat. Vict.* in *Morb. acut.* and elsewhere; and expounded by *Galen*, *Erotian*, *Suidas*, and *Hesychius*, by ἀπαρτίσμενος ὁ ἀνεσθής; that is, wholly, exactly, exquisitely, absolutely.

APARTISIS, ἀπαρτίσις, from ἀπαρτίζω, to perfect. A compacted Body, or Frame. Thus ἀπαρτίσις τῶν νεύρων, in *Hippocr. περὶ ἀφθ.* signifies the Frame or System of the Nerves.

APATEONES, ἀπατέωνες, from ἀπάτη, Deceit, a Cheat. Impostors. *Hippocr. περὶ ἀφθ.*

APATHES, ἀπάθης, from a Negative, and πάθος, an Affection, or Passion; such as are, or seem to be, void of human Passions. Instances you have in *Pliny, Lib. 7. Cap. 19.* 'Tis reported of *Crassus*, says he, the Grandfather of him who was killed in *Parthia*, that he never laughed, and was therefore called *Agelastus*; and many were never known to weep. *Socrates*, so famous for Wisdom, always appear'd with the same Countenance, being neither more or less cheerful or sad at one time than another. This Disposition of Mind is sometimes carried to a hard and inflexible Roughness and Sternness of Nature, which extinguishes the Affections of Humanity. Persons of this obdurate Temper, were, by the Greeks, call'd *Apathes*, many of whom they had among them; and, what is strange, most of them Professors and Teachers of Wisdom; such as *Diogenes* the Cynic, *Pyrrho*, *Heraclitus*, and *Timon*, which last was arrived at such a Pitch as to hate all Mankind.

APATHIA, ἀπάθεια. An Apathy, or such an insensible Temper as is described in the preceding Article.

APECHEMA, ἀπήχημα, from ἀπὸ, and ἦχος, a Sound. Properly a Resounding, or Repercussion of a Sound; but, in a medicinal Sense, it signifies a Contrafflure. See CONTRAFISSURA.

APEIBA, *Arbor pomifera Brasiliensis fructu hispido Pomi Magnitudine, seminibus plurimis minimis.* APEIBA *Brasiliensis*, *Marcgr.*

This Fruit is of no Use to the Inhabitants; but the Wood serves to make Fishing-boats, and Rafts to pass Rivers. *Ray Hist. Plant.*

APEIROI, ἀπειροί, from a Negative, and πείρα, an Experiment. Unexperienced, unaccustomed. *Hippocr. de Ratione Vict. in Morbis acut.*

APEITHEUMENA, ἀπειθέμενα, from a Negative, and πείθω, to be persuaded, to hearken to. Things in which the

Patient will not obey the Directions of the Physician. *Hippocr. Prorrh. 1.*

APELLA, ἀπέλλα. By this Name *Galen*, calls those whose Prepuce, either thro' a Disease, Section, or Contraction, is insufficient to cover the Glans.

APELLIDES. A famous Engineer, who, with *Archimedes*, lays Claim to the Invention of a Machine for launching of Ships; the Model of which the ancient Surgeons imitated, in contriving a Machine for restoring Fractures and Luxations, which, because it was worked by three Cords, they called *Trispastrum Apellidis seu Archimedis*.

APEMPOLESIS, ἀπεμπολῆσις, from ἀπεμπολάω, to merchandise. A Trafficking or Selling. This is the proper Signification of the Word, according to *Hesychius*. In this Sense ἀναγκαῖος καθαρόν ἀπεμπολῆσις, in *Hippocrates*, περὶ εὐχρημ., must import, that, among other Qualifications he there requires in a Physician, he must be furnished with a Stock of purging Medicines, which he may sell to his Patients. Others understand ἀπεμπολῆσις, in a contrary Sense, to be an Abhorrence of selling or making Profit of his Medicines; or take it for an Aversion to Trafficking in general, as unbecoming a Physician, and betraying a Desire after Lucre. This latter Interpretation will appear the more probable, if we read the Passage, as it stands in *Edit. Fol. Gen. 1657. cum Foesii Oecon.* which is thus: "Εἰδέναι τῶν περὶ εἶον χρυσῶν ὃ ἀναγκαῖον καθαρῶν ἀπεμπολῆσις ἀδυσκιδαιμονία." A Knowledge of such purging Medicines as are useful and necessary in Life; an Aversion to gain "by Trafficking; a Mind free from Superstition."

APEN. See AMBALAM.

APENES, ἀπηνές. Harsh, unpleasant. *Hipp. de Rat. Vict. in Morb. acut.*

APENSALUS. A Vessel with a narrow Neck to hold Oil. *Rulandus.*

APEPSIA, ἀπέψια, from a Negative, and πέσσω, to digest. Indigestion.

APEPTON, ἀπέπτον. Crude, indigested. See CRUDUM.

APER. See PORCUS.

APERIENTIA. Aperitives, or aperient Medicines.

APERISTATON, ἀπερίστατον, from a Negative, and περίστασις. Affliction, Danger. An Epithet in *Galen*, for an Ulcer that is neither troublesome nor dangerous.

APERITTOS, ἀπερίττος, from a Negative, and περιττός, redundant. An Epithet of such Aliments as generate but little Excrement, as the Flesh of wild Animals, and such as live in dry Places. The opposite Quality is called *Perittomaticos*, περιττωματικός.

APERTUS, taken for *exulceratus*, as *Aperta Strumæ* in *Scribonius Largus*, *Numb. 81.* is the same with *Pliny's Strumæ exulcerata*, *Lib. 30. Cap. 5.* *Rhodus in Notis ad Scrib. Largum.*

APES, Offic. Schrod. 5. 334. *Aldrov. de Insect. 20. Jonf. de Insect. 1. Mouff. Insect. 1. Apis*, *Charlt. Exer. 36. Apis*, *Mer. Pin. 196. Apis domestica seu vulgaris abvearium*, *Raii Insect. 240. BEES.*

Hive Bees, as they are called, are too well known to want a Description. I shall leave the Oeconomy of these industrious and useful Insects to Naturalists, whose Province it is to consider it: But must remark, that Bees have furnish'd more Materials for Fables than for Medicines. Their Salts are, however, very volatile, and highly exalted; for this Reason, when dry'd, powder'd, and taken internally, they are diuretic and diaphoretic. If this Powder is mix'd in Unguents, with which the Head is anointed, it is said to cure the Alopecia, and to contribute to the Growth of Hair upon bald Places.

All the Productions of Bees are used in Medicine, as Honey, an admirable Remedy in many Disorders, and very useful in a great Number of Official Compositions. See MEL.

Wax, a very common Ingredient in Plaisters, and in the Balsam of *Lucatellus*, a very silly Composition. See CERA.

Propolis, Bee-bread. See AMBRA, and PROPOLIS.

APEUTHYSMENOS, ἀπευθυσμένος, from εὐθύς, straight. The Name of the *Intestinum Rectum*, or Strait Gut. *Goræus.*

APHACA, Offic. Ger. Emac. 1250. *Park. Theat. 1067. Raii Hist. 1. 899. Synop. 3. 320. Tourn. Inst. 399. Elem. Bot. 318. Boerh. Ind. A. 2. 45. Rupp. Flor. Jen. 211. Merc. Bot. 1. 24. Phyt. Brit. 9. Mer. Pin. 9. Lathyrus luteus annuus foliis convolvuli minoris*, *Hist. Oxon. 2. 52. Vicia lutea foliis convolvuli minoris*, *C. B. Pin. 345. Vicia quæ Pitine Anguillara*, *latâ siliqua, flore luteo*, *C. B. 2. 316. Chab. 148. YELLOW VETCHLING. Dale.*

Aphace is a small Shrub that grows in plough'd Lands, and is taller than the Lentil, and bears a thin Leaf, and larger Pods than the Lentil, which contain three or four Seeds, less than Lentils.

The Seeds have an astringent Quality, by virtue of which they stop Fluxes of the Belly and Stomach, if they are roasted, or shell'd and boil'd like Lentils. *Discozides, Lib. 2. Cap. 178.*

I do not find any other Medicinal Virtues attributed to it by the Moderns.

APHÆRESIS, ἀφαίρεσις, from ἀφαίρειν, to take away; a removing or taking away. In a general Sense it signifies a removing whatever requires it in a Medicinal way, and is opposed to *Prosthesis*, πρόσθεσις, Addition. Aphæresis, in a stricter Sense, is that Part of Surgery which takes off what is superfluous.

Ἀφαίρεσις, in *Hippocrates*, περί εὐχρη, signifies Rapaciousness; and ἀφαίρεσις τῶν ἀμαρτῶν, *Coacta Prænot.* are spontaneous Hemorrhages, according to *Foesius*.

APHANISMOS, ἀφανισμός, from ἀφανίζω, to make to disappear. An Evanescent.

Ἀφανίζομαι, is a Verb often used by *Hippocrates*, and, as explain'd by *Galen*, *Comment. 2. in Progn.* signifies to vanish, or disappear on a sudden.

APHASSOMENOS, ἀφασόμενος, from ἀφάσσω, to handle. Felt, rubbed with the Fingers, handled. *Galen. apud Hippoc. in Exeg.*

It is frequently by *Hippocrates* apply'd to the Touch of the Pudenda in Women, in order to discover Disorders of those Parts. See *Tactus*.

APHEBRIOC, Sulphur. *Rulandus*.

APHELIA, ἀφέλεια, from ἀφέλεις, simple, plain: A Simplicity in teaching and practising Physic, proper to the Sect of the Methodists. *Galen. M. M. l. 4. c. 4. Castellus*.

APHELICESTEROS, ἀφελικέστερος, of ἀπό, from, and ηλικία, Youth; one past the Flower of Age. *Hippocr. Lib. 7. Epid.*

APHEPSEMA, ἀφέψημα, from ἐψα, to boil; a Decoction. *Dioscorides*.

APHESIS, ἀφesis, from ἀφίημι, to remit, in *Hippocrates*; generally signifies the Remission or Solution of a Disease; but in *Epid. Lib. 3.* as *Galen* explains the Word, is to be taken for a Resolution of all the Parts of the Body.

APHILANTHROPIA, ἀφιανθρωπία, from α Neg. and φιλανθρωπία, the Love of Mankind; the first Degree of Melancholy, when a Person hates Society, and delights in Solitude. *Castellus*.

APHLEGMANTON, ἀφλέγματον, from α Negative, and φλέγμα, Phlegm; void of Phlegm. Ἀφλέγματον πύον, is Pus free from Phlegm; the Absence of which, *Hippocrates, Prorrh. 2.* reckons among the Marks of laudable Pus.

APHODOS, ἀφός, the Recrements of the Aliment which pass off by Stool, or the Excretion of the same. *Gal. Com. 5. in 6. Epid. &c. Hesychius. Foesius*.

APHONIA, ἀφωνία, from α Neg. and φωνή, a Voice; a Deprivation of Voice.

Hippocrates does not use to call those *Aphoni* who are deprived of Voice only; but, by way of Eminence, shews, that under this remarkable Defect, we are to include that of all spontaneous Actions. Sometimes the Patients retain their Sensation; for he says himself, Τὸς ἀφώνους αἰσθανομένους συμβαίνει γίνεσθαι, πολλοὺς δὲ ἄμω πένοντες, ὅπερ ἀποπληξίαν ὀνομάζουσι, ἀφώνους. "Though deprived of Voice, they happen'd to retain their Sensation; but oftentimes they suffer a Deprivation of both, which is called an *Apoplexy*." *Galen. Com. ad Aph. 51. Lib. 6.*

It is usual with *Hippocrates* from this one most evident Symptom, *Aphonia*, to name and signify those who are totally deprived of voluntary Motion and Sensation, and lie like Persons in an apoplectic Fit. *Idem, in Com. ad Aph. 58. Lib. 7.*

In this Place the Manner of *Hippocrates* is very observable, who, by *Aphoni*, means those who labour under a *Carus*. Now a *Carus* properly is a sudden Deprivation of Sensation and Motion, affecting the whole Body; and it is an usual thing with *Hippocrates* to call this Disorder by the Name of this single Symptom, *Aphonia*. *Idem, Com. ad Aph. 5. Lib. 5.*

Hippocrates, Lib. de Rat. Viâ. in Morb. acut. says, Τὸ δὲ ἀφώνον ἐξ αἰτίας γενέσθαι φλεβῶν ἀποπληξίας πόνον. "A Stop put to the Circulation of the Blood and Spirits causes a sudden Loss of Voice." Here *Galen* observes, that by this one common Symptom *Aphonia* are denoted the Epilepsy, Apoplexy, and Cardiacal Syncope. He adds, that an *Aphonia*, in sick Persons, is sometimes caused by a Disorder affecting the Organs of Voice or Respiration with a Resolution, or by some other Depravation of the Faculty. But *Hippocrates*, in order to make a Difference between this and the preceding *Aphonia*, adds, by way of Distinction, ἢ ὕγαινονσι συμβαίνει, "if they happen to a Person in Health." Thus far *Galen*. An *Aphonia* of this Nature proceeds from a Disorder of the Brain, a Refrigeration of the natural Heat, and total Cessation of the Locomotive Powers, when the Organs of Voice are in such a State of Resolution, that the Patient can neither cry, groan, nor utter any Sound. I chuse therefore to render ἀφώνους, deprived of Voice, (*voce defectus ac privatus*) rather than dumb, (*mutus*) since *Hippocrates*, περί σαρκῶν, and *Aristotle, Lib. 4. Hist. Anim.* attribute φωνή (Voice) to the Dumb. *Foesius*.

By the Word *Speech* we commonly understand such an Emission of articulate Sounds, as is capable of conveying the Ideas of

a Man's Mind to his Neighbour; whereas the Voice is not, properly speaking, an articulate Sound, but a certain diversified Illusion and Repercussion of the Air thrown with a kind of Force through the *Aspera Arteria*, the *Larynx*, and its Fissure called the *Glottis*, to the Cavity of the Mouth and Jaws. Thus tho' *Speech* and *Voice* are different things, yet the former cannot subsist without the latter; for when the Organs necessary for emitting Sounds, especially the *Aspera Arteria*, and its Head the *Larynx*, with their respective Cartilages, Muscles, and Nerves, or the Roof of the Mouth, are vitiated, the Power of forming Sounds, and consequently the Faculty of Speech, is destroy'd. Now *Galen* long ago prov'd by reiterated Experiments, that when one of the recurrent Nerves which are form'd by the *Par Vagus*, and the *Nervus Accessorius*, and reach to the *Larynx*, and, according to *Winslow*, to the Tongue itself, is cut, the Animal becomes only capable as it were of an half and unfinished Pronunciation; and, when both are cut, it loses at once the Power of uttering Sounds, and the Faculty of Speech; or, in other Words, becomes entirely dumb.

This Incapacity of emitting Sounds, and consequent Loss of Speech, a Case which frequently happens in Hysteric Suffocations, is by Physicians call'd *Aphonia*. But I take the Word *Aphonia* in a more restrain'd Sense, and confine it to that Incapacity of speaking or emitting articulate Sounds; which depends upon some Fault of the Tongue; in which Case Sounds may be utter'd, but the faulty Tongue cannot articulate them right, and seems, as it were, to be silenc'd by its own fruitless Struggles. There is an Affinity betwixt this Distemper and that Hesitation in speaking, which we commonly call Stammering; in which Case indeed articulate Sounds are form'd, but not distinctly enough express'd, because the Tongue is too slow, as it were, and incapable to cloathe the Ideas with Language, with the same Celerity with which they are excited in the Mind.

Now since in an Aphony the Tongue is principally in Fault, and since we consider it as the Seat of the Disorder, it will not be improper to take such a View of its Structure as we think necessary, to answer our present Purpose. The Tongue then is a Muscle of all others perhaps the most moveable, by reason of its longitudinal, transverse, perpendicular, acuminate, angular, and other variously disposed Fibres; and by means of the Mylo-stylo-hyo and Genioglossi Muscles, as well as those ascrib'd to the Os Hyoides, it can move itself most nimbly and expeditiously in all possible Directions. These Muscles now mentioned derive their *Vis Motrix*, or moving Power, from the third Branch, called the lower Maxillary Branch, of the fifth Pair of Nerves, which is almost totally employ'd in producing Motion; just as the ninth Pair seems to be destin'd for the Purposes of Taste.

If by the Volubility of the Tongue, and its Capacity of moving in all Directions, Sounds form'd by the Assistance of the Larynx are modified into certain Letters, Speech is produc'd; but the more difficult the Motion of the Tongue is, the more difficult Speech must consequently be; and when its Mobility ceases, the Faculty of Speech is destroy'd with it, tho' Sounds at the same time may be clearly enough utter'd.

Since the Motion of any given Part is either diminish'd or destroy'd by the Diminution or Interception of the nervous Fluid, which should flow into its Nerves; and since the Nerves destin'd for the Motion of the Tongue arise principally from the fifth Pair; it plainly appears, that the Seat of an Aphony is to be sought for in the said Pair, and that the Influx of the nervous Fluid into that Nerve, being more or less diminish'd, is to be assign'd as its immediate Cause. In this Opinion we shall be confirm'd, if we carefully dissect human Subjects, who, during their Lives, were *aphonous*. Thus *Bonetus [in Sepulchr. Anat. L. 1. Sect. 22. Obs. 7.]* affirms, that in a Man, whose Melancholy degenerated into Madness, and who remain'd *aphonous* to his very Death, he found the Brain very dry, and the Origin of the Nerves in the same State, but much smaller than ordinary, the Tongue in the mean time remaining unaffected; and [*Obs. 20.*] he quotes a Case from *Riverius*, of a stammering Person, in whose Brain about the Lingual Nerves a *Cystis* was found with a Hole in it, from which a Serum always drivell'd.

Whatever therefore tends to hinder the Influx of the nervous Fluid into the Nerves destin'd to the Motion of the Tongue, that very thing contributes proportionably to the bringing on an Aphony. Hence a Palsy of the Tongue, which is either antecedent or subsequent to Hemiplectic or Apoplectic Disorders, deserves our most attentive Consideration. This Disorder sometimes happens in old Men, and in languid or much weakened Constitutions. If it appears alone, 'tis generally the unwelcome Omen of an approaching Hemiplexy or Apoplexy; but if it succeed these Disorders, and is complicated with a Weakness of Memory, and a sluggish Heaviness of the mental Powers, it threatens the Return of the former Distemper. In this Case the Tongue is generally tumid, flaccid, half numb'd, less susceptible of Motion than in its natural State, its Taste impair'd; and in an Hemiplegia it is vitiated and faulty only in one Side.

That Aphony is like to terminate more happily, which proceeds from a Stagnation; or Seclusion of serous Humours compressing

Pressing the Nerves of the fifth Pair, which run to the Tongue; but it is no less afflicting to the Patient, and proves sufficiently obstinate against the Means of Cure. Aphonies of this Kind happen after the striking-in of ferous Pustles and Efflorescences, especially in moist and rainy Seasons. Thus we may read of Aphonies after restrained Sweats; after Catarrhs unskillfully treated, in *Forestus, Lib. 14. Obs. 32.* after the Small-pox, &c. These Kinds of Derivations of Serum to the Lingual Nerves may also be occasioned by external Violence, Blows, or Falls. Thus *Poterius, Cent. 2. Cap. 2.* gives an Account of an Aphony occasion'd by a Fall from an Eminence.

There also arises an Aphony from too great a Congestion of Blood in the Fauces and Tongue; but this Species of the Disorder generally uses to quit the Patient immediately, upon lessening the Quantity of Humours. An Instance of this Degree of the Disorder's being cur'd by a subsequent Hæmorrhage from the Nose, may be seen in the *Acta Academ. Natur. Curios.* This Disorder likewise ensues after letting Blood in the *Vena Ranina*, if the Operation is perform'd in plethoric Habits, without previous Venesection in the Foot. From cutting these Veins, without this necessary Caution, Experience tells us, that very terrible Inflammations of the Fauces proceed; but more especially from this Cause I have known Aphonies brought on Women whose Menstrual Discharges were defective, or who labour'd under the Hysterical Passion, the Spasms of the Lower Belly concurring to foment the Disease, and force the vital Humours to the superior Parts. Hence we frequently observe, that Girls at the Age of Puberty, or when they begin to observe the first Eruptions of their Menfes, are often subject to this Disorder. In this Case, the Distemper uses to be accompanied with a Swelling and Redness of the Face and Eyes, a turgid State of the Vessels, a vehement Pulsation of the Arteries, and a difficult Deglutition.

An Aphony proceeding from Worms lodg'd in the Cavities of the Stomach and Intestines deserves our Consideration, because it occurs pretty frequently. This Species of the Disease seizes the Patient suddenly, but ceases to rage when the Worms, its remote and secondary Cause, are dislodg'd. It is known by antecedent or concomitant Gripes of the Belly, or by the other diagnostic Symptoms of Worms. Its direct and immediate Cause is the spasmodic Contraction of the nervous Parts of the Lower Belly, by which the vital Juices are with a strong Impetus driven to the Tongue and Fauces, where they stagnate, and compress the Nerves. I myself have not only seen many Cases of this Nature, but also cur'd them with Success: Nor do we want Cases of this Kind occurring in the Practice of other Physicians; see *Act. Academ. Natur. Curios. Dec. 3. Ann. 3. Obs. 147. Vol. 2. Obs. 62.* And *Ibid. Obs. 160.* there is a Case of a periodical Aphony, which seiz'd the Patient as often as the Worms excited Gripes, and ceased as soon as these Gripes went off.

There are also other Causes, which, when they occasionally take Place, contribute very much to an Aphony, such as the wanton Abuse of spirituous Liquors, and frequent Surfeits. Thus *Hippocrates, Sect. 5. Aph. 5.* mentions an Aphony proceeding from Drunkenness: To the Causes of this Disease belong also excessive Fear and Refrigeration, especially of the inferior Parts; and all these exert their Influences the more powerfully, if they happen at a Time when any of the natural Discharges of Blood is carrying on. Nor ought I on this Occasion to forget a rainy Season, and residing in damp and marshy Places, Circumstances which contribute not a little to this Disorder, especially in phlegmatic Constitutions, and such as are subject to Catarrhs. The Prognostics of Aphonies vary, according to the respective Causes from which they proceed. That Species which owes its Origin to Worms, Hysterical Disorders, or a difficult Eruption of the Menfes, is easily cur'd; whereas that Kind of it which proceeds from a Palsy of the Tongue, either entirely frustrates the Use of all Means, or being cur'd, easily returns, and proves the direful Harbinger of a more terrible Disorder of the Brain.

The Cure.

The first Intention of Cure, in an Aphony, is to remove the Causes compressing the Lingual Nerves, and thereby hindering the Influx of the nervous Fluid into them. The second is to strengthen and corroborate the weakened Parts: But as these Causes differ very widely from one another, so he that will take the Trouble of thinking, must plainly perceive, that they call for proportionably different Methods of Treatment; and 'tis no hard Matter for any one to see, that an Aphony, produced by a Cause that lies latent and remote in the Cavity of the Cranium, must with incredible Difficulty admit of a Cure.

That Species of Aphony therefore which proceeds from a true Palsy of the Tongue, calls for a Discussion and Evacuation of the Serum, which compresses the Nerves and Brain: The Cure is therefore to be attempted by Venesection, pretty sharp Clysters, Diuretics, Sternutatories, &c. but especially nervous and balsamic Medicines are to take place, and be apply'd even ex-

ternally to the Tongue itself. For this Purpose the following are recommended:

Strong Waters of Lily of the Valley, Cowslips, Rosemary, Mother of Thyme, of Ants, Essence of Amber, and of Peruvian Balsam, Oil of Cinnamon, and of Clove-gilliflowers, and a few Drops of my *Balsamum Vita*, taken in Sugar, and kept under the Tongue. Internally also the same *Balsamum Vita*, mix'd with three Parts of the vinous Spirit of Sal Ammoniac, and two Parts of the acrid Tincture of Antimony, may be taken with great Success, twice or thrice a Day; and the Dose may be thirty Drops. Neither will it be improper to apply a gentle Vescatory to the Nape of the Neck.

If Suppressions of Sweat, or a Stop put to the usual Excretion in case of a Catarrh, have contributed to the Disorder, nothing can be used with greater Advantage and Efficacy, than Diaphoretics and Diuretics, duly and skilfully prescribed; for immediately upon the Diaphoresis being restor'd, the Faculty of Speech returns. Infusions to be drank by way of Tea, a mild Regimen, succinated Spirit of Hartshorn, acrid Tincture of Antimony, and Essence of Amber, especially if they be mixed with Balsam of Peru, or my *Balsamum Vita*, are also most sovereign and efficacious Remedies in this Case.

An Aphony sometimes seizes the Patient under a mercurial Salivation, that is, when the serous and salival Humours flow to the Tongue and Fauces in too great a Quantity. In this Case the Intention of Cure consists in making a Derivation and Evacuation of those Humours from the Head. This End is most effectually answered by diaphoretic Decoctions drank warm; by Laxatives, and especially by cephalic Pills of a pretty sharp and stimulating Quality, a proper Regimen in the mean time being enter'd into, and carefully persisted in.

In an Aphony which remains after the Shocks of an Hemiplexy or Apoplexy, and has all the Appearances of being sufficiently obstinate, I have observed remarkable Effects produced by applying to the Nape of the Neck Plaisters prepared of Turpentine, or Pitch, and the Gums Caranna and Mastich; for other Remedies, how rich and generous soever, generally come short of Expectation, and disappoint our Hopes in this Case.

If an Aphony proceeds from too great a Congestion of Blood in the Head, the whole Cure consists almost in letting Blood in proper Places, and in due Quantities. The Quantity taken from the Patient must be large, and drawn just as Circumstances require, either from the Arm, the Feet, or sometimes the Veins under the Tongue. Cupping and Scarification are also proper. The Feet must also be washed, in order to procure a Derivation of the Humours to the inferior Parts. Nitrous antispasmodic Medicines are also to be used internally, because in Cases of this Nature the Spasms of the lower Parts are generally complicated with some other Disorders. For this Reason tempering Powders, mixt with Nitre and Cinnabar, or my anodyne Liqueur, mixt with Essence of Castor, are highly serviceable in this Case.

Tho' Bleeding is a Circumstance of great Importance and Efficacy in the present Case, yet it is not to be used indiscriminately and at random; for in old Men, languid Constitutions, and Patients of phlegmatic Habits, or those whose Strength is exhausted, it does more Harm than Good; and if celebrated in a larger Quantity than is sufficient to answer the End, is so far from guarding against it, that it even excites and brings it on. Phlebotomy then should rather take place where the Pulse is quick and large, and the Face red and turgid with Blood. And even in this Case it is not to be used, till the Strictures of the lower Parts be relax'd, and mitigated by previous Clysters, Frictions, and bathing of the Feet. Plethoric People before Bleeding should carefully abstain both from the internal and external Use of the hotter, more spirituous, and nervous Medicines; because they stimulate the Humours more, and hurry on their Congestion to the Fauces.

If spasmodic Constrictions of the Fauces and Tongue have produced an Aphony, as happens in Hysterical and Hypochondriac Paroxysms, which are attended with Difficulty of Deglutition, external Paregorics are of more Service than internal Medicines: For this Purpose a little Castor, or Nutmeg, or Theriaca, or Sage, may be held under the Tongue; or a few Drops of the *Balsamum Vita*, mixt with some anodyne Liqueur, may be pour'd upon the Tongue. Besides bathing the Feet, carminative Clysters, emollient Fomentations and Baths, are highly serviceable in this Case.

Lastly, That Aphony which is produced by Worms lodged in the Cavities of the Intestines and Stomach, is easily cured by Anthelmintic Medicines, and such as relax and mitigate the Strictures of the Intestines; for when these are at an End, the Power of speaking returns, but is again frequently lost, till the Worms, the remote Cause of the Disorder, are dislodg'd: For this Reason, when the Spasms are gone, the Physician is to endeavour, by proper Remedies, to dislodge these troublesome Animals, as effectually as he possibly can.

A Girl of a flabby Habit of Body, a florid Countenance, full of Blood and Humours, and eighteen Years old, happened, after her Menfes had broken out, in a Journey she was taking, to expose herself to the Cold: Being carried home again, she was seized with a heavy Pain of her Head, and the Vessels of her Face became turgid and red. She pass'd the Night in a very uneasy manner; and in the Morning felt herself entirely depriv'd of a Power of speaking. This Disorder lasted for four Days; during which Time she had neither an Appetite for Meat, nor an Inclination for Drink. Her Sleep was disturb'd, but she had the Use of her Reason and Senses; and a Warmth was diffus'd over the Extremities of her Body. Her Physician, finding her costive, immediately prescribed a Clyster, and ordered about three Ounces of Blood to be taken from her Ankle; but her *Aphony*, notwithstanding these Means, became still stronger and stronger. Upon which I was call'd; and finding her Pulse still quick and large, I ordered a Vein to be again opened, and seven Ounces of Blood to be taken from her; and as her Pulse was as yet sufficiently strong, I prescribed her thirty Drops of a Mixture of Essence of Castor with Spirit of Sal Ammoniac, and some mineral anodyne Liqueur, to be taken every fourth Hour in Water of Lilies of the Valley. Soon after a Sweat broke out over all her Body, the Swelling of her Face abated, her Sleep became sound and undisturbed; and, by persisting in the Use of this Medicine for twenty-four Hours, her Faculty of Speech was wholly restored to her.

CASE II.

This Case is an Illustration of the former: A lean Girl, of nine Years of Age, happening to have her Body, but more especially her Feet, exposed to the Cold, in the Night-time, was seized in the Morning with a Difficulty of Speech, and a Swelling of her Tongue. Cephalic and nervous Medicines were forthwith prescrib'd, both internally and externally, but they afforded no Relief. Upon this, I, being call'd, and finding her Feet still cold, ordered them to be rubb'd and bath'd twice a Day in common Water, with a Mixture of Bran in it: But this Expedient frustrating my Hopes, I ordered Cupping and Scarification in both her Arms; some Hours after which she felt great Relief; and by washing her Head with Wine, in which Thyme, Savory, Mother of Thyme, and Marjoram, had been infused, she was cured of her *Aphony*, and restored to perfect Health.

REFLECTION on both CASES.

In both these Cases the *Aphonies* were produced by the Congestion of Blood in the Head, and this Congestion was excited by the Refrigeration of the inferior Parts of the Body: But the Danger was greater in the former than in the latter Case, because in it the Menstrual Discharge was stop'd at the same time. In the Beginnings of Disorders of this Nature, specific, cephalic, volatile and nervous Medicines do more Harm than Good, since they heat the Blood, and put it into a strong Commotion; such Remedies are rather to be prescribed as derive the Congestion from the Head, and mitigate or relax the Strictures of the inferior Parts, the principal of which are bathing of the Feet, and Venesection. If the Feet are cold, I never order bathing them till they are render'd a little warm by proper Frictions. I have often with great Success prescribed Bleeding at the Ankles for Women whose monthly Evacuations have appeared, but are afterwards obstructed; but in the younger Sort, who have as yet had no Eruption of their Menfes, Cupping and Scarification in the Arms is more proper, as also in Boys and Infants. 'Tis worth while to give this Caution, that a sufficient Quantity of Blood be taken away, since, if it is too small, it does more Harm than Good: For this Reason I judg'd it proper to repeat it in the former of the above-cited Cases. If, after all, the Vehemence of the Pulse continues, antispasmodic and gentle nervous Medicines are properly and successfully used.

CASE III.

Some time ago a Gentleman of singular Merit, and one who deserves well of our Profession, ask'd my Advice with regard to a Disorder of a very particular Nature, an Account of which must necessarily be agreeable to the Curious. A Boy of eleven Years of Age, born of honest Parents, and who had till then enjoy'd an uninterrupted State of Health, not having ever in his Lifetime been sensible of the least Defect or Faultiness in his Speech, became all of a sudden so far depriv'd of it, that he could not pronounce any one Sound articulately, except the Word *Mama*, which at the same time he utter'd with a kind of Difficulty, and with a sunk and faltering Voice. Painful spasmodic Tensions seiz'd him also in several Parts, which, drawing the whole Neck and Back into *Convulsion*, induc'd on those Parts an uncommon Torpor, and Inability to move and bend themselves as they did in their natural State.

The Physician, concluding that so terrible a Disorder must necessarily have Worms for its Cause, prescrib'd, what in other Disorders of that Nature would have proved effectual, that is, various laxative, corroborative, antispasmodic, and absorbent Medicines; and gain'd his End so far, that having by these Means procur'd a Discharge of fifteen Worms by Stool, the Patient's Appetite, together with some Degree of his Strength, returned; his Sleep became sounder, and his Belly was easy; but his terrible Impediment of Speech remain'd with him for five Weeks, without ever so much as taking a favourable Turn. I therefore, judging it proper to procure a more effectual Discharge of the Worms, prescribed the following Pills, whose Efficacy against Worms I have often found very great, and of which I prescribed him seven twice a Week; especially about the Changes of the Moon, interposing a Powder, consisting of

Fifteen Grains of the Sal Catharticum Amarum; purified Nitre, and Coral, each six Grains.

The Pills themselves were made thus:

Take Asa-foetida, the best Myrrh, Extract of Tanfy, Rhubarb, Aloes rofated, and Mercurius Dulcis, each one Dram; Extract of Saffron, six Grains: Mix, and make up, according to Art, with Essence of Castor. Twenty Pills are to be made out of each Scruple.

Lastly, That we might also afford some Assistance by external Applications, by restoring the Parts too much weakened by the Spasms, we now-and-then ordered an Epithem, made of

Four Ounces of the Aqua Anhaltina; half an Ounce of my Balsam of Life; and two Drams of Peruvian Balsam.

By the daily Use of these Medicines for some time, his Speech return'd gradually more and more to him.

REFLECTION.

Many and terrible are the Disorders brought on the nervous System by Worms, the Cause of which, I am inclined to think, consists, not so much in the Corrosion of the nervous Coats of the Intestines, as in the acrid and caustic Exhalations rising from the Bodies and Excrements of the Worms, in which they, as well as all other Insects, abound. Numberless almost are the Medicines thought proper for dislodging these Animals so hurtful to the Constitution; but excepting Mercurius Dulcis, mixt with some Purgative, such as Resin of Jalap, or Diagrydium sulphurated, I have found this Intention more safely or effectually answered by no Medicine, than by Asa-foetida, Tanfy, Garlick, Wormseed, Camphire, and Hops, which operate upon these Animals rather by their Exhalations being offensive to them, than in any other way.

CASE IV.

About a Year ago, a Boy of eight Years of Age was seized with the Small-pox, which appearing very thin, and stopping immediately after their Eruption, the Patient by that means became subject to several Disorders, and was in a particular Manner troubled with frequent Defluations of Serum, which used to bring on a Cough, Hoarseness, and Coryza. These Symptoms were indeed often allay'd by proper Remedies; but when they came at last to be accompany'd with a great Swelling and Hardness of the Belly, his Physician ordered him two Vomits, the second very soon after the first, the Effects of which were very unlucky; for these forc'd Vomitings were soon after succeeded by spontaneous ones, which being accompanied with a Diarrhoea, miserably rack'd the Patient for eight or ten Days. These Symptoms being mitigated, a sudden Dimness of Sight, and such an Immobility of Tongue, and Difficulty of Speech, seiz'd the Patient, that he could not, with all his Efforts, utter one single Word. Besides these Symptoms, a large Swelling appeared on his Head, and a vehement Trembling and Weariness seiz'd his Joints; which Symptoms increased at last to such a Degree, that his Strength becoming always weaker and weaker, he at last expired in a calm and gentle Manner.

REFLECTION.

There is hardly any Disease which leaves with Children so fatal, so various, and so lasting Symptoms as a variolous Fever, if either the Eruption or Suppuration of the Pox does not go duly on, or if the Mass of Humours is not reduced to a good State and Temper, when the Distemper is over, by a proper Regimen, and Medicines which purify the Blood. Hence it frequently occurs in the Practice of Physic, that after the Small-pox or Measles we find Diseases of the Breast arising from the Injuries sustain'd by the Lungs, Swellings and Indurations of the Abdomen, together with Fluxes arising from

the Viscera being affected; and Atrophies of the other Parts produced by scirrhus Tumors of the Meseraic Glands: But nothing is either more absurd, or unsafe, than, without any indicating Symptom, to exhibit an Emetic, by which, in our Patient, the Flux was not only increased, but also the impure Serum, being, by means of the terrible Spasms, propell'd with an Impetus to the Brain, produced, first a Palsy of the Optic, and then of the Sublingual Nerves, the Consequence of which was Death. I could not forbear laying down this Case, that People might become sensible what terrible Consequences ensue the unskilful Administration of Medicines.

CASE V.

A Man of eighty Years of Age, of a dry Habit of Body, and accustomed to let Blood at least thrice a Year, that is, in the Months February, June, and October, enjoy'd an excellent State both of Body and Mind. But one Season, which was hotter than ordinary, he, by the Advice of a certain Physician, neglected his accustomed Evacuations; upon which, being suddenly seiz'd with an apoplectic Fit, the Pulsation of his Arteries being strong, his Eyes becoming red, and his whole Body excessively hot, he lost all his Senses, and an Ability of Speech. Whilst the Patient was in this Situation, I, being call'd, first order'd a Vein to be open'd in his Arm, and emollient Clysters to be exhibited; and, without neglecting other Medicines, apply'd my *Balsamum Vitæ* to his Mouth and Nose. By these means, accompany'd with the Blessing of God, we gain'd our End so far, that the Violence of the Disease and its Symptoms abating, the Patient gradually recover'd, only the Hesitation of his Tongue remained pretty long with him, which we nevertheless happily cured, by frequently washing his Mouth with Wine, into which some Drops of my *Balsamum Vitæ* had been instill'd.

REFLECTION.

How efficacious and excellent a thing letting Blood is, both for preventing and carrying off most Diseases, to which old Men are subject, may be learnt from this Observation: And, indeed, a very good Reason may be assign'd why it should be so; for in old People, especially such as have a good Stomach, and an entire Appetite, the superfluous Blood is not so quickly consum'd as in young People, by reason of their Indolence, and want of due Exercise; and if Nature does not free herself of this Burden, 'tis necessary it should be drawn away by Art; which is most conveniently done by Venesection. His Physician then, without any good Reason, forbid his being let Blood during the Dog-days, which at that particular Season was so much the more necessary, because the too great Quantity of Blood, by having the Degree of its Expansion and Orgasm augmented, might easily stop here-and-there in the more noble Parts, and bring on very terrible Disorders. Nor is it to be doubted but in the Case now under Consideration, this gentle apoplectic Fit, with the Difficulty of Speech, were produced by such a Stagnation of the Blood in the Veins of the Head. For this Reason, the first Step I took towards the Cure, was to order Venesection in the Arm, which produc'd immediate Relief to the Patient; then I order'd emollient Clysters to be exhibited, and, for asswaging the violent Motion of the Blood, recommended some Doses of the Powder of Nitre, to be taken at proper Intervals, desiring the Patient, at the same time, to drink an Infusion by way of Tea made of the Herbs of Bawm, Betony, and Carduus Benedictus, Flowers of Sage and Rosemary; together with a few Drops of the Oil of Mace, dropp'd upon a little Sugar. From this Case we have a convincing Proof, that an Aphony is not more frequently the Concomitant of any Disease, than of an Apoplexy; since the former often remains some time, or is easily generated after the latter, if the Serum seern'd from the Blood stagnating in the Head should enter the Pores of the Brain, and, by relaxing the Roots of the Nerves, deaden or weaken the Sensation and Motion of the Parts to which the Nerves distribute themselves. *Frederic Hoffman, Med. Rational. Syst.*

CASE VI.

A Girl of twenty or twenty-two Years of Age, and of a good Constitution, after a Stop put to an intermitting Fever by the usual Remedies, was seiz'd with an Extinction of Voice, which without Interruption remained with her for a Year and an half. The Remedies used in Cases of that Nature, afforded her no Relief, only when she used a Semicupium, [See SEMICUPIMUM] she sometimes recover'd her Speech whilst she was in the Water; but her Voice was, even at that Time, very hoarse. 'Tis also very remarkable, that she could speak during the hot Fit, whenever her Fever return'd. Mr. Lemery, to whom the Case was related, prescribed such Remedies as upon physical Reasoning he judged most proper to remove it. These,

indeed, freed the Patient from some Inconveniencies, which remain'd after her Fever, but had not the least Influence upon her Extinction of Voice. Upon which, Mr. Lemery prescribed a Medicine almost by Chance, which produced very astonishing Effects. The Medicine itself was no more than some vulnerary Herbs infused by way of Tea. After she had taken it the first time, her Voice returned for half an Hour, and then was extinguish'd afresh. But by continuing the Use of this Infusion of Vulneraries either hot or cold, she gradually recover'd her Voice so far, that she only lost it towards Night, especially if she happen'd to take the fresh Air. But at last, even in that Case, the Symptom was remov'd by taking two Spoonfuls of her vulnerary Infusion, which produced so instantaneous an Effect, that she had scarce sooner taken it, than she was able to speak. It was by some thought, that in this Case, the Efficacy of Vulneraries was no greater than that of warm Water; but their Mistake was sufficiently prov'd by the best of Arguments: I mean, Fact and Experience; for the Patient frequently drank warm Water, without receiving the least Advantage from it. Decoctions of Herbs abounding with Acids, and even Coffee, Chocolate, Sallads, crude Fruits, Fish, Soup Maigre, and too great an Interval between her Meals, deprived her of her Voice; whereas Fleashes, Milk and Wine, produced no such Effect. She always carries about with her a Bottle of her vulnerary Infusion, and for that Reason uses, in a jocose manner, to say, *That she has her Voice in her Pocket. Hist. de l'Acad. 1700.*

CASE VII.

A Girl of twenty-four Years of Age has, ever since she was Sixteen, been afflicted with a Loss of Speech, during her monthly Evacuations, which generally last for two or three Days, on which occasion she makes frequent use of a Pisan of the Gramen Caninum, (see AGROSTIS) and wild Poppy. This Liquor moistens her Breast, which indeed calls aloud for a Relief of that Kind, but does not restore her Voice, which only seems of its own accord to return when her Menfes are over. At the very Time she was under these Discharges, she happen'd to have her Arm broken, and to meet with a severe Affliction. These two Accidents put a Stop to her usual Evacuations, and brought on violent Suffocations and Vapours. These Symptoms were removed by repeated Venesections in the Arms and Legs, by Emetics, and some other Medicines; but at the same time she was seiz'd with a continued Depression of Voice, and that to such a Degree, that she could scarce be heard when People apply'd their Ears as near as possible to her Lips; and if she spoke but a very little, even in that faint and languid manner, she was so fatigued, that she was oblig'd to give it over. She felt a considerable Weight about the Region of her Stomach, and could not perform the least Motion without almost an entire Loss of Respiration. Her monthly Evacuations were at this time pretty regular, but all her other Disorders were redoubled: Add to this, that she look'd tolerably well, her Appetite was keen, and all her other Functions duly carry'd on. In this Condition she remain'd for three Months, in spite of all the Medicines that could possibly be thought of for her Relief. At last, Mr. Lemery, calling to mind a Disorder of the like Nature cur'd by his late Father, by means of Vulneraries taken in an Infusion, order'd the same for the Patient, of which when she had taken one Draught, her Voice not only return'd, but was as strong and vigorous as it had been before the Approach of her Distemper. Her Oppression, together with the Difficulty attending her several Actions and Motions, was entirely removed. But a still more surprising Circumstance accompany'd this sudden Cure; for all of a sudden she felt the Weight about the Region of her Stomach fall down to her Navel, where it remain'd. But as she soon after chang'd the Place of her Residence, Mr. Lemery saw her no more, and consequently could trace the History of her Disorder no farther. *Hist. de l'Acad. 1719.*

APHORETOS, ἀφορητός, from ἀφείρω, to bear. Intolerable. *Hippoc. μετὰ νεύσεως*. In the same Sense may ἀφορητὴ νόσος, *Lib. 1. μετὰ γυναικ.* be taken as ἀφορητός, and as oppos'd to εὐφορητός.

APHORISMUS, ἀφορισμός, from ἀφορίζω, to separate, distinguish. An Aphorism. It is defined by *Galen, Com. 1. in Aph. 1.* to be a Sentence comprehending all the Properties of a thing in very few Words.

APHORME, ἀφορμή, of ἀφω, from, and ὁρμή, a Motive. An Occasion, or external manifest Cause, of any Event. *Galen, Cam. 3. in Lib. 6. Epid.* says, "That Hippocrates, and almost all the Antients, used to call Aphorme the Matter of any thing that was the original Motive to any consequent Action, whether it were Money, or any other outward Possession, or Faculty, or Place, or Faith, or Practice, or Reason, or, in short, whatever it might be." Hippocrates calls Aphorme whatever gave Occasion or Rise to a Disease by a sort of Metaphor; for Aphorme, in almost all other Authors, has relation to human Actions, and their Motives. *Foetus.*

APHRAINON,

APHRAINON, ἀφραϊνον, from α, Neg. and φραϊνω, 'to be wife. One who has lost the Use of Reason. *Erotian. apud Hippoc.*

APHRODES, ἀφροδης, from ἀφρος, Froth. Spumous, or frothy. The Word is apply'd by *Hippocrates* to the Blood, and to the Excrements.

APHRODISIA, APHRODISIASMUS, ἀφροδισια, ἀφροδισιασμός, from ἀφροδισια, Venus. Venereal Commerce. *Hippoc. Aph. 30. Sect. 6. Castellan.*

APHRODISIA, in *Johns.* and *Rulandus*, is the Venereal Age, or Age of Puberty.

APHRODISIASTICON CLIDION. A Troche so call'd by *Galen*, and recommended for spitting of Blood, the Colic, Dysentery, and Fluxes of the Stomach. It is thus prepared :

Take of the Flowers of the Pomgranate-tree, *Egyptian* Thorn, Balaustines, Juice of Hypocistis, Acacia; each six Drams fifteen Grains; Boxthorn, Rhubarb, Opium, each four Drams ten Grains; Myrrh, two Drams five Grains. Infuse them in Myrtle Wine, or in the Decoction of Roses, or of Myrtle-berries. *P. Aeginet. Lib. 7. Cap. 12.*

APHRODISIUS MORBUS. The same as *Lues Venerea*. *Blancard.*

APHRODITARIUM, ἀφροδιταριον. The Name of a Powder, recommended by *P. Aegineta* for hollow Ulcers, which is composed of equal Parts of Frankincense, Squama *Aëris*, Rhodarium, (see *RHOEDARIUM*) Amylum, and Cerus. *P. Aeginet. Lib. 4. Cap. 40. and Lib. 7. Cap. 13.*

APHROGALA, ἀφρογαλα, from ἀφρος, Froth, and γαλα, Milk.

Neither *Galen*, nor any other Writer on the *Materia Medica*, has told us what it is; but it seems to signify the Froth of Milk, or that concreted Part of the Milk on the Top, which looks like Froth, or that rich and fat Substance, which may also be called *Epipagus*, ἐπιπαγός, (Cream) and which *Nicander*, in *Theriac*, advises to be drank against the Poison of the *Ixias*. Others say, that by *Aphrogala* is to be understood Milk stirred till it turns all to Froth. *Pliny* says, "That many of the barbarous Nations, not knowing, or else despising, that useful Food Cheese, had a Method of condensing their Milk into a gratefully acid Substance, and into a fat Butter, which was the Spume or Froth of Milk." *Lib. 11. Cap. 41.* By these Words we are to understand the *Oxygala* and *Aphrogala*, which latter was an excellent Remedy against a hot Dis-temperature of the Stomach, and a wholesome Aliment, in great Repute among the *Romans*, who used to cool it with Snow, as *Galen* tell us, *Meth. Med. Lib. 7. Cap. 4.* It seems to be like what we call Syllabub.

APHRON. The Name of a wild kind of Poppy, *Pliny, Lib. 20. Cap. 19.* Also the Name of a Cephalic Plaster, described by *Aetius, Tetrab. 4. Serm. 3. Cap. 13.*

APHRONITRUM, APHROLITRUM, ἀφρονίτρον, ἀφρολίτρον, from ἀφρος, Spume, and λίτρον, or, in the *Attic* Dialect, λίτρον, Nitre, Spume of Nitre. See *NITRUM*.

APHROS, ἀφρος, Spume or Froth.

APHROSELENOS, ἀφροσεληνος, from σεληνη, the Moon. A precious Stone, otherwise called *Selenites*, from its representing the Moon as it were in a Glass. *Gorrazus.*

APHROSYNE, from ἀφρων, silly. Folly, Dotage. *Castellan.*

APHTHÆ, ἀφθας. Superficial small Ulcers in the Mouth.

Hippocrates, Aph. 24. Lib. 7. informs us, That new-born Children, and those which are young, are much subject to *Aphthæ*. This *Celsus* translating calls *Serpentia Oris Ulcera*, Spreading Ulcers of the Mouth. *Lib. 2. Cap. 1.*

But it appears by many Passages in *Hippocrates*, that *Aphthæ* are not confined to the Stomach; for this Author mentions *Aphthæ* of the *Pudenda* of Women with Child, and of the *Aspera Arteria*.

Celsus, Lib. 6. Cap. 11. says, that those Ulcers of the Mouth are most dangerous, which the *Greeks* call *Aphthæ*, but in Children especially, to whom they frequently prove fatal; but in Adults, they are not attended with so much Danger. These Ulcers begin at the Gums, and spread to the Palate, and over the whole Mouth, and descend even to the Uvula and Fauces; in which Case, it is not easy for the Child to recover. It is yet worse, if the Infant is yet at the Breast, because it is difficult to prescribe proper Remedies for it. What is principally to be done is, to make the Nurse exercise herself by frequent walking, and use such Motions as move the superior Parts; besides these, she must be put into a Bath, and be directed, whilst in it, to pour warm Water on her Breasts: Mean time she must live on mild Aliments, and such as are not very subject to corrupt: Her Drink must be Water, if the Child is feverish; if not, it may be diluted Wine; and, if costive, she must be purged. If her Mouth abounds with Phlegm, she should vomit. The Ulcers must be anointed with Honey, to which that sort of Rhus which is called *Syriac*, (see *Rhus*) and bitter Nuts, (see *Nux*) must be added; or with a Com-

position of dry'd Rose-leaves, Pine-kernels, and Mint, made up with Honey; or with the Medicine made of Mulberries, the Juice of which must be boil'd to the Consistence of Honey, and with it Saffron, Myrrh, Wine, and Honey, must be mix'd. Mean time, nothing must be given, which is capable of furnishing Matter for Humours. If the Child has sufficient Strength, Gargarisms must be us'd of the same Nature as the Remedies above-mentioned. But if milder Remedies are ineffectual, such Applications are to be made use of, as by their caustic Qualities induce a Crust upon the Ulcers; of this sort are Scissile Alum, Chalcitis, or Vitriol. Hunger and Abstinence, in the greatest Degree that can be supported, are also useful. The Aliment should be of a mild Nature. Sometimes, in order to deterge the Ulcers, Cheese is properly enough apply'd in Honey.

Aretæus confines the Word *Aphthæ* to malignant Ulcers of the Tonsils, which are treated of under the Article *TONSILLÆ*, which see.

Oribasius, as *Celsus* has done, distinguishes *Aphthæ* from other inflammatory Ulcers of the Mouth, in the manner following:

When there is an Inflammation of the Mouth, when the Patient is of a plethoric Habit, or his Body full of corrupt Humours, then we have recourse to Venesection and Purgatives, prescribe Clysters, and injoin Temperance, both with regard to Eating and Drinking. If none of these Things avail, we have immediate recourse to Topics, and first of all endeavour to subdue the Distemper by astringent and cooling Medicines; such as the *Diamoron*, with the Addition of *Omphacium*, or Rose-buds; or dry'd Rose-leaves, Balaustines, Pomgranate-peels, unripe Galls, Alum, Frankincense, purging Thistle, and a Decoction of Myrtle, and Scissile Alum. Then the *Confectio Mororum*, in which Saffron and Myrrh have been put, is sufficient to concoct and ripen the Matter of the Inflammation; and when it is so, Digestives must be used. For which Purpose we use *Aphronitrum*, Nitre, and Sulphur Vivum, which is of all other Medicines the most powerful. We also sometimes mix with it Sapa, and sometimes Mulsam, in which Origanum, Hyssop, Pennyroyal, Thyme, Savory, or Catmint, have been boil'd: For Medicines of a moderate Quality were invented, in order to be mix'd with others which have a direct Influence on the Disorder, as Necessity shall require. But in the Height of Inflammations of the Mouth, Medicines are rarely to be used; but the Mouth is only to be wash'd and gargariz'd with such Things as allay the Vehemence of the Inflammation, such as a Decoction of Figs, a Decoction of Bran, or Oil of the Mastich-tree made warm in a double Vessel. But the Medicine itself, which, because of its Influence on the Mouth, is call'd *Stomatic*, may in the Height of the Inflammation be used for washing the Mouth, if it is only mix'd up with sufficiently diluted Mulsam, and warm new Wine boil'd to two Thirds, and with warm Water, if none of these can be had. All these I have mention'd, that the Patient might have Choice of Medicines accommodated to his Case. But, in general, all Ulcers of the Mouth, which are flaccid, require highly drying Medicines, such as Recrements of Copper, both with and without Honey or Mulsam. The Troches of *Musa*, the Juice of Rhus and *Omphacium*, are also of Service in this Case. But milder Ulcers of the Mouth may be cur'd with the Medicines appropriated to *Aphthæ*, such as the *Diamoron*, or a Preparation of Bramble-berries. But when Ulcers of the Mouth are very moist, and lie pretty near the Bone, there is Danger of their mortifying. In this Case, therefore, the strongest and most powerful Medicines are necessary; for which Purpose, we reduce one of the fore-mention'd Troches to a Powder, and apply it dry to the Part affected; for upon account of the Humours, and Warmth of the Parts contain'd in the Mouth, a Putrefaction is soon brought on. For this Reason we are for the most part oblig'd to use the most forcible Medicines in Ulcers of this kind, such as may induce a Crust as effectually as the actual Caustery. But those Ulcerations which arise on the internal Surface of the Mouth, are call'd *Aphthæ*, and are principally incident to Children. Moderate Astringents are generally us'd for the Cure: Sometimes also they grow inveterate, and in Process of Time become of difficult Cure, when they bring on a Putrefaction, or that Species of Ulcer by the *Greeks* call'd *νομα*, from their spreading and consuming Nature. To such Children therefore, as can eat, 'tis proper in this Case to give Lentils with a little Bread, Marrow of Veal, or of a Stag, and a small Portion of Quinces, or other Astringents, such as Pears, Fruit of the Service-tree, or Medlars; and if the *Aphthæ* are inflam'd, Lettice must be put into their Victuals. But if the Child cannot yet eat, these Things must be given to its Nurse. It will also be proper to anoint the Children themselves. If the *Aphthæ* are reddish in the Beginning, let such Medicines as are moderately cooling and astringent, be apply'd to them; then we are to use such Things as digest without Pain. If they are yellowish, Medicines of the same, but a more cooling Nature; if they are whitish, and full of Phlegm, absterging Medicines are necessary; if black, strong Digestives.

stives. But in Adults, and those, the Parts of whose Body are of a harder Contexture, *Misy*, with a little astringent Wine, is sufficient. If the Ulcer is sordid, the *Misy* is to be mix'd with Mulsam. But in those *Aphthæ* which require stronger Medicines than the *Misy*, these may properly enough be levigated with Wine and Mulsam; for these are efficacious Ingredients: But of the middling Kind, especially in the Beginnings of these Disorders, are Omphacium with Mulsam, and Rhus with the same. In very young Children, the Flower of Roses, or even dry'd Roses themselves, are sufficient. *Oribasius de Loc. Affect. Curat. L. 4. Cap. 68.*

Children are subject to a Species of Ulcer, which they call *Æthæ*, which is sometimes whitish, sometimes reddish, and sometimes black. This Ulcer resembles a Crust, and is of a very fatal and deadly Nature. In this Case, Iris, with Honey, is of Service; as also its dry Powder, blown upon the Part affected. Rose-leaves, likewise powder'd Rose-flowers, Saffron, a little Myrrh, Galls, Frankincense, *Indian Bark*, (*ελαιός τε κιβάρης*) taken either with or without Honey. After these the Patient is to use Hydromel, and the Juice of sweet Pomgranate. *Paul. Ægineta, Lib. 1. Cap. 10.*

The Causes of the *Aphthæ* are, by *Actuarius*, said to be either when the Milk of the Nurse is too scanty, or when the Child itself cannot sufficiently concoct and digest it. The Method of Cure proposed by him, is much the same with that laid down by *Oribasius*, from whom he only differs in a few trifling Circumstances, not of Weight enough to lay a Foundation for pronouncing the Cure of the one different from that of the other. *Actuar. Lib. 6. Col. 318.*

Those Pustules, accompanied with some Degree of Inflammation, which appear in the Mouth, the Fauces, and Œsophagus of Children, are, by Physicians, call'd *Aphthæ*; and are indeed nothing else than small Ulcers, not exceeding the Bulk of a Millet or Hemp-seed: These, notwithstanding their Smallness, sometimes become so fiery and painful, as not only to excite uneasy Sensations, and loud Shrieks, in the tender Patient, but also render Suction of the Milk, and even Deglutition itself, difficult and uneasy.

These Pustules of the Mouth differ in Degrees; for some of them are without Pain, of a red or yellow Colour, and only dispersed here-and-there on the Surface of the Gums, the Tongue, and Cheeks, and are therefore to be judged of a mild and benign Nature; whereas others are of a livid or blackish Colour, very painful, and so extended to the Uvula, Fauces, and Œsophagus, that the whole Surface of the Mouth often appears to be one continued Exulceration; and indeed these are, for the most part, of such a malignant Nature, as to consume and eat the subjacent Flesh to the very Bones.

The Matter exciting the *Aphthæ* is of a highly acrimonious, penetrating, and caustic Quality. This Matter being originally lodged in the Blood, and, by means of the Glands themselves, secreted in the glandular Covering of the Fauces, corrodes, inflames, and exulcerates the tender Flesh of the Mouth and Palate: Hence arise *Aphthæ*, and all the various Train of Symptoms, with which they may possibly happen to be complicated.

But among the more remote and less immediate Causes which concur to the Generation of so virulent a Matter, we may, above all others, reckon, first, the Milk either of Mothers or Nurses, corrupted by an improper Regimen, by a Complication of Diseases, or the violent Sallies of turbulent and uneasy Passions; and secondly, this same Milk, coagulated in the Stomachs of the sucking Children themselves, and render'd impure and corrosive by an Admixture of the Bile; for when such a Milk passes into the Blood, it cannot, in the very Nature of the Thing, fail to communicate a certain acrimonious Taint to its whole Mass, and lay a pretty sure Foundation not only for *Aphthæ*, but also for several other Disorders.

As this is the Case, we have no Reason to be surpris'd, that *Aphthæ* of various Kinds should generally either accompany or succeed those Diseases, which draw their Origin from an Impurity of the Blood, as is generally the Case in acute and malignant Fevers, Coughs, choleric Diarrhoeas, Asthmas, difficult and painful Teething, and others of a like Nature; for, in Fevers, the Blood is, by reason of its excessive Heat, for the most part, deprived of its mild and gelatinous Part, and very easily acquires a saline and sulphureous Quality; but in the other Distempers mentioned, a certain sharp and vellicating Matter is in the Fault; and not only excites Coughs, Diarrhoeas, and Asthmas, but is also subject to produce *Aphthæ*.

Other external Causes also frequently concur to the Production of *Aphthæ*; and especially a Neglect of keeping the Tongue and Fauces clean; the pernicious and preposterous Method of curing Fevers, and other Diseases, by hot Medicines; and exposing the Bodies of Children, when over-heated, to a cold Air; which, by checking Transpiration, has an almost unavoidable Tendency to accumulate and hoard up saline and sulphureous Sordes in the Mass of Humours. Nor ought we, on this Occasion, to exclude other Causes which have an immediate and direct Influence on the lax Compages of the Fauces; such

as Crums of Bread, or Sugar, wrapt up in a Piece of Linen Cloth, in form of a Tent; as also a Piece of Bread dipp'd in Ale, and given to Children to be suck'd. This Practice is not only followed by the lower Class of our own Countrywomen, but *Lentilius* also, *Ephemerid. German. Dec. 3. Anno 3. Appendice, Obs. 94.* has taken Notice of its prevailing in a particular Manner in *Swabia*, and censur'd it with all the Bitterness it justly deserves; for, partly by the strong Attrition of these Substances, and partly by the Change induced on the natural State of the Saliva, the tender Cuticula of the Mouth is too violently acted upon, and Pustulæ are excited: But this Species of *Aphthæ*, unless an internal Acrimony of Humours concurs, is not only soon and easily cured, but has also given Occasion to Physicians to attribute *Aphthæ* either to an internal or an external Cause.

Those *Aphthæ* which lie at considerable Distances from each other, on the Surface of the Mouth, are free from Pain, and of a red or yellow Colour, yield more easily to the Force of Medicines, than such as possess the whole Fauces, are of a blackish Colour, exulcerate deeply, and diffuse a foetid and disagreeable Smell. Neither is there so much Danger in those *Aphthæ* which proceed from an external Cause, as in those which arise from one that is internal, and draw their Origin from a depraved and corrupted State of the Juices; such as those which symptomatically accompany acute Fevers, and some other violent Distempers. Among the worst Kind of *Aphthæ*, we may justly reckon those attended with great Inflammation, a Difficulty of Breathing and Deglutition; which, in malignant Disorders, are generally bad Prognostics, and are, upon dissecting the Patient when dead, often found dispersed over the whole Œsophagus, to the Stomach itself.

The CURE.

The Cure of *Aphthæ* varies according to the different Natures of their productive Causes; for if a depraved or corrupted Milk, either of the Mother or Nurse, is suspected as the Cause, that Cause ought to be removed by correcting the Milk; which is most effectually done by her abstaining from saline, acrid, spirituous, and acid Substances; by her strictly guarding against the Sallies of Passion, and using such Medicines as purify the Blood, and reduce it to a due Crasis: Of this Kind are the Decoctions of temperate, diaphoretic, absorbent, and gently purgative Roots and Herbs.

If, on the other hand, the *Fomes* of the Distemper is originally lodged in the Child itself, it is to be frequently purged, at proper Intervals, with due Doses of Syrup of Manna, or Sucroly with Rhubarb; and ply'd with such Medicines as prevent a Coagulation of the Milk, and correct its acrid *Dyscrasy*. Such Things, as, I have already said, had a Tendency to produce the *Aphthæ*, are at the same time to be carefully avoided and guarded against. Then, for correcting the Acrimony of the Humours, Decoctions of Oats, mixed with Sugar-candy and Oil of sweet Almonds, must be used. Decoctions of Turneps, or common Carrot, must also be prescrib'd for the Patient's ordinary Drink.

It is likewise proper to allay the corroding Acrimony of the *Aphthæ* by external Applications; for this Purpose we prescribe Linctuses, prepared of Diamoron, Juice of Pomgranate, and Honey; as also Juice of Turneps, incorporated with the Yolks of Eggs and Sugar; or Cream, mixed with Syrup of white Poppies, the Yolk of an Egg, and a little Nitre, applied either with the Fingers wrapp'd in a Piece of Linen Cloth, or with a Sponge. The Yolk of an Egg also, incorporated with Rose-water and Sugar-candy, as also a Mucilage of Quince-seed, mixed with Honey and a little Saffron, afford a very considerable Relief, if rubb'd on the Pustules. But I would not advise such Gargarisms as are usually prescrib'd for washing the Mouth, to be used for little Children, since they are entirely unqualified for doing what is requisite on an Occasion of that Nature.

Those *Aphthæ* which accompany acute or other Disorders, are never to be cured till that particular Distemper, whose concomitant Symptom they are, is either allay'd, or thoroughly subdued and eradicated. Now, in acute Cases, the Workings and Efforts of Nature ought by no means to be disturb'd by Purgatives; since the End is better answer'd by gentle Diaphoretics, and temperating Emulsions, prepared of the Four cold Seeds and a small Quantity of Poppy-seeds. *Hoffman. Medic. Rational. Systemat. Vol. 3.*

Riverius recommends Narcotics in the Cure of the worst and most dangerous *Aphthæ*; because they not only ease Pain, but prevent a Fluxion of Humours to the Parts affected. "Thus, says he, I myself snatch'd a Boy, of four Years of Age, from the very Jaws of Death, by giving him one Grain of *Laudanum*, when his Tongue and Mouth were full of deep Ulcers, accompanied with such a Degree of Inflammation, that he could neither swallow Broths, nor endure the Application of Topics; when the Afflux of acrid Humours to his Mouth was so great, that they continually dri- vell'd from it in large Quantities; and when he pass'd the
"Days

"Days and Nights in an uninterrupted Course of Agony and Shrieks." *River: Praxis Med.*

A certain Woman was afflicted with very painful and obstinate *Aphthæ*, which would neither yield to Venesections, repeated Purges, cooling Juleps, nor anointing with the Spirit of Sulphur: She pass'd the Nights without Sleep, and could not eat without the greatest Difficulty, because her Mouth was full of little Ulcers. However, upon taking three Grains of Laudanum, for three Nights successively, the acrid Defluxion on the Mouth was stopp'd, and the *Aphthæ* cured in a few Days. *Riverii Observat. Cent. 3.*

This Author gives an Instance of *Aphthæ* being produced in the Stomach by a rash and unwary Use of Lemon-juice.

From BOERHAAVE.

Aphthæ are frequent in acute Diseases, attended with Inflammations of some of the Viscera. These are small, round, superficial Ulcers, on the Inside of the Mouth; which, upon an accurate Examination, appear to be Exulcerations of the Extremities of the excretory Ducts of those Glands which separate the salivary Humour, and convey it to the Mouth: Now when this Fluid is, by any Cause, render'd too thick and viscid, it stops up the Extremities of these Canals, which, upon this, exulcerate.

Every Part, therefore, into which such excretory Ducts discharge themselves in a natural State, are subject to *Aphthæ*; as the Lips, Gums, internal Parts of the Cheeks, Tongue, Palate, Fauces, Tonsils, Uvula, Throat, Stomach, and small Intestines.

It is said, that the large Intestines, tho' rarely, are infested with these small Exulcerations; and that they are propagated thro' the whole Intestinal Tube.

The Northern People, who inhabit marshy Places, are most subject to *Aphthæ* in a hot and rainy Season; and Infants and old People are, in general, most affected with them. But in Countries which are warm or mountainous, or where the Air is habitually serene and dry, they are scarcely known. See *ÆGYPTIA ULCERA*.

Aphthæ, in the Mouth, are usually preceded by a continual putrid Fever; or an Intermittent, degenerated into a continual Fever, which began with a Diarrhoea, or Dysentery; a considerable and perpetual Nausea, Vomiting, Loss of Appetite, and great Anxieties about the Præcordia, frequently returning; by great Weakness, or any considerable Evacuation of the Humours; by Stupor and Heaviness; by unequal, but perpetual, and not very violent Drowsiness; and by perpetual Complaints of a Sensation of Heaviness and Pain about the Stomach: And it is remarkable, that those preceded by great Evacuations of the Humours are very dangerous.

Sometimes, in the Beginning, a solitary Pustule will appear in different Parts of the Mouth; as upon the Tongue, in the Angles of the Lips, in the Fauces, or elsewhere, without any Certainty as to the Part on which they first are visible; and these are generally of a mild Nature. But sometimes they appear first at the lower Part of the Fauces, and a white, thick Crust, shining like new Bacon, which adheres firmly to the Parts, and ascends slowly, seems, as it were, to proceed from the Oesophagus: These are usually a very bad Sort, and generally fatal. But the worst Sort, and of which the Patient very seldom recovers, are those which cover the whole Mouth, as far as the Extremities of the Lips, with a hard, firm, thick, and tenacious kind of Crust. The two last Species should seem to have their Origin in the Stomach, and thence to ascend into the Mouth.

The Malignancy of *Aphthæ* may be estimated by their Colour. Thus those which are white and pellucid, and almost of the Colour of Pearls, are the least malignant; those which are white, but opaque by reason of their Thickness, are more so; but not so bad as those which are brown, yellow, or livid: The black are, of all others, the worst.

When these *Aphthæ*, or *Aphthosæ* Crusts, have adher'd some time to the Parts affected, they begin to separate, and be loosen'd from the subjacent Part, and to fall off, so that all the affected Parts are, by Degrees, and successively, freed from them: But this Separation is effected in some Kinds sooner, in others later. And hence also we may judge of the Degrees of Malignity; for the sooner the Separation happens, the less is the Danger.

Sometimes these, when fallen off, are immediately succeeded by fresh *Aphthæ*; but sometimes this Succession happens more slowly, and sometimes not at all: Sometimes also the succeeding *Aphthæ* are as thick, or more so, than the first; and hence also the Danger may be estimated; for the sooner they are renew'd, and the thicker, the greater is the Malignity.

From considering what has been premised, we may readily form an Idea of the Seat, Nature, Cause, and Symptoms of *Aphthæ*, and of their different Sorts; and hence also their Effects may be understood.

Thus, if such an *Aphthosæ* Crust, as is above describ'd, covers the whole Superficies of the Parts mention'd, all Sensation, which should be communicated to the Nerves, is intercepted, and the Patient loses his Taste. Besides this, the Egress of the

VOL. I.

Fluids, by these obstructed Emiffaries, is utterly prevented; the Consequences of which are, a Driness of the Parts; a Dilatation of the subjacent Vessels, a Putrefaction of the Fluids, stagnating under the *Aphthosæ* Crust, and an Inflammation of the Parts themselves in which they stagnate.

Hence also the Orifices of the absorbent Vessels are obstructed in such a manner, that no fresh Chyle, Fluids, or Medicines, can enter them; and this produces all those Disorders which may proceed from a Deficiency of Nourishment, and, in the End, Death.

When these Crusts fall off, there is an increased Flux of Humours from the Mouths of the distended Vessels now opened; hence a large Discharge of Saliva, or a Diarrhoea, which are good Symptoms, if the *Aphthosæ* Crusts are not renew'd; but bad, if they are.

Upon the Falling-off of the Crusts, a great Pain succeeds of the Parts underneath, which are now inflamed and exposed: These often discharge Blood, whence bloody Saliva, and a bloody Dysentery.

If what has been said is applied to the Stomach, the excretory Ducts of the Liver, Pancreas, and of the other Glands which open into the Intestines, we may form an Idea of an infinite Number of Disorders arising from this Distemper; inasmuch that a farther Detail of the Prognostics will be superfluous.

If these ulcerous Crusts are very slow of Separation, thick, broad, and compact, the subjacent Flesh, being, as it were, suffocated, inflames, suppurates, or even mortifies; the Consequences of which are malignant Ulcers, which sometimes affect the *Os Palati*, and its *Periosteum*: Hence we may judge of their Effects in the Stomach and Intestines.

THE CURE.

1. The Impulse of the vital Fluids, upon the Parts affected, is to be gently excited; and so conducted, that, by a proper Supply of Fluids, the ulcerous Crusts may be loosen'd, separated, and fall off: This is effected by drinking great Quantities of warm, diluting, resolving, and absterging Liquids. And because, in some bad Cases, the Orifices of the Lacteals are so obturated as not easily to admit the Liquids thus taken, Fomentations, Vapours, and Baths, are of singular Use. The very best Aliment is Bread boil'd in Water, and then mixed with Wine and Honey.

Take of sweet Almonds blanch'd, two Ounces; of Pistachio-nut Kernels, one Ounce; of the Four greater and lesser cold Seeds bruised, each three Drams; of excocticated Oats, three Ounces: Boil these in a sufficient Quantity of Water that two Pints of the Liquor may at last remain, in a close Vessel for an Hour; and then add, of Liquorice-root, an Ounce, and let them boil together a little: Then let the boiled Ingredients be thoroughly bruised in the Decoction; and of this let the Patient drink frequently; and with this let him wash his Mouth: Or,

Take of the Roots of Carrots, Skirrets, China, Sarsaparilla, and Turneps, each four Ounces; of whole Barley, an Ounce: Let these Ingredients be well bruised, and boiled in Water; and, to thirty Ounces of the express'd Liquor, add, of Syrup of Marsh-mallows, an Ounce. Let this be used as the preceding.

Take of the Roots of Turneps unpar'd, a sufficient Quantity; let them be grated or rasped, and let the Juice be press'd out; and, whilst it is boiling, let it be despumated; then, to sixteen Ounces of this Juice, add the Yolks of two Eggs; and of Syrup of Violets, two Ounces. Let the Patient take half an Ounce every half Hour.

The most proper Aliments, besides those mention'd before, are Decoctions of the farinaceous Vegetables.

2. The Crust must be disposed to separate soon and easily; which is effected by Fomentations, Gargarisms, and Clysters: These must consist of warm, relaxing, emollient, and detergent Liquors, which moisten the Parts by adhering to them a sufficient time, and which resist Putrefaction. Thus,

Take of the Leaves of Mallows, Brank-ursine, Marsh-mallows, Pellitory of the Wall, Mullein, Mercury, Lady's-mantle, each two Ounces; of the Roots of Marsh-mallows, an Ounce; of the Roots of Turneps, ten Ounces: To three Pints of the Decoction, made with Water, and express'd, add the Yolks of four Eggs; and Honey of Roses, two Ounces. With this let the Mouth be perpetually washed; or gargled.

Make a Cataplasm of the *Residuum*, to be applied externally to the Region of the Fauces.

Let Clysters also of this Decoction be administer'd.

3. As soon as the Crust is fallen off, it will be proper to use anodyne and demulcent Remedies, and such as contribute to strengthen the relax'd Parts. Thus,

Take of Syrup of white Poppies, two Ounces; of Cream, two Ounces; the Yolks of two Eggs; of Rose-water, two Ounces: Let a little of this be held continually in the Mouth. Or,

Take of the Jelly of Hartshorn, or of Flesh, made very thick, and cut into Slices, a sufficient Quantity: Let one of these Slices be perpetually dissolving on the Tongue, and so gradually swallow'd.

These two Medicines act agreeably upon the excoriated Parts; and the following contributes to strengthen them.

Take of the Decoction of the fresh Leaves of Agrimony, seven Ounces; of Honey of Roses, an Ounce. Let this be applied perpetually to the affected Parts.

4. As soon as the Fever is abated, a Sediment appears in the Urine, and the Pulse begins to be free, corroborating Medicines are to be directed. Thus,

Take of the Root of the sharp-pointed Dock, an Ounce; of the Peruvian Bark, and that of Tamarisk, each six Drams; of the Leaves of Agrimony, one Handful: Boil these Ingredients in a sufficient Quantity of Water, and to a Pint and an half of the Decoction add, of the Syrup of Kermes, an Ounce. Of this let the Patient take half an Ounce every Hour. This corroborates the relax'd Vessels of the Intestines.

Sydenham advises in those *Aphthæ* which happen at the End of Fevers, together with Hiccoughs, to give an Elestuary of an Ounce of the Bark, made up with the Syrup of red Poppies, or in the Form of Pills. Of this he directs the Patient to take one twelfth Part every four Hours, drinking after it a Draught of Whey; and he says, it is the most effectual Remedy he has met with, provided the Virtues of the Remedy are not impair'd by continually confining the Patient to his Bed.

5. At the End of the Distemper, some corroborating Purge should be administer'd. Thus,

Take of Rhubarb a Dram and a half; yellow Myrobalans, with the Nuclei, an Ounce and a half: Boil in a sufficient Quantity of Water for three Ounces of the strain'd Decoction; to which add, of Syrup of Succory with Rhubarb twelve Drams. Make a purging Potion.

From the preceding History and Cure of *Aphthæ*, many obscure practical Problems may be explained.

Thus, if a Reason should be required, Why, in a Fever, attended with a Diarrhœa or Dysentery, *Aphthæ* frequently appear at the End of the Distemper?

It may be answer'd, Because the most fluid Parts of the Secretions are carried off, and only the most viscid remain in the excretory Vessels of the Glands.

Why does this happen principally to Children and old People?

Because in Children the *Vires Vita* are languid; in old People the Juices are subject to Viscidities.

Why are those particularly subject to these *Aphthæ*, who, in the Beginning of the Fever, have been treated with Medicines, Aliment, or a Regimen, which are heating or astringent?

Because Astringents brace up the Orifices of the excretory Ducts; and a hot Treatment draws off the thinner Parts of the Fluids.

Why does a Purge, administer'd in the Beginning of such Distempers, prevent *Aphthæ*?

Because by this means those Viscidities which stick in the Ducts, and cause *Aphthæ* afterwards, are carried off.

Why does a troublesome and fatal Hiccough frequently accompany the worst Species of *Aphthæ*?

Because, in this Case, the Stomach is cover'd with an *Aphthæ* Crust, which falling off, the Extremities of the Nerves are left bare, and are consequently easily irritated to Convulsions, and liable to Inflammation and Gangrene.

Why are *Aphthæ* in the Mouth joined, by Hippocrates, with loose Bellies, and Prostration of Appetite?

Because when the internal Coat of the Stomach is cover'd with *Aphthæ*, there must be a Loss of Appetite, or a Chylose Diarrhœa, because the Chyle cannot enter the Lacteals; the Stomach is seldom affected with these *Aphthæ*, but the Intestines are so likewise.

Why does an *Aphthæ* Covering of the Stomach produce a Lientery?

Because no proper diluting Humour can be secreted in the Stomach, and therefore no Digestion can be performed, and the Aliment must go out of the Stomach as it enter'd.

Why are black *Aphthæ* esteem'd fatal?

Because they tend to a Gangrene.

Why do *Aphthæ* in the Mouths of pregnant Women preface a Miscarriage?

First, because they are Evidences of a considerable Viscidity, and perhaps Acrimony, of the Juices; and secondly, because they prevent a due Supply of Chyle from entering the Lacteals; both which are Hindrances to the Nourishment of the Fœtus.

Why are *Aphthæ* frequent in Putrefactions of the Lungs, Liver, or other principal Viscera?

Because the putrid Matter convey'd from the Abscess of these Viscera to the Blood, and thence to the Glands, impress upon the several Secretions an acrimonious Taint; hence the Extremities of the excretory Ducts are corroded.

In a Consumption nothing is a more certain Preface of Death than these *Aphthæ*.

Why does a Tumor, Heat, Suffocation, and a Quinsy, sometimes succeed a Refrigeration of *Aphthæ*?

Because by contracting the *Aphthæ* and subjacent Parts, the *Aphthæ* are prevented from falling off, and the Vessels underneath are obstructed; hence the Parts swell, and are inflamed: And hence we may account for Deliria, Anxieties, Want of Rest, and cold Sweats, which frequently ensue, and prove fatal.

Nothing is more dangerous than to let cold Air, or cold Drinks of any Kind, be applied to these *Aphthæ*: Some have died suddenly, who have held cold Water in their Mouths, when they have had *Aphthæ* there.

Upon the Whole, it may be laid down as a Rule, that *Aphthæ* which are pellucid, white, thin, disseminated, soft, which easily separate without Renovation, and which are superficial, are of a good Sort.

On the contrary, those which are very white and opaque, yellow, brown, or black, which are in great Quantities, thick, cohering, hard, tenacious, corroding, and which perpetually repullulate, are extremely bad.

Dr. Harris, in his Chirurgical Dissertations, disapproves very much the Use of Spirit of Vitriol, Oil of Sulphur, or burnt Alum, in *Aphthæ*; for he says, these corrosive Applications will incline them to turn cancerous. Instead of these, he advises a Decoction of Elm-bark with the Leaves of Sanicle, for a Gargarism. In this he agrees with Boerhaave.

Dionis, however, recommends Honey of Roses acidulated with Oil of Vitriol, as a proper Mixture to touch malignant *Aphthæ* with in Children. And Sydenham, in the Case of a young Gentleman with *Aphthæ*, consequent to the Iliac Passion, tells us, he used successfully the following Gargarism:

Take of Verjuice, half a Pint; Syrup of Raspberries, an Ounce; mix, and make a Gargarism.

And indeed the general Directions we meet with in Authors, with respect to *Aphthæ*, are, to apply Remedies somewhat corrosive; but I have taken the less Notice of these, because both Reason and Experience are on the Side of the contrary Method recommended by Boerhaave and Harris.

There are some Empirical Remedies for *Aphthæ*; but none seems so very extraordinary as that which consists in anointing the Crown of the Head with the best Oil of Bays, which is said to cure effectually the *Aphthæ* of Children. This I had from a Physician of Veracity, who assured me he had frequently been a Witness of its salutary Effects.

APHTHARTOS, ἀφθάρτος, from a Negative, and φθάρω, to corrupt. Incorruptible. Castells.

APHYA, ΑΡΥΑ, ἀρύα, a small Fish. Hence ἀρυάδης χεῖμα, in Hippocrat. περὶ γυναικ. Lib. 2. signifies a pale whitish Colour, like that of the Fish *Apua*, proceeding from a great Hæmorrhage. Galen in Exeg. See ΑΡΥΑ.

APHYLLANTHES, ἀφυλλανθής, from a Negat. φύλλον, a Leaf, and ἄνθος, a Flower. It seems to signify an apetalous Flower.

APHYLLANTES ANGUILLARÆ, a sort of Daisy. Raii Hist. Plant. See BELLIS.

APHYLLANTES MONSPEL. See CARYOPHYLLUS.

APHYSOS, ἀφυσός, ἀφυσός, from a Negative, and φυσάω, or φυσάω, to blow. Void of Flatulency, so ἀφυσός διαίτα, Galen, Lib. 1. Cap. 6. τῶν κατὰ τὸν. is a Diet that generates no Inflation.

APHYTACORES, a sort of Trees, reported in Pliny, Lib. 31. Cap. 2. to produce Amber.

APIASTRUM. See MELISSA.

APICES, [of Apex, a Top, or Point] those little Knobs that grow on the Stamina in the Middle of the Flower. They are commonly of a dark-purplish Colour, and have been discovered, by the Help of Microscopes, to be, as it were, a sort of Seed-vessels, containing in them small globular or oval Particles, of various Colours, and exquisitely formed. They are by some supposed to be a kind of Male Sperm, which, falling down into the Flower, fecundates and ripens the Seed. Miller's Dictionary.

APIITES, Perry, a sort of Wine made of the Juice of Pears. *Raii Hist. Plant.* See **APITES**.

APINEL. This Root grows in some of the *American* Islands; and is by the native Savages called *Yabacani*; but by us *Apinel-root*, from the Name of a Captain of Horse, who served there for some time, and first made the *Europeans* acquainted with it.

It is so efficacious against Serpents, that in order to destroy them, nothing more is necessary than to thrust a Piece of it into their Mouths upon the Point of a Rod. If a Person chews it, and besmears his Hands and Feet with it, Serpents not only shun and fly from him, but, what is more surprising, he may catch them without any Danger, and do with them whatever he has a mind. 'Tis also observed, that these noxious and poisonous Animals will never enter a Chamber in which a Piece of this Root is kept. These Facts are attested by Mr. *De Hauverive*. This Root, so useful for the Preservation of Mankind, would also be beneficial for their Propagation, if that stood in need of forced Aids; which People in this Case are not much inclined to use, since the End is sufficiently answered by Infants. *Histoir. de l'Acad. R. A. 1724.*

APIOS, Offic. J. B. 3. 666. *Raii Hist.* 1. 870. *Apios vera*, Ger. 407. Emac. 504. *Apios sive Ischias*, Chab. 533. *Apios sive Tithymalus tuberosus*, Park. Theat. 195. *Tithymalus tuberosus pyriformis radice*, C. B. Pin. 292. Tourn. Inst. 87. *Hist. Oxon.* 3. 342. **ROUND KNOBBED-ROOTED SPURGE**.

APIOS, otherwise called *Ischias*, Mountain or Wood *Chamaebalanos*, and by some *Linozostis*, shoots forth two or three reedy, slender, red Stalks, which rise but little above the Ground. The Leaves are like those of Rue, only more oblong and narrower. It bears a small Seed, and its Root, which resembles that of Asphodel, is shaped much like a Pear, but rounder, and full of Juice. The Bark is black on the Outside, but white within.

The upper Part of the Root, taken, expels Phlegm and Bile by Vomiting, the lower Part by Stool; but the Whole, taken together, purges both upwards and downwards. If you desire to extract the Juice, cut the Roots in Pieces, and put them into a Vessel of Water; stir them about, and take off the Liquor that swims a-top with a Feather, and dry it. Fifteen Grains of this, drank, will both vomit and purge. *Dioscorides, Lib. 4. Cap. 177.*

Pliny says, the Root is like an Onion, but larger; and the Pith of it is white, but the Bark black. They dig it in the Spring, bruise it, and put it into an earthen Vessel, and throwing away what swims a-top, the rest of the Juice purges upwards and downwards, taken to the Quantity of fifteen Grains in Hydromel. The Measure of One-eighth of a Pint is a Dose for hydropical Patients. The Powder of the dry'd Root is also given in a Potion. *Lib. 26. Cap. 8.*

It is a Species of Spurge, or a Plant which sends forth many small and low Stalks, slender, round, and reddish, lying often upon the Ground; the Leaves are small, short, resembling those of wild Rue, but less. The Flowers grow at the Extremity of the Stalks; they are small, form'd in the Shape of a Cup, cut into many Divisions, and of a pale-yellow Colour. When this Flower falls off, it is succeeded by a triangular Fruit, which divides itself into three Apartments, each of which incloses one oblong Seed; the Root is tuberosus, and of the Figure of a Pear, more slender at the Bottom than at the Top, black on the Outside, and white within, full of a great deal of Milk. It is remarkable, that when the Root is large and well grown, the Plant is small; but when the Root is small, the Plant is larger. It grows in hot Countries, and in mountainous Places. It contains a great deal of Essential Salt and Oil, mix'd with a large Quantity of Phlegm and Earth.

The Root of this Plant works by Vomit, and by Stool, with Violence. They pretend, that the superior Part works upwards, and the inferior downwards; but both the Parts of the Root have the same Virtues. *Lemery de Drogues.*

APIOS, a Pear-tree. *Oribasius, Aetius*. See **PYRUS**.

APIS. See **APES**.

APITES, **APITES VINUM**, ἀπίτης, ἀπίτης δίνω, from ἀπίς, the Pear-tree, Perry, Wine of Pears. It is thus prepared:

Take the Pears, which must not be very ripe, and cut them in Pieces, as you would Turneps, taking out the Seeds; then put the Weight of eleven or twelve Pounds of them into ten Gallons and a Quarter of Must, and let it macerate for thirty Days; after which strain it off, and set it aside for Use.

It is thus otherwise prepared:

Cut and pound the Pears, and having pressed out the Juice, with every twelve Pints thereof, mix one Pint of Honey, and set it aside.

After the same Manner are prepared Wines of Carobs, Medlars, and Services. All these Kinds are astringent, have a grateful Sourness, and are good for the Stomach, and restrain inward Fluxes. *Dioscorides, Lib. 5. Cap. 32.*

APIUM. Smallage.

The Garden Smallage is an Herb effectual for the same Purposes as Coriander, and, made into a Cataplasim with Bread, or fine Flour, is also good for Inflammations of the Eyes. It comforts a hot Stomach, and represses the Breasts when turgid with grumous Milk; it provokes Urine, whether it be eaten boiled or raw. The Decoction of the Herb and the Roots resists Poison, and excites Vomiting, but binds the Belly. The Seed is a more powerful Diuretic and Alexipharmic; relieves those who have swallowed Litharge, and is a good Carminative. It is an useful Ingredient in anodyne and theriacal Remedies, and in such as are prescribed against Coughs. *Dioscorides, Lib. 3. Cap. 74.*

The Heleofelinum, or Marsh Smallage, that grows in watry Places, is larger than the Garden Kind, and useful for the same Purposes. *Idem, Cap. 75.*

The Oreofelinum (Mountain Parsley) shoots up from a slender Root a single Stalk a Span high, which spreads into little Branches and Heads like Hemlock, but much slenderer, and bearing an oblong, slender, acrid, and fragrant Seed, like that of Cumin; it grows on rocky and hilly Places.

The Seed and Root, drank in Wine, provoke Urine and the Menfes. It is mixed in Antidotes with other Ingredients of diuretic and heating Qualities. But we must take care not to mistake the Oreofelinum for the Petroselinum, or what grows on Rocks; for the Petroselinum is another thing. *Idem, Cap. 76.*

The Apium which they call Petroselinum, grows in Macedonia, on craggy Places, having a Seed like Bishop's-weed, but more scented, acrid, and aromatic, being a Diuretic, and Emmenagogue. It is good for the Gripes and Wind in the Stomach and Colon, and for Pains in the Side, Kidneys and Bladder, being taken in a Potion. It is mixed with other Diuretics in Antidotes. *Dioscorides, Lib. 3. Cap. 77.*

Hippofelinum is by some called *Grielum*, by others *Agriofelinum*, by others *Smyrnum*, though the proper *Smyrnum* be another thing. It is larger and whiter than the Garden Apium, with a tall, hollow, tender Stalk, distinguished, as it were, by Lines. The Leaves are larger, inclining to a Scarlet; the Tops of the Branches are like those of Rosemary, and laden with Flowers, which form themselves into an Umbella. The Seed is black; oblong, solid, acrimonious, and aromatic. The Root is sweet-scented, white, and of a grateful Taste, not thick in Body. It grows in shady Places, and by the Sides of Marshes, and is eaten like Smallage and other Greens. The Root is eaten either raw or boiled, and the Leaves and Stalks dressed either alone or with Fish; they are also pickled raw.

The Seed, drank in *Mulsim*, provokes the Menfes; and, used either in a Potion or Litus, warms those who shiver with Cold, and helps the Strangury. The Root works the same Effects. *Dioscorides, Lib. 3. Cap. 78.*

Apium is an Herb mightily in Request; its Branches, in great Quantities, swim in our Soops, and have a peculiar Gratefulness in Pickles. Besides, if it be made into a *Litus* with Honey, and the Eyes anointed therewith, so that they may be now-and-then fomented with the warm Decoction of the same, it gives wonderful Relief in Defluxions, and also in Rheums on other Parts, if it be bruised and apply'd alone, or with Bread, or Polenta. Fishes, when sick in Ponds, are recovered with green *Apium*. But among the Knowing, there is nothing dug out of the Earth, that has been the Subject of a greater Variety of Opinions. It has a Distinction of Sexes. *Chrysippus* tells us, that the Female has crisper Leaves and hard, with a thick Stalk, and a hot acrimonious Taste. *Dionysius* says it is blacker, has a short Root, and breeds Worms. Both these Authors agree in making it forbidden, and altogether unlawful to be eaten, as being appropriated to funeral Feasts, and also hurtful to the Sight. The Stalk of the Female, they say, breeds Worms, for which Reason those who eat of it, of either Sex, become barren; and that Children, suckled by Women who eat it, become affected with the Falling Sickness. The Male Kind, they grant, is more innocent, and therefore it is not condemn'd with the other forbidden Plants.

The Leaves, apply'd, mollify the Hardness of the Breasts; and, boiled in Water, make it more grateful to the Taste. The Juice, especially of the Root, drank in Wine, mitigates Pains of the Loins; the same, instilled, helps Thickness of Hearing. The Seed provokes Urine and the Menfes, and brings away the Secundines. The Decoction of the Seed takes away the Marks of Blows, if the Parts be fomented therewith. Made into a *Litus* with the White of an Egg, or the Decoction of it in Water being drank, it cures Disorders of the Kidneys. Bruised in cold Water, it heals Ulcers of the Mouth. The Seed, drank in Wine, or the Root in old Wine, breaks the Stone in the Bladder; it is also given in White Wine to those who are affected with the Jaundice.

Olusatrum, otherwise called *Hippofelinum*, is good against the Poison of Scorpions; the Seed, drank, cures the Gripes; and the Decoction thereof in *Mulsam*, being drank, relieves under a Difficulty of Urine. The Root, boiled in Wine, expels the Stone, and mitigates the Pains of the Sides and Loins; being drank, and the Parts anointed with the same, it cures the Bite of a mad Dog. The Juice, drank, warms those who shiver with Cold.

Some make a fourth Kind, called *Oreofelinum*, which is an upright Plant, a Span high, and has a Seed like Camin, which is effectual in provoking Urine and the Menfes. The *Heleoselinum* has a particular Virtue against Spiders; and Women take the *Oreofelinum* in Wine, as an Emmenagogue. *Pliny, Lib. 20. Cap. 11.*

Another Kind grows on Rocks, and is by some called *Petroselinum*. It has a peculiar Efficacy in an Abscess, if to two Spoonfuls of the Juice you add One-eighth of a Pint of Juice of Horehound, and three times that Quantity of warm Water. Some add *Buselinum*, which differs from the Garden Kind in the Shortness of its Stalk, and the reddish Colour of its Root; but has the same Virtues, and is a powerful Remedy against the Bites of Serpents, either drank, or used as a Litus. *Idem, Cap. 12.*

Apium is of all Garden Herbs the slowest in shooting out of the Ground, not appearing before the fortieth Day when quickest, but generally not before the fiftieth Day. *Idem, Lib. 19. Cap. 7.* It is sown after the Vernal Equinox, the Seed being first a little bruised in a Mortar, which, they fancy, makes it the more crisped, as well as when, after sowing, it is pressed down with a Roller, or the Feet. It has a peculiar Property of changing its Colour. In *Achaia* it has the Honour to crown the Conquerors in the sacred Nemean Games. *Idem, Lib. 19. Cap. 8.*

This is the Account given of the different Sorts of *Apium* by the Antients. But *Miller* enumerates thirteen Species.

Dale mentions six Sorts of *Apium* used in Medicine. The first is the

APIUM ET ELEOSELINUM, Offic. *Apium vulgare sive palustre*, Mer. Pin. 9. Park. Theat. 296. *Apium vulgare ingratius*, J. B. 3. 100. *Apium palustre Heleoselinum*, Chab. 396. *Apium palustre sive Officinarium*, Raii Hist. 1. 447. Synop. 3. 214. *Apium Officinarium sive Paludarium*, Merc. Bot. 1. 20. Phyt. Brit. 9. *Apium palustre*, & *Apium Officinarium*, C. B. Pin. 154. Tourn. Inst. 305. Elem. Bot. 254. Boerh. Ind. A. 58. Hist. Oxon. 3. 293. Rupp. Flor. Jen. 229. *Apium palustre Paludarium dictum*, Mor. Umb. 21. *Eleoselinum*, seu *Paludarium*, Ger. 862. Emac. 1014. SMALLAGE.

The Roots of Smallage are about a Finger thick, wrinkled, and sinking deep in the Earth, of a white Colour, from which spring many winged Leaves, somewhat resembling Parsley, but are larger, of a yellower Colour, each single Leaf being somewhat three-square; the Stalks grow to be two or three Foot high, smooth-channelled, and somewhat angular, and very much branched; at the Division of the Branches, come forth Umbels of small yellowish Flowers, followed by Seed less than Parsley-seed, paler and hotter. The whole Plant is of a strong ungrateful Savour. It grows in marshy watry Places, flowering and ripening Seed in the Summer.

The Roots, Leaves, and Seed, are used.

The Roots are diuretic, and very good for the Stoppage of Urine, the Stone and Gravel, and open Obstructions of the Liver and Spleen; and help the Dropsy and Jaundice, and remove Female Obstructions. The Leaves are of the same Nature, and are one of the Herbs which are eaten in the Spring, to sweeten and purify the Blood, and cure the Scurvy; the Seed is hot and carminative, and is one of the Four lesser hot Seeds, as the Root is one of the Five opening Roots. *Miller Bot. Off.*

Cordus justly observed, that the *Apium sativum*, which is our *Celeri*, did not differ from the Smallage, any otherwise than by Culture. This Plant is bitter, acrid, and aromatic. It contains a great deal of oily volatile Salt, from which the Sal Ammoniac is not quite disengaged, but dissolved in a great deal of Phlegm, and united with a great deal of Earth. By the Chymical Analysis, it yields, beside several acid Liquors, a great deal of Sulphur and Earth, a pretty deal of an urinous Spirit, and a little concreted volatile Salt. Thus it is no Wonder, that this Plant should be Aperitive, Diuretic, Febrifugous, and Vulnerary. Six Ounces of the Juice of its Leaves, mixed with two Ounces of the *Peruvian Bark*, is a certain Cure for a Quartan Ague, and wheresoever there are Obstructions in the lower Belly. In the Scurvy, the Juice of Smallage is no less efficacious than that of Scurvy-grass, to strengthen the Gums, and cleanse the Ulcers of the Mouth. Cancerous, and other Ulcers may be bathed also with it. The Root is made use of in Aperitive Puffs, Decoctions, Apozems, and Syrups. To draw the Milk, boil equal Parts of the Leaves of Smallage and Mint in Whey; strain it, and sprinkle it with Smallage-seeds powdered. *Martyn's Tournefort.*

Bartholomæus Zorn, in his *Botanologia*, says, that it grows naturally in moist, marshy, and shady Places. It is also planted in Gardens, where it is known under the Name of *Sallary*. Both the Seeds and Roots are used, especially in Obstructions of the Liver and Spleen; they warm, dry, purify, and attenuate; they occasion a Discharge of the Urine and Gravel, provoke the Menstrual Evacuations of Women, and carry off Fevers, Jaundice, and Dropsies; but they are very improper for such as are subject to the Falling Sickness, by reason of some particular Quality, as *Simeon Sethi* informs us. If Women with Child use them, they bring forth Monsters; and the Children which suck of them, contract the Falling Sickness, if we may believe *Pliny*. Its Root, hung about the Arm, by way of Amulet, removes Tooth-achs. *Melch. Scbitz. Disp. de Dentibus*, 4. 186. The Herb itself, and its Root attenuate and dissolve the Milk coagulated in the Breasts of Women, and dissipate its superfluous Quantity. For this Purpose some add to it Mint, Coriander, and Cummin. The expressed Juice of this Herb, mixed with Honey of Roses, is said to be an excellent Deterger of Wounds and Ulcers. See *Franc. Valeriola, Obs. 1. Lib. 15*. Some Surgeons order it to be mixed with Medicines designed for dressing Cancers, and other malignant Ulcers.

The only Shop Composition which takes its Name from *Apium*, is the

MUNDIFICATIVUM EX APIO.

The cleansing Ointment with SMALLAGE.

Take of the Juice of Smallage, one Pint; of Honey, nine Ounces; of Wheat-flower, three Ounces. Boil them till they grow thick together, of the Consistence of an Ointment, *S. A.*

This hath pass'd through all the College Dispensatories exactly the same; but I have never known it prescribed or made. *Quincy's London Dispensatory.*

The second Species of *Apium*, mention'd by *Dale*, is the PETROSELINUM VULGARE, Offic. Park. Theat. 922. *Petroselinum*, Ejusd. Parad. 491. *Apium hortense*, Ger. 861. Emac. 1013. Raii Hist. 1448. *Apium hortense*, seu *Petroselinum vulgare*, C. B. Pin. 153. Tourn. Inst. 305. Elem. Bot. 254. Boerh. Ind. A. 58. Rupp. Flor. Jen. 229. Hist. Oxon. 3. 292. *Apium hortense multis, quod vulgè Petroselinum palatum*, J. B. 3. 97. *Apium, Selinum, Petroselinum*, Chab. 396. *Apium sativum vel hortense, vulgatus latifolium planum*, Mor. Umb. 22. PARSLEY.

The Root of this is one of the Five opening Roots.

Of this sort of *Apium* there are a great many Species. They are all esteem'd opening, attenuating, diuretic, and useful for Obstructions of the Liver and Spleen; help the Jaundice, provoke Urine; and are of Service against the Stone, Gravel, and Strangury. *Miller. Bot. Off.*

A distill'd Water of *Parsley*, which partakes of the Virtues of the Plant, is directed by the College to be kept in the Shops.

The third *Apium*, taken Notice of by *Dale*, is the

APIUM PYRENAICUM THAPSIAE FACIE, Tourn. Inst. 305. Boerh. Ind. A. 58. *Seseli Pyrenaicum Thapsia folio*, Pluk. Almag. 244. Raii Hist. 2. 1808. *Seseli Pyrenaicum Thapsia facie*, D. Fagon. Schol. Bot. 161. Parad. Bat. 229. *Selinum Pyrenaicum, lobis foliorum acutioribus*, Vaill. MOUNTAIN PARSLEY, or THE SECOND BASTARD TURBITH.

It grows on the *Pyrenean Mountains*, and the Root is in Use, which serves the *Spaniards* instead of the Root of Turbith, as *Chomelinus* affirms; but it is of a noxious Quality. *Dale.*

The fourth is the

BUNIAM, Offic. *Bunium Dalechampii*, J. B. 3. 20. Chab. 385. *Daucus Petroselini vel Coriandri folio*, C. B. Pin. 150. *Daucus Petroselini vel Coriandri folio*, seu *Bunium Dalechampii*, Park. Theat. 900. Raii Hist. 1. 449. *Saxifraga montana minor Petroselini vel Coriandri folio*, Hist. Oxon. 3. 274. WILD PARSLEY.

It grows in stony and rugged Places, and flowers in the Summer. The Herb is used, and is diuretic, heating, and brings away the After-birth: It is good for the Spleen, Kidneys, and Bladder. *Dale.*

The fifth is the

PETROSELINUM MACEDONICUM, Offic. *Petroselinum Macedonicum verum*, Ger. 864. Emac. 1016. *Petroselinum Macedonicum quibusdam*, Park. Theat. 924. *Apium Macedonicum*, C. B. Pin. 154. Tourn. Inst. 305. Elem. Bot. 254. Raii Hist. 1. 463. Hist. Oxon. 3. 293. Boerh. Ind. A. 59. *Apium sive Petroselinum Macedonicum multis*, J. B. 3. 102. Chab. 397. *Apium semine villosa seu incano, Macedonicum*, Mor. Umb. 21. *Daucus Macedonicus Apii folio*, Herm. Flor. 2. 17. MACEDONIAN PARSLEY.

It is cultivated in the Gardens of the Curious, and flowers in July. The Seeds are small, hairy, striated, of a very dark Green, of an acrid and aromatic Taste, and of a fragrant Smell.

It is principally used as a Diuretic and Emmenagogue, and sometimes as a Remedy against Diseases caused by Witchcraft. *Schroder.* Some conceited Preparers of Medicines have been so ill advised, as to reject this Simple in the Composition of the *Theriaca*, &c. as *Volckamerus* observes, and in its stead to substitute the *Smyrniolum perfoliatum Creticum*, or *Olus atrum* [*Alexanders*], which will by no means answer the Purpose. *Flor. Nor. 325. Dale.*

The sixth is the

SELINUM MONTANUM, Offic. *Selinum sive Apium peregrinum*, Park. Theat. 928. *Apium peregrinum*, foliis subrotundis, C. B. Prod. 31. Pin. 154. Hist. Oxon. 3. 293. *Apium semine villoso incano*, peregrinum primum *Clusii*, Mor. Umb. 21. *Vifnaga minor quorundam*, *Selinum peregrinum Clusii*, semine hirsuto, J. B. 3. 94. *Daucus tertius Dioscoridis*, Raii Hist. 1. 462. *Daucus peregrinus*, foliis subrotundis pinnatis, Herm. Flor. 2. 17. **STONE PARSLEY.**

It is sometimes found in the Gardens of Botanists. The Seed is used, and is supposed to have the same Virtues as the former. *Dale.*

Bartholomæus Zorn mentions a Sort of *Apium*, under the Name of

Apium sylvestre, *Alfnicium dictum*, Officin. *Apium sylvestre*, Dod. *Thyselinum quorundam*, planta lacteo succo turgens, locis humidis proveniens, J. B. *Thyselinum Plinii*, Lob. *Olsenichium*, Cord. Thal. *Olsnitium*, Tab. *Apium sylvestre lacteo succo turgens*, C. B. *Meum Silesiacum palustre*, Schwenckf. *Daucus palustris*, Gesn. H. *Cuminum alnorum*, Al.

Dale, amongst other Synonyma, calls it *ORLNIZIUM*, Offic. Germ.

This Plant is very little known in our Shops; but is much in Vogue amongst the Germans.

This Herb grows in moist and shady Places, and especially near the Roots of Alder-trees. In Pharmacy its Root is principally in Use, which, if gather'd in the Spring, smells pretty strong, and is of a sharppish bitter Taste. It opens the Pores, dissolves, attenuates, and expels malignant Humours by Sweat. It carries off Pains in the Stomach and Belly, clears the Breast of Distinctions, eases Coughs, occasions a Discharge of Gravel, and resists the Plague, contagious Fevers, and other virulent Disorders. It is also successfully used against the Bites of poisonous Animals. See *Leon Thurneisser Histor. Planta. Cap. 14. Casp. Schwenckfelt. Descript. Thermar. Hirschbergens. Ed. Gorlic. 1607. Mich. Crugner. Chym. Garten. Baw. C. 27. Matth. Flacc. Tr. German. de Peste, P. 2. C. 13. Ed. Witt. 1566. A. 2. Rivin. Dissert. de Lipsiens. Pest. Ed. 1680. Thomas Reines. Traët. German. de Pest. p. 72. Edit. Altenb. 1681.* The Root has by some been taken for the true *Meum* of the Antients. *Bartholomæi Zorn Botanologia.*

APLESTIA, ἀπλεσία, from a Negative, and πλέω, to fill. Insatiableness. A Vice opposed to ἀνάρπεια, Contentment in the present State. *Galen. de Dign. & Cur. an. Morb. C. 9.*

APLEUROS, ἀπλευρῶς, from a Negative, and πλευρῶν, a Rib. Wanting Ribs. *Galen. Lib. 4. de Hippocr. & Plat. Decr. C. 4.*

APLYTOS, ἀπλῆς, from a Negative, and πλύνω, to wash. Unwashed, an Epithet of Wool, which is otherwise call'd, in Latin, *Lana succida*, and by *Hippocrates* ἐρίον ἀπλυτόν.

APNEUSTI, ἀπνευσί, from a Negative, and πνεύω, to breathe. Without fetching Breath: Κελευε ἀπνευσί τῷτο πιέν. "Order him to drink it off at one Draught, or without fetching Breath." *Hippocrates de Intern. Affect.*

APNOEA, ἀπνοία, a Defect of Respiration. "Απνευ ἀναπνοή, "a Respiration without Breath," is spoken by *Heraclides* in *Galen, Lib. 1. de Diffic. Spir.* of a Respiration in those who are refrigerated, which is so small, rare, and slow, that it seems to be in a manner extinct, and is such an ἀπνοία as happens in a Strangulation of the Uterus, the Apoplexy, and Lethargy, being a Consequence of a Resolution of the Organs of Respiration.

Diogenes Laertius informs us, that *Empedocles*, the most celebrated of all the Disciples of *Pythagoras*, acquired an uncommon Share of Reputation for curing a Woman who was taken for dead; when, according to that Philosopher, she only labour'd under a Strangulation of the Matrix. He gave the Name ἀπνοῦς, which implies without Respiration, to this Disorder; and maintained, that a Patient might live thirty Days under it.

Heraclides of Pontus, a Philosopher who studied some time under *Aristotle*, and then under *Speusippus* the Disciple of *Plato*, wrote, among other Things, a Treatise περὶ τῆ ἀπνῆς, or concerning the Distemper in which the Patient is deprived of Respiration, in which he also asserted, that the Disorder might continue for thirty Days, during which time the Patient remained without Respiration, and appear'd dead, without any Danger of the Body's corrupting.

APOBÆNON, ἀποβαίνων, from ἀποβαίω, to happen. An Event.

APOBAMMA, ἀπόβαμμα, from ἀποβάπτω, to tincture slightly. The same as *Embamma*, a slight Tincture, and commonly applied to Liquor in which Gold Coins, or red-hot Irons, have been quench'd. *Castellus.*

APOBRASMA, ἀπόβρασμα, from ἀποβράσσω, to ejaculate, or eject in Estuation, *Hipp. de Natura Pueri.* The Bran of Wheat; or, according to others, the Froth of the Sea. *Foefius. Castellus.*

APOBREGMA, ἀπόβρεγμα, from ἀποβρέχω, to dilute. A Dilution.

APOCAPNISMUS, ἀποκαπνισμός, from ἀποκαπνίζω, to suffumigate. A Suffumigation. See **SUFFUMENTUM**.

APOCARTEREON, ἀποκαρτερέων, in *Hippocrates de Rat. Vict. in Morb. acut.* is one that starves himself to Death: "Αποκαρτερῶν ἐαυτὸν λιμῶ ἢ ἀγχόνῃ τῷ βίῃ ἐξάγειν." "Αποκαρτερῶν is to force one's self out of Life by Famine or Strangling." *Suidas. Foefius.*

APOCATASTASIS, ἀποκατάστασις, from ἀποκαθίστημι, to restore. A Restitution, Amendment, Subsiding, Cessation. In these various Significations the Verb is used by *Hippocrates* in many Places of his Works; and in *Arctæus, Lib. 1. Cap. 10. τὸν ἐξ παθῶν*, the Word ἀποκατάστασις imports an intire Restitution to the former sound State.

APOCATHARSIS, ἀποκαθάρισις, from ἀποκαθαίρω, to cleanse or purge. An Expurgation. "Αποκαθαίρειν, or ἀποκαθαίρεν, are used by *Hippocrates* to express the Evacuation of Pus from the Breast by Spitting. "Αποκαθάροις χολαίς, in *Thucydides, Lib. 2.* are those bilious Vomitings and Purgations, which affected the Patients in the memorable Plague of *Athens*.

APOCENOSIS, ἀποκένωσις. The same as **ABEVACUATIO**, which see.

APOCERUGMA, ἀποκηρύγμα, from ἀποκηρύσσω, to declare publicly. A Declaration. "Αποκηρύγματα, in *Hippocrates*, are such Declarations or Indications as are thought proper to be made to the Patient.

APOCHOREON, ἀποχωρέων, from ἀποχωρέω, to secede. Excrement in general, or whatever is discharged from the Body by Stool or Urine.

APOCHREMPSIS, ἀπόχρημψις. A Hacking up of Spit; as *Apochremma*, ἀπόχρημμα, is the Matter or Spit thus evacuated. *Hippocr. Coac. & de Locis in Homine.*

APOCHYLISMA, ἀποχύλισμα. The Juice of Vegetables extracted and inspissated, answering to the officinal Word *Rob. Castellus.*

APOCHYMA, ἀπόχυμα, is that Kind of *Zopissa* which is made of the Resin and Wax that are scraped from Ships. So *Aetius* understands it; but some will have it to be the Resin of the Pitch-tree. *Oribasius* prepares it in the following manner:

Take of dry Pitch, one Pound; Tar and Wax, each four Ounces; Resin of the Pine-tree, six Ounces. After they are all melted and strained, they are thrown into a Pail full of Sea-water, or common Water, and worked with the Hands after the Manner of Troches. It is of a very mollifying Quality. See **ZOPISSA**.

APOCLASMA, ἀποκλάσμα. The same as **APAGMA**, or **ABDUCTIO**, which see. It is also called ἀποκεκαυλισμένον, that is, when a Bone is broken καυλῶν, as the *Greeks* say, or after the Manner of a Stalk (καυλός), near the Joint.

APOCLEISIS, ἀποκλείσις, from ἀποκλείω, to exclude. An Exclusion; but, in many Places of *Hippocrates*, the Verb whence it derives its Signification, is used to express a Loathing and Aversion to Food.

APOCOPE, ἀποκοπή, from ἀποκόπτω, to cut off. Abscission. See **ABSCISSIO**.

APOCRISIS, ἀποκρίσις, in *Hippocrates*, is the same as *Ecrrisis*, ἐκκρίσις. Whatever excrementitious or redundant Matter is discharged out of the Body. In *Lib. περὶ ἐνπνίων*, ἀποκρίσις signifies a secreted Matter, that is the Cause and Support of a Disease. In the same Treatise it often signifies a Secretion of the Food, and Distribution of the Aliment. "Αποκρίσις νοσέει, in the same Author, is a pestiferous Vapour, Exhalation, or unwholesome Quality impress'd on the Air.

APOCRUSTICON, ἀποκρουστικόν, from ἀποκρέω, to repel. An Epithet for a Remedy of a repelling and astringent Quality. *Gal. Lib. 11. Meth. Med. 15.*

APOCYESIS, ἀποκύσις, from ἀποκύω, to bring forth Young. A Birth. *Gal. Lib. 1. de Caus. Morb. Cap. 7.*

APOCYNON, called also *Cynanchon*, *Pardalianches*, *Cynomeron*, and *Cynocrambe*, is a Shrub with long flexible Branches, that are difficult to be broken: The Leaves resemble those of Ivy, but are softer, and sharper pointed, strongly scented, somewhat viscid, and full of a Honey-like Juice. The Fruit runs out, like a Bean-cod, a Finger in Length, of a capsular Form, containing small, hard, black Seeds.

The Leaves, mix'd with Meal, and made up into Loaves, kill Dogs, Wolves, Foxes, or Panthers, that eat of them, and immediately affect their Hips with a Palsy. *Dioscorides, Lib. 4. Cap. 81.*

The Seed, drank in Water, cures the Pleurisy, and all manner of Pains in the Side. *Pliny, Lib. 24. Cap. 11.*

Dale takes Notice of two Sorts of the APOCYNUM. The first is the

APOCYNON SYRIACUM, Offic. Mont. 37. *Apocynum Egyptianum, lactescens filiquâ Asclepiadis, C. B. Pin. 303. Apocynum erectum incanum latifolium Egyptianum, floribus croceis, Par. Bat. 27. Tourn. Inst. 91. Apocynum erectum majus latifolium Egyptianum, flore luteo spicato, Breyn. Prod. 2. 14. Pluk. Almag. 34. Hist. Oxon. 3. 609. Apocynum Egyptianum floribus, spicatis, Elem. Bot. 78. Apocynum Syriacum Clusii, Raii Hist. 2. 1088. Beidelsar offar, Alpin, Egypt. 85. Beidelsar Alpini sive Apocynum Syriacum, J. B. 2. 136. Apocynum Syriacum & Egyptianum, Beidelsar Alexandrinum Alpini, Chab. 119. Offar, Hon. Belli Epist. ad Clusium, 306. DOGS-BANE.*

I find no Virtues attributed to this Plant, except those taken Notice of from *Dioscorides* and *Pliny*, which are transcribed by *Galen*, and all succeeding Authors.

The second is the

PSEUDO-IPECACUANNA FUSCA, Offic. *Apocynum erectum, folio oblongo flore umbellato, petalis reflexis, coccineo, Cat. Jam. 89. Hist. 1. 206. Tab. 129. Raii Hist. 3. 537. Apocynum Curassavicum, fibrosa radice, floribus Aurantiis, Chamaenerii foliis angustioribus, Herm. Parad. Bat. Prod. 213. Parad. Bat. 36. Pluk. Phytog. 76. 6. Almag. 36. Apocynum erectum, Salicis latiori folio, umbellatum, floribus Aurantiis, Ejusd. Phytog. 138. Almag. 36. Apocynum Novæ Angliæ subhirsutum, radice tuberosa, floribus Aurantiis, Herm. Cat. Hort. Lugd. Bat. 646. Apocynum Canadense angustifolium, flore Aurantio, Mor. Hort. Bles. 232. Apocynum erectum minus latifolium Americanum, flore umbellato Aurantio, petalis reflexis, radice tuberosa, Breyn. Prod. 2. 15. BASTARD IPECACUANNA.*

It is imported from America by the Name of IPECACUANNA. The Root is of a dusky Colour, and has a poisonous Quality. Dale.

Boerhaave enumerates twenty-two Species of the APOCYNUM; but I know of nothing remarkable with respect to their Virtues.

Mr. *Sarrasin*, however, in the History of the Royal Academy of Sciences for 1730. says, that the APOCYNUM MAJUS SYRIACUM RECTUM furnishes the Inhabitants of Canada with a Juice, of which they make Sugar: He says, they also gather the Dew, which is found in the Bottom of the Flowers.

Dr. *Harris*, in his Dissertations, informs us, that the Apocynum, a Root very like the Ipecacuanha, is imported to us from Jamaica, Porto-Bello, and Virginia: This works excessively both by Vomit and Stool, even so as to exhaust all the Strength.

This cannot be distinguish'd from the true Ipecacuanha in Powder, but may in the Root; for the Filament, or Fibre, that runs thro' the Medullium of the Ipecacuanha, is of a whitish or ash Colour, but that of the Apocynum is yellow.

I believe this Observation is perfectly just. I remember, some Years ago, I directed half a Dram of Ipecacuanha for a Farmer in the Country, at the Request of a near Relation of my own, to whom he was Tenant. It happen'd, by some Accident or other, that the Person for whom it was prescribed did not take it; but some few Weeks after, the Gentleman who desir'd me to direct it, took it himself; the Consequence of which was, that he vomited excessively, and thin watery Stools came from him insensibly for several Days. This made me think he had taken Apocynum, instead of Ipecacuanha.

APOCYRTUMENA, αποκυρτώμενα, from αποκυρτίζομαι, to be turned archwise. Decreasing in manner of a Cone. Αποκυρτώμενα εἰς ἕξ διὰ σπινθήρα. "Suppurations gathering to a sharp Head." *Hippocr. in Progn.*

APODACRYTICA, αποδακρυτικά, from ἀπὸ, signifying negatively, and δάκρυ, a Tear. Medicines first exciting, and after evacuating, the superfluous Moisture of the Eyes, suppressing Tears, and drying the Eyes; or, in one Word, Delacrymatives; for in this Sense is Delacrymare taken by *Pliny* and *Columella*. We meet with a List of Remedies of this Sort in *Actius, Tetrab. 1. Serm. 3. Cap. 138.* Among which are Celandine, Germander, Centaury, Onions, Pimpernel, Hellebore, &c.

APODEIXIS, αποδείξις, from αποδείκνυμι, to demonstrate. Demonstration.

APODES, αποδες, from a Neg. and ποὺς, a Foot. A kind of Birds which have very short Feet: They are also call'd κύπελλα, Cypseli. *Aristot. Lib. 9. Animal. Cap. 30.* These Birds are like Swallows, and are very much upon the Wing on account of their Feet. They build in Rocks, and fly all over the Seas; nor is there any Ship that sails never so far from Land, but finds itself within the Reach of these Apodes, which fly about it. Other Kinds fit or stand; these never rest themselves but in their Nest, where they hang or lie. They differ as much in their Economy, especially as to Food. *Pliny, Cap. 39. Lib. 10.*

Apodes, boiled in Wine, are a Remedy for the Gripes. *Idem, Lib. 30. Cap. 7.*

APODYTERIUM, αποδυτήριον, from αποδυόμαι, to undeclothe: A private Room before the Entrance into the Baths, where they who went to bathe put off their Cloaths: It is also called Conisterium, and Spoliarium. *Castellus.*

APCEUM, ἀποιον, from a Negative, and πῖος, of some Quality. Void of all sensible Qualities, inspid, without Astringency, Acrimony, or any remarkable Property; such as among humid Substances, Water ought to be; and, among dry ones, Amylum. *Galen* judges inspid Aliments to be more nourishing than the acrimonious and bitter. *Galen. de Al. Fac. Lib. 2. Cap. 64.*

APOGALACTISMUS, απογαλακτισμός, of ἀπὸ, from, and γαλακτίζω, to suckle, from γάλα, Milk. A Weaning. See ABLACTATIO.

APOGLAUCOSIS, απογλαύκωσις. See GLAUCOMA.

APOGONA, ἀπόγονα. Vital, likely to live. Ἦσαν ἑδὲν ἕω τὴν τεταγμένην χεῖρα, ἐκείνοι τὰ τιμώμενα ἀπόγονα γίνεσθαι. "Those Women who meet with no Disaster within the Term, are delivered of strong or lively Children." *Hippocr. Lib. 2. Epid. In this Place, and also in Lib. 6. Epid. Sect. 8. Aph. 6.* ἀπόγονα signifies the same as γόνιμα, or γονά, in *Lib. περὶ σαρκῶν*

APOLEPSIS, ἀπόληψις, from ἀπολαμβάνομαι, to be suppress'd, retain'd, &c. An Interception, Suppression, or Retention. Thus ἀπολήψεις οὐραν; in *Hippocr. Prorrh.* is a Suppression or Retention of Urine; and in *Coac. Praenot. ἀπόληψις καίλης*, a Costiveness. Again, in the same Author, we often meet with ἀπολήψεις φλεβῶν, as in *Lib. de Rat. Viſt. in Morb. acut.* that is, a Stagnation from a too great Oppletion of the Veins. There are also ἀπολήψεις πνευμάτων ἀπὸ τὰς φλέβας, which *Galen* explains as follows: Πνευμάτων ἀπολήψεις ἀπὸ τὰς φλέβας εἰκός ἐστιν ἐπὶ τῆς ἀσθενείας λέγεσθαι. φλέβας γὰρ ἐκάλουν οἱ παλαιοὶ τὰς ἀρτηρίας ἀπολήψεις δὲ πνευμάτων τὰς διὰ καλακίσεις τε καὶ ἰσχυρίας δύνασθαι λέγειν. "It is probable, that by these ἀπολήψεις (Interceptions) of the Spirits in the Veins, he means a Cessation of the Pulse; for the Antients call'd the Arteries by the Name of Veins: These Apoplepsies of the Spirits, then, may be called their sinking into Rest and Inactivity." Such an Apoplepsis of the Spirits attends a Catalepsis, Apoplexy, and Epilepsy, when the Brain being refrigerated, and the Blood in a Stagnation, the Course of the Spirits is intercepted by the congealed Blood. Again, in the same Book, melancholy Persons are said to be affected with ἀπολήψεις πνευμάτων διὰ φλεβῶν, which is thus explain'd by *Galen*: Πνευμάτων διὰ ἀπολήψιν εἰ μὲν τῶν κατ' ἀσθενείας λέγει, τί ἄλλο ἢ ἀσθενεία γένοιτ' ἂν τὸ πάθος; εἰ δὲ τῶν κατὰ τὸν πλεῖμονα, πάλιν ἐπ' αὐτὰ τὴν καλυμένην ἀποσιαν ἀνιήσεται. "If by an Apoplepsis of the Spirits he means those in the Arteries, what can be the Consequence but a Cessation of the Pulse? But if he speaks it of the Spirits in the Lungs, he seems to give another Hint, tho' but obscurely, at what we call an Apnoea."

There is also an ἀπόληψις φλεβῶν in a quite different Sense, and means no more than the Tying or Compressing of a Vein or Artery, in order to prevent or stop an Hemorrhage: This Method is recommended by *Hippocr. Lib. 6. Epid. Sect. 7. Aph. 3.* And ἀπόληψις νεφρῶν, in the same Author, signifies the Preventing the Course of a Distemper, by putting a Stop to the Humours which caused it. *Epid. Lib. 2.*

ABOLEXIS, ἀπόληξις, from ἀπολύω, to cease or end. A decaying Time of Age, in *Hippocr. παρὰ γεν.* and is there opposed to ἀκμή ηλικίας, "the Flower of Age."

APOLINOSIS, ἀπολίνωσις, from λίνον, Flax. So *P. Aegineta* calls the Method of curing a Fistula by raw Flax. See OMOLINON.

APOLLINARIS, Herba. The same as HYOSCYAMUS, which see.

APOLYSIS, ἀπόλυσις, from ἀπολύω, to release. A Solution, or Release, which is diversify'd according to the Subject; as, for Instance, it signifies, in *Hippocrates*, the Exclusion of the Foetus, *Lib. 5. Epid. of the Secundines, Lib. 2. Prorrh.* the Solution of a Disease, *Coac. Praenot.* and also the Unloosing of a Bandage. *De Fraſt.*

APOLYSIA, ἀπολύσια. *Erotian*, on *Hippocrates*, says it is either a Resolution of the Limbs, or the Relaxation of a Bandage.

APOMAGMA, ἀπομάγμα, from ἀπομάζω, to absterge. Any thing proper to be used as an Instrument for absterging excrementitious Matter or Sordes, as a Linen Handkerchief for the Eyes, and a Sponge for Wounds.

APOMATHEMA, ἀπομάθημα, from ἀπὸ, Negative, and μαθάνω, to learn. In *Hippocrates, Lib. de Fraſt.* it signifies an Oblivion of what has been learned.

APOMELI, ἀπόμελι. A sweet Drink made of Honeycombs, diluted and boiled in Water. The Manner of preparing it is thus described by *Actius, Tetrab. 2. Serm. 1. Cap. 137.*

Take white Honeycombs, full of pellucid Honey, which press out with your Hands, and mix with the best Spring Water;

Water: If your Honey be thick, take four Parts of Water for one of Honey; if liquid, let the Water be to the Honey as three to one. If the Combs be pretty dry, cut them in small Pieces, and work them with your Hands in the Water first measur'd; after which press and strain off the Liquor, and by measuring it you will know what Quantity of Honey to add. Then put the Liquor into a new Earthen Pot, in which Water has been boiled before, in order to take off its earthy Quality, and boil it over a clear Fire, still skimming off the Spume or Wax as it arises. When no more ascends to the Top, and about a seventh or eighth Part of the Whole is boiled away, remove it from the Fire, and let it cool. After it is perfectly cold, the next Day skim off what swims on the Top, and pour the rest into new Earthen Vessels, in order to be set aside in your Wine-cellar.

Galen, Com. 3. in Hippocr. περί αγμῶν, observes, that *Apomeli* was called by *Hippocrates*, and many others, *ὀξύγλυκος* or *ὀξύγλυκός* (*Oxyglycy* or *Oxyglycēs*); and that some made it of Honey and Vinegar, others of Honeycombs and Vinegar boiled together: For he makes two Distinctions; one sort, he says, is sweet, another more upon the Acid; and this latter is made either of Honey and Vinegar, or Honeycombs and Vinegar. We, says *Galen*, make it of Honeycombs, putting Vinegar to the Honey, and boil them till their Qualities are united, and the Force of the Vinegar is broken.

Apomeli is endu'd with an incisive and absterfivè Virtue: It purges Bile downward, provokes Urine, and prepares putrid Fevers for a Solution. It is however an Enemy to hot and dry Constitutions; and is hurtful in hot Distempers, and Inflammations of the Præcordia; and rather increases than allays Thirst. It is given after Meals; for it does Harm upon a full Stomach. *Aetius, Cap. prædicto.*

APOMYLENAS, ἀπομυλῖνας. *Galen. in Exeg. Voc. Hippocr.* explains this Term, by *προβαλὼν τὰ χεῖλη συνημμένως*, "thrusting out the Lips compress'd together."

APOMYLLENE, ἀπομυλλήνη. *Erotian, on Hippocrates*, says, *Τὸτο γινέται ὅταν διασπορῇ ἢ διῶν σπᾶσμα περὶ τὸν γένον μετὰ παρέσεως ὀχῆς; μάλιστα δὲ ἐκ πληγῆς*. "An *Apomyllene* happens when there is a Distortion, and, as it were, a Con-vulsion, with a Relaxation of the Cheek, or Parts adjacent, principally occasioned by a Blow."

APONENOEMENOS, ἀπονενομένος, from ἀπονοῶ, to be negligent or averse. An Adverb importing an utter Aversion to a thing. *Hippocr. Epid. Lib. 3. Egr. 2. Περὶ τὰ γεύματα ἀπονενομένος εἶχεν*. "The Patient nauseated all manner of Food."

APONEUROSIS, ἀπνεύρωσις, from ἀπὸ and νῆρον, a Nerve. The Extremity of a Muscle, called by *Hippocrates* *τῖνον*, a Tendon, or Chord.

APOPALLESIS, **APOPALSIS**, ἀποπάλλωσις, ἀπόπασις, from ἀποπάλλω, to throw off, in an hasty manner. An Expulsion, or Extrusion, as when the Fœtus is expell'd by Abortion. *Hipp. περί γυναικ.*

AOPATOI, ἀόπατοι, is a Word often used by *Hippocrates*, and is explain'd in *Erotian* by ἀποδύσεις, which signifies as well the Places of Easement, as the Fœces. So *Suidas* explains ἀόπατοι by ἀποδοί. See *APHODOS*.

AOPHLEGMATISMUS, ἀποφλεγματισμός, of ἀπὸ, from, and φλέγμα, Phlegm. A Medicine contriv'd for drawing Phlegm from the Mouth, and thence evacuating it by Spitting; for which Purpose it is held in the Mouth. Such Medicines, by their hot pungent Quality, stimulate the Fibres, and make them compress the Glands, whereby their Contents are faster thrown out into the Mouth, and so a Drain is promoted of such watery pituitous Humours, from all Parts of the Head, as have any Consent therewith. In Comas, Lethargies, Epilepsies, Palsies, and, in short, in all Disorders from a moist Temperament of the Brain, these Remedies are to be used with good Success.

As to the Form and Consistence of *Apophlegmatisms*, they are various. *Morellus* distinguishes them into liquid and dry; to which *Gobius* adds a third, that is, soft, or in the Form of an Electuary. And to these a fourth may be added, which consists of Fumes or Vapours.

Liquid *Apophlegmatisms* are made of Decoctions, Infusions, express'd Juices, and officinal Liquors; and these either mixed together, or alone.

Those which are solid usually consist of Gums, as Mastic; acrid Roots, as Pellitory of Spain, or Horse-radish; Leaves, as those of Tobacco; Salts, as Nitre, Sal Gemmæ, or Alum; and Fruits, as Pepper. These are sometimes used alone, and without any Preparation; and sometimes mix'd and made into the Form of Powders, Balls, and Troches, which last are ordered to be held under the Tongue, and to be suffer'd to dissolve gradually. The Powders are directed sometimes to be taken naked into the Mouth, and sometimes to be ty'd up in a Rag, and so to be chew'd.

Electuaries are form'd of such Ingredients powder'd, and made up with some Fluid, proper to give them a Consistence.

Vapours are convey'd to the Mouth by means of a Funnel, or otherwise, from Decoctions of stimulating Ingredients. And Fumes are received from dry Ingredients burnt, either in the same Manner, or by means of a Pipe, as in smoking Tobacco either mix'd or unmix'd.

Upon this Occasion I must not omit giving the Form of a medicated Tobacco, of which that so much advertis'd under the Name of the Cephalic and Oppthalmic Tobacco, is an humble Imitation:

Take of the Flowers of Rosemary, Betony, Eyebright, each two Handfuls; of Aloës-wood, Sassafras, yellow Amber, Clove-bark, Storax Calamita, each an Ounce; of the external Peel or Husk of Pistachio-nuts, an Ounce and an half; of the Cortex Elaterii, half an Ounce: Let all these Ingredients be powder'd, and mix'd together. Mix four Ounces of these Ingredients with a Pound of Tobacco, to be smok'd in the common manner.

If all these Drugs are faithfully put in, the Smoke is of an exceeding fine Smell. As I was acquainted with the good Effects of this, long before I knew any thing of Medicine, I have had many Opportunities of making myself acquainted with its real Efficacy, and know it to be capable of affording singular Relief in Dimness of Sight, and habitual Disorders of the Head proceeding from a Redundance of tenacious Lymph, provided it is duly persifted in. And it must be confess'd, that this Mixture has perform'd something little less than a Miracle; in making Tobacco agreeable, and of some real Use.

As to *Apophlegmatisms*, the Choice of the Ingredients and Forms must be directed by the several Circumstances relative to the Disease, the Patient, and the Intentions of the Physician.

Thus in Paralytic and Lethargic Cases, when a Patient cannot chew a Solid, nor manage a Liquid properly in his Mouth, a soft Form, as that of an Electuary, is best adapted to the Case; because it dissolves gradually, and produces the intended Effect, without that Care of the Person who uses it, which is requisite in other Forms. In these Disorders also the Fumes of Narcotic Ingredients are highly prejudicial.

But with respect to *Apophlegmatisms*, as well as every thing else relative to Medicine, Circumstances are so various and complicated, that much must be left to the Discretion and Judgment of a Physician, whose Reason and Experience will furnish him with a Sagacity sufficient to enable him to make a proper Choice of Ingredients and Forms suited to particular Cases which occur. It were to be wish'd, that universal Rules could be laid down in Medicine, and Maxims which admit of no Exception, because this would render Abilities and Learning less necessary, which, according to the ordinary Course of human Nature, cannot possibly fall to the Share of every one whose Duty it is to attend the Sick.

Tho' *Apophlegmatisms* in the ordinary Acceptation are confin'd to things taken at the Mouth, yet whatever by a Stimulus affects the Glands of the Mouth, Fauces, and those of the Membrana Pituitaria describ'd by *Schneider*, so as to increase the Discharge of pituitous Humours, may properly enough be call'd *Apophlegmatisms*; thus Snuffs of all Sorts are a Species of *Apophlegmatisms*.

A very effectual *Apophlegmatism*, under the Name of *Pila Masticatoria*, or spitting Balls, is thus prepared:

Take Mastic, three Ounces; Pellitory of Spain, Stavesacre, each two Drams; Angelica-root, half a Dram; Cubebs, Nutmegs, each one Dram; Euphorbium, half a Scruple; Wax enough to make them into little Balls or Pellets: If the Euphorbium be thought too hot, it may be left out. *Quincy's Dispensatory.*

APOPHRADES, ἀποφράδες, from the Singular ἀποφράς, unfortunate, unlucky; an Epithet apply'd to those Days in which an acute Distemper comes to a fatal Crisis, or to no Crisis at all. *Castellus.*

APOPHTHORA, ἀποφθορά, from ἀποφθίω, which is from the Original φθίω, to corrupt. An Abortion. The Word is used by *Hippocrates*, and also ἀπίσθαμα, (*Apophtharma*) a Medicine to procure Abortion, *Lib. 5. and 7. Epid.* See *ABORTUS*.

AOPHYAS, ἀοφυάς, of ἀπὸ, from, and φύω, to grow. An Appendix; any thing that grows to, or proceeds from another, as Boughs and Branches. Thus ἀποφυάδες *Lib. περί ἀσείων φύσ.* are the Ramifications of the Veins.

AOPHYSIS, ἀπίφυσις. See the Etymology under the preceding Word. The Process or Protruberance of a Bone; or that kind of Eminence of a Bone which is continuous, and makes one Piece with it, and is called by the Greek Term *Apophysis*, which signifies an Excrescence, because it grows or shoots out immediately from the Bone itself; such are the sharp Eminences of the Lower Jaw, &c. *Winflow.*

APOPIESMA, ἀποπνιγμα, from ἀποπνίζω, to compress. An Expression of Humours by Compress in the binding up of Wounds or Fractures. *Hippocr. περί ἀγνυόν.*

APOPLECTA. A Name for the internal Jugular Vein, which ascends by the Side of the *Aspera Arteria*. *Castellus.*

APOPLECTICA, Medicines against the Apoplexy. *Blancard.* They are so called instead of *Antapoplectica*. *Castellus.*

APOPLECTICÆ VENÆ. The same as **JUGULARES VENÆ**, which see.

APOPLEXIA, ἀποπληξία, from ἀποπλύνω, to strike, or knock down. An Apoplexy. This by the *Latin* Writers is called *Attonitus Morbus*. *Celsus* and *Caelius Aurelianus* inform us, that the most antient Medicinal Writers gave this Name to that Species of Palsy which succeeds what we call a true *Apoplexy*.

Any Disorder which instantaneously deprives a Man of Life, who a few Minutes before was, or at least seem'd to be, in perfect Health, may, according to the Derivation of the Word, be properly enough called an *Apoplexy*; but it would be more methodical to confine the Word *Apoplexy* to such sudden Disorders caused by Affections of the Brain.

OBSERVATION I.

A certain Envoy from *Florence* to the *French King* was suddenly seiz'd with an *Apoplexy*, which put a speedy Period to his Life, though, just before, he appeared to be in an entire and confirmed State of Health.

Upon opening his Body, I found his Heart turgid; and when I cut it open, it discharged three or four Pounds of Blood. The Orifice of the great Artery was at the same time dilated to such a preternatural Size, that it would have admitted a Person's Arm. *Andreas Laurentius in Controversiis Anatom.*

From this Case *Maebius* concludes, that *Apoplexies* draw their Origins rather from the Obstructions of the Arteries, than those of the Nerves.

From this Case also *Bartholine* concludes, that the Causes of *Apoplexies* are not always to be look'd for in the Brain, since they sometimes proceed from the Blood being intercepted in the obstructed Vessels of the Heart. *Boneti Sepulch. Anatom.*

OBSERVATION II.

A certain Student had the Misfortune to be wounded with the Point of a Sword near his Nose, and immediately below the Orbit of the Left Eye. Soon after, he was depriv'd both of his Speech and Reason, and seiz'd with an *Apoplexy* and *Stertor*, which quickly put an End to his Life. Upon opening the Cranium, I found the Wound not only passing thro' the Orbit of the Eye, and the *Os Cribrosum* near the *Crista Galla*, but also affecting the Right Ventricle of the Brain; from which I extracted a Portion of black, grumous, and fibrous Blood, as long and thick as my middle Finger. The Base of the Brain, and the Region of the Cerebellum, were fill'd with extravasated Blood; and the whole Substance of the Brain itself appear'd of a ruddy Colour, as if it had been inflam'd. *Jac. Wepferus Exercit. de Apoplexia.*

OBSERVATION III.

A certain Gentlewoman of Distinction, having for a considerable Number of Years been subject to spasmodic Disorders, began at last to flatter herself with the Hopes of a perfect Recovery. She complain'd in the mean time of a violent Pain and Heaviness in her Head; soon after which she was seiz'd with a violent convulsive Fit, which terminated in an *Apoplexy*, which soon put an End to her Life. Upon raising her Scull, the Vessels running thro' the Meninges and Brain appear'd distended and stretch'd with Blood; whereas in dissecting the other Parts of her Body, scarce any Blood at all appear'd. Upon removing the thicker Membrane, thro' the other slender and pellucid one we observed a limpid Water filling the several Meanders of the Brain, and, as it were, overflowing the Whole of its Substance. *Bonet.*

OBSERVATION IV.

A Man of seventy Years of Age, happening to fall from a considerable Height, received a large Wound in his Scull. Next Day he recovered a little; but on the fourth Day died of an unexpected *Apoplexy*, after spitting up some purulent Matter. When we were examining the internal Parts of his Head, we first found the Ventricles of his Brain fill'd with a great deal of a certain Humour: Next we found a large Fragment of the *Os Cuneiforme* separated from the rest, and bearing upon the adjacent Parts, in the most remote Recesses of which there was a great deal of coagulated Blood lodg'd. But the *Apoplexy* proceeded partly from the Obstruction of the Processes of the *Medulla Spinalis*, which are the true Origins of the Nerves, and partly from the Angustation of the *Rete Mirabile*, which is formed by the intermixed Concourse of the Jugular Veins, and the carotid and cervical Arteries. These noble Parts being obstructed, the Patient must of course have been deprived of Sensation, Motion, and Life, according to the Maxim of *Celsus*, *S. 2. Servari non*

potest cui Basis Cerebri percussa est: No Art can save him, the Base of whose Brain is wounded.

OBSERVATION V.

A certain Butler, happening to take Flowers of Antimony from a Mountebank, fell into an *Apoplexy*, during which he had such a violent Ptyalism, that six full Measures of frothy Phlegm were discharged from his Mouth and Ears.

Upon opening his Body, when dead, we found his Lungs, the whole Region of his Breast, his Stomach, and his Head, full of the same kind of frothy Phlegm. *Bonet.*

OBSERVATION VI.

In dissecting the Body of one who lately died of an *Apoplexy* in the Left Ventricle of the Heart, I observed a Portion of Fat ascending into the *Arteria Venosa*, where, after blocking up its Orifice, it branch'd itself out in two Horns like the *Pythagorean* Letter Y. *Bonet.*

OBSERVATION VII.

A certain Priest, towards the End of the Consecration, became wonderfully foolish, and soon after died *Apoplectic*. Upon dissecting his Head, some round whitish Bladders, full of a phlegmatic Humour, were found upon the Corpus Callosum, which were taken for the immediate Cause of so fatal a Disorder. *Bonet.*

OBSERVATION VIII.

A Woman of *Leyden* had an external Tumor on the Right Side of her Forehead, which being taken off by the Hand of a skilful Surgeon, three Days pass'd without any Suspicion of a more terrible Disorder appearing; however, on the fourth Day, she was suddenly seiz'd with an *Apoplexy*, which prov'd mortal, as the learned *Walæus* had prognosticated, from Instances of a like Nature; because in such Tumors of the Head the Pericranium is hurt; and when the internal Membranes adhering to the Brain are dilated, the Brain itself falls down, and compresses the Ventricles. *Bonetus* from *T. Bartholine*.

OBSERVATION IX.

A certain old Clergyman of an untainted moral Character, of a corpulent Make, and a short wry Neck, having been long valetudinary, and leading a sedentary Life, contracted a violent scorbutic Cacoehymia; being also afflicted with a Difficulty of Breathing, an heavy Pain in his Head, and an unusual Torpor; he could scarce undergo any Labour or Fatigue, besides going between his Chamber and the Chapel every Day: Accordingly one Morning, when he had gone into the Chapel a little before Prayers began, and fallen upon his Knees, he was suddenly struck with an *Apoplexy*, and becoming speechless and senseless, fell prostrate on the Ground. But being forthwith taken up, and his Cloaths taken off, he was put into a warm Bed. Upon which, I myself, and other Physicians, being called, we found him not only deprived of Sensation, Pulse, and Respiration, but his whole Body was even cold and stiff; nor could we by the most diligent Application of any Medicines whatever restore him, either to Life or Warmth. Hence we suspected, that by the very first Shock of the Distemper, the Pulsation of the Heart was stopp'd, and the Motion of the Blood suppress'd.

Next Day we opened the dead Body, which by that time was become considerably stiff, not in the least doubting but a Distemper which had proved so suddenly mortal, would leave some remarkable Traces in the Brain. But neither in it, nor in any other Part within the Cranium, were the least Traces of this violent Distemper to be observed; for the Vessels running through the Meninges were only filled with a due Quantity of Blood, without any Inflammation or Extravasation. The Brain, the Cerebellum, and Medulla Oblongata, together with all their Processes and Protuberances, appeared every-where found and well-coloured, both externally and internally. There was no Effusion either of Blood or Serum in their Pores or Ducts: Neither was there any Coacervation of Matter found in the large Ventricles: Besides, the *Plexus Choroides*, both within the Brain, and behind the Cerebellum, did not in the least appear faulty; so that the morbid Matter, as fine and subtle as the Animal Spirits themselves, which it had affected, was entirely unobservable; and we could only argue for its being actually there from the Effects it produced. But lest the morbid Matter should be lodged somewhere else, after having taken an accurate View of the several Parts of the Brain, we descended to the Thorax, where we found the Lungs discoloured, and distended with a frothy Ichor. A Circumstance which sufficiently accounted for the Difficulty of Breathing! But the Heart was found, untouch'd, and entirely free from all manner of Obstructions, or polypous Concretions. Neither in its Neighbourhood, nor in any of the adjacent Viscera, was there any Abscess or Apostematation found, by whose Contact, or foetid Exhalations, the Heart, if such a thing be possible, could be oppressed, and Respiration stopped. *Willis.*

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OBSERVATION X.

I had an Opportunity of seeing a Girl who was killed by Lightning, but no Marks of Violence appeared on her Body, except two Scars all along her Back, which looked as if they had been made with a red-hot Smith's Forceps. Internally there was no apparent Disorder, except that the Extremity of one of the Lobes of her Lungs seemed to be somewhat burned. *Brassaval, Com. ad Lib. 1. Hippocrat. de Vict. in Acut.*

When in the Year 1581. the Bell-ringers of *Besançon* were ringing the Bells, in order to prevent the Effects of a Tempest, one of them, being struck with Lightning, died on the Spot. Upon inspecting his Body, no Wound was discovered, and the Skin was entire, only his Neck was a little blacken'd, and the Neck-band of his Shirt torn. Upon opening his Body, the principal Viscera, the Heart, Liver and Spleen, were found unaffected, and the smaller Intestines blasted. *Bonetus from Gilbertus.*

Beneventus affirms, that an Apoplexy may be occasioned by Lightning [*De Abd. Cap. 2.*]; and that he himself knew a Father and Son, who, being struck with Lightning at one and the same time, became Apoplectic, and were afterwards thoroughly cured; for such is the Influence of Lightning, that it can excite Commotions in the Humours of the Brain, and render People Apoplectic. Accordingly *Hildanus, Cent. 3. Obs. 26.* mentions the Case of a Servant, whose Head swelled prodigiously, and became black a little after he had been kill'd by the Lightning; hence 'tis plain, that in this Case, the Brain was very much injured. But Lightning rarely excites a true Apoplexy; since, for the most part, it either kills entirely, or produces such an Effect upon People, that, losing their Colour, and their Pulse, and Respiration being quite destroy'd, they resemble dead Persons.

OBSERVATION XI.

In a very severe Winter, when every thing was covered with Snow, a certain Gentleman of great Learning was seized with a violent Pain in the Left Side of his Head; and, afterwards complaining heavily of Pains in his Abdomen, he at last died *Apoplectic.*

Upon dissecting his lower Belly, the largest Gland of his Mesentery was found scirrhus and exulcerated. Upon opening his Cranium the Right Carotid Artery ascending within the Cranium was quite ossified, or even petrified, if I may say so, and its Cavity scarce permeable. The Right Vertebral Artery was also a Third larger than that on the opposite Side. *Bonet.*

OBSERVATION XII.

A certain dull Fellow had the Misfortune to be seiz'd with an Apoplexy, which proved mortal to him. Upon searching for the Causes of his Disorder, we found his Brain flaccid. The Meninges were overflowed with a mucous and viscid Humour; and even the third Sinus itself, with its adherent Vessels, were filled with the same Liquor. The Ventricles of the Brain were also filled with it. In the Left Ventricle of the Heart, there was a Polypus formed by a viscid Matter, and the Spinal Marrow was moistened by a Lymphatic Fluid. *Bonet.*

OBSERVATION XIII.

A Man of fifty-six Years of Age happened to be seized with an Apoplexy: the whole Right Side of his Body was within six Hours after convulsed and contracted; but more especially the Hand and Foot on that Side. The whole Left Side of his Body, in the mean time, became paralytic; he could not speak, but a great deal of viscid Spittle flowed from his Mouth. On the second Day, he felt a kind of Concussion about his Breast, and died as if he had been suffocated.

Upon opening the Cranium, we found the Substance of the Brain found and entire: But the Right Ventricle was full of an extravasated Blood, which was black, purulent, and streaked with different Colours. The Bottom of this Ventricle was also corroded, and, as it were, excavated. Nothing uncommon was found in the Left Ventricle, the Lungs were black and flaccid, and a Polypus was found in the Right Ventricle of the Heart.

The Wife of the Deceased informed us, that, for many Years past, he had been subject to a Vertigo; that many Days before his Death, he had complained of a heavy Pain of his Head; and that, the very Day before the Apoplexy seized him, a Discharge of Blood was made from his Nostrils. *Bonetus from Baglivi.*

Thus we see many Causes, and those very different from each other, may induce an Apoplexy. And, indeed, whatever is capable of putting a sudden and entire Stop to the Circulation of the Blood, may have this Effect. Thus a Palsy of the Heart, of the Lungs, or of the Muscular Coats of the principal Arteries, may be readily conceived to put an effectual Stop to the Circulation, and consequently to cause an Apoplexy. The same Effect may be produced by an Over-fulness of the

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Vessels; for where there is no void Space to move in, no Motion can be carried on. Polypose Concretions in the Heart, or its Auricles, in the large Arteries, or Veins, especially the Jugulars, in the Sinuses of the Brain; particularly in or near the *Torcular Herophili*, or in the large Vessels of the Meninges; sudden Ruptures of any of the large Vessels near the Heart, or of smaller in the Meninges; in the Substance of the Brain, or its Ventricles, whether Sanguiferous, or Lymphatic; a general Viscidity of the Juices; or Languor of the vital Powers; a Congestion of Humours of any sort; in, or very near, the Brain; Wounds, Blows, any Compressure of the Brain, or whatever is capable of preventing the Influx of the Nervous Fluid into the Canals which convey it from the *Medulla Oblongata*, and *Spinalis*, to the different Parts of the Body; may produce this Distemper.

But the two most general Causes of an Apoplexy are, first, a Plethora, or Over-fulness of Blood, to which the younger Sort of People, who live freely, are principally subject.

Secondly, a Deficiency in the vital Powers, and a consequent Redundance of viscid and ferous Humours, which affects particularly People advanced in Years.

Sometimes Hysterical Disorders attack the Head, and cause an Apoplexy, which also terminates in an Hemiplegia, exactly resembling that kind of Apoplexy which proves fatal to some aged and corpulent Persons, and arises from an Obstruction and Compression of the Nerves, occasioned by a copious Phlegm contained in the cortical Part of the Brain. But the Apoplexy in Hysterical Women seems to proceed from a very different Cause; for it seizes them frequently after a difficult Delivery; attended with a great Loss of Blood, or proceeds from some violent Commotion of Mind. *Sydenham.*

The Gout is also frequently productive of an Apoplexy. See ARTHRITIS.

DIAGNOSTICS and PROGNOSTICS:

Caelius Aurelianus has given the Sentiments of the Antients on an Apoplexy, in the manner following:

This Disease is so called, because, upon its Approach, the Patient drops down on a sudden, as if he was struck dead by a Blow. It may be defined, *A quick and sudden Oppression, often attended with a Fever, depriving the Patient of Sensation, and seizing always instantaneously, but never slowly and gradually.* Its antecedent Causes may be esteemed the same with those of other Diseases; but the more considerable of them are, the being exposed to continual scorching Heats, or to violent Colds; frequent Indigestions, occasioned by the immoderate Use of Baths, and Excess of Venery, especially in old Men. This Distemper may also proceed from the Meninges being wounded, or in Boys from their Concussion. In some Cases therefore no Symptoms are observed previous to the Patient's dropping down; whereas in others some prognostic Symptoms precede the immediate Shock of the Distemper, such as Heaviness or Pain of the Head, Vertigo, Ringing of the Ears, Difficulty in performing accustomed Motions; Sadness of Countenance; convulsive Twitchings of the Parts, and especially of the Lips; a tremulous and scarce articulate Voice, Interruption of Speech, without any apparent Reason; Forgetfulness of what the Patient had but very lately spoken; Fulness of Countenance, and a Difficulty in discharging the Excrements. But these are also generally antecedent Symptoms in such as are threatened with an Epilepsy or Madness. The first Approach of the Distemper is attended with Loss of Speech, and Depravation of the Senses, by reason of the sudden Shock, perfect Inability of Motion in all the Members of the Body, and Distortion of the Countenance, and, in some, Retraction and Immobility of the Eye-lids, and a Gaping of the Mouth; a full and labouring Pulse, a cold Torpor of the Joints, short Respiration, a livid or leaden-coloured Countenance, and an involuntary Discharge of Tears. As the Distemper grows worse, and seems to threaten the Patient with immediate Death, the Countenance is so distorted, that it appears longer than ordinary, the Præcordia become prominent, a cold Torpor seizes the whole Body, the Lungs during Respiration, make a Noise cold Sweats break out on the superior Parts of the Body, the Eye-brows also and Eye-lids are drawn upwards, and fixed immovably in that Position. But if the Distemper abates, and takes a favourable Turn, the Torpor quits the Body, the Coldness forsakes it, and the natural Heat returns. Some Parts also will be twitched with desultory Spasms, even in those who before were entirely free from them. The Humour secreted from the Fauces is swallowed, though with much Difficulty, nor is it hindered from being so by the Cause which formerly prevented its passing that way. The Patient also, if prick'd, or call'd upon, moves his Eye-lids, and shuts his Lips, as a Sign; that he feels the Puncture, or hears the Person who calls him; and it holds universally, that some die the first Day the Distemper seizes them; others survive its Approach for two or three Days; and others escape with their Lives; some of whom recover immediately, whilst others are affected with a Palsy in one or more Parts of their Body. Some are also racked with uneasy Com-

motions of Mind, to such a pitch, that they seem to have lost their Reason, to be sad and drowsy, and, if any one awake them out of their Sleep, they speak something incoherent and foreign to the Purpose. Now this Disorder is the Result of *Stricture*, or *Tension*, and is of the quick, vehement, and acute Kind. Old Men are most subject to it, and it generally makes its Approaches in the Winter-season, and towards the End of the Autumn. It is by some also styl'd *Paraplexy*. The Head suffers principally in this Distemper, as we may easily conclude from its antecedent Symptoms, and the Violence done to the Body. The Cure is difficult even in Men of strong and robust Constitutions; and those who are weakly and tender yield more easily to its Violence, and that for this additional Reason, that they are not able to bear the stronger and more powerful Means of Relief. Hence we plainly find, that the Cure of this Disease is more difficult in Women than in Men, and in old Men and Boys, than in People who are in the Flower of their Age, in consumptive Persons, than in those who are blest with a firm and strong Habit of Body. It is also more difficultly cured in those who have gone through a Course of Sickness, than in those who have never laboured under any Distemper. The Winter-season also contributes to the Difficulty of the Cure, not only because the Cold condenses and braces up Bodies, but because it is incompatible with some Means of Cure and Recovery, such as Riding, or taking free Air in an open Coach. A Lethargy, Epilepsy, Hysteric Suffocations, according to some, the Palsy, that Species of Disorder which the Greeks call'd *Carus* and *Syncope*, all bear a Resemblance to, and border upon, an Apoplexy. There is nevertheless a Difference betwixt an Apoplexy and a Lethargy, since every Lethargy happens either after, or is accompany'd with a Fever, produces a low Pulse, and does not always deprive the Patient of his Senses: Whereas an Apoplexy seizes without a Fever, renders the Pulse small and quick, and causes the Patient to drop down suddenly as if he was struck dead; add to this, that an Apoplexy sometimes proceeds from a Wound of the Membrane of the Brain, whereas a Lethargy never does (*This is a Mistake*). An Apoplexy is likewise different from an Epilepsy; since Epileptic Patients are affected with Convulsions of the whole Body, and foam at the Mouth, none of which Symptoms are ever observ'd in Apoplectic Cases. After the Fit also, Epileptic Patients arise, for the most part, with their Constitutions sound, whereas Apoplectic Patients come not off without a Palsy of the Parts. An Apoplexy is always accounted a Disease of the quick and acute Kind, whereas an Epilepsy is most frequently found to partake of a slow and chronical Nature. The Disease of which we are treating, differs also from Hysteric Suffocations; for these latter are not preceded by Pains of the Head, and in the Paroxysm the Matrix is found convulsed, and heaving upwards; but this never happens in Apoplectic Cases. Besides, Apoplectic Women do not remember any thing that happen'd after the Fit is over, whereas those who labour under Hysteric Suffocations can both remember and tell what Degree of Pain they suffered during the Paroxysm. Hysteric Suffocations are also found to be slow and chronical, but an Apoplexy never. An Apoplexy is also different from a Palsy, though these two Diseases were confounded by many of the Antients, among whom were *Hippocrates*, *Diocles*, *Praxagoras*, *Asclepiades*, *Demetrius*, and some others besides; for they called those People Apoplectic, whose whole Bodies were paralytic, and those Paraplectic, who were paralytic in some particular Parts of their Bodies. But *Themison* properly calls a Palsy of the Head, with the Operations of the Mind weakened, an Apoplexy; but the same Disorder in other Parts of the Body, with the Faculties of the Mind impaired, he calls only Palsy. But there is no Occasion for wrangling about Circumstances, on which the Method of Cure does not depend. We must only consider, that an Apoplexy is esteem'd a Disease of the quick and acute Kind, and a Palsy a Disorder of a slow and chronical Nature. The *Carus* also, and *Catalepsis*, are rank'd among the Diseases of which the Patients recover, and they never elevate the *Præcordia*, nor create such a Difficulty of Recovery as the Apoplexy does. *Cælius Aurelianus*, *Acut. Lib. 3. Cap. 5.*

Altho' the *Morbus Attonitus*, by the Greeks call'd ἀποπληξία, sometimes seizes the Patient without any previous remarkable Symptoms, 'tis nevertheless, for the most part, ushered in by a sudden and acute Pain of the Head, a Vertigo, a Dimness of Sight, a Grinding of the Teeth during Sleep, and a Coldness of the whole Body, but especially of the extreme Parts. Then the Patient, like one thunder-struck, drops down, sometimes with Shrieks; immediately after, the Eyes are shut, and a Stertor ensues; the Difficulty of Breathing is so great, as to occasion a Danger of Suffocation, and the Breast ceases to heave, just as if it was bound fast with Cords: Sense and Motion are entirely lost, and the only remaining Hope of Life consists in Respiration being preserved. And, indeed, the Nature and Danger of the Disorder bear a direct Proportion to the Difficulty or easiness with which Respiration is perform'd; for which Reason, we conclude the Disorder fatal, when the Respiration is either intermittent, or carried on with great Difficulty. But the

Case is less dangerous when the Patient's Respiration is pretty easy, and when the Liquors he drinks are not again discharg'd by the Nose, but freely descend to the Stomach. The Cure of this Distemper, when violent, is altogether impossible; and even when slight, very difficult; and indeed, this latter Degree of the Disorder frequently terminates in a Paralysis of one or other of the Sides, and that generally within the first four Days; after which, if the Disease continues, it proves fatal. Yet the Distemper often affects some in so gentle a manner, as only to distort their Mouths, and deprive them of Motion, without any Foaming at the Mouth, Stertor, or Palsy, in which Case they may be recovered by the Use of proper Remedies. This Disease is generally most incident to Men between forty and sixty Years of Age, especially if they have the Misfortune to be of a too cold Constitution, to be frequently afflicted with heavy Pains of the Head, Drowsiness, and Dimness of Sight, or if they have short and narrow Necks, live entirely idle, or are addicted to Drinking and Gluttony. But a young Man, or even one who is moderately advanced in Years, or in Reality any one whatever, is not, during the Summer-season, subject to this Disorder, unless very considerable Causes concur; in which Case, Death is generally the Result. The Winter, on the other hand, paves a more direct Road to this Disorder, especially when cold Winds blow, or black Clouds hover in the Air. Hæmorrhoidal Discharges are of good Presage in this Disorder; but Coldness and Insensibility are hurtful. Sweats also arising from Difficulty of Respiration are mortal. People in this Disorder often appear dead, when they are really alive, but more especially Women, and Men of cold Constitutions. However, the Truth of the Matter may fully be discovered, by applying a light Feather to the Mouth and Nose, or by placing a small Vessel full of Water on the Breast, to which if any Motion is communicated, the Patient is still alive; but if they remain entirely unmoved, he is dead. *Hippocrates's* Observation seems to be just, That a sudden Pain of the Head, accompany'd with Loss of Voice and Stertor, destroys the Patient within seven Days; but that he may be preserved, if a Fever happens before the End of that Time. *Lemmii Opusc. Aureum.*

The most fatal and terrible of all Apoplexies is that which proceeds from an Effusion of Blood in the Brain, from its Vessels being burst without any external Violence, and which suddenly stops and extinguishes the vital and animal Functions.

That such an Hæmorrhage of the Brain really exists, and that the Rupture of the Vessels is its immediate Cause, is sufficiently plain from the Dissection of Subjects that have died of this Disorder. Upon such Occasions, we plainly find an Effusion of Blood, sometimes between the Cranium and the Dura Mater, sometimes between the Dura and the Pia Mater, but more frequently between the Pia Mater and the Brain, but most frequently of all, in the Windings of the Brain itself, and the Medullium of its Ventricles. This Effusion happens also sometimes in its Basis, sometimes in a small, and sometimes in a pretty large Quantity. From dissecting Subjects of this kind, 'tis also plain, that the Blood-vessels, running thro' the Membranes and cortical Substance of the Brain, are sometimes found turgid, and, as it were, aneurysmatic, with liquid, and sometimes coagulated Blood: They are also found on some Occasions to be actually burst. The Histories of the Dissections of Subjects who have died of Apoplexies, written by the learned *Wepfer*, may be consulted for Satisfaction in this Point.

The Part then originally affected is the Brain, which is very much disposed to, and susceptible of, this Stagnation of the Blood, and the Hæmorrhage consequent upon it. For a very large Quantity, and at the least, according to *Malpighi*, a third Part of all that Blood which is thrown from the Left Ventricle of the Heart thro' the whole Body, is carry'd to it by means of four pretty large Arteries; besides, these arterial Vessels, which convey the Blood to the Brain, are very winding in the Whole of their Course, but especially in the *Pia Mater*. But the most considerable Circumstance of all is, that after these very Arteries have enter'd the Cranium, they lay aside their exterior tendinous Coat, the principal Instrument of their contractive Motion, become much smaller than those in any other Parts of the Body, and almost resemble Veins; not to mention, that these Vessels become at last so very small, that the Transition of the Blood from them, into their corresponding Veins, cannot possibly be observ'd. All these Circumstances concur to make us perceive, why the Blood in these Parts must circulate slowly, stop easily, not enter the Veins quickly and readily, but, being accumulated by continual Recruits of fresh Blood, distend and enlarge the Capacities of the several Canals, and lay a Foundation for many subsequent Evils.

From such a Disposition and State of Things as this, the Transition is easy to a Rupture of the Vessels, and an Effusion of their Contents, where those Causes concur, which occasion a Congestion of the Blood to the Head in too great a Quantity, or with an undue Impetus, produce its Stagnation there, and strongly prevent its free Return thro' the Veins; for by these means it happens, that the Vessels not only become turgid

with

with Blood, but, being too much distended with the continual Arrival of more, burst, and pour forth the Blood contain'd in them. This principally happens in the small Vessels of the Pia Mater, and those of the cortical Substance of the Brain, as well as those which form the Plexus Choroides, as is evident from the Dissection of Carcases.

By an Effusion of Blood in the Brain, the Secretion and Distribution thro' the Nerves of that most subtle Fluid, which conveys Motion, Strength, and Sensation to the several Parts, is not only hinder'd, but the Motion of the whole Blood circulating thro' the Brain is disturb'd and intercepted, by which means the animal and vital Functions languish apace, and are at last quite extinguish'd. That Matters stand thus, is sufficiently attested by the direful Symptoms accompanying this Hæmorrhage, and by which, as by so many diagnostic Signs, it may be distinguish'd from every other Disorder; for those who are seiz'd with it fall suddenly to the Ground, become void of all Thought and Reflection, and are depriv'd of all Sensation and Motion; all their Members become languid and flaccid, their Tongues swell, their Eye-lids are retracted and immovable, and their Mouths remain wide open; their Deglutition is destroy'd, and their Excrements and Urine are often involuntarily discharg'd: And all these Symptoms plainly shew, that the Functions of the Brain are impair'd and injur'd, and that the Strength and Vigour of the Muscles is consequently become weak and languid.

The other Phenomena observ'd in Cases of this Nature are to be ascrib'd to the difficult and intercepted Passage of the Blood thro' the interior Vessels of the Head. Thus the Cheeks are cover'd with a red and florid Colour; the Face swells; its Vessels, especially those running thro' the Temples, become so turgid, that sometimes breaking, they pour out Blood into the Mouth, Nostrils, and Ears, especially after the Death of the Patient. And that when Putrefaction comes on, the Head is distended to an incredible Size, which is justly to be ascrib'd to the Blood's not being allow'd a free Course thro' the internal Carotids, and on that account making an Effort on the external ones; that the Eyes are distended, become prominent, stiff like Glass, and pour out Tears in great Abundance, are Phenomena that may be accounted for from the Lymph being secern'd in great Plenty from the stagnating Blood. That the Palpitation of the Heart is strong; that the Pulsation of the Arteries is at first great, and afterwards languid and slow; that the Breathing is difficult, and accompany'd with a Stertor; these are to be imputed to the Load of Blood oppressing the Lungs, and their having by that means their equal reciprocal Motions destroy'd, and becoming incapable of receiving and expelling the Air as they should do. In fine, that Vomiting and Convulsions, accompany'd with Grinding of the Teeth, happen, is to be accounted for from nothing else than the Blood lodg'd in the Vessels of the Dura Mater, and exciting Spasms in it.

Now as every Hæmorrhage presupposes such a Congestion of Blood as is sufficient to produce a Rupture in the Parts where it happens; so 'tis certain, that this must be the Case with Hæmorrhages of the Brain. This is plainly prov'd, by the Nature of all the antecedent Symptoms; the principal of which are, a dull and heavy Pain of the Head, especially of its hinder Part, accompany'd with a Vertigo, like that which attends a Fit of Drunkenness, an unequal formicating Pulse, the Sight sometimes obscur'd, and sometimes flashing or sparkling; watering and swell'd Eyes; Noise and Ringing of the Ears; a certain Heaviness of Memory and Genius; profound Sleep, attended with the Incubus, and troublesome Dreams; a Turgidness of the Jugular Veins, and a preternatural Redness of the Face.

But farther, as in order to bring a Congestion of Blood upon any Part, besides the Abundance of the Blood itself, a strong Propulsion of it by the Spasms of some other Part, and a certain Weakness and Debility in the Part, admitting the Congestion, are necessary; so we have no Reason to doubt, but these Causes concur to bring on that Congestion which happens in the Vessels of the Brain: For Reason informs us, and Experience confirms to us, that all the antecedent and procatartick Causes of this Disease may be reduc'd to these now mentioned.

To begin then with the too great Quantity of Blood; it is entirely owing to it, that Hæmorrhages of the Brain happen most frequently to People arriv'd at Maturity, and, according to *Hippocrates*, *Aph. 57. Sect. 6.* from the fortieth to the sixtieth Year of one's Age, when the Growth or Increase of the Body being at an End, the Juices are not only treasur'd up in the Vessels in a greater Quantity than they should be, but also become thicker. Hence it also happens, that such as are of what we commonly call sanguine Constitutions, as also fat People, and those who lead a delicate, idle, and sedentary Life, or indulge themselves too much in Sleep, are very subject to these fatal Hæmorrhages. That this Misfortune also happens to those, who either thro' a Diminution of their spontaneous Hæmorrhages, or an Omission of their long-accustom'd, artificial Eva-

cuations of Blood, have acquir'd and treasur'd up, as it were, too great a Quantity of it, is abundantly plain from the Observations of Physicians. That this Disorder arises from accumulat'd Evacuation of Blood being neglected, may be seen in *Acta Medica Vratisl. 1702.* That it may proceed from an Hæmorrhage of the Nose being suppress'd; is plain from *Hildanus, Cent. 3. Observat. 2.* That a Retention of the Hæmorrhoids has brought it on, may be found in the Writings of *Hippocrates*, *Amatus*, and *Zacutus Lusitanus*. For this Effect also, *Lancisi de Mortib. Subit.* ought, above all others, to be consulted. The Writings of *Fontanus*, and the *Acta Nat. Curios.* are full of Instances of this Distemper's arising from the *Menses* and *Lochia* being suppress'd. And *Hildanus, Cent. 3. Observat. 12.* gives us an Instance of its being produced by the *Menses* being discharged at the Mouth and Nose, instead of the natural Way.

But a Redundance of Blood will contribute more readily and more effectually to the bringing on this Disorder, if another Cause, that is, Spasms in some of the external Parts remote from the Head, should happen to act in Conjunction with it; for this latter Cause operates in so terrible a manner, as not only to stop the Progress of the Blood, by bracing up the Fibres, and constricting the Vessels of the Part affected, but also propels the Blood in such a manner, that it rushes to some other Parts with an Impetus, fills their Vessels, distends, and at last bursts them. But the Hardness and Largeness of the Pulse, which plainly bespeak a Stricture of the Nervous Coats of the Arteries, evidently shew, that Spasms accompany almost every Hæmorrhage, as well as this of which we are treating. The preceding Coldness of the Extremities, as also that sort of tingling Sensation which some feel in their Limbs, is likewise a collateral Proof of this Truth. For this Reason also we have just Reason to think, as, indeed, Experience testifies, that Hæmorrhages of this Kind are often incident to those who have been long subject to Spasms, especially of the Abdomen, that is, those who have been afflicted with Colic Pains, especially the spasmodic Kind, Hypochondriac Disorders, Pains from the Stone in the Bladder or Gall-bladder, or a long continu'd Series of Costiveness.

From what has been said, we may also farther conclude, that every thing which has a Tendency to excite Spasms, is to be rank'd among the Causes which produce this Distemper. The Effects of the Passions of the Mind are very remarkable, with regard to this Particular, especially of Anger and Dread, which act immediately upon the nervous Parts, and, by bringing anomalous spasmodic Motions upon them, render the Circulation of the Blood irregular, and frequently produce this Disorder, as amongst the Writings of many others may be seen in those of *Hildanus*, *Schenckius*, and *Foresius*. The same Effect may be produced by the Heat of Venereal Rage, which destroying the due Equilibrium of the several Motions, the Blood has in some been put into such an unnatural Commotion, that they have died Apoplectic, and, as it were, thunder-struck, in the very Time of their fatal Embraces. For farther Satisfaction in this Particular, the Reader may consult *Henric. ab Heers, Observat. 18.* and *Bartholin.* (See VENUS).

A violent Commotion of the Body, as well as of the Mind, contributes also very much to produce a Congestion of Blood in the Head; and among other Instances of this Kind, I myself knew a violent Cough excited by a small Piece of Bread getting into the Aspera Arteria, which brought on an Hæmorrhage of the Brain, and prov'd the Patient's Death.

When that acrid, corrupt, and almost poisonous Matter, for wise and salutary Purposes, secreted from the common Mass of vital Juices, in order to be propell'd to the Surface of the Body, either retreats inwardly of its own Accord, or is repell'd by external Injuries, it is of great Force, and has a direct Tendency to bring on this Disorder; because, by entering the internal nervous Membranes, it excites terrible spasmodic Strictures, by which the Blood is driven with an Impetus to the Head, and treasur'd up there. Thus *Wesfer* informs us, that this Disorder has proceeded from the closing up of running Ulcers and Fontanels; and in the *Ephemerides Naturæ Curiosorum* we have Instances of its proceeding from the Suppression of a Coryza, Sweatings of the Feet, Catarrhus Discharges, and from the striking in of the Itch. It also proceeds from repelling the gouty Humour.

Astringents unseasonably and imprudently apply'd, especially in large Hæmorrhages, produce almost the same fatal Effects on the internal nervous Parts: Of this we have observed a remarkable Instance, describ'd at length by the famous *Schultraius*, in a Dissertation deliver'd at *Altorf*, concerning a Man who died of an *Apoplexy*; brought on by a rash Suppression of the Hæmorrhoids.

Among the Causes of this Disorder, we may justly reckon the Air itself; the unwholesome and preternatural State and Constitution of which is, by *Lommius*, *Bagliivi*, and *Lancisi*, affirm'd to have made this Disease epidemical. But what most of all contributes to the Production of this Disorder is Cold, which, by contracting the cutaneous Fibres, and bracing up the

the Vessels which lie near the Surface of the Body, forces the Humours to the internal Parts, and to the Head itself. Hence *Hippocrates*, *Seet. 3. Aph. 23.* reckon'd an Apoplexy among the Number of those Diseases which rage in the Winter-season. And *Piso* observ'd, that about the Winter Solstice, when the North Wind, which compresses Bodies very strongly, and consequently raises the Mercury in the Barometer, began to blow of a sudden, *Apoplexies* us'd to seize People who were inclin'd to them. A sudden Change of Air contributes also very much to excite this Distemper. We certainly very often observe, that when a cold Northerly Wind suddenly succeeds a long, cold, and moist Intemperature of the Air, when the Winds have blown long from the West; or also when a cold and constricting State of the Atmosphere suddenly succeeds a warm and moist State of the Air, People very readily fall into this Disorder, provided their Constitution dispose them to it. Upon this also is built that Observation of *Amatus Lusitanus*, *Cent. 1. Curat. 36.* in which he gives us an Account of an Apoplexy arising from the Body's being expos'd to the cold Air, immediately after coming out of a hot Bath.

Among the principal Causes of this Disorder we may justly reckon the Weakness of the Vessels and Membranes of the Brain, or a Diminution of their contractile Power; for without this Imbecillity, neither the Abundance, nor the too quick Arrival, of the Blood can produce this Disorder; but where it is found, the Membranes protrude the Blood with too little Force, the Vessels yield to it, the Circulation becomes slow, a Stagnation ensues, then an Infarction, and then a Rupture. This Weakness is sometimes natural, and deriv'd down to Children from their Parents. Hence it is, that this Distemper proves fatal to whole Families, Examples of which may be found in *Hoeferus*, *Forestus*, and *Sennertus*. This Imbecillity is also adventitious, as is the Case with old Men, in whom the Strength of every Part decays, and consequently of the Head; for which reason they are, *ceteris paribus*, more subject to this Distemper than young People.

Among the Causes depriving the Vessels and Membranes of the Brain of their due Tone, the principal are, Gluttony, Intemperance, and drinking to Excess of hop'd Ales, Wine, especially if impregnated with the Fume of Sulphur, and Brandy; for such is the Nature of these Liquors, that they agitate and expand the Blood, and at the same time, by that very means, distend the Vessels thro' which it flows: When this happens to be the Case with the Brain, the Distention continues, the contractile Force of its Vessels and Membranes is impair'd, and a Way pav'd for a Stagnation. From these Circumstances *Henricus ab Heer* justly accounts for this Disease being so incident to the Inhabitants of the Northern Climates; and *Lancisi* observ'd, that, generally, no habitually sober Persons were subject to it. The same is the Case with such Substances as induce a Stupor on the Head, such as Opiates, Wormwood, Hops, Tobacco, Saffron, Live-coals, the Steams of Must and Ale, by which, whilst the Juices are rarefy'd, and the Canals preternaturally distended, the Circulation becomes slow, and is retarded.

A cachectic Habit of Body, accompany'd with a heavy Pain of the Head, in which the Medullary and Nervous Fibres of the Brain are render'd flaccid, too lubricous, and depriv'd of their contractile and oscillatory Forces, contributes very much to the bringing on this Disorder. That this State and Disposition of the Brain contribute very effectually, not only to an *Hemiplegia*, but also to a strong and sanguine *Apoplexy*, we know from many Instances. We have also found, Asthmatic People subject to this Disorder, especially, when their Distemper was fed and nourish'd by polypose Coagulations lodg'd in the Ventricles of the Heart, or pulmonary Vessels. It has also been often observ'd, that not only grumous, but polypose Masses lodg'd in the Sinuses of the Brain, especially the longitudinal Sinus, and in the internal Jugulars, have produced a fatal Effusion of Blood in the Brain.

That *Apoplexy* which proceeds from an Effusion of Blood in the Brain, is accurately to be distinguish'd from that milder Species produc'd by an Extravasation of the Serum, which is follow'd by an *Hemiplegia*, and a Palsy of the whole Side; in which Case Life is indeed preserv'd, but at the same time render'd very miserable. This Disorder happens when the Blood is carry'd to the Head with too great Force, and in too great a Quantity, but does not burst the Vessels; only, in consequence of its long Stagnation, the Serum passes thro' the Pores of the Vessels, and falling down to the Basis of the Brain, or the Sides of the Medulla Spinalis, and pressing upon it, not only hinders the Secretion of the subtle active Fluid, but also intercepts its Influx into the Nerves, and by that means deprives one or other of the Sides of all Sensation and Motion. We must not forget to take notice of the remarkable Difference betwixt sleepy Indispositions, and that now describ'd; for the former seize the Patient by Degrees, and not all on a sudden; neither do they destroy Sensation and Motion, except under the immediate Paroxysm, and by reason of the Profoundness of the Sleep.

That Observation laid down by *Hippocrates* in his Apho-

risms, *Seet. 2: Aph. 32.* corresponds very well to Truth, and what we find from Experience: That more violent *Apoplexies*, such as those proceeding from an Effusion of Blood in the Brain, are absolutely incurable; but that the milder Species, proceeding from a Stagnation of the Blood, and an Extravasation of the Serum, admit of a Cure, though with Difficulty: For, unless the Patient is relieved, and the Symptoms remit within twenty-four Hours after Blood has been taken away, and other proper Means used, all Hopes of Recovery are lost, and, according to *Caelius Aurelianus*, the third Day at the longest puts an End to the Patient's Life. This fatal Event is the more to be dreaded and look'd for, if the Disease seizes old Men of plethoric Habits, whose Strength is impair'd, and whose Brains are weaken'd; if it happens after a Fit of Drunkenness, or violent Attention of the Mind, an Excess of Anger or Terror, or also if it succeeds and follows immediately another Disease. But we are to conclude, that Death will very soon be the Fate of the Patient, if the Stertor and Difficulty of Breathing increase more and more, if the Heart beats violently, and the Pulsation of the Arteries is great, hard, and unequal; if, when the Patient recovers a little, his Mind is nevertheless unhing'd, as it were, and disorder'd; if convulsive Motions of one of the Sides, and of the Breast itself, appear; if a cold Sweat break out in Drops, especially on the superior Parts of the Body; if the Breath itself is cold; and, lastly, if the Urine and Excrements come away spontaneously.

Celsus advises to bleed *Apoplectic* Patients (*Attonitos*), to exhibit white Hellebore, or to purge them. Then Frictions are to be applied; mild Aliments, which are not in the least fat, and some which are acrid, are to be used. The Patient must utterly abstain from Wine. *Lib. 3. Cap. 26.*

Arctaeus distinguishes a true *Apoplexy* from Distempers which are nearly related to it, in this manner:

An *Apoplexy*, *Paraplegy*, *Paresis* [*πάρεσις*], and *Palsy*, belong all to one Kind, as including a Defect of Motion, or Sensation, or both, and sometimes a Loss of Reason, or some one or other of the Senses. But an *Apoplexy* affects the whole Body, and is a *Palsy* [*παράλυσις*] of the Senses, Reason, and locomotive Faculty; wherefore a strong *Apoplexy* is incapable of a Solution, and a weak one will hardly admit of it. A *Paraplegy* is a *Paresis* of Motion and Sensation, but limited to a Part, as the Hand or Leg; and the *Palsy*, universally speaking, is a *Paresis* only of Motion and Action. If there be only a Defect of Sensation, which rarely happens, it is rather call'd *Anaesthesia* than *Paresis*. *Hippocrates* by saying, that a Leg is *apoplectic*, means, that it is like a dead Member, unserviceable and incurable; for a strong *Apoplexy* is to the whole System, what a *Paraplegy* is to the Leg. There is a proper *Paresis* of the Bladder under an involuntary Retention or Discharge of the Urine. A Distortion of the Eye-lids, Cheeks, Maxillary Muscles, and Chin, by a Convulsion, is called a *Spasmus Cynicus* [*κυνικός σπασμός*]. A Resolution of the Knees with a short Stupefaction of the Senses, a Fainting, and Falling down, we call a *Lipothymy* [*λεπθυμία*]. *Arctaeus* *περὶ ἀσθενῶν καὶ συμ-χεσίων παθῶν*, *Lib. 1. Cap. 7.*

The CURE.

The above-quoted Author is more distinct, with respect to the Cure of an *Apoplexy*, than any of the Antients; for which Reason, I shall give his entire Chapter.

A strong *Apoplexy* is mortal on all Accounts, especially to old Persons, who are most subject to this Disorder; for there is no Hope, that they should survive, because they are at once oppress'd with the Weight of the Distemper, and the Infirmities of old Age. If the Patient be young, and the *Apoplexy* weak, the Cure indeed is not easy, but however ought to be attempted.

The most obvious Remedy, as it is best suited to the Greatness of the Disorder, is Phlebotomy, if it be exercised in a due Measure. But the Quantity of Blood which ought to be taken away is hard to be determined, since, if you take but a little more than the Case requires, you destroy the Patient; for this little Excess is sufficient to keep them alive, being the Fuel of Life, and Matter of Nutriment to the Body. If, on the other hand, you bleed less than is requisite, you make use of a very good Remedy to little Purpose; for the Cause still remains. However, it is better to offend in this Extreme; for if the Patient seems to want it, and some favourable Symptoms appear, the Vein may again be open'd; and the most proper one for this Purpose is the Vein on the Inside of the Cubit, which in the Left Arm is disposed to bleed freely.

In a small *Apoplexy* it is to be considered, whether the Resolution affects the Parts on the Right or the Left Side; and the Blood, in short, must be drawn from the sound Parts, as best disposed to bleed, and fittest to make a Derivation from the Parts affected. If an *Apoplexy* seizes a Person without a manifest Cause, we are to proceed by these Directions in letting of Blood; but if it happens from a Blow, a Fall, or a Pressure, we are not to consider, but with all possible Speed to open a Vein, which has been to some a Remedy sufficient of itself, and the only Means of Life and Recovery.

If Phlebotomy be thought improper, because of the great Coldness, Torpor, and Insensibility, with which the Patient is oppressed, a Clyster is to be administer'd, which, by evacuating the loaded Intestines, (for this Disorder is the usual Effect of a Crapula) may cause a Revulsion of the Humours from the Head. The Clyster should be acrimonious, and a Purger of Phlegm and Choler; and have not only Nitre, but half a Dram of Euphorbium for an Ingredient in the usual Quantity of a Clyster, with the Pulp of Colocynth, or a Decoction of the Tops of Centaury in Oil or Water. The following is a very good Preparation:

Honey in the usual Quantity, Rue boiled in Oil, and Refin of Turpentine, with Salt instead of Nitre, and a Decoction of Hyssop.

If the Patient be a little roused by this Method, have a Fever come upon him; or recover his Senses; if his Pulse beats well, or good Signs appear in his Face, there is room for Hope, and we may proceed with more Confidence. When the Strength is somewhat recover'd, you are to administer the Purge call'd *Hiera* to the Patient fasting, in its full Dose, if the Strength will permit; if not, half of it, in Hydromel. After this, let him be gently carry'd in a Chair in a reclining Posture, often resting to avoid Weariness. If his Belly be loose, let it so remain; if otherwise, let him drink about a quarter of a Pint of Water or Hydromel. If a Nausea comes upon him after purging, by no means try to remove it; for the stretching of the Body tends to awaken and blow up the Sparks of Life, and the Vomiting of Phlegm carries off the Cause of the Disease. The *Hiera* is a Medicine that purges the Brain, Nerves, and Senses; and thus I have said enough of Evacuations in the Beginning.

As to the rest, the Patient must be wrapt in Wool, and be washed all over with Oleum Sicyonium, or old Oleum Gleucinum, either of them alone, or both mixed together. And it will be the best way to melt a little Wax, to thicken the Oils, and to increase their Strength with an Addition of Nitre and Pepper, first pounded and sifted. Castor is a noble Remedy against Paralytic Disorders, if it be mixed with the before-mentioned Oils, and anointed upon the Parts; but it is much more effectual, if drank in Hydromel, in the Quantity of half a Dram; and we are to judge from the Age and Disposition of the Patient, whether it be proper for him to take it in a Course of several Days together. Ointments are better than Embrocations, as being more tolerable as well as effectual; for they do not run about, and stain the Bedcloaths, and it would be inconvenient for the Patient in this Case to have the Cloaths stick to his Body; whereas Ointments are melted and absorbed by the Heat, and are serviceable also on account of their continual Adhesion, when Embrocations run off. The Ingredients of Ointment may be such as I have named already; and besides these,

Castor, Refin of Turpentine, Euphorbium, the greater Centaury [*αυανθισ*], Pellitory of Spain, of each an equal Quantity; of Pepper, and Galbanum, each half as much, with triple the Quantity of Egyptian Nitre; to which add as much Wax as will make it into the due Consistence of an Ointment.

Cataplasms are to be apply'd to the hard and distended Parts; these may consist of

Linseed, Fenugreek, Barley-meal, Honey, Oil, in which Rue or Dill have been boiled, the Root of Marshmallows cut in Pieces, and boiled in Hydromel, till it becomes of a wax-like Thickness; and let these Cataplasms be of an agreeable and soft Consistence.

If the Patients then have little or nothing of a Fever, these are the Remedies that are to be try'd, without regarding their Heat.

If there be an acute Fever, which appears more formidable than the other Distemper, and threatens the Life of the Patient, both Diet and Medicine, and all other Parts of the Management, are to be suited thereto. The Aliment therefore must be very thin and slender, and easy of Concoction, and the proper Seasons for eating are now to be more regarded; no Sustainance is to be taken before the Paroxysms during the whole Course of the Cure, and all our Intentions are to be directed to the Removal of the Fever.

If the Disease be protracted, and the Head in fault, a Cupping Glass must be apply'd to the back Part of the Head, and the Place must be well scarify'd; for this gives more Relief than Phlebotomy, without any Diminution of the Strength: But first of all let another Cupping Glass be apply'd between the Shoulder-blades, without Scarification, in order to make a Revulsion from that Cupping Glass on the Head.

Sometimes a Palsy affects the Oesophagus, which is the Part that can be the only Means of Relief to the Patient, as being the common Passage for Food and Medicine: And the Sick is in Danger, not only of Famine and Atrophy, but of a Cough, Difficulty of Breathing, and Suffocation; for whatever liquid

VOL. I.

Aliment you put into his Mouth slides into the Aspera Arteria; neither the Tonsils doing their Office by descending to depress the Food, nor the Epiglottis, which is in the Nature of a Lid or Cover to the Aspera Arteria, subsiding into its proper Place. It will be necessary therefore, by means of a long Spoon introduced into the Oesophagus beyond the Aspera Arteria, to convey some Hydromel, or Cremor of Ptisan, into the Stomach; and so supply the Defect of Deglutination. If the Patient lie at the Point of Death, and his Neck, together with his Breath, seem to be condensed and closed up, we are to treat the Neck; and the Parts under the Chin, with heating Ointments and Fomentations. They who apply a Cupping Glass under the Chin, in order to open a Passage to the Stomach, act unskillfully, and to no Purpose; for there is no Need of a Dilatation, but of a Compression of the Parts, in order to Deglutition. But a Cupping Glass dilates the Oesophagus, and by a Retraction, and holding the Parts at a Distance from one another, is an Enemy to spontaneous Deglutition: But this Part ought rather to be left at Liberty, that it may the better protrude the Aliment forwards into the Stomach. Besides what has been observed, a Cupping Glass fills the Trachea so as to endanger Suffocation; and if you should apply one to different Parts of the Throat, it would be of no Service; for the Multitude of Muscles, Nerves, Tendons, and Veins, are interpos'd betwixt the Oesophagus and the Glottis.

Sometimes the Bladder, and its neighbouring Part the Rectum, become Paralytic, so as to be incapable of discharging their Contents; whence they remain always full, and the Bladder in particular swells to an enormous Size. Sometimes a Palsy affects these Parts in such a manner, that they can retain nothing, but all runs from them as if they were dead. In this Case it is not safe to search the Bladder with a Catheter, for fear of causing a Sphacelus in that Part; or of throwing the Patient into Convulsions. The best way is to wash the Intestines with moderate Clysters of Cremor of Ptisan; but the only Remedy to be depended upon in all Palsies, whether general, or of some particular Part, is an Infusion in Oil. *Arctaeus regi* βεζαν. βζ. παθ. Lib. 1. Cap. 4.

From COELIUS AURELIANUS.

The Cure of the Apoplexy has been insisted on by none of the principal Physicians among the Antients; for they generally thought, that it was to be ascrib'd to a Palsy. *Hippocrates* alone [*Aphor. 42. Sect. 2.*] says, That it is impossible to cure a violent Apoplexy, and not easy to cure a gentle one. The Abettors also of other Sects in this Case fomented the Head with Vinegar and Oil, and the other Parts of the Body with Wine and Oil, covering up the Patient with undress'd Wool. They likewise carefully embrocated the Head with a Mixture of Ivy, Mother of Thyme, and Hog's Fennel; the acrimonious and astringent Qualities of which ought in this Case to be avoided. A Method of Cure therefore adapted to the Nature of the Distemper is to be used. The Patient is to be lodg'd in a Place moderately light and warm. The Joints are to be gently rubb'd; and the Middle of the Head and Neck are to be cover'd with clean Wool. Warm Fomentations of sweet Oil are also to be used, and the Face is to be covered with a Sponge wrung out of warm Water. Warm Water is to be drank; and Mulsim is to be gradually swallow'd. Phlebotomy is also to be used; nor is it necessary to wait [*ad diatrioton*] till the third Day before that Operation be performed; since it may properly enough be done when the Paroxysm is least violent, or about Break of Day, when the Coldness and Torpor of the Body seem to be succeeded by a gentle Warmth: For those who have hurried on to Phlebotomy before this favourable Concurrence of Circumstances appeared, have unawares performed the Operation in the Height of the Paroxysm, or, performing it at the time the Patients were expiring, could possibly be of no Service to them; since at that Time the weakened Body is incapable of sending forth any Blood, tho' the Vein appears to be open'd. Abstinence is also to be used for the first three Days; then hot Ointments are to be apply'd, and Vaporations by means of Sponges wrung out of warm Liquors; forbile Aliment is proper, or Bread infused in warm Water, or Mulsim. If the Patient is not costive, a common Clyster is to be injected; and Cupping Glasses, with Scarification, are to be apply'd at the Time already directed, that is, in those Intervals when the Disease rages least, to the Back of the Head, and whole Spine. Vaporations, with Sponges, and laxative Cataplasms, are to be used. Then the whole Head is to be shav'd, and Cupping Glasses are to be apply'd to several Parts of it; and till the Distemper abates, the Patient is only to be nourish'd every other Day; but if his Strength is much spent, he may be fed daily. When the Disease declines, Cerecloths are to be used, and the Body is to be immerfed and bathed in Oil, or in warm Water and Oil. Then Variety of Food becomes proper, sometimes Pot-herbs, sometimes Fish, and sometimes Fowl. The Bath must also now be used; a few Apples may be eaten, and Wine may be allow'd. But too immoderate and excessive an Use of the above-mentioned things is to be avoided, by reason of the Dan-

ger of the Distemper, and the Difficulty of its Cure. *Cælius Aurelianus, Acut. Morb. L. 3. C. 5.*

From PHILUMENUS.

Those who are seized with an Apoplexy must be plentifully anointed with thin Oil. The Head is also to be anointed with Oil of Roses, in which Cows-parfnip has been boiled; and Mulsam is to be infill'd into the Mouth. Perfumes are likewise to be used, such as Castor, Opopanax, or Galbanum. The Patient's Mouth is also forcibly to be opened, and the Finger, or a Feather, dipt in Oil, introduced into it, in order to remove any superfluous Matter that may happen to be lodg'd in it. The Anus also is to be anointed with such Substances as have a Tendency to draw forth, and dispel Flatulences. If the Violence of the Distemper is not abated by these means, we must then have recourse to acrid Clysters, with which Brine and Honey have been mixed. After these several Steps have been taken, a Vein must be open'd. Upon which we must again betake ourselves to stimulating Medicines. *Oribas. Lib. Octav.*

Galen's Method of Cure is much the same with that of *Philumenus* mention'd by *Oribasius*, only it is a little fuller, and more circumstantial; for he orders Attempts to be made to procure a Discharge of the injected Clysters by Friction of the Belly, and Region of the Loins. He also orders the Vein to be opened in the Right Arm; and the Patient's Pulse, the Colour of his Face, and his Respiration, to be carefully adverted to during the Evacuation of Blood; and if no bad Consequence ensues, he orders Phlebotomy to be repeated; and the Patient is to be excited by foetid Smells, and by frequently calling to him. If any Part is remarkably weakened by the Violence of the Distemper, he orders a Bolster of Wool, impregnated with *Sicyonian*, or any other rich old Oil, to be apply'd to it.

In Cases where Blood cannot be procured, the Patient's Throat is to be tickled, in order to bring on a Vomiting; his Anus is to be anointed with such Substances as draw out Flatulences, and severe Cuppings are to be apply'd to the Region of his Loins for some time, and then to the Pubes and Lower Belly. When none of these Means succeed, he orders *Hiera* to be pour'd into the Mouth, or injected by way of Clyster. If the Distemper is complicated with a Fever, which he says sometimes comes on the first or second Day, and is an hopeful Symptom, the Fever is not to be neglected; but if any noxious Matter remains in the Intestines, it is to be evacuated, if lodg'd near the Anus, with Clysters; if otherwise, with Purgatives, and especially with the *Hiera* of *Archigenes*. After the Patient is thus purg'd, Cuppings, with Scarification, are to be used on the Patient's Præcordia and Head; and, if any Pain is felt lower, Scarification is there also to be used, especially in Women about the Region of the Uterus. The Evacuations by Stool and Urine must be kept free and easy, and the Patient must be fed daily, but sparingly, with such Foods as are light, warm, and cleansing. The Food in this Case may for the most Part be edulcorated with Honey. *Actius, Tetrabib. 2. Serm. 2. C. 27.*

The Cure of an Apoplexy, propos'd by *Paulus Ægineta*, agrees with these already mentioned, in the most material Circumstances. Only he is for anointing the Body with Oil impregnated with Sulphur, and the Head with Oil of Chamomile or Dill, in which Cow-parfnip or Calamint have been boiled. He also orders Sternutories and Apophlegmatisms, or Decoction of Thyme or Origanum in Vinegar, in order to promote a Discharge of Phlegm from the Mouth. If the Patient is depriv'd of Speech, and if his Strength will permit, he uses Cuppings, with Scarification, on the Back of the Head, and also on the Præcordia, if possible. Then the Patient is to have recourse to Gestation in a Chair, a Sedan, or Hanging Bed; and after the fourteenth Day to proceed to other Gestations, and use for Aliment old *APOMELI*, with Crums of Bread, or *Alica*. After this he orders a little *Hiera* to be given. After the twenty-first Day he orders the Use of the Bath; and Wine mix'd with warm Water to be drank. The Patients ought also, according to him, to live on the Sea Coast if possible. *Paulus Ægineta, Lib. 3. Cap. 18.*

Father *Malbranch* gives an Account of a Man who was cur'd of an Apoplexy by a great many Clysters of Coffee. And Mr. *Chaplain*, Physician of *Montpelier*, cured another who labour'd under the same Disorder, by giving him a Grain of Laudanum. *Hist. de l'Acad. R. 1702.*

Those who are seiz'd with a phlegmatic Apoplexy, grow pale, and fall into a profound Drowsiness. Their Pulse is small, they are reliev'd by emetic and purgative Medicines, and become worse after Bleeding. Hence we may infer, that some viscid Substance, of a weak Impetus, and sufficiently thick, produces these kinds of Apoplexies. In a sanguine Apoplexy, on the other hand, the Patient's Face becomes red; the Blood-vessels of the Head become very turgid. The Drowsiness is not very great, nor the Pulse so remarkably weak. He is also reliev'd by Venesection, and his Symptoms are generally heighten'd by emetic and purgative Medicines. From these Symptoms we

may easily conclude, that Apoplexies of this Kind arise from an Obstruction of the Course of the Blood and Spirits in the Brain and circumjacent Vessels. *Baglivi.*

Agreeable to this Observation of *Baglivi* is that of Dr. *John Drummond*, in the *Medical Essays*: Suppose two Persons seized with an Apoplexy; one is a full-bodied vigorous young Man, after a Debauch; the other is an old feeble Person, long subject to Catarrhs: I presume Bleeding very plentifully must be the principal thing depended on for the Cure of the first; and that this Method would very effectually destroy the other, who must be treated with every thing that stimulates.

Dr. *Calderwood* (in his new Method of curing the Apoplexy) condemns the common Method of letting Blood from any Vein, giving Emetics, or sharp Clysters, and applying Blisters: But insists much on the Advantage of Arteriotomy; and recommends Cordials in the Cure of the Apoplexy.

'Tis a Circumstance not to be forgot, that some Physicians assert their having learnt from Experience, that People, when so violently seiz'd with Apoplexies, as that no Medicines can possibly rouse them, have sometimes had that Effect very quickly produced upon them by the Application of Causteries to the Body: But they are not all of the same Mind, with regard to the particular Part to which the Application should be made; for *Scultetus* (*Obs. 34.*) has directed the Application of a red-hot Iron to the back Part of the Head; whereas to others, especially *Zacutus Lusitanus*, and *Riverius*, the Space between the first and second Vertebrae of the Neck seems a Place much more commodious and proper for that Purpose. Some recommend the Place where the sagittal and coronal Sutures meet, whilst others entirely disapprove of that Practice. And, indeed, *Mistichelli*, an Italian Author, in a Book publish'd in his Mother-tongue, concerning the Apoplexy, asserts, That in order to rouse and recover from that Disorder, the actual Caustery is apply'd so successfully to no Parts of the Body, as to the Soles of the Feet. And the particular Method of burning them, on Occasions of this Nature, he endeavours to represent in Figures. See Tab. 33. Fig. 11. Where the Places burnt are represented by the Letters A A, and the Caustery itself by the Letter B; but it may be of any other Form as well as Quadrangular. I myself try'd this new Method on a Man who was Apoplectic, but I could not rouse him by it, and he soon after died. *Heister.*

Since this Disorder attacks so suddenly, and is attended with so imminent Danger, timely Assistance is to be called in, whilst there as yet remain any Hopes of Safety. The Patient is to be laid in a light and temperate Place in such a Posture, as that his Neck may neither recline too much, nor yet be quite erect; and his Feet are, above all things, to be kept warm with Feathers or Cloths. As for the Cure itself, the several Steps of it are to be indicated by the Causes; and, because the Chief of these are the antecedent Efflux of the Blood, which abounded too much in the Vessels of the Brain, the preternatural Congestion, and the Vis Motrix, or moving Force, of the Vessels and Membranes of the Brain, being weakened, the Cure is to be directed by, and have a relation to, these Causes; so that the chief Intentions of Cure are to divert the Motion and Impetus of the Blood from the Head, and to restore Strength to the debilitated and weakened Parts, that the Blood which does not now circulate, may again be put in Motion.

For answering the former of these Intentions, Bleeding in the very Beginning of the Disorder has, in all Ages, been looked upon as a Circumstance of the greatest Moment and Efficacy, and must, in the very Nature of the thing, be a choice and excellent Remedy. *Dodonaus*, as well as *Nymanus*, deservedly reckoned it the first and principal Step to be taken in the Cure, in his *Observat. Medic. Cap. 8. Exercit. Pract. p. 385.* where he gives an Account of a Woman of seventy-two Years of Age being cured of an Apoplexy by Bleeding. Besides, that Nature herself points out this Step, is plain from that Observation of *Lancisi*, in which he gives us an Account of a Man of almost seventy Years of Age being cured of the antecedent Symptoms of an Apoplexy by a Discharge of twelve Pounds of Blood from his Nose.

But in what Shape Blood is to be let, is not by all agreed upon. Some are of Opinion, that in this Case, Arteriotomy, or the opening of an Artery, is preferable to all other Methods of letting Blood; but the strongest Abettor of this Practice is *Catherwood*, who, in a small Book, written in English, endeavours to establish it by Arguments drawn from Reason and Experience. Some German Physicians have given their Suffrage in behalf of this Practice; and, among the rest, *Loew*, of *Erlsfeld*, in his *Medic. Pract.* Nor indeed, does the Advice seem improper; 'tis only to be lamented, that the Unskillfulness of Surgeons, and the Novelty of the Thing, should hinder the Practice from becoming universal. Many recommend Venesection, but differ in their Sentiments with regard to the Place, where the Vein is to be opened. Some order opening the Veins of the Arms, others those of the Forehead. Some those of the Nostrils, and others those under the Tongue. *Morgagni* recommends opening the Occipital Veins, *Anat. 6.*

p. 108. because these Veins pass within the Cranium, and have a Communication with both the lateral Sinuses. For this Reason, when they are opened, the Blood, which they were to convey into the Sinuses, is taken away; hence the Quantity of Blood, which passes through these Sinuses, is lessened, and its Motion increased, to the great Relief and Advantage of the Patient. But because the Trunks of these Veins lie very deep, and are sometimes found divided into many small Ramifications, he is of Opinion, that Cuppings, and frequent deep Incisions, are preferable. In this manner *Zacutus Lusitanus* [*Med. Princ. Hist. Lib. 1. Hist. 33.*] affirms, that he cured two Apoplectic Patients. But the generality of Physicians, and those the most skilful, as *Severinus*, *Lancisi*, and *Freind*, recommend opening the Jugular Veins, because, lying very near the Brain, the taking away some of their Contents must afford Space and Liberty for the Blood, impacted and congested in the Brain, to flow with the greater Ease and Freedom.

In letting Blood, these Cautions are to be observed: Let it be done as soon as possible, before the small Arteries are so dilated as to lose their Tone, or the Brain be inundated with the Effusion of Blood. Let the Orifice be sufficiently large, that the Blood may flow out quickly, and in a large Stream, because a slow Efflux is attended with no Advantage. Let the Vein be opened as near to the Part affected as is possible, the Arm for Instance, or the Jugulars: The Quantity of Blood to be taken is to be determined by the Fulness of the Vessels, the State of the Pulse, and the Strength of the Patient; though it ought always to be very large. If the Body is plethoric, if the Constitution is sanguine, or if the Disorder takes its Rise from a Stoppage of some habitual Evacuation of Blood, let Phlebotomy be ordered again and again, since *Dionis* assures us, that the opening a Vein seven different times, has, in this Case, produced happy Effects. But 'tis first to be done in the Foot, then in the Arm or Neck, left by first opening a Vein in the superior Parts, a greater Afflux of Blood should be invited to the Head from the inferior Parts, and the Circumference of the Body.

For diverting the Afflux of Blood from the Head, besides Venesection, those Medicines are also efficacious, which purge pretty strongly. I do not mean those drastic and herculean Cathartics, which contain something of a poisonous Quality; but those harmless and innocent ones, which only stimulate the nervous Coats of the Intestines to a proper Degree of Motion, such as *Sal Gemmæ*, *Seltz Salt*, and *Sal Ammoniac*. A pretty large Dose of these is to be put into Clysters; and such Powders are to be added as are proper for discussing Flatulencies, and corroborating the Tone of the Intestines. Of which Kind are the Powders of Rue, Sage, Marjoram, Savory, Thyme, Mother of Thyme, Flowers of Lavender, Lilly of the Valley, *Roman Chamomile*, the Seeds also of Caraway and Dill, together with expressed Oils, and Oils of Rue, Chamomile, and Bays. The Clysters, thus prepared, are to be injected often, but not in great Quantities, lest they should not be retain'd; they are also to be thrown in with a Syringe, that they may penetrate the deeper, and reach the farther.

But such Medicines as strengthen the weakened nervous Parts, and stimulate them into a proper Motion, and by that means promote and further the Discussion of the stagnant Humours, are to be used both internally and externally. The external Applications of greatest Efficacy are, volatile, urinous Substances; mixed with Cephalics, the principal of which, in a liquid Form, is Spirit of *Sal Ammoniac* prepared with quick Lime, and impregnated with Oil of Rue, Marjoram, or Lavender; and, in a dry Form, dry volatile *Sal Ammoniac* sprinkled with the same Oils. These Medicines, either applied to the Nose in such a manner as their Effluvia may strike the Olfactory Nerves, or put into the Nostrils themselves on the Point of a Feather, or even blown up into them by means of a Quill, prove an excellent Stimulus, and rouse very effectually. For the same End, and with the same Intention, such Substances as excite a certain Sense of Pain, are generally applied to such Parts of the Body as are of a more exquisite Sensation, especially the Soles of the Feet; by which means the whole System of the nervous Parts is stimulated into a due and proper Contraction. This Intention is answered by pretty hard Frictions with rough Cloths, or the Flesh-brush, and by the Application of Nettles to the Parts. The Efficacy of Vescicatories, in this Case, is also very great, as also that of actual Cauterics, a new Method of using which has been described by *Dominicus Mistichelli*, in a Treatise written in the Italian Language; and the Author's Method of Application is approved of by *Lancisi*.

But if the Power of Deglutition either remains with the Patient, or is restored after it is lost, spirituous and volatile Medicines are not to be prescribed internally; for these put the already raging Blood into a greater Commotion, and rarefy it more, and are upon that Account deservedly condemned in Cases of this Nature, by *Pitcairn de Circul. Sangu.* But such Medicines are to be prescribed as are of an analeptic, rousing, and discutient Quality; among which, the best and most approved are, fixed Diaphoretics with Cinnabar, Amber, and Nitre;

and these may be either exhibited in form of a Powder, with some proper Water as a Vehicle, or, which is still better, they may be reduced to the Form of a Potion. In the Course of my Practice indeed, I make more frequent Use, and more cordially approve, of this Mixture:

Take of the Water of Lillies of the Valley with Wine, and of distilled Vinegar, each two Ounces; of succinated Spirit of Hartshorn, one Dram; of Diaphoretic Antimony, Cinnabar, and Crabs-eyes, each half a Dram; Syrup of Orange-peel, two Drams; mix all together: To this we sometimes add a very small Quantity of Emetic Tartar, to give a gentle Stimulus to the small nervous Fibres of the Stomach, which have an Intercourse and Communication with all the rest. Yet Care must be taken not to exhibit it in such a Quantity as to procure a Vomit.

But because an Hæmorrhage of the Brain is not only very dangerous in itself, but also very subject to recur after it is cured, 'tis the Business of the Physician to employ all his Care and Skill both to carry off the Paroxysm, and to prevent its Return. Now *Caspar Hoffman*, [*Lib. 3. Instit. Med.*] with *Martianus* and *Ballonius*, rightly concluded, that all Apoplectic Patients were plethoric; therefore the Physician's chief Care must be to lessen the redundant Blood. For this Purpose letting Blood is proper at all Seasons, but especially about the *Æquinoxes*, when the Blood and Humours generally use to be in a preternatural Commotion, and Nature exerts her utmost Efforts to eliminate and throw out of the Body whatever is superfluous and prejudicial. For this very Reason, according to the Testimony of *Hippocrates*, the hæmorrhoidal Flux is in this Case salutary, and attended with happy Consequences, especially in those who have before had Discharges of that Kind. But first to procure, and then duly to promote, an hæmorrhoidal Discharge, are Circumstances that call for a great deal of Skill, Art, and Caution. For obtaining such a thing, besides Frictions of the Anus, and the Use of proper Fomentations, I think the Application of Leeches very proper; to which may be advantageously join'd a balsamic Elixir of corrected Aloes, Saffron, Myrrh, and Amber, prepared not with a spirituous, but with an aqueous lixivial Menstruum. The *Balsamic Pills*, if cautiously given, are very proper in this Case. But such Medicines as provoke an hæmorrhoidal Discharge, ought by no means to be administered, if the Patient is not disposed to Discharges of that Nature; they are only to be used when the Discharge begins to discover itself, or to flow too slowly; in other Cases they do more Harm than the Plethora itself, under which the Patient labours.

For preventing the Access of this Disorder, the due Excretion of the Fæces is of uncommon Efficacy; for 'tis almost a general Maxim in Practice, *That a Man cannot readily labour under Diseases of the Head, provided his Belly perform its Office duly.* This Discharge of the Excrements is by no means, however, to be procured by Medicines of too strong and drastic a Quality; since these, by operating too violently upon the nervous Coats of the Intestines, excite Spasms in them, and induce an unequal Circulation of the Blood. This End is rather to be obtained by Medicines, that are mild, gentle, and friendly to the Constitution; among which, the most proper and efficacious are, Preparations of Rhubarb with abstergent Salts; as also the *Pilula Polychrestæ*, and Clysters.

Those Waters and Balsams which are called *Apoplectic*, and by some highly extolled as proper, not only to be taken internally, but also applied externally, by way of Uction, to the Temples, Nostrils, and Nape of the Neck, are, in my Opinion very hurtful both as a Cure, and a Preservative against this Disease, in Cases where an Hæmorrhage of the Brain is dreaded, in plethoric sanguine Habits of Body, and in Persons in the Flower of their Age. The Testimony of *Dodonæus* [*Stirp. Historia, Lib. 6.*] is of considerable Weight in this Point: *When, says he, there is too great a Quantity of Humours, especially if mixed with the Blood, the Use of this Medicine, that is, distill'd Lavender-water, is not safe; neither is that Composition safe, which consists of distilled Wine, in which Herbs, Flowers, Seeds, and Spices of this Nature have been macerated, and which are rashly and indiscriminately prescribed by most People; since by the Use of those hot Medicines, which stuff the Head, the Disease is increased, and the Patient exposed to a more imminent Danger.* Far safer are Infusions by way of Tea, prepared of common Water and Cephalic Herbs, especially Baum, Betony, Sage, and the lesser Cardamums, which, being frequently supped, not only preserve an equal Motion in the Blood; but also refresh and comfort the Brain and Nerves.

But the Recovery and Safety of the Patient are justly to be despaired of, unless a cautious and moderate Regimen, with regard to the Non-naturals, is carefully observed. But for Prevention, in Cases of this Nature, Rest and Abstinence are of wonderful Efficacy, since, according to *Celsus*, very terrible Disorders may, by their means, not only be prevented, but cured. For this Reason, immoderate Eating, and Variety of

Dishes,

Diffes, are to be avoided; sweet and palatable Wines; all intoxicating Liquors, and severe Exercises of the Body, are also to be abstained from, especially after Meals: He who dreads this Disorder, should not go to Bed immediately after Supper; neither should he lie with his Head too low. If the Constitution is such, as to favour the Generation of this Disorder, the Body is not to be exposed to its Influences, but the Feet are carefully to be defended from the Cold, and sometimes immersed and washed in warm Water; and the Patient is to remain in a Chamber moderately warm. Gentle Motion is also to be used, the Mind is to be kept calm and serene, and Sleep is neither to be too long, nor too short. In a word, all those things are to be carefully avoided and abstained from, which we have above rank'd among the procatactic Causes of this Disorder.

CASE I.

An illustrious Count, almost fifty Years of Age, and full of Blood and Juices, was some Years ago afflicted pretty often with a milder Species of Palsy, accompanied with a Difficulty of Speech. For the Cure of these Disorders he went to the *Caroline Baths*, which lay contiguous to his Estate, and used them both internally and externally. But as he did this without the Advice of his Physician, and had neglected to prepare his Body for it by proper Evacuations, such as letting Blood, and purging; it happened, that having gone into a Bath, which was as yet too warm, he was suddenly deprived of all Senses, both internal and external. Immediately upon this Accident, he breathed quick, his Breast heaved with a sort of convulsive Motion, his Arteries beat strongly with a certain kind of Hardness, and his Face became prodigiously red. A Vein was opened, and a Sternutatory apply'd to his Nostrils; by which means a more terrible convulsive Concussion of his Breast, together with a violent Stertor, were brought on. His whole Left Side became destitute of all Sensation and Motion; but the Hand of his Left Arm, being convulsed, shook continually. His Reason utterly left him, and, within five Hours, he died; and after his Death, a large Quantity of Blood, and bloody Serum, flow'd from his Nostrils for the Space of twenty-four Hours, or more.

REFLECTION.

If any of the Mineral Waters, used by way of Bath, require Prudence and Circumspection in their Use, the *Caroline* certainly do; for these are of such a Quality as strongly to contract the Surface of the Body, and drive the Blood and Humours to the internal Parts, by that earthy, calcareous, and even chalybeate Principle, with which they abound. And this is the very Reason why they so speedily carry off oedematous Swellings of the Feet, and bring on, if the Body is subject to Spasms, and the Vessels turgid with Blood, violent Pains, vehement Palpitations of the Heart, acute Pains of the Head, Loss of Strength, Weakness of the Joints, and even continued and intermitting Fevers. We need not therefore wonder, if in this illustrious Person, whose Mass of Blood was already too large, and whose Humours were even thus disposed to stagnate in the Brain, the Blood was, by a rash and inconsiderate Use of the *Caroline Waters*, driven with an Impetus to the Head, and both its internal and external Vessels burst; a Circumstance which could not fail to cause the immediate Death of the Patient. This is plainly proved by that large and copious Effusion of a bloody Matter from his Nostrils, which always sufficiently discover a previous Hemorrhage in the Brain. And since his Stertor and Difficulty of Breathing increased upon the Application of Sternutatories; this should teach Physicians to be wary and circumspect in applying such things as promote Sneezing in sanguine Apoplexies, and that too even after the impetuous Motion of the Blood to the Head is allay'd, lest the Blood should rush with too great Violence to the stimulated Parts, and hasten the Death of the Patient.

CASE II.

A Gentlewoman of fifty Years of Age, of a sanguine, but at the same time of a very delicate and tender Constitution, had always had her monthly Evacuations in a very plentiful and copious manner. But about the forty-ninth Year of her Age, this Discharge happening according to the Course of Nature to stop, she began to complain much of an Uneasiness and Straightness about her Præcordia, an Inflation in the Left Side of her Abdomen, a painful and flaccid State of her Joints, a vertiginous and heavy Pain of her Head, and unsound and interrupted Sleep, tho' her Countenance all the while remained very florid and ruddy. The Winter at last approaching, all these Symptoms were so heightened, that she was reduced to a Necessity of calling a Physician, who, in order to discuss her Flatulencies, prescribed her *Volatile oily Salts*, and *Carminative Essences*. He likewise ordered her a purging Powder, consisting of half a Scruple of Resin of Jalap; and six Grains of vitriolated

Tartar. With which after she had purged six times, and that not without terrible Gripes, she was next Night seized with an *Apoplectic Fit*, but her Pulse remained in its ordinary State, and her Breathing was free. For her Relief, a Vein was forthwith opened, and an acrid Clyster injected, by which means she was indeed recovered from her *Apoplexy*; but an *Aphony*, and a great Weakness of her Head, still remained with her. Her Physician, in order at once to carry off these Symptoms, and the Remains of her other Distemper, ordered her a purging Powder of twelve Grains of Resin of Jalap, and ten Grains of vitriolated Tartar, to be taken in Water of Lillies of the Valley as a Vehicle. But scarce an Hour after the taking of this, the *Apoplexy* return'd, and kill'd the miserable Patient.

REFLECTION.

Women of sanguine Constitutions are, upon the Cessation of their monthly Evacuations, very much inclined to an *Apoplexy*, and therefore stand greatly in Need of Venesections, lest, by the Concurrence of other Causes, the Disposition should break forth into the Distemper itself; and, indeed, if any thing is effectual for making it do so, it is undoubtedly the Use of the stronger Purgatives, and such Medicines as excite Gripes. Among which we may, for its many fatal Effects, justly reckon that pernicious Medicine *Resin of Jalap* exhibited in Powder; for, when taken into the Stomach, it easily runs together, and adhering to the Folds of the nervous Coat of the Intestines, it quickly excites Spasms, and painful Tensions, by which the Blood is forced to the superior Parts; and produces the most fatal Effects. Hence 'tis plain, that the Physician committed an egregious Blunder, since upon the Approach of a gentle *Apoplexy*, which remitted, he repeated this Purgative in so large a Dose, as not only to bring on a Relapse, but even Death. And though the Intention of drawing the noxious Humours to the inferior Parts does not at all seem inconsistent with a rational Practice, yet it ought to be done by mild Laxatives, or even Clysters, and not by such Medicines as induce sensible Spasms on the Intestines, which may be discovered by the Gripes, and by that means force the Blood to the Head in such a Quantity, that it bursts the Vessels, and produces present Death.

CASE III.

A certain Divine of a great Character, not quite fifty Years old, of a florid and sanguine Constitution, and who had always enjoyed a sound and vigorous State of Health; by means of a certain Accident, which hurt his Character and Reputation, fell into a violent Perturbation of Mind, accompanied with Sadness, and the most uneasy Sensations. Being thus disturbed, and sleeping very little, he thought proper to cheer his Mind, and dispel his Melancholy, by a pretty liberal Use of Wine, which indeed he loved too much before. In Process of Time he lost his Appetite for Food, and his Digestion being very bad, he was troubled with continual Eructations without any Discharge of Flatulencies from his Belly, which was costive; his Strength began to be impaired, he was seized with a terrible Pain and Straightness about his Præcordia; and, mournful and distracting Thoughts unhinging his Mind, at last, he suddenly and unexpectedly fell down with the total Loss of his Senses, his Pulse and Respiration remaining at the same time entire. But about two Hours, after proper Remedies being applied, his Strength returned in some measure, and he came to himself; but began to complain terribly of a Weakness in his Knees, a Torpor and Languor of his Right Side, and a Loss of Memory. Of his own Accord he went to the *Caroline Baths*, not only with a View to carry off his hypochondriac Disorder, but also to banish from his Mind all melancholy and perplexing Thoughts by the Journey and Conversation. As I was in the Place, he earnestly asked my Advice, and I ordered him to drink moderately of that temperate Spring, commonly called *Muhlen-Brumen*, which he used with great Success for about twenty Days. But in his Return home, when he was passing through a noted Town, being invited to a splendid Entertainment by his Friends, he indulged his Palate, and drank too much Wine: And going home in the cold Night Air, he began to complain of an Uneasiness and Difficulty of Breathing; upon which he took some diaphoretic Powders, by the Use of which, a red Purple Fever began to appear almost over all his Body. But, complaining of an insupportable Pain of his Head, his Physician judged Venesection in the Foot proper; and, taking my Advice about the Propriety of this Step, I declared myself against it, for fear of striking the Purple Fever back to the internal Parts. But the Physician insisting much on the bad Consequences that might attend the Neglect of Venesection, it was accordingly performed in the Foot, and a sufficient Quantity of Blood taken away. Soon after, the Uneasiness about his Præcordia increased, the Extremities of his Body became cold, and, the Purple Fever disappearing, a violent *Apoplectic Fit* unexpectedly ensued, accompanied with the Loss of all his Senses, Stertor, a strong and unequal Pulse, and a red and

and tumid Countenance; by the Violence of which Disorder this learned and ingenious Clergyman was; in eight Hours time, convey'd into another World.

REFLECTION.

There are many Circumstances in this Case, the Observation of which may be of Use for directing a Man in the pathologic and therapeutic Parts of Physic: And, first, we may observe, that in a Man of a sanguine Constitution, when to long and excessive Sorrow, a bad Regimen, and especially the immoderate Use of Wine, are joined, the nervous System may be so weaken'd, as to induce hypochondriac Symptoms of such a Nature, as would not have otherwise, in all Probability, seiz'd a Constitution of that Kind. It is also to be observed, that by a long-continued, perplexing, and uneasy State of Mind, accompany'd with Sorrow, the Brain and nervous System may be so weaken'd, as to become disposed and subject to *apoplectic* Fits. Besides, in the Case now under our Consideration, the first Fit was slightest and most gentle, since it proceeded only from the Blood being forced to the Head from the lower Belly, by means of the Spasms there excited, and might have been soon carried off by Venesection; which would have resolved the Blood stagnating in the Vessels of the Brain: But because no Indisposition is more apt to recur than an *Apoplexy*, especially if it is not averted and guarded against by a due Regimen, and proper Medicines, hence it happen'd, that a due Regimen not being observed, after the Use of the *Caroline* Baths, which are indeed excellent in hypochondriacal Cases, but very improper in Disorders of the Head, a more violent Fit ensued, which, in the present Case, proved fatal to the Patient; which was undoubtedly owing to the large Quantity of Blood taken away, by which means the Matter of the Purple Fever being struck into the internal Parts with great Violence, excited such Spasms as forced the Blood impetuously to the Head, and at last broke its Vessels internally. *Hoffman; Vol. 2:*

CASE IV. From C. Pifo.

One *Claud Dionis*, a Citizen and Taylor of *Pont-à-mousson* in *Lorraine*, a Man of a slender Make, black Hair, and, like the Generality of City-tradesmen, accusom'd to Idleness and high Feeding, happen'd in the Year 1603. after a Debauch of Wine, to drop down suddenly, and lose all Sense and Motion: He at that very time became speechless; but his Respiration, tho' it continued with him, was nevertheless unequal, disorder'd, and intermitting, tho' not high, and accompanied with Stertor. After he had thus remain'd speechless for four Days, and was concluded *Apoplectic* by every one who saw him, he at last recover'd on the fourth Day; rather, I suppose, by the peculiar Interposition of Heaven, than by the Influence of Medicines, which, in Cases of this Nature, either cannot be exhibited at all, or, if exhibited, generally produce no Effect, on account of the Oppression under which the sensitive Faculties labour. But tho' the Patient recover'd thus far, the morbid Matter was nevertheless, by a salutary Translation, deposited not only on the Middle of the Spine, by which Accident the Trunk of his Body became paralytic, but also on those Branches of the Seventh Pair of Nerves which run to the Tongue, by which means a Stammering in his Speech still remain'd. His Palsy was, by proper Care and Warmth, so far remov'd, that a few Months after he was able to go abroad, and stand at the Church-doors, in order to receive the Charity of tender-hearted Christians: But about a Year and a half after, when this miserable Creature had lost the Use of his Limbs, and betaken himself to his Bed, he was soon cut off by a Fever, the particular Nature of which I know not.

CASE V. From C. Pifo.

In the Year 1603. about the Beginning of September, a certain Citizen and industrious Tradesman of *Pont-à-mousson*, happening to return drunk from a neighbouring Town, dropp'd down in the Middle of his Journey, lost all Sense and Motion, and lay prostrate on the Ground for three Days: However, being found on the third Day, and carried home, he indeed recover'd his Senses, but at the same time lost the Power of moving the middle Part of his Body, and his Right Side; nor is the Use of these Parts as yet restor'd to him, tho' four Years are now elapsed since that Symptom appear'd; besides, he hesitates in his Speech, and walks with Difficulty. 'Tis also to be observed, that, in this Patient, the paralytic Parts were always moist with Sweat.

CASE VI.

I remember, that about ten Years ago, on the Confines of the Bishoprick of *Metz*, a Lady of Distinction, the Wife, if I rightly remember, of Mr. *Helmeftat*, became paralytic after an *Apoplectic* Fit; which returning some Months after, put a final Period at once to her Palsy, and her Life.

The Duchy of *Lorain* is, indeed, so very fruitful in Disorders of this Kind, that there are few of its Towns or Villages, in which the remarkable Changes of Weather, that happen du-

ring the Winter-season, do not suddenly and unexpectedly strike and cast down some of the Inhabitants in this sudden manner.

But whether the frequent Surfeits of the Inhabitants, or the damp and moist Nature of the Climate and Air, produce this Disorder separately; or, which is more probable; whether they concur, and join their united Forces on this Occasion, are Disquisitions I shall not, at present, enter upon; neither shall I launch out into the more abstruse Theories relating to this Disorder; and its several Symptoms, since these Things have already been set in a Light sufficiently clear. I shall therefore only observe; that there are three Species of *Apoplexy*; a very strong and violent one, which instantaneously suffocates and kills the Patient; one of a milder Nature, which renders the Patient's Respiration violent, difficult, and high, and which is by some distinguish'd into two Sorts, differing rather in Degree than Nature; and one of a very slight and gentle Kind, in which the Patient breathes with some Labour and Difficulty. The first of these, or the most violent Kind of all, proceeds from a mucous Humour; either alone, or more frequently intermix'd with Serum, but in such a Proportion, that the former much exceeds the latter: The slight and gentle Kind, on the other hand, proceeds from Serum, either alone, or intermix'd with a very small Quantity of Mucus; so that the former may predominate much over the latter. The intermediate Species proceeds from a Mixture of both of these, almost in an equal Quantity: And; indeed, this Theory is confirmed by the following Observation:

CASE VII.

About the Year 1600. *Stephen Ruiffseau*, the Son of a noted Advocate, and a Youth about twelve Years of Age, about the Winter Solstice, suddenly dropp'd down without any Sense or Motion, except a convulsive one, which soon after seiz'd him, and which was immediately follow'd by a Stertor. In this Case we try'd very few Medicines, because we concluded the Patient irrecoverable: Accordingly he was suffocated by the Violence of the Distemper, about twelve Hours after it had seiz'd him; and, to the no small Surprise of all who saw him, died discharging a mere, but frothy Mucus from his Nostrils in large Quantities, and not Drop by Drop, which is the Case in old Disorders of the Lungs; so that we had no Reason to believe, that it came from his Thorax: For altho' those who labour under a *Peripneumony* may, by the Violence of the Stertor, discharge a purulent Matter from their Nostrils, yet that Matter is not frothy, nor yielded in great Plenty; but is of a pretty good Consistence, and comes away Drop by Drop: This Circumstance is, perhaps, owing to the Length and Acclivity of the Way thro' which it has to pass, and the Agitation of its Parts ceasing sooner than in the mucous Humour flowing from the Head.

I also know, that an *Apoplexy* may arise not only from Concretions of Blood in the Head, but also from the Blood being rendered too liquid: Thus, I heard of a certain Person who dropp'd down *Apoplectic*, and died on the Spot, in Consequence of his hanging his Head down, and sleeping before a Fire. And about three Years ago, I myself saw the Son of *Arnulphus Richards*, when, on the Day of Intermision in a Tertian Fever, he had exposed himself for some time to the scorching Heat of the Sun, during the Dog-days, suddenly become *Apoplectic*, and that to such a Degree, that he died the following Day. *Carol. Pifo. Observat. Select.*

From BOERHAAVE:

In an *Apoplexy* the Patient is suddenly deprived of the Exercise of all the Senses, both external and internal, and of voluntary Motion; whilst the Pulse, which is generally strong, remains, together with a laborious and deep Respiration, attended with a considerable Elevation of the Breast, with a Stertor, and the Appearance of a profound and perpetual Sleep.

A Multitude of the most accurate Observations have made it appear, that this Disorder arises from whatever Cause is capable of preventing, either totally or in part, the Influx of the nervous Fluid, secreted in the *Cerebrum*, to the Organs of Sense and voluntary Motion, and the Reflux of the same Fluid from the above-mention'd Organs to the common Senfory in the Brain; whilst the Progress, and perhaps the Return, of the Fluid, supply'd by the *Cerebellum*, to and from the Heart, and Organs of Respiration, is preserved in a Degree sufficient to support, in some measure, their Functions.

All these Causes, as observ'd and deliver'd by Authors, may, for the greater Perspicuity, be reduced to Classes; in the first of which may be reckon'd,

1. The natural Make of the Body: Thus, when the Head is naturally large, the Neck short, and, as it sometimes happens, consisting only of six Vertebrae, whereas there ought to be seven, this Structure disposes to an *Apoplexy*, as it favours the Congestion of Blood and Humours in the Head. Thus also, if the Body is corpulent and fat, the capillary Arteries in general will be subject to Compressions; and, in Consequence thereof, a greater Quantity of Blood and Humours will flow into the Vessels which convey them to the Brain. Thus also, a plethoric Habit, and a Redundance of pituitous Humours in the Blood,

lay a Foundation for the Stagnation of the Juices, and a subsequent Rupture of the Vessels in the Brain.

2. To the second Class belong all those Causes which induce such a Change in the Blood, Lymph, and nervous Fluid, as to render them incapable of circulating freely thro' their respective Vessels in the Brain. Amongst these are;

Polypous Concretions in the Carotid or Vertebral Arteries, whether form'd originally about the Heart, or within the Cranium; which are discover'd by a Palpitation of the Heart, an unequal Pulse, a Vertigo, and temporary Loss of Sight; often recurring, and which are increas'd by Motion or Heat.

An inflammatory Sickness of the Blood, which may be known by an acute continual Fever, a Phrenitis, a considerable inflammatory Pain in the Head, which have affected the Patient some time before the Attack of the *Apoplexy*: Add to these, all those Signs which evince, that the Blood, upon being prevented from circulating duly in the Vessels of the Brain, in Consequence thereof, is carry'd in greater Quantities, and with greater Force than usual, thro' the external Branches of the Carotids; whence a Redness, Fullness, and Inflammation of the Eyes, Face, and Neck, together with an involuntary Discharge of Tears.

A thick, glutinous, pituitous, and sluggish Disposition of the whole Mass of Blood; whence old People, those who are much subject to Catarrhs, whose Constitutions are cold and moist, and who are pale and leucophlegmatic, are very subject to *Apoplexies*. It is not difficult to preface an *Apoplexy* from this Cause, as it is generally preceded by an universal Listlessness, and Dulness of the Senses; Sleepiness; Inactivity, with respect to all manner of Motion; unusual Slowness of Speech; Tremors, Stertors, Incubi (*Night-mares*); Paleness, Turgidness, Humidity, and Dimness of the Eyes; frequent Discharges of pituitous Humours by Vomit; Vertigos; Shortness of Breath upon the least Motion, with a Compression of the Cartilages of the Nose. Such a State of the Blood is produced and increased by all the Causes related under the Article *LENTOR*, which see.

3. To the third Class belongs whatever compresses the Arteries themselves, or the nervous Vessels of the Brain, so as to prevent a free Circulation of their respective Fluids through them.

People who are plethoric, that is, full of Blood, and bloated with bad Humours, are much subject to this Species of *Apoplexy*; especially if extraordinary Motion or Heat increase the Velocity of the Circulation. Hence it is apparent, that the Disorder must be promoted in such Constitutions by high Feeding, and spirituous Liquors; Medicines which are acrid, and excite the Motion of the Blood, such as Cardiacs, Volatiles, and Emetics; by excessive Heat and Motion; and by Intenseness of Thought, especially if long continued, and frequently repeated, because this determines a more copious Flux of Humours towards the Brain.

All Tumors also arising within the Cranium properly belong to this Class, whether they are inflammatory, purulent, serous, pituitous, steatomatous, scirrhus, or bony, provided they compress the Arteries, or the venous Sinuses near the *Torcular Herophili*, or the medullary Origins of the Nerves, or the *Medulla* of the *Cerebrum* itself.

To this Class also belongs too great a Velocity of the Blood in the Vessels of the Head, determin'd to that Part by some Impediment to the Circulation of the Blood in the Arteries of the inferior Parts, which may arise from an infinite Number of Causes.

Hither also may be referr'd all Compressions, from whatever Cause, of the Veins without the Head, which convey the reflux Blood from the Contents of the Cranium towards the Heart: As also Effusions of Blood, Pus, Ichor, or Lymph, which press externally upon the *Dura* or *Pia Mater*.

4. To the fourth Class belong all those Causes, which, by any means, so dissolve the Texture of the Arteries, Veins, or Lympheducts belonging to the internal Part of the *Cerebrum*, as to cause an Extravasation of their respective Fluids, which then press upon and injure the Medullary Origins of the Nerves of the *Cerebrum*. Such, for Example, are an acrimonious Serum in hydropic and leucophlegmatic Cases; a Redundance of Blood in a Plethora; an atrabilarious Acrimony prevalent in melancholy, scorbutic, and arthritic Constitutions, which frequently produces an *Apoplexy*, and usually operates betwixt the fortieth and sixtieth Years of Life: Now, all these may remain latent in the Constitution for some time; but, upon being excited by adequate Causes, they frequently are productive of a sudden *Apoplexy*; which may be foreseen, by comparing the Materials subsisting in the Constitution with the Causes capable of exciting them to Action, which are principally violent Affections of the Mind, and intense Studies; to which, perhaps, imprudent and excessive Venery may be added.

5. Some Sorts of Poisons, which are suddenly deleterious, may be rank'd in the fifth Class; but these may either be reduced to the second, third, or fourth; or may be more properly said to act upon the Lungs than the Brain. Amongst these are, the Fumes of Mineral Sulphurs, of Charcoal, and that

Gas Sylvestris, or incoercible Spirit, which exhales from vegetable Juices, during Fermentation.

The Anatomical Inspection of Bodies which have died of *Apoplexies*, and the historical Observation of such Circumstances as occur in the Treatment of such Cases, furnish us with a Knowledge of these Causes; and a due Reflection upon these naturally leads us to a Distribution of them into the preceding Classes, which are admirably adapted to the Investigation of the best Methods of Cure.

See the *Observations and Histories* in this Article.

Hence it appears, that *Apoplexies* are produced by various, and those opposite, Causes; and therefore they may be properly enough distinguish'd into *sanguinous* and *pituitous*; tho' this Distinction is far from being perfect, since, besides these, there are *serous*, *atrabilarious*, *polypous*, and other Species of *Apoplexies*.

The Part affected, in a perfect *Apoplexy*, is the entire *common Sensory* in the Brain, but in a *Parapoplexy* some Parts of the *common Sensory*, which are more compress'd than the rest; whilst the *Cerebellum* and its Dependencies remain, in the Beginning of the Disorder, unaffected.

Now as the *Cerebrum* supplies the Instruments of Sensation, and voluntary Motion, with their Portions of the nervous Fluid; and as the Heart and Organs of Respiration are furnish'd from the *Cerebellum*, the Reason is obvious why the Pulse and Respiration remain, whilst the Senses and voluntary Motion are destroy'd; and why even the Pulse and Respiration increase, in proportion as Sensation and Motion decline; for it generally happens, that the nearer the Patient is to Death, the greater is the Pulse and Respiration, which is to be accounted for thus: When there is a considerable Obstruction in the *Cerebrum*, the usual Quantity of Blood cannot circulate therein; and as the same Quantity is still brought by the Carotids from the Heart, the remaining Part of that which should circulate thro' the *Cerebrum*, must now circulate thro' other Parts of the Head: Hence an Inflation and Redness of the Cheeks, and Foaming at the Mouth, caused by a greater Quantity of Fluids circulating thro' the Branches of the external Carotids; and because a greater Quantity of Blood is determin'd, by this Obstruction in the *Cerebrum*, to the Vessels of the *Cerebellum*, a greater Quantity of Spirits must be there secreted; and as these Spirits are subservient only to the vital Functions, the Pulse and Respiration must necessarily increase.

The Violence, therefore, and Danger of an *Apoplexy*, is to be estimated by the Age, Constitution, and Make of the Patient, by the Vehemence of the Symptoms, and principally by the absolute Privation of the Senses and voluntary Motion, by a strong and profound Respiration, attended with a Stertor, by Plenty of viscid Froth about the Mouth, by a slight cold Sweat, which sticks in Drops upon the Skin, by its being consequent to a former slight *Parapoplexy*, or a violent Epilepsy, or any other vehement Cause.

On the contrary, an *Apoplexy* which is moderate, and admits of a Cure, may be distinguish'd by the Slightness of the Symptoms, and the Absence of those Accidents above enumerated.

If a copious Sweat, which is equal all over the Body, dewy, warm, and which relieves the Symptoms, supervenes in a slight *Apoplexy*, it resolves the Distemper; for by this the stagnating Matter, which obstructs the Nerves destin'd for Sensation and voluntary Motion, is carry'd out of the Habit, being first attenuated by the vital Powers.

The same salutary End is accomplish'd by a plentiful Discharge of thick Urine, and for the same Reasons.

The morbid Matter is also carry'd off, and the Distemper is cured, by a large and long-continued hæmorrhoidal Discharge; and, in Women, by a Restitution of the Menstrual Flux.

The Disorder is also removed sometimes by a Diarrhoea; and a violent Fever supervening, especially in the Beginning of the Distemper, attenuates and removes the obstructing Matter, disposes it to Elimination, and by these means sometimes restores the Patient. A slight Fever, however, not sufficient for the Attenuation and Removal of the morbid Matter, is of bad Presege: But a Fever seems principally of Service in that Species of *Apoplexy* which is caused by a Viscidity of the Juices, because Attenuation is more wanted here than in the other Sorts.

When the Cause of a somewhat more severe *Apoplexy* is in some measure removed, the Distemper is changed into a Palsy of some of the muscular Parts; of one entire Side, which is call'd an *Hemiplegia*; or of all the Parts below the Neck, which is call'd a *Paraplegia*. These are said to happen during the four first Days, and seldom admit of a Cure, and always impair the Memory, Judgment, and the Power of voluntary Motion: Hence the Patients remain for ever after heavy, dull, pusillanimous, and are affected with Tremors, and frequent Vertigos.

A perfect *Apoplexy*, wherein the *Cerebrum* is much injur'd, the Fluids are corrupted, and the Cause of the Disorder is propagated to the *Cerebellum*, soon terminates in Death, and seldom exceeds the seventh Day.

And it is a Maxim laid down by Authors, that if an *Apoplexy* remains unresolv'd beyond the fourth Day, the Patient dies, unless reliev'd by a violent acute Fever, before the seventh.

An *Apoplexy* may be foreseen, first, from the natural Constitution, Frame, and Make of the Patient.

Secondly, from a Knowledge of the predisposing Causes, or Materials in the Blood and Juices, capable of producing the Disorder, when excited to Action.

Thirdly, from the Procatartic Causes, which are those which excite the predisposing Causes to Action.

All these have been already specify'd.

Fourthly, from the first Effects of these Causes, as a Tremor, Vacillation, Vertigo, temporary Loss of Sight, Stupor, unusual Sleepiness, Depravation of Memory, Ringing in the Ears, Inflation of the superior Parts, Respiration more profound than ordinary, Compression of the Pinnæ of the Nose, and a frequent Incubus.

What has been said above, will enable us to know an *Apoplexy* when it occurs, and to distinguish its different Degrees.

As to the Cure and Prevention of an *Apoplexy*, no universal Rules can be laid down; for as the predisposing and exciting Causes, together with the Parts principally affected, are various, the Method of Relief must also vary; and must be attempted before the Disorder grows inveterate, otherwise it will be difficult to do it with Success.

If, therefore, an *Apoplexy*, from a glutinous, inert, cold Cause, is foreseen from the Signs above specify'd, the Intentions must be directed, first, to avert the Pressure of the glutinous Juices from the Head.

Secondly, to attenuate the glutinous Viscidity in the Brain, and in the whole Habit.

The Pressure on the Vessels of the Brain is diminish'd,

First, by a Derivation of the Humours to other, and those opposite Parts.

Secondly, by universal Evacuations.

A Derivation of the Humours is effected by Vapours, Fomentations, and Baths, apply'd to particular Parts, to which it is intended the Humours should be invited; by Suction, with Cupping Glasses; by Sinapisms, and Vesicatories, among which Cantharides are of great Importance, as they both invite the Humours to the Part where they are apply'd, and attenuate at the same time; by Caustics, Issues, Setons, and Frictions; by Ligatures made upon the large Veins of the Feet, Legs, and Thighs. To these may be added Collutions, Gargarisms, and Masticatories, which excite a Discharge of Saliva, and Apoplegmatisms apply'd to the Mouth, Fauces, and Nose.

Boerhaave, in his *Materia Medica*, gives the following Forms:

Take of the Roots of Masterwort, Pellitory of Spain, Galangals, each an Ounce; of the Leaves of Origanum, Rue, Thyme, each an Handful; of the Flowers of Lavender and Feverfew, each an Ounce; of the Cortex Winteranus, six Drams: Boil these in a close Vessel, in a Quantity of Water sufficient for three Pints of strain'd Liquor; to which add of Spirit of Sal Ammoniac, three Ounces. Let this be used as a Collution or Gargarism.

Take of Mastich, white Wax, and Ginger, each an Ounce; and make them up into small Troches, which must be chew'd in the Mouth by way of Masticatory.

Universal Evacuations are procur'd by strong Emetics and Cathartics, exhibited in sufficient Doses; by Scarification and Bleeding; tho' the Efficacy of these is not always to be depended on.

Proper Forms of Emetics and Cathartics recommended by *Boerhaave*, are as follows:

Take of Emetic Wine, two Ounces and an half; simple Oxymel, an Ounce: Mix for a Vomit.

Take of Emetic Tartar, seven Grains; for a Dose.

Take of the express'd Juice of Horse-radish, an Ounce; simple Oxymel, two Ounces: Make a Draught.

Take of Mercurius Vitæ, two Grains: For a Dose.

Take of Diagrydium, Resin of Jalap, each ten Grains; rectify'd Spirit of Wine, two Drams: Let them be carefully rubb'd together, till the Diagrydium and Resin are dissolv'd; and then add Solutive Syrup of Roses, with Sena, six Drams: Make a purging Potion.

As to Bleeding in this Species of *Apoplexy*, some Authors advise it, others oppose it; for my own part, I think this should be determined by the Fullness of the general Habit, and Quantity of Humours to be evacuated; so that the Sagacity and

Prudence of the Physician must suggest to him Reasons for directing it, or omitting it.

After these Derivations and Evacuations, the Lentor or glutinous Viscidity of the Juices is to be attenuated and dissolv'd by Remedies adapted to that Purpose. Amongst these, a Regimen with respect to Aliment cannot be of any great Effect in curing an *Apoplexy*, because there is not sufficient Time for it to operate; but for the Prevention of one it may be of singular Use: It ought therefore to consist of both solid Foods and Liquids, which have had their natural Viscidity perfectly destroy'd by Fermentation, and which are seasoned with Salt and Aromatics; this supposes them to be of vegetable Substances, because no other will ferment, properly speaking. Salts of all Kinds are here of Service, because they stimulate the Solids, and excite the languid and almost stagnating Juices to Motion, the ready Means for their Attenuation. For the same Reasons aromatic Vegetables, and their essential or chymical Oils, are here of Importance; on which Account the *Balsamum Apoplecticum*, describ'd at the End of this Article, has been in great Esteem; but seems to have grown into Disuse thro' its frequent Misapplication; for all these stimulating Remedies are capable of producing great Mischiefs, in *Apoplexies*, from a real Extravasion, a distending Plethora, or an inflammatory State of the Blood. Broths made of Fowls may be also allow'd, because they are Destroyers of Acids, which are great Promoters of Coagulation and Viscidity.

Adding Strength to the Vessels and Viscera, increasing the Motion of the Fluids, diluting, resolving, stimulating, bilious, and saponaceous Medicines, Frictions, Heat, Baths, and Vesicatories, all contribute to the Attenuation of the glutinous Viscidity above mentioned. These are more fully treated of under the Article LENTOR, which see.

These, however, must be used with great Care and Caution; because most of them may be productive of great Evils, and increase the Disorder they are intended to cure; if apply'd at an improper Season, that is, without previous Derivation and Evacuation, or suffer'd to act with too much Violence.

External Topics to the Head, which stimulate, evacuate, or resolve, are not to be omitted. But of all Remedies, Blisters raised by Cantharides are of the greatest Service.

In case an *Apoplexy* from this Cause is already form'd, it seldom admits of a Cure. However, the Remedies above-mentioned should be try'd; and every thing that is likely to excite the Senses should be apply'd to the Nose, Mouth, and Head; the most acrid and stimulating Remedies are to be used; and Stools must be procured by acrid Clysters. *Celsus* directs white Hellebore, one of the most stimulating Medicines we are acquainted with.

Boerhaave specifies the following Forms:

Take of Tincture of Castor, and Spirit of Sal Ammoniac, each two Drams: Apply this frequently to the Nose.

Take of the sharpest Vinegar, and Tincture of Castor, each two Drams: Apply this in the same manner.

Take of the Chymical Oils of Rosemary, Tansy, Lavender, Rue, Wormwood, each four Drops; Tincture of Castor, a Dram; Nerve Ointment, an Ounce; Sal volatile oleosum, a Dram: Mix, and make a Balsam. Let the Vapour of this be received into the Nostrils; and let the Temples be rubb'd with it.

Take of the Pulp of Colocynth, half a Dram; of the Leaves of Tobacco, a Dram and an half: Boil these in a sufficient Quantity of Water for ten Ounces of strain'd Liquor; to which add of Sal Gem two Drams: Make a Clyster.

From FULLER.

Take of the Root of Pellitory of Spain, half an Ounce; of the Leaves of Rue, two Handfuls; of the Pulp of Colocynth, ty'd in a Rag, half a Dram: Boil these in a Quantity of Water sufficient for twelve Ounces of the strain'd Liquor; to which add of the Infusion of Crocus Metallorum, three Ounces; Tincture of Castor, half an Ounce; Oil of Amber, Sal Gem, each two Drams: Make a Clyster.

It must, however, be confess'd, that the Disorder is frequently increased by all these intended Remedies, the Motion of the offending Matter being augmented, and more strongly impell'd upon the affected Parts, by every thing which stimulates: Mean time the Strength would be too much impair'd by farther Evacuations. Hence appears the Reason, why, in procuring a Dissolution of the glutinous Juices, all possible Regard is to be paid to Evacuation and Revulsion. Hence also it is evident, why Bleeding, if it does not relieve, destroys the Patient.

But

But if by the Signs above mentioned it is perceiv'd, that an *Apoplexy* is threaten'd, by an inflammatory Sizziness of the Blood; by a Plethora, or Rarefaction of the Blood; or by too great a Velocity of the Blood in the Head, determined thither by any Cause whatever, immediate Recourse must be had to such Remedies, as most expeditiously evacuate, resolve, and avert the Blood from the Head.

1. Therefore let a considerable Quantity of Blood be taken from the Jugular Veins by a large Orifice; and let this be repeated as Occasion requires. By this the Patient is generally much reliev'd immediately, if the Case is such as will admit of a Cure. See ARTERIOTOMIA.

2. The next Step is to give a considerable Dose of an Antiphlogistic Purge, which must be repeated in such a manner, that an almost perpetual Diarrhoea may be excited; and if these Cathartics do not exert their Effects soon enough, their Operation must be promoted by acrid Clysters:

Antiphlogistic Purges recommended by *Boerhaave* are:

Cream of Tartar, in the Quantity of six Drams.

Crystals of Tartar, in the same Dose.

Crude Tartar, in the same Dose.

Sal Polychreston, in the Quantity of five Scruples.

Pulp of Tamarinds, in the Quantity of three Ounces.

Tamarinds, in the Quantity of four Ounces.

Rob of Elder, in the Quantity of four Ounces.

Rhubarb, in the Quantity of a Dram and an half.

Take of choice Rhubarb, a Dram; Sal Polychreston, thirty Grains; Syrup of Succory, with Rhubarb, an Ounce: Mix these well together; and then add of Elder-flower Water, two Ounces; small Cinnamon-water, two Drams. Make a purging Potion.

Take of choice Pulp of Cassia, two Ounces; Crystals of Tartar, three Drams: Mix these, and let the Patient take a Dram every quarter of an Hour, till he purges sufficiently.

Take of the Leaves of choice Sena, with the Stalks, two Drams; of the best Agaric, a Dram; of choice Tamarinds, two Ounces: Boil these for a quarter of an Hour in a close Vessel, in a sufficient Quantity of Elder-flower Water for five Ounces of the strain'd Liquor; to which add of purify'd Nitre, a Dram; solutive Syrup of Roses, with Sena, six Drams. Make a purging Potion.

Take of the Leaves of Sena, three Drams; Tamarinds, two Ounces; Agaric, three Drams: Boil for a quarter of an Hour in a Quantity of Water sufficient for one Pint of the strain'd Liquor; to which add Syrup of Succory, with Rhubarb, an Ounce. Let the Patient take an Ounce every half Hour, till it purges him.

Forms of Purges somewhat stronger, and more stimulating:

Take of Agaric, two Drams and an half; Sal Polychreston, a Scruple. Mix for a Purge.

Take of the internal Bark of Elder, or Dwarf-elder, an Ounce: Contuse this with a sufficient Quantity of Rain-water; then boil them a little, and press out four Ounces of the Liquor, which administer for a Purge.

Take of Agaric, two Drams; Leaves of Sena, three Drams; Root of Mechoacan, a Dram; Tamarinds, two Ounces: Let these Ingredients be cut and bruised, and then macerated in a sufficient Quantity of Rain-water for half an Hour; then boil gently for seven Minutes; and to nine Ounces of the strain'd Liquor, add of Sal Prunellæ, half a Dram; solutive Syrup of Roses, with Sena, nine Drams. Let the Patient take an Ounce every half Hour, till he purges briskly.

Take of the best Syriac Scammony, thirteen Grains; Diaphoretic Antimony, a Scruple; solutive Syrup of Roses, with Sena, six Drams: Let these be mix'd well together, and then add of distill'd Succory-water, half an Ounce. Make a purging Potion.

Boerhaave, however, in these Cases, recommends in a particular Manner Tamarinds, and Sena.

3. Besides these, during the whole Course of the Cure, the Patient must be kept strictly to the Use of such Medicines as refrigerate, dilute, attenuate, and excite Urine. For these diminish the Velocity and Motion of the Blood, whereas all stimulating Aromatics increase them, and consequently the Disorder.

Proper Forms for this Purpose are, according to *Boerhaave*, those which follow:

Take of the Leaves of Wood-sorrel, three Ounces; of Mallows, an Handful and an half; of Oats unhull'd, an Ounce: Boil in a sufficient Quantity of Whey to twelve Ounces; to which add the Yolks of two Eggs; Rob of Currans, an Ounce: Of this let the Patient drink frequently.

A CLYSTER.

Take of the fresh Leaves of Endive, Succory, Fumitory, Mallows, Marshmallows, each an Handful: Boil these in a sufficient Quantity of Whey for ten Ounces of the strained Liquor. Let this be administer'd twice or three times a Day.

4. Mean time perpetual and strong Revulsions must be made by the Means specify'd above, till the Cure is completed.

5. With respect to Aliment, the Regimen must be extremely thin and antiphlogistic. See INFLAMMATIO.

6. All Medicines which stimulate strongly, or excite the Motion of the Blood, or Heat, must be industriously avoided; as also external Heat; and the Patient must not be suffer'd to lie in Bed, especially in a reclining or supine Posture, but must be kept erect. Narcotics are in all these Cases esteemed prejudicial.

If an *Apoplexy* from this Cause is already form'd, a Cure is seldom to be expected; the Remedies, however, above specify'd, are the only probable Means of Relief.

That Species of *Apoplexy* which is caused by Juices extravasated betwixt the Cranium and Dura Mater, or betwixt the Dura and Pia Mater, from a Wound, Contusion, Fracture, or Suppuration, is treated of under the Article CAPUT, which see.

That sort of *Apoplexy* which is caused by an Extravasation of Humours in the internal Cavities of the Brain, scarcely admits of any Cure, because it generally proves very soon fatal: But if any Relief can be obtained, it must be, first, from emptying the Vessels by copious Bleeding and Purging, which must be repeated, provided the Symptoms are alleviated by the first; for by these means Room will be made in the evacuated Veins for the Absorption of the extravasated Humours, which may possibly be impell'd into them by the vital Powers.

Secondly, from correcting at the same time the prevailing Acrimony and Viscidity of the Juices, by Remedies adapted to the particular Kinds of them.

That Species of *Apoplexy* which is caused by an Extravasation of redundant Lymph, more readily admits of a Cure, by brisk Hydragogue Purges, to which must be added Topics which dissipate or draw off a Part of the abounding Lymph, amongst which the principal are large Vesicatories, which must be kept running a considerable time: Besides these, the Regimen must be drying, and Sinapisms, Issues, and Setons, are to be made use of as Occasion requires. In this Species Bleeding is pernicious, and must therefore be omitted.

This Species of *Apoplexy* so frequently occurs, that some Authors have erroneously treated of all *Apoplexies*, as arising from an Extravasation of Lymph.

No Remedies have yet been taken Notice of by Authors, for *Apoplexies* caused by Poisons, or polypous Concretions in the large Vessels.

Apoplecticum Balsamum. Apoplectic Balm.

Take the distill'd Oil of Cinnabar, Cloves, Lavender, Lemons, Marjoram, Mint, Rice, Rosemary, Sage, Rhodium, Wormwood, of each twelve Drops; Amber, six Drops; Bitumen Judaicum, two Drams; Oil of Nutmegs by Expression, one Ounce; Balsam of Peru, a sufficient Quantity to make all together into a smooth Balm.

This warms and enlivens the Nerves, being either smell'd to, or rubbed upon the Temples, or any other convenient Parts. It does much Good also to paralytic Limbs, by rubbing them well with it. It has been in mighty Esteem and Fashion to wear in little Ivory Boxes and Cane Heads; but it has in such respects given place to more modish Contrivances. In Distempers of the Head and Nerves, it is likewise directed to be given inwardly from three to six Drops, in a Bole or Electuary. *Quincy's Dispensatory.*

APOPNIXIS, ἀποπνιξις, from ἀποπνιγω, to suffocate. Suffocation, apply'd particularly to Hystrics. These Suffocations were by the Antients thought to proceed from the Uterus.

APOPSYCHIA, ἀποψυχία, from ἀπο, signifying Privation, and ψυχή, Soul, Life. The greatest Degree of Lipothymy. See LIPOTHYMIA. *Castellus.*

APOPTOSIS, ἀποπτώσις. Erotian explains it by τῶν ἐμ-
δ' ἐμὸν ἀρσεν, "the unloosing of a Bandage;" in which Sense
it is the same as APOLYSIS.

APORIA, ἀπορία. The same as ALYSMUS, which see.
Ἀπορρητισμός, in Hippocrates, is a doubtful Disease, or such
a one as endangers the Life of the Patient.

APORRHAIDES, ἀπορρηαίδες. Purple Fishes with Prickles.
Castellus. A sort of Shell-fish.

APORRHIPSIS, ἀπορρηψις; from ἀπορρίπτω, to throw away
with Precipitation. A precipitate casting away. Ἀπορρίψις
ἐξ ἰμᾶτιον, in Hippoc. de rat. Viñ. in Morb. acut. is, "a
precipitate Throwing off the Cloaths," as it is customary for
delirious Persons in the Height of a Fever.

APORRHŒA, ἀπορρηαία, of ἀπορρέω, to flow from. A
Defluxion, or Influx; also a Contagion, Pollution, Effluvium,
Morbose Apocrisis. See APOCRISIS, CONTAGIUM, EFFLU-
VIUM. Castellus.

APORRHŒA, ἀπορρηαία, signifies a Defluxion; or Falling
off, as ἀπορρητὸν τῶν τευχῶν, is "a Falling off of the Hair."
See ALOPECIA.

APOS. A Bird thus distinguish'd:

APOS, Offic. Aldrov. Ornith. 2. 698. Bellon. des Oyse,
377. Jonf. de Avib. 84. Gefn. de Avib. 506. Apos major,
Charlt. Exer. 96. Hirundo, Apos, Raii Ornith. 214. Ejusd.
Synop. A. 72. Mer. Pin. 178. Will. Ornith. 156. THE
BLACK MARTIN, OR SWIFT.

It lives with us in England during the Summer. See APO-
DES.

These, on account of their habitual Exercise and Food,
which is of Insects, abound much with volatile Salts, and an
exalted Oil. They are said to be good for Epilepsies, for
weak Eyes, for nephritic Pains, and for the Colick.

APOSÆIS, ἀποσαΐσις, is explain'd in Galen's Exegetis, by
ἀποσβεσμός, that is, extinguish'd.

APOSCEMMA, or **APOSCEPSIS**, ἀποσκημμά, ἢ ἀπό-
σκηψις, from ἀποσκήνω, a Verb, importing, among other Sig-
nifications, to remove hastily, in order to a new Settlement.
A violent Influx and Settlement of Humours translated from
one Part to another, Galen, Lib. 2. ad Glauconem. This is
sometimes critical, and owing to the Strength of Nature, as the
same Author observes, Lib. πρὸς τὴν περὶ γυναικῶν. He calls also
by the Name of ἀποσκημμά, those excrementitious Parts of
the Body, which are deposited in the Alvus, whereby the
other Parts are reliev'd from their Load of Humours. Ἀποσκήψις,
in Hippocrates, are the same as ἀποσκημμά, or the Settlement
of Humours, and sometimes the Transmutations or Transitions
of Diseases, as Aph. 56. Lib. 6. Ἐστὰς ἀποκλίνονται αἱ ἀποσκή-
ψις, "are in Danger of, or liable to these Transmutations;"
by which Passage, which otherwise would be obscure, he hints,
that Diseases owing to Melancholy are subject to make Tran-
sitions into Apoplexies, Convulsions, Madness, and Blindness.
Ἀποσκήψις, in Hippoc. Lib. 1. de Morb. majore, as quoted by
Galen, is explained by him in Exeg. by ἀποσάσεις, that is,
Scarifications.

APOSECAPNISMUS, ἀποσκαπνισμός, from σκαπνέω,
an Ax, is a kind of Fracture of a Bone, when a Piece of it is
cut off, as a Chip from a Block with an Ax. Such a Wound
is inflicted by a Side-blow, with a light and sharp Weapon.
Castellus.

APOSCHASIS, **APOSCHASMUS**, ἀποσχασις, ἀποσχασμός,
from ἀποσχάω, to scarify. Scarification, and a slight superfi-
cial Incision in the Skin. Ἀποσχάν, and ἀποσχάσαι, in Hip-
pocrates, signify, to pierce, cut, scarify; and in Lib. 1. & 2.
de Morbis, denote Piercing, or Opening, as apply'd to a Vein;
as, Πρῶτον μὲρ τὰς φλέβας τὰς ὑπὸ τῇ γλῶσσῃ ἀποσχάν. "First
open the Veins under the Tongue." And, Τέταρτον ξυμφέρει τὴν
φλέβα ἀποσχάσαι τὴν ἐν τῇ χειρὶ, τὴν σπληνίτιν καλεομένην, ἢ τὴν
ἥπατιν. "It would be convenient for the Patient to open
the Vein in the Hand, call'd the Splenic, or Hepatic Vein."
Ἀποσχάσαι is expounded in Hesychius by φλεβοτομεῖν, and in Va-
rius also by διαχῆσαι, to dissect.

APOSIGESIS, ἀποσίγησις, from ἀποσιγέω, to be silent. A
keeping Silence. Περὶ τὰς ἀποσιγῆσας ἐνθυμηματικῶν, in Hip-
pocrates ἐπὶ ἐνθυμ. is very differently understood by Interpreters:
Some render it, "sharp and prompt in making pertinent An-
swers;" others, "grave and sententious in answering." One
understands by the Phrase, "a Mind obstinately bent upon
Silence;" another, "angry and vehement against such as hold
their Peace." Foesius takes it in the first Signification,
for "acute and prompt in answering;" in which Sense, he says,
it will best correspond with the preceding Clause, πρὸς τὰς ἀνα-
στάσεις σιγῆσιν, which he translates, "silent (that is, patient
and modest) in hearing the Objections of Opponents."

APOSITIA, ἀποσιτία, of ἀπό, from, and σιτίον, Food. The
same as ANOREXIA, which see.

APOSITICA, ἀποσιτικά, in Hippocrates are expounded in
Galen's Exegetis, by ἀποσιτίας καὶ ἀποφύγιος ποιήσιν, "such
Things as cause a Loathing and Aversion to Food."

AOSPASMATA, ἀποσπασμάτα, of ἀποσπᾶω, to draw off,
or separate. A Name by which Galen, Lib. de Constit. Art.
calls those Solutions of Continuity; which are in the organical
Parts. In the Beginning of Lib. 4. Meth. Med. he calls the
violent Solution of Continuity in the Ligaments ἀποσπασμα,
as he does that in the Vessels and Muscles by the Name of
ῥήγμα and θλάσμα. In his Comment. 3. in Lib. κατ' ἰνσρ. he
tells us, That Hippocrates calls by the Name of ἀποσπασμάτα,
the rending asunder those Parts which serve to unite and knit
together the Bones.

AOSPHACELISIS, ἀοσφακέλισις; from σφακέλω, a Mor-
tification; in Hippocrates, is a Sideration or Mortification of
the Flesh in Wounds or Fractures, which is caused by too tight
a Bandage.

AOSPHAGE, ἀοσφαγή, from ἀποσφάγω, to slaughter as
a Victim. Butchering, cutting the Throat. Hippoc. ἐπὶ δεχ.
ἰνσρ. According to Pollux, σφαγή is the Throat, καὶ τὸ κοίλον
ἐν μεσασὶ αἱ κλάδες, "and the Cavity between the Clavicles."
Foesius.

AOSPHAGMA, ἀοσφαγμα, is expounded by Galen,
ἐν τρυγῶδες παρὲνθιμα, "the feculent Straining," which is
also called ἀοσφαγμα. Aposphagma also, according to Pliny
and Athenæus, signifies the Blood that flows into the Vessel set
under the Throat of a slaughter'd Beast, which was reserv'd for
the Preparation of several Sorts of Food.

AOSPHINXIS, ἀοσφινγίσις, from ἀποσφίγω, of σφίγω, to
strain or streighten. A Streightening; the Word is used by
Hippocrates, in several Places, to express the Constriction or
Streightening of a Fillet in Bandage.

AOSPONGISMUS, ἀοσπογγισμός, is the using of a
Sponge, either dry, or dipt in Water; for the deterring of
Filth, easing of Pain, taking off Itching, refreshing the Spi-
rits, &c. Castellus.

APOSTAGMA, **APOSTALAGMA**, ἀποστάγμα, ἀποστά-
λαγμα, from ἀποσάω, and ἀποσάλλω, to distil. That sweet
Liquor which distils from the Grapes before they are trodden;
it is also, on account of its singular Sweetness, called γλεῦκος;
and by some Protropum. Castellus.

APOSTASIS, ἀποστάσις, from ἀφίστημι, to abscede. An Ab-
cess. See ABCESSUS.

Besides this common Acceptation of the Word, there are
other Significations of it to be met with in Hippocrates, where-
of two are most remarkable; one is, ἀποστάσις κατ' ἐξουον, ἢ
κατ' ἐκκρίσιν, "an Apostasis by Efflux, or Excretion," when
the Distemper leaves the Patient, and passes off by some such
Way, as by an Outlet. The second is call'd an ἀποστάσις κατ'
ἀπόθεσιν, "an Apostasis by Settlement," when the morbid
Matter by its own Weight falls upon a Part, and there lodges
and settles. Thus, Galen, Com. 8. in Lib. 6. Epid. Πολλὰς
ἀποστάσεις εὐεργετὸν αὐτὸν ἐν ἐπὶ μόνων ὄψι κατ' ἀπόθεσιν, ἀλλὰ
κατὰ τὴν ἐκκρίσιν εὐνομεῖται. "We often find him applying
the Term Apostasis, not only to Things deposited in any
Part, but to those which are discharged by Excretion."

Hippocrates also uses ἀποστάσις for the Transition of one Dis-
ease into another; as Lib. 1. Epid. Ἐστὶ δ' οἷς ἐν ὀλίγοις ἐξ
ἄλλων πυρετῶν καὶ νευμάτων ἀποστάσεις ἐς τελευταίους ἐγένοντο
"Many of the other Fevers and Distempers underwent an Al-
teration, and passed into Quartans." Here Galen on the
Place expounds ἀποστάσις by μετέστας.

APOSTAXIS, ἀποστάξις, of ἀποσάω, from σάω, to distil.
A Distillation is generally used by Hippocrates to signify a Di-
stillation of Blood from the Nose; sometimes it means any Di-
stillation or Defluxion.

APOSTEMA, ἀποστήμα, from ἀφίστημι, to abscede. The
same as ABCESSUS, which see.

APOSTEMATIAI, ἀποστηματιαί. Aretæus, Lib. 1. de
Caus. & Sig. Chron. Cap. 9. calls those, who, labouring under
an inward Abscess, void Pus downward, ἀποστηματιαί, as he
names those who discharge it by Expectoration, ἐμπνοί
(Empnoi).

APOSTERIGMATA, ἀποστηρίγματα, from ἀποστηρίζω, to
support or prop. It signifies whatever Things are used for a
Stay and Support to any weak Part, without Tying or Bind-
ing, as Pillows, Bolsters, &c. to the Head, Gal. Com. 3. in
κατ' ἰνσρ. In Hippocrates, Lib. de Flat. ἀποστηρίγματα is
generally supposed to mean such Diseases as are confirmed and
deeply rooted in the Intestines.

APOSTOLORUM UNGUENTUM. The Ointment
of the Apostles. It is thus prepared:

Take of Turpentine, Rosin, Wax, Gum Ammoniacum,
each fourteen Drams; Roots of long Birthwort, Oliba-
num, Bdelium, each six Drams; Myrrh, Galbanum,
each half a Dram; Opopanax, three Drams; Verdigris,
two Drams; Litharge, nine Drams; Oil, two Pounds;
Vinegar enough to dissolve the Ammoniacum, Opopa-
nax, and Galbanum. Digest the Bdelium, Galbanum,
Ammoniacum, and Opopanax, twelve Hours in the Vi-
negar upon hot Ashes; then make them boil, and when
they

they are thoroughly melted; strain them, and, with a gentle Heat, reduce them to the Consistence of Honey, to which, whilst warm, add the Turpentine. The Litharge being supposed in the mean time to be levigated, grind it in Part of the Oil by a gentle Fire; after which, add the rest of the Oil by Degrees, in which melt the Wax, and the Rosin grossly beaten. Being remov'd from the Fire, mix therewith the Gums before prepared; then the Birthwort and Myrrh; and, lastly, the Frankincense and Verdigris reduc'd to Powder. Stir it continually with the Spatula, till it comes to the Consistence of an Ointment.

It takes its Name from the Number of its Ingredients, which answers to that of the Apostles, being Twelve, except the Oil and Vinegar. It is vulnerary.

APOSTRACOS OSTEON, ἀποστράκος ὀστὸν, from ἀστέρον, a Shell, in Hippoc. de Vuln. is a Bone dry'd to such a Degree as to become a mere Shell.

APOSTROPHE, ἀποστροφή, from ἀποστρέφω, to turn away, in P. Aeginet. Lib. 3. Cap. 37. is a Loathing and Aversion to Food.

APOSYRMA, ἀποσύρμα, from ἀποσύρω, to obtrude. The same as ABRASUM, which see.

APOTELESMA, the Effect or Event of a Disease. Caelius Aurel. Chron. Lib. 2. Cap. 12.

APOTHECA, ἀποθήκη, from ἀποτίθημι, to lay aside, or reposit, formerly signify'd a Wine-cellar, but now a Shop where Medicines are sold; also a Gally-pot. Hence,

APOTHECARIUS, A Preparer of Medicines.

APOTHERAPIA, ἀποθεραπεία, from ἀποθεράσσω, to cure, signifies in general a perfect and absolute Cure; for, in this Sense, the Verb ἀποθεραπεύειν seems to be used, Hippoc. Præcept. In Galen it sometimes signifies the End or last Part of a perfect Exercise, when a Person came to use Friction, Unction, or Bathing, to remove Lassitude; and sometimes it means a particular sort of Exercise, intermix'd with Friction, Remission of Motion, and frequent Intervals of Rest; and that Part of Medicine which teaches these, is called *Apothepaueutikê*.

APOTHERMUM, ἀποθερμῶν, an acrimonious sort of Pickle, such as is made of Mustard, Oil, and Vinegar, or of Vinegar alone, Gal. de Aten. Diet. Cap. 11. Some pretend to prove from Galen, Lib. 1. de Alim. Fac. that *Apothermum*, *Sapa*, *Siraon*, and *Hepsema*, are synonymous; but their Arguments from the Text are by no means convincing. Castell.

APOTHESIS, ἀπόθεσις, from ἀποτίθημι, to reposit, in Hippocrates, is the right and orderly repositing and placing of a Limb that is broken and bound up, in the Situation in which it ought to continue; and is the same as *THESIS*, θέσις, and often join'd with *Analepsis*, ἀνάληψις, which has the same respect to the Arm, as ἀπόθεσις to the Leg. In Lib. κατ' ἰσρίων. Ἡ ἀνάληψις, ἡ ἀπόθεσις, ἡ ἐπιθέσις, ὡς ἐν τῷ αὐτῷ ἢ διαφυλάσσειν. "The Supports, the Posture, and the Bandage, must be kept in the same State."

APOTHLIMMA, ἀποθλίμμα, from ἀποθλίβω, to squeeze, or press out, signifies the Dregs, and sometimes the expressed Juice. Gorræus.

APOTHRAUSIS, ἀποθραυσίς, from ἀποθραύω, to break off. The Removal of a Fragment or Splinter of a Bone, that is loosened from the Surface by Exfoliation or otherwise.

APOTOCOS, ἀποτόκος, from ἀποτίλλω, to bring forth Young. Abortive. Hæschius expounds ἀποτόκος by ἀπογνήσκεις γυναιμάτων, "the tender Buds of Fruits, or Fœtus of Animals." Hippocrates, Lib. de Art. ἀποτόκος γυναιμάτων χειρὶς ποίωσις, "giving Occasion to the Production of chronical Diseases."

APOTOS, ἀπότος, from a Neg. and πίνω, Drink. One that never drinks, or desires to drink. Castellus.

APOTROPÆOS, ἀποτροπῆος, from ἀποτρέπω, to avert. One of the Pagan Deities, who were called *Dii Averruncatores*, *Vejoves*; and ἀλεξίκατοι, that is, Deliverers and Defenders from all evil and hurtful Things.

Apotropaia, ἀποτρόπαια, were Sacrifices offer'd to these Deities, and sometimes signify'd Amulets against Inchantments, and so were the same as *Periapta*, περιάπτα. Hippoc. Lib. περὶ ἐκφυγίων. Ἐπὶ δὲ τοῖς ἐναντίοις τοῖς ἀπὸ τῶν ἐχθρῶν, καὶ γὰρ, καὶ ἡρώων ἀποτρόπαια γενέσθαι τὰ χαλεπὰ πάντα. "In Times of Adversity supplicate the *Dii Averruncatores*, and *Terra*, (the Earth) and the Heroes, to avert all evil and hurtful Things."

APOTYCHIA, ἀποτυχία, of the Privative ἀπό, and τύχη, Fortune. Misfortune.

APOXE, **APOXERA**, ἀπόξη, ἀπόξηρα, are understood by Galen, Com. 3. in Lib. Hippocratis κατ' ἰσρίων, to signify those Parts of the Body which are acuminate, and grow slender by Degrees towards the Top. Some for ἀπόξη read ἀπόξιν, and ἀπόξιν for ἀπόξη, and take them to be meant of those Parts, which being dry and wither'd, lessen more and more

towards their Extremity, which by that means is acuminate. *Foefius*.

APOZEMA, ἀπόζημα, from ἀπόζω, to boil. A Decoction. See *Decoctum*, where Rules are laid down for the Management of this Form of Medicines.

APOZYMOS, ἀπόζυμος, from ζύμη, Ferment. Fermented. Hippoc. in Prorrh. 2. Ἄμα δὲ καὶ τὰς γαστέρας ἀποζύμους τε καὶ ῥυπαρὰς ἀποδεδυνάσκει καὶ ῥυτίδα δέσσει. "Besides, it (the Looseness before described) makes the Belly appear as if under a Ferment, dirty and wrinkled."

APPARATUS, κάτασκευή. An Apparatus. In Surgery, it is a Collection, and regular Disposition, of all the Instruments necessary for the perfect Exercise of the Art, or for any particular Operation. The Word may also be used with respect to other Parts of Medicine, as well diætic as pharmaceutic, which require an Apparatus of the necessary Means and Instruments for attaining their Ends. The Lithotomists have their *Apparatus major* and *minor*. *Castellus*, *Blancard*.

APPENDICULA VERMIFORMIS. On one Side of the Bottom of the Cæcum lies an Appendix, resembling a small Intestine, nearly of the same Length with the Cæcum, but very slender. It is termed *Appendicula Vermiformis*, from its supposed Resemblance to an Earth-worm. Its common Diameter is not above a Quarter of an Inch. By one Extremity, it opens laterally, and a little obliquely, into the Bottom of the Cæcum, and the other Extremity is closed, being sometimes greater, and sometimes smaller, than the rest of the Appendix.

It has some Contortions like those of a Worm when it is touched, from whence comes the Epithet of *Vermicularis*, or *Vermiformis*; and it may likewise be compared to the Gills or Pendants of a Turkey-cock. Its Structure resembles nearly that of the other Intestines. The internal Coat of this Appendix is folliculous, like that of the Duodenum; and it is likewise Reticular, the Mashes being the glandular Lacunæ, which continually discharge a Fluid into its Cavity.

It has been often disputed, whether this Appendix, or the large Portion which is, as it were, the Head of the Colon, ought to be called the *Cæcum*; but the general Division of the Intestines into great and small leaves no room to doubt of its being only an Appendix in Man, whatever Reason there may be for talking differently with respect to Brutes and Birds. *Winflow's Anatomy*.

The End which is shut, is not tied to the Mesentery, but to the Right Kidney, by means of the Peritonæum. Its Use is yet unknown. Some take it for a second Stomach, others for a Receptacle of the Excrement of the Fœtus, of which it is always full, till after the Birth. Others say, it contains a Ferment, and others, the Flatulosity of the Intestines; and others, that it separates a Liquor by some Glands which are in its Cavity, which Liquor serves to harden the Excrements as they pass thro' the Colon. *Keill's Anatomy*.

APPENDIX, ἐπιφύσις, from ἐπιφύω, to grow, to or upon. The same as *EPIDYSIS*, which see.

APPENSIO, the Suspension of a broken Limb, principally of the Arm in a Scarf. *Castellus*.

APPETITUS, **APPETENTIA**, ὄρεξις, ὄρεμα, ἐπιθυμία, Appetite. In the most general Sense it means that natural Inclination which is found in all Beings towards particular things; but in the strict and common Acceptation, it signifies a Desire of Aliment, or Meat and Drink. Of this Appetite there are two Kinds, which are *Hunger* and *Thirst*.

APPETITUS CANINUS, ὄρεξις κυνῶδης. The same as *BULIMIA*, which see.

APPLICATIO, ἐφαρμογή, προσοικεῖσις, from ἐφαρίζω, to fit, and προσοικεῖω, to accommodate. Application. That Action of the Physician or Surgeon, wherein he administers, or communicates to the Body, internal or external Remedies, as by the Application of a Plaster, Clyster, &c. *Castellus*.

APPLUDA, the Chaff of Millet, Panic, and Sesamum. *Pliny*.

APPOSITIO, the same as *ADDITIO*, which see.

APPREHENSIO, **APPREHENSORIUM**, the same as *ANTILEPSIS*, which see.

APPREHENSIO is sometimes taken also for a *CATALEPSIS*, or *CATOCHÉ*, which see.

APPROPRIATIO, that Action of the natural Heat, or vital Flame, by which the Humours and Spirits are so united with the Body, and its solid Parts, as to enable them to perform their proper Functions.

Medicines are said to be *appropriated*, when they are calculated for a particular Part of the Body.

APPROXIMATIO. A Method of Cure by transplanting a Disease into an Animal or Vegetable Subject by way of immediate Contact. *Castellus*.

APRACTA, ἀπραξία, from a Neg. and πράω, to act. Unactive; an Epithet of the Pudenda in a State of Impotence. *Castellus*.

APRONIA. A Name for the *nigra Vitis*, or black Vine, otherwise called by the Name of *Bryony*, *Chironia*, and *Gynacanthé*.

neanthe. The Root thereof, bruised with a fat Fig, takes off Wrinkles, if the Patient, immediately after being anointed, walk a quarter of a Mile. *Pliny, Lib. 23. Cap. 1.* See *BRYNIA*.

APROXIS, an Herb. so called by *Pythagoras*, whose Root takes Fire at a Distance, like *Naphtha*. The same Philosopher says, that whatever Diseases happen to the human Body, in the time of the Flowering of the *Aproxis*, though cured, will be sure to give the Patient a Memorandum at the Return of the Flowering-season. The Case is the same with *Wheat*, *Hemlock*, and *Violets*. *Pliny, Lib. 24. Cap. 17.*

APSINTHATUM, ἀψινθῶν, from ἀψινθῶν, Wormwood. A sort of Drink accommodated to the Stomach, of which you have several Forms in *Astius, Tettab. 1. Serm. 3. Cap. 69, 70, 71.*

APSIRRHON, ἀψιρρῶν, from ἀψ, backwards, and ῥῶν, to flow, in *Hippocrates* is expounded by *Galen, ἐν τοῦ πτω πῶν*, "flowing backwards."

APSYCHIA, ἀψυχία, from α Negative, and ψυχή, Life. The same as *LIPOTHYMIA*.

APTISTOS, ἀπίστος, from α Negative, and πίσις, according to *Erotian*, to peel, or take off the outer coarse Rind. *Hippocrates, περὶ ἀρχαίων ἰσχυρίων*, among the Kinds of Bread reckons ἀπίστον πυρῶν, ἢ ἐπισμίνων, "Bread of Wheat cleaned, or not cleaned from the Bran."

APTYSTOS, ἀπτυστός, from α Negative, and πτύω, to spit. An Epithet of a Pleurisy, or other Distemper, in which nothing is spit out. *Αἱ ἐν τῶν πνευμάτιδων ὃ ἀπύσαι χαλεπώταται* "Dry Pleurifies, in which there is no Expectoration by Spitting, are very dangerous." *Hippocr. Coac.*

APUA, a Fish thus distinguished: *Encrasicholus*, *Offic. Aldrov. de Pisc. 214. Charlt. Pisc. 24. Rondel. de Pisc. 1. 211. Jons. de Pisc. 51. Raii Ichth. 225. Ejusd. Synop. Pisc. 107. Encrasicholus, quos alii Engraulis, alii Lycofomus appellant Rondeletii, Gesn. de Aquat. 68. Heteula, Bellon. de Aquat. 169. THE ANCHOVY.*

They are pickled with Salt, and kept in Barrels, and the whole Fish, as well as the Pickle, are in Use; the Fish pickled is apply'd like Herrings to the Soles of the Feet; and both their Pickles serve for the same Purposes. *Dale.*

You are to chuse those that are tender, fresh, white without, red within, small, plump, firm, and well tasted.

Anchovies are of an opening Nature, fortify the Stomach, and create an Appetite.

When they are used to Excess, they heat much, and make the Humours sharp and pungent.

They contain much Oil, and volatile Salt.

They agree in Winter with old phlegmatic and melancholy People, and with those who have no good Digestion: But young People of a hot and bilious Constitution ought to abstain from them, or use them very moderately.

R E M A R K S.

The Anchovy is a small Sea Fish, that is as long and as thick, very near, as one's Finger; they fish for it in several Parts near *Genoa* and *Provence*. They usually swim in Shoals, and make a close Body together; they will run to the Fire, when they see it, and the same is made use of as a Snare to catch them. But some pretend, that those taken in this manner, are softer than the others; they are pickled after their Heads are cut off, and Guts taken out, which soon corrupt.

This Fish is much used in several Parts of *Europe*; for the Excellency of its Taste, they mix it with Sauces: It helps Digestion, and fortifies the Stomach with its volatile and saline Principles, which cause a gentle and moderate Heat in that Part, and disperse and attenuate the Aliments, that are contained therein. In the mean time, if it be used to Excess, it very much rarefies the Humours by these same Principles, and so produces the ill Effects above-mentioned. *Lemery on Foods.*

APULOTICUS, ἀπυλωτικός, the same as *EPULOTICUS*, which see.

APYETOS, ἀπύητος, from α Negative, and πύς, Pus. An Epithet for an external Disease, or Tumor which is not suppurable; it is the same as ἀνεκπύητος, in *Hippocrates*, and differs from ἀπύος, which signifies Want of Pus. *Castellus.*

APYREXIA, ἀπυρεξία, from α Negative, and πυρεξία, the same as πυρετός, a Fever. The Absence of a Fever. It signifies that Interval, or Space of Time, which passes between the two Fits of an intermittent Fever; and also the total Cessation and Absence of a continual Fever.

APYROMELE, or **APYRENOMELE**, ἀπυρεμήλη, ἢ ἀπυρηνόμηλη, from α Negative, πυρην, a Nucleus, and μέλη, a Probe. A Probe without a Button, that is, a *Melotris*. *Galen. in Exeges.*

APYRON, ἀπυρον, from α Negative, and πῦρ, Fire. What never felt the Fire; in particular it is apply'd by *Dioscorides* to *Sulphur Vivum*, *Lib. 5. Cap. 124.* and also by *Celsus*, *Lib. 5. Cap. 18.* Ἀπυρον is also an Epithet bestowed on a chymical Preparation called *Ethiops*, which is performed by

means of Trifuration only, without the Help of Fire. See *ÆTHIOPS*.

APYROTIIUM, a Name for *Sulphur Vivum*. *Blanc.*

APYROTI. Carbuncles, as *Pliny* says, are so called by some, because though those Precious Stones so much resemble Fire, they yield not the least Sensation of it. *Lib. 37. Cap. 7.*

AQUA, Water. See the Article *ACIDULÆ*, and *THERMÆ*, and *Hippocrates, on Air, Waters, and Situations*, under the Article *AER*. See also *BALNEA*.

It is difficult to form a Judgment of Waters in general, because of the peculiar Nature and Qualities of Places, Air, and many other things; but, for the most part, the best Water is what is pure, sweet, participating of no manner of Quality, and soonest passes off the Hypochondria, creating no Molestation in its Passage, nor breeding Inflammations, and what is least subject to Corruption. *Dioscorides, Lib. 5. Cap. 18.*

Of SEA-WATER.

Sea-water is hot and acrimonious, hurts the Stomach, disturbs the Belly, and expels Phlegm. Used warm in a Fomentation, it is both a Drawer and a Diaphoretic, and is therefore proper in Affections of the Nerves, and for Kibes, before they are ulcerated. It is an useful Ingredient in Cataplasms of Barley Meal, and in discutitive Plaisters and Malagmata. Administered in a Clyster warm, it evacuates the Belly; and, injected hot the same way, eases the Gripes. It makes a good Fomentation for the Pfora, Itch, Tetters [ἀγχίνων], and Scurf [καυδῶν]; and for Breasts turgid with Milk; it also discusses Evidnefs from Blows, if the Place affected be fomented with the same hot. An hot Bath of Sea-water is effectual against the Bites of venomous Creatures, which are succeeded by Tremblings and Refrigerations, especially those of the Scorpion, Phalangium, and Aspid. The same relieves under an inveterate Cachexy, or Disorder of the Nerves; and the hot Vapour thereof comforts and helps those who labour under a Dropsy, Pain in the Head, and Deafness. Sea-water kept pure, without being mixed with potable Water, loses its rank Smell. Some boil it first, and then set it aside. It is also administered as a Purge, either alone, or with Oxycras, Wine, or Honey, care being taken, after its Working, to give the Patient some Broth made of Chicken or Fish, in order to temper its acrimonious and biting Quality. *Dioscorides, Lib. 5. Cap. 19.*

With respect to Waters, two things come under our present Consideration, which are, that pure simple Element, so well known, and of so universal Use in common Life; and medicinal or medicated Waters, distilled from, or impregnated with, Animal, Vegetable, or Mineral Substances, which are directed to be kept in the Shops.

Many and surprising are the Properties of Water; which have been discovered by Naturalists, to whose Province these properly belong. I shall therefore confine myself to the Properties of Waters, so far as they relate to Medicine. Perhaps it may be of some Use to specify the Salubrity and Insalubrity of those Waters we generally meet with, because as good Waters conduce to Health, those which are bad, are productive of Diseases.

It is a common Observation, familiar in the Kitchen and Laundry, that some Waters are hard, crude, and rough, and others again soft, mild, smooth, or, as it were, milky: The former whereof are properly accounted bad, and the latter good.

WATER of dissolved ICE and SNOW.

Among the crude and hard Waters, we reckon that which is obtained by the dissolving of Ice: And of this Water *Hippocrates* says very justly, "That the clear, light and sweet Part in frozen Water, is dissipated and discharged; and only the turbid and ponderous Part left behind: For, if a certain measured Quantity be set to freeze in the open Air, and the Ice be the next Day dissolved in a warm Place, and the Water be now measured again, it will be found to have lost much of its Quantity." The same Author likewise assigns a very good Reason why Snow-water is rather pernicious than advantageous to Vegetables and Animals; as Water by freezing has its Texture destroyed. For 'tis manifest, that the subtle Principle of the Water is thereby separated from the gross Part, and driven towards the Centre: Whence, in the Middle of all Ice, there appear large Bubbles, proceeding from the subtle elastic Matter being driven inwards; where, by its rarefactive Motion, it increases the Bulk of the Ice, and causes it to possess a greater Space, than when in the Form of Water; and thus occasions the bursting of such Glass or Earthen Vessels as it happens to be contained in: And this shews by what means the fine, fluid elastic Principle is separated, and only the grosser and more ponderous Part left behind: Inasmuch that Water being despoiled and corrupted by this Operation, must needs become unwholesome. But principally the Use of Snow-water is found to produce Swellings in the Glands of the Throat, as frequently happens to those who inhabit the Bottoms of Mountains,

tains, which are all the Year covered with Snow; but especially in the Women, who have generally large Tumors hanging at their Throat. And this the People who live at the Foot of the *Alps*, *Pyreneans*, &c. to their great Misfortune, experience. Those Waters therefore must be carefully avoided, which, upon a general Thaw, flow down the Sides of the Mountains into the Valleys; and thus often pollute and corrupt the Springs and Rivers.

The WATERS of MINES.

In the next place, those Waters are found to be hard, crude, and unwholesome, which are found in metallic Mines, or descend from very high Rocks; because they lick up in their Passage many rough, earthy, and astringent Particles from the Fossils, Minerals, Chalk-stones, and the harder compacted Bodies they run over; and thus become impregnated therewith; whence few can bear to drink them. And their Use, to such as are not accustomed thereto, proves very pernicious. Thus 'tis observed by *Hippocrates*, that those Waters are to be rejected as unwholesome which flow from Rocks; for this renders them hard; and those again which run near to hot Springs, Beds of Iron, Stone, Sulphur, Alum, &c. for none but crude, heating, and unwholesome Waters, that pass not well by Urine, but bind up the Belly, are to be found in such Places. And we cannot but commend the Justness of the Observation, with regard to the common Waters found near hot Springs; for such generally are crude and unwholesome, unfit for brewing, or promoting the Secretions of the Body, but rather obstruct and hinder them; and the Reason hereof seems principally owing to the chalky, rough, styptic Earth, with which the Soil about these Springs most commonly abounds.

CHALKY and STONY WATERS.

Again, those Waters are crude, heavy, and sluggish, which spring up in chalky Ground, as may appear from the Pipes or Canals through which they run; for they all along deposit an earthy, chalky Matter, that lines the Insides of these Conduits; and, when boil'd over the Fire, deposit a stony Crust on the Sides of the Vessel. In short, the stony Waters of all Kinds, running upon chalky Beds, are unwholesome, crude, and hard; as the Matter of these Beds is easily imbibed by the Waters, which renders them gross and heavy; so that when drank, they pass with Difficulty through the fine Canals of the Body; nor readily reach the Extremities of the Veins, without causing Obstructions.

STAGNANT WATERS.

Lastly, those Waters are unwholesome which collect themselves in stagnant Ponds, marshy Grounds, or are received into Reservoirs, formed on Purpose to preserve the Rain, that runs from the Tops of Houses; as also those of Springs arising in an open Champain Country, and having a muddy, unctuous, earthy, or bituminous Bottom; for all these are gross, turbid, and somewhat fetid; and, though frequently refreshed by new Rain, lose their fine, thin, and most useful Principle, by the Sun's striking continually upon them; whence they become subject to cause Obstructions in the finer Vessels, and are productive of chronical Distempers.

RAIN-WATER.

On the other hand, those Waters must be allowed good and wholesome, which are light, sweet, soft, thin, and readily pass through all the excretory Vessels of the Body. And of this Kind, in the first place, are certainly those raised by the Sun into the Atmosphere. The Cause of this is, with more Chymical Knowledge than one could expect, delivered by *Hippocrates*, in these Words: "Because the Sun raises that Part which is thinnest and lightest, leaving behind what is saline, gross and heavy, in the Sea." For, in Reality, Rain-water is Water distilled by the Sun, which not only raises from the Ocean, but likewise from all Springs and Rivers, the lightest and thinnest Parts of the Waters, makes them mount into the Atmosphere, attenuates, perfects and digests them with its Rays; and indeed enriches them with the universal, æthereal, and sulphureous Salt, or rarefied and exalted Nitre, as appears from Experiment and Observation: So that by this means, the Chymic Sun seems to prepare a most perfectly pure and wholesome Water, which will readily pass through all the finest Vessels of the Body, wash the capillary Meanders thereof, and promote its own Discharge by the Law of Circulation. Whence this naturally distilled Water is better fitted than any other for the Nutrition of Vegetables, the brewing of Drinks, the infusing of Herbs, all Family Uses, and is of itself, without farther Preparation, one of the noblest, and, when properly used, perhaps the most universal Remedy in all Nature, as we propose more fully to shew hereafter.

We are sensible of the Objections against this general Position, as to the Purity and Perfection of Rain-water. "'Tis said, that this Water soon putrefies, corrupts, and stinks, and thence must necessarily become unwholesome." But, to con-

sider the Matter chymically and closely, though the Fact here alledged were certain, yet it only demonstrates, that this Water abounds with sulphureous Particles, which is also confirmed by numerous Chymical and Philosophical Experiments.

But this Inconvenience attending Rain-water may, in great measure, be prevented, by catching it, not after it has washed the Tops of Houses, and run through foul Pipes and Conduits, but as it falls immediately from the Air, in an open Place where no Houses stand. For this, when it has stood a while to settle, cleanse and purge itself, as it will in a very few Days, may be drawn fine from its Bottom, and long preserved perfect, in pure Vessels of Earth or Glass: But if put into Vessels of Wood, especially such as are new, it thence extracts numerous, fermentable, sulphureous Parts; and accordingly runs into what is commonly called Corruption. And the Reason of this Difference is plain from Chymical Experiments; for as, by standing, the gross Sediment falls to the Bottom, that, like the Lees of Wine or Beer, contains the subtle, fermentable, sulphureous Particles, which have the Power to begin or renew an Intestine, fermentative, or corruptive Motion: When these busy Particles are once separated, whether by Standing, Filtration, or Distillation, the pure remaining Fluid must necessarily continue unaltered in its natural Texture and Constitution.

'Tis also worth observing, that the Rains which fall about the Vernal Equinox, and in the Month of *May*, when the East and South Winds blow, are of a much more subtle and spirituous Nature, and refresh and nourish all the Vegetable Kingdom, better and quicker than those which fall in other Months, when the Winds stand to different Points of the Compass: The Reason whereof seems owing to this, that in the coldest Countries, or such as are filled with dense Vapours, the Exhalations of the Earth and Waters cannot be so much ripened and refined, as in Countries where a warmer Sun raises them up, concocts, and brings them to Maturity.

SPRING-WATERS.

The next Degree of Perfection we assign to those Waters, where the Springs lie high, rise on clean earthy Hills, and run upon a gravelly Bottom, or pure hard Clay; provided they be sweet, that is, perfectly tasteless, limpid, transparent, cold in the Summer, warm in the Winter, and receive the rising Sun. For when Waters pass through such a kind of porous, spongy Earth, which is not dissolved thereby, they are thus percolated, filtered, and purified, after the manner of that common Practice in *Italy*, *Sicily*, *Holland*, and other Countries, where they pass their thick and muddy Waters through a certain spongy Stone, cut and chizzed into a kind of Mortar, so as to become a large and proper Filtre for thoroughly purifying the Water, which it transmits perfectly bright, clear, and grateful, retaining the Filth and Slime behind.

To try the Goodness of WATERS.

There are certain œconomical Observations, and Ways of proving the Goodness, Excellence, Thinness, and Virtues of Waters. It is a thing known to every one, that those Waters are soft and light, which readily take Soap, easily wash Linen, and quickly boil Peas, Pulse, &c. soft and tender; and the Waters which will not do this, are properly accounted rough, harsh, and hard. But for these Purposes, there is nothing comparable to Rain-water, which is admirably fitted for the washing of Linen, and boiling of Pulse and Herbs to the greatest Perfection. So likewise these Waters are to be esteemed good and excellent, which best serve the Purposes of Brewing, or the making of Malt Drinks; for, 'tis certain, that the Wholesomeness of Malt Liquors has a great Dependence upon the Goodness of the Waters; whence such Countries always brew the best, wholesomest, and soundest Drinks, as are supplied with the best and purest Waters. In general, hard Waters make the best Beer for keeping, and soft Water the best for Flavour; but they are subject to turn sour. And a Proof of Excellence in this Case is, when the Drink neither oppresses the Stomach, nor binds up the Belly, but passes readily by Urine. On the other hand, in those Countries where the Waters are thick, gross, and slimy, the Drinks are unwholesome, generate Wind in the Stomach and Bowels, pass sluggishly through the Canals of the Body, breed Stones, and stony Concretions, in the Viscera, rot the Teeth, relax the Gums, &c. of all which there are but too many Instances in particular Countries. Another Sign of Goodness in Waters may be taken from their feeding and producing fine wholesome Fish; and their Indisposition to freeze. For these Particulars prove a Fineness of Parts, and a temperate and wholesome Nature, in such Waters.

RIVER-WATER.

Those Waters likewise, that remain long sound and uncorrupted, may be esteemed good; as this affords some Token of their being free from Impurities, and Parts which do not properly belong to them, and of their being rather simple, pure, and full of the spirituous Principle, which preserves them from Corruption. And hence 'tis found, that if River-water, as well

well as Rain-water, be first freed from its Filth by standing; drawing off from its Bottom, or filtering through a porous Stone, and then put into proper large earthen Vessels, and preserved in a cool Vault or Cellar, it keeps much better and longer than when committed to little Vessels, and set in a warm Place. And thus the Water of the River *Tiber*, which the common People drink thick and muddy as it runs, is clarified and preserved by the Nobility of *Rome*, in large Earthen Vases, which stand in their Wine-cellars. Whence it remains perfect and uncorrupted for many Months, or even for Years.

Besides the several Signs of the Excellence of Waters, above delivered, there are abundance more, derivable from the Art of Chymistry; though these being not so well suited for general Use, we shall not enter into a Detail of them, but finish this Account with observing, that soft, subtle Waters, and particularly those of Rain, are constantly found the fittest for washing what we call the Calxes of Metals, from their Salts; whilst hard Water is very unsuitable for this Purpose.

Hoffman, in the following Dissertation, has farther explained the Natures of different Waters.

WATER considered as a MEDICINE.

How earnestly, and how universally, a Medicine capable of subduing all Disorders, of whatever Nature, has been desired, is, I presume, sufficiently known to such as have any tolerable Acquaintance with physical Subjects; and indeed, immortal Honours ought to crown the Man who should be so lucky as to discover a Medicine of this Kind, since the Recovery of the Sick, and the Safety of Mankind in general, are so nearly connected with a Discovery of this Nature. But since we have not hitherto found a Medicine capable of certainly subduing any one Species of Disorder, so we have the greater Reason to despair of finding one capable of eradicating and baffling the whole Train of Diseases to which Mankind are subject; for if we reflect, with Attention, on the Difference of Constitutions, on the numerous and often contrary Causes of Diseases, and on the Virtues of Medicines varying according to the various Constitutions of the Patients to whom they are exhibited, we shall easily see, that 'tis in vain to rack our Brains, and spend our Time, in the Pursuit of an universal Medicine.

But if there is, in Nature, a Medicine which deserves the Name of *Universal*, 'tis, in my Opinion, *common Water*: The Use of this is so common, and so necessary to us all, that without it we can neither live, nor preserve our Bodies sound and healthy; for it guards against Diseases of every Kind, protects, and defends the Body from all kind of Corruption, that may prove fatal to Life. Besides, *Water* answers all possible Intentions of Cure; so that, without it, no Disorder, whether chronic or acute, can be happily and successfully removed. For Confirmation of this Opinion, I shall not insist on the Medicinal Springs, whether hot or cold; nor attempt to prove their salutary Virtues in subduing various Disorders; but shall confine myself entirely to common Water, tho' of the best and purest Kind, the universal Use of which I at present design to recommend.

Since, then, I am to consider *Water* as an universal Medicine in preventing and curing Diseases, and since I intend to prove, that it is so, by the strongest and best chosen Topics I possibly can, I think it will not be improper to premise a few Things concerning the natural Necessity our Bodies lie under of being ruin'd or destroy'd one time or other; that, these things being known, we may be able, with the greater Accuracy, to discern what Diseases are curable, and what not. As to the natural Necessity of dying, 'tis sufficiently known, that the Duration of our Bodies, and a Prevention of that Putrefaction to which they are naturally very much dispos'd, depend entirely upon the perpetual and uninterrupted Circulation of the Blood and Humours; for so long as this Circulation is entire and unobstructed, so long we are said to be alive; but in proportion as it decreases, or is impair'd, we make gradual Advances towards *Death*. 'Tis, therefore, this Motion alone which guards the Body against Corruption, because it hinders that State of Rest, which is the Cause and Foundation of all Putrefaction, from taking place in that heterogeneous Fluid with which the Parts of all Animals in general abound.

Our Bodies would, without Doubt, enjoy an eternal Duration, if we could for ever preserve and maintain the Circulation of the Blood; but since human Weakness, and the wretched Condition of our mortal Nature, render this impossible, it is at least worth while to inquire into the Cause which may produce a Deficiency or Decrease of this Circulation, which, in my Opinion, is as follows: This vital Circulation of Humours is carried on by Organs and Ducts; the elastic Fibres of the Muscles, which are furnish'd with a successive and reciprocal Dilatation and Contraction, constitute the Organs. These Organs are Vessels, some of larger and others of lesser Diameters. When, then, at any time the Elasticity and Impulse of the Fibres are so diminish'd as not to bear a due Proportion to the Quantity of Humours to be moved, and when these Humours are not quickly and expeditiously carried thro' the small-

est Tubuli, Stagnations of the Humours must unavoidably happen in the Capillary Vessels; and hence arise Putrefactions, those fruitful Sources of Disorders and Death.

For as, in all Machines, the Elasticity and moving Forces of the component Parts are weaken'd and impair'd, by reason of the Change undergone by the Matter of which the said Machines are made, so it happens in our Bodies, that the Fibres, which alone are the Instruments of Motion, in Process of Time become thick, hard, solid, and dry: For this Reason they not only move with Difficulty, but the Pores, and minute Passages, being by that means render'd narrower, hinder the Fluids from being carried thro' their Channels in an equal and uniform Course. This is sufficiently proved by the Fleshes of old Animals, which, by reason of their Hardness and Solidity, require a stronger Heat, and longer Time, to render them soft and tender, than the Fleshes of young Animals do: Hence we may conclude, that there is not the least Doubt to be made but if the same State, the same Mobility of the Fibres and Vessels, and the same Degree of Aperture in the Pores and minute Passages, could always be maintain'd and preserv'd, Life might of course be protracted for ever, if external Causes, and foreign Degrees of Violence, did not interfere to put an End to it. That this surprising Effect may possibly be produced; either by Medicines, or a proper Regimen, is a Fact which can by no means gain the Assent of those who are ignorant of the Virtues and Qualities of natural Bodies: But 'tis not only probable, but strictly true, that many have fallen short of that Period of Life and Duration, which the natural Temperament and Constitution of their Bodies seem'd to promise, whilst they were either ignorant of, or despised those Rules, the Observation of which would, in the very Nature of the Thing, have procur'd them that Blessing; so that the greater Part of the human Species, either by exorbitant Passions, Intemperance with regard to the Non-naturals, or a criminal Neglect to distinguish between things of a salutary and a noxious Nature, unavoidably shorten their Days, and render their very Existence a Foundation for Distress, Calamity, and Misery.

Having thus explain'd the natural and internal Cause and Origin of Death, it will not be improper to assign a few Reasons why some Diseases are incurable, and of so stubborn and unrelenting a Nature, that they will not yield to the highest Skill, or the best chosen Remedies. Now that there is a certain Analogy and Proportion betwixt the Agent and the Patient, and that Effects can only be produced by their proper and adequate Causes, are Truths sufficiently evinced and explain'd, both by Reason, and the Laws of Motion: When, therefore, obstinate Obstructions of the Vessels, Indurations of the Viscera, large Effusions of Humours into the Cavities of the Ducts, and consequent Putrefactions, happen, what Physician is able to discover Medicines of such a powerful and efficacious Quality as to subdue and remove these Disorders? Who can put a seasonable Stop to the remote and internal Inflammations of the more noble Parts, and the Mortifications consequent upon them? Or, what Man is there found among all the venerable Sons of the *Healing Art*, who can, with Certainty, quell and calm the violent and preternatural Commotions of the nervous System? If I could once find the happy Man, who, by any sort of Medicines, could perform such miraculous Cures, I would not only pronounce him a second *Æsculapius*, but loudly proclaim, that he was sent from *Heaven* as a common Blessing to the *Earth*; since I am firmly persuaded, that no acute Distemper could possibly prove fatal to the Patient, who should have the good Luck to be under his Care.

We must also, on this Occasion, inquire whether there are, in Nature, Medicines peculiarly adapted and calculated for removing particular Disorders. 'Tis universally known, that some Medicines are, even in our own Days, wonderfully extoll'd as *Specifics* against certain Diseases. Thus the *Peruvian Bark* is esteem'd a Medicine of divine and irresistible Efficacy against Fevers. *Quicksilver* is wonderfully extoll'd against a virulent *Lues Venerea*. *Opium* is said to be the surest and most efficacious Asswager of all Kinds of Pain. *Steel* is call'd the sovereign Reliever of the Hypochondriac. *Sulphur* is accounted the most valuable Pectoral. *Castor* is judged to have the most happy Influence on the Nerves. Bitters are applauded as the most suitable Remedies in dropical and cachectic Cases. Nitre is given out to be of uncommon Efficacy in allaying feverish Heats. But tho' these Medicines are justly distinguish'd on account of their Virtues, and their Praises deservedly celebrated, yet any Person, who has been for a considerable time employ'd in the Practice of Physic, cannot fail to observe, that they are by no means sufficient to remove the respective Disorders to which they are appropriated: For who does not know, that almost all Distempers are nourish'd and fomented by different, and often by contrary Causes? Who is ignorant, that the same Diseases, in different Stages, appear with different Series of Symptoms; and that, according to these, there is more or less Danger in the Case? Who is not apprisd, that there are different Constitutions; and that on these the Actions of Medicines vary very remarkably? Hence it must necessarily follow, that one and the

the same Medicine must produce different, and even contrary Effects, according to the different Constitutions of the Patients to whom it is exhibited; for 'tis carefully to be adverted to, that Medicines act not only *secundum Activitatem suam*, or according to their own inherent Qualities, but also *secundum Receptivitatem*, or according to the Constitution of the Patient to whom they are exhibited; or, in other Words, the Force of Remedies is the Result of a mechanical, mutual, and reciprocal Action and Reaction of Medicines and Constitutions; so that if a Medicine acts upon the Body, the Body returns the Favour, and acts in like manner upon it. Hence we may judge, how daring and impious the Practice of those is, who, not regarding the Diversity of Constitutions, morbid Causes, and other Circumstances, in the same Disorder invariably prescribe the same Remedy, exhibited in the same Form, as blundering and unskilful Physicians do, to the great Reproach of Physic, and the unspeakable Emolument of Funeral-undertakers, Grave-diggers, and all that Class of Men who live by burying the Dead: For the Physician who duly adverts to the above-mention'd Considerations, will not readily adhere to one and the same Remedy in one and the same Disorder, unless all Cases were directly parallel.

It now remains, that I fix and ascertain the precise and determinate Sense, in which Water may be said to be an *universal Medicine*. Now I affirm, that Water is excellently suited and adapted to all Constitutions, and that at all Times and Seasons whatever; that there is not, in Nature, a more noble or efficacious Preservative against Diseases; that in acute as well as in chronical Disorders, it affords a most certain Relief; and lastly, that its Use answers all possible Intentions, as well *preservative* as *curative*: But since there is a great Difference between different Waters, we are carefully to inquire which are best calculated for answering this Medicinal Intention; for 'tis not to be deny'd, that the Nature and Properties of particular Waters differ so far as to be easily distinguish'd, even by the Taste of such as accustom themselves to drink Water. But the best Way of distinguishing them is by Chymical Trials, their Weight, and mixing them with different Substances. It must not be imagined, that Water is an homogeneous Fluid; there are numerous Experiments that manifest it to be a Mixture of different Parts. Thus all Waters contain an aerial or æthereal Principle, whereon their elastic Property seems entirely to depend; for all Waters are more or less expansive and contractive, as they contain more or less Air or Æther. This evidently appears in the Water-thermometer, where the included Liquor possesses a greater or less Space, according to the greater or less Degree of Heat it sustains: For 'tis the Nature of all Liquors to admit a great Quantity of æthereal Fluid when they are heated, and again reject it when they are cool'd; as we know by particular Experiments, made in a very severe Winter. The Quantity of Air or Æther residing in Water cannot perhaps be better determin'd than by means of the Air-pump; for the more subtile Waters, included in an exhausted Receiver, throw up numerous Bubbles, and, if somewhat heated, flow over the containing Glass; as, on the contrary, those which are grosser, and more ponderous, afford fewer Bubbles in *Vacuo*.

Waters also appear to consist of a lighter and a heavier Part; and the former, as being more moveable, easily rises first in Distillation; whilst the heavier and grosser Particles require a greater Degree of Heat to bring them over: Whence 'tis observable, that Waters lose their more subtile Parts in boiling, and leave the cruder and less useful ones behind, as is known to all those who are curious in the making of Coffee; for if the ground Berries are put into Water, that has long been boiled, the Liquor, so made, becomes less quick and pleasant to the Taste. It has also been observed, that some Waters rise much faster than others in Distillation. Waters also differ extremely in their Gravity, as appears by the Water-poise, those which abound with Earth and Salts causing the Instrument to rise higher than such as are pure: But Distillation is one of the best Ways of discovering the Purity of Waters; as not only rendering the Quantity, but also the Quality, of the Contents evident to the Senses. 'Tis surprising to see what a large Mass of earthy or stony Matter remains, upon the Distillation of some Waters. I once distill'd two Quarts of Spring-water, in a Glass Body, to Dryness, repeating the Operation ten times in the same Vessel; and by this means obtain'd a hard stony Crust at the Bottom, as thick as the Back of a Knife. Most Waters contain a chalky Earth, some an Oker, others a stony Matter, and others again a Proportion of common Salt. But the true Way of examining whether Waters are impure, or contain any foreign Matters, is by the Means of Chymical Experiments; two whereof I have singled out for my own Use, and recommend, as exactly discovering the Purity or Impurity of Waters. The first is, by dropping Oil of Tartar into them; and the second, a Solution of Silver in *Aqua-fortis*. If the Waters are pure, such as Rain-water, Water distill'd, and some Sorts of Spring-water, they manifest no Alteration upon mixing with these Liquors; but if impure and gross, they turn milky with Oil of Tartar, especially if they abound with a chalky Earth; and the Solution of

Silver turns impure Waters thick, grey-colour'd, and, if they partake of Iron, almost red.

The Effects of Waters also manifest their Nature, Subtlety, and Purity: Thus, those that are light and soft serve best for mollifying the Bones of Animals, and the Boiling of Sea-fish. The Whitstners and Bleachers find a remarkable Difference in Waters; the softer and fatter Sorts thereof serving better to wash and blanch, than such as are ponderous, hard, and take Soap with Difficulty. The Bakers find, that the more soft and subtile Waters make their Bread rise well. The Gardeners observe, that such Waters as are light, subtile, and spirituous, are much better to water their Beds with, than such as are hard. The Masons, Makers of Terrace and Figures in Plaster of Paris, find hard Water the best for their Purpose; and can scarce work with such as is soft, so as to give their Matter its due Strength and Firmness. The Chymists find a great Difference in Waters; those of Rain being best suited to wash and edulcorate their Magisteries and Metalline Powders, *viz.* the Calx of Gold, Silver, the Caput Mortuum of Vitriol, &c. as readily drinking in the Salts that hard Spring-waters will scarcely touch. We daily observe, in the domestic Operations of Brewing, Washing, the making of Tea, &c. that the more subtile and soft River-waters are better for these Purposes than Spring-water.

But for Medicinal Purposes we prefer Rain-water, as what is naturally distill'd by the Sun, and thus render'd subtile, and fitter for Solutions, Infusions, Extractions, and all internal Uses. Only this Water, being mix'd with various mineral, vegetable, and animal Exhalations, is thence render'd easily corruptible, if expos'd to the free Air, or suffer'd to stand long in Vessels of Wood. The Rain that falls in the Month of March is more durable, as not then receiving so many Effluvia. The better to fit this Water for Medicinal Use, 'tis proper to keep it in earthen Vessels, close stopp'd down: And thus if it be collected, not in Cities and Towns as it runs from the Spouts of Houses, but in the open Fields, it may be kept sound and serviceable for several Years.

Next to Rain-water, in point of Goodness, comes that of Rivers: But as Rivers proceed from the Springs situated in high and mountainous Places, and as Rains increase these Springs, which, running over vast Tracts of Land, drink up many different Matters from the Earth; hence Rivers become more turbid and impure, the larger Tracts of Land they wash in their Course. Add to this, that they take up numerous heterogeneous Parts from the Bottom they run upon, whence there often arises a considerable Difference betwixt Rain and River-water. Lastly, Rivers, being perpetually expos'd to the free Air, and the Action of the Sun, have their more subtile Parts exhaled and raised into the Atmosphere, so as to supply the Matter of Clouds and Rain.

There is likewise a great Difference between the Waters of Rivers; for those that have a swift Course, or run violently down from the Mountains, where they rise, into the lower Plains, are very different from those where the Course is slack and gentle, and which rise in lower Places. Thus the rapid Rivers usually afford a light and subtile Water, not greatly subject to Corruption; tho' somewhat improper for the feeding and nourishing of Fish, because the Rapidity of their Motion prevents the Spawn of the Fish from clinging to their Banks, so as to be there animated by the Heat of the Sun. But tho' these Rivers of swift Course do not greatly abound with Fish, yet those they produce are well-tasted and excellent: Thus the Rhine and the Rhone, which rise from the highest Mountains of the Grisons Country, are found to be much lighter than the Waters of other Rivers. And 'tis remarkable, that the Ships coming out of the River Meyne into the Rhine, draw much more Water in the latter: And hence the Waters of the Rhine and the Rhone appear, upon Hydrostatical Examination, nearly to approach the Lightness of Rain-water. And as both these Rivers are very rapid, their Waters are hence render'd less corruptible, and therefore allow'd, for internal Medicinal Use, to excel the Waters of all other Rivers. Thus we are assured, from a good Writer upon the Water of the Rhone, that "if it be kept in Wine-cellars, put up into large earthen Jars, so as there to deposit its Sediment, for some Weeks or Months before 'tis drank, it thus becomes pure and excellent; and will afterwards keep many Years, or even an Age, without spoiling or corrupting." *Jacob. Spon. in Observation. circa Aquam Rhodan. in Act. Erudit. Ann. 1683. p. 519.*

The Rivers that flow gently, differ from the former, not only on account of the immense Quantities of Fish they breed, but also because they generally run on fat and clayish Bottoms, or such as afford proper Bedding and Nutriment to Fish; whence such Rivers are not so clear and crystalline as those of a rapid Course: But then such Waters are of a softer Nature, and serve for the Purposes of Washing, Fulling, Scouring, &c. without any considerable Addition of Soap. From hence it may easily appear, that Rivers are not at all alike, or equally fit for Medicinal Use: Those to be chosen for this Purpose are clear,

clear, light, do not easily corrupt; and receive no Alteration upon the Addition of Oil of Tartar, or any metalline Solution. It must be constantly observed, that Rivers of a rapid Course are universally more wholesome than those which flow slow and gentle.

Spring-waters are also sometimes observed to differ in their Virtues; for according to the different Nature of the Soil and earthy Matters they meet with or imbibe, they receive a different Nature and Disposition; whence we seldom find Springs of a perfectly pure and light Water. The greatest Part of them leave a copious earthy Substance upon Distillation. There are but few that do not turn thick with metalline Solutions, or alkaline Salts: Some of them contain common Salt; and others a subtile, volatile Vitriol. If they hold common Salt, Oil of Tartar will discover it, by turning milky therewith: If they contain a vitriolic Principle, the Infusion of Galls, or Balaustines, will manifest it by turning black. There are others again, that contain somewhat of Iron, and thence have a styptic Taste, and let fall an Oker upon standing. 'Tis therefore the Business of Art and Industry, out of so large a Number of Springs wherewith Nature supplies us, to discover the wholesomest, which are known by their Lightness, Transparency, Purity, Durability, and the Trials above-mention'd. This Difference in Spring-waters must also be observed, that some are soft, and others hard, the latter whereof are the most durable, and indisposed to freeze; whereas the former more easily turn to Ice. They are both of them wholesome and medicinal, if properly suited to the Disease and Constitution of the Drinker or Patient.

Having thus shewn which Waters are best fitted for Medicinal Use, and how they are to be distinguish'd and examin'd, we now come directly to prove the Excellence and universal Virtue of pure Water: Our first Position is, That pure and light Waters are agreeable to the different Natures and Constitutions of all Men; for since the Circulation of the Fluids thro' the Canals, and finest Vessels, is what preserves and secures the Body from Corruption, and keeps the Blood and Juices in a thin, moveable State, Water must necessarily be appropriated to the Continuance of Life. The Fluids of the Body, serving to Nutrition and the vital Offices, and whereof the Solids also are composed, actually consist both of Solids and Liquids: That there are solid Parts contain'd in the Blood, is evident upon drying it; and that these Parts are of different Natures, some saline, others unctuous, some mucilaginous, and others earthy, appears to the Senses, by the inflammable Property they have upon Evaporation, and other Chymical Experiments. In short, they are a Number of heterogeneous Parts united into one Whole, which is very corruptible, when put into a State that fits it for Corruption; that is, a State of Warmth, Rest, and Moisture. To prevent the Fluids from thus corrupting, and consequently infecting and changing all the other Parts of the Body, it is necessary they should never stagnate or collect together, otherwise Corruption would immediately ensue: Whence these subtile, solid Particles, both unctuous and earthy, should not only be kept in perpetual Motion among themselves, but also circulate in a progressive Motion through the finest Tubes of the Body, that the solid Parts of the Blood may be divided into extremely fine Globules, by the Motion of Attrition, or Action and Reaction between the Juices and the fibrous Parts. Whence appears the Necessity of an aerial, æthereal Fluid, and elastic Principle, along with a large Quantity of an aqueous Fluid; that is, the Necessity of pure Water, to secure this indispensable Effect. And hence it is, that, upon examining the Blood taken from a Man in Health, we find, at least, two Parts of a Fluid, for one of a dry and solid Matter; for I have frequently observed twelve Ounces of Blood to contain eight Ounces of a liquid, and four of a solid Substance. Again, that the Blood contains a large Quantity of a subtile, aerial, and æthereal Principle, manifestly appears from its Bubbling in *Vacuo*, so as to run over the Edges of a cylindrical Glass, whereof it at first possessed only one half. From the Whole we infer, that nothing is more wholesome, nothing better fitted, or more necessary to preserve Life, than Water; which is so agreeable to the Nature of the human Body, and without which it can neither subsist, nor Life be long preserved.

Our next Position is, that no Remedy can more effectually secure Health, and prevent Diseases, than pure Water. If we strictly inquire into the Cause of Health, we shall find it to be an equable and free Circulation of the Juices through all the Canals of the Body, even the finest, that lead to the Excretory Ducts. For by this means it is, that what proves serviceable and fit for Nutrition, remains within, separated for Use by the proper Strainers; and what would either prove useless, corruptible, and inconvenient to the Body, is discharged. And here it deserves the utmost Attention, that the Excretions of the Body do not so directly, simply, and absolutely regard Life, as they indirectly regard Health, and the Exercise of all the Functions and Offices, inasmuch that Health, and even Life itself, may be endangered, without any Fault in the Excretions. Thus 'tis

obvious; that from violent Passions of the Mind, extreme Pain, Inflammation of the Stomach, and the swallowing of Poisons, the natural Functions of the Body are strongly disordered. Neither in the most obstinate Chronical Diseases are the Excretions so much to be regarded, as the Obstructions of the glandular Parts, the Indurations, Corruptions and Sphacelations of the Viscera, and Extravasations of the Humours: So likewise in Acute Distempers, the inflammatory Disposition of the Blood is principally to be regarded. 'Tis therefore an equable Motion of the Blood and Juices that maintains Health, promotes the Excretion of unnecessary Substances, affords a convenient Nutriment to the solid Parts, and procures to the Nerves and Fibres that most subtile Fluid, by means whereof they feel and move. But whenever this free and equable Motion is obstructed, whether by an Over-charge of Humours, their Viscosity, or by Weakness in the Spring or Tension of the moving Fibres, it becomes an immediate Occasion to Diseases, especially those we term Chronical; for from these Causes proceed Stagnations of the Juices in the larger and smaller Vessels, Obstructions in the Excretory Ducts, and Indurations in the Glandular Parts; these are soon followed by great Impurities of the Juices, causing Pains and spasmodic Disorders; and not long after, by Putrefactions, which are the Bane of Health, and the direct Opposite to Life. And thus are the true Causes of Diseases formed in the Body.

Every one who perceives the Justness of this Description, will readily grant; that a proper Fluidity of the Blood is highly necessary, to procure a free and equable Circulation; by means whereof the Vessels are kept always open, Obstructions prevented, Excretions secured, Stagnations and Impurities of the Juices hindered, and the Causes of Diseases cut off. And whether there be in Nature a better disposed Remedy for procuring this necessary Fluidity to the Blood, we leave to the Judgment of sober and experienced Physicians: To us it appears, that a pure and subtile Water exquisitely divides the solid and viscid Parts of the Blood and Juices, so as to prevent their coagulating, or coming together; at the same time that it drinks up the useless and recrementitious Matters of various Kinds, whether earthy, saline, or unctuous; and discharges them by the proper Outlets.

And hence, we conceive, proceeds the Reason why Drinkers of Water, provided it be pure and excellent, are more healthy, and longer lived, than such as drink Wine, or Malt Liquors; and why it generally gives them a better Appetite, and renders them plump and fleshy. For certainly Water is a most appropriated Menstruum to dissolve the Aliment, extract its Chyle, or nutrimental Part, and carry it through all the innermost and finest Canals of the Body. Besides this, it readily washes off and dissolves that tough viscous Slime, which lines the glandular Coats of the Stomach, and Duodenum, whereby the dissolving Juices of the Intestines, which are the immediate Instruments of Digestion, may more plentifully mix with the Food, and perform their Office. There goes a common Opinion, that the drinking of Water is pernicious to those who eat Fruit: But this is a great Mistake; for in *Spain*, *Portugal*, and *France*, Water is the common Liquor; and yet those Nations freely eat Fruit all the Summer, without any Inconvenience. Again, those who drink Water, are observed to have much sounder and whiter Teeth, than others; for Putrefaction and Corruption of the Teeth is caused by the Scurvy, a Disease prevented by the drinking of pure Water, which actually cleanses and washes the Blood, and discharges the Foulness thereof. Add to this, that the Drinkers of Water are much brisker and more alert to all the Actions both of Mind and Body, than such as use Malt Liquors, the greatest Parts whereof produce clammy, viscid, and sluggish Juices, hardly capable of passing through the exquisitely fine Vessels of the Brain and Nerves; whence ensue Indolence, and Weakness of the Body, and an Indisposition and Dulness of the Limbs, both to Sense and Motion. And as this plainly appears to be Matter of Fact, 'tis the more surprising, that the drinking of pure Water, which is so conducive to the Preservation both of Life and Health, should be so perversely, and, as it were, unnaturally nauseated by the People of our Country, whilst it is as strongly coveted and admired in other Nations. Such Malt Liquors as are thick, and highly nutrimental, lay the Foundations of many Disorders among the Inhabitants of Northern Countries, more particularly where the Use of Brandies, Spirits, and Strong Waters, prevails. It is certainly much better for all Persons of delicate Constitutions, and sedentary Lives, to accustom themselves to the drinking of the finest and purest Water, either alone, or mixed with Wine, to render it more acceptable.

Having thus considered the singular Efficacy of Water, by way of Prevention, we come next to examine what it will perform in the Cure of Diseases. Physicians divide all Distempers into Acute and Chronical. Of the Acute Kind, the principal are Fevers; which from the Structure of the Body, and the Laws of Motion, appear to be an Increase of the Blood's Velocity and Force, so as to distend both the solid, or fibrous

and fluid Parts of the Body beyond their natural Size; this Increase of Motion having a Tendency either to overcome and discharge the Cause of the Disorder, or to destroy the Machine itself. Whence there ensues either Recovery, Death, or a Depravation of some Parts of the Machine, when the Disease terminates in another. And thus Nature, which is often her own best Physician, sometimes also produces Diseases and Death. But here we must by no means confound the rational Soul with Nature, which is a Word we use to signify the Structure, Mechanism, and Contrivance of the Body, acting with certain Powers, according to certain necessary and mechanical Laws, assigned it by its Maker. A Physician therefore, in the present imperfect State of Medicine, can do no more than supply a proper Matter to this augmented Motion in continued Fevers, during the whole Time they thus regularly continue; for they have their own natural Periods, that cannot hitherto be safely stopped by Art. This increased Motion and Distention is attended with a great Heat, which violently dissipates the fluid Part of the Blood and Juices, so necessary to Life; whence the principal Intention is to supply this fluid Part, in proportion as it wastes. And as the Tendency of this increased Motion is to break through the Obstructions, that cause the Disorder, the Blood can by no means make its way, unless sufficiently thinned and diluted with a proper Fluid; but, thus assisted, it may allay the Heat and Inflammation, propel the stagnating Juices, and discharge the offending Matter that causes the Mischief. And Experience shews, that if Water be not the only thing, there is no better Remedy yet found for this kind of Fever, than a free and large Use thereof. Whence *Hippocrates*, and others, highly recommend an aqueous Ptsan for this Purpose. And accordingly, by this alone, with the Assistance of Rest, and temperate Warmth, the most violent Fevers have frequently been cured, without any other Medicine. All that the best Physicians do in these Cases, is either to bleed at the Beginning, where the Body is full; or to exhibit an Emetic, if the Distemper is seated in the first Passages; or to prescribe a Sudorific, in order to expel the offending Cause, in the most expeditious manner; but after this, through the whole Course of the Distemper, they give nothing more than cooling, moistening, and perspirative Remedies. The Caution required in the Use of Water for this Distemper, is not to give it too cold, especially near the Crisis, and when there is Reason to fear an Inflammation in the first Passages, nor when the Body is stiff and rigid, and the external Parts parched and bound up; but to wait for the Time when there appears a Disposition to sweat; for then 'tis ever proper to give Water in a large Quantity.

This is agreeable to the Advice of the best Physicians, and particularly insisted on by *Lommius*, in his excellent Discourse of Fevers.

Those called Chronical Diseases generally arise from an Obstruction of the Viscera and glandulous Parts, or a Surcharge and Foulness of the Juices, with a Stagnation thereof in the larger Vessels; all which, according to the Rules both of Reason and Experience, are therefore to be removed in order to a Cure: But to procure this Effect, there is not a more serviceable Remedy than pure Water. How eminently serviceable the Medicinal Waters, both of hot and cold Springs, are, for this Purpose, is a thing manifest by Experience. But the greater Part of their Efficacy, in this respect, is, beyond all Dispute, owing to the Quantity of pure elementary Water they contain; for it were insignificant to exhibit in these Distempers the mineral volatile Spirit, and the Salt, which such Waters contain, without that purely aqueous Part. And accordingly there are numerous Instances of pure and light Water, which, without containing any Mineral Ingredients, prove of extraordinary Efficacy in the Cure of Chronical Diseases. The Effect therefore can possibly be ascribed to nothing else, but the pure Water. Of this Kind there are numerous Springs in *Germany*, the Waters whereof, being pure and subtile, tho' plentifully abounding with Air and Æther, prove curative of most Chronical Distempers; particularly the Stone, the Gout, the Rheumatism, the Scurvy, and Weakness in the Limbs; and by procuring the requisite Fluidity to the Humours, they remedy Suppressions of the Hæmorrhoids and Menfes.

As there is therefore sufficient Reason to persuade us, that the Wholsomeness of many Springs depends upon the Goodness of their Waters, it follows, that where other pure Waters are procurable, these likewise will have the same Effects. And this also is confirmed by Experience, as may appear from the Testimonies of *Riverius*, *Oper. Lib. 4. Cap. 24. Celsus*, *Lib. 1. Cap. 15. Ballonius*, *Lib. 1. Epidem. p. 106. Sylvaticus*, *Cap. 1. Observat. 1. Martianus, Rondeletius, Avicenna*, *Lib. 1. Sect. 2. Cap. 16. p. 102.* and others, who shew, that the drinking of Water has cured Obstructions of the Menfes, the Head-ach, Ophthalmias, Colds, Rheums, Inflammations, the Gout, the Colic, &c. being used either cold or warm, as the Stomach can bear, or the weak State of the Nerves requires.

Of what singular Efficacy pure hot Water is, both by way of Preservative and Cure, appears from the Nature and Use

of Tea-drinking: For 'tis certainly a Mistake to attribute all the good Effects of Tea to the Leaves of the Plant. The principal Virtue of this Infusion is doubtless owing to the Quantity of the pure hot Water employed in the Making; whilst the Herb by its Astringency prevents the Fibres of the Body from being too much relaxed and weakened thereby. Therefore, as numerous Diseases are attended with a strong Contraction of the Fibres, all Physicians, who are well versed in Practice, will be cautious of indulging too free an Use of this astringent Ingredient in such Cases.

That Tea is an Astringent or Styptic Plant, appears by several Experiments, as particularly because, like Oak-bark, Balsamines, and other astringent Vegetables, it turns inky with a Solution of Iron, or the Chalybeate Waters. See *THEA*.

And, to speak a serviceable Truth, we have in our own Country many Plants, whose Virtues far exceed those of the *Indian Tea*: And Choice should be made of these Plants for Medicinal Use, according to the Difference of Distempers. Thus, for Example, in Diseases of the Breast, *Paul's Betony* is proper; common Betony, in Disorders of the Nerves; *Baumi* and *Penyroyal*, in Disorders of the Uterus; *Ground-ivy*, in Ulcers of the Kidneys; *Buck-bean*, in the Scurvy, &c. being severally made into Tea, with the purest Water, and drank hot. Again, common Chamomile may be advantageously used in the way of Tea, against the Colic; Parsley, in the Stone; the *Ranunculus*, in the moist Asthma. Rosemary Tea is by many recommended as excellent in nervous Diseases, viz. the Epilepsy, Palsy, and Apoplexy; and for defending the Body, and preventing the catching of Cold; especially if made with the Flowers of the Plant. But, in all Tea, 'tis a Caution of Moment, that the Water designed for the Infusion be not long boiled, but immediately poured upon the Plant as soon as it simmers strongly, in order to prevent the Loss of its more subtile Parts.

It remains, that we shew Water to be an universal Remedy, as it agrees not only with all Constitutions, but in all the Indications of Distempers. And, first, the Drinking of Water is serviceable in every Complexion. In the Sanguine, and those of a soft Habit of Body, who have but few of the finest kind of Vessels, it causes the Blood and Juices to circulate freely; which in this Constitution would otherwise flow but slowly, and so be subject to generate Obstructions in the Viscera. In bilious Habits, where the Humours are in brisk Motion, it allays the excessive Heat, which would otherwise evaporate the unctuous Parts of the Blood through the widened Tubes and Pores of the Body. It likewise proves extremely serviceable, by diluting and thinning the Viscidity of the Blood and Juices, in Persons of melancholy and phlegmatic Constitutions.

Again, Water proves agreeable to Persons of all Ages. Children are frequently subject to violent Disorders from the Viscidity and Acrimony of the Milk they feed on, in which Case, besides Absorbents, diluting aqueous Remedies are of great Service. In Youth, the Surcharge and Thickness of the nutritious Humours produce various Diseases; such as Colds, and Eruptions of the Skin, which are excellently remedied by the Use of diluting Liquors. And the same holds true of the Diseases of grown Persons, and Persons in Years; in all which the drinking of Water is serviceable. For Men of full Growth are very subject to Inflammations and Fevers, and old Men to such Disorders as proceed from Stoppages and Obstructions; in which Circumstances, there can nothing be given more proper than the finest Water, either hot or cold. We find, by daily Experience, what severe Disorders are occasion'd by Irregularity in the Menstrual and Hæmorrhoidal Flux, to reduce which to their natural Periods, and preserve them in their proper Course, I am convinced from practical Observations, that nothing is more effectual than diluting aqueous Remedies.

'Tis well known, that a Fulness of Blood and Juices brings on many Distempers; but, to prevent this Fulness, the most appropriated thing is hot Water, made into an Infusion with Herbs; which thus, by dissolving the glutinous Humours, prevents the Mass of Blood from increasing too fast. A free Use of Water is no less serviceable in purifying bad Juices; as it readily washes off their impure saline, and drossy Parts, through all the excretory Passages of the Body. Besides this, the drinking of Water promotes all the Evacuations, preserves the Belly soluble, keeps the urinary Passages open, washes and cleanses the same from the Adhesion of gravelly or stony Matter, and powerfully promotes that most healthy Discharge of insensible Perspiration. Lastly, Water is the effectual Vehicle of all other Remedies. Thus Antiscorbutics, and vegetable Medicines appropriated to cleanse the Blood, prove of little Service in correcting the Depravities of the Humours, unless by the Assistance of Water their Virtue be carried into the Juices and remote Parts of the Body, in the Form of Decoctions or Infusions. To sum up all, in whatever Cases there is a Necessity either for altering, evacuating, opening, or resolving, Water is at all times the best of Remedies.

As Water is thus extensively useful, it may be proper to observe, that they who cannot procure the purest and best Sort thereof

thereof for Medicinal Use, must serve themselves with such Rain or River-water as can be had; but if these be not obtainable in tolerable Purity, the best way is to distil them; or else, upon a slight boiling, to correct them, by the Addition of calcin'd Hardhorn. It is doubtless a singular Benefit of Nature, to have large Cities and Countries well watered with wholesome Springs, which thus bountifully supply so much better Remedies than those of the Shops. If every prudent and disinterested Physician would carefully examine into the Waters of the Place where he resides, he might thence assuredly practise more to the Satisfaction of himself, and Service of his Patients, than in the common way, by the miscellaneous Use of numberless uncertain Remedies. *F. Hoffman.*

From what has been said above, the great Uses and Advantages of drinking Water, both with respect to the Prevention and Cure of Diseases, will be sufficiently evident to every intelligent Reader. I shall now proceed to consider distill'd Waters.

Of Distilled and Medicated Waters.

The Waters ordered to be kept in the Shops are either simple, compound, or medicated. There are several ways of procuring simple Waters from Plants by Distillation, suited to the Natures of the particular Vegetables made use of. The Instruments usually employ'd in the Distillation of simple Waters, are of two Kinds, commonly call'd the hot and the cold Still. The Contrivance of the first of these is sufficiently in every one's Acquaintance, so as to want no Description; and the Reason why it hath been called the cold Still, seems to be, because no more Heat is required than to raise a Vapour, which is returned down slowly by Drops into a Receiver. The other is a Copper Vessel, worked by a strong Fire, which boils the Materials, and sends over the most volatile Parts in an hot Steam, which is condensed, and cooled in its Descent by a long spiral Pipe, contained in a Vessel of cold Water, called its Refrigeratory, from whence it falls in a continual Stream.

The first of these seems best fitted to draw off the Virtues of those Simples, which are valued for their fine Flavour when green, which is very subject to be lost in drying. Thus Baum, Meadow-sweet, damask or white Roses, and all things of the like Properties in this respect, give over much finer scented Waters this way, than by the hot Still; the Heat there required, and the Quantity of Water necessary to prevent their burning to the Still, very much injuring their natural Flavours. But when thus managed, they require no Water to be put to them, nor to be bruised, but should be committed to the Still, just as they are fresh gathered; and as much is to be drawn off as their natural Moisture will allow; the Fire required in this Case being not sufficient to cause an Empyreuma, because it is only just enough to make the Top of the Still moderately warm. Whoever hath seen what in the Shops is called a Rose-cake, may easily conceive in what Condition the Materials are left, which are thus distill'd. And as to the Damask-roses in particular, after they have been thus treated, they will give to a Decoction all their purgative Virtue, and make the Syrup ordered with them better than when managed any other way. And it is not only very remarkable concerning Materials thus to be ordered, that they are hurt by the least Mixture of Water, which makes it a Rule to gather them dry, whilst the Sun is upon them, and commit them forthwith to the Still, in order to have their Scents in Perfection; but that even bruising them destroys their fine Flavour, as any one may be easily convinced by Trial. *Boerhaave*, however, directs these Vegetables to be gather'd with the Dew upon them.

But the latter Contrivance of the hot Still seems best calculated to raise those Materials which have vigorous, strong Scents, and which will not be injured by Fire, or any Mixture of common Water with them, such as Hyssop, Pennyroyal, and the like, which from their natural Production have something hot and fiery in them. But then we are taught by common Experience, that these give over their Virtues this way much better when dried, than when green, as every one may observe in Infusion or Decoction of these things; for, when green, they make either of them more foul, and yield less Taste of the Plant, than when dried; and the Water so drawn hath the same Disadvantages.

That Diversity in the Materials coming under this Management, which requires such different Treatment, seems chiefly to consist in this: The lighter and finer scented Plants, whose natural Flavours cannot be preserved to them in drying, and which we most covet to preserve in their distill'd Waters, are best ordered by a slow Heat, without any Mixture; because by their drying, it appears, that their proper Juices are the best and only Vehicles for those Flavours. But Things, whose Scents and Medicinal Properties consist in somewhat more gross and fixed than will exhale with their natural Moistures, do better give out to common Water, by Infusion; those very Parts which we want to force from them by Distillation; and in nothing are we more obviously directed by Nature, than in this Procedure. Where we want to blend something into this Form,

that is so light and volatile, as not to subsist in open Air any longer than it is in its Growth, it is certainly best removed from the Condition Nature left it in, into an Instrument, where, as it dries, those volatile Parts can be collected and preserved. And what we call the cold Still is such an Instrument, where the drying of the Plant or Flower is only forwarded by a moderate Warmth; and all that arises from it, is saved for the Purposes of Medicine. But when what we want from a Plant is not volatile enough to rise with its natural Juice in leisurely drying, it is highly reasonable to think this way insufficient to raise it, and therefore we must have recourse to such Means as have been taken Notice of in the other Process of the hot Still. *Quincy's Praelect.*

An Example of a Water procur'd by the cold Still, from Boerhaave.

Take Rosemary, fresh gather'd, in its Perfection, with the Morning Dew upon it, and lay it lightly and unbruised upon the broad round Plate within the common cylindrical Furnace, the Plate being first made clean, and fixed at the Height of two or three Inches. Then cover the Furnace with its large conical Still-head, and apply a Glass Receiver to the Nose thereof. In the Fire-place of the Furnace put a lighted Coal, that does not smoke, and raise an equable Degree of Heat, not exceeding eighty-five Degrees on *Fahrenheit's* Thermometer; and let this Heat be kept up so long as any Liquor comes over. Then taking away the Plant, put in fresh, and proceed as before; continuing to do this successively, till a sufficient Quantity of the Water be procured. Let this distilled Liquor be kept at Rest, in a clean Glass, close stopped, for some Days, in a cold Place; whereby it will become limpid, and have the Taste and Odour of the Plant.

REMARKS.

In this Water are contained the Liquor of Dew, consisting of its own proper Parts, which are difficultly separated from the Plant, and cleave to it even in the drying. This Dew also, by sticking to the Outside, receives the liquid Parts of the Plant, which being elaborated the Day before, and exhaling in the Night, are hereby detained; so that they concrete together into one external Liquid, which is often viscid, as appears in Wax, Manna, Honey, &c. This Water also contains the Fluid which exhales from the Vessels of the Rosemary, and which principally consists of simple Water, as appears upon long standing in an open Vessel, when the Taste and Odour vanishing, leave an insipid Water behind. Another Part of this Water is that subtle, volatile Substance, which gives the Plant its peculiar Taste and Odour; for these the Senses discover in it; but the Remains of the Process scarce afford any thing thereof. This same Water seems also to contain Seeds, or other little Bodies, which in a certain time usually grows into a kind of thin, whitish Weed, suspended in the Middle of the Water; and, daily increasing or spreading itself, becomes a Mucilage, which did not appear at first.

I have kept these Waters undisturbed in separate well-closed Vessels, and observed, that in a Year's time, they began to appear thick, which Thickness gradually increased every Year, till at length the whole Liquor grew roapy or mucilaginous. Hence this Water contains the elementary Water, and presiding Spirit of the Plant; a Spirit small in Bulk, but rich in Virtue, and exhibiting the specific Smell and Taste of the Subject. This Water, therefore, in exhaling, proves a Vehicle to that Spirit which contains in a small, subtle, extremely volatile, and thence easily separable Substance, the particular Virtue of the Plant, leaving the Remainder exhausted in this respect: And hence proceeds the Medicinal Virtue of these Waters, which principally depends upon their native Spirit. For this Spirit, having a brisk Mobility in most Plants, affects the Nerves, and raises the Spirits in case of their Depression. But besides this common Principle of Action, Plants have another peculiarly appropriated to each, and of wonderful Efficacy: This, in the Language of *Paracelsus*, is called their *Appropriated Essence*.

The odoriferous Scents, both of Lavender and of Baum, agree in this, that they excite the languid Nerves; but the Smell of Lavender, besides this, has another particular Virtue, and so has Baum. From the Virtue of Plants proceed wonderful Effects in the Body, which can only be learnt from a faithful History of Plants, where their Virtues, founded upon Experience, are delivered. This peculiar Virtue has often a contrary Effect to the common. The *Indian Hyacinth* has an extremely fragrant Odour, but excites strange Spasms in Hypochondriacal Men, and Hysterical Women. Rue also diffuses a very strong Scent, which cures the Spasms occasioned by the former Odour.

We must also observe, that human Industry has discovered, that this fine Vapour of Plants is productive of those strange Effects occasioned by vegetable Concretes, as well in the way

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of Evacuants, as Alteratives; because if this alone be totally separated from Medicinal or Poisonous Plants, the Remainder, tho' without almost any sensible Loss of Weight, loses all that Efficacy. Hence a Chymist should be cautious and reserved in assigning the Virtues of these Waters, and learn for some time before he pronounces with Certainty. From these Observations we may say, that these Waters will frequently cure Fainting, and prove agreeable in the way of Perfume; for nothing more directly proves more refreshing, and enlivening to the Brain and Spirits, than such a Water of Baum or Rue, each of them full of the respective Spirit of the Plants.

If the Vessel be close stopped, and set in a cool Place, the Waters will retain their Virtues for a Year; but if negligently kept, or any Crack should happen in the Glass, their extremely volatile Spirit secretly flies off, and leaves the Water yapid. Our Experiment also shews us, what it is which Plants lose by being dry'd in the Summer's Sun, viz. The Water, and the Spirit we have been describing. Hence also we know the Nature of that Fluid, which first rises from Plants in Distillation, and what that Matter properly is in Plants, which gives their peculiar Odour, that is, their presiding Spirit. Lastly, we hence learn, in some measure, what those Effluvia are, which principally, in the Summer Season, and the open Air, exhale from Vegetables; for it is highly probable, that these constant Exhalations of Plants, especially in the Day-time, have a great Agreement in their peculiar Nature with the Liquor produced in our present Process, tho' differing in this, that the Exhalation is made from Parts continually recruited by the Root; whilst in our Experiment those Parts alone are collected, which are driven off from the Plants, after being gathered, and no longer supplied with fresh Nourishment. Whence the diligent and ingenious Dr. Hales observes, in his *Vegetable Statics*, that the Distillation of the Juice received in Glass Vessels, artificially applied to recent Incisions of Plants, in the Summer Season, is of a different Kind from common Distillations.

Hence we may understand, that the various, peculiar, and often surprising Virtues of Plants, may be widely diffused thro' the Air, and carried to a vast Distance by the Winds. So that we must not presently account as Fables what we find related in the History of Plants, concerning the surprising Effects of Effluvia. The Shade of the Walnut gives the Head-ach, and makes the Body costive. The Effluvia of the Poppy procure Sleep. The Vapour of the Yew-tree is reputed mortal to those who sleep under it; and the Smell of Bean-blossoms, if long continued, disorders the Senses. The strong Action of the Sun upon Plants certainly raises Exhalations of great Efficacy, by means of the Spirits they diffuse; and the Motions of the Winds carry them to a great Distance. The dark Shades of thick Woods, where Vapours are contracted, occasion various Diseases, and often Death, to those who reside among them, as appears by melancholy Examples in *America*, which abounds with poisonous Trees. For this Spirit of Plants is a thing peculiar to each Species, absolutely inimitable, nor producible by Art: It has therefore Virtues peculiar to itself, but such as are strangely agreeable to the human Spirits. But because the Spirits of some Plants are very manifest to the Senses, whilst those of others scarce affect our Organs of Smell and Taste by any sensible Action, the Chymists have chiefly destin'd to this first Process those Plants which are remarkable for their grateful Odour. Such as those of the following short Catalogue, for Example, taken from the *European* Officials, and a few of the *Indian*.

PLANTS

Angelica,	Fennel,
Anise,	Feverfew,
Basil,	Galangal,
Baum,	The Garlicks,
Bays,	Heartwort,
The Calamints,	Hyssop,
Calamus Aromaticus,	Jessamine,
Caraway,	Lavender,
Cardamon,	Leeks,
Cassia Aromatica,	Lemons,
Catmint,	Lily of the Valley,
Celeri,	Lily-white,
Chamomile,	Lovage,
Chervil,	Mace,
Cinnamon,	Marjoram,
Citron,	Marum Syriacum,
Clary,	Masterwort,
Clove July-flowers,	Mastichina, common Ma-
Coriander,	rum,
Cresses,	The Maudlin Tanfies,
Cumin,	Melilot,
Dill,	Mint,
Dittany,	Motherwort,

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Nutmeg,	Scurvy-grass,
Onions,	The Southern-woods,
Orange,	Spignel,
Origanum,	Tansy,
<i>Philadelphus Athenæi</i> , or	Tuberose,
single white Pipe-tree,	Valerian,
Polium,	Victorialis,
Roses,	Violet,
Saffron,	Walnut,
Sage,	Wild Thyme.
Savory,	

TREES.

Bay,	Mastich,
Benjamin,	Myrtle,
Box,	Orange,
Cedar,	Peach,
Citron,	Pine,
Elder,	Rose,
Fir,	Sassafras,
Guaiacum,	Savin,
Juniper,	Storax,
Lemon,	Thuya, or Life-tree,
Lime,	Walnut.

Several of these Trees contain, in their different Parts, an aromatic, volatile Matter, which may be obtained in this first Operation; for sometimes their peculiar Virtue resides in the Root, as the camphorated Balsam in the Cinnamon-root; or in the Wood, as in the Rhodium Wood; in the Bark, as in Cinnamon; in the Catkins, as in Walnuts; and frequently in the Flowers, Leaves, and Seeds: Again, in the Waters that distil from them, as in the Walnut; in their Balsams, Gums, Tears, and Rosins, as in the Balsamic Trees. *Boerhaave's Chymistry, Vol. 2. Process 1.*

The much greater Tedioufness and Expence of working with the cold than the hot Still, makes very few care to comply with it; so that where any thing of Moment is depended upon from this particular way, great Care ought to be taken not to be deceived therein.

But to avoid the Tedioufness of the one, and the Inconveniences of the other, of these ways, there hath lately obtained a Contrivance something between both, which is by suspending in a Copper Still, conveniently filled with Water, a Pewter Body, which is to hold the Materials to be drawn off; an Head is fitted to the latter, which joins to a spiral Worm, in a Refrigeratory of cold Water, as in the common hot Still. Ingredients thus distilled, which is in *Balneo*, have a greater Heat given them than in the cold Still; and yet by the Interposition of the Water, in which the Vessel containing them is suspended, they have not the Fire so forcibly acting upon them, as in the common way of the hot Still: So that all those things which require a middle Way between the other two, are hereby well provided for, as, amongst the Simples, Mint, Angelica, Chamomile, and some others which are of a Texture between very volatile and very fixed. And amongst the Compositions, the *Aqua Lactis Alexiteria*, the softer Snail-waters, and those of similar Properties; but neither the very fine-scented Simples, nor the heavier Compounds, can be thus ordered, but to Disadvantage.

One of the greatest Advantages of this Contrivance is, that Waters so drawn come over much cooler than from the hot Still, that is, they have not so much of the Fire in them (as it is commonly termed); so that an hot spicy Water, thus ordered, shall taste as cool upon the Palate when just drawn, as in the other way it would do after it had acquired a considerable Age. But another great Benefit is likewise obtained this way, and that is, the avoiding that Foulness in the Water coming over, which arises from too great Proportions of oily Ingredients in the ordinary Distillation: For tho' a Composition be considerably overcharged with things of this Disposition, yet, by the Relaxation of Heat in this Contrivance, they are so much less forced over, that the Water will be much finer. Yet, whether a Diminution in the Quantity of Ingredients, or in the Force to raise them, is the more eligible way to avoid this Inconvenience, I will not pretend to determine; though I most incline to the latter, because, without doubt, they are the finer Parts of the Aromatics which first rise, and consequently they must be best which come over with the least Force. But this way is practicable only with those Waters which are to come over highly spirituous, because there is not here Force enough to raise the others.

In this View, if we pass over the simple Waters wherein we are directed to draw these Properties, we shall find, that both the Wormwoods, the Carduus, and the Fumitory, are in no respect fitted for this Management: As to the first, if they have any Scent that will come over, it is so much the worse; because they are to most very offensive, especially that of the common Wormwood; and all of them have their Medicinal

Medicinal Virtues only in a bitter, earthy Salt, that will not rise in the Still, and is to be come at only by Decoction. Celandine, Parsley, and Saxifrage, have nothing in them volatile to send over in Distillation, but abound with a nitrous Salt, that proves diuretic, when order'd in proper Forms; and the Plantain and Oak-buds yield only a viscid, mucilaginous Juice, which will afford nothing over the Helm but an insipid Phlegm, that will soon mother and grow ropy. The same is chargeable upon the Frogspawn, Succory, and Eyebright, which likewise give over nothing discernible in a Water; and what comes from Fennel soon grows rank, and is so ill-scented as not to be endur'd, besides its Aptness to grow ropy. From Flowers, as those of Oranges, Chamomile, Rosemary, Damask-roses, and Elder, the most fragrant Waters are procurable; but from the rest very little of Value. The Citron-peel also, among the Fruits, makes a most delightful Water; but neither Raspberries nor Walnuts send over any thing that will smell, taste, or keep. The Water from black Cherries seems, by much, the best we have in the Shops for a Vehicle; the Kernels give it an agreeable Flavour, and there is so much of a Spirit in the Juice as preserves it the Year round, when carefully distill'd, without Decay. But this we are frequently cheated in, some making it from the Stones only, which those, who express the Juice for other Purposes, sell at a cheap Rate; tho' those taken out from Brandy, where the Stone hath not been before broken, make this Water well enough; but some are not contented only with these Pieces of good Husbandry, but make it from other Kernels, and often from nothing but bitter Almonds. These Frauds are not easily discover'd, unless the substituted Materials be crouded in such Quantities, (which commonly happens from the Encouragement of their Cheapness) that they shew a Foulness which is not at all perceivable in the genuine Water.

It may indeed, in some Cases, with good Reason, be requir'd to have simple Waters under the Denomination of Coolers, or such as have no other Property than being soft Vehicles to other Things; and these are best procur'd from inodorous or soft Substances, as Plantain, Frogspawn, and the like: And certainly, a distill'd Water is more strictly and simply elementary, and more a Diluter, than any other; but it is almost impossible to keep these the Year round, which can be had only from Vegetables at certain Seasons; and therefore such as are desir'd for mere Diluters, or Coolers, may possibly be had fresher drawn, at any Season, from Substances of like Smoothness and Texture. The simple Waters, indeed, from the lighter scented Plants, as Baum, and the like, are very subject to the same Decay; but that may, in some measure, be remedy'd by sprinkling the green Herb, before it is put in the Still, with a little Spirit, which will be so far from a Prejudice to the Flavour of the Water, that it will rather help and improve it. *Quincey's Praelect. Pharm.*

Example of a distill'd Water of a fresh Plant, by the Alembic, shewn in Rosemary. From Boerhaave.

We are now to inquire into that Part of Vegetables, which, being separated by the Heat of boiling Water, flies off into the Air. The most commodious Operation for this Process, is that perform'd by a still Head, closely fitted in to the Mouth of a Vessel, so as to collect and condense the Vapour arising by a boiling Heat, and transmit it without Loss into a Receiver. We are now to collect whatever flies off from a recent Plant, by the natural Degree of the Summer's Heat, up to that of two hundred and fourteen Degrees: And for this Purpose we shall again make Choice of Rosemary, that the Operation may be duly compared with that given above upon the same Subject; tho', instead of this, any other of the sapid and odorous Plants, enumerated as fit Subjects for the preceding Process, might be here employ'd, all which contain an inflammable, oily, and a fixable saline Part, as also a saponaceous one, consisting of the two. The Plants design'd for this Operation are to be gather'd when their Leaves are at full Growth, and a little before the Flowers appear, or before the Seed comes on; because the Virtue of the Subject, expected in these Waters, is often little, after the Seed or Fruit is form'd, at which time Plants begin to languish: The Morning is best to gather them in, because the volatile Parts are then condensed by the Coldness of the Night, and kept in by the Tenacity of the Dew, not yet exhale'd by the Sun. This is understood, when the Virtue of the distill'd Water principally resides in the Leaves of Plants, as it does in Mint, Marjoram, Pennyroyal, Rue, and many more; but the Case differs, when the aromatic Virtue is only found in the Flowers, as in Roses, Lilies of the Valley, &c. in which Case we choose their flowery Parts, whilst they smell the sweetest, which should be gather'd before they are quite open'd, or begin to shed; the Morning Dew still hanging upon them. In other Plants the Seeds are to be prefer'd, as in Anise, Caraway, Cummin, &c. where the Herb and the Flower are indolent, but the whole Virtue remains in the Seed alone, where it manifests itself by its remarkable Fragrance, and aromatic Taste. We find Seeds chiefly possess'd of this Virtue when come to

perfect Maturity. We must not omit, that these desirable Properties are found only in the Roots of certain Plants, as appears in Avena, and in Orpine, whose Root smells like a Rose; and here the Roots should be gather'd, for the present Purpose, at that time when they are richest in these Virtues, which is generally at that Season of the Year just before they begin to sprout, when they are to be dug up in a Morning. If the Virtue here requir'd be contain'd in the Barks or Woods of Vegetables, then these Parts are to be chosen for the Purpose.

1. The Subject being chosen, let it be bruised, or cut, if there be Occasion, and with it fill two Thirds of a Still, leaving a third Part of it empty, without squeezing the Matter close; then pour as much fresh Rain-water upon it as will fill the Still to the same Height, that is, two Thirds, together with the Plant: Fit on the Head exactly to the Neck of the Still, so that no Vapour may pass thro' the Juncture, which the Copper-smiths can order to Perfection. Let the joining of the Nose of the Still-head to the Worm be luted with a stiff Paste, made of Linseed-meal and Water. Observe, that the Cavity of the Worm be always cleansed by passing fair boiling Water thro' it, lest otherwise the distill'd Water should be foul'd. Apply a Receiver to the Bottom of the Worm, that no Vapour may fly off in the Distillation; but that all the Liquor, being cool'd in the Worm-tub fill'd with cold Water, may be collected; which is best perform'd by keeping the Worm-tub continually supplied with cold Water.

2. Things being in this State, digest for twenty-four Hours with a moderate Degree of Heat, of 150 Degrees. Afterwards raise the Fire, so as to make the Water and the Plant boil; which may be known by a certain hissing Noise, proceeding from the breaking Bubbles of the boiling Matter; as also by the Pipe of the Still-head, or the upper End of the Worm, becoming too hot to be handled; or the Smoaking of the Water in the Worm-tub, heated by the Top of the Worm; and lastly, by the following of one Drop immediately after another, from the Nose of the Worm, so as to make an almost continued Stream. By all which Signs we know, that the requisite Heat is given; and if it be less than a gentle Degree of Ebullition, the Virtue here expected will not be rais'd: But when the Fire is too great, the Matter hastily rises into the Still-head, and fouls the Worm and the distill'd Liquor; and the Plant being also rais'd, it blocks up the Worm; for which Reason it is proper to place a Piece of fine Linen, artificially, at the End of the Still-head Pipe, that, in case of this Accident, the Plant may be kept from stopping up the Worm. But, even in this Case, if the Fire be too violent, it will throw up the Herbs into the Still-head Pipe; whence the Passage being stopp'd, the rising Vapour will forcibly blow off the Head, and throw the Liquor and Steam about, so as to do much Mischief, or even to suffocate the Operator, without a proper Caution; and the more oily, tenacious, gummy, or resinous the Subject is, and consequently the more frothy and explosive, the greater Danger there is, in case of this Accident.

3. Let the due Degree of Heat therefore be carefully observ'd, and equally kept up, so long as the Water, distilling into the Receiver, is white, thick, odorous, sapid, frothy, and turbid; for this Water should be kept carefully separated from that which will follow it: Whence the Receiver must be often chang'd, that the Operator may be certain, that nothing but this first Water comes over; for there afterwards rises a Water that is transparent, thin, and without the peculiar Taste and Odour of the Plant, but generally somewhat tartish and limpid, tho' somewhat obscur'd and foul'd by white dreggy Matter: And if the Head of the Still be not tinn'd, the Acidity of this last Water causes it to dissolve the Copper, so as to become green, nauseous, emetic, and poisonous to those who use it, especially weak Persons and young Children, as operating both upwards and downwards, with severe Gripings. If such a Misfortune should happen, it is remedied by drinking plentifully of Milk, sweeten'd with Honey, or of the common emollient Decoctions.

4. The first Water, above describ'd, principally contains the Oil and presiding Spirit of the Plant, and always somewhat saline, which in most Plants is acid, but in the more pungent Antiscorbutics a volatile Alkali; for the Fire, by boiling the Subject, dissolves its Oil, and reduces it into small Particles, which are carried upwards by the Assistance of the Water, along with those Parts of the Plant that become volatile with this Motion. And if the Vessels are exactly clos'd, all these, being united together, will be discharg'd without Loss, and without much Alteration, into the Receiver annex'd; for, if we may trust our Senses, these Waters are richly impregnated with the Odour, Taste, and particular Virtues of the volatile Parts of Plants: Hence, if the Botanist justly assigns the Virtues of any Plant, as they are contain'd in that Part which is volatile by a boiling Heat, the Chymist can present those Virtues separated from the rest. The former was attempted by Mr. Tournefort, in his Book of Plants spontaneously growing about Paris; and by Mr. Ray, in his Book of the native Plants of England. Dodonaeus has perhaps spoken too boldly, and sometimes rashly, of them all, especially in the last Edition of his Work, printed

at *Antwerp* in 1644. I have expressly observed, that the first of these distill'd Waters contains only the Virtues of the Plants, residing in that Part which is volatile with this Heat; because, in the whole mix'd Juice of the Plant, there is a certain Virtue depending upon a Mixture of this first Water, and the Liquor remaining after that is drawn off. The fresh express'd Juice of recent Mint has certainly many other distinct Properties than the distill'd Water thereof: Whence Physicians are to observe, that the Virtues of this Water, and of the native Juice, are not the same, but very different.

5. The Water of the second Running wants the volatile Part above describ'd, yet scarce brings over the more fix'd Part of the Plant, except what is somewhat acid and vapid: If, when this is come off, fresh Rain-water be pour'd upon the remaining Plant, and boil'd therewith, or strongly distill'd, there rises a more acid Water, containing very little of the particular Virtue of the Plant; almost the same kind of Acidity appearing to rise thus from them all at last. This I may venture to affirm, upon Experience, that the Virtue of destroying Worms, which the more celebrated Physicians have justly attributed to certain distill'd Waters, depends upon this, that the Acid of the Water of the last Running dissolves the Copper, and thus acquires a Virtue not its own. This Operation, however, shews, that Plants contain an acid Salt so volatile as to rise and separate from the Subject, with 215 Degrees of Heat. But Experience shews, that the Water of this second Running has scarce any other Virtue than that of cooling; as may be safely tried by using a Glass Still-head instead of a Copper one, by which means the Inconvenience of its dissolving the Copper is prevented.

6. And this is the best Method of preparing the distill'd officinal Waters, provided the two Sorts be not mix'd together, for both of them would be spoil'd by such a Mixture; they also spoil with keeping, and will seldom remain perfect a Year.

REMARKS.

We learn from the present Process,

1. What a Plant parts with by the Heat of boiling Water, that is, the Water of the preceding Process, the volatile Oil with its inherent Spirit, and a saline Acid.
2. What remains in the Still after the Separation of these three Parts; that is, the Extract, the Earth, and the Salts.
3. In what Part the Odour and Taste of a Plant reside; that is, in the Water, in the volatile Oil contained in this Water, and in the Spirit contain'd in this Oil.
4. Hence is easily known what exhales by boiling, both in Cookery and Pharmacy, and what remains behind. If Costmary, Chervil, Baum, or Smallage be boil'd in Broth, they lose their peculiar Smell and Taste, with the Virtues thereon depending, and only leave behind their common ungrateful Parts; but if cut small, and added to the Soup already prepared, and kept hot, but not boiling, in a Vessel close cover'd, so as to infuse for a while, they communicate their peculiar Virtues thereto. Cinnamon affords an extremely grateful Water, which surprisngly warms and exhilarates; but when this is all come over, there follows another that is acid and indolent, leaving an acid, austere, and cooling Decoction behind, resembling that of Oak-wood.
5. Hence it plainly appears at what time, with the same Force of Fire, quite contrary Virtues may arise from a Plant; for so long as a milky Water comes over from such Plants as are aromatic, so long the Water remains warming and attenuating; but when it comes thin and pellucid, it is acid and cooling.
6. In the last Place, we have hence the true Foundation for the conducting of Distillation; for if the Operation be stop'd as soon as ever the white Water ceases to run off, the Preparation will be valuable and perfect; but if, thro' a Desire of increasing that Quantity, more be drawn off, and so the latter acid Part be mix'd with the first Running, this spoils the Whole. We should here observe, by the way, that the distill'd Waters of inodorous Plants, which have no aromatic Sharpness, may yet leave very considerable Virtues, tho' the contrary is generally suppos'd: And again, that the native Virtues of Vegetables may thus, in some measure, be chang'd by the Boiling, from what they originally are. The Rosemary remaining in our present Process still appears green, and preserves its original Form; being only deprived of its native Smell and Taste.

The common distill'd Water by the Alembic, cohobated or return'd back upon more of the fresh Plant.

The preceding Process has shew'd, what Water and Fire may separate from a Plant in close Vessels, and what is left behind therein; but the present Process teaches a Method of opening Plants still farther, and treating them so as to obtain distill'd Waters much richer in those Virtues of the Subject, which were mention'd in the former Process.

Take the Plant and Liquor, remaining in the Still after the preceding Process, and press them strongly in a Strainer, that all the Decoction may be obtain'd, and with this mix all the Water before drawn over. Return this Mixture into the Still, and add to it as much of the same recent Subject as was employ'd before, and, if necessary, add likewise as much Water as may make up the former Proportion to the Plant: Now close the Vessels exactly, and digest the Whole, with 150 Degrees of Heat, for the Space of three Days and Nights, that the Herb, being so long steep'd in its own Liquor, may be open'd, loosen'd, and dispos'd the easier to part with its Virtues. This Digestion being so long continued, is of great Service; but if protracted too long, introduces a Change tending to Putrefaction. Let the Water now be distill'd off in the same manner as in the foregoing Process, only proceeding more cautiously, and somewhat more slowly at the first; because the Liquor in the Still being now thicker, more impregnated with the Plant, and therefore more flatulent, and apt to swell upon feeling the Fire, it easily boils over; but after about one half of the expected Water is come off, the Fire may be prudently rais'd. If the Rule before laid down be observed, and the Distillation be continued so long as the first Water, describ'd in the preceding Process, comes over, and then the Operation be immediately stopp'd, the Water so obtain'd will be whiter, thicker, more odorous, sapid, frothy, and turbid, than that of the last Process.

This Water also preserves its Virtue much longer, and contains it in greater Perfection, than that of the last Process; which shews us a way of concentrating the peculiar Virtue of Plants, so far as it resides in their volatile odorous Parts: So likewise the remaining Decoction in this Process is much stronger than in the former; and as the Operation may be repeated as often as one pleases, both the Water and the Decoction may, by several Repetitions, at length be made extremely rich; so that by this means excellent Medicines are procurable. Thus in the Year 1730. I distill'd Baum after this manner fourteen times successively, and found the Water at last had a balsamic Taste, and the perfect Fragrance of the Plant, so as to prove highly refreshing, even when barely smelt to, or tasted: And no Wonder, since the Virtue of many large Baskets of Baum was here concentrated, and brought within the Compass of a small Glass; and the Remainder also, at the Bottom of the Still, being inspissated, fill'd but another Glass, and proved grateful, austere, and strengthening; so that, by mixing the two together, the Virtues of the Plant might be thus highly concentrated, or brought into a very little room. This Process therefore does not only afford excellent Waters, but admirable Extracts also, which, when properly mix'd together, yield Medicines of such Efficacy as can scarce otherwise be imitated; for the native Virtues of Vegetables are little chang'd in this Operation, certainly less than in others; tho' it must be allow'd, that some Alteration is produced by so long a Continuation of the Boiling: But both the Odour, Taste, and Effects, demonstrate, that the Waters thus prepar'd, retain, in an high Degree, the specific Virtues of the Plant.

And hence it is certain, that the sought Medicinal Virtue of truly aromatic Vegetables resides in that Part of them which rises with the Heat of boiling Water; and that it is possible, by Art, to concentrate their Virtues, so that they should prove much more effectual than in the State they are naturally afford'd: Nor is there any Limitation; for by continuing to repeat the Operation, the Virtues of Plants may be thus exalted to any Degree the Artift should think proper; which shews the extraordinary Power of Chymistry.

Paracelsus assures us he found, by Experience, that Baum is possess'd of so great a specific Virtue, as, by insinuating into the Humours of the Body, to restore a new youthful Vigour to the Aged, and by this means perfectly to cure the Gout; and *Isaac Hollandus* avouches the same. Now, if these Authors said true, I judg'd I might, by means of the present Process, procure the united Virtues of the Plant in their utmost Strength; and, indeed, I have in myself experienced extraordinary Effects of the Water so prepar'd, by taking it upon an empty Stomach. And, certainly, it has scarce its Equal in Hypochondriacal and Hysterical Disorders, the Chlorosis, and Palpitation of the Heart, as often as these Diseases proceed rather from a Disorder of the Spirits, than any Collection of morbid Matter; tho' it is indeed expensive. I have reduced dried Mint, by three or four Cohobations, into a balsamic penetrating Liquor, which becomes an incomparable and present Remedy for strengthening a weak Stomach, and curing Vomiting proceeding from a cold viscid Phlegm lodg'd about the Mouth thereof; as also in Lienteries. The Water I have in this manner prepar'd from Lemon-peel, has, by its Fragrance, its agreeably penetrating, and highly aromatic Taste and Virtue, immediately cured Flatulencies, Deliquiums, Faintings, and irregular Motions of the Heart, tho' taken in a very small Dose. The like Water, prepar'd by repeated Cohobations from recent Wormwood, has successfully supplied the want of Bile in the Body, stimulated all the languid Vessels

Vessels that are assitant in forming the Chyle, and kill'd and expell'd Worms. The like Water, from the Leaves of Savine, has given an almost incredible Motion to the whole nervous System, so as to prove the most excellent of all Medicines, for promoting the Exclusion of the Fœtus, and the Discharge of the Menfes, and Hemorrhoids. The cohobated Water of Rue can never be sufficiently recommended for the Cure of the Falling-sickness, the Hysteric Passion, for expelling Poison, and promoting of Sweat and Perspiration. I do not here mention the Water I have made from the Berries of the Juniper-tree, and the Leaves of the Arbor Vitæ; both of them successfully curing the Dropsy, as that from Chamomile-flowers cures Tertian Agues. It were endless to pursue these Waters thro' all the Variety of Subjects. I judge it manifest upon the Whole, that this is a true and excellent Method of obtaining the Chymical distill'd Waters. Some Rules, however, are required for applying these two general Examples to all Sorts of Herbs, which may require something peculiar. These Rules are as follow:

1. Let the aromatic, balsamic, oleaginous, resinous, gummo-resinous, and strong-smelling Plants, which long retain their natural Fragrance, such as Arbor Vitæ, Baum, Bay, Hyssop, Juniper, Marjoram, Mint, Origanum, Pennyroyal, Rosemary, Sage, &c. be gently dried a little in the Shade; then digest them, with the Quantity of Water already mentioned, for twenty Hours, in a close Vessel, with 150 Degrees of Heat, and afterwards distil in the Method above deliver'd, and thus they will afford excellent Waters.

2. When Waters are to be drawn from Barks, Roots, Seeds, and Woods, that are very dense, ponderous, tough, and resinous; let them be digested for three, four, or more Weeks, with ninety-six Degrees of Heat, in Vessels perfectly closed, with a proper Quantity of Salt and Water to open and prepare them better for Distillation: A considerable Quantity of Sea-salt is here added, partly to open the Subject the more, but chiefly to prevent Putrefaction, which otherwise would certainly happen in so long a Time, and with such a Heat, as is necessary in this Case, and so destroy the Odour, Taste, and Virtues required: And thus, for Example, may Waters be prepared from Aloes, Box, Cedar, Guaiacum, Juniper, Rhodium, and the like Woods.

3. Those Plants which diffuse their Odour to some Distance from them, and thus soon lose it, should immediately be distill'd after being gather'd in a proper Season, without any previous Digestion; thus Borage, Bugloss, Jessamin, white Lilies, Lilies of the Valley, Roses, &c. are hurt by Heat, Digestion, and lying in the Air. Some Woods also are injur'd in the same manner; thus the Shavings of Sassafras, by being boiled in Water, soon lose their Virtue, Taste, and Smell.

4. The astringent, nutrimental, healing, consolidating, emollient, farinaceous, gelatinous, cooling, and styptic Virtues of Plants are never, by this means, communicated to the distill'd Waters, but are to be sought either in the whole Plant, or its most fix'd Part. Whence Pharmacy should be reliev'd from the unnecessary Trouble of preparing such Waters; and, on the other hand, Physicians are diligently to be admonish'd to seek for such Virtues in the Infusions, Decoctions, and Extracts of such Plants. Would it not be ridiculous to expect any thing nutrimental in the indolent and rapid distill'd Water of Barley, or minc'd Capon's Fleth? Can any Man expect to find the excellent Virtues of Sorrel, in hot, lax, putrid, and bilious Constitutions, from the distill'd Water of this Plant? So again it were absurd to attribute the inimitable Virtues of Plantain to its distill'd Water. Such idle and childish Trifles are therefore to be rejected in the serious Arts of Chymistry and Medicine.

The Case is far otherwise in those Plants, whose real Virtue entirely resides in that Part which is separable by a Heat not exceeding 214 Degrees; for the Waters carefully prepared from these will contain all the Virtue which is lost in their Decoctions and Extracts. The celebrated Virtues of Lavender-flowers, Lilies of the Valley, and of Rue, against that Species of the Falling-sickness which proceeds from a Disturbance in the Motion of the nervous Fluid, reside in the distill'd Water, but are absolutely wanting in the Decoctions or Extracts; so, on the other hand, the anti-epileptic Virtue of Piony remains in the Decoction, but is wanting in the Water.

6. There are some Medicinal Plants whose Virtues reside in a Part which is volatile, with the aforesaid Degree of Heat, but so, that after these are raised by Distillation, the remaining Plant, and its Decoction, continue possessed of other Virtues, of great Medicinal Efficacy. Such Decoctions, therefore, are not to be thrown away, but to be inspissated with a moderate Heat, that they may be kept uncorrupted; for, being afterwards mix'd with the distill'd Water, the Virtues of both are thus united, and afford the whole Efficacy of the Plant: And of this kind are Chamomile, Carduus Benedictus, the lesser Centaury, Germander, Ground-pine, Mugwort, Rosemary, Sage, Scordium, Wormwood, &c. This Tribe of Herbs, indeed, are exalted by Fermentation, so as to afford the better Waters; but when their Decoctions come afterwards to be inspissated,

VOL. I.

they either have less, or a different kind of Virtue from the natural.

7. Acid, bitter, austere, sweet, and flat Tastes, rarely ascend from Plants in Distillation, but commonly remain in their Extracts, tho' they ascend from Chamomile, Wormwood, and a few more; but the Colour of Plants is scarce ever rais'd by Distillation, tho' we have a blue Colour in the Distillation of Chamomile, and a green one in that of Wormwood; but these Colours are rather in the Oil than in the Waters. The saponaceous Virtue, consisting in the Union of the Salt and Oil, never rises, but remains in the Extracts; and therefore Plants endow'd with this Virtue are not to be thus distill'd.

8. The following Vegetables scarce afford any thing of Use in their distill'd Waters; that is, Barberry, Beet, common Cherries, Colewort, Currans, Elder-berries, Endive, ripe Grapes, Ladies Mantle, Lettice, the Juices of Citrons, Lemons, Oranges, Purslain, Scorzonera, Sorrel, Strawberries, and Succory. There are also very contrary Virtues in the same Plant: Thus the distill'd Water of Cinnamon, of the First Running, is deobstruent, heating, enlivening, stimulating, and good in vomiting; but that of the Second Running astringent, cooling, and nauseous; whilst the Decoction remaining in the Still is of a dark-red Colour, opaque, thick, of an austere Taste, astringent, coagulating, and strengthening.

Simple Waters are directed by the College of Physicians to be drawn

From the Leaves and Buds of

Both the Wormwoods,	Baum,
Angelica,	Mint,
Carduus Benedictus,	Parley,
Succory,	Plantain,
The greater Celandine,	Pennyroyal,
Eyebright,	Oak,
Fenil,	Rue,
Fumatory,	Saxifrage,
Hyssop,	Meadow-sweet,
Marjoram,	

From the Flowers of

Oranges,	Piony,	
Chamomile,	Rosemary,	
Beans,	White	} Roses,
Lilies of the Valley,	Red	
Elder,	Damask	
Red Poppies,	Limes.	
Cowslips,		

From the Fruits of

Citrons, the Peel,	Green Walnuts, and
Rasp-berries,	Black Cherries.

From twelve Pounds of the latter of which, bruised with the Stones, draw one Gallon.

From an Animal,

Frog's-spawn.

Quincy's London Dispensatory.

To these the Edinburgh Dispensatory adds

Mugwort and Savine.

The same Dispensatory orders the FROG-SPAWN WATER to be made thus:

Hang any Quantity of FROG-SPAWN in a Bag, so that the Water may run from it into a Vessel set underneath to receive it; and to every Pint of the Liquor, thus obtain'd, add a Dram of Roch-alum.

This is a much better Frog-spawn Water than we find order'd in other Dispensatories; the Addition of the Alum, and the manner of Preparation by Resolution, considerably increase its Virtues; whereas that obtain'd by bare Distillation gives us little more of the Spawn than its uselefs Phlegm. As it stands here, it seems design'd as a Cooler for external Uses.

The same Dispensatory very properly observes, that the Waters of those Plants which are obtainable to no good Purpose by Distillation, may be made by dissolving a proper Proportion of their essential Salt in Spring-water (or rather in distill'd Water).

The Method of making the AQUA LACTIS ALEXITERIA, Alexiterial Milk Water, is specify'd under the Article ALEXITERIA, which see.

AQUA CINNAMOMI TENUIS,

Small Cinnamon-water, is made by infusing twelve Ounces of Cinnamon in eight Pints of Water, and then distilling till the Liquor ceases to come over milky.

Another Simple-water has lately been introduced into Practice, not mention'd in any Dispensatory that I know of, under the Name of PEPPER-MINT WATER. This, I presume,

is distill'd from the MENTHA SPICIS BREVIORIBUS ET HABITIORIBUS, FOLII MENTHÆ FUSCÆ, SAPORE FERVIDO PIPERIS of Ray's *Synopsis*; MENTHA SAXIFRAGA, ANGUSTIORE FOLIO, SPICATA, SAPORE ACRI FERVIDO, of *Plukenet's Almagest*. 129. MENTHA PIPERATA ACUTA of *Petiver's Herbarium Britannicum*; Pepper-mint.

This Water is extremely hot in the Mouth, and upon the Stomach; and therefore seems proper to warm, invigorate, and discuss Flatulencies, to destroy Acidities in the Stomach and Duodenum, and prevent Coagulations consequent thereto.

Another Method of procuring a Water from Vegetables, by fermenting the Vegetable before Distillation, after the manner of Ludovicus.

The Effects of Distillation, Digestion, and Cohobation, have sufficiently shewn us the Action of the Fire, limited by the Degree of boiling Water, in Distillation and Cohobation; and of a more gentle Fire, with Water, by Digestion. We now proceed to exhibit an elegant and useful Way of obtaining Virtues of Plants very little alter'd from what they naturally are, tho' render'd more penetrating and more volatile.

1. Take recent Rosemary, cut and bruise it, if that seems necessary; put it into a large Oak Cask, leaving a Space empty at the Top, of four Inches deep; then take as much Water as would, when added, fill the Cask to the same Height, including the Plant, and mix therein about an eighth Part of Honey, if it be cold Winter Weather; or a twelfth Part, if it be warm: In the Summer the like Quantity of coarse, unrefined Sugar might, to the same Purpose, be added instead of the Honey, or half an Ounce of Yeast added for each Pint of Water will have the same Effect; but I prefer the Honey used as described: Let the proper Quantity therefore of Honey and Water be warmed and poured upon the Plant in the Cask; let the Cask stand upright, and have its wide, upper Orifice, or Bung-hole, loosely cover'd with a wooden Cover; then set it in a wooden Chest, to be kept heated by means of a live Coal bury'd under light Ashes, so that the Liquor and Plant may feel a Heat of about eighty Degrees, which is afterwards to be constantly kept up, by covering the outside with Cloths, and due Regulation of the Fire, which must therefore be greater and more carefully attended in cold Weather; but in the Heat of Summer, little or no Fire is requir'd. On the second Day a hissing Noise will begin in the Liquor, with Bubbles, Frothing, and a grateful Smell of Rosemary, the Plant now again rising to the Surface: This Motion is called *Fermentation*.
2. When this Fermentation has continu'd so long, that what was on the Top begins to subside and sink to the Bottom, the Operation is continu'd long enough for our Purpose, so that now the Vessel must be cool'd, and closely bung'd down; for if it should continue longer open in the same Warmth, the Spirit and Oil, now render'd more volatile, would fly off, and the Virtues requir'd be lost; so that the Matter should be now directly distill'd.
3. Take therefore as much of this Plant, and its fermented Liquor, as may fill Two-thirds of a Still, and work carefully from the first; for the Liquor, containing much fermenting Spirit, easily rarefies with the Fire, froths, swells, and hence becomes very subject to boil over. And as all this happens much quicker in this Distillation than in the foregoing Kinds, we ought here to work slower, especially at the first.
4. And thus there will come over first a limpid, unctuous, penetrating, odorous, sapid Liquor, all which is to be kept separate; there follows a milky, opaque, turbid Liquor, still containing something of the same Taste and Odour; and at length comes one that is thin, acid, not fragrant, and scarce having any Property of the Rosemary: There remains in the Still an Extract, indolent with respect to the Rosemary, and retaining much of the Substance of Honey. And all these Particulars hold, when the Fermentation is continued, till the Plant spontaneously falls to the Bottom of the Cask, which, with the above-mention'd Degree of Heat, usually happens in five or six Days.
5. This first Water, or rather Spirit, may be kept for several Years, in a close Vessel, without changing or growing ropy. It also excellently retains the Taste and Odour of the Plant, tho' a little alter'd; but if less Honey were added, less Heat employ'd, or the Fermentation continu'd only two or three Days; then the distill'd Water of the first Running would be white, thick, opaque, unctuous, frothy, and perfectly retain the Scent and Taste of the Plant, or much less alter'd than in the former Case; tho' the Water will not be so sharp and penetrating. After this is drawn off, a tartish, limpid, inodorous Liquor;

will rise, leaving a Remainder behind, that retains much less of the Properties of Rosemary, than in the preceding Process.

6. There is also in this Case always found some Oil in the first Water, which was not in the former Spirit. Again, if the Fermentation were to continue only for a Day, or a Day and a half, the Water that first comes over would largely abound with Oil. In other respects Matters are nearly the same in both; for it is constantly found, that the longer the Fermentation was continu'd, the less Oil appears in the distill'd Water; and therefore what runs first, is always clearer and stronger; but upon mixing with common Water, the Whole immediately becomes milky: Whence these Waters greatly differ from one another, according as they are differently prepared in the above-mention'd respects. When the Fermentation is perfectly performed, the first Water will be limpid, the second milky; and if a third be forced over by a strong boiling Heat long continu'd, it will prove acid, thin, and limpid, resembling distill'd Vinegar. The Extract in this Case will always be the less impregnated with the Virtue of the Plant employ'd, the longer the Fermentation was continued, or the more perfectly it was performed; and *vice versa*. The Oil also, which in the Distillation of the unfermented Plants floated upon the Surface of the Water, becomes so attenuated, when the Plant is perfectly fermented before Distillation, as entirely to disappear, and lie concealed; or is subtly divided in the distill'd Liquor, which may therefore be call'd Spirit, rather than Water. That this is the Case, appears from hence, that if a large Quantity of Water be added to the Spirit, it presently grows white; which shews that there was Oil conceal'd in it: And frequently little Drops of Oil, thus regenerated, will float upon the Surface of the Water.

REMARKS.

1. Hence we learn, that this Fermentation (when perfectly finish'd in the proper Time requir'd for that Purpose, with a large Proportion of Ferment, and if the whole fermented Matter be for some time contained closely bung'd down in a Cask) affords these Waters extremely limpid, hot, aromatic, odorous, sapid, and penetrating, without any Sign of their containing an Oil; and according as these Properties appear more in the Water, the native Virtues of the Plant are more changed; so that at last they can scarce be known: But when the Fermentation is perfect, each losing its proper Character, they all become nearly alike: Whence it is manifest, that the particular Virtues of Vegetables are not exalted or perfected by Fermentation, as they were in the preceding Process by repeated Cohobation; and that the Waters of the present Process, by such Cohobation, are not render'd so spirituous, as by a single Fermentation. And this seems to proceed from hence, that in the long continued and active Motion of Fermentation, the volatile presiding Spirit, now freed from the open'd Parts of the Plant, but principally from the attenuated Oil, exhales; for the Tenacity of the Oil was the chief thing that detained and locked the Spirit in the Plant. But a gentle and moderate Fermentation, which does not dissipate the Spirit, only dissolves the viscous Obstacles, admirably quickens these Waters, makes them durable, or long preserves them from Corruption, Dregginess and Ropiness; as is excellently observed by that skilful and candid Chymist, *Daniel Ludovicus*, in his Dispensatory accommodated to the present Age. And thus the Water of Carduus Benedictus, so prepared, is highly commended, where Sweating and Perspiration are required.
2. Hence the Taste and Smell of Plants, communicated to their distill'd Waters, principally depend upon their native Spirit respectively. But as this Spirit is wrapped up in a tenacious Oil, when this Oil is mixed with the Waters, it renders them the more odorous and sapid in the larger Quantity it is so mixed. This Oil is gradually thinned, made less tenacious, more spirituous, and easier to mix with Water, by Distillation, Digestion, and Cohobation in close Vessels; but thus the Spirit also becomes more volatile and diffentangled, so as easily to fly off, unless it is every way very closely confined in the Vessels during the Distillation; which being performed, highly efficacious Waters may be thus prepared. But as Fermentation requires a Length of Time, the Admission of the Air, and open Vessels, it attenuates Oils by its Motion, so as to mix them with Water, and in this Form make an inflammable Liquor; which cannot happen without a Dissipation of the native Spirit. It however renders Oils miscible with the animal Juices, and fit to enter the finest Vessels; but always destroys the peculiar Virtue of the Plant. In the mean time, it proves the Medium of conveying stimulating and grateful Virtues to the Nerves, especially those of the Nose, Mouth, Jaws, Throat, Stomach, and Intestines.

That

That nothing relating to the Distillation of Waters may be omitted, I shall add the Method of distilling *per Descensum*.

Chymists formerly called that Motion of Bodies Distillation, when, by the Assistance of Fire, the Subject to be changed, and contained in one Vessel, to which the Fire was apply'd, passes into another joined thereto, whether Solids were thus treated or Fluids; and this Operation with them differ'd in three respects: For, 1. The Fire raised the Matter perpendicularly upwards. 2. Somewhat obliquely, or laterally, as in Distillation by the Retort. And, 3. Downwards, the Fire being apply'd above; which last Species of Distillation they called *per Descensum*, which they used in the last Age for separating Quicksilver from its Ore, and which *Paracelsus* from thence transferred to Vegetables. Of this kind of Distillation we are now to give an Example.

Let there be procured a sufficiently wide and deep cylindrical Vessel, made of such Matter as will neither transmit, drink up, or foul Liquors. From the upper Rim of this Vessel cut an Inside Groove, fit to receive exactly, and sustain a round Plate struck full of Holes, which is to sink into the open Mouth of the Vessel, so far that the upper Surface of the Plate be two Inches from the Rim thereof; then place any recent, green, succulent Plant, first cut or bruised, upon the Plate, so that it may reach up to the Rim; then apply a flat Cover, which may exactly close the Mouth of the Vessel, with the Assistance of luting, to prevent any Vapours from exhaling. The whole Apparatus may be made of Iron-plate, if a large Quantity of Water is requir'd at once; otherwise, for a single Experiment, one of Earth may suffice. Let a little fine Ashes be sifted upon the Cover, and a few live Coals be placed thereon, that the moist Parts of the Plant may be resolved into Vapour, and its Juices be liquefied so as to fall into the wide Part of the Vessel below, where being condensed by the Cold, they will gradually distil and collect, if the Fire be prudently managed, and increased by Degrees. And thus the Spirit, Water, Wax, Gum, Oil, Rosin, as also the saline and saponaceous Matter of the Vegetable, which do not easily rise in the preceding Distillations, may be obtained: Care, however, must be had, not to make the Fire too large, for fear of quite burning up the Parts of the Subject; tho', indeed, a small Degree will have but little Effect; but if a violent Fire be used, all the Parts will be confounded together, the oily Matter burnt up, the Smell and Taste of the Produce become so empyreumatical, smoky, bitter, and nauseous, as to be scarce fit for internal Use, especially if the Subject were dry and unctuous. But when succulent Vegetables are employ'd, such as Rose-flowers, and prudently treated without burning, the Water so prepared will nearly resemble the natural Juices, as containing both their saponaceous Nature, and peculiar Virtues, though always a little changed by the Fire; whence the expressed Juices themselves are not only more agreeable, but more medicinal. *Paracelsus*, however, by treating Guaiacum in this manner, obtained an acid Liquor, and a sharp foetid Oil, which he recommends both for external and internal Uses; whence this Operation has been for some time practised in *Germany*, but is now almost disused, or changed for others more suitable. *Boerhaave's Chymistry*.

Spirituus and Compound Waters directed by the COLLEGE of PHYSICIANS.

For preparing these, the Herbs are to be chosen green, unless particularly ordered to the contrary: In Defect of those which are green, about a fourth Part of the dry may be substituted, and so much Spring-water is to be allowed as will prevent their burning to the Still.

AQUA ABSINTHII MINUS COMPOSITA: Or, The Lesser Composition of Wormwood Water.

Take of the Leaves of dried Wormwood, two Pounds; of the Lesser Cardamom-seeds, two Ounces; of Coriander-seeds, half a Pound. Infuse them all in four Gallons of *French Brandy*, and draw off the same Quantity by Distillation.

After the same manner, but with an Omission of these Seeds, and, for that Reason, an Augmentation of four times the Quantity of Herbs, are made Waters from the whole Plants of Angelica, Baum, Mint, Sage, &c. the Flowers of Rosemary, Seeds of Caraway, Lesser Cardamoms, Anise, Juniper-berries, Orange, Citron, and Lemon-peel, &c.

This Water differs chiefly from that of the former Dispensatory, by substituting Cardamom and Coriander-seeds in room of the Aniseeds, which makes it more cordial and grateful to the Stomach; the Aniseeds yielding too foul an Oil to suit it for such Purposes. This Water is commonly used in Stomachic Infusions, on a Supposition, that it claims a Right to such Virtues from the Wormwood; but the Water rising from it partakes not of these Qualities which belong to it in Tincture;

so that it seems only to be carminative from the Spice and Seeds now ordered in it. *Quincy*.

AQUA ABSINTHII MAGIS COMPOSITA: Or, The greater Composition of Wormwood Water.

Take of the Sea, and common Wormwood dried, each one Pound; of Sage, Mint, and Baum dried, each two Handfuls; of the Roots of Galangals, Ginger, Calamus Aromaticus, and Elecampane, of the Seeds of Sweet Fennil and Coriander, each three Drams; Cinnamon, Cloves, and Nutmegs, each two Drams; of the Lesser Cardamoms and Cubebs, each one Dram; cut and bruise the Ingredients as they require; and, after infusing them for some time in twelve Pints of *French Brandy*, draw off the same Quantity by Distillation.

This differs from that of the former Dispensatory, in rejecting Liquorice-root and Raisins, which can have no Effect in Distillation; and in allowing a greater Proportion of Spirit, and more to be drawn off; the former being too much loaded with the oily Ingredients, to admit either of its being fine to the Eye, or grateful to the Stomach. *Quincy's Disp.*

If we consider the Wormwood and Gentian Waters as Stomachics, little can be expected from them; because the Materials they are drawn from, are not suited to send any thing over by Distillation, that comes within this Intention; so that if there be any thing good in them, we are more beholden to the Spirit than the other Ingredients for it. *Quincy's Praelect. Pharmac.*

The *Aqua Absinthii*, and *Angelica magis Composita*, are sufficiently uniform in their Intentions, but have too many of the oily Seeds to allow them to come over fine, especially the latter; but neither of them is much prescribed or made. *Idem*.

AQUA ANGELICÆ MAGIS COMPOSITA: Or, The greater Composition of Angelica Water.

Take of Angelica-root, and the Leaves of Carduus, each six Ounces; of Baum and Sage, each four Ounces; of Angelica-seeds, six Ounces; and of Sweet Fennil-seeds, nine Ounces. Let the dried Herbs and Seeds be grossly bruised; and to them add of Cinnamon, two Drams; of Cloves and Mace, each one Dram and an half; of Nutmegs, and the Lesser Cardamom-seeds, each one Dram; of Cubebs, and Galangal-root, each one Dram and an half; of *Jamaica* Pepper and Saffron, each one Dram. Infuse them in two Gallons of *French Brandy*, and draw off as much by Distillation.

This hath rejected the *Species Diamoschu Dulcis*, and the *Aromaticum Rosatum*, which were in the former; one of these Compositions being wholly expunged in the present Dispensatory, and in their room are added Spices more conveniently answering the same Intentions. But in this, the Carduus avails nothing; and the Sweet Fennel-seeds are in too great a Quantity, which will make the Water foul and milky. The last Runnings of all the foregoing Waters are worth keeping separate for carminative Juleps, and such-like Intentions. *Quincy's Dispensat.*

AQUA BRYONIAE COMPOSITA: Or, Compound Bryony Water.

Take of the Juice of Bryony-roots, four Pints; of the Juice of Rue and Mugwort, each two Pints; of the Leaves of Savine, three Handfuls; Motherwort, Catmint, and Pennyroyal, each two Handfuls; of Basil and Dittany, each one Handful and an half; of fresh outer Peel of Oranges, four Ounces; of Myrrh, two Ounces; of *Russia* Castor, one Ounce; Spirit of Wine, eight Pints. Distil as usual after proper Maceration; for the longer things of this Kind infuse together, the better is the Water.

This is much prescribed in Hysterical Cases, and is very forcing upon the Uterus, which makes it given to promote Delivery, and forward the proper Cleanings afterwards; as also to open Menstrual Obstructions, and abundance of Female Complaints. It is likewise good against Convulsions in Children, and of Service in any nervous Complaint in either Sex: Its Dose is from two Drams to two Ounces, with any convenient Diluter. *Quincy's Dispensat.*

The *Aqua Bryoniae Composita* takes in some of the most efficacious of the foetid Simples, and seems admirably well contrived for the Intention of an Hysteric, so far as their Virtues are procurable this way; but they who would have it good, must expect it very foul and milky; for where it is otherwise, it hath been defrauded of its due Quantity of the best Ingredients, or their better Parts have been precipitated with Alum, or taken out by the Filre. *Quincy's Praelect. Pharmac.*

AQU

AQUA FLORUM CHAMÆMELI COMPOSITA: Or, *Compound Chamomile-flower Water.*

Take of dried Chamomile-flowers, one Pound; of the outer Peel of Oranges, two Ounces; of the Leaves of common Wormwood and Pennyroyal, each two Handfuls; of the Seeds of Anise, Cumin and Sweet Fennel, of the Berries of Bay, and Juniper, each one Ounce; infuse them in one Gallon of *French Brandy*, and draw off double that Quantity by Distillation.

This Water is a Carminative, and in that Intention may be used at Discretion. *Quincy.*

AQUA CINNAMOMI FORTIS: Or, *Strong Cinnamon Water.*

Take one Pound of Cinnamon grossly powdered, and one Gallon of *French Brandy*; draw off by Distillation ten Pints.

AQUA EPIDEMICA: Or, *Plague Water.*

Take of the Leaves of Celandine, Rosemary, Rue, Sage, *Roman* Wormwood, Dragon, Agrimony, Baum, Scordium, the Lesser Centaury, Carduus, Betony, and Mint, each two Handfuls; of dried Angelica-root, Zedoary, and Gentian, each one Ounce; of the *Virginia* Snake-root, half an Ounce; let them be infused in one Gallon of *French Brandy*, and draw off ten Pints by Distillation.

This very much differs from that of the old Dispensatory; and, besides the Addition of many new Herbs, leaves out the Masterwort, Piony, and Butterbur-roots, inasmuch that the Intention of the Medicine seems changed from an Alexipharmic into a Cardiac. It is taken from *Shipton's* Additions to the former Dispensatory; and is not, by many, so much esteemed as the former Plague Water, several Ingredients of most Efficacy there being here neglected, and many in this either useless or foreign to the Intentions. *Quincy's Dispensat.*

AQUA GENTIANÆ COMPOSITA: Or, *Compound Gentian Water.*

Take Gentian sliced, one Pound and an half; of the Leaves and Flowers of the Lesser Centaury, each four Ounces; infuse them in six Pints of *French Brandy*, and distil about half that Quantity.

This Water is frequently prescribed as a Stomachic, and is commended for a Deterger, and is said to do Service in Dropsies, the Jaundice, and any Obstructions of the Viscera; and is given from two Drams to two or three Ounces at a Dose. But, in Truth, these Ingredients give so little that will rise in Vapour, that the Spirit comes over but with a very small Alteration; so that they who are fond of the Virtues as they stand recommended in those Ingredients, must look for them in the Extract, or never put them into the Still; and that is easily made by straining and evaporating the Residuum, and is much used in the Shops, chiefly with Stomachics, and Deobstruents, when prescribed to be made in Pills. *Salmon*, in his Notes upon this Water, says, it is a Preservative in pestilential Seasons, excellent against the Rickets, helps Stitches in the Side, and provokes the Terms and After-birth; and, with equal Reason and Consistency, that wretched Scribbler might have said it cured Corns, broken Bones, and Apoplexies. *Quincy's Dispensat.*

AQUA IMPERIALIS: Or, *Imperial Water.*

Take of dried Citron Peels, of Nutmegs, Cloves, and Cinnamon, each two Ounces; Roots of Cyperus, *Florentine* Orris, and Calamus Aromaticus, each one Ounce; of Zedoary, Galangal, and Ginger, each half an Ounce; of the Tops of Lavender and Rosemary, each two Handfuls; of the Leaves of Bay, Marjoram, Baum, Mint, Sage, and Thyme, each one Handful; of the Flowers of white and red Roses, each half an Handful; Damask Rose-water, four Pints; of *French Brandy*, one Gallon; then distil off ten Pints.

This is a very good cephalic Water, and makes a very convenient Julep in any nervous Cases whatsoever; and though it is so much slighted in the present Practice, this may be said of it, which can be said of few besides in the Dispensatory, that all the Ingredients coincide in one Intention, and such as will part with their Virtues by Distillation. It may be given from two Drams to two Ounces in any convenient Vehicle; it is also a pleasant Cordial Dram alone, and very good upon any sudden Sickness of the Stomach. *Quincy's Dispensat.*

AQU

AQUA LACTIS ALEXITERIA: Or, *Alexiterial Milk Water.* See ALEXITERIA.

AQUA LIMACUM TENUIS: Or, *A small Snail Water.*

Take of the Leaves of Baum, Mint, Harts-tongue, and Ground-ivy, of the Flowers of Archangel, Mallows, and Elder, each one Handful; of Snails washed, and the White of Eggs, each four Ounces; of Nutmegs, half an Ounce; and of Cow's Milk, one Gallon; distil according to Art, either in Balneo Mariæ, or in a Sand-heat.

If this be drawn with six Pints of Cow's Milk, and two Pints of Canary, it is styled *The stronger Snail Water.*

AQUA MIRABILIS: Or, *The wonderful Water.*

Take of Cloves, Galangals, Cubebs, Mace, the Lesser Cardamoms, Nutmegs and Ginger, each one Dram; Juice of the Greater Celandine, half a Pint; *French Brandy*, two Pints and an half; and draw off the same Quantity by Distillation.

This is a pleasant and good Cordial, and greatly breaks the Wind off the Stomach, and disperses Flatulencies. *Quincy's Dispensat.*

AQUA NEPHRITICA: Or, *A Water against the Stone.*

Take of the best Flowers of White-thorn, four Pounds; of Nutmegs bruised, three Ounces; infuse them together in a close Vessel with two Gallons of generous White-wine, and draw off by Distillation twelve Pints.

This was much prescribed by the late Dr. *Radcliffe*, but was not in the former Dispensatory.

AQUA PÆONIÆ COMPOSITA: Or, *Compound Piony Water.*

Take Lily of the Valley Flowers fresh gathered, one Pound; and infuse them in two Gallons and an half of *French Brandy*; and to the same put of Lime-flowers, half a Pound; of Piony, four Ounces; of the Male Piony-root, two Ounces and an half; white Dittany, and long Birthwort, of each half an Ounce; of Mistletoe of the Oak, and Rue, each two Handfuls; of Piony-seeds husk'd, ten Drams; and of the Seeds of Rue, three Drams and an half; of *Russia* Castor, Cubebs, and Mace, each two Drams; of Cinnamon, an Ounce and an half; of Rosemary-flowers, six Pugils; of Stoechas, and Lavender-flowers, each four Pugils; of Betony, Clove, and Cowslip-flowers, each eight Pugils; of the Juice of black-Cherries, four Pints; and from the Whole draw off by Distillation four Gallons.

The present College Dispensatory hath left out some of the insignificant Ingredients that were in the former, and particularly the Squills; and avoided also the Trouble of a double Distillation, which was altogether needless. This is the same as was originally inserted by the College in their first Dispensatory, under the Title of *Aqua Antiepileptica Langii*. The Quantities also of some of the Ingredients are blameable, as three Drams and an half of Seeds of Rue, when the Whole might be taken in Substance at one Dose, without any visible Effect. It has some Ingredients in it of little or no Efficacy to the main Purpose, and others entirely unfit for this Form; of the first are the Radix Dictamni Albi, and Aristolochiæ Longæ, neither of which will send any thing considerable over the Helm. The Semina Pæoniæ, and Viscus Quercinus likewise, howsoever agreeable they may be to this Intention in other Forms, will not send out any thing of that Kind by Distillation. The Seeds will make well enough into an Emulsion when husk'd, and the Mistletoe is best reduced into a Powder; but husking the Seeds to be distill'd, were they proper for it, is a Circumstance very trifling. The Castor is in this increased in its Quantity to what it was before; but although it may be the most considerable Ingredient in the Whole for the main Intention, yet the more it sends over the Helm, the more will it deform the Water with a Milkiness, and disagreeable Scent; and therefore 'tis much better contrived into other Forms, tho' in the Quantity it now stands here, it is too little to do much Harm in this respect; so that this Water, in the main, is pleasant enough, and now obtains in common Prescription beyond any of the same Rank. *Quincy's Pract. Pharmac.*

It is an excellent Cordial, and can be exceeded by nothing in all nervous Cases, both in Children and grown Persons. It may be diluted into a Julep with Black-cherry Water, or any such Vehicle, and may be given from one Dram to three, to Children, and from half an Ounce to two Ounces to grown Persons;

Persons; and, if the Case requires it, may be repeated every six or eight Hours. But Cases of Moment are not trusted to such Helps as this alone. *Quincey's Dispensat.*

AQUA PROTHERIACALIS: Or, *A Succedaneum for the Treacle Water.*

Take of the Leaves of Scordium, Scabious, Carduus, and Goats-rue, each two Handfuls; of Citron-peel, and Orange-peel dried, each half an Ounce; Seeds of Citrons, Hartwort, and Treacle-mustard, each one Ounce; of the Flowers of Marigolds and Rosemary, each one Handful; Cinnamon, two Drams; of French Brandy, two Pints; and distil off six Pints.

The Carduus Seeds, and the Carduus Water, are in this omitted as insignificant, the rest continuing much as before. It is designed to be used as Treacle Water when that proves deficient, in a Season not fit to make it. *Quincey.*

AQUA RAPHANI COMPOSITA: Or, *Compound Horse-radish Water.*

Take of the Leaves of both Scurvy-grasses, fresh gathered in the Spring, each six Pounds; bruise them, and press out the Juice; and to it add the Juices of Brook-lime and Water-creffles, each one Pint and an half; of Horse-radish-root, two Pounds; of Arum-root, fresh, six Ounces; of Winter's-bark, and Nutmegs, each four Ounces; of Lemon-peels dried, two Ounces; of French Brandy, four Pints; and draw off by Distillation eight Pints.

In this is rejected the Briony-root, which is ordered in a large Quantity in the old College Dispensatory, but renders the Flavour of the Water nauseous, and gives no Virtues suitable to the main Intention of the Whole. The Arum-root is likewise in this increased in its Quantity, but half an Ounce, being ordered in the former, whereby the Medicine is rendered yet more pungent, and efficacious as an Antiscorbutic, or a Nephritic, both which Purposes 'tis calculated for. All the Ingredients in this Water, are of a subtle penetrating Nature, and greatly abound with volatile Salts, which, in many gross and fizy Constitutions of the Blood, do great Service by dividing it, and rendering it more fluid, which will increase the Discharges by the Kidneys, and likewise wash through any Obstructions in those Parts. In all Obstructions of the other *Viscera*, it is also an excellent Medicine, and prevails against the Jaundice, Cachexies, and Dropsies; and, in scorbutic Cases, there is nothing beyond it; as it greatly forces those minute Passages, promotes Transpiration; and cleanses the Skin, and other small Glands, which entertain gross Particles to the Detriment of their proper Offices. It may be given from half an Ounce to three or four Ounces, unless immediately after Distillation, because then it is so pungent as makes it difficult to take without much diluting. This Water ought to be drawn with the Receiver fixed close to the Worm by a Bladder, otherwise a great deal of the best Part will fly away. *Quincey's Dispensat.*

The *Aqua Raphani Composita* aims at the Intention of a Diuretic; and will, if good, be as foul and milky as the compound Bryony Water, when rightly prepared. *Quincey's Praelect. Pharmac.*

AQUA DOCTORIS STEPHANI: Or, *Doctor Stephen's Water.*

Take of Cinnamon, Ginger, Galangals, Cloves, Nutmegs, Grains of Paradise, of the Seeds of Anise, Sweet Fennel, and Caraway, each one Dram; of the Leaves of Thyme, Mother of Thyme, Mint, Sage, Pennyroyal, Rosemary, Flowers of red Roses, Chamomile, Origanum, and Lavender, each one Handful; of French Brandy, six Pints; and draw off one Gallon by Distillation.

All the Ingredients in this Water are well suited to the main Intention of a Cephalic, a Cordial, or Carminative; it is likewise somewhat Antihysterical, and therefore frequently used by the Midwives amongst their Women. It is much prescribed from two Drams to two Ounces.

AQUA THERIACALIS: Or, *Treacle Water.*

Take of the Juice of green Walnuts, four Pints; of the Juice of Rue, three Pints; of Carduus and Baum, each two Pints; of the fresh gather'd Butterbur-roots, one Pound and an half; of Burdock, one Pound; of Angelica, and Mafterwort, each half a Pound; of green Scordium, four Handfuls; of old Venice Treacle, and Mithridate, each eight Ounces; of Lemon-juice, two Pints; of French Brandy, one Gallon and an half; draw off by Distillation three Gallons and an half, and then add four Pints of distill'd Vinegar.

VOL. I.

The new Dispensatory omits the needless Circumstance in the former, of depurating the Lemon-juice before Distillation, and very prudently adds the distill'd Vinegar afterwards, instead of putting it into the Still, because with such Management it effectually answers all its Intentions, and risques less Hazard of carrying along with the Medicine any Part of the Metal with which the Alembic is made, as all Acids are subject to do. This Water is the most used of any in the Shops, though its Composition be blamed by many; for the Juices can contribute very little to its Virtues; and upon account of the proper Season to obtain them, this Water cannot be made at all times, how much soever wanted; unless, as some do, the Juices are express'd in their Season, and kept on Purpose; but then they are good for nothing; for so little as is of a volatile Nature in these Simples, will very soon be lost. The rest of the Ingredients indeed agree very well to the main Intention of an Alexipharmic and Sudorific; and the Acids contribute much to that Purpose.

The Dose of this Water is usually to grown Persons from half an Ounce to one Ounce, which is too little; for four Ounces is but a moderate Quantity to have any Reliance upon, especially to Persons who are used to high living. *Quincey's Dispensat.*

It is of great Importance in Composition to adapt the Ingredients made use of to Forms in which their Medicinal Virtues may be procured and preserved. But nothing is more idle than to study the Elegance and Beauty of Medicines, because they are not calculated to please the Eye or Palate, but to cure Distempers. Besides, all our Endeavours to render Remedies palatable are fruitless, because the very Name of a Medicine, with most People, conveys an Idea of something nauseous.

As to the Form of Spirituous Waters, they do not seem in the least calculated for the Removal of any Distemper, though they may sometimes relieve Symptoms. If what has been said under the Article ALCOHOL, with respect to Spirits procured by Fermentation, be duly considered, perhaps others will, like me, think, that spirituous Waters can seldom be taken in Quantities sufficient to do any considerable Service by the Ingredients wherewith they are impregnated, without doing a Mischief more than equivalent by their noxious Spirit.

In several of the Compound Waters mentioned above, much more is directed to be drawn off, than is put of the Spirit to the Ingredients. In these Cases therefore, the Compounder must take care to put into the Still Water sufficient to admit of the Quantities directed to be drawn off.

Because there are many of the foreign Writers in Physic, who make mention of the *Aqua Anhaltina*, and of the *Aqua Sclopetaria*, which last is usually known by the Name of *Eau d'Arquebuse*, I shall in this Place specify the Manner of their Preparation. And to these I shall add a Snail Water, somewhat different from that of the College, on account of its singular Excellence.

AQUA ANHALTINA.

Take of the best Turpentine, half a Pound; of Olibanum, one Ounce; Wood of Aloes reduced to Powder, three Drams; Grains of Mastich, Clove-gilly-flowers, or Rosemary-flowers, Nutmegs, Cubebs, or Galangals, Cinnamon, each six Drams; Saffron two Drams and an half; Fennel-seeds, and Bay-berries, each half a Dram. Reduce all to a Powder, and digest in five Pounds of Spirit of Wine for six Days, adding fifteen Grains of Musk tied up in a little Bag. Then distil in a slow *Balneum Mariae*; separate what is clear from what is turbid.

N. B. 'Tis better to put the Musk in the Beak of the Alembic.

This Water warms, dries, dissolves, strengthens the Heart, Stomach, and other Viscera; for this Reason it is thought good in Faintings and Deliquiums. But it is more frequently used externally, and said to be of great Service in Catarrhs, and Pains arising from a cold Cause, in the Wandering Gout, as 'tis call'd, in Palsies, Epilepsies, Apoplexies, Vertigos, Tremors, and Lethargies, by rubbing the affected Part well with it. *Schroderi Pharmacopœia Medico-chymica.*

AQUA SELOPETARIA, sive VULNERARIA: The *Vulnerary Water*, commonly call'd *Eau d'Arquebuse*.

Take of the Leaves and Roots of Comfrey, of the Leaves of Sage, of Mugwort, and of Bugle, each four Handfuls; of the Leaves of Betony, Sanicle, Ox-eye, of Daisy, of the greater Figwort, of Plantain, of Agrimony, Vervain, Wormwood, and Fennel, each two Handfuls; of St. John's-wort, of long Birthwort, of Orpine, of Paul's Betony, of the lesser Centaury, of Yarrow, of Tobacco, of Mouse-ear, of Mint, and of Hyssop, each one Handful: Cut all these, and bruise them sufficiently in a Mor-

tar; then put them into a large Earthen Vessel, and pour twenty Pounds of White-wine upon them. Stir the Whole with a Stick, stop the Vessel, and allow it to digest in a warm Dung-hill, or any other such Heat, for the Space of three Days. Then pour it over into a large Copper Cucurbit, whose Inside is covered with Tin; and, having adapted its Head and Refrigeratory to it, draw off the Moisture into a Receiver, by a moderate Fire, in the ordinary manner. Thus you will have the Vulnerary Water, or *Eau d'Arquebusade*, which must be preserved in a close-stopt Bottle.

It is good for Contusions, and Dislocations, and very proper for discussing Tumors; apply'd externally, it deterges Wounds, and old Ulcers. It incarns, corroborates, resists Putrefaction, stops Gangrenes, and is by some used against Vapours.

That the Nature, the Uses, and Virtues of this Water may be the better understood, I shall subjoin a short Account of the Qualities of each of its Ingredients.

As for the Water itself, its very Names are expressive of its Virtues; for the Word *Vulnerary* imports its being proper for curing Wounds. And the French Word *Arquebusade* implies its being particularly proper in Gun-shot Wounds.

1. COMFREY then, or the *greater Consoud*, is glutinous, and proper to consolidate the Lips of Wounds; hence it receives its Latin Name CONSOLIDA. It stops Hæmorrhages and Fluxes, and contains little Salt, but a great deal of Oil and Phlegm.

2. SAGE is, by way of Eminence, called *Salvia*, because in a great many Disorders it is thought to save and preserve Life. Of this Herb there are two Species, the Wild and Garden Sage; of this latter Species there are two Kinds, the large and the small. The small Kind is the best, and must be used in preparing the Vulnerary Water. It contains a great deal of Salt; and an Oil exalted into a Spirit. It has few passive Principles, and is cephalic, nervous, antihysterical, stomachic, and aperient.

3. MUGWORT contains a great deal of Salt, little Oil, and Phlegm; and is antihysterical, aperient, and vulnerary.

4. BUGLE, or *Middle Consoud*, contains a considerable Quantity of Salt and Oil, and a great many passive Principles. It is vulnerary, corroborative, and proper in Disorders of the Lungs.

5. BETONY contains an exalted Oil, and an essential or volatile Salt, but little fixed Salt, Phlegm, and Earth; and is cephalic, cordial, and vulnerary.

6. SANICLE contains a considerable Quantity of Salt and Oil, a great deal of Phlegm, and little Earth. It is astringent, consolidating, vulnerary, proper in *Hernia*, used both internally and externally.

7. OX-EYE contains a great deal of Oil and Phlegm, and a considerable Quantity of Salt. It is vulnerary, and prescrib'd for the *King's-evil*.

8. THE SMALLER DAISY, or *Bellis Minor*, contains little Salt and Earth, but a great deal of Oil and Phlegm. It is used for stopping Hæmorrhages, consolidating Wounds, discussing Tumors, and carrying off Inflammations of the Eyes.

9. *Scrophularia Major*, or the GREATER FIGWORT, contains a great deal of Salt and Oil, a considerable Quantity of Phlegm and Earth, and is apply'd for discussing scrophulous Tumors, which its Root resembles. It is also used to soften Hardnesses, to deterge Wounds, and old Ulcers.

10. PLANTAIN contains an Oil, a little Salt, but a great deal of Earth and Phlegm. Its Salt, which is acid, being mixed with its Oil, and with a great many passive Principles, is almost entirely absorb'd by them; for this Reason the Plant is only slightly deterfive, but it is astringent and refreshing, on account of its Earth and Phlegm. It is used in Fluxes of all Sorts, in Hæmorrhages, and Inflammations of the Eyes.

11. AGRIMONY, or *Eupatorium*, contains a considerable Quantity of Salt and Oil. Its active Principles are mixed with a great deal of Earth, and a little Phlegm; for which Reason it is deterfive and astringent with regard to the Forces, but aperient with regard to the Urine. It is thought good for Disorders of the Liver, and stops Fluxes.

12. VERVAIN contains a considerable Quantity of Salt and Oil, and is cephalic, vulnerary, or desiccative. It is used for Disorders of the Breast, for the Stone and Dysentery, for generating Milk in Nurses, and for the Pleurisy. It is both administered internally, and apply'd externally.

13. *Abinthium*, or WORMWOOD, contains a sulphureous Spirit, or rather an exalted Oil, in which its Smell consists. It has also great Store of Salt, but little Phlegm. It kills Worms, and corroborates the Stomach. It is vulnerary, aperient, and antihysterical.

14. *Feniculum*, or FENNEL, contains a great deal of Salt, and Oil half exalted to what we call Spirit; it also contains a considerable Quantity of Earth and Phlegm. Its Seeds, the largest and best nourish'd, come from Florence, are very much used in Medicine; they dispel Wind, and are antihysterical.

Its Root is aperient; and its Leaves are proper for deterging that Sanies which sometimes infects the Eyes, and accompanies Wounds.

15. The *Hypericum*, or ST. JOHN'S-WORT, contains a pretty large Quantity of Oil, Salt, and Earth, but little Phlegm. It is vulnerary, anti-hysterical, aperient, and nervous.

16. BIRTHWORT is called *Aristolochia*, on account of its being proper for bringing away the After-birth. There are four Species of it, the *round*, the *long*, the *small*, and that call'd the *Aristolochia Clematitis*; all of them contain a great deal of Oil and Salt, a considerable Quantity of Phlegm, but little Earth. They are vulnerary, deterfive, antihysterical, and proper to resist Gangrenes, attenuate Phlegm, and assist Respiration. The two first are apply'd externally; and the Roots of the two last are used in such Medicines as are design'd for internal Use.

17. *Telephium*, or ORPIN, contains a great deal of Phlegm and Oil, but little Salt and Earth. It is vulnerary, astringent, moistening, and consolidating. It is also proper for *Hernia*, Dysenteries, and deterging and wearing off Blemishes in the Skin.

18. *Veronica*, or PAUL'S BETONY, is of two Sorts, the Male and the Female: The Male is of two Sorts, one strait, and the other crooked, and creeping on the Ground. This last is most in Use, and must be made Choice of in preparing the vulnerary Water. All the Species of this Plant contain a great deal of Salt and Oil, and are of an inciding, attenuating, deterfive, vulnerary, and sudorific Quality; they are also proper for Ulcers of the Breast and Lungs, and for resisting Poison.

19. The *Centaurium Minus*, or LESSER CENTAURY, contains a great deal of Salt, a considerable Quantity of Oil and Earth, but little Phlegm. It is vulnerary, deterfive, drying, and aperient. It is proper for Scurvies, intermittent Fevers, Worms, Madness, Obstruction of the Menes, the Sciatica and Jaundice.

20. The *Millefolium*, or YARROW, contains a great deal of Salt and Oil, and is astringent, vulnerary, discutient, and proper to stop Fluxes, Hæmorrhages, and Gonorrhæas.

21. *Nicotiana*, or TOBACCO, is universally known to be narcotic and vulnerary. It is customary to bruise it, and apply it to Tumors, in order to discuss them, because it contains Spirits which attenuate the Matter, and open the Pores. It is also customary to infuse it in common Water for washing Tetters, and other Deformities of the Skin; but if the Water is too richly impregnated with it, it is subject to excite Vomiting. There is also a Syrup of it prepared for the Asthma. Decoctions of it are sometimes used by way of Clysters in Apoplexies, Lethargies, and uterine Suffocations. It contains a Sulphur, and a volatile Salt, so penetrating, that it is scarce sooner in the Stomach, than it stimulates its Fibres, and excites Vomiting. Its Oil is so strong an Emetic, that if a Person but holds his Nose a little above the Phial in which it is contain'd, he vomits. I myself once made a small Incision in the Skin of a Dog's Thigh; and upon putting a small Tent in it, which had been dipt in the Oil of Tobacco, the Animal was violently purged, and vomited almost immediately after.

22. The *Pilosella*, or MOUSE-EAR, contains a considerable Quantity of essential Salt and Oil, little Phlegm, but a great deal of Earth. It is astringent, vulnerary, incrassating, proper for *Hernia*, and for stopping Hæmorrhages, Dysenteries, and other Fluxes.

23. *Mentha*, or MINT, is either wild, or grows in Gardens. Both Sorts contain a great deal of exalted Oil, and volatile Salt, and but little Phlegm and Earth. Both Species corroborate the Stomach, assist Digestion, dispel Wind, cure the Colic, attenuate and dissolve Humours, and resist Gangrenes.

24. *Hyssopus*, or HYSSOP, contains a great deal of volatile Salt, and exalted Oil, and but little Phlegm and Earth. It is vulnerary, deterfive, and aperient. It is used in Disorders of the Breast and Lungs, such as the Asthma and Phtisis.

As the Vulnerary Water, or *Eau d'Arquebusade*, has so high Encomiums passed upon it by some foreign Physicians, and is at the same time so little known or heard of in our own Country, I have abridg'd Mr. Lemery's Remarks upon each of its Ingredients; that, knowing the Nature and Quality of every Simple apart, we might be the better able to form a true Estimate of the Compound resulting from their Conjunction and Preparation in the manner directed.

As in this Process most of the Plants subjected to Distillation are none of the most succulent, it is proper to add White-wine to them, since that Liquor excites a Fermentation, and serves to disengage the saline, sulphureous, and volatile Parts of the Ingredients.

Care must be taken, that the Fire be not too strong during the Distillation, lest the Matter should adhere to the Bottom of the Cucurbit, and the Water drawn off acquire, of course, an empyreumatic Smell. After half the Liquor is distill'd, it is proper to pour what remains in the Cucurbit upon a Linen Cloth, and to put it into a Press, in order to extract its Juice; after which it is to be return'd into the Cucurbit, and again subjected

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subjected to Distillation. By this means the empyreumatic Smell of the Water may be prevented: But a *Balneum Vaporesum*, or a sufficiently large *Balneum Mariæ*, are still more to be trusted to in this Process.

If we dry and burn the gross Remains of these Herbs, make a Lixivium of their Ashes, draw the Salt from this Lixivium by Evaporation, and dissolve it in the distill'd Water, it will by that means become more deterfive and discutient, than it would otherwise have been. *Lemery. Cours. de Chymie.*

AQUA LIMACUM.

A Snail Water different from that of the Dispensatory.

Take a great Peck of Garden-snails, and wash them in a great deal of Beer, and make your Chimney very clean, and set a Bushel of Charcoal on Fire; and when they are thoroughly kindled, make a Hole in the Middle of the Fire, and put the Snails in, and scatter more Fire amongst them, and let them roast till they make a Noise; then take them out, and, with a Knife and coarse Cloth, pick and wipe away all the green Froth: Then break them, Shells and all, in a Stone Mortar.

Take also a Quart of Earth-worms, and scour them with Salt divers times over. Then take two Handfuls of Angelica, and lay them in the Bottom of the Still; next lay two Handfuls of Celandine; next a Quart of Rosemary-flowers; then two Handfuls of Bears-foot and Agrimony; then Fenugreek; then Turmeric; of each one Ounce: Red Dock-root, Bark of Barberry-trees, Wood-forrel, Betony, of each two Handfuls. Then lay the Snails and Worms on the Top of the Herbs; and then two Handfuls of Goose-dung; and two Handfuls of Sheep-dung. Then put in three Gallons of strong Ale, and place the Pot where you mean to set Fire under it: Let it stand all Night, or longer; in the Morning put in three Ounces of Cloves well beaten, and a small Quantity of Saffron, dry'd to Powder; then fix Ounces of Shavings of Hartshorn, which must be uppermost. Fix on the Head and Refrigeratory, and distil according to Art.

This Water is an excellent Restorative, very good when the Gout raises Flatulencies in the Stomach, and is said to be effectual in even obstinate Jaundices.

Medicated Waters from the College.

Aqua Aluminosa: ALUM WATER.

Take of red Rose and Plantain Water, each one Pint; of white Sublimate and Roch-alum, each two Drams: Let the Alum and Sublimate be rubb'd together, and be both boil'd with the Waters, in a Glass Vessel, having a narrow Neck, to the Consumption of half the Quantity; and after five Days, when the Fœces are settled, pour off the Clear for Use.

This is chiefly for external Uses, and most commonly comes under the Direction of a Surgeon, in Ulcers and cutaneous Eruptions. The Steam of the Alum-water, when boiling, is carefully to be avoided by the Operator, because it may have bad Effects from its poisonous Qualities. It was first prescrib'd by *Fallopious, Cap. 93. de Morbo Gallico.*

AQUA CALCHIS: Lime-Water.

Take one Pound of Quick-lime, and pour upon it twelve Pints of boiling Water: After the Ebullition ceases, and the Lime is settled to the Bottom, pour off the Clear for Use.

This is kept in Readiness for various Uses, both internal and external.

AQUA CAMPHORATA STYPTICA: Camphorated Styptic-Water.

Take of camphorated Vitriol, one Ounce; steep it in three Pints of Spring-water, and let it stand till the Fœces are fallen to the Bottom.

AQUA SAPPHIRINA: Sapphire-colour'd Water.

Take one Pint of Lime-water, of Sal Ammoniac one Dram and an half: Let them be dissolved together, and then stand in a Brass Basin till the Liquor becomes tinged of a Sapphire Colour.

This, by some, is greatly esteem'd for clearing the Eyes from Specks and Films, if two or three Drops be frequently instill'd into them

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AQUA-FORTIS SIMPLEX: Single Aqua-fortis.

Take crude Vitriol, three Pounds; Nitre, two Pounds; beat and mix them well; Put the Mixture into an earthen Pot, call'd a long Neck; place it upon a Fire; fit it to a Receiver, which lute well with Clay, Sand, and cut Flax, wrought together: Give a Fire of the first Degree for three Hours; in that time there will come some red Fumes into the Receiver, which will again disappear; then raise the Fire to the second Degree, where keep it three Hours longer: Go on to the third and fourth, where keep it till the Receiver is free from Fumes. When all is cold, take the Receiver off carefully, and keep the Aqua-fortis for Use.

AQUA-FORTIS DUPLEX: Double Aqua-fortis.

Take Vitriol, calcin'd almost to a Redness, four Pounds; of Nitre two Pounds, both made into fine Powder, and well mix'd: Put the Mixture into an earthen long Neck, or Glass Retort luted; set it in a reverberatory Furnace; fit and lute on a Receiver to it: Kindle a Fire, and proceed exactly as in the *Aqua-fortis Simplex*.

AQUA REGIA.

Take equal Quantities of Nitre and Sal Ammoniac, and put them into a Retort, big enough to remain above two Thirds empty; place it in Sand, and raise under it a Fire of the second Degree, which keep up while any thing continues to come over.

Another AQUA REGIA.

Take of Sal Ammoniac four Ounces; put it in Powder into a Matrafs, or Glass Vessel of a good Bigness, and pour upon it sixteen Ounces of Spirit of Nitre: Place the Vessel in a warm Sand-digestion, till all the Sal Ammoniac is dissolv'd; then pour it into a Bottle, and keep it stopp'd with Wax, or a Glass Stopple.

This is honour'd with the Appellation of *Aqua Regia*, because it will dissolve Gold, the Chymists *King of Metals*; but it is of no other Use in Medicine, than as a Menstruum in some Preparations.

There are many more Prescriptions for *Aqua Regia* in Chymical Writers, all which consist of an Union of Spirit of Nitre with Spirit of Sea-salt.

AQUEDUCTUS, ὑδραγωγός, properly signifies a Pipe or Canal to convey Water; but is metaphorically applied to a Sort of bony Canal in the *Os Petrosum*, which is otherwise call'd the *Meatus Cæcus*, *Cochlearis*, and *Capreolaris*.

AQUALA. Arsenic, or Sulphur. *Johnson.*

AQUALICULUS, ἐπίσπερον, ἐρίσπερον, properly signifies that Part of the Belly which reaches from the Navel to the Pubes. It sometimes is used to express the Stomach, or intestinal Tube.

AQUARIUS. Iron. *Rulandus. Johnson.*

AQUASTER, in *Paracelsus, Lib. 1. de Vita longa, C. 3.* is a sort of Vision, which represents something to our Sight which has no real Existence, but only in Appearance.

AQUATUM, **AQUEUM**, ὑδατῆς, from ὕδωρ, Water. Watry, diluted. In *Scribonius Largus, N° 42. 26.* we meet with *Aquatior* and *Aquatissimus*. It signifies also the *Chalaxia* of an Egg.

AQUEUS HUMOR OCULI. The aqueous Humour of the Eye. See **OCULUS**.

AQUIDUCUS, ὑδραγωγός. The same as **HYDRAGOGOS**, which see. The Term **AQUIDUCUS** is found in *Cælius Aurelianus, De Traët. Passion. Lib. 3. Cap. 3.*

AQUIFOLIUM. The same as **AGRIFOLIUM**, which see.

AQUILA, *Offic. Mer. Pin. 170. Aquila fulva sive auria*, *Will. Ornith. 26. Rari Ornith. 58. Ejusd. Synop. A. 6. Chryseatos, Aldrov. Ornith. 1. 110. Charlt. Exer. 70. Jons. de Avib. 2. Aquila Germana, Gesn. de Avib. 149. Aquila Regalis, Schw. A. 214. Aigle Royal, Bellon. des Oyse, 89. THE GOLDEN EAGLE.*

The Gall and Dung are the Parts used in Medicine: The Gall, distill'd with Oil of Violets, is recommended by *Avicenna* for Pains and Ringings in the Ears; and the Dung against Abortions. *Dale.*

AQUILÆ, ἀἰσολί, are Veins so call'd first by *Philisius*, which ascend through the Temples into the Head, according to *Ruffus Ephesius*.

Aquila bears various Significations in Chymistry; it is the *Spirit of Mercury*; and Sal Armoniac passes under that Name, because of its Levity in Sublimation; and *Paracelsus* would have *Aquila* often taken for *Mercurius Præcipitatus*. It also signifies Arsenic, Sulphur, the Philosopher's Stone, &c. *Rulandus. Johnson.*

Aquila Philosophorum is the *Mercurius Metallorum*, reduced into its first Matter. *Rulandus.*

Aquila

Aquila Alba is *Mercurius Dulcis*; also the Substance which is prepar'd of Sal Armoniac and common Sublimate: Moreover; it is that spiritual and crystalline Sublimate, in the Composition of the Philosopher's Stone; whose Glue is the true Mercurial Water.

Aquila Lacrymæ is the Liquor prepar'd from the said Salt; sometimes in its fix'd, sometimes in its volatile State.

Aquila Cælestis is the Panacea, or Cure for all Diseases, prepar'd of Mercury essentiated.

Aquila Nigra is the Spirit of that venomous Cadmia call'd Cobalt, which some take to be the Matter of the Philosopher's Mercury.

Aquila Veneris consists of Crocus, made of Verdegrise in a Reverberatory, and join'd with Sal Ammoniac, seven times sublimated.

Aquila has many other Epithets bestow'd on it by these sort of Authors, as *Rubra*, *Salutifera*, *Vitriolata*, *Expansa*, *Fixa*, *Hæmatica*, *Præcipitata*, *Volans*, &c.

AQUILEGIA, Offic. *Aquilegia cærulea*, Ger. 935. Emac. 1093. Mer. Pin. 9. *Aquilegia sylvestris*, C. B. Pin. 144. Tournef. Inf. 428. Elem. Bot. 340. Dill. Cat. Giff. 82. Rupp. Flor. Jen. 131. *Aquilegia sylvestris flore simplici*, Buxb. 25. *Aquilegia flore simplici*, J. B. 3. 484. Raii Hist. 1. 706. Synop. 3. 273. *Aquilegia*, Chab. *Aquilegia vulgaris flore simplici*, Park. Theat. 1367. *Aquilegia flore cæruleo*, Merc. Bot. 2. 16. Phyt. Brit. 9. **COLUMBINES**. Dale.

The Root of this Plant is pretty thick, at the Head sending forth many long and large Fibres, which run pretty deep into the Earth. The Leaves grow upon long Foot-stalks, compos'd of a three-fold Division of as many roundish Segments, cut in, and indented about the Edges, of a bluish-green Colour: The Stalks arise to be a Foot and a half or two Foot high, somewhat hairy, slender, and of a purplish Colour, pretty much branch'd, and having several smaller Leaves set on, without Foot-stalks at each Division of the Branches. The Flowers are pendulous, of a fine blue Colour, each consisting of five plain, and five horned and hooded Petals, or Leaves, placed alternately, the Ends of the horned ones being crooked. When the Flowers are fallen, they are succeeded each by four or five longish taper Horns or Pods, set round about the Stalk, containing black shining Seed. Columbines grow wild in several Parts of England; but are not very common, and flower in May and June.

This Herb is also call'd *Leonis Officulum*; but receives the Name of *Aquilegia*, because its Leaves, not as yet fully expanded, collect and gather a great deal of Rain-water. This Herb may also justly be call'd *Theriaca*, on account of its remarkable Efficacy in curing malignant and virulent Disorders. It is well known in Flower-gardens, on account of its Flower, which resembles King's Consound, and lasts throughout the whole Summer. When its Leaves first begin to appear, it resembles the greater Celandine; and for this Reason it is also call'd *Chelidonia Sylvestris*. Its Flowers are of different Colours, some blue, some purple, some white, and some of them are indented. The blue is only used in Apothecaries Shops, where the Seed, the Flower, and the Herb, are all employ'd. It is moderately drying, opening, and healing. It purifies the Blood, and removes Obstructions of the Liver and Spleen. It dissipates the Bile, and is of singular Efficacy in curing the Jaundice. A Powder or Emulsion of its Seeds, as also its distill'd Water, are of great Service in the Jaundice; in which Case its Extract may also be used with great Success. *Hornung. Cist. Med. P. 6.* See also *Jo. Lang. Epist. Med. L. 3. C. 6. B. Tim. Epist. & Conf. Med. P. M. 461. Joh. Camerar. Hort. Med. P. 19. Jo. Johnston Syntagma, Med. Pract. L. 5. Tit. 6. C. 2. Artic. 6. Hieron. Braunschweig. Thesaur. Pauperum.* It removes the Scurvy; promotes a Discharge of Urine, and the monthly Evacuations of Women; cures a beginning Dropsy; is excellent for the Breast and Lungs; resists all kinds of Poisons; cures Wounds, and removes Pains of the Belly and Matrix. Mothers ordinarily use its Seeds for their Children, when they have the Measles or Small-pox, by tying them up in a Piece of Linen Cloth, and steeping them among Beer. *Simon Pauli (Quadr. Botan. Class. 2.)* says, that he has given half a Dram of its Seed, with the Water of *Carduus Benedictus*, to poor Peoples Children in the Small-pox, and that by its means their Lives have been preserved. For this Purpose, People ordinarily make, of this Seed, Mustard-seed, Water-creffes, and Melons, an Emulsion, with Fumitory-water, Carduus-water, Viper-grass-water, that of Columbine-flowers and Fennel. It is used with Success in malignant Disorders, and even in the Plague. It is also by some extoll'd as a Specific in the Scurvy. *Jo. Michael. Not. in Schrod. Pharm. Clusius* recommends a Quarter of an Ounce of this Seed, reduced to a Powder, and taken in Wine, in difficult and tedious Labours. It is also an excellent Remedy against a Vertigo, (*Fr. Hoffman. Meth. Med. L. 1. C. 29. Paulin. Obs. Med. Phys. 95. Cent. 3. & Obs. 64. Cent. 4.*) and against the Sciatica and Epilepsy, taken in black Cherry-water. It is also commended in hyfteric Disorders. The Seed, reduced to a Powder, may be given to costive Children. The Root,

reduced to a Powder, and applied in Form of a Plaister to the Ears, removes Pains and Noises in them; and if there are Worms in them, kills them. *Camerar. in Hort.* says, that in Spain, in order to prevent a Stone in the Kidneys, People, when they rise out of Bed, take a Piece of the Root in their Mouths, and chew it by little and little. The Flowers have a cordial Quality, and may be taken as the other cordial Flowers. Many make cordial Syrups, Conserve, and Tinctures of them. They are also good in malignant Fevers, Small-pox, and Measles. Its Syrup is excellent in Disorders of the Throat, such as the Quinsley, and in those of the Breast. It is externally used in Scurvies of the Mouth, with the Addition of a little sweet Spirit of Salt. Some also make a Vinegar of its Flowers.

AQUILENA. The *Consolida Regalis*, or Lark-spur. *Johns.*

AQUOSA URINA, is crude watry Urine.

AQUOSUS HYDROPS. See ASCITES.

AQUULA. See HYDATIS.

ARA PARVA, *Βαυὸς μικρὸς*. A little Altar. A neat way of Filleting and Bandage, which, when fix'd, represents the Corners of an Altar: It was invented by *Sostratus*, and mention'd by *Galen de Fasciis*.

ARABE, *αἰθρῆ*, in *Hippocrates*, is expounded by *Erotian* ἰσχυρὰ, Hurt or Injury.

ARABICUS LAPIS. The Arabian Stone: It is like Ivory, blemish'd with Spots.

Being levigated, and applied in a Cataplasm, it dries up the Hemorrhoids; and, when it is calcin'd, is used as a Dentifrice. *Dioscorides, Lib. 5. Cap. 149.*

The *Lapis Arabicus* is like Ivory, drying, and astringent. *Oribasius, Med. Coll. Lib. 15. P. Eginet. Lib. 7.*

ARABIS MALAGMA, *ad Strumas & Phymata*. The Arabian's Malagma for stumous Swellings, and Tubercles call'd *Phymata*.

Take of Myrrh, Sal Ammoniac, Frankincense, liquid and dry Rosin, Crocomagma, Wax, each one Dram two Grains and an half; of the Stone call'd *Pyrites*, four Drams ten Grains; to which some add of Sulphur two Drams five Grains. *Celsus, Lib. 5. Cap. 18.*

ARABICA ANTIDOTUS, *Hepatica*. The Arabian Antidote for the Liver.

Take of Myrrh, four Drams ten Grains; Costus, one Dram two Grains and an half; white Pepper, Indian Leaf, each four Drams ten Grains; bruise them, and sift them, and give them in Mulfum: With this Antidote a Decoction of Abrotanum, in Water, should be drank; or some dry'd Figs, with their Weight in Honey, be eaten. *Myresus, Sect. 1. Cap. 265.*

ARABICUM GUMMI. *Gum Arabic*. See ACACIA and GUMMI. It may be proper to observe here, that the antient Physicians, by *ἀραβικὴ*, "Gum," put indefinitely, that is, alone, without any Word to restrain its Signification, mean *Gum Arabic*.

ARABIS. The same as *DRABA*, which see.

ARACA GUAM. A Species of the Goavo-tree, according to *Piso*. See *GUAYAVA*. *Raii Hist. Plant.*

ARACA MIRL. *Pison. Margrav.* A Shrub growing plentifully in *Brasil*, and bearing ripe Fruit in *March* and *September*, which has the sweetish Taste of Musk, and somewhat of the Savour of Strawberries: This, when candy'd and preserv'd, is a pleasant Cooler, Astringent, and Strengtheners, and supplies the Place of Marmalade of Quinces, Conserve of Roses, and the like.

Of the Leaves and Buds they prepare a very good Bath for internal as well as external Affections of the Body; for they are astringent; but especially the Root, which also cures the Dysentery, and is peculiarly diuretic, and of fine Parts. *Raii Hist. Plant.*

ARACHYDNA aut **ARACOIDES**, *Honorii Belli*. J. B. *Vicia similis supra infraque Terram Fructum ferens*, C. B. *An Theophrasti Araco ὄνον*, Clus. *Arachidna Cretica*, Park.

This is one of the four leguminous Plants, mention'd by *Ray*, that bear Fruit as well above as under Ground. The other three are,

Arachis sub Terra Siliquisera Lusitanica, Park.

Arachis, ὀπύριον, Americana, Park. *Mundubi Brasiliensis*, *Marogr.*

Legumen Trifolium sub Terra Fructum edens. Mundubi de Angola, *Marogr.*

Besides these, there is describ'd in the *Memoires de l'Acad. Roy.* for 1723. another Species under the Title of

ARACHIDNOIDES AMERICANA. Or, *Arachidna Quadrifolia villosa Flore lutea*, Nov. Plant. Americ. Gen. Plum. 49. *Pistache du Tertre*, 2. 121. *Manobi*, Labat. 4-59.

All the Difference between this and the former *Arachidna* is, that this last-mention'd, as in the Synonyma, bears Cods under Ground, which hang to the Fibres of the Root.

ARACHNE,

ARACHNE, ἀράχνη, a Spider. The same as **ARANEUS**, which see.

ARACHNOIDES, ἀράχνοειδής, from ἀράχνη, a Spider; and εἶδος, a Form. The external Lamina of the Pia Mater has been, by some Anatomists, made a distinct Coat; and call'd *Membrana Arachnoides*. See **PIA MATER**.

The Tunic also of the Crystalline Humour of the Eye is call'd *Arachnoides*, or *Aranea*. Dr. Nicholls, and afterwards *Albinus*, found the Means of injecting the Vessels of this Coat, which run upon it like Rays from a Centre. But according to *Celsus*, *Rufus Ephesus*, and *Galen*, the Tunica *Arachnoides*, or *Aranea*, is that Coat which immediately invests the vitreous Humour. *Celsus*, Lib. 7. Cap. 7. says it was thus named by *Herophilus*.

ARACON, Brass. Johnson.

ARACUS, a Plant thus distinguish'd:

Aracus, *Vicia sylvestris*, Offic. *Aracus five Cracca major*, Park. Theat. 1070. Merc. Bot. 1. 20. Phyt. Brit. 10. Mer. Pin. 9. *Vicia sylvestris*, five *Cracca major*, Ger. Emac. 1227. Raii Hist. 1. 902. Synop. 3. 321. *Vicia semine rotundo nigro*, C. B. Pin. 345. *Vicia angustifolia*, Rivin. Irr. Tet. Dill. Cat. Giff. 107. Rupp. Flor. Jen. 211. *Vicia vulgaris, acutius folio*, semine parvo nigro, Tourn. Inst. 397. Boerh. Ind. A. 2. 43. *Vicia vulgaris sylvestris*, semine parvo & nigro frugum, J. B. 2. 312. *Vicia vulgaris sylvestris frugum*: Semine parvo & nigro, *Cracca quibusdam*, Chab. 146. *Vicia sylvestris*, semine nigro & variegato, folio acutius, Hist. Oxon. 2. 63. *Vicia segetum*, *Aracus*, *Cracca*, Mont. Ind. 55. **STRANGLE-TARE**, or **WILD VETCH**.

It grows in Hedges, on Banks, and among Corn. The Herb is in Use, and has the same Virtues with the other Species of the *Vicia*. Dale.

ARACYNAPPIL, *Malis Aurantiis parvis similis Fructus*, J. B. *Malis Aurantiis parvis Fructibus similis*, C. B.

This Plant is only just mention'd by Ray, without any Specification of its Virtues or Uses.

ARADOS, ἀράδος, in *Hippocrates*, signifies that Perturbation which is excited in the Stomach by concocting Meats of different Qualities, Lib. de Rat. Vict. in Morb. acut. Kai ἐρε σὺ λιν ἔχει, ἐρε ἀράδον καὶ λιν “Which (Pituita) has no Astringency, nor is subject to raise Commotions in the Stomach.” Where *Galen* expounds τὸ μὴδὲ ἀράδον ἔχειν, by μὴδὲ μίαν ἐν τῷ ἀράδῳ τὰ ἀράχνην ἐμποιοῦν, “causing no Disturbance in Concoction.” *Αράδος* also signifies any internal Perturbation caused by purging Medicines, vehement Exercises, or other Causes.

ARÆON, ἀραιόν, signifies thin, rare, flow; and is opposed to πυκνός, thick, close, frequent. Thus ἀραιὸν πνεῦμα, Lib. 1. Epid. is Breath rarely drawn, or with long Intervals of Time; as it is explain'd by *Galen* and *Erotian*. *Αραιὰ σώματα* are the rare, lax, and soft Parts of the Body, which are easily receptible of any heterogeneous Matter, such as the Humours, σπογγώδης τε καὶ ἀραιὰ, the spongy and lax Parts of the Body, as the Lungs, Spleen, and Breast. Lib. περὶ ἀρχαῖς ἰσχυρῶς.

ARÆON (rare) is properly what contains large Pores, as *Pycnum*, πυκνόν, “dense,” is what has small Pores; but by a Metaphor, Catachresis, or whatever you please to call it, they are used to signify lax and close. Thus we call the Air and Fire rare, and the Water and Earth dense, transferring the Appellations to the very Elements, which are united, consist of similar Parts by Nature, and are incapable of Pores. *Galen. de San. Tuenda*.

ARÆOSYNCRITOS, ἀραιόσυνκρητος, from ἀραιός, thin, and σπυκνῶν, to constitute or frame. A Person of a thin Constitution of Body. *Galen. de San. Tuend*.

ARÆOTICA, ἀραιώτικα, from ἀραιός, to rarefy. Things, or Medicines, which rarefy.

ARALDA. The Italian Name for the Fox-glove. See **DIGITALIS**.

ARALIA, Berry-bearing Angelica. The Characters are:

The Flower consists of many Leaves, which expand in form of a Rose, and are naked, growing on the Top of the Ovary. These Flowers are succeeded by globular Fruit, soft and succulent; and full of oblong Seeds. *Miller's Dictionary*.

Aralia is altogether like the *Araliastrum*, as to the Structure and Situation of its Flower; but its Berry consists of five Seeds placed round an Axis; and its Leaves are branch'd almost like those of Angelica; and its Stalks (which in some Species are naked, and in others have Leaves set alternately) bear each several Umbels at the Top, in the Form of a Bunch of Grapes. The Species of *Aralia* are,

1. *Aralia caule aphylo, radice repente*, D. Sarrazin. *Christophoriana Virginiana, zarzæ radicibus surculosis & fungosis, Sarsaparilla nostratibus dicta*, Pluk. Almag. 98. Tab. 238. Fig. 5. *Zarsaparilla Virginienfis nostratibus dicta; lobatis umbelliferæ foliis Americana*, Ejusd. Almag. 396.
2. *Aralia caule folioso lævi*, D. Sarrazin. *Aralia Canadensis*, Inst. Rei Herba. 300.
3. *Aralia caule folioso & hispido*, D. Sarrazin.
4. *Aralia arborefcens spinosa*, D. Vaillant. *Angelica arbore-*

scens spinosa, seu Arbor Indica, fraxini folio, cortice spinoso, Raii Hist. 2. 1798. *Christophoriana Arbor aculeata Virginienfis*, Pluk. Almag. 98. Tab. 20.

All the Species of these two Genera, except the last of each of them, are common in Canada. The Inhabitants of that Colony, and those of Virginia, call the first Species of *Aralia* by the Name of *Sarsaparilla*, because its Roots have almost the same Figure and Virtues. M. Sarrazin writes from thence, that he had a Patient who had been cured of an Anasarca, about two Years before, by the Use of a Drink made of these Roots; and assures us, that the Roots of the second Species, well boil'd, and apply'd by way of Cataplasm, are very excellent for the curing of old Ulcers; as also the Decoction of them, with which they bathe and syringe Wounds; and he does not at all doubt, but the Virtues of the third Species are the same with those of the second. *Philosoph. Transact. Abridg. Vol. 5*.

ARALIASTRUM is a Genus of Plants, whose Flower is complete, regular, polypetalous, and hermaphrodite; standing on the Ovary, which is crown'd by a Calyx cut into several Parts, and becomes a Berry, in which are, for the most part, two flat Seeds like a Semicircle, which, both together, represent a sort of Heart. The Stalk, which is single, ends in an Umbel; of which each Ray bears but one Flower. Above the middle of the Stalk come out several Pedicles, (as on that of the Anemone) on the Extremity of which grow several Leaves like Rays, or like an open Hand. The Species of this Genus are,

1. *Araliastrum quinquefolii folio, majus*, *Ninzing vocatum*, D. Sarrazin. *Gin-seng*, Des Lettres edifiantes & curieuses, tom. 10.

2. *Araliastrum quinquefolii folio, minus*, D. Sarrazin. *Plantula Marilandica, foliis in summo caule ternis, quorum unumquodque quinquefariam dividitur, circa margines serratis*, No. 36. Raii Hist. 3. 658.

3. *Araliastrum fragrarie folio, minus*, D. Vaillant. *Nasturtium Marianum, Anemones sylvaticæ foliis, emneaphyllon, floribus exiguis*, Pluk. Mantiff. 135. Tab. 435. Fig. 7. *Philosoph. Transact. Abridg. Vol. 5*.

ARANEA, ἀράχνη. The same as **ARANEUS**, which see.

ARANEA TUNICA. The same as **ARACHNOIDES**, which see.

ARANEOSA URINA, ἀράχνοειδής ὕλη, in *Cicac*, is Urine containing something like Spiders Webs, with a Fatness at the Top; which indicates a Colliquation. *Celsus*, Lib. 2. Cap. 8. calls it *Urinam quædam Araneis similia subsidentia ostendentem*: “Urine that shews something in it like Spiders Webs.”

ARANEOSUS PULSUS, ἀράχνοειδής σπυγμός, a Spider-like Pulse, is, as *Galen* defines it, ὁ μικρὸς, ὁ πρὸ βραχέως ἀνεγείσασκενόμενος κινούμενός, “a small Pulse, that moves as if it were shaken by short Puffs of Air.”

ARANEUS, Offic. Schrod. 5. 337. Mer. Pin. 203. *Araneus subflavus hirsutus, prælongis pedibus, domesticus*, Liff. Hist. 59. Raii Insect. 27. *Araneus telarius*, quibusdam: *Araneus domesticus*, Mouff. Theat. Insect. 182. *Jonf. de Insect. 92*. **THE SPIDER**.

It is more common than welcome in Houses. Both the Spider and its Web are used in Medicine: The Spider is said to avert the Paroxysms of Fevers, if it be apply'd to the Pulse of the Wrist, or the Temples; but is peculiarly recommended against a Quartan, being inclosed in the Shell of a Hazle-nut. The Web astringes and conglutinates, and is therefore vulncrary, restrains Bleeding, and prevents an Inflammation.

ARANEUS NIGER, Offic. Liff. Hist. 77. Raii Hist. Insect. 33. **THE BLACK SPIDER**.

It is common in Woods, Thickets, and Pastures. Among the approved Remedies of Sir *Matthew Lister*, I find, that the distill'd Water of Black Spiders is an excellent Cure for Wounds, and that this was one of the choice Secrets of Sir *Walter Raleigh*. *Lister, Hist. Dale*.

The Spider which some call the Catcher, or Wolf, being beaten into a Plaister, then sew'd up in Linen, and apply'd to the Forehead or Temples, prevents the Returns of a Tertian. The Web, apply'd, stops Bleeding, and keeps superficial Ulcers from an Inflammation.

There is another Kind of Spider, which spins a white, fine, and thick Web. One of this Sort, wrapped in Leather, and hung about the Arm, will, it is said, avert the Fit of a Quartan. Boiled in Oil of Roses, and instilled into the Ears, it eases Pains in those Parts. *Dioscorides*, Lib. 2. Cap. 68.

Thus we find, that Spiders have in all Ages been celebrated for their febrifuge Virtues; and it is worthy of Remark, that a Spider is usually given to Monkeys, and is esteem'd a sovereign Remedy for the Disorders those Animals are principally subject to.

The Country-people have a Tradition, that a small Quantity of Spiders Web, given about an Hour before the Fit of an Ague, and repeated immediately before it, is effectual in curing that troublesome, and sometimes obstinate Distemper. This Remedy is not confin'd to our own Country; for I am well inform'd, that the Indians about North-Carolina have great Dependence on this Remedy for Agues, to which they

are much subject; and I am acquainted with a Gentleman long resident in those Parts, who assures me he was himself cur'd by it of that Distemper.

The following Case, which is literally true, will be some Evidence in favour of the Virtue of Spiders Webs in intermittent Disorders.

Some time in April 1742. I was desir'd, by Mr. Crawley, an Apothecary in *Berry-street*, to see one Mrs. Radcliffe, who liv'd in a Stable-yard at the lower End of *Duke-street*, near *St. James's Square*. Upon my first Visit I was inform'd, that she some time before came from *Nottinghamshire*, with an inveterate Ague upon her, which return'd every Night at eight o'Clock, and continu'd for about nine Hours, the greatest Part of which Time she was delirious; and, indeed, during the Intermission, she could not be said to be entirely free from the Fever. She was very big with Child, and told me, she had but a Fortnight to reckon, and that she had been subject to Hysterical Disorders all the Time of her Pregnancy.

She had, by the Advice of her Midwife, taken the Bark, without any good Effect.

As the Time of her Delivery was so near, I judg'd it would be of some Importance to remove the Fever before her Labour, for Reasons too obvious to require mentioning. I therefore directed such Evacuations as her Condition would permit, and put her into a short Course of neutral Salts, after which I directed the Bark, which was for some time repeated in various Forms, and with various Additions; but all to very little Purpose, for the Fever never ceas'd for more than three Days, and during that time she was in a worse State of Health than even when her Fever return'd, being affected with an excessive Diarrhoea. In this State she continu'd for about six Weeks, having mistaken in her Reckoning about a Month; and on or about May 26. in the Evening, she was seiz'd with Labour-pains, and much about the same time with her Fever-fit, the Consequence of which was an excessive Delirium. A Man-midwife was call'd, who, not finding she was likely to be deliver'd soon, left her, after having order'd her a Bolus, with Lapis Contrayerva, and a Cordial Julap. In the Night she was deliver'd, but the Gentleman refus'd to attend her again, because he judg'd it impossible for her to recover, as I was inform'd. I was then again consulted, and was told there was an entire Suppression of the Lochia, and that the Fever-fit constantly returned at one o'Clock in the Day, and lasted nine Hours, never without a Delirium. Till June 3. or 4. I us'd all my Endeavours to remove the Fever, and restore the Lochia; which last I effected, but in a Degree scarcely worth Notice; but the Fever perpetually return'd at one o'Clock, and continu'd as usual, and had reduc'd her to an excessive Weakness.

In such a Situation I believe the Gentlemen of the Faculty will not think I did amiss, if, in pursuance of the Advice of *Celsus*, I chose to try a doubtful Remedy, rather than suffer the Patient to perish without using any Means for her Relief. Upon this Principle, on June 4. about Ten in the Morning, I order'd a Bolus, made of a Scruple of Cobweb, with some Syrup, to be given at Eleven o'Clock, and to be repeated before One. My Directions were punctually observ'd, and Mrs. Radcliffe mis'd her Fit that Day. At Night she slept well for seven Hours, which she had not done for some Weeks before. The next Day the Bolus was repeated: At Night she slept nine Hours, and has never since had any Return of her Fit, except once upon a Fright some Weeks after, when the same Remedy again cur'd her. I must not omit taking notice, that when the Fever was removed, the Lochia were very soon plentifully restored.

As the Cobweb had no sensible Operation, that I could learn, it is a Task too difficult for me to account in a mechanical way for the salutary Effects it produc'd; the Fact, however, appears worthy of Regard.

Among the lower Class of animal Beings called Insects, whose Bites or Stings are made venomous, is the Spider; which altho' in ours, or some colder Climates, they are less dreaded, yet even with us there are some (according to the Observation of the curious Dr. Lister, and such are generally of the octonocular Kind) whose Bites are pernicious, and not to be contemned; an Experiment of which was made by the renowned *Harvey*, as we may find by the following Passage.

"Having, for Trial-sake, prick'd my Hand with a Needle, I after rubbed the Point of the same Needle with the Tooth of the Spider, and perforated the Skin therewith in another Part of my Hand, but could distinguish no Difference in the Sense of the Punctures: However, there was one remarkable enough in the Skin; for, in the envenom'd Puncture, the same was soon rais'd up into a Tubercle, looking red with Heat and Inflammations, rising up as it were to shake off the inflicted Evil."

But the Spider, swallow'd and received into the Stomach, whether of Man or other Animals, is not always alike hurtful, of which *Mouffett*, in his Treatise of Insects, gives a singular Example, and which may be infer'd from their being so much coveted by small Birds, to whom they are the greatest Dainties, and which they pick up without Distinction. A farther Proof

of their being inoffensive, otherwise than by their Bites, we may take from their Webs, so much in Request among the Artists, and at this Day, by the common People, apply'd to recent Wounds, on account of the Flux of Blood, which are, according to *Celsus*, a noble Agglutinative for small Hurts: There are even some who hold the Humour flowing out of their Bodies, as a great Secret for these Purposes, so far are they from being thought hurtful by such.

A yet farther Proof of their being inoffensive is set down by *Mouffett*, which is, that Eggs of these Insects, being deposited on some Fruits or Herbs, are frequently (as may be made apparent) taken in, tho' unobserv'd, and well digested by the most tender Stomach.

Signior *Redi* takes Notice, that this Creature, altho' it prove poisonous when instilling its Juice into the Wound, yet may it not happen so at all times when taken into the Stomach; to confirm which, Dr. *Fairfax* alleges Examples of several Persons well known to him, (himself having been an Eye-witness to several of the Experiments) who have commonly swallow'd Spiders, even of the rankest Kind, without any more Harm than happens to Hens, Robin-red-breasts, and other Birds, who make them their daily Food.

Swammerdam, in his Description of this Creature, says, that those Parts which are called by some others its Teeth, he rather takes for two strong and spiked little Claws; or the pointed Parts of two little and less conspicuous Feet, rather than Teeth properly, not much differing in Structure from the Sting of the Scorpion, with which they prick the Part in like manner with it: And if so, saith he, there will be little other Difference than this, that the Spider carries its double *Unguiculi* or *Aculei* in the Fore-part of the Breast, whilst the Scorpion darts out his single one from the hinder Part of his Body. These *Unguiculi*, according to our Author, are made up of two little Joints or Claws, with which they not only catch their Prey, but transfix and wound the same, afterwards sucking up the Juices of their Captives. Dr. *Lister* takes notice of those forked Claws, but says they proceed out of the Mouth itself of the Creature: *Groenart* says much the same; whilst Dr. *Mead* tells us, That the Spider which lives upon Flies, Wasps, and the like Insects, is provided with a hooked Forceps, placed just by the Mouth, very sharp and fine, with which he pierces the Flesh of those little Creatures caught in his Web, and at the same time infuseth a Juice into the Puncture, by which means the Animal being kill'd, he sucks out the Moisture from the Body, and leaves it a dry husky Carcase.

Leeuwenhoek would have the Poison discharged from the Claw itself, at the same time the Wound is inflicted, contrary to Dr. *Mead*, who upon repeated Trials affirms, That having fixed its Claws upon the Prey, he observ'd a short white *Proboscis* thrust out of the Mouth, which instilled a Liquor into the Wound.

Jacobus Hoefnagel, (taken notice of, as I remember, by *Swammerdam*) Painter in Chief to his Imperial Majesty *Rodolph*, hath exactly colour'd by the Life five-and-thirty several Species of this Insect, with three hundred others, which are since cut upon Copper, and printed with the same Emperor's Licence and Privilege, being not inferior to those of *Goedart*.

But if our *English* Spider be not so venomous, yet those of some other Countries are reported to be so in a very high Degree, inasmuch that *Scaliger* takes notice of a certain Species of them, (which he had forgotten) whose Poison was of so great Force as to affect one *Vincentinus* thro' the Sole of his Shoe, by only treading on it. Even in *Gascony* he observes, there is a very small Spider, which, running over a Looking-glass, will crack the same by the Force of her Poison (*A mere Fable*).

Remarkable is the Enmity recorded between this Creature and the Serpent, as also the Toad: Of the former it is reported, That, lying (as he thinks securely) under the Shadow of some Tree, the Spider lets herself down by her Thread, and, striking her *Proboscis* or Sting into the Head, with that Force and Efficacy, injecting likewise her venomous Juice, that, wringing himself about, he immediately grows giddy, and quickly after dies.

When the Toad is bit or stung in Fight with this Creature, the Lizard, Adder, or other that is poisonous, she finds Relief from Plantain, as is said, to which she resorts, and for which that Plant is reckon'd one of the Specifics.

In her Combat with the Toad, the Spider useth the same Stratagem as with the Serpent, hanging by her own Thread from the Bough of some Tree, and striking her Sting into her Enemy's Head, upon which the other, enraged, swells up, and sometimes bursts. To this Effect is the Relation of *Erasmus*, which he saith he had from one of the Spectators, of a Person lying along upon the Floor of his Chamber in the Summer-time, to sleep in a supine Posture, when a Toad, creeping out of some green Rushes, brought just before in, to adorn the Chimney, gets upon his Face, and with his Feet sits across his Lips. To force off the Toad, says the Historian, would have been accounted sudden Death to the Sleeper; and to leave her there, very cruel and dangerous; so that upon Consultation

it was concluded to find out a Spider, which, together with her Web, and the Window she was fasten'd to, was brought carefully, and so contrived as to be held perpendicularly to the Man's Face; which was no sooner done, but the Spider, discovering his Enemy, let himself down, and struck in his Dart, afterwards betaking himself up again to his Web; the Toad swell'd, but as yet kept his Station: The second Wound is given quickly after by the Spider, upon which he swells yet more, but remain'd alive still. The Spider, coming down again by his Thread, gives the third Blow; and the Toad, taking off his Feet from over the Man's Mouth, fell off dead.

And so much for the historical Part: I shall say somewhat now with relation to the Effects and Cure of the Poison; an Instance of which I remember, when a very young Practitioner, being sent for to a certain Woman, whose Custom was usually, when she went to the Vault by Candle-light, to go also a Spider-hunting, setting Fire to their Webs, and burning them with the Flame of the Candle still as she pursued them. It happen'd at length, after this Whimsy had been follow'd a long time, one of them sold his Life much dearer than those Hundreds she had destroy'd; for, lighting upon the melting Tallow of her Candle, near the Flame, and his Legs being entangled therein, so that he could not extricate himself, the Flame or Heat coming on, he was made a Sacrifice to his cruel Persecutor, who delighting her Eyes with the Spectacle, still waiting for the Flame to take hold of him, he presently burst with a great Crack, and threw his Liquor, some into her Eyes, but mostly upon her Lips; by means of which, flinging away her Candle, she cry'd out for Help, as fancying herself kill'd already with the Poison. However, in the Night her Lips swell'd up excessively, and one of her Eyes was much inflam'd; also her Tongue and Gums were somewhat affected; and, whether from the Nausea excited by the Thoughts of the Liquor getting into her Mouth, or from the poisonous Impressions communicated by the nervous *Fibrillæ* of those Parts to those of the Ventricle, a continual Vomiting attended: To take off which, when I was call'd, I order'd a Glass of mull'd Sack, with a Scruple of Salt of Wormwood, and some Hours after a Theriacal Bolus, which she flung up again. I embrocated the Lips with the Oil of Scorpions mix'd with the Oil of Roses; and, in Consideration of the Ophthalmia, tho' I was not certain but the Heat of the Liquor, rais'd by the Flame of the Candle before the Body of the Creature burst, might, as well as the Venom, excite the Disturbance. (altho' Mr. Boyle's Case of a Person blinded by this Liquor dropping from the living Spider, makes the latter sufficient); yet observing the great Tumefaction of the Lips, together with the other Symptoms not likely to arise from simple Heat, I was inclin'd to believe a real Poison in the Case; and therefore, not daring to let her Blood in the Arm, I did, however, with good Success, set Leeches to her Temples, which took off much of the Inflammation; and her Pain was likewise abated, by instilling into her Eyes a thin Mucilage of the Seeds of Quinces and white Poppies extracted with Rose-water; yet the Swelling on the Lips increased; upon which, in the Night, she wore a Cataplasm prepared by boiling the Leaves of Scordium, Rue, and Elder-flowers, and afterwards thicken'd with the Meal of Vetches. In the mean time, her Vomiting having left her, she had given her, between whiles, a little Draught of distill'd Water of Carduus Benedictus and Scordium, with some of the Theriaca dissolved; and upon going off of the Symptoms, an old Woman came luckily in, who, with Assurance suitable to those People, (whose Ignorance and Poverty is their Safety and Protection) took off the Dressings, promising to cure her in two Days time, altho' she made it as many Weeks, yet had the Reputation of the Cure; applying only Plantain-leaves bruised and mixed with Cobwebs, dropping the Juice into her Eye, and giving some Spoonfuls of the same inwardly, two or three times a Day.

I must remark upon this History, which is from Turner, that the Plantain, as a Cooler, was much more likely to cure this Disorder, than warmer Applications and Medicines.

The same young Woman told me, before this Accident happen'd to her, the Smell of their Burning oftentimes so affected her Head, as that the Objects about her seem'd often to turn round; she grew faint also with cold Sweats, and sometimes a light Vomiting; yet so great was her Delight in torturing these Creatures, and beating up their Quarters, that she could not forbear, till one of them thus alarmed her.

Something akin to this was the Case related by Nic. Nicholus, of a Man he saw at his Inn in Florence, burning a large black Spider in the Flame of a Candle, and staying some time in that Place, from the very Fume thence arising, grew feeble, and fell into a fainting Fit, suffering all Night great Palpitation at the Heart, and afterwards a Pulse so very low as was scarce to be felt. He was recover'd, says the Relator, by giving him Theriaca, mixed with the Species Diamoschu, and Powder of Zedoary.

In the same City, Nic. Florent. relates, there happen'd a sad Misfortune in a certain Monastery, by which many of the Monks received their Death, by drinking Wine incautiously

out of a Vessel in which a certain venomous Spider was found drowned, notwithstanding what hath been before said, of their being inoffensively taken into the Stomach; but these latter very likely might be widely differing, if not in their outward Form, yet in their inward compounding Particles, or their malignant Nature and Properties.

Galen, taking notice of this Insect, subjoins this Interrogation: Who would think so small a Creature should work so mighty an Alteration upon the whole Body of Man, as we find she does, only by a little Dart or Sting just entering the outward Skin, by which certainly she conveys a poisonous Moisture, or something, however, more spirituous, yet still venomous to the Blood?

Sennertus takes Notice of the Signs of this Bite or Sting to be a Stupor or Numbness upon the Part, with a Sense of Cold, Horror, or Swelling of the Abdomen, Paleness of the Face, involuntary Tears, Trembling, Contractions, a perpetual Desire to make Water, Convulsions, cold Sweats; but these latter chiefly when the Poison has been received inwardly.

As to the Cure, not slighting the usual Alexipharmics taken internally, he says, the Place bitten must be immediately wash'd with salt Water, or a Sponge dipped in hot Vinegar, or form'd with a Decoction of Mallows, Origanum, and Mother of Thyme; after which a Cataplasm must be laid on of the Leaves of Bay, Rue, Leeks, and the Meal of Barley, boiled with Vinegar, or of Garlick, and Onions, confus'd with Goats Dung, and fat Figs. Mean time the Patient should eat Garlick, and drink Wine freely.

But if the Poison were admitted into the Stomach, Vomiting must be procur'd for its speedy Discharge, and then some proper Antidote prescribed; among which Gesner commends beyond all others the purest, whitest, and fattest Rosin resembling Frankincense; *Fractastorius*, Bole and Vinegar taken inwardly, with which he recovered a Person stung, or bitten in the Neck, by a venomous Spider. *Turner de Morbis Cutaneis*.

Celsus, Lib. 5. Cap. 27. advises to lay a Cataplasm of Rue and Garlick, beat up with Oil, to the Part wounded by a Spider, or Scorpion.

ARANTIA, the same as AURANTIUM, which see. *Blanc.*

ARARA *Fruetus secundus, Cap. 21. Lib. 2. Exot. Clus. Arara Fruetus Americanus, J. B.*

It grows in *Cayana*; the Inhabitants bruise it, and boil it in Water, with which they wash malignant Ulcers. They say, also it is good to loosen the Belly, which I suppose is meant of the Kernel. *Raii Hist. Plant.*

ARATICU. Ray mentions three Sorts of Trees under this Name. The first is the

ARATICU *prima seu simpliciter dicta*, Francis Redi Experiment. Natural. p. 75. *Araticu Ponbe*, Marcgrav. & Pison. This Dr. Robinson thinks is THE SOUR-SOP.

The Tree is like an Orange in its Trunk and Boughs; and the Colour of its Bark, but unlike in Leaves, Flowers, and Fruit.

The Leaves, scorched in the Fire, and apply'd in Oil to an Abscess, maturate, break, and heal it in an excellent manner.

The second is the

ARATICU APE, Pison. Marcgrav. Redi Experiment. Nat. p. 77. *Nostratibus*, THE CUSTARD APPLE. *An Anona Ovied?*

ARATICU *de mato Pison. An Baly Insula Fruetus, asperu Cortice, Clus. Raii Hist. Plant.*

ARBOR, *Sesd. egg*, a Tree, is defined to be a woody Plant, the biggest of all in Thickness and Height, whose Stock is perennial, and single by Nature, and is divided into many larger Branches, which the Greeks call *ἀγκύρα*, and *ῥαχίς*; and afterwards into many small Branches [Sprigs], which the Greeks call *ῥαχίς*, and the Latins *Surculos*. *Miller's Dict.*

ARBOR *Virginiana, Citria vel Limonia Folio, Benzoinum fundens, H. A.* The Benjamin-tree, *vulgo*. This Tree is found in great Plenty in most Parts of Virginia and Carolina, and is kept in curious Gardens of Trees, amongst many other Plants of those Countries, here in England. When it was first introduced, it was generally believed, that the Gum Benjamin of the Shops was an Exudation from this Tree; but it is now thought to proceed from a very different Tree.

ARBOR *Zeylanica, Cotini Folio, subius Lanugine villosis, Floribus albis Cuculi modo laciniatis. Pluk. Phyt.* THE SNOW-DROP-TREE.

ARBOR *Americana, pinnatis Fraxini Folio, Fructu reniformi, Phaseolum experimenti. Pluk. Phyt.* SPANISH ASH.

ARBOR *baccifera laurifolia aromatica, Fructu viridi calyculato racemoso. Sloan. Cat. Jam.* The Winter's-bark, or wild Cinnamon-tree. It grows in the Low-lands of Jamaica in great Plenty, to the Height of thirty Feet, or more. The Leaves, Fruit, Bark, and every Part of this Tree are very aromatic, hot, and biting to the Taste. The Bark is used as Spice in most of the English Plantations in America, and was formerly pretty much used in Medicine in England, under the Title of *Canella Alba*, or *White Cinnamon*, but at present it is not much in Use.

ARBOR laurifolia venenata; Folio leviter serrato oblongo obtuso. copiosum Lac præbens. Sloan. Cat. **THE POISON-TREE.**

This Tree grows plentifully in *Jamaica*, and other warm Parts of *America*. It abounds with a milky Juice, which is accounted very poisonous; if the Leaves are broken, the Juice will flow out very fast; and, if it falls on Cloth, will cause it to wash in Holes, much after the same manner as the Juice of the Manchineel-tree.

ARBOR Americana, Fraxini Folii, Fructu conoide. The Mahogany-tree. It grows chiefly on the North Side of *Jamaica*.

ARBOR excelsa, Coryli Folio ampliore. Houft. It grows only at *Campeachy*.

ARBOR in Aqua nascens, Folii latis acuminatis & non dentatis, Fructu oleagino minore. Catesb. Hist. Nat. **THE TUPELO-TREE.** It grows in *Virginia*, *Maryland*, and *Carolina*.

ARBOR SAPONARIA, Offic. Arbor saponaria Americana, Raii Hist. 2. 1548. Prunifera racemosa, folio alato, costa media, membranulis utrinque extantibus donata, fructu saponario, Cat. Jamaic. 184. Sloan. Hist. 2. 131. Prunifera seu Nuciprunifera, fructu saponario orbiculato monococco nigro, Americana, Pluk. Phytog. 217. Fig. 7. Nuciprunifera arbor Americana, fructu saponario orbiculato monococco nigro, Pluk. Almag. 265. Arbor Misticæ provinciae fructu avellanæ simili, Læet. 260. Jonf. Dendr. 114. Quity, Pison. (Ed. 1658.) 162. Quity Brasiliensis, Marcg. 113. Saponaria sphaerula, Chab. 22. Saponaria sphaerula arboris filicifolia, J. B. 1. 312. Nucula saponaria non edules, C. B. Pin. 511. Sapindus foliis costæ alatæ innascentibus, Tourn. Inst. 639. Bacca Bermudenses, Marl. Obs. SOAP-BERRIES.

It grows in *Jamaica*, and other Parts of the *West-Indies*; the Fruit is ripe in *October*, and, when dry, is spherical, of a reddish Colour, and less than a Gall, of a large Eye, and a bitter Taste, but no Smell, containing one round black Stone.

It is much recommended against the *Chlorosis*, and the Berries are reckoned a singular and specific Remedy against that Distemper, working a perfect Cure after an ineffectual Use of Chalybeates. The Spirit, Tincture, or Extract, are more proper to be used than the crude Berries.

*ARBOR VITÆ, Offic. Ger. 1187. Emac. 1368. Park. Theat. 1478. Raii Hist. 2. 1408. Arbor Vitæ, five Paradisiaca, Chab. 73. Arbor Vitæ, five Paradisiaca vulgò dicta odorata ad Sabinam accedens, J. B. 1. 286. Arbor Vitæ, Thuja, Mont. Ind. 37. Arbor Cupressi similis in Syria, Jonf. Dendr. 332. Thuja Theophrasti, C. B. Pin. 488. Tourn. Inst. 587. Elem. Bot. 489. Boerh. Ind. A. 2. 180. **THE TREE OF LIFE.***

It is a Native of *America*, but is never found in *Europe*, except in the Gardens of the Curious. The Leaves are used as an Alexipharmic, and Diuretic. *Mont.*

It is an opening and warming Plant, provokes the Menfes, and is good against the *Chlorosis*; bruised with Honey, it dissolves Tumors. The Oil is commended against the Gout, being rubbed on the Part; for it acts like Fire, by stimulating and opening. It cleanses Beds from Lice and Fleas. *Boerh. Hist. Dale.*

This Tree never grows to any Bigness with us in *England*, being a Stranger, and only planted in Gardens. The younger Branches are flattish and tough, bearing on each Side several winged Leaves, which grow thick together, scaly, somewhat like Cypress, but are smooth, and not prickly at the End, and very flat; they have a strong resinous unpleasant Scent, which some compare to old rotten Cheese. It bears little small scaly white Cones at the Extremities of the Branches. It came originally from *Canada*.

The Leaves have a digesting attenuating Faculty. *Parkinson* says, that, chewed in the Mouth for several Mornings fasting, they have done great Service in expectorating and freeing the Lungs from thick purulent Phlegm. It is but rarely used. *Miller. Bot. Off.*

This Tree receives the Name of *Arbor Vitæ*, or *The Tree of Life*, because it flourishes with a perpetual Greenness, and breathes a fragrant and delicious Odour: It is also called the *Cedrus Americana*, and the *Arbor Semper Viridis*. It is imported into *Europe* from *Canada* in *America*, and only to be found in the Gardens of the Curious. It is at all Seasons clothed with its Leaves, which, though they become somewhat pale in the Winter-time, do nevertheless resume their native Splendor, and usual Verdure, in the Spring. The Tree itself is strait, but rough and uneven in its Surface; its Bark is of a kind of intermediate Colour between Red and Brown, and is unequal and scabrous. The Wood itself contains a Gum, and sends forth a strong, but, at the same time, an agreeable Smell. In the Beginning of the Summer it bears small yellow Flowers, which contain and fold up in them, as in a kind of Turbant, a bitter Seed. *Castor. Durantes* informs us, that there is a Species of this Tree principally found in *France*, which is of a warming and drying Nature, of a somewhat bitter Taste, but of a very agreeable Smell; and that it also

preserves the Health, and protracts the Life of Men. This Tree, says *Camerarius*, in *Hort. p. 169.* is deservedly had in Esteem, not only on account of its fragrant Smell, which is so strong, that its Branches, bruised and applied to the Nostrils, sometimes occasion a Discharge of Blood from them; but also on account of its other valuable Virtues and Properties. From it there is distill'd a Water and an Oil which prove serviceable in Paroxysms of the Gout, if duly applied to the Parts affected. The Balsam and Oil of *Arbor Vitæ*, or *The Tree of Life*, were very much used during the Time of the Plague in *Dresden*. *Job. Mich. Not. in Schroder. Pharm. Barth. Zorn. Botanolog.*

ARBOR BACCIFERA CANARIENSIS. See *VERVA MORA*.
ARBOR BENZOINIFERA. See *BENZOIN*.
ARBOR BRASILIANA juglandi similis. See *COPAU*.
ARBOR CAMPHORIFERA. See *CAMPHORA*.
ARBOR CORAL. See *CORALLODENDRON*.
ARBOR CREPITANS. See *HURA*.
ARBOR EXOTICA Fraxini Fol. See *NEGUNDO*.
ARBOR FEBRIFUGA Peruviana. See *QUINQUINA*.
ARBOR FRAXINI FOLIO, C. B. See *ÆZEDARACH*.
ARBOR JUDÆ. See *SILICUA STRUM*.
ARBOR LANIGERA Bontii. See *GOSSYPIMUM*.
ARBOR LAVENDULÆ FOL. Clus. See *FRUTEX India* or *Lav. Fol.*

ARBOR LAURIFOLIA SINENSIS. See *LICHI*.
ARBOR MANNIFERA. See *MANNA*.
ARBOR PENTAPHYLLOS Virgin. See *PENTAPHYLLOS*.
ARBOR DE RAYZ. See *FIGUS INDICA*.
ARBOR S. THOMÆ. See *MANDARIS*.
ARBOR SPINOSA Virgin. See *HERCULIS CLAVA*.
ARBOR TINCTORIA. See *TINCTORIA*.
ARBOR TULIPIFERA. See *TULIPIFERA*.
ARBOR VINIFERA. See *COULTON*.
ARBOR UVIFERA TABACENSIS. See *UVIFERA*.
ARBOR DIANÆ is a sort of Crystallization of Mercury and Silver dissolved in *AQUA-FORTIS*, which runs out in Branches like a Tree.

ARBOREUS, Arboreous, of, or belonging to, or of the Nature of Trees. An Epithet which Botanists apply to those Funguses or Mosses which grow on Trees, in Distinction from those which grow on the Ground, as *Agaric*, *Jews-ear*, &c. *Miller's Dictionary*.

ARBUSCULA, Arbusculæ, a Diminutive from *Arbor*, a Tree. A little Tree, or Shrub.

ARBUSCULA Africana repens, Folio ad Latera crispo, ad Polygonam relata. Boerh. Ind. alt. An African trailing Shrub, with curled Knot-grass Leaves, and Flowers, somewhat resembling those of Orach. It is preserved in many Gardens for Variety rather than Beauty. *Miller's Add.*

ARBUSCULA Coralloides. See *CORALLODENDRON*.
*ARBUTUS, Offic. Ger. 1310. Emac. 1496. Park. Theat. 1489. Raii Hist. 2. 1576. Synop. 3. 464. Mer. Pin. 9. Arbutus, Unedo Theophrasti, Phyt. Brit. 10. Arbutus Comarus Theophrasti, J. B. 1. 83. Chab. 4. Arbutus folio serrato, C. B. Pin. 460. Tourn. Inst. 599. Elem. Bot. 471. Boerh. Ind. A. 2. 217. Jonf. Dendr. 64. Pluk. Almag. 49. Unedo Plinii vulgò, Herm. Cat. Hort. Lugd. Bat. 634. **THE STRAWBERRY-TREE.***

It grows in Woods and Thickets, that are warmly situated. The Fruit is used, which is of a sharp and austere Nature. *Dale.*

The *Arbutus* is a Tree like the Quince-tree, of a thin Bark, or with thin Leaves, (*λεπίσφυλλον*) and bearing a Fruit of the Size of a Plum, but without a Stone, and called *Memacylum*, of a deep-yellow or red Colour, when ripe.

The Fruit is very husky Food, hurtful to the Stomach, and causes Head-ach. *Dioscorides, Lib. 1. Cap. 175.*

This Tree grows very frequently in *Spain*, *Sicily*, *Italy*, and *Narbon* in *France*. *Juba* reports, that in *Arabia* it rises to the Height of fifty Cubits, *Plin. L. 15. C. 24. P. Bellonius* informs us, that in the Valleys of *Mount Athos*, so much celebrated by the Antients, the *Arbuti* grew up to Trees of a huge Size and Bulk. Throughout the Winter it retains the Verdure of its Leaves, which are large, and whose Edges are full of Points, and about the Middle of each Leaf there is a reddish Vein. It bears white and fragrant Flowers, which resemble Honey-suckle, or Lilies of the Valley. After its Flowers are fallen, it bears a round thick Fruit as large as a Strawberry, which is at first green, then yellow, and, last of all, red, of a coarse bitter, and not very pungent Taste. Some call its Fruit *Comarus*, and *Unedo*, for this Reason probably, that only one of them should be eaten at a time, according to *Pliny, Galen, Dioscorides*, and some others, assert, that the Fruit, eaten in too large a Quantity, is prejudicial to the Stomach, and excites Head-achs. For my share, says *John Baubine*, they always occasioned a Pain in my Stomach when I happened to eat them. But *Car. Clusius* says, he had eaten many of them without sustaining any manner of Injury, *Lib. 1. rar. Plant. Hist. C. 30.* Many distil a Water from its Leaves and Flowers in *Balneo Maria*, which they look upon as a mighty Preservative against the

the Plague; especially if used soon enough. *Amatus Lusitanus* informs us, that it is a sacred Preservative and Antidote against the Plague and Poisons. *Matthiolus* mixes it with the Powder of Bone of *Stag's Heart*. Many also make use of its Root against the Plague. Tanners use its Leaves in preparing their Leather; and Bird-catchers use its Seeds for catching their Prey in the Winter-season. *Barth. Zorn. Botanolog.*

ARCA Arcanorum. The *Mercurius Philosophorum*. *Castellus*.

ARCANUM, ἀπόκρυφον, ἀπόκρυφον, μυστικόν. A kind of Remedy whose Manner of Preparation, or singular Efficacy, is industriously concealed, in order to enhance its Value. *Paracelsus* describes it to be a principal Medium, which ought to be investigated by Experience.

ARCANUM, by the Chymists, is generally defined a thing secret, incorporeal, and immortal, which cannot be known by Man, unless by Experience; for it is the Virtue of every thing, which operates a thousand times more than the thing itself.

The *Arcanum Materiale* is a specific Extract more nearly allied to the Matter of the Body. But since the Matter of compound Bodies consists of two Elements, the Moist and the Dry, (for Air and Fire are rather the Form, and are to be considered as Efficients) therefore this *Arcanum* must also be of two Kinds, that is, the *Aqua Stillatitia*, and the *Coagulum Specificum*.

The *Arcanum Specificum* is an Extract of the interior Nature, presenting us with the Substance of every thing in a nearer View, so that the Thing itself may be known in it; for which Reason we are to take the utmost Care, that the substantial Crasis or Contexture be not spoiled, because in this respect it is called *Specific*, and differs from the *Quinta Essentia*, which for its consummate Subtlety, and exalted Rank, seems almost to desert from its own to the superior Class of Æthereals. This *Arcanum Specificum* is of two Sorts, one more formal, which is called the *Astral*, the other more material. *Rulandus*.

At present there are three remarkable Remedies, which pass under the specious Name of *Arcanums*, which are,

ARCANUM CORALLINUM.

1. Take of red Precipitate, four Ounces; put it into a Retort; add to it Spirit of Nitre, eight Ounces; set it in a Sand Furnace, and draw off the Spirit by a gradual Heat raised to the fourth Degree. This Operation will be performed in five or six Hours. Return that Spirit of Nitre with four Ounces of new Spirit; and, at last, let it continue at least two Hours, in the fourth Degree of Fire; then let it all cool, and there will be a very red and subtile Powder, which put into a Crucible, and set in a Fire of Charcoal, but not exceeding a Worm-red, half a Quarter of an Hour. Then put it into a Mattrafs, and to it three Pounds of distilled Fountain or Rain-water; set it in a Sand Furnace, and give it a gradual Fire till it boils, and so keep it half an Hour. Pour off that Water by Inclination, and dry the Powder gently; then put to it of tartarized Spirit of Wine, twelve Ounces; and in a gentle Heat draw it off, and so proceed to two Cohobations. Then put to it twelve Ounces of fresh tartarized Spirit of Wine; fit a Glass to the Mouth of the Cucurbit, to make it a Circulatory; let it stand in a gentle Heat of Sand forty-eight Hours; and, at the last of all, let it simmer a little, then let all cool: Decant the Spirit of Wine, and dry the Powder.

This does not greatly differ from the Prince's Powder. Some esteem this the best and safest of this Tribe: It operates chiefly by Stool. Its Dose is from three to ten Grains. This is also reckoned good in the Gout, Dropsy, Scurvy, and Itch, as well as Venereal Infections.

2. ARCANUM DUPLEX, sive DUPLICATUM.

Take any Quantity of the Caput Mortuum of Aqua-fortis, made with equal Parts of Nitre and Vitriol, and dissolve in hot Water by standing some Hours, and now-and-then stirring the Mixture. Let the Water be filtered; evaporate to the Appearance of a Skin upon the Surface, or even to a Dryness, and leave it to shoot.

This is also in some Authors by the Name of *Nitrum Vitriolatum*, and *Sal Ducis Holsatia*; and is greatly extolled for a Diuretic, Sudorific, and, as the Humours are disposed, sometimes for a Cathartic too; but we hardly ever meet with it in Prescription. Its Dose is from half a Scruple to half a Dram.

3. ARCANUM JOVIALE.

Make an Amalgama with equal Quantities of Quicksilver and Tin: Powder it, and pour upon it Spirit of Nitre, till it somewhat more than covers it, which let stand in a

gentle Digestion for some Hours; then by a Retort draw off the Spirit of Nitre. The remaining Matter take out, and wet it with Spirit of Wine rectified, which burn away. This repeat five or six times, until the pungent Taste is worn off.

This is recommended in *Bater's Dispensatory* for a powerful Sudorific. Its Dose is from three to eight Grains. *Quincy's Dispensat.*

ARCEUTHOS. The same as JUNIPERUS, which see.

ARCHÆUS, ἀρχαῖος, ancient, former. Ἀρχαῖον εὖος, in *Hippocrates*, often signifies the former healthy State of the Body before the Attack of a Disease.

ARCHAGATHI EMPLASTRUM LENE. A mollifying Plaster invented by *Archagathus*. Its Preparation is given by *Celsus*, *Lib. 5. Cap. 19.*

ARCHAGATHUS. A celebrated Physician amongst the Romans.

'Tis by some asserted, that before the Arrival of *Archagathus* at Rome, Physic was not so much as known in that City; and if we may believe *Pliny*, this useful Branch of Learning was unknown to the Romans, till after all the other liberal Arts and Sciences were established among them: "The Roman People," says he, [*Lib. 29. Cap. 1.*] were more than six hundred Years without Physicians, though they were very early in cultivating the other Arts, and even fond of Physic itself, till, becoming acquainted with it by Experience, they condemn'd it. *Cassius Hemina* informs us, that *Archagathus* the Son of *Lysanias* the *Peloponnesian* was the first Physician who arrived at Rome, under the Consulship of *Marcus Aurelius* and *Marcus Livius*, in the Year of the City 535. adding, that he had the Freedom of the City bestowed upon him; and that the Public had, at their own Charges, purchased a Shop for him in the Street of *Accilius*, that he might exercise his Profession to the greater Advantage; that at first they gave him the Surname of *Vulnerarius*, or *The Healer of Wounds*; that his Arrival was very agreeable to the People, but that soon after, his Practices of *Burning* and *Cutting* appearing cruel and barbarous in the Eyes of the People, they exchanged his former Surname for that more infamous one of *Executioner*; from which time they conceived an implacable Aversion to Physic and all its Professors."

It appears somewhat surprising, that a People so polite as the Romans were, should be so long without Physicians. To the Authority of *Pliny* we shall oppose that of *Dionysius of Halicarnassus*, who in his tenth Book has these Words: "The Plague beginning to appear in Rome in the Year of the City 301. and happening to rage more violently than any other Plague with which they had been afflicted in the Memory of Man; it carried off almost all the Slaves, and half of the Citizens, the Physicians not being able to attend and take care of such a large Number of Patients." There were then Physicians in Rome at that time, that is, more than two hundred Years before the Period mentioned by *Pliny*, as indeed there have been Practisers of this Art in all Ages among all People. But, in order to reconcile these two Authors, we must suppose, that *Pliny* means only foreign Physicians, especially those of the Greek Nation; and indeed he explains himself to that Purpose a little afterwards in these Words: "In order to be convinced of the Aversion the Romans in those Days bore to Physic, we need only hear the Sentiments of *Marcus Cato* upon that Point, who lived seventy Years after *Archagathus*, and who was a Man of whom we may say, that the Honour of a Triumph decreed in his Favour, and the Dignity of the Censorship, which Office he bore, are the least shining Parts of his Character, since so many other Circumstances concurr'd in his Person to render him venerable and awful." These following are his own Words, taken from a Letter he wrote to his Son: "I will tell you, my Son *Marcus*, at a proper Occasion, what Notion I entertain of these Greeks, and what I think most valuable in Athens. It is not improper to study their Learning and Sciences cursorily, but 'tis by no means necessary to make one's self a complete Master of it. I shall say no more at present of that wicked and arrogant Race; but persuade yourself of this, as much as if an Oracle had spoken it, that as soon as this Nation has communicated her Learning to us, she will spoil and corrupt Rome; and this dire Event will be still more easily brought about, if she continue to send her Physicians to us. They have sworn among themselves to kill all the Barbarians, by means of their Art; and still they exact a Fee for their Pains from the Patients with whom they deal, that they may gain their Confidence more effectually, and consequently have it in their Power to destroy them with the less Danger of Suspicion. They have such a Degree of Insolence as to call not only other Nations, but us, Barbarians; nay, they carry their Arrogance farther, and style us *barbari*, rude, and Strangers to true Politeness. In a Word, my Son, remember, that I have discharged you from having any thing to do with Physicians."

'Tis plain from the Strain of *Cato's* Language, that he had only foreign Physic in his View; and this *Pliny* acknowledges, by starting to himself the following Objection, which he makes use of as a Conclusion: "Must we then believe, that *Cato* condemn'd a thing so useful and beneficial as Physic? Assuredly not; since he himself vouchsafes to inform us by the Use of what Medicines he himself and his Wife had arrived at such an advanced Age; and that he had written a Book, in which he lays down the Method of his Practice, with regard to his Son, his Slaves, and even his Cattle, when they were indisposed."

The *Romans* then were not absolutely without Physicians in the earlier Ages of their Republic; but in all Probability, before the Arrival of *Archagathus*, they only used that *Natural Physic*, or simple Empiricism, which we may well suppose to have been practised by the Infant World, when Men made their first Appearance upon it. This was the Physic relished by *Cato*, and on which he wrote the first of all the *Romans*. He had some Peculiarities in his Practice, which, if they will not inform the Judgment, will, at least, excite the Laughter of every thinking Person; for 'tis well known, that he approved of superstitious Remedies; and in that Part of his Works which has reached our Hands, he has given us an inimitable Formula of Words to be pronounced for the Cure of a Dislocation or Fracture; but because there is not a Possibility of translating them, I shall give them as he himself gave them: "*Luxum si quod est, hac Cautione sanum fiet. Harundinem prende tibi viridem P. 4. aut 5. Longam. Mediam diffinde, & duo Hominibus teneant ad Coccendices. Incipe Cantare in alio. S. F. Motas vata Daries Dardaries, Astartaries Diffunapiter, usque dum coeant. Ferrum insuper jactato. Ubi coierint, & altera alteram tetigerit; id Manu prende, & dextra sinistra praecide. Ad Luxum aut Fracturam alliga, sanum fiet, & tamen quotidie cantato in alio, S. F. vel Luxato, vel hoc modo, buat, banat, huat, ista. Pista, fista, domiabo dannauftra, & luxato. Vel hoc modo, buat, haut, haut, ista, sis tar sis ardannabon dannauftra.*" *Cato de re rustica* Cap. 160.

Pliny also informs us, that *Cato* in his Practice made a great deal of Use of Cabbage, in which, as he observes, the whole Materia Medica of the *Romans* consisted for six hundred Years. This *Paracea* must undoubtedly appear ridiculous in our Days; but we shall be less surpris'd, that this People confided so much in a common Plant, if we call to mind the uncommon Esteem in which it was had among the most learned and skilful of the first *Greek* Physicians.

Plutarch observes, with regard to the Practice of *Cato*, that he did not approve of Abstinence for the Cure of Diseases, but recommended Herbs, and the Flesh of Ducks, Pigeons, and Hares. But this Author does not pay so profound a Veneration to the Physic of *Cato* as *Pliny* does; he observes on the contrary, that the Wife and Son of that *Roman* died before himself; adding at the same time, that if *Cato* lived to so great an Age, it was owing to the natural Goodness of his Constitution, and not the judicious and happy Choice of his Medicines. As *Plutarch* was a *Grecian*, he may possibly be suspected of being animated with too keen a Desire of revenging the Cause of the *Greek* Physicians; though, at the same time, what he asserts has very much the Air of Probability.

As for the Physic of the *Greeks*, 'tis not at all surpris'g, that the *Romans* should be unacquainted with it till the Arrival of *Archagathus* amongst them, since even in other Instances they were very late in cultivating the Sciences and liberal Arts. And tho' *Pliny*, in the Passage already quoted, affirms, that the *Romans* soon received the Arts; yet this is only to be understood of these mechanical Arts, which are absolutely necessary to human Life: "*Cicero* [*Tusculanar. Quæst. Lib. 1.*] informs us, that Poetry was not introduced among the *Romans* till very late, and that even Philosophy had been in great Disrepute till his Days. *Suetonius* also [*De illustrib. Grammaticis*] affirms, that Grammar was not at all in Use among the first *Romans*, much less was it esteemed and valued, because the People of these Days were as yet savage and unpollite, and so thoroughly addicted to the Business of War, that none apply'd themselves very much to the liberal Arts." But there cannot possibly be a more convincing Proof, that Learning made her Entrance into *Rome* very late, than *Cato's* Dread, lest she should make her Appearance in his Days, though he lived, as we have observed, seventy Years after *Archagathus*. Though the greater Part of this Article may seem to be a kind of Digression, yet, upon a closer View, the Whole will appear to have some Connection with the Life and History of *Archagathus*. Besides, 'tis fraught with so much Learning, and has such a direct Tendency to acquaint us with the State of Physic in *Rome*, that it will speak for its own Propriety. *Le Clerc. Histoire de la Médecine.*

ARCHALTES, or, according to *Rulandus*, ARCHATES. By this Word *Paracelsus* means the Foundations or Pillars of the Earth, because they do not seem to be sustained by one an-

other, but by the secret and wonderful Operation of God, *Rulandus. Castellus.*

ARCHANGELICA. See ANGELICA.

ARCHE, ἀρχή, a Beginning, has a Multiplicity of Meanings among Physicians, according to *Galen*. Sometimes, says he, it signifies the first Attack of a Disease without any Length of Time at all; sometimes it means the same continued, tho' but for a short Space. Besides these Significations, ἀρχή denotes the first Stage of the Distemper, the second being the *Anabasis*, ἀνάβασις, for Increase; the third the *Acme*, ἀκμή, "State or Height;" and the last the *Paracme*, παρακμή, "Declension." *Aetius* by the *Arche* of a Distemper understands the Beginning of the Patient's Decubiture. Again, *Galen* tells us, that *Hippocrates*, as well as other Physicians, use this Word to signify the Beginning of a periodical Distemper, on the first Day of the Transition from a healthy to a morbid State, which comes about again on the third or fifth Day in proportion to the Period: He says, moreover, that *Hippocrates*, and the ancient Physicians, meant by *Arche*, a Space of Time in the Beginning of a Disease which admitted of Help, whether by Bleeding, Clysters, &c. and that the *Arche* in a Hætic Fever was not circumscribed or limited by Days or Hours, as it was in other Distempers, but by the Quality of the Affection. In this Sense is *Arche* taken by *Tully*, when he writes to his Friend *Atticus*, *Avrogiā tua mihi valde molesta; medere, amabo, dum est ἀρχή.* "I am very much concern'd about your Difficulty of Urine; let me beg you to get it cur'd while it is recent."

ARCHEGONOS, ἀρχηγόνος, from ἀρχή, a Beginning, and γίνομαι, to be, or be produc'd. Primigenial.

ARCHENDA, a Powder prepar'd of the Leaves of the Egyptian Privet, called *Alcama*, or *Elhamma*, by the Natives, with which they plaster up their Feet after bathing, and wonderfully commend it against all Humidity, ill Smell, and Imbecillity of the Feet, on account of its astringent and strengthening Quality. See *ALCANNA*.

ARCHEUS is a Term introduced by *Paracelsus*, and defined by his Interpreter to be an invisible Species, vague, and separating itself from Bodies, the Physician's Power, and Nature's Virtue. *Paracelsus* says of it, That it is the Nature and Disposer of Things, *De Tartaro*; is the Separator of the Elements, *De Elemento Aquæ*; disposes and orders all Things in Nature, that every thing may be brought to the ultimate Matter of its Nature, i. e. *de Mineralibus*; is constituted to compound Things which ought to be united, *ibid.* and is the Destroyer of Bodies, *Chirurg.* that the Office of the *Archeus* in the Microcosm is to separate the Pure from the Impure, being the prime Operator in the Stomach, that prepares and distributes whatever we eat and drink, and employs the expulsive Powers in discharging the tartareous Recrements by the Intestines and Bladder; and as the *Archeus* of the Stomach is more or less perfect, so in proportion are the Separations of the Pure from the Impure, and of consequence the Microcosm is more or less subject to Disorders, *De Morbis Tartar.* that the great *Archeus* is the Distributor of the different Heats necessary for as many different Digestions according to the Nature of the Parts, *Modus Pharmacandi, Vol. 1. p. 815.* that there is a Virtue in Nature which is the *Archeus*, that disposes all things into their several Essences, separating one Thing from another, and furnishing Things with their proper Seeds, *Meteorum cap. 4. Vol. 2. p. 202.*

Van Helmont makes very frequent Use of this Word, and informs us, that the *Archeus* consists in a Connection of the vital Air, as Matter, with the seminal Form, which is the interior spiritual Nucleus, containing the Fecundity of the Seed, and of which the visible Seed is but the Pod. This *Archeus* is the Contriver and Director of Generation, investing itself with bodily Cloathing. In animate Beings it perambulates all the Recesses of the Seed, and transforms the Matter, according to the Entelechia of its own Image, here placing the Heart, and there the Brain; and to every Part assigning, out of its universal Monarchy, a Governor, according to its Exigency and final Use, which remains in his Office till Death; but the *Archeus* is always fluctuating, and never fix'd to any Member, but keeps a watchful Eye over every particular Governor of a Part, and is always clear and lively, but never idle. *Archeus Faber.*

By these Extracts we may perceive, that these Philosophers only meant Nature, by their *Archeus*.

ARCHIATER.

The Word *Archiater* or *Archiateros* has different Ideas affixed to it by different Persons: Thus *Chassaneus* imagin'd, that it imply'd no more than a Porter or Door-keeper of the Prince's Palace, as if one should say, *Princeps Atrii*; but this Conjecture is so absurd, that it in a manner confutes itself. *Accursus* has succeeded better in translating the Word *Archiater*, Prince or Chief of Physicians, as if one should say ἀρχὴς τῶν ιατρῶν.

This Opinion of *Accursus* was embraced by the ancient Translators of *Galen*, and some other learned Men, who rendered the *Greek* Word *Archiater* by the Latin ones, *Medicus primarius*. *Mercurialis* was the first who declared himself against this Explication of *Accursus*, and maintained that the Word *Archi-*

ater signified the *Physician of the Prince*, as if one should say, *τὸ ἀρχαῖος ἰατρός*. He endeavours to support his Opinion by this Reason, that the Word *Archiater* was never used by any Greek or Latin Author before the Days of the Roman Emperors. He even thinks, that this Word was not known till after the Reigns of *Tiberius* and *Claudius*, which is sufficiently prov'd by this Circumstance, that *Andromachus*, who lived under *Nero*, was the first who assum'd the Title of *Archiater*.

That Title, says *Mercurialis*, was not in Use before the Days of the Emperors, because the Thing imported by it had not as yet a Being; or in other Words, there could not possibly be Physicians to the Emperors, before the Emperors themselves were established. This is one Topic insisted upon by *Mercurialis*, in Defence of his Opinion; to which some may possibly reply, that the Kings or Sovereigns of other Countries might have also given the Name of *Archiatri* to their Physicians, if that Word signifies the *Physician of the Prince*. But one may retort this Argument, and say, that if the Word *Archiater* signifies the Prince or Chief of Physicians, the Greeks would not, in all Probability, have fail'd to bestow that Title upon *Hippocrates*, *Erasistratus*, and some others of their most eminent Physicians. Let this be as it will, 'tis an uncontroverted Fact, that the *Archiatri* were not so much as heard of before the Days of the Emperors.

Mercurialis adduces two Arguments more in Confirmation of his own Hypothesis: The first is, that *Andromachus* is not called simply *Archiater*, without any Mark of Distinction, but the *Archiater of Nero*. The second is, that if *Demetrius* and *Magnus*, who are called *Archiatri*, by the same Author who speaks of *Andromachus*, and had that Title bestowed on them under the Reigns of the *Antonini*, had not been the Physicians of these Emperors, then no Reason can be assigned, why they should have been called *Archiatri*, rather than *Archigenes*, *Soranus*, and several other Physicians, who flourish'd much about the same Time, and whose Names were sufficiently famous.

Alciatus embraces an Opinion, which seems to be a kind of Medium betwixt that of *Accursius* and *Mercurialis*; for he imagin'd, that the *Archiater* was in Reality the Prince of Physicians, because he was the *Physician of the Prince*, since the Man who bears that Character, is, for that very Reason, placed, in some measure, in a higher Sphere than other Physicians; but according to that Lawyer, it does not thence follow, that the Word *Archiater* is form'd of the Greek Words *τὸ ἀρχαῖος ἰατρός*.

These are the three different Opinions embraced with regard to the Meaning of the Word *Archiater*; for that of *Chassaneus* is of so trifling and diminutive a Nature, that it does not deserve a Place among the rest. I know not whether *Alciatus* has had any Abettors, but the Bulk of the learned World in general is divided between the Explications of *Accursius* and *Mercurialis*: Each has his respective Champions, and those too Men of Learning. The Opinion of *Mercurialis* is supported by *Cujacius*, *Zwinger*, *Casaubon*, *Mattius*, and *Vossius*; but notwithstanding the Authority of these great Men, *Meibomius* favours the Interpretation of *Accursius*, and adduces several Arguments in its Defence; the first of which is, that of all the several Greek Words which begin with *Archi*, such as *Architectus*, *Archiepiscopus*, *Architriclinus*, *Archilestes*, *Archireus*, not one denotes any thing pertaining or relating to the Prince, but that they all equally import something that is the first or most excellent of its Kind. Just so says *Meibomius*, the *Archiater* is not the *Physician of the Prince*, but the Prince or Chief of Physicians, otherwise this Word would be the only Exception from the Rule now mentioned. *Casaubon* had indeed pretended, that the Word *ἀρχιπλοῦς*, in a certain Passage quoted by him, denoted the Commander of the Ship in which the King sailed, and not the Commander of the whole Fleet. But *Meibomius* confutes that learned Critic with a great deal of Solidity and Judgment.

The second Argument adduc'd by *Meibomius*, in order to prove, that the *Archiater* was not the Physician of the Prince, is, that some Authors make mention of one *Theon*, and one *Glaucus*, *Archiaters* of *Alexandria*, and of one *Cyrus*, *Archiater* of *Edessa*: Now there were neither Kings nor Princes in these Cities, in the Times of these *Archiaters*. He draws another Proof from a Passage of *Oribasius*, where that Author says, That the Emperor *Julian* had called together all the *Archiatri* of the Country, and selected from their Number seventy-two of those whom he thought most learned, of which Number *Oribasius* himself was one; from which it follows, that the *Archiatri* were very numerous, and dispersed thro' all the Quarters of the Empire. But to this Argument of *Meibomius* it may be reply'd, that the Passage on which 'tis built is not to be met with in the Greek Copy of *Oribasius*. The fourth Argument adduced by this learned Physician is drawn from this, that *Galen*, or the Author of the Book intituled *De Theriaca*, when speaking of *Andromachus*, says, That his Skill in Medicine was very extensive; and that for that Reason the Emperor made Choice of him *ἀρχαῖον ἰατρίαν*, to preside over us, that is, over the Physicians; or, in other Words, to exercise the Office of *Archiater*, since he had the Title of it bestow'd on him. The fifth Argument ad-

duc'd by *Meibomius* in Defence of *Accursius*'s Interpretation, is, that *St. Augustine* calls *Æsculapius Archiater*, by which he undoubtedly meant no more than that he was the Chief of Physicians; and that *St. Jerom* gives the same Title to the Saviour of the World, which is just as much as if he had called *Jesus Christ* the sovereign Physician. *Meibomius* adds, that the Word *Archiater* is translated *Proto-medicus*, by the impure and barbarous Writers of the Latin Language; and says, that the Physicians of the Emperors were only simply call'd Physicians of *Cæsar*, or some Emperor, as appears by some Inscriptions; and that they never assum'd the Title of *Archiatri*, unless they belong'd to the Class of Physicians so call'd.

Godofredus on the other hand, favours the Opinion of *Mercurialis*, with regard to the Etymology of the Word *Archiater*. But he observes, that there were two Sorts of *Archiatri*, which *Mercurialis* had confounded with each other. The former Sort were called *Archiatri S. Palatii*, and according to *Godofredus*, were only employed in the Emperor's Court; whereas the latter Sort were only called simply *Archiatri*, or *Archiatri Populares*, and served the People in the Cities of *Rome* and *Constantinople*. These latter, continues this Author, were, as well as the former, called *Archiatri*, from the City in which they practis'd, just as if one should say *Principis Urbis Medici*, that is, the Physicians of the principal City, or of the City in which the Prince resides. The *Archiatri* of this last Sort were fourteen in Number, one for each of the Districts into which *Rome* was then divided. And as they had Salaries allowed them by the Public, and enjoyed several other Privileges and Immunities, which could not be claimed by other Subjects, they were obliged to visit all sick Persons without Distinction, gratis; for the original End and Design of their Establishment was to guard against the Losses, which the poorer Sort of the Roman Subjects might possibly sustain for want of Physicians.

All we know concerning the Salaries, the Privileges, and the Method of electing the *Archiatri*, is drawn from the several Laws relating to these Matters enacted by different Emperors, and from the Works of some Authors who lived at that Time; first then, from these Sources we find, that these *Archiatri* had Salaries either from the Prince or the People; and, that in Consequence of these Salaries, they were obliged to visit all Patients, whether rich or poor, without demanding any Fees, except what the Patient's Generosity should prompt him to bestow after his Cure was completed. Secondly, from these Laws it appears, that several Privileges were annexed to the Office of *Archiater*; that these Physicians themselves, their Wives and Children, were exempted from all the Taxes and Burdens of the Roman State; that such of them as resided in the Provinces, were neither obliged to quarter Soldiers, nor any other Persons whatever; that they could not be dragged to the Bar, nor obliged to make a personal Appearance before the Judge; that they could not be taken Prisoners; and that none durst insult them without incurring the strictest and severest Penalties. The Law indeed which ordains this, seems to extend these Privileges, and render them common to all the Physicians of the Roman State, or at least to some who were not among the Number of the *Archiatri*. But there is also another Law restraining these Privileges solely to the *Archiatri* of the Palace, and those of the City of *Rome*. Thirdly, from these Laws we may also gather, that the *Archiatri* served both the Emperors and the Public; and that those of them who were discharg'd, either on account of their having bore the Office during the allotted Time, or for some other Reason, were call'd *Exarchiatri*, or *Ex Archiatri*. Finally from these Laws, and the Writings of the Authors who liv'd in these Days, it appears, that there was a College of *Archiatri* composed of a certain Number of Physicians, who took their respective Places, according to the Dates of their Admission; so that when any of their Number died, the Person chosen to succeed him was lowest of all; and that this College judg'd of the Capacity of Candidates, and chose or rejected them accordingly; but that the Emperor confirm'd them after they were elected, or even nominated and propos'd them before, to the *Archiatri*; who afterwards examin'd them, and admitted them into their Number, if their Merit gave them a Title to that Honour.

The *Archiatri* of the Palace were honour'd with a Title somewhat equivalent to our Word *Earl*. This Earldom, *Comitiva*, as the Romans call'd it, was distinguish'd into the first and second Ranks, both which were obtain'd by the *Archiatri* of the Palace. Those who obtain'd the *Comitiva* of the first Order, went equal with *Dukes* and *Vicars*; and, it seems, these Dignities were at first common to several *Archiatri*, or that there were several of these Earls at one and the same time. But, under the Gothic Kings, a Revolution happen'd in this Body of Men; and instead of several *Archiatri*, there was one establish'd, who had a certain Jurisdiction not only over the rest, but also over the other Physicians of the State. The Power of this Earl of the *Archiatri* was very extensive, as we may learn from a Clause of the Formula of his Instalment, which runs thus: "Henceforth we confer upon you the Dignity of Earl of the *Archiatri*, that you alone may shine distinguish'd among the venerable

"Guardians

"Guardians of Health; and that all who shall have any Differences or Disputes, relating to Things of a medicinal Nature, may submit to your Arbitration, and acquiesce in your Decision: You shall be the universal *Arbiter* of the sacred Art of Physic, and the Judge of all those Controversies which were formerly decided by the Caprice of private Physicians. You will, in some Sense, cure the Sick, inasmuch as you will put an End to those Contests which embroil Physic, and consequently prove injurious to them: It is a remarkable Piece of Honour, that Men of Learning and Skill should pay a sincere Deference to your Decisions; and that you should have so rich a Tribute of Veneration from those, who are themselves venerable in the Eyes of the rest of Mankind." The same *Formula* subjoins, that this Head or Chief of the Physicians was particularly oblig'd to take care of the Emperor's Health; and that, for this very Reason, he had free Access to his Person at all Times. See *Cassiodori Formul. Archiatr. Le Clerc*.

I can't, upon this Occasion, forbear instituting the Comparison between the *Pope* and this Head of the *Archiatr*; only I look upon the latter as the more *noxious Animal* of the two: For the Infallibility and decisive Power of the former generally exert themselves upon Modes of Worship, and controverted Points of Divinity; things in which the true and genuine Happiness of Mankind is by no means interested: Whereas the irrevocable Decisions of the latter might tie the Practitioners of Physic down to Theories and Practices, which might depopulate Cities, lay waste Nations, and, in Process of Time, render the Earth itself a Desert. Thus, for Instance, if this *Pope* in Physic should decree, that every Physician should believe, that Fevers are caused by an *Inflammation of the Animal Spirits*, or from something deleterious residing amongst them; and, in consequence of this Doctrine, should ordain, that, in such Cases, Patients should be deny'd all cooling and diluting Liquors; and should be kept to a constant Use of heating Medicines, in order to expel this *imaginary Poison*, or drive out this *inflammatory Matter* by the Pores of the Skin; in this Case, Physic could no longer be esteem'd a salutary Art, since more must necessarily perish by such intended Means of Relief, than by all the Distempers which are naturally produced in the World.

This Word *Archiatr* has made such a Noise in Physic, that if I was to give an Account of every thing that has been said relating to it, I should present the World with several Volumes of critical, classical, and historical Learning: But that not being my Design, I hope I have fix'd the Meaning of the Word *Archiatr*, and given as satisfactory an Account of the *Archiatr* as my intended Brevity would permit.

ARCHIDOKA. The Title of a Chymical Work of *Paracelsus*, which *Libavius* explains *magical*. *Castellus*.

ARCHIGENES. A celebrated Physician among the Antients.

We are inform'd by *Suidas*, that *Archigenes* lived under the Emperor *Trajan*, practis'd Physic at *Rome*, and died in the sixty-third Year of his Age, after having written a great deal on physical and medicinal Subjects. The same Author adds, that he was a Native of *Apamea* in *Syria*, and that his Father's Name was *Philip*; which may possibly have laid a Foundation for the Mistake of *Wolfgangus Justus*, who makes *Archigenes* Physician to *Philip* King of *Syria*.

But *Archigenes* must have not only lived under, but also survived *Adrian*, if it was he who directed that Emperor to a certain Place under his Breast, as most proper to be wounded, in order to procure a speedy Death. *Dion Cassius*, indeed, ascribes this Affair to one *Hermogenes*; but *Mercurialis* is of Opinion, that the Name ought to be read *Archigenes*, and not *Hermogenes*. However, I don't know but *Mercurialis* may be mistaken in this; for we read of one *Hermogenes*, a Follower of *Erasistratus*, and there is nothing to hinder his living in the Days of *Adrian*, since the Sect or School of *Erasistratus* was in Being till a great while after that Time. It also appears, that *Galen* speaks of this same *Hermogenes*, as of one who had not lived a great while before him. Now *Galen* was born under the Emperor *Adrian*. As for that other *Hermogenes*, against whom *Lucilius* made this Epigram, he must have been considerably older.

Ερμώγεμν ἢ ἰατρὸν ἰδὼν Διόφαντος ἐν ὕπνῳ,
Οὐκέτ' ἀννέειπεν, ὅς περ ἄμμιμα φίλων.

That is:

Diophantes, happening to see the Physician Hermogenes in a DREAM, never awaked after; even tho' he wore a PRESERVATIVE about him.

Martial, who imitated this Epigram, attributes the same destructive Influence to another Physician, whom he calls *Hermocrates*; but this, as well as the former Name, may possibly be fictitious. *Martial's* Performance, tho' far short of the Spirit and Pungency of that of *Lucilius*, has nevertheless enough of the Epigram about it to deserve the Name of a masterly Production. It runs thus:

Lotus nobiscum est hilaris, cœnavit & idem;
Inventus mane est mortuus Andragoras.
Tam subitæ mortis causam, Faustine, requiris?
In somnis medicum viderat Hermocratem.

Andragoras sup'd in good Health; but next Morning was found dead. If, *Faustinus*, you should ask the Cause of so sudden a Death, I tell you, he had the Misfortune to see *Hermocrates* in a Dream.

But to return to *Archigenes*; he must certainly be the Physician meant by *Juvenal*, *Sat. 6. l. 236.* in these Words:

----- Tunc corpore sano
Advocat Archigenem, onerosaq; pallia jactat
Quot Themison ægras. -----

From which Passage the Scholiast observes, that *Archigenes* was a very noted Physician of these Days.

And again, *Sat. 13. l. 98.*

Nec dubitet Ladas, si non eget Anticyra, nec
Archigene. -----

And in *Sat. 14. l. 52.*

Ocyus Archigenem quære, atq; eme quod Mithridatis
Composuit. -----

Now as *Juvenal* lived till the twelfth Year of *Adrian's* Reign, he must have been contemporary with *Archigenes*; and the Manner in which he speaks of him, imports, that he was a Physician of great Employment.

But *Juvenal* is not the only Author who establishes the Character and Reputation of *Archigenes*: He has *Galen* also on his Side, whose Suffrage is of the more Importance, as he himself was a Physician, and not very profuse of his Encomiums on People who differ'd from his own Sentiments. "*Archigenes*," says he, [*De Locis Affect. Lib. 2. Cap. 6.*] has taught as well, and with as much Care, as any other, all that relates to the Art of Physic; and this renders all his Writings, which are very numerous, justly valuable. But notwithstanding this, he is not, in every respect, free from Errors; and as he did not hesitate to censure those who went before him, even tho' he received a great deal of Advantage by their Labours; so we hope none will take it amiss, if we, who come after him, treat him as he treated others. It is very difficult, continues *Galen*, for Men not to err on certain Occasions, either by being entirely ignorant of certain things, or by not judging of them as we ought; or by writing sometimes in a too negligent and less accurate manner."

It appears somewhat contradictory, that *Archigenes* should be rank'd among the *Elective*, and among the *Pneumatic* Sect, at one and the same time; but to this I answer, that if *Archigenes* is rank'd among the *Pneumatics*, or if he embraces the Sentiments of *Athenæus*, this does not hinder him from being at Liberty to chuse what he thought best, from among the other Sects. And tho' he, perhaps, acknowledged the same Causes of Diseases with the *Dogmatic* and *Pneumatic* Sects, yet 'tis possible, that to these Causes he may have join'd that which the *Pneumatics* thought of the greatest Importance, which is their *Spirit*; and might, for this Reason, have been inroll'd in the *Pneumatic* Sect. However this be, the Author of the Introduction places *Archigenes* not only in the *Elective*, but also in the *Pneumatic* Sect; and *Galen* himself, who no-where speaks of the former of these Sects, observes, that *Archigenes* was of the same Sect with *Athenæus*, who was a *Pneumatic*. *Le Clerc Histoire de la Médecine*.

ARCHIGENI MORBI. Acute Diseases, so call'd from ἀρχή, the Chief, and γίνομαι, to be; because they hold the principal Rank among Diseases. *Blancard*.

ARCHIMAGIA. Chymistry, which, being the Art of making Gold and Silver, deserves this high Title. *Castellus*.

ARCHIMEDIS TRISPASTUM. The same as **APELLIDIS TRISPASTUM**, which see.

ARCHIMIA differs from *Alchimia*, being, in particular, the Art of changing imperfect Metals into those which are more perfect. *Castellus*.

ARCHOS, ἀρχός. The Anus. It is also taken for the *Intestinum Rectum*, as if it were the primary or chief Intestine. Thus, *Aph. 58. Lib. 5. & Lib. de Fistulis*, ἀρχός φλεγμαίνων, means an Inflammation of the *Intestinum Rectum*, according to that Exposition of *Galen*, ἀρχὸν μὲν ἐν λέγων τὸ ὅλον ἀπευδυσμένον, "calling the whole *Intestinum Rectum* by the Name of "*Archos*." And, *Lib. de Art.* by ἀρχὴ τὸ χαλαρὸν, "the "*Laxity* of the *Rectum*," is understood the *lax Part*, which adheres to the *Os Sacrum*, excluding the Constrictory Muscle call'd the *Sphincter*; and the same is meant, in *Lib. de Moch.* by ἀρχὴ τὸ ἐγκεκλιμένον, "the inclining Part of the *Rectum*."

ARCION,

ARCION, ἀρκεον. The Burdock. See BARDANA.

ARCOS. Burnt Copper. *Rulandus*.

ARCTATIO, ἄρκτησις or συμπέλησις, from ἄρκτη or συμπέλησις, of πέλας, near. A Straightness; in particular, it is apply'd to the Intestines constricted from an Inflammation, and to a preternatural Straightness of the *Muliebri Pudendum*, or *Uterus*. It is also call'd *Arctitudo*.

Arctata Pars, in *Scribonius Largus*, No. 206. is an Expression to signify the Part compress'd or closed by a Fibula.

ARCTION, ἀρκεσιον. Woolly-headed Burdock. See BARDANA.

ARCTOS. The Constellation call'd the URSA MAJOR.

ARCTOSCORDERON, ἀρκτοσκορδον, from ἀρκτος, a Bear, and σκορδον, Garlick. A sort of Garlick call'd Bear-garlick.

ARCTOSTAPHYLOS, ἀρκτοστάφυλος, from ἀρκτος, and σταφύλη, a Grape. *Uva Urvi*, or *Spanish Whortles*. See VACCINIUM.

ARCTURUS, ἀρκτουρος, from ἀρκτος, and ἔρως, a Keeper, in *Erotian* upon *Hippocrates* is expounded, "Ὁν ἵππες ἀρκτοφύλακα προσκαγορεύουσιν, ἕρως γὰρ οἱ φύλακες καλοῦνται ἐστὶ δὲ ἔρως λαμπρὸς ἀστὴρ ἐν τῇ ζώνῃ πρὸς βοῶντι καί μεν." "Which some call *Arctophylax*, (the Keeper of the Bear) for Keepers are call'd *Uri*: It is a bright Star in *Bootes's Belt*." *Hippocr. Lib. 1. Epidem.* Περὶ ἀρκτουρος ἐλπίων, καὶ ἐκ' ἀρκτουρος, &c. "A little before, and at the (Heliacal) Rising of *Arcturus*," &c.

Others derive the Word from ἀρκτος, and ἄρνη, a Tail; and make *Arcturus* a Star in the Tail of the great Bear, of which *Aratus*, as translated by *Tully*:

*Huic autem subter Præcordia fixa videtur
Stella micans radiis Arcturus nomine claro.*

Arcturus rises about our second of September; and sets October the twenty-ninth, as mark'd in the Calendar.

ARCTURUS *Creticus Belli*. See BLATTARIA.

ARCUALIA OSSA, according to some, are the Bones of the *Sinciput*; others take them for the Temple-bones.

Arcualis Sutura is the same as the *Coronalis*. See SUTURA.

ARCUATIO, according to some, is a Gibbosity of the Fore-parts, with a Curvation of the Bones of the *Sternum*. *Castellus*.

ARCUATUS MORBUS. The same as *Arquatus Morbus*, or *ICTERUS*, which see.

ARCULÆ, ἀρκελίδες. The Caverns in which the Eyes are situated. *Ruf. Ephes.*

ARDABAR. A Species of *Arum*. See ARUM.

ARDAS, ARDALOS, ἀρδας, ἀρδαλος, according to *Galen* and *Erotian*, are the same as ῥύπος and μολυσμός; that is, *Sordes* and *Filth*.

ARDEA, Offic. *Schrod.* 5. 315. *Ardea cinerea*, *Mer. Pin.* 181. *Pella* & *Ardea*, *Bellon. des Oyse.* 190. *Ardea cinerea major*, *Raii Synop. A.* 98. *Aldrov. Ornith.* 3. 377. *Charlt. Exer.* 109. *Jonf. de Avib.* 103. *Ardea pulla sive cinerea*, *Gesn. de Avib.* 186. *Ardea cinerea sive pulla*, *Raii Ornith.* 277. *Will. Ornith.* 203. THE HERON.

This Bird is too well known to require a Description. The Fat is recommended for asswaging the Pains of the Gout; for taking off Specks from the Eye, and clearing the Sight; and for curing Deafness, if put into the Ear. *Dale*.

The young Herons are sometimes used as Food; but on account of their Aliment, which is Fish, their Salts must be highly exalted, and their Flesh rank.

ARDEA STELLARIS.

Asterias, Offic. *Ardea Stellaris*, *Mer. Pin.* 181. *Will. Ornith.* 207. *Raii Ornith.* 282. *Ejusd. Synop. A.* 100. *Charlt. Exer.* 110. *Ardea stellaris major*, *Aldrov. Ornith.* 3. 408. *Gesn. de Avib.* 193. *Jonf. de Avib.* 104. *Butor*, *Bellon. des Oyse.* 192. THE BITTERN, or MIRE-DRUM.

The Skin and Feathers of this Bird, if burnt, are said to stop Hæmorrhages.

These Birds are sometimes eaten; but the Flesh is very rank, and their Salts must be much exalted on account of their Food.

ARDENS FEBRIS, from *ardeo*, to burn. A burning Fever. The same as CAUSUS, which see.

ARDENTIA, are Things unfit to be eaten or drank, being of a Nature obnoxious to Combustion, as *Carabe* (Amber), Turpentine, Jet, and the like. *Rulandus*.

ARDESIA. *Hardesia vulgaris*, sive *Ardesia*, *Ind. Med.* 57. *Lapides scissiles*, & *crustosi*, *Mer. Pin.* 212. SLATES.

I do not know why *Dale* has inserted these among the *Materia Medica*, as, he says, he finds no Virtues attributed to them.

ARDOR URINÆ. See DYSURIA.

ARE-ALU. A sort of Indian Fig. See FIGUS.

AREA, according to *Rulandus*, is the Mass dug from the Mines, or the Place whence it is digg'd. In Medicine it is a Species of ALPECIA, which see.

ARECA. THE INDIAN NUT, Offic. *Areca sive Fausel*, THE DRUNKEN DATE-TREE, Ger. *Sive Fausel avellana Indiana versicolor*, THE DISCOLOUR'D SMALL INDIAN NUT, Park.

VOL. I.

This is the Fruit of a kind of Palm-tree, that grows in the *East-Indies*. The outward Coat, or Covering, is about the Bigness and Shape of a Pullet's Egg, and is made up of numerous fine Threads or Filaments, running lengthways from the Stalk to the Head; under which is contain'd the Fruit or Nut, of a brown Colour on the Outside, in Shape like a Nutmeg at one End, but flattish at the other, with a kind of Navel towards one Side; within, it is white, and marbled like a Nutmeg, with purplish Veins of very little Taste.

This Fruit is a kind of Cocoa-nut, containing a woody Kernel, inclosed by two different Substances. The *Indians* chew the *Areca*, roll'd up in a Bitel-leaf, to help Digestion, and to strengthen the Gums, as *Kæmpfer* relates. When fresh, it is a little astringent; and of this Fruit the Extract is made, which in our Shops is call'd *Terra Japonica*. To this Extract they sometimes join that of another Plant named *Lycium*, and also calcin'd Shells. *Geoffrey*. See CATECHU.

AREFACTIO, ἄρρωσις. An Exsiccation, or Drying. It is a way of preparing such Medicines as are redundant in Moisture, in order to their being reduced to a Powder. *Castellus*.

AREMAROS, Cinnabar. *Rulandus*.

ARENA MARIS, Offic. *Arena marina*, *Kentm.* 57. *Arena litoral*, *Mer. Pin.* 211. *Matth.* 1390. SEA-SAND.

Sea-sand dries up the redundant Moisture in Hydropic Constitutions, if the Patient lies cover'd with it as far as the Head. It is sometimes heated, and applied by way of dry Fomentation, instead of Salt or Miller. *Dioscorides*, *Lib. 5. Cap.* 167.

ARENAMEN, ARENARMEI, Bole Armoniac. *Ruland. Johnson*.

ARENARIA. A Species of *Coronopus*, so call'd, because it delights in sandy Places. *Blancard*.

ARENATIO, or SABURRATIO, is casting Plenty of very hot Sea-sand, or, for want thereof, of River-sand, upon the Bodies of the Patients. *Castellus*.

AREOLA is the Circle surrounding the Nipple. See MAMMÆ.

ARES. A Word coin'd by *Paracelsus*, by which he would have us understand the secret Disposer of Nature in the three Principles, whereof every thing consists, who gives it a Form, Species, and Substance, peculiar to it, whereby it is distinguish'd from others. We may here observe, say the Alchymists, the Difference between these three Things, which the Divinity has constituted in Nature. The *Iliastes* is a Substance of the most general Kind, consisting in the first universal Matter of all Things: The *Archeus*, the first Disposer of Nature, distributes this Matter into three Kinds, which are Sulphur, Mercury, and Salt; and thence reduces all Things into their Species. At last comes the *Ares*, another Disposer of Nature, and produces Forms to every Kind, and distributes Species into Individuals. *Johnson*.

Ares is distinguish'd by *Paracelsus* into the *Archeic*, which is natural, and the *Chymic*, which is artificial. Hither also may be refer'd the *Melosophicum*, the Principle of Transmutation, call'd also the *Salamandrine Essence*, such as is ascrib'd to the Philosopher's Stone. *Paracels. de Vit. Long. Lib. 3. Cap.* 12. and *Lib. 4. Cap.* 6.

ARESTA BOVIS. The same as ANONIS, which see.

ARETÆUS. *Le Clerc*, an Author of profound Learning, and singular Penetration, has set the Sentiments and Character of *Aretæus* in a very just Light.

Aretæus is an Author of so uncommon a Character and Reputation, that we should do a manifest Injury both to him and to the World, if, on this Occasion, we should neglect to inquire into the Sect to which he belong'd, and the Time at which he lived; and this Task will at once prove curious and useful, since, as we go along, we shall have Occasion to mention some Circumstances, that place the Sentiments and Practice of *Aretæus* in a clearer Light, than possibly most People are able to view them in without this Assistance.

As to the Sect, then, to which this Physician belonged, there is not perhaps a single Point in the whole History of Physic, that has been either more mistaken, or less adverted to; for *Castellanus*, who writes a small Abridgment of the Lives of the ancient Physicians, expressly affirms, that *Aretæus* was attached to no particular Sect whatever. Something more accurate and explicit might have been expected from *Henischius*, a Physician of *Ausburg*, who wrote Commentaries upon *Aretæus*; but he declares himself of the same Opinion with *Castellanus*, and all along discovers such a Fund of Prejudice and Partiality, that one would be tempted to think he had written his Commentaries with no other View than to misrepresent *Aretæus*, and make him say things he never so much as thought of. Instead of explaining the difficult Passages of his Author, he endeavours to supply the Defects of the Text in such a manner as to speak his own or *Galen's* Sentiments, and not those of *Aretæus*. And, what is still more surprizing, *Hieronymus Mercurialis*, who was so thoroughly acquainted with the Writings of the ancient Physicians, and who had undoubtedly read *Aretæus*, as appears from several Passages in his Works, forgets to take Notice of the

Señt to which this Physician belonged. But notwithstanding the Uncertainty this Point has hitherto laboured under, I shall venture to pronounce, that *Aretæus* was an Abettor of the Pneumatic Señt; and, my Reasons for thinking so, are these:

'Tis well known, that the Pneumatic Señt established a fifth Element, which they called *Spirit*, the Changes and Alterations of which, according to them, laid the Foundations of various Diseases. Now 'tis plain, that *Aretæus* means this same *Spirit*, when he says, that "there are two Sorts of Quinsies, the one caused by an Inflammation of the Instruments of Respiration, of the Amygdalæ, Epiglottis, Pharynx, Uvula, and superior Part of the Aspera Arteria; and the other proceeding from a Disorder of the *Spirit*, which is itself the immediate Cause of this Distemper. In the latter of these Quinsies, adds our Author, the Instruments of Respiration are so far from being distended, that they are rather more contracted than in their natural State; and yet the Suffocation and Difficulty of Breathing are far greater than in the former; for which Reason, those who labour under it, imagine that they have a latent Inflammation in the very Middle of their Lungs, and in the Parts adjacent to their Heart. As for my share, continues he, I am of Opinion, that it is the *Spirit* alone which is affected, and which by an unhappy Change is become very hot and dry, but that there is no Phlegmon or Inflammation in any Part whatever." *Aretæus* confirms his Opinion, by an Example drawn from the Exhalations which arise from the *Charonian Pits*, which in a Moment suffocate those who are exposed to them, though they should happen to be in a State of perfect Health immediately before. He also confirms it by an Instance drawn from the Breath of mad Dogs, which, as he affirms, kills those who receive it, though they have not been bit by the Dogs themselves. From these Examples he concludes, "That a Change, with regard to Respiration, may be produced by internal Causes, which bear an Analogy and Resemblance to such as are external; that, in like manner, there are sometimes Humours in our Bodies, which partake of the Nature of Poisons, as much as external Substances which come under that Denomination; and that we may observe natural Distempers accompanied with the same Symptoms as those produced by Poisons; and Patients vomit the same kind of Matter in Fevers, which others do upon taking Poisons: For which Reason, continues our Author, we ought not to be surprised, if the *Athenians*, who were ignorant of the Analogy between the Effects of certain Poisons, and those of certain pestilential Diseases, imagined that they were afflicted with Distempers of that Nature, because the Inhabitants of the *Peloponnesus*, with whom they were at War, had poisoned the Wells of the *Piræus*."

From these Passages we may infer, that by the Word *Spirit*, *Aretæus* meant no more than the Matter of Respiration; and he seems to confirm that Point in another Passage, where he says, that the Coldness and Humidity of the *Spirit* are the Cause of an *Asthma*: But it is not in these Cases alone, according to *Aretæus*, that the *Spirit* contributes to the Production of Diseases; for the *Iliac Passion* is, in his Opinion, produced by a cold and slow *Spirit*, which cannot easily discharge itself either upwards or downwards. In a Scirrhus of the Spleen, the Belly, says he, is filled with a thick and dark *Spirit*, which seems to be humid, though it is not really so. In a Dropsy called a *Tympanites*, our Author acknowledges a *Spirit* which does not change its Situation, though the Part which includes it, moves upwards and downwards; and adds, that if this *Spirit* is changed into Water or Vapour, the *Tympanites* is changed into an *Ascites*. He asserts in another Passage, that the Smell or Vapour of the Poppy thickens the dry and subtle *Spirit* of Phrenetic Patients. In short, *Aretæus* insists so much on the *Spirit* established as a fifth Element by the Pneumatics, that we have no Reason to doubt of his being a professed Abettor of that Señt.

And even though this should be denied, a great many other Circumstances concur to prove, that *Aretæus* was a real Pneumatic; for 'tis past all Dispute, that the Physicians of that Señt asserted, that Fire, Air, Earth, and Water, were not real Elements; but that the Name of Element rather belonged to the Qualities of which these Bodies were possessed, or to Heat, Cold, Dryness, and Humidity: Now, that *Aretæus* was of the same Sentiment, is plain from a great Number of Passages in his Works.

It must be own'd, that in some Cases the Sentiments of *Aretæus* coincided with those of the Methodic Señt; for though other Physicians acknowledged a Difference between acute and chronical Disorders, yet those of the Methodic Señt first wrote of them separately and apart: Now, that *Aretæus* followed them in this Particular, is plain from his having written four Books upon acute, and as many upon chronical Distempers.

This is not the only Point in which he seems to follow them; for, in Imitation of them, he gives very particular Directions with regard to the Chamber in which Patients, labouring under certain Disorders, should be lodged. He likewise specifies the

Air the Patient ought to breathe, the Bed on which he should lie, and the Manner in which he is to be covered. He also imitates them in recommending all the different Exercises they used to prescribe towards the Termination of Diseases, such as Walking, the different Manners of Gestation, the Exercise of the Voice in Vociferation, or talking loud, and the throwing of the Coit, or other weighty Machines, used for the same Purpose. He also orders a certain Gesticulation of the Hands, which he calls *Chironomia*. Now all these are the professed Tenets of the Methodic Señt. *Aretæus* indeed in one Instance carries the Point of Exercise farther, and advises those who are subject to Vertigos to behave as Prize-fighters do, that is, to beat each other soundly with their Fists. 'Tis no easy matter to comprehend his Meaning by this Advice. *Mercurialis* supposes, that it is a Fault in the Text; which is not improbable, since we can scarce suppose such a Treatment proper for vertiginous People, who are incommoded and rendered worse by the least Noise or Motion. Besides, *Aretæus* had this in common with the Methodic Señt, that he ascribed a great deal to Topics, or external Applications, such as Fomentations, Cataplasms, and Unctions.

Tho' *Aretæus* agreed with the Methodic Señt in the above-mentioned Particulars, yet on other Occasions he argued from quite different Principles, and prescribed Remedies that were openly disapproved of by *Thessalus* and *Soranus*, who were avowed Favourers of the Methodic Señt: For Instance, he orders Purgations, and the Composition called *Hiera*, was what he most used, and most confided in. He also on some Occasions prescribed simple Purgatives, such as the Fecula of wild Cucumbers, Bastard Saffron, and Hellebore. He no less remarkably opposed the Methodic Señt, in venturing on certain Occasions to prescribe acrid and irritating Clysters.

He also used Castor on several Occasions, which the Methodic Señt never did; and, in direct Opposition to them, prescribed Narcotic Medicines, such as Opium and the Poppy. But his Practice with regard to the Use of these was not rash and unguarded, as appears from the important Caution he gives in these Words: "'Tis sometimes necessary, says he, to administer *somniferous Medicines* to such as labour under Peripneumonies, or are afflicted with long Watchings, lest they should become furious, and in order to mitigate and allay their Disorder and Inquietude. But we must beware of using Medicines of this Nature, when the Patients are in Danger of being suffocated with a Defluxion of Humours, or are thought to be on the very Verge of Death, because in these Cases the Physician runs a Risk of being censured for killing the Patient."

Our Author's Practice, with regard to letting Blood, was also very different from that of the Methodic Señt; for in Apoplexies he observed, that taking away too much Blood killed the Patient, and that taking too small a Quantity produced no Effect at all: He was nevertheless of Opinion, that it was most proper to take little at a time, and to repeat the Operation frequently. In a Quinsy, he used Venesection, and allowed the Blood to flow till the Patient was ready to faint away. In Vomitings of Blood proceeding from whatever Cause, he universally recommended Venesection: "For, says he, whether this Discharge of Blood is the Consequence of a Vessel's being broken, or corroded by the acrid Quality of the Blood, Venesection is still very useful; and if this Accident proceeds from the Thinness of the Vessels, Phlebotomy prevents their being burst, in Consequence of their being over-full. We must also take care," continues he, "not to allow the Orifice made in the Vein of the Arm to agglutinate and close up, that we may the more commodiously take away a little Blood at different times for several Days running; a small Quantity must be taken at a time; but the Operation must be repeated the same Day, the following, the third, and the fourth, if the Patient's Strength is not too much exhausted." Some Physicians, in the Days of *Aretæus*, used in Vomitings of Blood to open the Veins of the Hand; but he entirely disapproves of that Practice: "For, says he, why would you rather open a Vein near the Fingers than in the Place where the Elbow bends, since, in the latter, the Vein is larger, and better disposed for an Evacuation of the Blood?" In that Species of continued burning Fevers, called *Causus*, from a Greek Word which signifies to burn, our Author also orders to take away a great deal of Blood, though at different times, and during several Days. We must likewise observe, that he imagined Fevers of this Kind to proceed from a Phlegmon or Inflammation, properly so called, of the Trunk of the *Vena Cava*, or that of the great Artery. But what is surprising is, that the People of his Age imagined, that Patients labouring under that Species of Fever called *Causus* predicted future Events; and that they talked or carried on Correspondences with the Dead. *Aretæus* seems to have been convinced of this himself, since he endeavours to account for it by saying, that the Heat of the Fever having consumed the thicker and more gross Parts of the Humours, the Soul is by that means rendered more pure; and enabled to see things it did not formerly perceive.

ceive. This Opinion seems to have been originally broached by some weak and superstitious Trifler, who listened to the incoherent Reveries of Patients of this Kind, and endeavoured to find out a Sense and Meaning in them. In acute Pains, and Inflammations of the Kidneys caused by the Stone, *Aretæus* prescribed the taking away a great Quantity of Blood, in order to relax the Passage in which the Stone was lodged, and allay the Inflammation of the Parts, which, he said, were compressed or bound up with a kind of Ligature, which could not be resolved by any other Means than by evacuating the Veins.

Aretæus did not confine Venesection to the Arm alone; for he ordered Bleeding in the Forehead, for such as laboured under violent Head-achs, and took about nine Ounces of Blood from that Part, having first blooded the Patient in the Arms.

For the same Disorder he prescribed Bleeding in the Veins, that are situated in the Inside of the Nose, by means of certain Instruments, one of which he calls *κασίδας*, and the other *σοφύμ*. If none of those Instruments can be had, he orders the Barrel of a Goose's Quill, cut at one End like the Teeth of a Saw, to be passed into the Nostrils almost as far as the Os Ethmoides, and to be moved in such a manner with the Hands, as to procure a Discharge of Blood. In an Elephantiasis, of which he gives a very exact Description, he orders Venesection in both Arms, and both Feet, in one and the same Day.

Aretæus in his Practice made use of Vomits, for which Purpose he sometimes recommends the bulbous Part of a Species of *Narcissus*; but confided more in the Efficacy of *White Hellebore*, of which he talks in this Strain: "*White Hellebore*, says he, not only excites Vomitings, but is also the most efficacious and powerful of all purgative Medicines, not with regard to the Quantity and Variety of the Excrements of which it occasions a Discharge; for in the Disease called *Cholera*, the Excrements come away in the same manner: Neither is its Efficacy owing to the Efforts it occasions, or the Violence with which it excites Vomitings, since Nauseas, and Sailing on the Sea, operate with still greater Violence; but its Excellence is owing to a particular Virtue which cannot be sufficiently admired, since, even in the Cases where it purges very little, it nevertheless cures the Patients who use it. Besides, in Diseases of long standing, when other Medicines have proved too weak, it is the only one which operates with Effect. In a word, white Hellebore resembles Fire; for what Fire produces by burning or inflaming, white Hellebore produces more effectually, by penetrating into all the Parts of the human Body. It renders Respiration easy to those who breathe with Difficulty; it restores a fresh Colour to those who were pale, and Fatness to those who were lean and emaciated."

The Manner in which *Aretæus* used *Cantharides*, ought not to be forgot. The Abettors of the Methodic Sect, and even most of the ancient Physicians used Medicines, to which they gave the Name of *Metasyncretical*, in order to draw Humours from the Centre to the Circumference of the Body; for this Purpose they employ'd *Mustard*, or the Plant called the *deadly Carrot*. This was also a Part of *Aretæus*'s Practice; but he likewise used *Cantharides*, in order to attract more powerfully, and raise Blisters on the Skin, which might be full of an acrid and hot Water, and might, in due time, discharge themselves, to the no small Relief of the Patient. This Species of Remedy is in our Days call'd a *Vesicatory*; and I cannot find, that before his Time this Remedy was used by any of the Physicians; or, at least, that *Cantharides* were employ'd for that Purpose by any except *Archigenes*, who was of the same Sect with *Aretæus*, and in all Probability liv'd some time before him.

The Knowledge the Antients had of the Effects produced by *Cantharides* on the urinary Ducts, was probably the Reason why they look'd upon that Insect or Fly as very venomous, and a Species of Poison, which prevented their using them as a Medicine, except on some particular Occasions. Thus, according to *Galen*, "they were mix'd with those Plaisters which were design'd for making distemp'rd Nails fall off; and the Powder of *Cantharides* was used in Medicines against the Leprosy and Itch, and in the Preparations design'd for consuming and rotting the Flesh. He adds, that *Cantharides* were us'd internally, in order to provoke a Discharge of Urine; but that great Precaution, both with regard to the Quantity and Method of Preparation, was absolutely necessary, lest they should prove hurtful."

Aretæus, in Epilepsies, proposes Frictions of the Head with *Cantharides*; and when treating of the Head-ach, he also mentions those Remedies which excite Blisters on the Skin, tho' in that Passage he does not specify *Cantharides*. But as *Archigenes* employ'd them on these Occasions, 'tis not improbable but *Aretæus* might do the same.

Archigenes is by *Actius* represented as speaking in this manner: "We use, says he, a Cataplasm, into whose Composition *Cantharides* enter, and which produces wonderful Effects, provided the little Ulcers it excites remain sufficiently long open, and run sufficiently freely. But the Bladder

"in the mean time must be guarded and defended by the Use of Milk, both internally and externally."

Aretæus was no less remarkable for his singular Modesty, than for the Extent of his Skill and Knowledge: Of this we have a remarkable Instance, in what he says concerning a particular Species of Dropsy, of which other Physicians have made no Mention. "There is, says he, a Species of Dropsy form'd by a great Number of Bladders full of Water, and lodg'd in the Place where the Dropsy Ascites has its Seat [that is, in the lower Belly]. Each of these Vessels is very full; and if we pierce the lower Belly with an Instrument proper for that Purpose, the first of these Bladders which occurs discharges its Contents, but afterwards contracts itself; and if we want, that more Water should be discharged, we must pass the Instrument deeper [in order to pierce others of the Bladders]. Some, says he, affirm, that these Bladders proceed from the Intestines; but for this I have not the Testimony of my own Eyes, and consequently can say nothing concerning it."

Aretæus gives also an Account of another Disease, of a no less singular and uncommon Nature. "There is, says he, a Species of Madness, in which the Patients, prompted by a Principle of Superstition, tear their Bodies, and cut their Flesh, imagining that by these means they render themselves dearer to the Gods they serve, and that these Gods exacted such Things at their Hands. This Species of Madness only takes Place with regard to this Opinion, or religious Sentiment, and the Patients are sensible enough in other respects: They are roused or restored to themselves by the Sound of the Flute, or other Amusements, or by being made drunk, or by Peoples making Remonstrances to them. This is a divine Fury, and, when the Patients are freed from it, they are of a gay and cheerful Humour, believing themselves to be initiated in the Service of the particular God under whose Influence it was pretended they were. Besides, they are pale and ghastly, and their Bodies remain for a long time weaken'd by the Wounds they have inflicted on themselves."

As this is not a proper Occasion for entering upon the Anatomy of *Aretæus*, I shall only take Notice of one Instance of his Conduct in this particular, which is, that he generally begins his Chapters by a short Anatomical Description of the Parts whose Disorders he intends to treat of in the Sequel of the Chapter.

Thus it appears, that *Aretæus* was a very exact and skilful Practitioner, and his Remedies powerful and well-chosen, tho' at the same time it must be own'd, that his Reasoning on Points of Theory was sometimes none of the most conclusive: However, as it does not appear, that it had any great Influence on his Practice, his Success, as a Physician, was not on that account the less considerable.

It now remains, that we fix the particular Time at which *Aretæus* liv'd; a Point which no one has hitherto clear'd up in a satisfactory manner. Some Authors will have him to be after *Galen*, and others will have him to be much more antient. The Opinion of the former is supported on this, that *Galen* does not quote *Aretæus*. But besides this Circumstance of our not having all the Works of *Galen*, it may be answer'd, That it is not possible he should quote all the Physicians who liv'd before him: It was sufficient, that he mention'd the principal Men of each Sect, and spoke, for Instance, of *Athenæus* and *Archigenes*, who were the first and most celebrated of the Pneumatic Sect: Besides, *Galen* might have possibly not cited *Aretæus*, because they might have both liv'd at one and the same Time; so that the Argument drawn from *Galen*'s Silence, with regard to *Aretæus*, proves nothing either one way or the other.

Vossius, who is among the Number of those who believe *Aretæus* much more antient, supports his Conjecture upon this Circumstance alone, That this Physician wrote in the *Ionic Dialect*, which, according to that learned Critic, was in Disuse as well as the *Doric*, long before the *Cæsars*; these two Dialects being never us'd, except when Greece flourish'd. But in this last Assertion, *Vossius* is mistaken, as Mr. Menage [in *Amœnitatibus Juris*] proves by one of the Books of *Arrian*, intitled *Indica*, which is written in the *Ionic Dialect*, and by two other Books written in the same Dialect; the one by an Author call'd *Cephalio* or *Cephala*, who liv'd under *Adrian* as well as *Arrian*, and who is quoted by *Suidas*; the other by one *Dionysius Milesius*, contemporary with *Philostratus*, who liv'd under *Severus*, and who is also quoted by *Suidas*.

These are Facts which cannot be contradicted; and besides, we need only look into *Aretæus* himself, to be convinced, that he is not so antient. This, in all Probability, *Vossius* had not done with that Leisure and Attention he ought to have us'd on such an Occasion. If he had, he would have seen, that this Physician, far from living before the *Cæsars*, could not have liv'd at soonest till under *Nero*. To be convinced of this, he had no more to do than cast his Eyes upon those Passages, in which *Aretæus* [*De Curat. Diuturnor. Lib. 1. Cap. 5. & ibid. Lib. 2. Cap. 5.*] talks of the Antidote compos'd of Vipers; since 'tis well known, that this Antidote is the Invention of *Andromachus* a Physician of *Nero*'s. *Aretæus*, in the above-

cited

cited Passages, also makes mention of the *Antidote of Mithridates*; by which 'tis plain, that he liv'd after that King, and consequently cannot have preceded the first Emperors; which single Circumstance is of itself sufficient to destroy the Conjecture of *Vossius*. I shall not here mention the Compositions of *Philon*, *Bystinus*, and *Symphon*, which *Aretæus* likewise recommends, because the Times in which these Physicians liv'd are uncertain.

From all these Circumstances we conclude, that the precise Time in which *Aretæus* liv'd, cannot be determin'd, tho' the Knowledge we have of his Sect proves, that he could not live till after *Athenæus*, who is supposed to be contemporary with *Pliny*, who liv'd under *Vespasian*. We also know, that *Aretæus* wrote before *Paulus Ægineta* and *Ætius*, because these two Authors quote him. But from all this we cannot infer the precise Time in which *Aretæus* liv'd, because the two last-mention'd Authors did not live till upwards of two Ages after *Pliny*: Neither can we certainly determine whether *Galen* or *Aretæus* wrote first. All we can lay hold of as certain is, that they both liv'd in the Interval between *Pliny*, and *Paulus Ægineta*, and *Ætius*; but this Interval is so long, that we cannot pretend to come very near the precise Time. It is not impossible, as we observ'd before, but *Aretæus* and *Galen* may have been Contemporaries; and it may likewise have happen'd, that the one follow'd a great many Years after the other.

Thus far *Le Clerc*. *Wigan* concludes, that *Aretæus* liv'd after the Beginning of *Nero's* Reign, and before that of *Domitian's*.

EDITIONS of ARETÆUS.

Junius Paulus Crassus publish'd a Latin Translation of *Aretæus* in 4to. *Venetis*, 1552.

Jacobus Goupilus first publish'd *Aretæus* in Greek, and added five Chapters, which were wanting in the Translation of *Crassus*. This was accurately and correctly printed by *Turnebus* at *Paris*, 1554. in 8vo.

In 1554. also, at *Paris*, the Latin Version of *Crassus* was reprinted by *G. Morelius*, and *J. Puteanus*, with Annotations; and the five Chapters which were omitted in the Version of *Crassus*, by an anonymous Author, who is suppos'd to be *Goupilus*.

In 1567. *H. Stevens* publish'd the last-mention'd Translation amongst the *Medicæ Artis Principes*.

Petrus Perma publish'd the Version of *Crassus*, together with the five Books which before were wanting, translated by the same *Crassus*. *Brasil*, 1581. 4to.

Georgius Henischius publish'd an Edition of *Aretæus* in Greek and Latin, *Augustæ Vindelicorum*, 1603.

Dr. John Wigan publish'd a pompous and accurate Edition of this Author, in Greek and Latin, *Fol. Oxon.* 1722.

Menage, *Le Clerc*, and *Wigan*, take notice of a Commentary of *Aretæus* written by *Mr. Petit*, a Physician at *Paris*; and seem to regret its not being publish'd.

It appears by *Boerhaave's* Preface to the *Leyden* Edition of *Aretæus*, that he found means to procure the Manuscript from which these Commentaries are printed in the Edition above-mentioned. It is intituled.

Aretæi Cappadociæ de Causis & Signis acutorum & diuturnorum Morborum Libri Quatuor, de curatione acutorum & diuturnorum Morborum Libri Quatuor, cum Commentariis integris Petri Petiti Medici Parisiensis, atque Clarissimi Joannis Wiganii doctis & laboriosis notis, & celeberrimi Mattairii opusculis in eundem, tandemque eruditissimi atque celebratissimi Danielis Wilhelmi Trilleri Observationibus & Emendatis. Editionem curavit Hermannus Boerhaave, Lugd. Bat. 1735.

ARETE, ἀρετή, Strength and Firmness either of Body or Mind. Ἀρετὴ σώματος, in *Hippoc. Prorrh.* 2. is natural Strength of Body.

AREUS, the Title of a Pessary in *P. Æginet. Lib. 7. Cap. 24.* from *Antyllus*.

ARFAR, ARSAG, Arsenic. *Ruland. Johnson.*

ARGÆUS MONS. A Mountain in *Cappadocia*, producing Lithontriptic Stones. *P. Æginet. Lib. 7. Cap. 3.*

ARGEMON, ARGEMA, ἀργεμον, ἀργεμα, from ἀργός, white. *Erotian* on *Hippocrates* expounds ἀργεμον by πᾶθος τὸ πρὸς τοὺς ὀφθαλμοὺς λευκοματώδες, ὃ ἐκ τῆς ἀπερομένης λευκότητος ἀνομάζεται, "a whitish Affection of the Eyes, which takes its Name from the Whiteness consequent upon it." For the same Reason it is called by the *Latins* *Albugo*. See *ALBUGO*.

ARGEMONE. See *PAPAYER*.

ARGEMONIA. The Name of an Herb in *Marcellus Empiricus*, which he says the *Greeks* call *Sarcocolla*; the same being bruised, if green, or, if dry, macerated in warm Water, that it may the more easily be bruised, and rubbed on the Eyes, soon removes Lividness and Sugillations.

ARGENTINA. The same as *POTENTILLA*, which see.

ARGENTUM, *Offic. Mer. Pin.* 208. *Fabr.* 6. *Aldrov. Mus. Metall.* 72. *Charl. Foss.* 45. *Worm.* 115. *Schrod.* 373. *Schw.* 366. *Calc. Mus.* 439. *Keptm.* 59. *Argentum*, *Luna*, *Mont. Exot.* 13. *SILVER*.

Silver is of much greater Use in Traffic than Medicine. It has been much the Subject of Chymical Researches, more with a Design to meliorate Metals, than forming Remedies; these, however, have by Accident been found out, during Pursuits with very different Views; so that it may be said, that the Love of Riches, amongst many bad Effects, has had, at least, one which is useful.

The Characters of Silver are, that it is,

1. The next in Weight to Lead.

2. Very simple, and discovers the least Diversity of Parts, by any ordinary Means.

3. Fix'd in the Fire, so as, when pure, scarce to lose any thing thereby. Having been kept two Months in a State of Fusion, in the Eye of a Glass Furnace, scarce one Twelfth of its Weight was found wanting. And it may even be doubted whether it had been totally purify'd first.

4. It is malleable, and ductile into very fine Wire.

5. It ignites and fuses at the same time.

6. Dissolves in Aqua-fortis.

7. It is purify'd with Lead, and sustains the same.

8. Turns to Scoria with Antimony, and becomes volatile.

It is found in many Places, and in different Ores, having almost universally a little Quantity of Gold in it.

To the Ore there usually adheres a corrosive bituminous Sulphur, which, by its rapacious Quality, renders the Silver volatile; and dissipates it in the Fire, or even converts it into glassy Scoriae, to the great Loss of the Owner. This, which neither Salts nor Lead will hinder, is however prevented, by means of Mercury, by roasting the Ore, then reducing it to Powder, adding Mercury thereto, and grinding them long together, so as to unite the Silver with the Mercury; which are afterwards to be separated again by Distillation. *Boerhaave's Chymistry, Vol. I.*

The Solution of pure Silver in Spirit of Nitre, or Aqua-fortis, from *BOERHAAVE*.

1. Take an Ounce of Silver, refin'd with ten times its Quantity of Lead, upon the Refiner's Test; melt it in a clean Crucible, and directly pour it into fair cold Water, eight Inches high, in a cylindrical Vessel: The Silver falls into it with a hissing Noise, and is scatter'd about in the Water in Grains: It is now called granulated Silver. Put an Ounce thereof into a clean urinal Glass; then take two Ounces of Aqua-fortis, put thereto a Grain of refin'd Silver; and if it be soon perfectly dissolved, so as to have the Liquor limpid, the Aqua-fortis was good, and fit for this Purpose; but if not dissolved, or the Liquor appears turbid, the Aqua-fortis is not genuine, or proper for this Purpose. The first kind of Aqua-fortis is called Proof Aqua-fortis, by the Refiners. Pour two Ounces of this Proof Aqua-fortis upon an Ounce of granulated Silver, contained in the urinal Glass; the Liquor immediately begins to move, bubbles, grows warm, fumes and hisses about the Surface of the Silver, and then becomes spontaneously hot, briskly agitated, sends out red Fumes, and dissolves the Silver, so that it perfectly disappears. A transparent colourless Liquor is thus obtained, of an exceeding sharp, bitter, and caustic Taste; a little of a very black Powder always remains at the Bottom of the Glass. This Powder is pure Gold, which either always adheres to Silver, or else, perhaps, is easily produced from the Lead in the Fire, as *Mr. Homberg* conceives; and being incapable of dissolving in Aqua-fortis, is thus precipitated from the Solution: Pour off the clear Liquor into a clean Glass, and intitle it the Solution of Silver.

2. If, instead of Aqua-fortis, Spirit of Nitre be employ'd, the Solution is perform'd quicker and stronger; but otherwise, in the same manner; for Aqua-fortis, or Spirit of Nitre, prepared either with Bole or Oil of Vitriol, scarce seem to differ, except in being more or less acid; but if the least Particle of common Salt or Sal Ammoniac should have fallen into the Spirit of Nitre, or Aqua-fortis, or have been mixed with them in the Distillation, or afterwards, they will not dissolve the Silver.

REMARKS.

If this Solution proves limpid, the Silver was pure; but if greenish, it contained some Portion of Copper, and is not fit for the following Experiments: The Silver here, united with the Acid of the Spirit of Nitre, keeps suspended in the Water; a Drop of the Liquor, apply'd to any soft warm Part of the Body, instantly burns and eats it; whence, at once touching, it eats callous and hard Lips of Ulcers, separates the corrupted Part, and presently takes away Marks, Spots, Warts, and small Cancers. It may be diluted with pure Water, without growing thick, or precipitating; but if the Water contains the least saline Matter, the Whole will presently grow turbid. This Solution, well weaken'd with Water,

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Water, is highly detergent ; but stains the Skin it touches with a black Spot, that cannot be got out before the Scarf-skin falls off. Hence we see how the ponderous Body of Silver may lie concealed in a light limpid Liquor ; but it may be discover'd by its violently bitter Taste.

The Vitriol of Silver.

1. To the Solution made in the preceding Process, gradually put single Grains of pure Silver, so long as it will dissolve them. When the last Grain remains perfectly undissolved, set the saturated Solution in a cold Place ; it will presently begin to form little, thin, white Plates, lying over one another, as if compos'd of triangular Needles like Nitre. If the Liquor be poured off from them, we thus obtain the Crystals, Salt, or Vitriol of Silver, which may be dried, but are so sharp, that they cannot safely be touched.
2. If the former Solution be not further saturated with Silver, but inspissated a little, so as to lose about a tenth Part, and then be set by for some time, the Silver will concrete at the Bottom of the Glass in a solid Form, into white Crystals, in other respects like the former, but much sharper, as being here saturated with more Acid. And these also have a much greater caustic Virtue.

R E M A R K S.

We here see the particular and mutual Attraction betwixt Silver and the Acid of Nitre, as Silver scarcely unites with any other Acid ; for tho' it turns black, it does not dissolve with them. This Vitriol of Silver is a most immediate Caustic, and leaves a black Spot upon any Part of the Skin it touches ever so slightly ; and this Spot cannot be got off but by the scaling off of the Skin.

The Lunar Caustic.

1. Take Potters Earth that is well wrought, and not very moist ; make it into a solid Cube, and perforate the upper Surface thereof perpendicularly, with a conical Stick, almost to the Bottom. Let the internal Surface of the Whole be smooth, lest the Matter poured in should come out rough. When as many of these Holes are made as are necessary, press the upper Part of each with the Finger into a wide spherical Cavity, the Middle whereof ends in a conical Hole ; for thus the Matter may be easily poured in.
2. Then take a little Glass Dish, or urinal Bottom, and put into it the first Crystals of Silver of the preceding Process ; set the Glass, without any Fear of breaking, upon burning Coals ; the Crystals will discharge an unctuous Fume, which ceasing to rise, whilst the Matter flows in the Glass, pour it carefully into the conical Cavities made in the Cube of Clay ; it will enter with an hissing Noise. If the Matter in the Glass should happen to grow stiff, set it again over the Fire ; and thus pour out all the prepared Silver into the hollow Moulds.
3. As soon as the whole Matter is grown solid, immediately break the Clay, and take out the conical Sticks of Silver ; wrap them up in hot Paper, and dry them thoroughly therein ; then wipe their Surface with a hot and dry Hare's-foot, and thus immediately put them into a clean Glass, that is to be well stopp'd with a Cork ; and thus an excellent Caustic will be obtained for Chirurgical Uses, and may be kept for many Years.

R E M A R K S.

The Acid of the Spirit of Nitre, in the Glass over the Fire, loses its Water in the Form of Fume, and also that Part of its Acid which remained above what a certain Proportion of Silver could retain ; but the Silver detains a certain Proportion of the Acid with itself, so as not to fume, but remain fixed even in Fusion over the Fire. This Acid, retained in the Body of the pure Silver, forms a solid Mass, in which, perhaps, the Acid is the purest and strongest that can be prepared. When this Acid, adhering to the Silver in a solid Form, is exposed to the Air, it attracts the Moisture thereof, and so dissolves. The Whole of this Caustic will also dissolve in Water ; from whence, by the means of Copper, all the Silver may be recover'd, insipid, inodorous, unactive, no way acid or corrosive, but pure, metalline, and unchanged. It is strange, therefore, that the Acid should so long adhere to the Surface only of the Principles of Silver, without changing them, so as that the Nature of the Metal may be entirely recover'd unhurt. This is a most powerful Caustic, and, by a bare Touch, instantly burns the Parts of a live Body to an Eschar, under which, Nature raises an Inflammation that separates the crude Eschar, and

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leaves the Part pure ; so that, by repeated Touches with this Matter, all superficial, foul, fungous Ulcers and Cancers are excellently cured. Hence skilful Surgeons highly extol the Virtue of this Stone ; and Physicians also learn the wonderful Power of an Acid, when collected and fixed. If given internally in this Form, it is an immediate corrosive Poison, and therefore never to be used in this manner. I have known it prove pernicious to the Artist that prepared it.

The Silver Pill of BOYLE, or ANGELUS SALA.

1. Take an Ounce of pure Nitre, and dissolve it in pure distill'd Water ; then take an Ounce of the pure Crystals of Silver, made according to the Directions above ; dissolve them in thrice their Weight of fair Water, so that the Liquor may be perfectly limpid ; mix the two Solutions together, they will thus make an homogeneous, uniform, and apparently simple Liquor, without precipitating the Silver ; but uniting perfectly with the Nitre. Put the pure Liquor into a clean urinal Glass, and set it over a clear Fire, in a Place free from Dust, till the Water, which will thus be almost pure, exhales, so as to leave a Pellicule. Set the Glass in a cold quiet Place, well covered to keep out the Dust : Crystals, like Nitre, will thus shoot. Pour off the remaining Liquor, and exhale as before ; the Silver and the Nitre will be thus joined in the simple Form of Crystals. Let this Mass be gently dried.
2. Let there be at hand the Bottom-part of an urinal Glass, into which put the Crystals of Silver and Nitre, first dried in Paper ; set this Glass on the Fire, so as to prevent the Matter from running by the two great Heat or Nearness thereof, and permit it only to dry or to fume ; keep it constantly stirring with a Stick of Glass, so that it may every way be exposed to a strong Fire, but so as not to melt, that it may be dried and freed from the sharp Acid that adher'd to the Mass ; and easily render'd it caustic ; but if the Fire should melt it, then the Acid, being more closely united, fixes the corrosive Virtue, which by this gentle Calcination is separated. Let this Calcination be performed with Caution, for a long time, keeping the Matter continually stirring till no more Fume rises, tho' the Fire be now considerably strong, and almost able to melt the Matter ; for at last, after the Heat has separated all this Acid, there is no Harm if the Mass be fused, because all the external Acid is now driven from it ; and thus the purging Silver will be prepared, of an extremely bitter Taste, and should be kept in a dry close Vessel.

R E M A R K S.

It is a wonderful and secret Art to unite Silver with Nitre : Hence the pretended Alchymists can, by this means, conceal Silver in a large Proportion of Nitre, as ten times its Quantity for Example ; and this Nitre, being projected in an equal Quantity upon melted Lead, gives an Increase of one tenth Part in Silver, which, remaining upon the Test, will deceive the Ignorant, as if a tenth Part of the Lead was here turned into Silver. The Way to discover the Cheat is to dissolve the Mass of Nitre and Silver in ten times its Quantity of pure distill'd Rain-water ; then put a polish'd Plate of Copper into the Liquor ; for thus every Particle of the Silver will immediately be precipitated to the Copper and Bottom of the Vessel, and thus be obtained perfectly pure from the Nitre and Spirit of Nitre. If, therefore, any Salt be pretended to, for the making of Silver, let it be examined in that manner. Take this dried Mass, consisting of the Salts of Silver and Nitre ; reduce it to a fine dry Powder, and it will be of an extreme bitter Taste, but by no means so caustic as before. If a little of it be apply'd to Ulcers, it acts like the Lunar Caustic, only much milder ; and if two Grains of it be fine ground with six Grains of Loaf-sugar, in a Glass Mortar, then mixed with ten Grains of the Crumbs of Bread, and formed into nine Pills, and these be taken by a grown Person upon an empty Stomach, drinking after them four or six Ounces of hot Water sweeten'd with Honey ; they will purge gently, and bring away a liquid Water, that often deceives the Patient, as coming away almost without being perceived. It kills Worms, and cures many inveterate ulcerous Disorders ; relieves in the Dropsy, and purges without griping ; but it must not be used too freely, nor in too large a Dose ; for it always proves corrosive and weakening, especially to the Stomach, which Inconvenience is remedy'd by the Rob of Juniper.

Inflammable Silver.

Take an ignited Piece of Dutch Turf, after it ceases to smoke ; place it with its upper flat Surface parallel to the Horizon ; make a little Cavity in the Middle of its Surface, and therein put a Dram of dry Lunar Caustic ; it will here immediately melt, glow, take Flame, hiss, and shine

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shine as briskly in every respect as Nitre. After the Flame ceases, pure Silver will be found in the Hollow, as much in Quantity as was dissolved in making of the Lunar Caustic, and may thus be taken out with a Pair of Forceps, without Loss of Weight.

REMARKS.

This excellent Experiment shews the physical Manner wherein Acids do but superficially adhere to Silver, and the Manner wherein Acids operate, when united to Metals, whilst, surrounding their metallic Mass, they arm the ponderous Principles thereof with Spiculæ. It shews the Immutability of Silver dissolved in an Acid, and the various Ways wherein it may lie concealed, yet still have its Action: It also shews the Difference of potable Silver, while existing in a saline Form by means of an adhering Acid, from that potable Silver of the Adepts, where the Principles of the Silver are supposed converted into a Fluid, that will mix with the Juices of the Body, and cannot be reduced to Silver again; but chiefly it hence appears, that the acid Spirit of Nitre, adhering in a solid Mass to the Silver, is as inflammable along with a combustible Body, as Nitre itself. This seems to happen in Silver alone, which is unchangeable by the Spirit of Nitre. Hence also we see one way whereby Silver may be obtained pure from other adhering Matters, by bare burning. The Acid here acts neither upon the mercurial Part of the Silver, nor its fixing Sulphur.

The Recovery of Silver, when dissolved in Spirit of Nitre.

Dissolve an Ounce of pure Silver in Spirit of Nitre; dilute it with twenty times the Weight of distilled Rain-water; heat the Solution in a cylindrical Glass Vessel, and put therein polished Plates of Copper, the smooth Surfaces whereof will every-where begin to be covered with a grey Colour, and at length appear as if thick set with Down. The Liquor that before was aqueous and colourless, will now gradually turn more and more green, in proportion as the Down upon the Copper Plates grows larger. If a Plate be shaken, the downy Covering falls off from it to the Bottom, and another like the former presently comes on; the Liquor grows greener, and the Plates grow less. The downy Covering being again shaken off, a fresh one grows; and this happens, till at length no more of the Copper dissolves. Now leave the Vessels for six Hours at Rest; afterwards shake off all the grey-coloured downy Matter from the Plates; decant, and filtre the Liquor, it will be of a beautiful green Colour, sharp, and entirely cupreous; the Plates will be much diminished in Bulk and Weight. Let the Matter at the Bottom be washed in several hot Waters, till it becomes thoroughly pure; then dry it over the Fire: It will be a fine shining Silver Powder, and yield nearly all the Silver employed, pure, insipid, and mild, without any Acid; nor will it contain the least Copper.

REMARKS.

This is a Method of calcining Silver to a fine Powder, which cannot easily be obtained so subtle by any other Means. This Powder, being ground with Mercury, easily affords an Amalgama, which is otherwise so difficultly obtained, and not without a great Loss of the Quick-silver. If this Powder be melted in a Crucible, it restores the same Silver that was employed. Hence therefore it appears, how superficially the Acid of the Nitre adhered to the Silver, since the Whole of this Acid is so easily attracted by the Copper from the Silver, without any Remainder. If the Liquor of this Operation be viewed with a Microscope, it appears plainly, that little Particles of Silver are violently carried along with the Acid of the Nitre up to the Copper Plates from all the Points of the Solution. But when these Spiculæ arrive at the smooth Surface of the Plate, the Acid is attracted to the Particle of the Copper, whilst the Particle of the Silver, deprived of its Acid, rests upon the Surface of the Copper; and being there increased by others coming to it in like manner, at last a soft downy Case is composed; and this Attraction is so exquisitely performed, that not the least Particle of Silver remains in the former Solution. Hence it appears, that Copper more strongly attracts the Acid of Nitre, than Silver does; wherefore this Action consists in Attraction, and a Straining of the Acid from the Body of the Liquor; for the Acid passes thro' the Pores of the Copper, leaving behind the Particles of the Silver now set free, and unable to enter; there is scarce a more beautiful Sight than this with a Microscope. The Acid of the Nitre remain'd unchanged in the Silver, and is collected perfect in the Copper, from whence it may again be procured.

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Luna Cornea.

1. To the pure Solution of Silver made with Spirit of Nitre, according to the above Directions, and diluted with four times its Quantity of pure Water, let fall by a Drop at a time, in a capacious Glass Vessel, a small Quantity of a strong and warm Solution of Sea-salt in Water. At the Instant the Drop falls in, the whole Liquor grows white, and surprisngly thick, without any Effervescence. Continue thus dropping in, and shaking the Glass, till the Liquor no longer continues turbid; then let it rest; a gross white Matter will fall to the Bottom in a large Quantity. Let the limpid Liquor at the Top be poured gently off, and drop into it a little hot Solution of Sea-salt; if it grows thick no longer, the Operation is well performed; but otherwise some Silver remains behind, which requires to be separated. Pour clean hot Water upon the white precipitated Matter, and wash it till it becomes perfectly insipid; then boil it in an Urinal, with a little fair Water; shake them together, and pour the Whole into a Paper-filtre, where the Water will pass thro', and leave the white Matter behind, which is to be dried with a gentle Fire, and preserved. This is a subtle Calx of Silver precipitated with Sea-salt from Spirit of Nitre, or Aqua-fortis; it will weigh more than the Silver employed, by nearly a fifth Part, on account of the Salts which adhere thereto.

2. Put this Calx of Silver into a clean Crucible; set it in a Fire of Fusion, till it melts, which it easily does; when melted, pour it out on a Marble. It appears a ponderous, shining, opaque, brown Mass, that breaks brittle with some Degree of Tenacity, whence it is called horny. It contains all the Silver employed, and at the same time the Acid of the Nitre and Sea-salt, wonderfully concreted therewith, so as not to be separated; for by endeavouring with a violent Fire to drive away the Spirit, which is so easily done in the *Lunar Caustic*, the greatest Part here becomes volatile, and the Remainder is scarce recoverable into Silver, but remains changed by the Admixture of the Salts, so intimately united and fixed, as not to manifest themselves by any saline Property. If one Part of pure Silver, calcined according to the above Directions, be mixed with two Parts of Mercury sublimated, and distilled in a Glass Retort, with a strong Sand-heat at last, almost the same perfect *Luna Cornea* will remain at the Bottom of the Retort. And if instead of Salt the Spirit of Sea-salt were used to the Solution of the Silver, the *Luna Cornea* would be perfectly the same. Mr. Boyle says, that Silver, being precipitated from Spirit of Nitre with Oil of Vitriol, then washed and fused, will become a true *Luna Cornea*.

REMARKS.

This Experiment is of infinite Use, and shews how small a Difference in a physical Circumstance may often occasion a great Difference in the thing physically produced; for Silver mixed with *Aqua Regia* does not unite with the Acid thereof; but if, when Silver is dissolved by Spirit of Nitre, Sea-salt is added thereto, tho' it thus only makes an *Aqua Regia*, yet it presently occasions the Acid of the *Aqua Regia* to unite intimately with the Silver, and produce strange Effects: For if two Parts of the precipitated Calx of Silver be well ground with one Part of Regulus of Antimony, and distilled with Sand-heat, there comes over a pure Butter of Antimony, equal in Weight to the Antimony employed, whilst the Silver remaining at the Bottom always affords true Gold upon the Reduction. Hence we may be certain, that the Weight gained by the Calx of Silver is owing to the *Aqua Regia* fixed therein, because it here goes into the mercurial Part of the Antimony; whence it is no Wonder, that those eminent Chymists *Becher*, *Boyle*, *Hemberg*, and *Stahl*, have so much regarded the concealed Nature of the Metals and Salts in this Experiment. Who could conceive, that the exceedingly insipid Body of *Luna Cornea* held a fifth Part of the highly corrosive Acid of *Aqua Regia*? Hence we see what a particular Power Sea-salt has upon Metals, how covertly it may adhere to, and again be recovered from them without Loss of its Virtues. Hence also we see how strangely Metals may be disguised and concealed; and again, how Gold may be obtained from a Matter in which the Assay Masters could not, by all their Art, discover any: And hence Adepts have said, that Nature has only placed Perfection in Salt and Gold; and hence we may also learn to guard against the fraudulent Practices of those who craftily mix this Calx of Silver with Nitre, or throw it into melted Lead, and thus pretend an Increase of Silver or Gold. But our present Design does not lead us farther into this Subject. It is certain that the Industry of Mr. *Hemberg*, by the Means of Tartar, Quick-lime, Sal Ammoniac, and the White of Eggs,

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Eggs, has from half a Pound of Silver obtained, as he declares, three Drams and fifty Grains of running Mercury. And so much of the Nature of Silver for the present. *Luna Cornea* neither dissolves in Aqua Regia, Aqua-fortis, nor the Fire. *Boerhaave's Chymistry, Vol. 2.*

ARGES, in *Hippoc. Lib. 5. Epidem.* seems to be the Name of a Serpent, which crept into the Mouth of a young Man as he lay on his Back asleep after plentiful drinking of Wine. The Event was, that as soon as he was sensible, not being able to speak, or cry out, he clenched his Teeth, and swallow'd the Serpent, and, being seized with dreadful Pains, threw abroad his Arms like one strangled, and tumbled and tossed about, and at last dy'd in Convulsions.

ARGESTES, or *Circius*, in *Actius, Tetrab. 1. Serm. 3. Cap. 163.* is the Name of a Wind between the North and West. The North-west Wind.

ARGILLA, Offic. Mer. Pin. 219. Charlt. Foss. 1. Worm. Mus. 2. Schw. Foss. 365. Aldrov. Mus. Metall. 227. *Argilla nostras figulina*, Ind. Med. 14. **CLAY.**

Clays of all Sorts are esteem'd drying, astringent, and absterging. *Dale.*

Clay, as here understood, is a ponderous Earth, dense, viscid, and slippery. Being held for some time in the Mouth, it makes an Impression on the Tongue, something between that of Soap and Fat. When fresh dug, it may be moulded into any Figure like soft Wax; and by Fire it may be made as hard as a Stone. The Species of Clay are almost innumerable: Some are white, resembling Suet, such as that saponaceous Earth with which the Waters of *Plombiere* in *Lorraine* are impregnated; some are variegated, like the different Kinds of Porphyry and Marble, as certain Earths found in *Bohemia*. Others are of an Ash-colour, red, or black. The Clays used in Physic are, the *Lemnian Earth*, the Earth of *Maltia*, and several other sealed Earths from *Germany*. *Geoffroy.*

Clays which are used in Medicine are known in the Shops by the Name of *Terra*, Earths, of which the principal are

The Terra Chia,	Terra Pnigites,
Terra Cimolia alba,	Terra Portugallica,
Terra Cimolia purpurascens,	Terra Samia,
Terra Eretria,	Terra Sigillata alba & rubra,
Terra Lemnia alba,	Terra Sigillata Livonica,
Terra Lemnia rubra,	Terra Silesiaca,
Terra Noceriana,	Terra Turcica,
Ocra,	Terra Vitriolata.

All these are taken Notice of as they occur.

ARGISTATA, *Incerata*, or waxed. *Ruland. Johnson.*

ARGOS, ἀργός, from a Negative, and ἔργον, Work or Business, as if it were ἀργός. So ἀργός ἀργυρός is Silver not work'd; ἀργοὶ πυροί, in *Hippoc. περὶ ἀρχαῖν* insr. is crude Wheat, not ground or prepared; but such as it is taken from the Floor. Ἀργός also signifies idle, without Business; and thus ἀργός, in *Hippocrates*, is expounded by *Erotian* ἀργύματα ἢ λουαὶ, "without Labour, or Holiday-like;" for λουαὶν ἀμύραν δίδειν is, "to spend a Day in Mirth and Pleasure;" in which Sense we are to understand that of *Silius Italicus*:

--- *Albosque Dies, Horasque serenas.*

ARGYRITIS Terra, ἀργυρίτις γῆ, from ἀργυρός, Silver. A sort of Earth taken out of Silver Mines, which is bespangled with many Particles of Silver intermixed. *Gal. Def.*

There is another *Argyritis*, which is a sort of *Spuma Argenti*, or Litharge. See *SPUMA ARGENTI*.

ARGYROCOME, ἀργυροκόμη, from ἀργυρός, Silver, and κόμη, Hair. A Species of *GNAPHALIUM*, which see. *Blancaard.*

ARGYRODAMAS, ἀργυροδάμας, from ἀργυρός, Silver, and δαμάω, to conquer. A kind of Talc, of the Colour of Silver, that will not yield to the Force of the Fire. The Laminæ hereof swallowed adhere to the Stomach, Fauces, and Throat, and endanger an Inflammation of those Parts. *Castellus.*

ARGYROGONIA, ἀργυρογονία, from ἀργυρός, Silver, and γίνομαι, to be made or generated of. An argentific Seed, perfectly digested from a Solution of Silver, or an argentific Tincture of a white Colour, in the same manner as *Chrysogonia* is the aurific Seed. See *CHRYSOGONIA*. *Castellus.*

ARGYROPHORA, ἀργυροφόρος, from ἀργυρός, Silver, and φέρω, to bring. The Name of an Antidote in *Myrepsus*, which seems to be so called on account of its Costliness.

ARGYROPOEIA, ἀργυροποιία, from ἀργυρός, and ποίω, to make. The Art of making Silver out of more imperfect Metals and Minerals, by Means of the Philosopher's Stone, or the Philosopher's Mercury, or the argentific Seed, spoken of before under *ARGYROGONIA*, which see. *Castellus.*

ARGYRUS, ἀργυρός, Silver.

ARGYROTROPHEMA, ἀργυροτρόφημα, from ἀργυρός, Silver, and τροφή, Nourishment. A kind of Food made of Milk,

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and designed to allay the Heat of the Body, and to moisten it. *Galen. de Succ.*

ARHEUMATISTOS, ἀρθευματίστος, from a Negative, and ῥεύμα, a Defluxion. An Epithet bestow'd on the external Parts, and especially the Joints, while they are free from gouty Rheums. *Castellus.*

ARIA, Offic. *Aria Theophrasti*, Ger. 1146. Emac. 1327. *Aria Alni effigie, folio lanato, major*, Jonst. Dendr. 69. *Sorbus Alpina*, J. B. 1. 65. Raii Hist. 2. 1459. *Sorbus sylvestris*, *Aria Theophrasti dicta*, Park. Theat. 1421. *Mespilus Alni lanato folio, major*, Herm. Cat. Hort. Lugd. Bat. 424. *Mespilus Alni folio subtus incano, Aria Theophrasti dicta*, Raii Synop. 3. 453. *Mespilus Alpina, folio Alni lanato, major*, Rupp. Flor. Jen. 110. *Cratægus Alpinus, Alni folio incano*, Ejusd. *Mespilus Alni effigie, lanato folio, major*, C. B. Pin. 451. **THE WHITE BOAM-TREE.**

It grows in Woods upon rocky Mountains, and flowers in April. The Fruit is recommended for mitigating Coughs, and promoting Expectoration. *Dale.*

ARICYMON, ἀρικύμων (from the augmentative Particle ἀρι, which is never read but in Composition, and κύω, to conceive) in *Hippocrates* περὶ ἐπιπλησίων, is explain'd in *Galen's Exegetis* by ἡ ταχέως ἐγκύμων γυναικὶς, "One who soon conceives." *Aesculapion*, in *Hesychius*, is expounded by εὐσύνλητος, "Easy and prompt to conceive."

ARIDA MEDICAMENTA, ἄριδα φάρμακα, dry Medicines, are such as consist of Powders. *Actius*, in his *Tetrab. 2. Serm. 3.* has a good long Chapter, *Cap. 98.* wholly on dry Collyria for the Eyes.

ARIDITAS Corporis, a Dryness of the Body. See *MARASMUS*. Also the lanuginous Superficies of the Tops of the Hairs, when they look as if they were powder'd, is call'd a Dryness, *ἄριδος*, *Gal. Def. Med.* There is also an *Ariditas Linguae*, Dryness of the Tongue, a common Symptom in Fevers.

ARIDUM, ἄριδον. The same as *SECCUM*, which see.

ARIDURA, a total Consumption, or Syderation, as they call it, of the Body or Members. *Ruland. Johnson.*

ARIES, a Ram. The Flesh of the Ram is more rank and indigestible than that of the Sheep or Wether. See *OVIS*.

ARIGEOS, ἀριγέως, from a Negative, and ῥίγος, Cold, in *Hippocrates, De Rat. Viâ. in Morb. acut.* signifies without Cold; and is there opposed to ἀβαλπίως, which is from a Negative, and βάλλω, Heat; and denotes the Absence of that Quality.

ARILLA, ῥίγαρον. The same as *GIGARTON*, which see.

ARIOBARZANIUM Emplastrum. The *Arto-barzaniæ* Plaster. The Composition see under the Article *ABSCESSUS*.

ARIS, ἀρις, is expounded by *Galen*, in his *Exegetis*, ὅτι μόνον τὸ ἔργον, ἀλλὰ καὶ βόλαν τῆς ἕως ὀνομαζομένης, "Not only an Instrument, but an Herb so call'd;" which is the same as *Arisarum*; or, as others will have it, a small kind of *Arisarum*.

ARISARUM, Offic. *Arisarum angustifolium Dioscoridis forte*, C. B. Pin. 196. Boerh. Ind. A. 2. 73. Hist. Oxon. 3. 545. *Arisarum angustifolium*, Ger. 686. Emac. 835. J. B. 2. 787. Chab. 258. Raii Hist. 2. 1211. *Arisarum longifolium*, Park. Theat. 375. *Arum humile angustifolium, pistillo longissimo tenui inflexo mucronato*, Herm. Cat. Hort. Lugd. Bat. 60. *Arum Scorzoneræ folio*, Elem. Bot. 130. Tourn. Inst. 160. **FRIERS-COWL.**

This grows in Italy and Dalmatia.

Dioscorides says it is a small Plant, with a Root like that of the Olive, and more acrimonious than the Arum, which, he says, stops the Progress of *Noma*, if apply'd to them by way of Cataplasm. Of this Root are also made *Collyria*, which are effectual in curing Fistulas. By *Collyria* *Dioscorides* does not mean what we call so, but Tents made in the Shape of a *COLLYRIUM*, which see. It corrupts the *Pudendum* of any Animal whatever, if introduced into it. *Dioscorides, L. 2. C. 198.*

It heats, dries, incises, opens, absterges, and digests. *Dale* from *Galen*.

ARISTA, is that sharp-pointed Needle that stands out from the Husk or Hove of a Grain of Corn, Grass, &c. and is call'd Awn, or Beard. *Miller's Dictionary.*

ARISTALTHÆA, ἀρισαλθαία, from ἀρις, excellent, and ἀλθαία, the Marshmallow. A Name bestow'd on the *Althea*, or Marshmallow, for its Virtues.

ARISTARCHI Antidotus Paulina. An Antidote of *Aristarchus* call'd *Paulina*; the Preparation of which you have in *Actius, Tetrab. 2. Serm. 4. Cap. 65.*

ARISTEAS. A Physician of *Rhodes*, Author of one of those Antidotes in *Myrepsus*, which are call'd *Acharisti*. The Reason of this Name see under *ACHARISTON*.

ARISTI Emplastrum nigrum. The black Plaster of *Aristus*, a famous Surgeon in *Scribonius Largus, Cap. 80.* It is the same as the *Tetrapharmacum*.

ARI-

ARISTIONIS *Machinamentum*. A Machine for restoring Luxations, invented by *Aristion*; but seems to be no more than an Improvement of the *Glossocomum* of *Nymphiodorus*. *Oribas. de Machin.*

ARISTOGENIS *Malagma*. A Malagma for the Bones and Nerves, invented by *Aristogenes*; the Composition of it is describ'd by *Celsus*, *Lib. 5. Cap. 18.*

ARISTOLOCHIA, Birthwort. Of this celebrated Plant there are many Species taken Notice of by Botanic Authors; as the

Aristolochia longa, *Offic. & Dod. Lob. J. B. Longa vera*, *C. B. Park. Altera radice pollicis crassitudine*, *Cæsalp. Aëso-doxia maxea*, *Diosc. Aristolochia longa Italica sive mascula*.

The Roots of this Birthwort are large and long, often as thick as one's Wrist, and a Foot long, without Fibres till towards the Bottom, sending forth numerous square Branches, two Foot high or more; on which grow alternately, at the Joints, yellowish-green Leaves, somewhat like the Leaves of Ivy, or rather those of black Briony, on pretty long Foot-stalks: From the setting on these arise the Flowers, one at each Leaf, which is made of one long and hollow Tube, with a long Flap at the End, of a brownish-yellow Colour, growing on Foot-stalks, half an Inch long, which are succeeded by roundish Pear-fashion'd Fruit, as big as a Walnut, containing flattish, broad, roundish, brown Seed.

It grows in *Italy*, *Spain*, and the Southern Parts of *France*, and flowers in *May*.

This Root is so call'd, because it is esteem'd excellent in promoting the *Lochia*, or Child-bed Evacuations of Women, after the Fœtus and Secundines are expell'd. It is found in *Sicily*, in *Spain*, and in *Narbon* in *France*. In *Germany* it is only found in some Gardens. It is best when of a very close Texture; hard, entirely free from Worms; externally of a greyish, and internally of a yellowish Colour.

Aristolochia rotunda, vera & major, *Offic. Rotunda*, *Matth. Dod. Lob. J. B. Vera*, *Trag. Cam. Prima*, *Cæsalp. Rotunda vulgaris*, *Park. Rotunda flore ex purpura nigro*, *C. B. Malum terræ*, *Gaz. & Larg. Aristolochium*, *Hipp. Arist. rotunda Italica sive femina*. *Paracelsus* calls it the great *Matrix-root*, because it resembles the *Matrix* of Women. Its Flower also, as is said, bears an exact Resemblance to the Uterus.

The Root of this *Aristolochia* is thick and roundish, hard and tuberos, of a brownish Colour without, and yellow within, of a very bitter Taste. The Stalks grow to the Height of the former, square, and weak; the Leaves are somewhat rounder, and grow on very short Foot-stalks, which seem to encompass the Branches: The Flowers are, in Shape, like the former, but of a dark-purplish Colour on the Inside; the Fruit is likewise of the same Bigness with that; but more round. This grows in the same warm Countries, and flowers about the same time.

Aristolochia adulterina, sive rotunda vulgaris, *Offic. & Trag. Cam. Radix cava major*, *Dod. Clus. Cava herbariorum*, *Lob. Fumaria altera*, *Matth. Tuberosa sive bulbosa, radice cava, major*, *C. B. Radice cava, flore purpurascens*, *J. B. Radice cava major, flore carneo*, *Park. Bulbosa spuria flore, purpurea & alba, radice cava*, *J. G. Volkham. Flor. Pseudofumaria bulbosa*, *A. 2. Rivin. Pistolochia concava*, *Fuch. Capnos phragmites*, *Plin. καπνός χελιδονίας. Capnos chelidonia*, *Lonicer. Capnos bulbosa*, *Capnicium chelidonium*, *Capnos latifolia*, *Pseudaristolochia, pes gallinaceus*.

It grows naturally in moist and shady Places; and is also found in Hedges, Vineyards, and shady Forests. It is also to be met with in some Mountains, from whence it is transplanted into Gardens: The Root is externally of a greyish, and internally of a yellowish-dark Colour, entirely hollow, and bitter to the Taste.

Aristolochia longa nostras, *Offic. Tenuis*, *Koker. Cat. Hort. Med. Harmel. Longa*, *Trag. Matth. Longa vulgaris*, *Cam. Saracenica*, *Ger. Dod. Clematidis recta*, *C. B. Clematidis vulgaris*, *J. B. Arist. altera radice tenui*, *Cæsalp. Aëso-doxia ulnaria*, *Diosc.* This Herb resembles the true *Aristolochia longa* in every respect, except that it bears Flowers that are yellow, or of a brownish Black. It is found in a great many Places in *Germany*, *France*, and *Spain*. In *Germany* it grows wild, and is transplanted into Gardens; but is of no Use.

The Root of this Birthwort is much smaller and slenderer, than the first or long Birthwort, running and spreading much in the Earth: The Stalks are firmer, and grow more erect; and whereas the two former have but one Flower at a Leaf, this has three or four, less than the other, but of the same Colour; the Fruit likewise is bigger, and the Leaves larger and broader.

Aristolochia has always been had in great Esteem; for which Reason *Apuleius*, *L. de Virt. Herb. Cap. 19.* and *Oribasius*, *de Herbar. & Simplic. Virtute*, *L. 1. C. 5.* tell us, that Physicians cannot practise their Art successfully without it. In Apothecaries Shops, the *Aristolochia longa*, & *rotunda*, are principally used. They are of a warm, drying, opening, subtil, purifying, and healing Nature. They are principally used in Diseases of the Head, Lungs, Liver, and Womb. They purge

and drain the Cerebellum of cold Humours; and are of remarkable Efficacy in Epilepsies arising from the Uterus, *Sam. Schonborn. Man. Med. Pract.* They are also good in Palsies and the Cramp; they dislodge the gross Humours of the Breast and Lungs; and greatly relieve those who labour under Disorders of the Lungs, *Arnaldus de Villa Nova, Lib. 2. Breviar. Pract. Joh. Fernel. L. 5. Meth. Med.* They also afford Relief to Asthmatic Patients, *Hier. Reusner. Obs. Med. 151.* In the Asthmatico-scorbutic, and those who are afflicted with Coughs; they fortify the Stomach, kill Worms, remove Obstructions of the Liver and Spleen, dissolve coagulated Blood, carry off Quotidian Fevers, *Joh. Steph. Strobelberg. Remed. Seng. pro Cur. Feb. Introd.* They cure the Dropsy and Cachexy, restore the Menses when obstructed, expel the dead Fœtus and After-birth. The Root also of the *Aristolochia longa*, if tied to a Woman's Thigh, is said to hasten Delivery, *Lud. Merc. L. 3. de Mulier. Affect. Cap. 8. & Lib. 4. Cap. 3.* They are very serviceable for the necessary Purgation of the Matrix after Delivery: They also allay excessive Pains of the Womb after Child-birth. They cleanse and cure internal Ulcers, Wounds, and inveterate Runnings, especially of the *Pudenda*. They destroy fungous Flesh about the Lips of Wounds. Their Powder corrodes and wastes away mortify'd Flesh, either in Ulcers, or in Fistulas, *Gabr. Fallop. L. 2. Secret. P. M. 214. P. Bayr. Lib. 16. Pr. C. 5. Adr. Toll. Comment. ad Prax. Aur. Jo. Stocker, L. 1. C. 16.* "Simon Pauli, only with the Powder of *Aristolochia longa*, boil'd in the Water of Paul's Betony, and apply'd in a Linen Cloth, in the Space of a few Days happily consolidated a malignant Ulcer, which a Surgeon had in vain attempted to cure for the Course of a whole Year." They purify the Skin, dissipate Blotches and the Itch, extract noxious Matter from Wounds or Ulcers, if the Juice of the Herb, or its Powder, are apply'd to them.

The *Aristolochia rotunda* is possess'd of a Quality, by which it cleanses the Filth of the Ears, and strengthens the Hearing. *Matth. Grad. Pr. P. 1. C. 34.* It also opens internal Abscesses. They are also good against Poisons, and venomous Bites, *Cicero de Divinat. 1. Cap. 10.* They are also good in the Plague, and resist Putrefaction; as Myrrh also does, *Joan. Voesh. de Colonia, Tr. 1. de Peste, Cap. 14. M. Unz. Antidot. pestilent. L. 2.* 'Tis also for this Reason they are added to the *Theriaca*. The Powder of the *Aristolochia rotunda* is very successfully given in Cardialgias, and in Disorders of the Heart and Stomach, mix'd with Sugar of Roses; as also in a poach'd Egg, or any other convenient Vehicle, *Joh. Camer. in Hort. Med. p. 21.* For "this Root is most friendly to the Stomach, restores its Ferment, assists Concoction, and powerfully dissipates the Malignity of the Humours. The *Aristolochia longa* is also of singular Efficacy in removing Pains of the Stomach." *Gualt. Bruel. in Prax. Med. G. H. Velsch. Phil. 1. Exot. Curat. & Obser. 439.* The *Rotunda*, according to *Sennertus*, *L. 5. Inst. Med. P. 1. S. 1. P. 4.* & *J. Heurn. L. 2. Meth. ad Prax. C. 8.* opens internal Abscesses. The Root is also excellent in Clysters, exhibited to epileptic and apoplectic Patients. The distill'd Water of the *Aristolochia longa* is good for the Gout and the Cramp, removes Belly-aches, cures beginning Dropsies, the Jaundice, the Falling-sickness, Rheumatic Pains, and Fevers. It cures *Fistulas in Ano*, and other Disorders of the genital Parts of Men and Women. It is also excellent in the Plague. The Extract of the Root of the *Aristolochia rotunda* is also excellent for Oppressions of the Breast, and for those who labour under Disorders of the Lungs; in which Cases the following Pills may be given:

Take of the best Gum Ammoniac, reduced to Powder, one Dram; well prepar'd Flowers of Sulphur, one Scruple; mix with a sufficient Quantity of the Extract of the Root of the *Aristolochia rotunda vera*, and make sixty-six Pills, which shake in any proper Vessel, along with the Powder of the Root of *Florentine Orrice*. Of these let the Patient take eleven for a Dose. Or,

Take of the best Gum Ammoniac, reduced to Powder, one Dram and an half; Root of the *Aristolochia rotunda vera*, reduced to Powder, half a Dram; Flowers of Sulphur, half a Scruple: Mix with a sufficient Quantity of the Extract of the Roots of *Elecampane* and *Aristolochia rotunda vera*, dissolved in Spirit of Scurvy-grass. Make sixty-six Pills, and shake them in a Vessel, along with the best Powder of Liquorice-root. Let eleven of these be taken in the Morning fasting.

Aristolochia also effectually corrects and removes all Corruptions, and Putrefactions of the Body, and answers the same Intentions that the Extract of *Angelica* does, *Jo. Dan. Mylius, L. 4. Antidotar. C. 3.* We may also use a Decoction of the *Aristolochia rotunda vera* in scorbutic Coughs. *Fernelius*, in *Dispensat. & Meth. Med. L. 7. p. M. 1246.* orders Pills, made of the Root of *Aristolochia*, for Epilepsies, for the Lame, and such

such as labour under Disorders of the Lungs; for old Coughs, Obstructions of the Spleen and Liver, Diseases of the Kidneys, Obstructions of the Menfes, Expulsion of the dead Fœtus, and the After-birth. Its distill'd Oil is highly commended for facilitating Delivery, in *Ephem. N. C. Dec. 2. Ann. 3. Obs. 207.* A small Nose-gay made of *Aristolochia* accelerates the Menfes. It also brings away the Fœtus and Secundines, *J. Fernel. L. 6. Meth. M. C. 9.* The *Aristolochia longa vulgaris* is an admirable Root, if mix'd with *Unguentum Populeum*, in the blind Hæmorrhoids, *Joh. Wittich. Vade Mecum, P. M. 341.* *Aristolochia* burnt, and apply'd to the Hæmorrhoids, puts a Stop to them, *J. Matth. Grad. Pract. C. 2. P. 20.* The Quintessence of the *Aristolochia rotunda* thoroughly cures any simple Wounds within the Space of twenty-four Hours, and sooner; so that its Effects seem altogether miraculous, and beyond the Powers of Nature. It also cures deep and compound Wounds so quickly, that a Miracle rather seems to be wrought, than a Cure perform'd by it. It is successfully given to such as have fallen from Heights, or are in a languishing State of Health; and also to such as have received internal Wounds. It dissolves and dissolves grumous Concretions of Blood in the Stomach, or in any other Parts of the Body, *Barthol. Zorn, Botanolog.*

Apuleius gives a whimsical Receipt, attended with many superstitious Ceremonies, for disenchancing those who are render'd impotent. It consists in washing the Patient with a Decoction of what he calls *Leontopodium*, and a subsequent Fumigation with the Herb *Aristolochia*.

The *SERPENTARIA VIRGINIA*, which see, is a Species of *Aristolochia*.

By the Chymical Analysis, it yields a great deal of acid Liquors, Oil, and Earth, a little urinous Spirit, and no volatile concrete Salt. Its fix'd Salt gives no Tincture of Yellow to the Solution of Sublimate; whence we may conjecture, that the Salt of the *Aristolochia* is much the same as the Salt of Coral would be, if one pour'd more Acid upon it than is sufficient to saturate the Coral: Besides this, the Salt of the *Aristolochia* contains a little *Sal Ammoniac*, and is involv'd in a great deal of Sulphur. *Martyn's Tournefort.*

ARISTON, ἀριστον, Dinner. 'Αριστον, "to dine," in *Hippocrates πει ἀρχ. insp.* is oppos'd to *μεινίσσειν*, "to eat but once a Day;" which was at Supper-time. Those who eat twice a Day, took their *Ariston*, or Dinner, three Hours after Sunrise.

Ariston magnum & parvum, according to *Avicenna*, are Remedies prepar'd against a Phthisis, Pains in the Belly, mix'd Fevers, &c.

ARISTOPHANEION, ἀριστοφάνειον. The Name of an emollient Plaster, which consists of four Pounds of Pitch, two Pounds of Apochyma, (see *ZOPISSA*) one Pound of Wax, an Ounce of Opopanax, and half a Pint of Vinegar. *Gorræus, from P. Æginet. Lib. 7. Cap. 17.*

ARITHMOS, ἀριθμός, Number. 'Αριθμοὶ τῶν νοσημάτων, in *Hippoc. de Rat. Vict. in Morb. acut.* signify the numerical Differences of Diseases in Individuals, by which the *Cnidian* Physicians distinguish'd and number'd Diseases. The Passage runs, "Ἐνιοὶ δὲ τὰς ἀριθμοὺς ἐλάττω τῶν νοσημάτων σάρα ἐβλάψαντες, καὶ ὁρθῶς ἔγχεσαν." "Some, endeavouring to give us a clear Account of the Numbers (numerical Differences) of each Disease, have shewn themselves mistaken." This Place to me seems very well clear'd by *Erotian*, when he says, 'Αριθμοὶ, τὰ ὀνόματα τῶν καλῶν. "He calls the Names *Arithmi*;" for the Names of Diseases, by which they are distinguish'd and number'd according to their Differences, are plainly hinted at; and therefore *Hippocrates* subjoins, Μὰρ αὐτὸ δὲ νοσημα δοῦναι εἶναι, ἢ μὴτ' αὐτὸ ὄνομα εἶναι. "Nor takes it for the same Disease, unless it be call'd by the same Name."

ARLADA, ARLADAR. Realgar burnt, or calcin'd.

ARLES CRUDUM, in *Paracelsus*, are Drops falling in June, especially by Night; otherwise call'd *Hydatis*. *Paracels. de Grad. & Comp.*

ARMALA, in *P. Æginet. Lib. 7.* the same as *Harmala*, *Harmela*, or Wild Rue. See *HARMELA*.

ARMARIUM UNGUENTUM, ὀπλόχευμα. See *HOPLOCHRISMA*.

ARMATURA, Arab. *Abges*. The same as *AMNIOS*, which see. *Castellus*.

ARME, ἄρμν, from ἄρμν, to adapt, signifies, according to *Erotian*, every Coalition of Wounds in general; but in *Galen's Exegetis*, it is particularly apply'd to the Suture of the Head. Ἄρμν, in *Hesychius*, denotes the joining together, or framing the Parts of the Body.

ARMENA, τὰ ἀρμενα, in *Hippocrates*, signify the Instruments, with all the Apparatus, necessary for an Operation in Surgery. In *Lib. de Rat. Vict. in Morb. acut.* τὰ ἀρμενα includes all the Apparatus for Bathing; and *Hesychius* expounds τὰ ἀρμενα, in general, by τὰ πρὸς τὴν ὑποκαίμενον πρᾶγμα ἐπιτήδεια. "Such Things as are convenient for the Performance of any Work we are about."

ARMENA Bolus. See *BOLUS*.

VOL. I.

ARMENIACA MALUS, *Præcocia*, Offic. *Armeniaca* *Malus major*, Ger. 1260. Emac. 1448. *Armeniaca*, *Malus Armeniaca*, Mont. 37. *Malus Armeniaca major*, Park. Parad. 579. *Jonf. Dendr. 74.* *Armeniaca Mala majora*, C. B. Pin. 442. J. B. 1. 167. Raii Hist. 2. 1514. *Mala Armeniaca*, Chab. 11. *Armeniaca fructu majori, nuclea amaro*, Tourn. Inst. 623. Elem. Bot. 495. *Armeniaca Malus, fructu majori ex luteo rubescente*, Herm. Cat. Hort. Lugd. Bat. 59. Boerh. Ind. A. 2. 242. **THE APRICOCK-TREE.**

This Tree is so well known, that a slight Description of it is sufficient: It has broad, round Leaves, pointed at the End: The Flowers are larger than those of Plums, of a white Colour. The Fruit is round, and somewhat flat-sided, with a Sinus running on one Side from Head to Stalk; of a yellowish Colour, with a Blush of Red; when ripe, easily parting from the Stone, which is smooth like a Plum-stone, flattish, with three prominent sharp Ridges on one Side, with a bitterish Kernel within. It flowers in March and April, the Fruit not being ripe till after Midsummer.

Apricocks are of very little Use in Medicine; but are eaten as other Summer Fruits, being pleasant and grateful to the Stomach. They are frequently preserv'd with Sugar; and of the Kernels, infused in Brandy, is made the famous Cordial call'd *Ratafia*. *Miller's Bot. Off.*

Lemery adds, there are three Sorts of Apricocks; the first of which are pulpy, almost round, and grow as big as a small *Peach*, flat on the Sides, one of which is of a dark Red, and the other yellowish. The Pulp is tender, pleasant, and of a good Smell: It contains a very hard and flat Stone, wherein there is a bitter Kernel.

The second differs from the first, in that they are of a more whitish Colour, and that the Kernel is sweet:

The third are smaller than the others, but not so well tasted, and of a yellowish Colour. These last grow upon a Tree that is not cultivated like the rest. In chusing your Apricocks, take those that are pulpy, large, well-colour'd, and well-tasted.

They moisten, create an Appetite, provoke Urine, are a Cordial, Pectoral, and promote Expectoration. An Infusion of Apricocks is look'd upon to be good to allay the Heat of Fevers: They also say, that the Kernel of an Apricock kills the Worms.

Apricocks fill the Stomach with Wind, and easily corrupt there; and therefore they ought to be moderately taken:

They contain an indifferent Quantity of Oil and essential Salt, and much Phlegm.

They are good, in hot Weather, for young People that have good Stomachs, and of a bilious and sanguine Complexion.

Apricocks are Fruits of an agreeable Taste, and used more for Pleasure than Health. They cool and moisten, because they contain much Phlegm, intermix'd with a great Quantity of acid, essential Salt; and are fit to allay the violent Motion of the Fluids; yet they create an Appetite, because this acid Salt lightly pricks the Sides of the Stomach.

In the mean time, People ought to be cautious of this sort of Food, which contains a viscous and thick Juice; and sometimes, in the very first Passages, causes Wind and crude Humours.

They preserve *Apricocks*, to render them more pleasing to the Taste, and that they may keep the longer. Being thus order'd, they are the less injurious, because their viscous Phlegm is rarefy'd by the Sugar and Boiling. They are also more pectoral than raw Apricocks; for, besides the oily and embarrassing Parts naturally contain'd in them, the Sugar, wherewith they are preserv'd, supplies them with other Qualities proper to mitigate the Sharpness of the Humours in the Breast.

You may extract an Oil out of them good for Noise in the Ears, for Deafness, and easing the Piles. *Lemery on Foods.*

The Summer Fruits, when crude and unripe, are extremely pernicious, and productive of various Disorders; but when perfectly ripe, perhaps nothing is more wholesome or medicinal; as, in this State, they furnish a saponaceous Juice, capable of resolving Obstructions. But as our Climate seldom ripens these to Perfection, it is prudent to boil, bake, or preserve them; because the Heat ripens them more, and destroys their elastic Air, which is sometimes troublesome on the Stomach.

ARMENUS LAPIS.

Lapis Armenus, Offic. Calc. Mus. 468. Geoff. *Prælect.* 76. Schrod. 346. Worm. 66. Charlt. Foss. 27. *Lapis Armenus Officinarum*, Woodw. Att. Tom. 1. P. 195. N. 26. *Lapis Armenus*, Boet. 292. Math. 1352. *Armenium*, Schw. 366. Aldrov. Mus. Metall. 351. *Azulum, fructu caeruleum Fossile*, Mer. Pin. 218. **ARMENIAN STONE**, per *Woodwardum*, COPPER ORE OF A SKY OR PALE-BLUE COLOUR.

The *Armenian Stone* is opaque, with green, blue, or blackish Spots, smooth, and marked like the *Azure Stone*, with gold-coloured Specks, and friable. There is indeed but very little Difference between the two Stones, they being often found in the same Glebe, and used indifferently for each other, as having the same Virtues; only the *Armenian Stone* is more strongly purgative.

purgative. It is given from six Grains to a Scruple; and, externally used, it is detergent; with some Degree of Acrimony and Stypticity. It is very seldom used in Phytic; but the Painters employ it in making a beautiful blue Colour, with a greenish Cast. *Geoffroy.*

Alexander Trallianus prefers the *Lapis Armenus* to white Hellebore, as a Purge, in melancholy Cases.

ARMERIA, *Lychnis flore laciniato*, Mont. Ind. 37. *Armerius pratensis*, Ger. 480. Emac. 600. *Armerius sylvestris*, Merc. Bot. 1. 21. Phyt. Brit. 10. *Armeraria pratensis mas*, Mer. Pin. 11. *Lychnis plumaria sylvestris simplex*, Park. Parad. 253. Raii Hist. 2. 1000. Synop. 3. 338. *Lychnis pratensis, flore laciniato simplicis*, Hist. Oxon. 2. 537. Tourn. Inst. 336. Elem. Bot. 281. Boerh. Ind. A. 213. Dill. Cat. Giff. 69. Rupp. Flor. Jen. 92. Buxb. 200. *Caryophyllus pratensis, laciniato flore simplicis, sive Flos Cuculi*, C. B. Pin. 210. *Flos Cuculi, Odontitis Plinii*, Chab. 445. **MEADOW-PINK.**

It grows in watry Places, and flowers in May; the Flowers are in Use. It is a good Alexipharmic, and commended against Poison. *Dale.*

ARMILLA, that circular Ligament which comprehends all that Multiplicity of Tendons which belong to the whole Hand within a Circle in the Region of the Carpus, and is easy to be divided into several others; for which Reason some make two of them, one encompassing the Inside of the Carpus, which is broad and strong, and holds together all the Tendons of the Musculi Flexores; the other, on the Back of the Carpus, consists of six lesser ones connected to one another, and rolled about the Musculi Extensores, like so many Rings. *Castellus.*

ARMONICACUM, the same as **AMMONIACUM**, which see.

ARMORACIA, Offic. Schrod. *Raphanus sylvestris*, Ger. 185. Emac. 240. *Rapistrum album articulatum*, Park. Theat. 863. Raii Hist. 1. 805. *Rapistrum flore albo, siliqua articulata*, C. B. Pin. 95. *Rapistrum flore albo*, Mer. Pin. 103. *Rapistrum flore Erucae foliis*, Merc. Bot. 1. 64. Phyt. Brit. 103. *Rapistrum flore albo striato*, *Sinapi agreste album Trago*, J. B. 2. 852. *Rapistrum flore albo striato*, Chab. 273. *Raphanistrum flore albo striato, siliqua articulata striata minore*, Hist. Oxon. 2. 266. Tourn. Inst. 230. Elem. Bot. 197. Boerh. Ind. A. 2. 21. Dill. Cat. Giff. 116. *Raphanistrum siliqua articulata glabra, majore & minore*, Raii Synop. 3. 296. **WILD RADISH.**

It grows amongst Corn, and flowers in June. The Root is in Use. It warms and dries. It incides mucilaginous tartareous Concretions; it attenuates, resolves, opens Obstructions of the Viscera, is diuretic, lithontriptic, and antiscorbutic. *Dale* from *Schrod.*

ARMORUM PUGNA, a sort of Gymnastics. This kind of Exercise, says *Oribasius* from *Antyllus*, was not in Use among the Antients as a Remedy, but was invented by the Romans, principally with a Design to promote the military Art, and is now received among the Gymnastics.

The Patient, who is supposed to prepare himself for a Duel, puts on military Armour, and engages with an Adversary, or fights against a Pillar.

This Exercise is proper to render the Body more fit for Motion, and to increase Flesh; but it tends to make the Flesh soft and loose, and is noxious to the Head, which suffers as well on account of its being so closely streightened and covered with the Cap and Helmet, as by the Weight with which it is oppressed. But this sort of Gymnastics mightily professes and promises to procure us the Benefits of a long Breath, and Firmness of Body, since they who are inured to it may very well bear any other Exercise that requires much Breath. *Oribas. Med. Coll. Lib. 6. Cap. 36.*

ARMUTHEUS LAPIS, corruptly written for **ARMENIUS LAPIS**, by *Nechepsus*. *Aetius Tetrab. 1. Serm. 2. Cap. 47.*

ARNABO, a Name for Zedoary. See **ZEDOARIA**.

ARNACIS, *ἀρνάκιν*, in *Hippocrates* *περὶ ἐπιπλησίᾳ*, is a Lambskin with the Wool.

ARNALDIA, the Name of a malignant, slow, and chronic Disease, formerly pretty common in England, and usually attended with an *Alopecia*, whence it seems to be a kind of *Lues Venerea*. *Blancard.*

ARNICA, a Species of **DORONICUM**, which see.

ARNOGLOSSUM, *ἀρνόγλωσσον*, from *ἄρξ*, a Lamb, and *γλῶσσα*, a Tongue. Lamb's-tongue, a Name for Plantain. See **PLANTAGO**.

AROEIRA, a Species of the Lentisk. See **LENTISCUS**.

AROHOT, Mercury. *Rulandus.*

AROMA, *ἄρωμα*. It signifies any thing fragrant or odorous; but is sometimes taken for Myrrh.

AROMATICA, *ἀρωματικά*, from *ἄρωμα*, a Word apply'd to all fragrant Things, whether Spices, Herbs, Flowers, Seeds, or Roots. It is remarkable, that Aromatics, or Spices, preserve Animal Substances from Putrefaction; and that Providence has taken care to furnish warm Climates with Plenty of Aromatics,

which the Inhabitants make frequent Use of, and probably thereby check that spontaneous Tendency to Putrefaction, to which Heat inclines them.

AROMATICUM ROSATUM. Rose Spice.

Take of exungulated red Roses, fifteen Drams; of Liquorice sliced, seven Drams; of Aloes Wood, and yellow Saunders, each three Drams; of the best Cinnamon, five Drams; of Cloves and Mace, each two Drams and an half; Gum Arabic, and Tragacanth, each eight Scruples; of Nutmegs, the greater Cardamoms, and Galangals, each one Dram; of Indian Spikenard, one Scruple; and let them all be reduced into a Powder to be kept for Use.

This Medicine is frequently used in Cases where there is too great a Quantity of watry and superfluous Matter in the Stomach. It contributes to the Concoction of the Food, prevents Putrefaction, corrects the Relaxation of the Stomach, removes Weakness, strengthens the whole Lower Belly, and Organs of Nutrition. It dissipates the Flatulencies which distend the Stomach, restores the lost Appetite, removes Nauseas, and is surprisingly beneficial to those who labour under Disorders of the Stomach. Besides, it very much refreshes those who are recovering, or have just got the better of any long and tedious Illness. *Zwelfer Not. in Pharm. August.*

AROMATITIS, *ἀρωματίτις*, a precious Stone, of a bituminous Substance, in Colour and Smell resembling Myrrh, whence it takes its Name; it is found in Arabia and Egypt. *Goraeus.*

AROMATOPOLA, *ἀρωματόπῳλος*, from *ἄρωμα*, Spice, and *πῳλῆω*, to sell. A Druggist; also a Grocer. *Blanc.*

ARON, *ἄρον*. See **ARUM**.

ARONIA.

Mespilus Aronia, Offic. *Mespilus Aronia*, *Azarolus*, Mont. Ind. 48. *Mespilus Aronia*, Ger. 1265. Emac. 1454. *Mespilus folio laciniato, spinosa, fructu majori esculento*, Raii Hist. 2. 1458. *Mespilus Aronia veterum*, J. B. 1. 67. Chab. 3. *Mespilus Aronia, sive Neapolitana*, Park. Theat. 1423. *Mespilus Apii folio laciniato*, C. B. Pin. 453. *Jonf. Dendr.* 44. Boerh. Ind. A. 2. 256. Tourn. Inst. 641. Elem. Bot. 503. **THE NEAPOLITAN MEDLAR.**

It is sown with us in the Gardens of the Curious, and flowers in May. The Fruit is in Use. It binds the Belly moderately. *Dale.*

AROPH of *Paracelsus* are either Flowers very finely prepared after a Chymical way, by Sublimation of equal Portions of Lapis Hæmatitis and Sal Ammoniac; or the Word signifies Saffron and Bread moistened with Wine, and inclosed in a Vessel closely stopp'd, and set in Horse-dung for some Days, and afterwards distilled, *Helmont. de Lithiasi*. *Paracelsus* also speaks of *Aroph* as a Thing prepared by Distillation, and endued with a Virtue of destroying the Operation of the Kidneys, *De Vir. Memb. Lib. 2. Cap. 10*. *Aroph* also signifies a Mandrake. *Ruland. Johns.* Some take *Aroph* to be one of *Paracelsus's* Terms of Art, by which he intends to signify a Lithontriptic Medicine, and have expounded it by *Aroma Philosophorum*, *Helmont. de Lithiasi, Cap. 7. No. 14*.

ARQUATA, the Name of a Bird mentioned by *Aldrovandus*. It is called *τερχίλας* by *Oppian*. A Wren.

ARQUATUS MORBUS, the same as **ICTERUS**, which see.

ARQUEBUSADE (Eau de) the same as *Aqua Sclopetaria*. See **AQUA**.

ARRAPHON, *ἄρραφον*, from *a* Negative, and *ῥάφω*, to sew. Without Suture; the Word is applied to the Cranium, when naturally without Sutures. In this Case the Person has sometimes an inveterate and incurable Head-ach.

ARRHEN, **ARSEN**, *ἄρρην*, *ἄρσεν*, Male.

ARRHCEA, *ἄρρῳα*, *ἄρρῳα*, from *a* Negative, and *ῥέω*, to flow. The Stoppage of a Flux, and by *Hippocrates* appropriated to the Suppression of the Menfes; for *ῥρῳα*, in *Galen's* Exegefis, is *ἐποχὴ ἐμμήνων*, "the Stoppage of the Menstrual Flux."

ARRHOSTIA, *ἄρρῳστια*, *ἄρρῳστια*, from *a* Negative, and *ῥῳστυμι*, to be in sound Health. Infirmary, Weakness; it often signifies a Disease, as in 2 *Aph.* 31. and 3 *Aph.* 5.

ARRHYTHMUS, *ἄρρῳθμος*. See **ARYTHMUS**.

ARSACUM, the same as **ACRAI**, which see.

ARSALTOS, the same as **ASPHALTOS**, which see.

ARSANECK, Arsenic sublimed. *Johnson.*

ARSATUM, the same as **ACRAI**, which see.

ARSENICUM, Arsenic. Of this there are three Sorts: **ARSENICUM ALBUM**, Offic. Ind. Med. 15. *Arsenicum factitium album*, Aldrov. Mus. Metall. 354. *Arsenicum*, Mont. Exot. 12. *Arsenicum album seu crystallinum*, Schrod. 3. 498. *Arsenicum album, Risagallum, quibusdam Realgar, Worm. Mus. 29. Charlt. Foss. 13.* **WHITE ARSENIC**, or **RATSBANE**.

ARSENICUM FLAVUM, Offic. *Arsenicum factitium flavum*, Aldrov. Mus. Metall. 358. *Arsenicum citrinum seu flavum*, Schrod. 3. 498. *Arsenicum citrinum*, Pharmacopolis. **YELLOW RATSbane.**

ARSENICUM RUBRUM *factitium*, Offic. Woodw. Art. 2. P. 1. p. 50. **RED ARSENIC.** Dale.

Arsenic, properly so called, is a Substance extracted from an Ore found in *Saxony* and *Bohemia*, named *Cobalt*. It is of three Kinds, Crystalline, Yellow, and Red; and as this Original of Arsenic, and the way of preparing it, are not commonly known, I shall here shew what is the Nature of Cobalt, and in what manner Arsenic, and the other Substances found with it in the Ore, are extracted, also what are the Kinds of factitious or artificial Arsenic.

Geisman Cobalt of the Shops, *Cadmia Metallica* of *Agricola*, is a ponderous, hard, fossil Substance, almost black, not unlike Antimony, or some Kinds of Pyrites, emitting a strong sulphureous Smell when burnt, often mixed with Copper, sometimes with Silver. It is dug out of Mines in *Saxony*, near *Goslar*; in *Bohemia*, in the Valley of *Joachim*; and in *England*, in the *Mendip Hills*, in great Quantities. It has so strong a corrosive Quality as sometimes to turn and ulcerate the Hands and Feet of the Miners, and is a deadly Poison for all known Animals. All the three Kinds of Arsenic are extracted from it; and it likewise serves to make *Zaffera*, used by Potters in giving a blue Colour to their Vessels; and the *Encaustum Coeruleum*, or that kind of Blue sometimes used by Painters, and often by Women to mix with their Starch, for whitening and stiffening Linen. The way of making all these, is taught by *Kunkel*, in his Art of making Glass. To this Purpose they put the Cobalt in a calcining reverberatory Furnace, made for that Purpose in such a manner as that the Flame may just graze upon the Ore, and so set it on Fire. The Flame of the Ore is blue, accompanied with a copious Smoke, which is received on the Cieling of the Furnace, and from thence conveyed out through a large Funnel made of Boards, and above an hundred Ells in Length; but the greatest Part of it sticks to the Inside of the Funnel, in form of a whitish Soot; and every six Months the Labourers sweep the Funnel with Brooms, and carefully preserve this Soot, which afterwards serves to make both crystalline, yellow, and red Arsenic.

Crystalline Arsenic is made only by sublimating the Soot in Iron Vessels into an opaque Substance, sometimes white and shining like the *Encaustum Album*, sometimes streaked with red and crystalline Veins.

Yellow Arsenic is made of the same Soot sublimed with common Sulphur, in the Proportion of one Part of Sulphur to ten of Soot. The sublimed Mass is of a yellow Colour, solid like Sulphur, shining, and not altogether opaque, easily broken, but not friable, or easily crumbled into Dust, and distinguishable from Orpiment, by not taking Fire when thrown upon burning Coals, as Orpiment presently does. Red Arsenic is made of the same Soot and Sulphur, mixed with a small Proportion of a metallic Substance, called the *Spuma of Copper*. The sublimed Mass is solid, of a cinnabarine Colour, and opaque.

The calcined Cobalt, after the Evaporation of the Fumes or Smoke, is powdered and calcined again, and this Operation is repeated till the Calcination is judged to be perfect. Then being very finely powdered, it is mixed with two or three times the Quantity of powdered Flint Stones, and moistened with a little Water in large Tubs, where, in a very short time, it becomes a solid firm Mass, called *Zaffera*, as already said, which is used by the Potters, Glass-men, Enamellers, &c.

If two Parts of calcined Cobalt, one Part of Pot-ash, and three of common Sand, be melted together, a vitreous, opaque, bluish Mass is produced, which is ground in Mills to a very fine blue Powder, which is called *Smaltum*, or *Encaustum Coeruleum*, used by Painters, and in washing Linen.

Arsenic consists of an acid Salt, and a kind of mercurial or metallic Substance, which discovers itself when it is distilled in a Retort, mixed with Soap, Suet, Oil, or any fat or oily Substance; for with a strong Degree of Fire the Arsenic will be raised into the Neck of the Retort in a metallic Form, like Antimony. The Sulphur contained in Arsenic is in so small a Proportion, that it does not flame when cast on burning Coals, though Cobalt contains a great Quantity of Sulphur, which consequently has been separated from the arsenical Parts in the Calcination and Deflagration, and so evaporated; but the Smell of Arsenic proves, that some Sulphur still remains in it. Arsenic is very volatile; for if any Quantity of it is put into a Crucible, and set over the Fire, it will presently evaporate in white Fumes, without leaving any Remainder. If melted, stratified, or cemented with Copper, it turns it of a Silver Colour; but, as it impairs its Ductility, this Change of Colour is rendered of no Use.

Arsenic is a powerful Corrosive, and reckoned among the strongest Poisons. When taken inwardly, it causes many bad

Symptoms, of which some are common to it with other Poisons; such as Anxieties, Swoonings, Palpitations, a sudden Dejection, or Sinking of the Strength and Spirits, Stupors, Deliriums, convulsive Motions of the Limbs, Palsies, Heat and Corrosion of the Fauces, Thirst, Fevers, Vomiting, Pain in the Stomach, and cold Sweats. Other Symptoms are peculiar to this Poison, such as not only an Erosion of the Stomach, but an Extenuation of it, in such a manner, as that all its Coats, taken together, shall not be thicker than a Poppy-leaf in many Places; and at the same time, the small Intestines are found corroded and perforated; a sudden Swelling and Sphacelation of the Parts of the Body; and, after Death, a more speedy Putrefaction than is observed in other Cases, especially in the Parts of Generation belonging to Men. If Death does not immediately follow, the Patient becomes afflicted with an Hectic Fever, Marasmus, Palsy, Tremors, and sometimes Madness. Some recommend Rock Crystal reduced to an impalpable Powder, as an Antidote against Arsenic; but I should depend much more upon drinking large Quantities of Milk, Oil, or fat Broths, while the Poison remains in the Primæ Viæ; but after it has got into the Blood, alexiterial Medicines are to be used, such as *Venice Treacle*, *Mithridate*, *Bezoar*, Powder of *Vipers*, *Contrayerva-root*, and such like, and afterwards a Milk Diet.

Though Arsenic be a quick Poison for both Men and Brutes, it is recommended by some in intermitting Fevers; but, let it be never so much prepared and corrected, its deleterious Qualities are only lessened, never wholly removed; and therefore, though it may be a good Remedy for the present, it will afterwards prove a Poison, and bring on very dismal Symptoms. Arsenic therefore, in my Opinion, is worse than the Fever itself; and among all the Preparations thereof, there is but one which I can recommend, even to be used externally:

Take crude Antimony, yellow Sulphur, and crystalline Arsenic, of each two Ounces; powder and mix them well in a Glass Crucible, and melt them in a gentle Sand-heat, till they come to the Consistence of Pitch; and, the Fire being removed, they will concrete into a Mass of a dark-red Colour, which is to be kept for Use.

This Medicine is only to be applied externally, as being a mild and gentle Caustic, and thought to be endued with a Power of attracting poisonous, or other morbid Matter from the Centre of the Body to the Surface, like a Loadstone; and hence it has the Name of the *Arsenical Magnet*. It is also said to be a powerful Ripener, and is therefore applied to Venereal Buboës, with the *Emplastrum Diachylon Magnum*. It is an Ingredient in the *Emplastrum Magneticum of Angelus Sala*, and recommended for maturing and breaking Venereal Buboës, and is thought to draw the pestilential Virus out of them. It is likewise proper in scrophulous Ulcers, which it opens, cleanses and incarns, without the Assistance of any other Ointment. *Geoffroy*.

After giving the Opinion of *Geoffroy* with respect to the internal Use of Arsenic, I need not caution the younger Practitioners in Phylis to hold as suspected the Advice of *Pitcairn*, who directs Arsenic to be given internally in a Dysentery; and of *Zacutus Lusitanus*, who advises the Use of it in Clysters, for the same Distemper.

Realgar also is called *Arsenicum*, and *Sandaracha*. See **REALGAR**.

ARSIORA, Ceruss. *Johnson*.

ARTABA, *ἀρτάβη*. An Egyptian Measure of dry things, containing five Modii (somewhat above five English Pecks). *Galen. de Mensuris*.

ARTANECK, **ARTANECH**, Arsenic. *Rulandus*.

ARTEMISIA, a celebrated Plant, thus distinguish'd:

Artemisia, Offic. Chab. 375. *Artemisia vulgaris*, J. B. 3. 184. Raii Hist. 1. 372. Synop. 4. 190. Park. 90. *Artemisia vulgaris major*, C. B. Pin. 137. *Artemisia latifolia vulgaris major*, Hist. Oxon. 3. 5. *Artemisia vulgaris major, caule & flore purpurascens*, & *albicante*, Tourn. Inst. 460. Boerh. Ind. A. 127. *Artemisia mater herbarum*, Ger. 945. Emac. 1103. **MUGWORT**. Dale.

It is also called *Mater Herbarum* by *Lobel*, and *Parthenium* by *Apuleius*.

This is also called *Cingulum Sancti Johannis*, because a great many People foolishly imagine, that, if they make a Crown of it, wear it upon St. John's Eve, and throw it into the Fire, mumbling some Verses, they shall for that Year be free from Spectres, Diseases, and Misfortunes. Others call it the *Herba Regia*, *Toxitesia*, *Anactorium*, *Sanguis Hominis*, or *Rapium*. The famous Queen *Artemisia* with this Herb cured several Diseases; for which Reason *Pliny*, L. 25. C. 7. thinks it had her Name bestowed upon it. But others imagine, that it was called *Artemisia* from *Artemis*, that is, *Diana*, since the ancient Pagans believed, that the Goddess *Diána* presided over the Diseases of Women, which they thought could not be cured without this Herb. The Priests, according to *Apuleius*, *Herb.* C. 10.

C. 10. called it *Bubastecordium*, that is, the Heart of *Bubastus*. Now *Bubastus* was a Town in *Egypt*, in which the Worship of *Diana*, and of *Dogs*, mightily prevail'd [according to *Herodot.* in *Euterp.* L. 2.]; to this therefore answers pretty well the *ἀρτεμισία*, that is, the *Dianaea* of the *Greeks*; for *Ἄρτεμις* is *Diana*. It is not material whether the Virtues of this Herb were first discovered by *Dogs*, who are Lovers of it, and, according to *Antonius Musa*, use it as a Medicine against their natural Distempers, or whether they were first found out by *Diana*. See *ATHAN. KIRCHER. Oedip. Egypt. Tom. 3. p. 72.*

Mugwort has many large winged Leaves, very much torn, or cut in, even to the middle Rib, green on the upper Side, and white and hoary underneath; of a pretty strong Smell, if rubb'd between the Fingers; the Stalks grow to be two or three Feet high, channell'd, in some Plants of a hoary Green, in others of a purple Colour, full of a white Pith, and having smaller Leaves, growing alternately. The Flowers are small, round *Corymbi*, yellowish, with a Cast of Purple, standing upright, and not hanging down like Wormwood. The Root is rough and slender, running assant in the Earth, shooting out many white Fibres. It grows in Hedges, and waste Places, and flowers in *June*.

This Herb is universally known, and is the true *Mother-herb*, or Herb for the Matrix; for the Coldness of which it is an admirable Remedy. It also purifies, warms, and fortifies; it appeases the Pains to which it is subject, and cures the Green-sickness, promotes the Menses, expels the dead Foetus, and the Secundines, if used either externally or internally. *Helmant* says, that the Tops of *Artemisia* cut, and given to Women, stop the Menses; but that its inferior Parts cut, and exhibited, promote them. However, all the Diseases of Women, arising from the Matrix and Menses, may be cured with it. It is the grateful Reliever of Women in Child-birth, and of such as labour under any Disorder incident to Women, *Joh. Mich. Fher. de Scorzonar. p. 12.* It also cleanses the Liver when obstructed, purges the Kidneys of Gravel, promotes Urine, and removes the Strangury, and Pains of the Belly. It also resists Poison, and purifies a pestilential Air, *Ambr. Paræus Chir. L. 21. de Pest. C. 25. Casp. Schwenkf. L. 1. Catal. Stirp. Siles.* When boiled in Wine or Water, and taken for forty Days successively, one or two Ounces for a Dose, in the Morning before Breakfast, it cures the Dropsy and Jaundice. *C. Raygerus* says, he saw a dropical Patient thoroughly cured of his Disorder by drinking an Infusion of red *Artemisia* in Wine, *Obs. Med. 51. in Schol.* Its Juice drank with White-wine, or with Water of Maiden-hair, cures the Jaundice, *Joh. Matth. Grad. Pract. p. 2. C. 8.* It is also good for Wounds, and often rank'd among the other vulnerary Herbs. It is also good for the Bites of Serpents and Scorpions, especially when drank in Wine, or apply'd immediately to the Wounds. This Herb is also excellent in gun-shot Wounds; in which Case the Herb is taken fresh, triturated with White-wine, its Juice express'd, and two Spoonfuls of it given twice a Day, pouring at the same time a little of it into the Wound. It also takes away the Pain occasioned by the Heat of the Powder. When the Herb cannot be had fresh, it is usual to take the dry, and boil it in an equal Quantity of Wine and Water, of which they give the Patient to drink, Morning and Night; they also wash the Wound with it. *Th. Tabernamontanus*, in the Siege of *Oletz*, and in a great many other Campaigns, acquired a very great Reputation by means of this Medicine, and assures us, that it never failed him. Those who have the Gout should eat the Root of this Herb, which will in a short time relieve their Pain. *Abrahamus Scilerus, Consil. inter Cratoniana, 235.* affirms, that many have been freed from arthritic Pains only by using the Roots of *Artemisia* boiled in their Viſuals, like Parsley-roots. See also *Arn. Weckard, Thes. Pharmaceut. L. 3. C. 2.* *Artemisia* beat with Axungia and Vinegar cures Pains of the Thighs, if apply'd to them, *P. Bayr. L. 18. Pr. C. 1. and 6. C. V. Schneider. Lib. de Catarrh. Specialiff. Tr. de Arthrit. & Podagr. p. 848.* Some others, as *Crato, L. 2. Conf. 26. Schenck. L. 5. Obs. Med. Solenander, Conf. Med. 24. S. 4.* advise, in order to remove Pains in the Feet, to bathe or foment them with a Decoction of this Herb. For this Purpose also *Ant. Mizaldus* commends the *Oleum Artemisiae, Cent. 5. Memor. Aph. 79.* An old Woman is, by *Simon Pauli, in Quadr. Bot. Class. 3.* said to have thoroughly carried off cedematous Swellings in both her Knees, by applying to them folded Cloths, fumigated with *Artemisia*. This Herb, when boiled in Wine, with Chamomile-flowers, those of Sage and Rosemary, fortifies and restores maimed and refrigerated Limbs, if fomented with the Preparation. It is said, that if People who travel on Foot put some of this Herb into their Shoes, they will not so soon become weary, as they would otherwise do. Travellers who carry *Artemisia* along with them, will not become weary on their Journey, says *Pliny, N. H. L. 26. C. 15.* and *P. Bayr. L. 24. C. 13.* But *Matthiæus* on this Occasion observes, *Let who will believe it; for I cannot.* *Theodor. Tabernamontanus* says, he believes it very readily, provided the Journey be very

short. *Casp. Hoffman, L. 2. de Med. Offic. Cap. 22. Sect. 4.* mentions it as a Piece of Superstition; and wittily says, he will not soon weary, who has in his Journey *Beyfus*, which is the German Name of *Artemisia*, and signifies at the same time another Foot; that is, adds he, the four Feet of a strong Horse. But though this Opinion favours of Superstition, yet 'tis true, that a Bath of *Artemisia* restores Strength and Soundness to Feet weakened and galled by Travelling. See *Gorop. Becan. Herma-then. Lib. 7. p. 135. David Frolich. Viator. P. 1. L. 2. C. 7. Honorat. Taber. de Plantis, Tr. 1. L. 2. Cbr. Fr. Paulin. Part 1. 726. Simon Paul, Quæst. Botan. L. C. Avicenna* confirms this, who asserts, that it is an Herb of a cold Nature, and is of wonderful Efficacy against Weariness. *Philadamon, L. de Fuga Isidis*, also asserts, that this was used by *Isis* against Weariness, when wandering through *Egypt* in Quest of the Body of *Osiris*. Some superstitious People pull up this Herb, and dig under it at a certain Time and Hour, especially on St. John's Eve, for Coals, which they use against the Fever, the Plague, the Falling Sickness, Witchcraft, and other Disorders, tying at the same time the Herb about their Necks. The *Wirttemberg Pharmacopœia* affirms, p. 22. that if on St. John's Eve, before the Rising of the Sun, People dig under the old Trunk of red *Artemisia*, they will find a black Coal, which, if hung about the Neck, is good against the Falling Sickness. *Joh. Chemnitius, Ind. Plantar. Brunsvic. p. 17.* mentions its being sold in some Apothecaries Shops as an Amulet to cure Fevers. *Tragus*, on the contrary, Part 2. *Hebr. C. 113.* and *Joh. Bauhine, Hist. Plant. Univerf. L. 26. C. 78.* call these Coals the Stones of Fools, because they are sought for by weak and foolish People; but *Mich. Etmuller, Comment. in Schrod. Pharm. Sect. 1. & in Ludovic. Pharm. Tit. 14. and in Colleg. Practic. C. de Epileps. P. M. 887.* informs us, that there is nothing either fabulous or superstitious in what is reported of that Coal; and that it was an infallible Remedy against the Epilepsy, which a certain Woman in *Leipsic* had found verified upon her own Son. *Christopher Helwig, in Consil. Medic. de Peste, p. 139.* says, For my share, I look upon this Stone as something miraculous: However, I will not venture to assert, that there is no such thing, since a great many People, who cannot be charg'd with Folly, have given Accounts of very surprising Effects produced by it. *Fernelius* is, in my Opinion, far from being a Fool, yet in his *Consil. pro Epileptico præscript.* he commends that Stone hung about the Neck against the Epilepsy. See also *Anton. Mizald. Cent. 3. Mem. Aph. 10. Casp. Baubin. in Matthiol. p. 619. Ephem. N. C. Dec. 3. An. 9. and 10. Obs. 128. Ofw. Gabelkhrwer, p. m. 24. H. Petrai Disfert. Harm. L. 1. Diff. 6. Sect. 53. Fr. Jeel, Oper. Med. Lib. 1. Sect. 3. de Epilepsia. Fr. Decker, Not. ad Prax. Med. Pauli Barbett, L. 1. C. 1. Th. Mayern. Prax. Med. L. 1. C. 3. G. H. Velsch. Chir. 1. Exat. Cur. 505. & Hecatyst. 2. Obs. Med. 40.* The Roots of *Artemisia* may be kept and preserved for a great many Years. In some foreign Apothecaries Shops we find a Water distilled from this Herb; we there also find a Syrup, a Conserve, an Extract, and a Salt of it. The distill'd Water is serviceable to Women in Child-bed; expels the Foetus, whether dead or alive; brings away the After-birth, promotes the monthly Evacuations when stopt, purges the Kidneys and Urinary Passages, promotes Urine, and expels the Stone; cures the Jaundice, and is good against the Dropsy. The Syrup and Conserve are used for all Weakness, Coldness, Impurities, and Pains in the Matrix; they also promote the Menses, and facilitate Child-birth. The Extract dissolves Stones, and carries off Suppressions of Urine, *Andr. Zeigler, Pharm. Spag. p. 87.* The Conserve is also good to purify and fortify the Matrix: It is likewise good against the Chlorosis. *Zacutus Lusitanus, Lib. 2. Obs. 99. Prax. Adm.* cured a Chlorosis of ten Years standing with it. Its Salt is, among other things, an excellent Antidote against the Plague. *Ambros. Paræus, L. 21. Chir. C. 25. Conrad. Khunrah. Medull. Destill. p. 2. C. 7. Joh. de Cuba, in Hort. San. makes mention of Artemisia, and says, that if any one has this Herb in his House, the Devil can do him no Harm. If any one place a Piece of this Herb above the Door of a House, nothing unlucky can befall that House. See also Dioscor. L. 3. C. 127. Joh. Wier. de Præst. Dæmon. L. 5. 21. Artemisia hung up in the Entry of a House banishes all Witches, P. Bayr, L. 16. Cr. C. 3. Fernelius from Pliny, N. H. L. 25. C. 10. informs us, that Artemisia held in the Hand banishes wild Beasts and Devils. The Down of Artemisia is the Moxa of the Germans, Ephem. N. C. Dec. 2. An. 1. Obs. 6.*

The fabulous Accounts above related concerning the Virtues of *Artemisia*, in banishing Devils, Witches, and Spectres, I have quoted only with a View of shewing the great Veneration which People have had for this Plant, amounting even to Superstition.

Mugwort has a little herby, saltish Taste, and gives a faint red Colour to the blue Paper. The Salt which is naturally in this Plant, probably resembles Sal Ammoniac, but is united with a great deal of Sulphur and Earth; for by the Chymical Analysis we obtain from Mugwort, beside several acid Liquors,

some concreted, volatile, and very lixivial fixed Salt, and a great deal of Sulphur and Earth. All these Principles render this Plant very aperitive, and proper to regulate and restore the Menfes. *Martyn's Tournefort.*

Dioscorides takes Notice of another ARTEMISIA, which he calls ἀρτεμισία, which is, I suppose, the *Artemisia tenuifolia*, or *Abrotanum Campestre*. See ABRROTANUM.

There is another Species of Artemisia which grows in China, from which the Moxa celebrated by Sir William Temple is procur'd, by taking out the gross Fibres of the dry'd Leaves, and rubbing these Leaves with the Hands, till the green Part crumbles away, and the lanuginous Fibres alone remain. Dale calls this Plant *Artemisia*.

Artemisia Chinensis, *cujus mollugo Moxa dicitur*, Pluk. Phytog. Tab. 15. Almag. 50. Hist. Oxon. 3. 5. *Artemisia orientalis vulgaris facie*, Act. Philosoph. Lond. N° 276. p. 1020. *Musia pattrae*, Malab. Moxa, Kempf. Ed. Angl. App. 27. Amanit. Exot. 589. 600. *An Ytzequinpatli*, Hern. MUGWORT OF CHINA.

ARTEMISION. The Name of a Month among the Macedonians, in the Beginning of which happen'd the vernal Equinox. *Gal. Com. 1. in Lib. 1. Epid.*

ARTEMIS DIANIO. The Inventor of a Dentifrice against the Strider Dentium, which consisted of equal Quantities of white Bread, old and dry enough to grate; Salt, Pepper, Indian-leaf, Costus, and Hartshorn, reduced to a very fine Powder. *Marcellus Empiricus*, Cap. 13.

ARTEMONIUM, ἀρτεμόνιον. The Name of a Collyrium described by *Galen*, Lib. 4. de C. M. S. L. Cap. 7.

ARTENNA. The Name of an aquatic web-footed Bird, called also *Diomedea*, because found in the *Diomedean* Isles, now called *Tremiti*. *Castellus*.

ARTERIA, ἀρτηρία, an Artery.

Artein, *Arteria*, in *Hippocrates*, generally signifies what we call the *Aspera Arteria*, that is, the Tube which conveys the Air to the Lungs. However, though this Author was utterly ignorant of the true Sources and Uses of the Arteries, which he confounds with the Veins, it may be of some Importance to the perfect Understanding of his Works, to specify his Notions of the Blood-vessels.

Hippocrates, in one Passage, [*Lib. de Alimento*] acknowledges, That the Veins proceed from the Liver, which is the Origin and Root of them, as the Heart is of the Arteries: And elsewhere he maintains, that the Veins and Arteries proceed equally from the Heart [*Lib. de Carnibus*]. "There are, says he, two hollow Veins which proceed from the Heart, one of which is call'd the Artery, and the other the Hollow Vein." In the Days of *Hippocrates* the Name of VEIN was indifferently apply'd to all Blood-vessels; and the Word Artery [*Artein*, ἀρτηρία] properly denoted the *Aspera Arteria*, or Pipe of the Lungs. *Hippocrates* also gives the Name of Veins to the Ureters, and even to the Nerves. Besides these, there are few Passages in which he makes a formal Distinction betwixt Arteries and Veins; which Circumstance may render the Books, or at least the particular Passages of them, in which this Distinction is made, suspected. "The Artery," adds he immediately after, includes more Heat than the hollow Vein, and is the Reservoir of the Spirit (ταμιεύει τὸ πνεῦμα). "There are as yet other Veins in the Body besides these two. As to that which has the largest Cavity, and is fixed to the Heart, it runs through all the Belly and Diaphragm, and sends a Branch to each Kidney, and at the Loins it divides, and sends Branches to other Parts, and to both Legs. Above the Heart also this Vein divides itself to the Right and the Left, and, mounting to the Head, distributes itself to each Temple. To this may be joined other Veins, which are also very large; but, in one Word, all the several Veins which are dispersed over the whole Body, proceed from the Hollow Vein and the Artery."

Here are already two Opinions concerning the Origin of the Veins and Arteries; and there is still a third found in three other Passages of the Works of the same *Hippocrates*, both with regard to the Origin and the Distribution of the Veins [*Lib. de Offium Natura*, *Lib. de Natura Humana*, & *Lib. de Locis in Homine*]. "The largest Veins of the human Body, says he, are disposed in this manner: There are four Pairs of them in all. The first Pair rise from behind the Head, and, descending by the exterior Part of the Nape of the Neck on each Side the Spine, reach the Hip and Thighs; and, passing thence through the Legs, they reach the external Ankle-bones and Feet. For this Reason, in Pains of the Back or Hip, Bleeding in the Ham, and in the external Ankle, affords great Relief. The second Pair, coming also from the Head, descend from the Ears along the Neck; they are called the Jugular Veins, and follow the Spine in its inner Part, till, arriving at the Loins, they branch out on both hands to the Testicles, the Thighs, and the Insides of the Hams, and pass thence through the internal Ancles to the inner Sides of the Feet: For this Reason, in Pains of the Testicles and Loins, Bleeding in the internal Veins of the Ham and Ankle is very useful. The third Pair rise

VOL. I.

from the Temples; and, passing from the Neck towards the Shoulders, reach the Lungs; and from thence passing on one Side from the Right to the Left, run along under the Breasts to join the Spleen and Kidneys; and on the other Side passing from the Left to the Right, run also by the Breasts to the Liver and Kidneys; and at last they terminate in the strait Intestine. The fourth Pair, rising from the Forehead and Eyes, pass below the Lungs and Clavicles, and thence by the superior Part of the Arm, reach the Elbow, the Hands, and Fingers; and they return again from the Fingers by the Palm of the Hand, by the Elbow, and by the under Side of the Arm, in order to reach the Armpits; and by the superior Part of the Ribs on one Side to the Spleen; and on the other to the Liver. These two Branches, passing beyond the Belly, terminate at last at the private Parts."

As a Salvo for the Contradiction betwixt this Passage and the preceding, it may be alleged; that the Book *De Offium Natura*, was not written by *Hippocrates*, but by *Polybius*, his Son-in-law. Neither *Galen* nor *Erotian*, have made any Mention of it among the Books written by *Hippocrates*; at least, they have not spoken of its Title, though they seem to have explained some Words that occur in the same Book. There is also a Passage of *Aristotle*, [*De Generat. Animal. Lib. 3. Cap. 3.*] in which that Philosopher, talking of the Origin and Distribution of the Veins, and relating the Sentiments of several Physicians with regard to that Point, cites the very Words of the Book *De Natura Offium*, which we have translated, and cites them as being written by *Polybius*. This Proof, though apparently sufficient, does not remove the Whole of the Difficulty, because the same Words are found in the Book *De Natura Humana*, which *Galen* strongly maintains to be written by *Hippocrates*, pretending to prove it by the Authority of *Plato*, who, as he says, has quoted some Passages of it, as belonging to *Hippocrates*, though others have ascribed that Book to *Democritus*. The same *Galen* [*De Hippocratis & Platonis Decretis, Lib. 6. Cap. 3.*] nevertheless denies, that this last Opinion, touching the Origin and Division of the Veins, was embraced either by *Hippocrates* or *Polybius*; and assures us, that it has been foisted into the Text, which, by the way, is not very probable, since we find the same Opinion in the Book *De Locis in Homine*.

There is another Difficulty with regard to the Book *De Carnibus*, whence I have taken what I said about the Veins and Arteries proceeding from the Heart. *Aristotle*, in the Passage just cited, after having observed, that almost all Physicians agreed with *Polybius* to make the Veins proceed from the Head, concludes, that they were all in the wrong, not knowing that it was from the Heart, and not from the Head they rise. If *Hippocrates* is the Author of the Book *De Carnibus*, where this Sentiment of *Aristotle* is clearly establish'd, what Appearance is there, that this Philosopher should have been ignorant of it? And why might he not have read the Writings of *Hippocrates*, as well as those of *Polybius*? One might infer from this, that no more belongs to *Hippocrates*, than that *De Natura Offium*. But it may be, *Aristotle* has in that Passage quoted *Polybius*, or even *Symonides* of Cyprus, or *Diogenes* of Apollonia, Physicians of small Reputation, in Comparison of *Hippocrates*, rather than *Hippocrates* himself, who is only mentioned in one Passage of all his Works [*Politicor. Lib. 7. Cap. 4.*]. It may be, I say, he has omitted quoting him, out of a Principle of Envy, or Ill-will; tho' he seems to speak advantageously of him in the Passage refer'd to. *Plato* has behav'd better, with regard to this ancient Physician, having, in several Passages, made very honourable Mention of him. It is also possible, that the Book we are talking of may not have been written by *Hippocrates*; the Title of it, at least, is not to be found in the List which *Erotian* has given of his Works. *Le Clerc*.

The Arteries are conical Channels, which convey the Blood from the Heart to all the Parts of the Body.

Each Artery is composed of three Coats, of which the first seems to be a Web of fine Blood-vessels and Nerves, for the nourishing of the Coats of the Artery. The second is made up of circular, or rather spiral Fibres, of which there are more or fewer Strata, according to the Bigness of the Artery. These Fibres have a strong Elasticity, by which they contract themselves with some Force, when the Power, by which they have been stretched out, ceases. The third and inmost Coat is a fine, dense, transparent Membrane, which keeps the Blood within its Channels, which otherwise, upon the Dilatation of the Artery, would easily separate the spiral Fibres from one another. As the Arteries grow smaller and smaller, so these Coats grow thinner and thinner, and the Coats of the Veins seem to be only a Continuation of the Coats of the capillary Arteries.

The Structure of the Arteries being thus premised, it will be easy to account for their Pulse. When the Left Ventricle of the Heart contracts, and throws its Blood into the great Artery, the Blood in the Artery is not only thrust forwards towards the Extremities, but the Channel of the Artery is likewise dilated; because Fluids, when they are pressed, press again to all hands,

and their Pressure is always perpendicular to the Sides of the containing Vessels; but the Coats of the Artery, by any small Impetus, may be distended; therefore, upon the Contraction of the Heart, the Blood from the Left Ventricle will not only press the Blood in the Artery forwards, but both together will distend the Sides of the Artery. When the Impetus of the Blood against the Sides of the Artery ceases, that is, when the Left Ventricle ceases to contract, then the spiral Fibres of the Artery, by their natural Elasticity, return again to their former State, and contract the Channel of the Artery till it is again dilated by the Systole of the Heart. This Diastole of the Artery is its Pulse, and the Time the spiral Fibres are returning to their natural State, is the Distance between two Pulses. This Pulse is in all the Arteries of the Body at the same time; for whilst the Blood is thrust out of the Heart into the Artery, the Artery being full, the Blood must move in all the Arteries at the same time; and because the Arteries are conical, and the Blood moves from the Basis of the Cone to the Apex, therefore the Blood must strike against the Sides of the Vessels, and consequently every Point of the Artery must be dilated at the same time that the Blood is thrown out of the Left Ventricle of the Heart; and as soon as the Elasticity of the spiral Fibres can overcome the Impetus of the Blood, the Arteries are again contracted. Thus there are two Causes, which operating alternately, keep the Blood in a continual Motion, viz. the Heart and Fibres of the Arteries: But because the one is stronger than the other, therefore, though the Blood runs continually, yet, when the Artery is open'd, it is seen to move *per saltum*. *Keil's Anatomy*.

Distribution of the ARTERIES, according to WINSLOW.

The Heart throws the Blood into two great Arteries; one of which is named *Aorta*, the other *Arteria Pulmonalis*.

The *Aorta* distributes the Blood to all the Parts of the Body, for the Nourishment of the Parts, and for the Secretion of different Fluids.

The *Arteria Pulmonalis* carries the venous Blood thro' all the capillary Vessels of the Lungs.

Both these great or general Arteries are subdivided into several Branches, and into a great Number of Ramifications. For an Account of the Pulmonary Artery, see PULMONES.

Of the AORTA.

The Basis of the Heart being very much inclined to the Right Side, and turned a little backward, the *Aorta*, *Tab. 5. Fig. 1.* goes out from it in a direct Course, nearly over-against the fourth Vertebra of the Back. Its Course is direct, with respect to the Heart; but, with respect to all the rest of the Body, it ascends obliquely from the Left to the Right-hand, and from before, backward.

Soon after this, it bends obliquely from the Right-hand to the Left, and from before, backward, reaching as high as the second Vertebra of the Back; from whence it runs down again, in the same Direction, forming an oblique Arch. The Middle of this Arch is almost opposite to the Right Side or Edge of the superior Portion of the Sternum, between the cartilaginous Extremities or sternal Articulations of the first two Ribs.

From thence the *Aorta* descends in a direct Course along the anterior Part of the Vertebrae, all the way to the Os Sacrum, lying a little towards the Left-hand, and there it terminates in two subordinate or collateral Trunks, call'd *Arteria Iliaca*, *Tab. 5. Fig. 53. 53.*

The *Aorta* is by Anatomists generally divided into the *Aorta Ascendens*, and the *Aorta Descendens*, tho' both are but one and the same Trunk. It is termed *Ascendens*, from where it leaves the Heart, to the Extremity of the great Curvature or Arch. The remaining Part of this Trunk, from the Arch to the Os Sacrum or Bifurcation, at 28. *Tab. 5.* is named *Descendens*.

The *Aorta descendens* is farther divided into the superior and inferior Portions; the first taking in all that lies above the Diaphragm; the other, all that lies between the Diaphragm and the Bifurcation.

The *Aorta ascendens* is principally distributed to Part of the Thorax, to the Head and upper Extremities. The superior Portion of the *Aorta descendens* furnishes the rest of the Thorax; the inferior Portion furnishes the Abdomen and lower Extremities.

The great Trunk of the *Aorta* thro' its whole Length sends off immediately several Branches, which are afterwards differently ramify'd; and these Arterial Branches may be look'd upon as so many Trunks, with respect to the other Ramifications, which again may be consider'd as small Trunks, with regard to the Ramifications that they send off.

The Branches which go out immediately from the Trunk of the *Aorta*, may be term'd Original or Capital Branches; and of these, some are large, and others very small.

The large capital Branches of the *Aorta* are these: Two *Arteria Subclaviae*; two *Carotides*; one *Celiaca*; one *Mesenterica Superior*; two *Renales*, formerly termed *Emulgentes*; one *Mesenterica Inferior*; and two *Iliaca*.

The small capital Branches are chiefly the *Arteria Coronaria Cordis*, *Bronchiales*, *Oesophagææ*, *Intercostales*, *Diaphragmatica Inferiores*, *Spermaticeæ*, *Lumbares*, and *Sacræ*.

These capital Branches or Arteries are for the most part disposed in Pairs; there being none in odd Numbers but the *Cæliaca*, the two *Mesentericæ*, some of the *Oesophagææ*, the *Bronchialis*, and sometimes the *Sacræ*.

The Ramifications of each capital Branch are in uneven Numbers, with respect to their particular Trunks; but with respect to the Ramifications of the like capital Trunks on the other Side, they are disposed in Pairs. Among the Branches there are in odd Numbers none but the *Arteria Sacra*, when it is single, and the *Oesophagææ*, the Ramifications of which are, however, sometimes found in Pairs.

Before I enter upon the Detail of each of these particular Arteries, many of which have proper Names, it will be convenient to give a short View of the Disposition and Distribution of the principal Arterial Branches, as a general Plan, to which all the Particularities of each Distribution may afterwards be referred; for I have found by Experience, that the common Method of describing the Course of all the Ramifications of these Vessels, without having first given a general Idea of the principal Branches, is very troublesome to Beginners.

The *Aorta* gives Rise to two small Arteries, called *Coronaria Cordis*, which go to the Heart and its Auricles; one of which is situated anteriorly, the other posteriorly, and sometimes they are three in Number. See *Tab. 5. Fig. 2. 2.*

From the upper Part of the Arch or Curvature, the *Aorta* sends out commonly three, sometimes four, large capital Branches, their Origins being very near each other. When there are four, the two Middle Branches are termed *Arteria Carotides*, *Tab. 5. Fig. 5. 5.* the other two *Subclaviae*, *Tab. 5. Fig. 4. 4.* and both are distinguish'd into Right and Left.

When there are but three Branches, which is ofteneft the Case, the first is a short Trunk, common to the Right Subclavian and Carotid; the second is the Left Subclavian, and the third the Left Carotid. Sometimes, tho' very rarely, these four Arteries unite in two Trunks.

The Origin of the Left Subclavian, terminates the *Aorta Ascendens*; but I have sometimes observed four Branches, the first three of which were those already mentioned, and the fourth a distinct Trunk of the Left vertebral Artery.

It must be observed, that these large Branches, which arise from the Curvature of the *Aorta*, are situated obliquely; the first, or that which is most on the Right-hand, lying more forward than the rest; and the last, which is most on the Left-hand, more backward. The first and second, or middle Branches, are generally in the middle of the Arch, and the third lower down. Sometimes the first alone is in the middle; all which Varieties depend on the Obliquity of the Arch.

The *Carotid Arteries* run up directly to the Head, each of them being first divided into two, one external, the other internal. The external Artery, *Tab. 5. Fig. 9, 10, 11, 12.* goes chiefly to the outer Parts of the Head, and *Dura Mater*, or first Covering of the Brain, to which it passes thro' a Foramen of the Cranium at B, B, and others. The internal enters the Cranium thro' the bony Canal of the Os Petrosum; and is distributed thro' the Brain by a great Number of Ramifications, *Tab. 5. Fig. 18. 18.*

The Subclavian Arteries separate laterally, and almost transversely, each toward that Side on which it lies, behind and under the Clavicular, from whence they have their Name. The Left seems to be shorter, and runs more obliquely, than the Right.

The Subclavian on each Side terminates at the upper Edge of the first Rib, between the lower Insertions of the first Scalenus Muscle; and there, as it goes out of the Thorax, takes the Name of *Arteria Axillaris*.

During this Course of the Subclavian Artery, taking in the common Trunk of the Right Subclavian, several Arteries arise from it, viz. the *Mammaria Interna*, *Mediastina*, *Pericardica*, *Diaphragmatica minor seu superior*, *Thymica*, and *Trachealis*.

The *Thymica* and *Trachealis* on each Side are in some Subjects only Branches of one small Trunk, which springs from the common Trunk of the Right Subclavian and Carotid.

They are generally small Arteries, which run sometimes separate, and sometimes partly separate, and partly joined.

The Subclavian sends off likewise the *Vertebrales*, *Cervicales*, and sometimes several of the upper *Intercostales*.

The *Axillary Artery*, which is only a Continuation of the Subclavian, from where it goes out of the Thorax to the Axilla, detaches chiefly the *Mammaria externa*, or *Thoracica superior*, *Thoracica inferior*, *Scapulares externa*, *Scapularis interna*, *Humeralis*, or *Muscularis*, &c. Afterwards it is continued by different Ramifications, and under different Names, over the whole Arm, all the Way to the Ends of the Fingers.

The superior Portion of the *Aorta descendens* gives off the *Arteria Bronchiales*, which arise sometimes by a small common Trunk.

Trunk, sometimes separate, and sometimes do not come immediately from the *Aorta*. It next sends off the *Oesophagæa*, which may be looked upon as *Mediastina Posteriores*; and then the *Intercostales* from its posterior Part, which in some Subjects come all from this Portion of the *Aorta*; in others only the lowest eight or nine.

The small anterior *Arteries* here mentioned are generally, at their Origins, single, and in uneven Numbers; but they divide soon after toward the Right and Left.

The inferior Portion of the descending *Aorta*, as it passes thro' the Diaphragm, gives off the *Diaphragmaticæ inferiores*, or *Phrenicæ*; which, however, do not always come immediately from the *Aorta*: Afterwards it sends off several Branches anteriorly, posteriorly, and laterally.

The anterior Branches are the *Cæliaca*, which supplies the Stomach, Liver, Spleen, Pancreas, &c. the *Mesenterica superior*, which goes chiefly to the Mesentery, to the small Intestines, and to that Part of the great Intestines, which lies on the Right Side of the Abdomen; the *Mesenterica inferior*, which goes to the great Intestines on the Left Side, and produces the *Hæmorrhoidalis interna*; and, lastly, the Right and Left *Arteria Spermaticeæ*, or Spermatic Arteries.

The posterior Branches are the *Arteria Lumbares*, of which there are several Pairs, and the *Sacra*, which do not always come from the Trunk of the *Aorta*.

The lateral Branches are the *Capulares* and *Adiposæ*, the Origin of which often varies; the *Renales*, formerly termed *Emulgentes*; and the *Iliacæ*, which terminate the *Aorta* by the Bifurcation already mentioned.

The *Iliac Artery* on each Side is commonly divided into the external or anterior, and internal or posterior.

The internal *Iliaca* is likewise named *Arteria Hypogastrica*; and its Ramifications are distributed to the Viscera contained in the Pelvis, and to the neighbouring Parts, both internal and external.

The *Iliaca externa*, which is the true Continuation of the *Iliac Trunk*, and alone deserves that Name, goes on to the Inguen, and then out of the Abdomen under the Ligamentum Fallopii, having first detached the *Epigastrica*, which goes to the Musculi Abdominis Recti: Having quitted the Abdomen, it commences *Arteria Cruralis*, which runs down upon the Thigh, and is distributed by many Branches and Ramifications to all the lower Extremity.

I shall now go on to examine particularly all the capital or original Branches of the *Aorta*, from their Origin to the Entry of them, and of their Ramifications, into all the Parts of the Body, and all the different Viscera and Organs.

The CARDIAC or CORONARY ARTERIES of the HEART.

The *Cardiac* or *Coronary Arteries* of the Heart, *Tab. 5. Fig. 2. 2.* arise from the *Aorta* immediately on its leaving the Heart: They are two in Number, and, according to the natural Situation of the Heart, one is rather superior than anterior; the other rather inferior than posterior.

They go out near the two Sides of the pulmonary *Arteries*, which having first surrounded, they afterward run upon the Basis of the Heart, in form of a kind of Crown or Garland, from whence they are called *Coronariæ*, and then pursue the superficial Traces of the Union of the two Ventricles, from the Basis of the Heart to the Apex.

They send communicating Branches to each other, which are afterward lost in the Substance of the Heart.

We sometimes meet with a third *Coronary Artery*, which arises from the *Aorta* more backward, and is spent on the posterior or lower Side of the Heart.

The CAROTID ARTERIES.

The *Carotid Arteries*, *Tab. 5. Fig. 5. 5.* are commonly demonstrated after the Subclavian; but I choose to describe them first, that I may afterwards be able to pursue the *Arteries* of the Thorax arising partly from the *Subclaviæ*, and partly from the *Aorta descendens*, without Interruption.

These *Arteries* are two in Number, one called the Right *Carotid*, the other the Left. They arise near each other, from the Curvature or Arch of the *Aorta*; the Left immediately, the Right most commonly from the Trunk of the *Subclavia* on the same Side, as has been already observed.

They run upon each Side of the *Trachea Arteria*, between it and the internal Jugular Vein, as high as the Larynx, without any Ramification. During this Course, therefore, they may be named *Carotid Trunks*, or general, common, and original *Carotids*. Each of these Trunks is afterwards ramified in the following manner.

The Trunk, having reached as high as the Larynx, is divided into two large Branches, or particular *Carotids*, one named *external*, the other *internal*, because the first goes chiefly to the external Parts of the Head; the second enters the Cranium, and is distributed to the Brain.

The external *Carotid* is anterior, the internal posterior; and the external is even situated more inward, and nearer the La-

rynix, than the other; but the common Names may still be retained, as being taken not from their Situation, but from their Distribution.

The EXTERNAL CAROTID ARTERIES.

The external *Carotid* is the smallest, and yet appears by its Direction to be a Continuation of the common Trunk. It runs insensibly outward, between the external Angle of the lower Jaw, and the parotid Gland, which it supplies as it passes. Afterwards it ascends on the Forefide of the Ear, and ends in the Temples.

In this Course it sends off several Branches, which may well enough be divided into anterior or internal, and posterior or external; and the principal Branches of each kind are these.

The first anterior or internal Branch goes out from the very Origin of the *Carotid* on the Inside; and having presently afterwards taken a little Turn, and sent off Branches to the Jugular Glands near it, to the Fat and Skin, it runs transversely, and is distributed to the Glandulæ Thyroidæ, and to the Muscles and other Parts of the Larynx; for which Reason I name it *Laryngæa* or *Gutturæ superior*. It likewise sends some Branches to the Pharynx and Muscles of the Os Hyoides.

The second anterior Branch passes over the nearest Cornu of the Os Hyoides to the Muscles of that Bone, and of the Tongue, and to the Glandulæ Sublinguales; afterwards passing before the Cornu of the Os Hyoides, it loses itself in the Tongue, from whence it has been called *Arteria Sublingualis*; and it is the same *Artery* which others have named *Ranina*.

The third Branch, or *Arteria maxillaris inferior*, goes to the Maxillary Gland, to the Styloide and Mastoide Muscles, to the Parotid and Sublingual Glands, to the Muscles of the Pharynx, and to the small Flexors of the Head.

The fourth Branch, which I name *Arteria maxillaris externa*, passes anteriorly on the Masseter Muscle, and middle of the lower Jaw near the Chin: Afterwards it runs under the Musculus Triangularis Labiorum, which it supplies as well as the Buccinator, and the Quadratus Mentis.

It sends off a particular Branch, very much contorted, which divides at the angular Commissure of the Lips, and, running in the same manner along the superior and inferior Portions of the Musculus Orbicularis, it communicates on both Sides with its Fellow, and thereby forms a kind of *Arteria Coronaria Labiorum*.

Afterwards it ascends towards the Nares, and is distributed to the Muscles, Cartilages, and other Parts of the Nose, sending down some Twigs, which communicate with the *Coronary Artery* of the Lips. Lastly, it reaches the great Angle of the Eye, and is ramify'd and lost on the Musculus Orbicularis Palpebrarum, Superciliaris, and Frontalis. Thro' all this Course, it is named *Arteria Angularis*.

The fifth Branch arises over-against the Condyle of the lower Jaw, and, as it is very considerable, I call it *Maxillaris Interna*. It passes behind the Condyle, and, having given off a Twig among the Musculi Pterygoidæi, it is divided into three principal Branches.

The first Branch goes thro' the inferior Orbital, or Sphenomaxillary Fissure, to the Orbit, after having supply'd the Musculi Peristaphylini, and the glandulous Membrane of the posterior Nares, thro' the Foramen Spheno-palatinum. I name this Branch *Spheno-maxillaris*.

It is distributed inferiorly and laterally to the Parts contain'd in the Orbit, and detaches a small subaltern Branch through the Extremity of the superior Orbital or Sphenoidal Fissure, which enters the Cranium, and is spent upon the Dura Mater, communicating there with the other *Artery* of the Dura Mater, which enters by the Foramen Spinale of the Sphenoidal Bone.

It sends off likewise another subaltern Branch, which passes thro' the posterior Opening of the Orbital Canal, and, having furnished the Maxillary Sinus, and the Teeth, goes out by the inferior Orbital Hole, and on the Cheek communicates with the *Angular Artery*.

The second of the three Branches runs thro' the Canal of the lower Jaw, and, being distributed to the Alveoli and Teeth, goes out at the Hole near the Chin, and loses itself in the neighbouring Muscles, communicating with the Rami of the *Arteria Maxillaris externa*.

The third Branch of the *Maxillaris interna* runs up between the internal and external *Carotids*, passes thro' the Foramen Spinale of the Sphenoidal Bone, and is distributed to the Dura Mater by several Ramifications, which run forward, upward, and backward; the uppermost communicating with those on the other Side, above the longitudinal Sinus of the Dura Mater.

This *Artery* of the Dura Mater, which may be termed *Spheno-spinalis*, to distinguish it from those that go to the same Part by another Course, arises sometimes from the Trunk of the

the external *Carotid*, behind the Origin of the *Laryngæa* or *Gutturæ* superior, and sometimes from the first Branch of the *Maxillaris interna*, just before it enters the *Spheno-maxillary* Fissure.

The sixth anterior or internal Branch, which is very small, is spent on the *Musculus Masseter*.

The first external or posterior Branch is named *Arteria Occipitalis*, *Tab. 5. Fig. 11. 11.* It passes obliquely before the internal *Jugular Vein*; and, having given Twigs to the *Musculus Stylo-hyoidæus*, *Stylo-glossus*, and *Digastricus*, it runs between the *Styloide* and *Mastoide* Apophyses, along the *Mastoide* Groove, and goes to the *Muscles* and *Integuments* which cover the *Os Occipitis*, turning several times, in an undulating manner, as it ascends backward.

It communicates, by a descending Branch, with the *Vertebral* and *Cervical Arteries*, as has been already said, near the Top of the Head: It communicates likewise with the posterior Branches of the *Temporal Artery*; and it sends a Branch to the *Foramen Mastoideum*.

The second external Branch spreads itself on the outward Ear, by a great many small Twigs on each Side; several of which run inward, and furnish the *Cartilages*, *Meatus Auditorius*, *Skin* of the *Tympanum*, and *Internal Ear*.

The Trunk of the external *Carotid* ascends afterward above the *Zygoma*, passing between the Angle of the lower Jaw and *Parotid Gland*, and forms the *Temporal Artery*, which divides into an anterior, middle, and posterior Branch.

The anterior Branch of the *Temporal Artery* goes to the *Musculus Frontalis*, communicates with the *Arteria Angularis*, and sometimes gives off a very small *Artery*, which pierces the internal Apophysis of the *Os Malæ*, all the way to the Orbit. The middle Branch goes partly to the *Musculus Frontalis*, partly to the *Occipitalis*; the posterior Branch goes to the *Occiput*, and communicates with the *Arteria Occipitalis*. All these Branches likewise furnish the *Integuments*. These Branches of the external *Carotids* are, in some measure, express'd *Tab. 5. Fig. 8, 9, 10, 11, 12.*

The internal CAROTID ARTERY.

The *internal Carotid Artery*, leaving the general Trunk, is at first a little incurvated, appearing as if either it were the only Branch of that Trunk, or a Branch of the Trunk of the external *Carotid*. Sometimes the Curvature is turn'd a little outward, and then more or less inward, passing behind the neighbouring external *Carotid*, *Tab. 5. Fig. 13. 13.*

It is situated a little more backward than the *Carotis externa*, and generally runs up, without any Ramification, as high as the lower Orifice of the great Canal of the Apophysis *Petrosa* of the *Os Temporis*. It enters this Orifice, directly from below, upward, and afterward makes an Angle according to the Direction of the Canal, the rest of which it passes horizontally, being cover'd by a Production of the *Dura Mater*.

At the End of this Canal it is again incurvated from below upward, and enters the *Cranium* through a Notch of the *Sphenoidal Bone*. Then it bends, from behind, forwards, and makes a third Angle on the Side of the *Sella Sphenoidalis*, or *Turcica*; and again, a fourth under the *Clinoid* Apophysis of that *Sella*. See *Tab. 5. Fig. 14. 14.*

As it leaves the bony Canal to enter the *Cranium*, it sends off a Branch thro' the *Sphenoidal Fissure* to the Orbit and Eye; and, soon afterward, another thro' the *Foramen Opticum*, by which it communicates with the external *Carotid*, *Tab. 5. D. D.*

Afterwards the *internal Carotid* runs under the Basis of the Brain to the Side of the *Infundibulum*, where it is at a small Distance from the *internal Carotid* of the other Side; and there it commonly divides into two principal Branches, one anterior, and one posterior.

The anterior Branch runs forward under the Brain, first separating from that on the other Side; then coming nearer again, it unites with it by an *Anastomosis*, or Communication in the Interstice between the *Olfactory Nerves*. Afterwards having sent off some small *Arteries*, which accompany these Nerves, it leaves its Fellow, and divides into two or three Branches.

The first of these Branches goes to the anterior Lobe of the Brain; the second, which is sometimes double, is inverted on the *Corpus Callosum*, to which it gives some Ramifications; as also to the Falc of the *Dura Mater*, and middle Lobe of the Brain. The third, which, in some Subjects, is a distinct Branch, in others, only a Division of the second, goes to the posterior Lobe of the Brain. This might be look'd upon as a third principal Branch, lying between the other two.

The posterior Branch communicates, first of all, with the *Vertebral Artery* of the same Side; and then divides into several Branches, which run between the superficial Circumvolutions of the Brain, and are ramified in many different Directions, on and between these Circumvolutions, all the way to the Bottom of the *Sulci*.

All these Ramifications are cover'd by the *Pia Mater*, in the

Duplicature of which they are distributed, and form capillary reticular Textures in great Numbers; and afterwards they are lost in the inner Substance of the Brain. The anterior and middle Branches produce the same kind of Ramifications; and the anterior, in particular, sends a Twig to the *Corpus Callosum*. The Ramifications of the *internal Carotids* are express'd betwixt the two Figures 18. 18. *Tab. 5.*

The SUBCLAVIAN ARTERY.

The *Subclavian Arteries* (*Tab. 5. 4. 4.*) are named from their Situation near the *Claviculæ*, in the transverse Direction of which they run. They are two in Number, one Right, the other Left; and they arise from the Arch of the *Aorta*, on each Side of the *Left Carotid*, which commonly lies in the Middle between them; but when both *Carotids* go out separately, they both lie between the *Subclavia*. These *Arteries* terminate, or rather change their Name, above the Middle of the two first Ribs, between the anterior Insertions of the *Musculi Scalenii*.

The Right *Subclavian* is larger at the Beginning than the Left, when it produces the *Right Carotid*: Its Origin is likewise more anterior and higher, because of the Obliquity of the Arch of the *Aorta*; for which Reason also the Left is shorter than the Right, and runs more obliquely. Both of them are distributed much in the same manner; and therefore the Description of one may likewise be applied to the other.

The Right *Subclavian*, the longest of the two, gives off, first of all, small *Arteries* to the *Mediastinum*, *Thymus*, *Pericardium*, *Aspera Arteria*, &c. which are named *Mediastina*, *Thymica*, *Pericardica*, and *Tracheales*. These small *Arteries* sometimes go out from the *Subclavian* itself, either separately, or by small common Trunks: Sometimes they are Branches of the *Mammæ interna*, especially the *Mediastina*.

Afterward this Right *Subclavian*, at about a Finger's Breadth from its Origin, often produces the common *Carotid* of the same Side; and, at a small Finger's Breadth from the *Carotid*, it gives off commonly three considerable Branches, viz. the *Mammæ interna*, *Cervicalis*, and *Vertebralis*; and sometimes an *Intercostal Artery*, which goes to the first Ribs, and is call'd *Intercostalis superior*.

The ARTERY of the THYMUS.

The *Arteria Thymica* communicates with the *Mammæ interna*, and sometimes arises from the anterior middle Part of the common Trunk of the *Subclavian* and *Carotid*. The *Thymus* receives likewise some Branches from the *Mammæ interna*, and *Intercostalis superior*. The same Observation may be applied to the *Mediastina* and *Pericardica*.

The ARTERIES of the PERICARDIUM.

The *Pericardica* arises much in the same manner with the *Thymica*; and runs down upon the *Pericardium* all the way to the *Diaphragm*, to which it sends some small Ramifications.

The ARTERIES of the MEDIASTINUM.

The *Mediastina* arises sometimes immediately after the *Thymica*, and is distributed principally to the *Mediastinum*.

The TRACHEAL ARTERY.

The *Trachealis*, which may likewise be named *Gutturæ inferior*, runs up from the *Subclavia*, in a winding Course, along the *Aspera Arteria*, to the *Glandulæ Thyroidææ*, and *Larynx*, detaching small *Arteries* to both Sides, one of which runs to the upper Part of the *Scapula*.

The internal MAMMARY ARTERY.

The *internal Mammary Artery* comes from the anterior and lower Side of the *Subclavia*, near the Middle of the *Clavicula*; and runs down, for about one Finger's Breadth, behind the *Cartilages* of the true Ribs, an Inch distant from the *Sternum*.

In its Passage it sends Branches to the *Thymus*, *Mediastinum*, *Pericardium*, *Pleura*, and *Intercostal Muscles*. It likewise detaches other Branches thro' these *Muscles*, and between the *Cartilages* of the Ribs, to the *Pectoralis Major*, and other neighbouring muscular Portions, to the *Mammæ*, *Membrana Adiposa*, and *Skin*.

Several of these Branches communicate by *Anastomoses* with the *Mammæ externa*, and other *Arteries* of the *Thorax*, especially in the Substance of the *Pectoralis Major*, and likewise with the *Intercostals*. Afterwards it goes out of the *Thorax* on one Side of the *Appendix Eniformis*, and is lost in the *Musculus Abdominis Rectus*, a little below its upper Part; communicating at this Place, by several small Ramifications, with the *Arteria Epigastrica*; and, in its Course, it gives Branches to the *Peritonæum*, and to the anterior Parts of the oblique and transverse *Muscles* of the *Abdomen*.

The CERVICAL ARTERY.

The *Cervical Artery* arises from the upper Side of the *Subclavian*, and is presently afterwards divided into two, which come out

out sometimes separately, sometimes by a small common Trunk. The largest of these two Arteries is anterior, the other posterior. See Tab. 5. Fig. 19.

The anterior *Cervicalis*, running behind the Carotid of the same Side, is distributed to the Musculus Coraco-hyoidæus; Mastoidæus; Cutaneus, Sterno-hyoidæus, and Sterno-thyroidæus; to the Jugular Glands, the *Aspera Arteria*, the Muscles of the Pharynx, Bronchia, Œsophagus, and to the anterior Muscles which move the Neck and Head. This Artery has been observed to send out the *Intercostalis superior*.

The posterior *Cervicalis* arises sometimes a little after the *Vertebralis*, and sometimes from that Artery. It passes under the transverse Apophysis of the last Vertebra of the Neck; and sometimes thro' a particular Hole in that Apophysis; and from thence runs up backward, in a winding Course, on the Vertebral Muscles of the Neck; and then returns in the same manner.

It communicates with a descending Branch of the *Occipital Artery*, and with another of the *Vertebral Artery*, above the second Vertebra. It is distributed to the Musculi Scalenii, Angularis Scapulæ, and Trapezius, and to the Jugular Glands and Integuments.

The VERTEBRAL ARTERY.

The *Vertebral Artery* goes out from the posterior and upper Side of the *Subclavian*, almost opposite to the *Mammaria interna* and *Cervicalis*. It runs up thro' all the Holes in the transverse Apophyses of the Vertebrae of the Neck; and in its Passage sends off little Twigs thro' the lateral Notches of these Vertebrae, to the Medulla Spinalis, and its Coverings. It also gives Arteries to the Vertebral Muscles, and to other Muscles near them. See Tab. 5. Fig. 6. 6.

As it passes thro' the transverse Hole of the second Vertebra, it is generally incurvated, to accommodate itself to the particular Obliquity of this Foramen. And between this Hole and that in the first Vertebra, it takes another larger Turn in a contrary Direction to the former: Having pass'd the transverse Hole of the first Vertebra, it is considerably incurvated a third time, from before, backwards, as it goes thro' the superior and posterior Notch in this Vertebra. See Tab. 5. Fig. 15.

At this third Curvature it sends off a small Branch, which is ramified on the outer and posterior Parts of the Occiput, and communicates with the *Cervical* and *Occipital Arteries*. Having afterwards reach'd the great Foramen of the Os Occipitis, it enters the Cranium, and pierces the Dura Mater; and on these Accounts it may be named *Arteria Occipitalis posterior*, to distinguish it from the other, which is lateral.

As soon as it enters the Cranium, it sends several small Ramifications to the back Part of the Medulla Oblongata, and to the Corpora Olivaria, and Pyramidalia; which are likewise spread on the back Sides of the fourth Ventricle of the Brain, and form the Plexus Choroides of the Cerebellum.

Afterwards it advances on the Apophysis Basilaris of the Os Occipitis, inclining by small Degrees toward the *Vertebral Artery* of the other Side, all the Way to the Extremity of that Apophysis where they both join in one common Trunk, which may be named *Arteria Basilaris*.

The ARTERIA BASILARIS.

The *Arteria Basilaris* runs forward under the great transverse Protuberance of the Medulla Oblongata, to which it gives Ramifications, as well as to the neighbouring Parts of the Medulla. Sometimes this Artery divides again, near the Extremity of the Apophysis Basilaris, into two lateral Branches, which communicate with the posterior Branches of the two internal Carotides, and are lost in the posterior Lobe of the Brain.

The SPINAL ARTERIES.

The *Spinal Arteries* are two in Number, one anterior, and one posterior, both produced by both the *Vertebrales*; each of which, as soon as it enters the Cranium, sends out a small Branch, by the Union of which the posterior *Spinalis* is form'd. Afterwards the *Vertebrales* advancing on the Apophysis Basilaris, or Production of the Occipital Bone, detach backward two other small Branches, which likewise meet, and by their Union form the *Spinalis Anterior*. These *Spinal Arteries* run down on the fore and back Sides of the Medulla Spinalis, and, by small transverse Ramifications, communicate with those which the *Intercostal* and *Lumbar Arteries* send to the same Part.

The internal AUDITORY ARTERY.

The *internal Auditory Artery* goes off from each Side of the *Arteria Basilaris* to the Organ of Hearing, accompanying the Auditory Nerve; having first furnish'd several small Twigs to the Membrana Arachnoides.

The posterior ARTERY of the MENINX, or DURA MATER.

The posterior *Meningea* arises from the same Trunk with the *Auditoria Interna*, and goes to the back Part of the Dura

Mater, on the Occipital and Temporal Bones; and likewise supplies the neighbouring Lobes of the Brain.

The superior INTERCOSTAL ARTERY.

When the *superior Intercostal Artery* does not go out from the Trunk of the *Aorta Descendens*, it commonly arises from the lower Side of the *Subclavian*, and runs down on the Inside of the two, three, or four uppermost true Ribs; near their Heads; and sends off, under each Rib, a Branch which runs along the lower Edge, and supplies the *Intercostal Muscles*, and neighbouring Parts of the Pleura.

These Branches, or particular *Intercostal Arteries*, communicate with each other, at different Distances, by small Branches, which run upward and downward from one to the other, on the *Intercostal Muscles*.

They likewise give Branches to the Musculi Sterno-hyoidæi; Subclavius, Vertebrales, and Bodies of the Vertebrae; and also to the Pectoralis Major and Minor, piercing the *Intercostal Muscles*; and lastly, they send Branches thro' the Notches of the first four Vertebrae to the Medulla Spinalis, and its Coverings.

Sometimes the superior common *Intercostal Artery* comes from the *Cervicalis*, and not immediately from the *Subclavia*. Sometimes it arises from the *Aorta Descendens*, either by small separate Arteries, or by a common Trunk, which divides as it runs obliquely up, upon the Ribs. Lastly, it sometimes arises from the nearest *Bronchialis*, or from several *Bronchiales* together.

The ARTERIAL DUCT converted into a LIGAMENT.

The *Ductus Arteriosus*, which is found only in the Fœtus, and in very young Children, arises from the *Aorta Descendens*, immediately below the Left *Subclavian Artery*. In Adults, this Duct is shrunk up and closed, and appears only like a short Ligament adhering by one End to the *Aorta*, and by the other to the *Pulmonary Artery*; so that, in reality, it deserves no other Name than that of *Ligamentum Arteriosum*. This is refer'd to, but not well express'd, at Fig. 3. Tab. 5.

The BRONCHIAL ARTERIES.

The *Bronchial Arteries* go sometimes from the fore Side of the superior descending *Aorta*, sometimes from the first *Intercostal*, Tab. 5. Fig. 29. and sometimes from the *Arteria Œsophagæa*. Sometimes they arise separately from each Side, to go to each Lobe of the Lungs; and sometimes by a small common Trunk, which afterwards separates towards the Right and Left Hand, at the Bifurcation of the *Aspera Arteria*, and accompanies the Ramifications of the Bronchia.

The *Bronchial Artery*, on the Left Side, often comes from the *Aorta*, while the other arises from the *superior Intercostal* on the same Side; which Variety is owing to the Situation of the *Aorta*. Sometimes there is another *Bronchial Artery*, which goes out from the *Aorta* posteriorly, near the *superior Intercostal*, above the *Bronchialis anterior*.

In the Year 1719. I observ'd a very plain Communication of the Branches of the Left Pulmonary Vein with the Branches of an *Arteria Œsophagæa*, which came from the first Left *Intercostal*, together with a *Bronchial Artery* of the same Side.

The *Bronchialis* gives a small Branch to the neighbouring Auricle of the Heart, which communicates with the *Arteria Coronaria*.

In the Year 1719. or 1720. I discover'd a Communication between the Left *Bronchial Artery* and the *Vena Azygos*; and in the Month of August, 1721. I saw a Branch of this *Bronchial Artery* join'd by an Anastomosis to the Body of the *Azygos*.

The ARTERIES of the ŒSOPHAGUS.

The *Œsophagæa* are generally two or three in Number, sometimes but one. They arise anteriorly from the *Aorta Descendens*, and are distributed to the *Œsophagus*. Sometimes the uppermost *Œsophagæa* produces a *Bronchial Artery*.

The inferior INTERCOSTAL ARTERIES.

The *inferior Intercostals*, Tab. 5. Fig. 31. 31. are commonly seven or eight on each Side, and sometimes ten, when the superior *Intercostals* arise likewise from the *Aorta Descendens*; in which Case these run obliquely upward, as has been already said.

They arise along the back Side of the descending *Aorta*, in Pairs, all the Way to the Diaphragm, and run transversely toward each Side, on the Bodies of the Vertebrae. Those on the Right Side pass behind the *Vena Azygos*; and afterwards they all run to the *Intercostal Muscles*, along the lower Edge of the Ribs, all the Way to the Sternum, or near it.

They send Branches to the Pleura, to the Vertebral Muscles, to those Muscles which lie on the Outfides of the Ribs, and to the upper Portions of the Muscles of the Abdomen; and they communicate with the *Arteria Epigastrica* and *Lumbares*.

Sometimes instead of going out from the *Aorta* in Pairs, they arise by small common Trunks, which afterwards divide, and send an *Artery* to each neighbouring Rib.

Before they take their Course along the Ribs; each of them detaches one Branch between the transverse Apophyses on both Sides, to the Vertebral Muscles, and another which enters the great Canal of the Spina Dorsii. Each of these latter Branches divides at least into two small *Arteries*, one of which runs transversely on the anterior Side of the Canal, the other on the posterior Side: Both of them communicate with the like *Arteries* from the other Side of the Spine, in such a manner, as to form a kind of arterial Rings; which likewise communicate with each other by other small Ramifications. The same is to be observed in the *Arteria Lumbares*.

Afterwards each *Intercostal Artery*, having reach'd the Middle of the Rib, or a little more, divides into two principal Branches, one internal, the other external. Soon after this Division, the *Arteries* that run upon the false Ribs, separate a little from them, being gradually bent downward one after another, and are spread upon the abdominal Muscles. They are likewise distributed to other neighbouring Muscles, and particularly to those of the Diaphragm, almost in the same manner with the *Arteria Phrenica*. They also communicate with the *Lumbares*, and sometimes with Branches of the *Hypogastrica*.

The AXILLARY ARTERIES.

The *Subclavian Artery*, having left the Thorax immediately above the first Rib, in the Interstice left between the Portions of the Scalenus, there receives the Name of *Axillaris*, because it passes under the *Axilla*.

In this Course it gives off, from its Inside, a small Branch to the Inside of the first Rib, and afterwards four or five principal Branches; the *Thoracica Superior*, or *Mammaria Externa*; *Tab. 5. Fig. 21. 21. Thoracica Inferior*, *Muscularis*, or *Scapularis Externa*, *Scapularis Interna*, and *Humeralis*.

The SUPERIOR THORACIC ARTERY.

The *Superior Thoracica*, or *External Mammary Artery*, *Tab. 5. Fig. 21. 21.* runs down in a winding Course on the lateral Parts of the Thorax, and crosses the Ribs. It gives Branches to the two Pectoral Muscles, to the Mamma, *Musculus Subclavius*, *Serratus Major*, *Latissimus Dorsii*, and to the upper Portions of the *Coraco-Brachialis*, and *Biceps*.

These Branches are sometimes separate for some Space; and one of them particularly runs down between the *Deltoides* and *Pectoralis Major*, together with the *Vena Cephalica*, to which it adheres very closely, the Extremity of it piercing the Coat of that Vein, as if there were an Anastomosis between them. Another sometimes runs between the *Musculus Brachizus*, and *Anconæus Internus*, which communicates with a Branch of the *Radial Artery*.

The INFERIOR THORACIC ARTERY.

The *Inferior Thoracic Artery* runs along the Inferior Costa of the Scapula, to the *Musculus Subscapularis*, *Teres Major* and *Minor*, *Infra Spinatus*, *Latissimus Dorsii*, *Serratus Major*, and the neighbouring *Intercostal Muscles*, communicating with the *Arteria Scapulares*.

The SCAPULARY ARTERIES.

The *External Scapulary Artery* passes through the Notch in the Superior Costa of the Scapula, to the *Musculus Supra Spinatus*, and *Infra Spinatus*, *Teres Major* and *Minor*, and to the Articulation of the Scapula with the *Os Humeri*.

The *Internal Scapularis* arises from the *Axillary Artery* near the *Axilla*, and runs backward, to be distributed to the *Subscapularis*, giving Branches to the *Serratus Major*, to the *Axillary Glands*, and to the *Teres Major*, upon which it is ramified in different manners. It likewise sends Branches to the *Infra Spinatus*, and upper Portion of the *Anconæi*.

The HUMERAL ARTERY.

The *Humeral Artery* arises from the Lower and Fore-side of the *Axillaris*, and runs backward between the Head of the *Os Humeri* and *Teres Major*, surrounding the Articulation, till it reaches the posterior Part of the *Deltoides*, to which it is distributed.

During this Course, it gives several Branches to the superior Portions of the *Anconæi*, to the Capsular Ligament of the Joint of the Shoulder, and to the *Os Humeri* itself, through several Holes immediately below the great Tuberosity of the Head of that Bone. It likewise communicates with the *Scapulary Artery*.

Opposite to the Origin of this *Humeral Artery*, the *Axillaris* sends off another small Branch, which runs in a contrary Direction between the Head of the *Os Humeri*, and the common Upper-part of the *Biceps* and *Coraco-Brachialis*; and having given Branches to the Vagina and Channel of the *Biceps*, and to the *Perioosteum*, afterwards joins the principal *Humeralis*.

The BRACHIAL ARTERY. See *Tab. 5. Fig. 23, 24, 25, 26, 27.*

The *Axillary Artery*, having given off these Branches, passes immediately behind the Tendon of the *Pectoralis Major*, where it changes its former Name for that of *Arteria Brachialis*. It runs down on the Inside of the Arm over the *Musculus Coraco-Brachialis*, and *Anconæus Internus*, and along the inner Edge of the *Biceps*, behind the *Vena Basilica*, giving small Branches on both Sides to the neighbouring Muscles, to the *Perioosteum*, and to the Bone.

Between the *Axilla* and Middle of the Arm, it is covered only by the Skin and Fat; but afterwards it is hid under the *Biceps*, and runs obliquely forward as it descends, being at some Distance from the internal Condyle; but it does not reach the Middle of the Fold of the Arm.

Between the *Axilla* and this Place, it sends off many Branches to the *Infra Spinatus*, *Teres Major* and *Minor*, *Subscapularis*, *Latissimus Dorsii*, *Serratus Major*, and other neighbouring Muscles, to the common Integuments, and even to the Nerves. Below the Fold of the Arm, it divides into two principal Branches, one called *Arteria Cubitalis*, the other *Radialis*.

From its upper and inner Part, it sends off a particular Branch, which runs obliquely downward and backward over the *Anconæi*, and then turns forward again near the external Condyle, where it communicates with a Branch of the *Arteria Radialis*.

Immediately below the Insertion of the *Teres Major*, it gives off another Branch, which runs from within outwards, and from behind forward, round the *Os Humeri*, and descends obliquely forward between the *Musculus Brachizus*, and *Anconæus Externus*, to both which it is distributed in its Passage. Having afterwards reached the external Condyle, it unites with the Branch last-mentioned, and likewise communicates with a Branch of the *Arteries* of the Fore-arm, so that there is here a triple Anastomosis.

About the Breadth of a Finger below this second Branch, the *Brachial Artery* sends off a third, which runs down toward the internal Condyle, and communicates with other Branches of the *Arteries* of the Fore-arm, as we shall see hereafter.

About the Middle of the Arm, or a little lower, much about the Place where the *Brachial Artery* begins to be covered by the *Biceps*, it sends off a Branch, which is distributed to the *Perioosteum*, and penetrates the Bone, between the *Musculus Brachizus* and *Anconæus Internus*.

About an Inch lower, it gives off another Branch, which, having furnished Ramifications to the *Anconæus Internus*, runs over the inner Condyle, and likewise communicates with Branches of the *Arteries* of the Fore-arm.

Having got below the Middle of the Arm, the *Brachial Artery* detaches another Branch, which runs behind the inner Condyle in Company with a considerable Nerve; and, having passed over the Muscles inserted in this Condyle, it communicates with that Branch of the *Cubital Artery*, which encompasses the Fold of the Arm.

A little lower, it sometimes sends out another Branch, which passes on the Fore-side of the inner Condyle, and then communicates with a Branch which runs up from the *Cubital Artery*. These three communicating Branches are termed *Collateral Arteries*.

The common Trunk of the *Brachial Artery*, having reached the Fold of the Arm, runs together with a Vein and a Nerve immediately under the Aponeurosis of the *Biceps*, and passes under the *Vena Mediana*, detaching Branches on each Side to the neighbouring Muscles.

About a large Finger's Breadth beyond the Fold of the Arm, this *Artery* divides into two principal Branches, one inner or posterior, named *Cubitalis*; the other outer or anterior, named *Radialis*, as has been already said.

From this Bifurcation the *Brachial Artery* sends Branches on each Side, to the *Supinator Longus*, *Pronator Teres*, *Fat* and *Skin*. It sometimes, though very rarely, happens, that this *Artery* is divided from its Origin into two large Branches, which run down on the Arm, and afterwards on the Fore-arm, where they have the Names of *Cubitalis* and *Radialis*.

The CUBITAL ARTERY.

The *Cubital Artery* sinks in between the *Ulna*, and the upper Parts of the *Pronator Teres*, *Perforatus*, *Ulnaris Gracilis*, and *Radialis Internus*; then leaving the Bone, it runs down between the *Perforatus* and *Ulnaris Internus* all the way to the *Carpus*, and great transverse Ligaments. In this Course it winds and turns several Ways, and sends out several Branches.

The first is a small *Artery* which runs inward to the inner Condyle, and then turns upward like a kind of Recurrent, to communicate by several Branches with the *Collateral Arteries* of the Arm already mentioned, and particularly with the third. A little lower down, another small Branch goes off, which, having run upward a little way, and almost surrounded the Articulation, communicates with the second *Collateral Artery* of the Arm, between the *Olecranon* and inner Condyle.

After-

Afterwards the *Cubital Artery*, having, in its Course between the Heads of the Ulna and Radius, reached the Interosseous Ligament, sends off two principal Branches, one internal, the other external, which I call the *Interosseous Arteries* of the Fore-arm.

The *External Artery* pierces the Ligament about three Fingers Breadth below the Articulation; and presently afterward gives off a Branch, which runs up, like a Recurrent, toward the external Condyle of the Os Humeri, under the Ulnaris Externus, and Anconæus Minimus, to which it is distributed, as also to the Supinator Brevis; and it communicates with the *Collateral Arteries* of the Arm on the same Side.

Afterward this *External Interosseous Artery* runs down on the Outside of the Ligament, and is distributed to the Ulnaris Externus, Extensor Digitorum Communis, and to the Extensores Pollicis, Indicis, and Minimi Digiti, communicating with some Branches of the *Internal Interosseous Artery*.

Having reached the lower Extremity of the Ulna, it unites with a Branch of the *Internal Interosseous Artery*, which at this Place runs from within outward; and is distributed together with it on the convex Side of the Carpus, and Back of the Hand, communicating with the *Arteria Radialis*, and with a Branch of the *Cubitalis*, which will be mentioned hereafter.

By these Communications, this *Artery* forms a sort of irregular Arch, from whence Branches are detached to the external interosseous Muscles, and to the external lateral Parts of the Fingers.

The *Internal Interosseous Artery* runs down very close to the Ligament, till it reaches below the Pronator Teres, between which and the Pronator Quadratus it perforates the Ligament, and goes to the convex Side of the Carpus, and Back of the Hand, where it communicates with the *External Interosseous Artery*, with the *Radialis*, and internal Branches of the *Cubitalis*.

From the Origin of the two *Interosæ*, the *Cubital Artery* runs down between the Perforatus, Perforans, and Ulnaris Internus, along the Ulna, sending Branches to the neighbouring Parts. Below the *Internal Interosæ*, it sometimes sends off a Branch, which runs down between the Flexor Pollicis, Radialis Internus, and Perforatus, to which it is distributed all the way to the Carpus, where it runs under the internal annular Ligament, and communicates on the Hand with Branches of the *Arteria Radialis*.

Afterward the *Cubital Artery* passes over the internal transverse Ligament of the Carpus, by the Side of the Os Pisiforme, and having furnished the Skin, Palmaris Brevis, and Metacarpus, it slips under the Aponeurosis Palmaris, giving off one Branch to the Hypothenar Minimi Digiti, and another, which runs toward the Thumb, between the Tendons of the Flexors of the Fingers, and the Basis of the metacarpal Bones.

It likewise sends off a Branch, which, running between the third and fourth Bones of the Metacarpus, reaches to the Back of the Hand, where it communicates with the *External Interosseous Artery*. Afterwards having supplied the interosseous Muscles, it communicates with the *Radialis*; and they both form an *Arterial Arch* in the Hollow of the Hand, in the following manner:

The *Cubitalis*, having got about two Fingers Breadth beyond the internal annular Ligament of the Carpus, forms an Arch, the convex Side of which is turned to the Fingers, and commonly sends off three or four Branches. The first goes to the inner and back Part of the little Finger; and is sometimes a Continuation or Production of that Branch, which goes to the Hypothenar.

The other three Branches run in the Interstices of the Four metacarpal Bones, near the Heads of which, each of them is divided into two Branches, which pass along the two internal lateral Parts of each Finger, from the Fore-side of the little Finger, to the posterior Side of the Index inclusively; and at the Ends of the Fingers these *Digital Arteries* communicate and unite with each other.

Sometimes the Arch of the *Cubital Artery* terminates by a particular Branch in the Middle Finger, and in that Case it communicates with the *Radial Artery*, which makes up what the other wants.

This Arch sends likewise from its concave Side, toward the second Phalanx of the Thumb, a Branch for the lateral internal Part thereof, and then ends near the Head of the first metacarpal Bone, by a Communication with the *Radialis*, having first given a Branch to the Fore-side of the Index, and another to the Side of the Thumb next the former. These communicate at the Ends of the Fingers with the neighbouring Branches, as in the other Fingers.

This Arch sends likewise small Twigs to the interosseous Muscles, to the Lumbricales, Palmaris, and to other neighbouring Parts; and lastly, to the Integuments.

The RADIAL ARTERY.

The *Radial Artery* begins by detaching a small Branch, which runs upward like a Recurrent, toward the Fold of the Arm,

and turns backward round the external Condyle, communicating with the neighbouring Branches from the Trunk of the *Brachial Artery*, especially with the first collateral Branch on that Side.

It runs down along the Inside of the Radius, between the Supinator Longus, Pronator Teres, and the Integuments, giving Branches to these Muscles, and likewise to the Perforatus, Perforans, and Supinator Brevis. From thence it runs in a winding Course toward the Extremity of the Radius, supplying the Flexors of the Thumb, and Pronator Quadratus.

Having reached the Extremity of the Radius, it runs nearer the Skin, especially toward the anterior Edge of the Bone, being the *Artery* which we there feel when we examine the Pulse.

At the End of the Radius, it gives off a Branch to the Thenar; and, after having communicated with the Arch of the *Cubital Artery* in the Palm of the Hand, and sent off some cutaneous Branches at that Place, it detaches one, along the whole internal lateral Part of the Thumb.

Afterwards it runs between the first Phalanx and Tendons of the Thumb, to the Interstice between the Basis of this first Phalanx, and of the first metacarpal Bone, where it turns toward the Hollow of the Hand.

At this Turning, it sends off a Branch to the external lateral Part of the Thumb, which, having reached the End thereof, communicates by a small Arch with the Branch which goes to the internal lateral Part.

It likewise sends Branches outward, which run more or less transversely between the first two Bones of the Metacarpus and the two Tendons of the Radialis Externus; and it communicates with an opposite Branch of the *Cubitalis*, together with which it furnishes the external interosseous Muscles, and Integuments of the Back of the Hand, and convex Side of the Carpus.

Lastly, the *Radial Artery* terminates in its Passage over the semi-interosseous Muscle of the Index, near the Basis of the first metacarpal Bone, and as it runs under the Tendons of the Flexor Muscles of the Fingers, where it is joined to the Arch of the *Cubitalis*.

It sends off another Branch which runs along the Fore-part of the first Bone of the Metacarpus, to the convex Side of the Index, where it is lost in the Integuments.

It gives likewise a Branch, to the internal lateral Part of the Index, which at the End of that Finger joins an opposite Branch, which comes from the Arch of the *Cubitalis*. It also sends off a small Branch cross the internal interosseous Muscles, where it forms a kind of small irregular Arch, which communicates with the great Arch by several small arterial Branches.

When the Arch of the *Cubitalis* ends at the Middle Finger, the *Radialis* runs along the inner or concave Part of the first metacarpal Bone, at the Head of which it terminates by two Branches.

One of these Branches runs along the inner and anterior lateral Part of the Index, the other passes between the Flexor Tendons of this Finger and the metacarpal Bone; and, having communicated with the cubital Branch of the Middle Finger, it advances on the posterior lateral Part of the Index, all the Way to the End of that Finger, where it unites again with the first Branch.

The DIAPHRAGMATIC ARTERY.

The Left *Diaphragmatic Artery* goes out commonly from the *Aorta Descendens*, as it passes between the Crura of the small Muscle of the Diaphragm. The Right *Diaphragmatic* comes sometimes from the nearest *Lumbar Artery*, but most commonly from the *Cœliaca*. Sometimes both these *Arteries* arise by a small common Trunk immediately from the *Aorta*. They likewise have the Name of *Arteria Phrenica*.

They appear almost always in several Ramifications on the concave or lower Side of the Diaphragm, and seldom on the upper or convex Side. They give small Branches to the Glandulæ Renales, or Capsulæ Atrabiliaræ, which sometimes communicate with the other *Arteries* that go to the same Part.

They send likewise small Branches to the Fat which lies upon the Kidneys, called the *Membrana Adiposa*, from whence they have the Name of *Arteria Adiposa*; and they sometimes come immediately from the Trunk of the *Aorta* on one Side of the *Mesenterica Superior*.

Besides these capital *Diaphragmatic Arteries*, there are others of a subordinate Class, which come from the *Intercostales*, *Mammariæ Internæ*, *Mediastinæ*, *Pericardiæ*, and *Cœliacæ*, as is observed in the Description of these *Arteries*.

The COELIAC ARTERY.

The Ramifications of this *Artery* are not figured in the Table so accurately as they are described by Winslow.

The *Cœliac Artery* arises anteriorly, and a little to the Left Hand, from the *Aorta Descendens*, immediately after its Passage through the small Muscle of the Diaphragm, nearly opposite to the Cartilage between the last Vertebra of the Back, and first

first of the Loins. The Trunk of this Artery is very short, and, near its Origin, it sends off from the Right Side two small *Diaphragmaticæ*, though sometimes there is only one, which goes to the Right Hand, and is afterwards distributed both Ways, communicating with the other Arteries of the same Name, which come from the *Intercostales* and *Mammariæ*. The Left Branch sends Ramifications to the superior Orifice of the Stomach, and to the Glandula Renalis on the same Side; the Right furnishes the Pylorus, and the Renal Gland on the Right Side.

Immediately after this, the *Cœliaca* gives off a considerable Branch, named *Arteria Ventriculi Coronaria*, and *Gastrica*, or *Gastrica Superior*; and then it presently divides into two large Branches, one toward the Right Hand, named *Arteria Hepatica*; the other to the Left, called *Splenica*, which is larger than the former.

Sometimes this Artery is divided into these three Branches at the same Place, very near its Origin; the Trunk going out from the *Aorta* almost in a straight Line, and the Branches from the Trunk almost at Right Angles, like Radii from an Axis, whence this Trunk has been called *Axis Arteriæ Cœliacæ*.

The CORONARY ARTERY of the STOMACH.

The *Coronary Artery* of the Stomach goes first to the Left Side of that Organ, a little beyond the superior Orifice, round which Orifice it throws Branches, and also to every Part of the Stomach near it; and these Branches communicate with those which run along the Bottom of the Stomach to the Pylorus.

Afterwards it runs on the Right Side of the superior Orifice, along the small Curvature of the Stomach, almost to the Pylorus, where it communicates with the *Arteria Pylorica*; and, turning towards the small Lobe of the Liver, it gives off some Branches to it.

Then it advances, under the *Ductus Venosus*, to the Left Lobe of the Liver, in which it loses itself near the Beginning of the just mentioned Duct, having first given off some small Branches to the neighbouring Parts of the Diaphragm and Omentum.

The HEPATIC ARTERY.

As soon as the *Hepatic Artery* leaves the *Cœliaca*, it runs to the upper and inner Part of the Pylorus, in Company with the *Vena Portæ*, sending off two Branches, a small one called *Arteria Pylorica*, and a large one, named *Gastrica Dextra*, or *Gastrica Major*.

The *Pylorica* is ramified on the Pylorus, from whence it has its Name; and, having distributed Branches to the neighbouring Parts of the Stomach, which communicate with those of the Right *Gastrica*, it terminates on the Pylorus by an Anastomosis with the *Coronary Artery* of the Stomach.

The Right *Gastric Artery*, having passed behind and beyond the Pylorus, sends out a considerable Branch named *Arteria Duodenalis* or *Intestinalis*, which sometimes comes from the Trunk of the *Hepatica*, as we shall see hereafter. Afterwards this *Gastric Artery* runs along the Right Side of the great Curvature of the Stomach, to the neighbouring Parts of which, on both Sides, it distributes Branches.

These Branches communicate with those of the *Arteria Pylorica*, and of the *Coronaria Ventriculi*, and with the Right *Gastro-epiploica*, which furnish the nearest Parts of the Omentum, and communicate with the *Mesenterica Superior*. After this the Right *Gastric Artery* ends in the Left, which is a Branch of the *Splenica*.

The *Duodenal* or *Intestinal Artery* runs along the Duodenum on the Side next the Pancreas; to both which it furnishes Branches; and also to the neighbouring Part of the Stomach. Sometimes this Artery goes out from the *Mesenterica Superior*, and sometimes it is double.

The *Hepatic Artery*, having sent out the *Pylorica* and Right *Gastrica*, advances behind the *Ductus Hepaticus*, toward the *Vesicula Fellea*, to which it gives two principal Branches called *Arteria Cystica*; and another named *Biliaria*, which is lost in the great Lobe of the Liver.

Afterwards this Artery enters the Fissure of the Liver, and joins the *Vena Portæ*, with which it runs within a membranous Vagina, called *Capsula Glissonii*, and accompanies it thro' the whole Substance of the Liver by numerous Ramifications, which may be termed *Arteriæ Hepaticæ Propriæ*.

Before it enters the Liver, it gives small Branches to the external Membrane of this Part, and to the *Capsula Glissonii*. The *Gastric* and proper *Hepatic Arteries* come sometimes from the *Mesenterica Superior*, when the ordinary Ramifications are wanting.

The SPLENIC ARTERY.

Immediately after the Origin of the *Splenic Artery* from the *Cœliaca*, it runs toward the Left Hand, under the Stomach and Pancreas, to the Spleen. It adheres closely to the posterior Part of the lower Side of the Pancreas, to which it gives several Branches named *Arteriæ Pancreaticæ*.

Near the Extremity of the Pancreas, under the Left Portion of the Stomach, the *Splenic Artery* gives off a principal Branch call'd *Gastrica Sinistra* or *Minor*, which runs from Left to Right along the Left Portion of the great Curvature of the Stomach, giving Branches to both Sides of this Portion, which communicate with those of the *Coronaria Ventriculi*.

This *Gastric Artery* sends likewise another Branch, at least, to the Extremity of the Pancreas, which communicates with the other *Pancreatic Arteries*. It also supplies the Omentum with Branches, term'd *Gastro-epiploica Sinistræ*; and then it communicates with the Right *Gastrica*, and from this Union the *Gastro-epiploica Mediæ* are produced.

From this Detail we learn, that the *Arteria Coronaria Ventriculi*, *Pylorica*, *Intestinalis*, both *Gastricæ*, *Gastro-epiploica*, and consequently the *Hepatica*, *Splenica*, and *Mesenterica*, communicate all together.

Afterwards the *Splenic Artery* advances towards the Spleen, in a Course more or less contorted; but before it arrives at that Part, it gives two or three Branches to the large Extremity of the Stomach, which are commonly call'd *Vasa Brevia*, and one to the Omentum, named *Epiploica*.

At the Spleen this Artery divides into four or five Branches, which enter that Organ, after having given some small Twigs to the neighbouring Parts of the Stomach and Omentum.

The superior MESENTERIC ARTERY.

The *superior Mesenteric Artery*, Tab. 5. Fig. 43. arises anteriorly from the lower Portion of the *descending Aorta*, a very little Way below the *Cœliaca*, going out a little towards the Right Hand, but bending immediately afterwards to the Left.

Near its Origin it gives off a small Branch, which, dividing into two, goes to the lower Side of the Head of the Pancreas, and neighbouring Part of the Duodenum, communicating with the *Intestinalis* by small Arches, and Areolæ or Masches.

Afterwards it passes over the Duodenum, between this Intestine and the Meseraic Vein, between the two Laminæ of the Mesentery; and then bending, in an oblique Direction, from Left to Right, and from above downward, by very small Degrees, it advances toward the Extremity of the Ileum. By this Incurvation it forms a kind of long Arch, from the convex Side of which a great many Branches go out.

These Branches are sixteen or eighteen in Number, or thereabouts, and almost all of them are bestow'd on the small Intestines, from the lower third Part of the Duodenum to the Cæcum and Colon. The first Branches are very short, and from thence they increase gradually in Length all the Way to the Middle of the Arch; the rest diminishing again by small Degrees.

As they approach the Intestines, all these Branches communicate first by reciprocal Arches, then by Areolæ and Masches of all kinds of Figures, from which is detach'd an infinite Number of small Ramifications, which surround the Intestinal Canal like an annular Piece of Net-work.

These Arches and Masches increase in Number proportionably to the Length of the Branches, and their Size diminishes gradually as they approach the Intestines.

The first Branches from the convex Side of the Mesenteric Arch, which are very short, supply the Pancreas and Mesocolon, and communicate with the *Duodenal Artery*. The last Branches go to the *Appendicula Vermiformis*, and send a Portion of an Arch to the Beginning of the Colon.

The considerable Branches from the concave Side of the Mesenteric Arch are seldom above two or three in Number; but before they arise a small Branch goes out to the Duodenum, and gives some very small Arteries to the Pancreas.

The first considerable Branch from the concave Side of the Arch goes into the Mesocolon, towards the Right Portion of the Colon, being first divided into two Branches; the first of which runs along the whole superior Part of the Colon, where it forms the famous Communication with the *Mesenterica Inferior*; and might be named *Arteria Colica superior*. The other Division of this Branch runs down on the Right Portion of the Colon.

The second principal Branch, having run for some Space thro' the Mesentery, divides into three Branches; the first of which goes to the lower Part of the Right Portion of the Colon, where it communicates with the second Division of the first Branch: The second goes to the Beginning of the Colon, where it communicates with the first, and to the Intestinum Cæcum.

The third Division of this second Branch, having communicated with the second, gives small Twigs to the Cæcum, *Appendicula Vermiformis*, and Extremity of the Ileum. Afterwards it communicates with the Extremity of the Arch, or curve Trunk of the *superior Mesenteric*.

All these Communications are by Arches and Masches, as in those Branches that come from the convex Side of the Arch; and it is to be observ'd in general, that all the Branches of the *Mesenterica superior* are disposed according to the Folds of the Mesentery, and Circumvolutions of the Intestines; giving off Branches,

Branches, through their whole Course, to the Laminæ of the Mesentery, its Cellular Substance, and to the Mesenteric Glands.

The inferior MESENTERIC ARTERY.

The lower Mesenteric Artery, Tab. 5. Fig. 45. goes out anteriorly from the *Aorta Descendens inferior*, about a Finger's Breadth or more above the Bifurcation, and below the *Spermatic Arteries*; and having run about the Length of an Inch, or something more, it is divided into three or four Branches, which gradually separate from each other.

The first or superior Branch, about an Inch from its Origin, divides into two Branches; the first of which runs along the Left Portion of the Colon, and forms the Communication of the two Mesenteric Arteries already mention'd. It may be named *Arteria Colica Sinistra*. The second Branch, having communicated with the first, runs down upon the same Portion of the Colon.

The middle Branch, having run the same Length with the first, divides into two Branches; one of which passes upward on the Extremity of the Colon, communicating by Arches with the second Ramification of the superior Branch; the other runs down on the Extremity of the same Intestine.

When there is another middle Branch, it goes to the first Part of the double Curvature of the Colon, by a like Distribution and Communication from above downward.

The lower Branch goes to the second Portion of the Colon, or to both, when the second middle Branch is wanting, and sends up a Branch which communicates with the foregoing.

It sends another considerable Branch downward, call'd *Arteria Hemorrhoidalis Interna*, which runs down behind the Intestinum Rectum, to which it is distributed by several Ramifications; and it communicates with the *Arteria Hypogastrica*.

The RENAL ARTERIES.

The Renal Arteries, Tab. 5. Fig. 49. 49. call'd commonly *Emulgentes*, are ordinarily two in Number, and go out laterally from the inferior descending *Aorta*, immediately under the *Mesenterica superior*, one to the Right Hand, the other to the Left: The Right is situated more backward, and is longer than the Left, because of the Vena Cava, which lies on the Right Side, between the *Aorta* and the Kidney.

They run commonly without Division, and almost horizontally, to the Kidneys; into the Depressions of which they enter by several Branches, which form Arches in the inner Substance of these Viscera.

From these Arches numerous small Branches go out toward the Circumference, or outer Surface of the Kidneys. Sometimes there is more than one Artery on each Side; sometimes this Augmentation is only on one Side; and these supernumerary Arteries come sometimes immediately from the *Aorta*, and enter at the upper or lower Part of the Kidneys.

Ordinarily the Right Renal Artery passes behind the Vena Cava and Renal Vein on the other Side, and the Left Artery, first behind and then before the Vein. Sometimes they send Branches to the Glandulæ Renales, Membrana Adiposa of the Kidneys, and even to the Diaphragm.

The CAPSULAR ARTERIES.

The Arteries of the Renal Glands, which may be term'd *Arteria Capsulares*, arise sometimes from the *Aorta*, above the *Arteria Renalis*; and give out the *Arteria Adiposa*, which go to the Fat of the Kidneys. Sometimes they come from the Trunk of the *Cœliaca*. The Right Capsular Artery comes most commonly from the *Arteria Renalis* of the same Side, near its Origin; the Left from the *Aorta*, above the *Renalis*.

The SPERMATIC ARTERIES.

The Spermatic Arteries, Tab. 5. Fig. 51. 51. are commonly two in Number; sometimes more. They are very small, and go out anteriorly from the *Aorta Descendens inferior*, near each other, about a Finger's Breadth below the *Arteria Renales*, more or less, between the two Mesentericæ, or between the *Renales* and *Mesentericæ Inferiores*. Sometimes one is higher, or placed more laterally, than the other.

They send off, to the common Membrane of the Kidneys, small Branches named *Arteria Adiposa*; and afterwards they run down upon the Psoas Muscles, on the fore Side of the Ureters, between the two Laminæ of the Peritonæum.

They give several considerable Branches to the Peritonæum, chiefly to those Parts of it which are next the Mesentery; and they communicate both with the *Mesentericæ* and *Adiposa*. They likewise send small Arteries to the Ureters.

Afterwards they pass, in Men, thro' the tendinous Openings of the Abdominal Muscles in the Vagina of the Peritonæum; and are distributed to the Testicles and Epididymes, where they communicate with a Branch of the *Iliaca externa*.

In Women they do not go out of the Abdomen, but are distributed to the Ovaria and Uterus, and communicate with

Branches of the *Hypogastrica*, at the jagged Extremities of the *Tubæ Fallopiæ*.

The LUMBAR ARTERIES.

The Lumbar Arteries, Tab. 5. Fig. 50. go out posteriorly from the inferior descending *Aorta*, in five or six Pairs, or more, much in the same manner with the *Intercostals*.

They may be divided into Superior and Inferior. The Superior send small Branches to the neighbouring Parts of the Diaphragm and Intercostal Muscles, and supply the Place of *Semi-intercostal Arteries*. Sometimes those Pairs go out by a small common Trunk, and not separately.

They are distributed on each Side to the Psoas Muscles, to the *Quadrati Lumborum*, and to the oblique and transverse Muscles of the Abdomen; and by perforating the oblique Muscles, they become *external Hypogastric Arteries*. They go likewise to the Vertebral Muscles, and to the Bodies of the Vertebrae, and enter the Spinal Canal thro' the lateral Notches, to go to the Membranes, &c. forming Rings much in the same manner with the *Intercostals*; and they likewise give small Twigs to the Nerves.

The ARTERIÆ SACRÆ.

The *Arteriæ Sacræ*, Tab. 5. Fig. 52. go out commonly from the back Part of the inferior descending *Aorta*, at the Bifurcation. Sometimes they arise higher from the *Lumbares*, and sometimes lower from the *Iliacæ*. They are two, three, or four in Number; and sometimes but one. They are ramified on the Os Sacrum, and on the neighbouring Parts of the Peritonæum, Intestinum Rectum, Fat, &c. and enter the Canal of the Os Sacrum thro' the anterior Holes, being there distributed toward each Side. They likewise send small Arteries to the large Fasciculi of Nerves, which go out thro' the Holes of the Os Sacrum, and they penetrate the inner Substance of that Bone.

The ILIAC ARTERIES. Tab. 5. Fig. 53. 53.

The inferior descending *Aorta* ends at the last Vertebra of the Loins, and sometimes higher, in two large lateral Branches, one on the Right Hand, the other on the Left, call'd *Arteriæ Iliacæ*; each of which is a common Trunk to two other Arteries of the same Name. This Bifurcation lies on the anterior and Left Side of that of the Vena Cava. See Tab. 4. Fig. 13.

The primitive *Iliac Arteries* divaricate gradually as they descend, advancing obliquely toward the anterior and lower Part of the Os Ilium, without any considerable Ramifications, for about the Breadth of three Fingers; except a few very small Arteries that go to the Os Sacrum, some of which enter by the upper Holes, and are distributed like the *Arteriæ Sacræ*; while others emerge again thro' the posterior Holes, and go to the neighbouring Muscles, &c. They likewise give small Arteries to the Peritonæum, to the Coats of the Veins, and to the Fat and Ureters, behind which the *Iliac* Trunks pass.

The Right *Iliac* Trunk passes first on the fore Side of the Origin of the Left Iliac Vein, and runs down on the fore Side of the Right Vein, almost to the Place where it goes out of the Abdomen, its Course being there directed more inwardly. The Left Trunk goes down likewise before the Left Vein, but lies a little toward the Inside as it leaves the Abdomen.

About three Fingers Breadth from their Origin each *Iliac* Trunk is divided into two secondary Arteries, one external, Tab. 5. Fig. 54. 54. the other internal, Tab. 5. Fig. 55. 55. The external Artery has no particular Name; the internal is term'd *Hypogastrica*, which often appears to be no more than a Branch of the other in Adults; but in young Children, and especially in the Fœtus, the *Hypogastric Artery* looks like the Trunk, and the other like a Branch.

The external *Iliaca*, Tab. 5. Fig. 54. 54. on each Side runs down to the Ligamentum Fallopi, under which it goes out of the Abdomen. In this Course it gives off only a few small Arteries to the Peritonæum, and other Parts near it; but as it passes out of the Abdomen under the Ligament, it detaches two considerable Branches, one internal, the other external.

The internal Branch is named *Arteria Epigastrica*, Tab. 5. Fig. 57. 57. and goes out anteriorly from the external *Iliaca*. From thence it runs obliquely upward, on the Tendon of the transverse Muscle, toward the posterior Part of the Rectus, which it reaches about two or three Fingers Breadth above the Os Pubis.

Afterwards the *Epigastric Artery* runs up along the posterior or inner Side of this Muscle, sending Ramifications to the Tendons of the neighbouring Muscles, and then loses itself by a true Anastomosis of several Ramifications with the *Mammaria Interna*. It likewise communicates with the inferior *Intercostals*, which are spread on the Abdomen.

It sometimes gives out two particular Branches, one of which, accompany'd by a Nerve, goes thro' the Foramen Ovale of the Pelvis to the Triceps Muscles; the other runs down to the Testicles,

Testicles, along with the *Spermatic Artery*, and there communicates with it.

The external Branch of the outer *Iliaca*, *Tab. 5. Fig. 58.* goes off laterally from the Outside of that *Artery*, under the Ligamentum Fallopii; and from thence to the internal Labium of the Os Ilium, where it divides into two; and is ramified on the oblique and transverse Muscles of the Abdomen, communicating with the *Arteria Lumbaris*.

Besides these two Branches, the external *Iliaca* gives off a small Branch internally, under the Ligament which runs to the Vagina of the Spermatic Cord; and sometimes another small Twig goes from the Outside to the Os Ilium.

The internal *Iliaca*, or *Hypogastrica*, *Tab. 5. Fig. 55.* having run a little more than a Finger's Breath inward and backward, bends by small Degrees obliquely forward, and toward the Outside; and afterwards, contracting in its Dimensions, it ends in the *Umbilical Artery*, *Tab. 5. Fig. 56.* which ought to be look'd upon as a true Continuation of the Trunk of the *Hypogastrica*.

This *Arteria Umbilicalis* ascends on the Side of the Bladder; and having detach'd small Branches to that, and to the neighbouring Parts of the Peritonæum, it contracts; and, in Adults, is quite closed up, above the Middle of the Bladder, as in *Tab. 5. Fig. 56.* on the Right Side. It likewise gives Branches to the Uterus in Females, and to the Parts about the Pelvis in both Sexes: Afterwards it ascends, in form of a Ligament, to the Umbilicus, where it joins the *Umbilical Artery* on the other Side; its Name being taken from its Use in the Foetus.

From the convex Side of the Curvature of the *Hypogastric Artery*, four or five principal Branches commonly go out very near each other. Sometimes they all arise separately, sometimes by small common Trunks; and what is the first Branch in some Subjects, is only a Ramification of another principal Branch in others; so much does the Number, Disposition, Origin, and Distribution of these Branches vary in different Subjects. For this Reason, I think it is fit to distinguish them by the following proper Names: *Iliaca minor*, *Glutæa*, *Sciatica*, *Pudica communis*, *sive Pudica Hypogastrica*, and *Obturator*.

The *Iliaca minor*, the most posterior of these Branches, and which is often no more than a Branch of the *Glutæa*, passes between the last two Lumbar Nerves, and divides into two Branches; one of which enters the Canal of the Os Sacrum, thro' the lowest large anterior Holes; the other passes behind the Musculus Psoas, to which it gives Twigs, and behind the Crural Nerve, being afterwards distributed to the Iliac Muscle, and to the middle Part of the Inside of the Os Ilium, penetrating into the Substance of the Bone, sometimes by one Hole, sometimes by more.

The *Arteria Glutæa* is commonly very considerable, and sometimes the largest of all the *Hypogastric* Branches. Near its Beginning it sometimes sends out the *Iliaca minor*, and sometimes the small Branch that goes from that *Artery* to the Os Sacrum, and other Parts fix'd to that Bone. Afterwards this *Artery* goes out of the Pelvis in Company with the Sciatic Nerve, thro' the upper Part of the great Sinus of the Os Innominatum, below the Musculus Pyriformis, and is distributed, in a radiated manner, to the Glutæus Maximus and Medius.

In its Passage it gives some Branches to the Os Sacrum, Os Coccygis, Musculus Pyriformis, the Muscles of the Anus, and to the neighbouring Parts of the Intestinum Rectum, forming a particular *Hæmorrhoidalis Interna*. It likewise sends Twigs to the Bladder, and parts near it; and detaches a pretty long Branch, which runs down with the Sciatic Nerve.

The *Arteria Sciatica* gives, first of all, some Branches to the Musculus Pyriformis, the Quadrigeminus, and the Os Sacrum, and even to the inner Side of the Os Ischium. It likewise detaches a Branch, which runs under the Musculus Quadratus, to the Articulation of the Os Femoris.

It passes obliquely over the Sciatic Nerve, and as they both go thro' the great posterior Sinus of the Os Ilium, it detaches small *Arteries*, which are distributed to the inner Substance of that Nerve. Afterwards it runs up in a radiated manner on the Outside of the Os Ilium, and is distributed to the inner Substance of that Bone, and to the Musculi Glutæi, especially to the Medius and Minimus.

The *Pudica Communis*, call'd commonly *Pudica Interna*, arises sometimes by a Trunk common to it and to the *Glutæa*, and gives out two principal Branches; the first of which passes thro' the great Sinus of the Os Ilium, in Company with the *Glutæa* and *Sciatica*, and then divides into two Branches.

The first Branch goes behind the Spine of the Ischium, between the two Ligaments which lie between that Bone and the Os Sacrum, and runs on the Inside of the Tuberculum Ischii, all the way to the Origin of the Corpus Cavernosum Penis: There it divides into several *Arteries*, one of which goes to the Sphincter Ani, under the Name of *Hæmorrhoidalis Externa*.

The rest are distributed to the neighbouring Integuments, to the Bulb of the Urethra, and to the Corpus Cavernosum Penis; but the last of these *Arteries*, or rather the Extremity of this

first Branch, runs from behind forward, over the Neck of the Os Femoris, and communicates with a Branch of the *Arteria Cruralis*.

The second principal Branch, call'd commonly *Arteria Pudica Externa*, runs between the Bladder and Intestinum Rectum, and is distributed in Men to the Vesiculæ Seminales, Neck of the Bladder, Prostate Gland, and neighbouring Parts of the Rectum.

Afterwards it runs under the Os Pubis, on the Side of a considerable Vein; which lies directly under the Symphysis; and it runs along the Penis between this Vein and a Nerve; being distributed in its Passage to the Corpus Cavernosum, and communicating with the *Pudica minor*, which comes from the *Cruralis*.

This second Branch of the *Pudica major* goes off sometimes separately from the *Hypogastrica*, especially in Women, being distributed to the lateral Parts of the Uterus, where it communicates with the *Spermatic Artery*, near the jagged Extremity of the Tuba Fallopiana, and to the neighbouring Parts of the Vagina.

The *Arteria Obturator* perforates the Obturator Muscles, from whence it has its Name, and goes out of the Pelvis at the upper Part of the Ligament of the Foramen Ovale; having first sent a small Branch, over the Symphysis of the Os Ilium and Os Pubis, to the Inguinal Glands and Integuments.

As it passes by the Muscles, it divides, and is distributed to the Pectineus and Triceps. It likewise sends out another Branch, which communicates with that Branch of the *Sciatica* which goes to the Articulation of the Os Femoris; and gives small *Arteries* to the Holes in the Neck of that Bone.

Afterwards the *Hypogastric Artery* ends in the *Umbilicalis*, as has been already said.

The CRURAL ARTERIES. *Tab. 5. Fig. 69.*

The *Iliac Artery* goes out of the Abdomen between the Ligamentum Fallopii and Tendon of the Psoas, at the Union of the Os Ilium and Os Pubis, and there it takes the Name of *Arteria Cruralis*.

It sends off, first of all, three small Branches; one of which, call'd *Pudica Externa*, goes over the Crural Vein to the Skin and Ligament of the Penis, and to the Inguinal Glands, communicating with the *Pudica Interna*. The second goes to the Musculus Pectineus; and the third to the upper Part of the Sartorius. All these Branches furnish likewise the neighbouring anterior Integuments.

Afterwards the *Crural Artery* runs down on the Head of the Os Femoris; and, by taking a particular Turn, gets on the Inside of the Crural Vein, about three Fingers Breadth from where it goes out of the Abdomen. From its Origin to this Place, it is cover'd only by the Skin and Fat, and lies on the Pectineus and Triceps Primus.

In changing its Situation it sends out three considerable Branches; one external, one middle, and one internal. They all go out, more or less, posteriorly; sometimes by a short common Trunk, sometimes by two.

The external Branch runs on the upper Side of the Thigh to the Crureus, Vastus Externus, Rectus Anterior, Musculus Fasciæ Latæ, and Glutæus Medius, sending up a Branch to the Apex of the great Trochanter, which communicates with the first principal Branch of the *Pudica major* and *Sciatica*, as has been already said.

The middle Branch runs down on the Inside of the Thigh, between the Triceps Muscles, to which it gives several Branches; one whereof perforates the second Muscle, and is distributed to the Glutæus Maximus, Semitendinosus, Semimembranosus, Biceps, and to the neighbouring Integuments.

The internal Branch runs backward on the Quadrigeminus, towards the great Trochanter; and having detach'd a Branch, which goes into the Joint of the Os Femoris, it runs downward, and gives Branches to all the Muscles that lie on the back Side of that Bone, one of which enters the Bone itself on one Side of the Linea Aspera.

Having sent off all these three Branches, the *Arteria Cruralis* runs down between the Sartorius, Vastus Internus, and Triceps, giving Branches to all the Parts near it: It is cover'd by the Sartorius all the Way to the lower Part of the Thigh, where it is inflected backward, over the Triceps Tertius, a little above the internal Condyle of the Os Femoris. Afterwards continuing its Course thro' the Hollow of the Ham, it is call'd *Arteria Poplitea*, being accompany'd by the Vein of the same Name.

The *Poplitea*, while in the Ham, is cover'd only by the Integuments, sending off Branches toward each Side, which run upon the Condyles, and communicate with the lower Ramifications of the *Arteria Cruralis*.

It sends Branches to the Joint of the Knee, one of which, at least, passes between the Crucial Ligaments. As it runs down, it sends Branches to the Gastrocnemii and Popliteus; and,

and, having reach'd the back Side of the Head of the Tibia, it gives off two Branches, one to each Side.

The first or internal Branch surrounds the fore Part of the Head of the Tibia; passing between the Bone and internal lateral Ligament; and, besides several other Ramifications, sends up a small Branch, which communicates with the *Arteries* that lie round the Condyles of the Os Femoris.

The second or external Branch runs over the Head of the Fibula, and between the Head of the Tibia and external lateral Ligament of the Knee, surrounding the Articulation all the Way to the Ligaments of the Patella, and communicating with the Branches which lie round the Condyles of the Os Femoris, together with a Ramification of the first or internal Branch.

Immediately after the Origin of these two Branches, and before the *Poplitea* ends, it sends a small *Artery* down on the back Side of the Interosseous Ligament, very near the Tibia; into which it enters by a particular Hole a little above the middle Portion of the Bone. As the *Poplitea* ends, it divides into two principal Branches, one of which runs between the Heads of the Tibia and Fibula, passing from behind forwards on the Interosseous Ligament, where it takes the Name of *Arteria Tibialis anterior*. The second Branch divides into two others; one internal and larger, call'd *Arteria Tibialis posterior*; the other posterior and smaller, named *Arteria Peronæa posterior*.

The *Tibialis anterior*, having pass'd between the Heads of the Tibia and Fibula, sends small Branches upward and laterally: The superior Branches communicate with those Ramifications of the *Poplitea* which lie round the Articulation; and the lateral Branches go to the neighbouring Parts. Afterwards this *Tibial Artery* runs down, on the fore Side of the Interosseous Ligament, toward the Outside of the Tibia, between the Musculus *Tibialis Anticus* and *Extensor Pollicis*.

Having run laterally on the Tibia for about two Thirds of the Length of that Bone, it passes on the fore Side, under the common annular Ligament and *Extensor Pollicis*, to the Articulation of the Foot; giving off several Branches both to the Right and Left Hand, which communicate laterally with the *Tibialis posterior* and *Peronæa posterior*; so that these two Bones are in a manner surrounded by *Arteries*.

At the Joint of the Foot it sends out Branches, which run between the Astragalus and Os Calcis, being distributed to the Articulation, and to the Bones of the Tarsus. The Communications are here very numerous on all Sides.

Having pass'd the Fold of the Foot, it sends off, toward both Sides, other Branches, which communicate with the *posterior Tibialis* and *Peronæa*; all these Branches, making a kind of Circles round the Tarsus. Afterwards the *anterior Tibial Artery* advances on the convex Side of the Foot, as far as the Interstice, between the first and second Metatarsal Bones; between the Heads of which it sends a large Branch, which perforates the superior Interosseous Muscles, and, joining the *Tibialis posterior*, forms an Arch on the Side of the Foot.

It likewise sends two or three considerable Branches over the other Metatarsal Bones, which go to the rest of the Interosseous Muscles and Integuments, and communicate with each other.

Lastly, this *Artery* terminates by two principal Branches, one of which goes to the Thenar and Inside of the great Toe; the other is spent upon the Outside of the great Toe, and the Inside of the second Toe.

The *Tibialis posterior*, call'd likewise *Suralis*, runs down between the Solei, *Tibialis posticus*, *Flexor Digitorum communis*, and *Flexor Pollicis*; giving Branches to these, to the Tibia, and to the Marrow of that Bone, through a particular Canal in its posterior and upper Part.

Afterwards it runs behind the inner Ankle, communicating with the *Tibialis anterior*, and surrounded by the neighbouring Veins, and passes to the Sole of the Foot, between the concave Side of the Os Calcis and Thenar Muscle; where it divides into two Branches, one large or external, the other small or internal.

The great Branch, or *Arteria Plantaris externa*, passes on the concave Side of the Os Calcis obliquely, under the Sole of the Foot, to the Basis of the fifth Metatarsal Bone; and from thence runs in a kind of Arch toward the great Toe, communicating there with the *Tibialis anterior*, which perforates the Interosseous Muscles, in the Manner already said.

The convex Side of this Arch supplies both Sides of the last three Toes, and the Outside of the second Toe, forming small communicating Arches at the End, and sometimes at the Middle of each Toe, as in the Hand. The concave Side of the Arch furnishes the neighbouring Parts.

The small Branch, or *Arteria Plantaris interna*, having reach'd beyond the Middle of the Sole of the Foot, is divided into two; one of which goes to the great Toe, communicating with the Branch of the *Tibialis anterior*; the other is distributed to the first Phalanges of the other Toes, communicating with the Ramifications from the Arch already mention'd.

The *Arteria Peronæa* runs down on the back Side of the

Fibula, between the Soleus and *Flexor Pollicis*; to which, and to the neighbouring Parts, it gives Branches in its Passage.

Having reach'd to the lower third Part of the Fibula, it sends off a considerable Branch, which runs in between the Tibia and that Bone, passing between their Extremities, from behind, forward; below the Interosseous Ligament, and is distributed to the Integuments of the Tarsus.

Lastly, the *Peronæa* continuing its Course downward, on the back Side of the Fibula, as far as the Os Calcis, forms an Arch with the *Tibialis posterior*, between the Astragalus and the Tendo Achillis.

From thence it runs outward, and, a little above the outer Ankle, communicates with the *Tibialis anterior* by an Arch, which sends several small Ramifications to the neighbouring Parts.

In this Description of the *Arteries*, I have said nothing of the Cutaneous Anastomoses, which are exceedingly beautiful in the Fœtus; nor of the frequent and considerable Communications of small *Arteries* upon the Periosteum, which form a delicate kind of Net-work, or Rete Mirabile.

EXPLICATION of TABLE the Fourth, which represents the Situation of the principal Blood-vessels.

From EUSTACHIUS.

TABLE IV.

1. The Heart.
2. The *external Jugular*, on the Right Side, cut off.
3. The *internal Jugular* on the Left Side.
4. The *Subclavian Vessels* on each Side.
5. The *Axillary Vessels*, arising from the *Subclavian*.
6. The *Cephalic Vein* on each Side.
7. The *Vena Mediana* on each Side.
8. The *Vena Basilica* on the Right Side.
9. The inferior Part of the *Aorta Descendens*.
10. The *Vena Cava*.
11. The *Emulgent Veins*.
12. The *Kidneys*.
13. The *Iliac Vessels* on each Side.
14. The Blood-vessels of the *Penis*.

EXPLICATION of the Fifth TABLE, representing the *Arteries dissected out*.

From DRAKE.

TABLE V.

1. The *Aorta*, or *Arteria magna*, cut from its Origin at the Orifice of the Left Ventricle of the Heart.
- A. The three femilunar Valves of the *Aorta*, as they appear when they hinder the Blood from coming back into the Left Ventricle, when the Heart is in *Diastole*.
2. The Trunk of the *Coronary Arteries* of the Heart, arising from the Beginning of the *Aorta*.
3. *Ligamentum Arteriosum*, not well express'd.
4. The *Subclavian Arteries*, arising from the *Arteria magna*; from which the *Axillary Arteries*, and those of the Arms, (23. 23.) are continued.
5. The two *Carotid Arteries*, the Right arising from the *Subclavian*, the Left from the *Aorta*.
6. The two *Vertebral Arteries*, arising from the *Subclavica*, which pass thro' all the transverse Processes of the *Vertebrae* of the Neck, from whence they are here freed.
7. The *Arteries* which convey Blood to the lower Part of the Face, Tongue, adjacent Muscles, and Glands.
8. The Trunks of the *Temporal Arteries* springing from the *Carotids*, and giving Branches to the *Parotid Glands*, and to,
9. The neighbouring Muscles, hairy Scalp, and Forehead.
10. Trunks which send Blood to the *Foramina Narium*, particularly the Glands of its *Mucous Membrane*.
11. The *Occipital Arteries*, whose Trunks pass close by the *Mammiform Process*, and are distributed on the hinder Part of the hairy Scalp, where they are inosculated with the Branches of the *Temporal Arteries*.
12. *Arteries* which carry Blood to the *Fauces*, *Gargareon*, and Muscles of those Parts.
- B. A small Portion of the *Basis* of the Skull, that is perforated by the *Artery* of the *Dura Mater*, here express'd, with Part of the *Dura Mater* remaining to it.
13. The Contortions of the *Carotid Arteries*, before they pass the *Basis* of the Skull to the Brain.
14. Those Parts of the *Carotid Arteries*, where they pass by each Side of the *Sella Turcica*, where divers small Branches arise from them, and help to compose the *Rete Mirabile*, which is more conspicuous in Quadrupeds than Men.
- C. The *Glandula Pituitaria*, taken out of the *Sella Turcica*, lying between the two contorted Trunks of the *Carotid Arteries* (14. 14.).

D. D. The *Arteriae Ophthalmicae*, which spring from the *Carotids* before they enter the *Pia Mater*.

15. The Contortions of the *Vertebral Arteries*, as they pass the tranverse Processes of the first *Vertebra* of the Neck, towards the great *Foramen* of the *Os Occipitis*. We have, more than once, taken Notice, that the Cavities of these *Arteries*, where they are contorted, have been larger than their inferior Trunks; whereby the *Impetus* of the Blood must necessarily be very much lessen'd, as well as by their Contortions only. In Quadrupeds the Angles of three Contortions of the *Arteries* of the Brain are more acute, which in them is the more necessary to lessen the Force of the Blood at their Extremities, by reason of the horizontal Position of their Trunks.

16. The two Trunks of the *Vertebral Arteries*, that lie on the *Medulla Oblongata*.

17. The communicant Branches between the *Carotid* and *Cervical Artery*.

18. 18. The Ramifications of the *Arteries* within the Skull; the larger Trunks of which lie between the Lobes of the Brain, and in its *Sulci*. From the Extremities of these *Arteries* of the Brain are continued its Veins, whose Trunks vary much in their continued Position from the *Arteries*, these entering the Brain at its *Basis*, and distributing themselves, as above noted; whereas the Trunks of the Veins are extended on the Surface of the Brain, and discharge their Blood into the longitudinal *Sinus*. Nor do the Veins of the Brain accompany their *Arteries* at their Ingress, as in other Parts, and as the *Arteries* and Veins of the *Dura Mater* do; both which pass thro' the same *Foramen* in the *Basis* of the Skull, B. B.

E. E. The *Arteries* of the *Cerebellum*.

19. 19. The *Arteries* of the *Larynx*, *Thyroid Glandules*, and adjacent Muscles and Parts, arising from the *Subclavian Arteries*.

20. 20. Others arising near the former, which convey Blood to the Muscles of the Neck and *Scapula*.

21. 21. The *Mammariae*, which arise also from the *Subclavian Arteries*, and descend on the Cartilages of the true Ribs internally, about half an Inch distant, on each Side the *Os Pectus* or *Sternum*. Some Branches of these pass thro' the *Pectoral* as well as *Intercostal* Muscles, and give Blood to the *Mammæ*, where they meet with some Branches of the *Intercostal Arteries*, with which they are inosculated.

These *Mammary Arteries* join with the large Trunks of the *Epigastrics* (57. 57.) also, by which means the *Impetus* of the Blood of the Integuments of the *Abdomen* is carried on with more Force: The Extremities of the *Intercostal* and *Lumbal Arteries* also inosculate with each other, as well as these.

22. 22. The *Arteries* of the Muscles of the *Os Humeri*, and some of those of the *Scapula*.

23. 23. Those Parts of the large Trunks of the *Arteries* of the Arm, which are liable to be wounded in opening the *Vena Basilica*, or innermost of the three Veins in the bending of the Cubit.

24. 24. The Divisions of the *Arteries* of the Arm, below the Flexure of the Cubit.

25. 25. A communicant Branch of an *Artery*, arising from the Trunk of the *Artery* of the Arm, above its Flexure at the Cubit, which is inosculated with the *Arteries* of the Cubit below. In some Subjects you will not find this communicant Branch, as here represented, in whom there are divers smaller Branches of the same Kind. By these communicant Branches of the upper Part of the *Brachial Artery* with those of the Cubit, the Blood still passes, tho' the Trunk (23.) is firmly tyed; which is done in taking up the *Artery*, as it is call'd, when 'tis wounded in the Case of an *Aneurysm*: Besides firmly tying the Trunk of the *Artery* above the Place where it is wounded, it is also necessary to tie it in like manner below, lest the Blood, convey'd by the communicant Branches to the inferior Trunk, still pours out at the Wound of the *Artery* from below, in a retrograde manner.

26. The *external Artery* of the Cubit, which makes the Pulse near the *Carpus*.

27. 27. The *Arteries* of the Hands and Fingers.

28. 28. The descending Trunk of the *Arteria magna*.

29. The *Arteria Bronchialis*, springing from one of the *Intercostal Arteries*: It sometimes arises immediately from the descending Trunk of the *Aorta*; at other times from the *superior Intercostal Artery*, which springs from the *Subclavian*. These *Bronchial Arteries* inosculate with the *Pulmonary Arteries*. Vid. *Ruyfch. Epist. Anatom.* 6 Fig. c. c. c.

30. A small *Artery*, springing from the fore Part of the *Aorta Descendens*, passing to the *Gula*. *Ruyfch* tells us of Branches of *Arteries* from the *superior Intercostal*, which go to the *Gula*.

31. 31. The *Intercostal Arteries* on each Side the *Arteria magna Descendens*.

N. B. The Representations of the *Arteries* in this Plate, from Fig. 32. to Fig. 42. are not as they usually appear in Subjects. The References also do not agree with the Figures; and the Whole, in this Place, is much confused.

32. The Trunk of the *Arteria Cœliaca*, from whence spring,

33. 33. The *Hepatic Arteries*, and,

34. The *Arteria Cystica*, on the Gall-bladder.

35. *Arteria Coronaria Ventriculi inferior*.

36. The *Pylorica*.

37. The *Epiploica Dextra, Sinistra*, and *Media*, springing from the *Coronaria*.

38. The Ramifications of the *Coronary Artery*, which embrace the Bottom of the Stomach.

39. *Coronaria Ventriculi superior*.

40. 40. The *Phrenic Arteries*, or the two *Arteries* of the Diaphragm; that of the Left Side arising from the Trunk of the *Arteria magna*; the Right springing from the *Cœliaca*.

41. The Trunk of the *Splenic Artery*, arising from the *Cœliaca*, contorted.

42. Two small *Arteries*, going to the upper Part of the *Duodenum* and *Pancreas*; the rest of the *Arteries* of the *Pancreas* spring from the *Splenic Artery* in its Passage to the Spleen.

43. The Trunk of the *Arteria Mesenterica superior*, turn'd towards the Right Side.

44. 44. The Branches of the *superior Mesenteric Artery*, freed from the small Guts. Here the various *Anastomoses* the Branches of this *Artery* make in the *Mesentery* before they arrive at the Intestines, may be observed.

45. The *inferior Mesenteric Artery*, arising from the *Arteria magna*.

46. 46. Remarkable *Anastomoses* of the *Mesenteric Artery* with the *Superior*.

47. 47. The Branches of the *inferior Mesenteric Artery*, as they pass to the *Intestinum Colon*.

48. Those of the *Rectum*.

49. 49. The *Emulgent Arteries* of the Kidneys.

50. The *Vertebral Arteries* of the Loins.

51. 51. The *Spermatic Arteries*, which descend to the *Testes*, and are so small as to escape being fill'd with Wax.

52. *Arteria Sacra*.

53. 53. *Arteria Iliacæ*.

54. 54. *Rami Iliaci externi*.

55. 55. *Iliaci interni*, which are larger in the *Fœtus*, proportionably, than in the Adult, by reason of their Conjunction with the two *Umbilical Arteries*.

56. 56. The two *Umbilical Arteries* cut off; that of the Right Side being drawn as in the *Fœtus*; the Left is express'd as in an Adult.

57. 57. The *Epigastric Arteries*, which ascend under the Right Muscles of the *Abdomen*, and are inosculated with the *Mammariæ*, as above noted.

58. 58. Branches of the *external Iliac Arteries*, passing between the two oblique Muscles of the *Abdomen*.

59. 59. Branches of the *internal Iliac Arteries*, which convey Blood to the *Extensores* and *Obturatores* Muscles of the Thighs.

60. 60. The Trunks of the *Arteries*, which pass to the *Penis*.

61. 61. The *Arteries* of the Bladder of Urine.

62. 62. The *internal Arteries* of the *Pudendum*, which, with those here express'd of the *Penis*, make the *Hypogastric Arteries* in Women. The *external Arteries* of the *Pudendum* arise from the upper Part of the *Crural Artery*, which is immediately below the *Epigastrics*.

63. The *Penis*, distended with Wind, and dry'd.

64. The *Glans Penis*.

65. The upper Part or *Dorsum Penis*, cut from the Body of the *Penis*, and raised to shew the *Corpora Cavernosa Penis*.

66. 66. *Corpora Cavernosa Penis*, freed from the *Ossa Pubis*, and tyed after Inflation.

67. The two *Arteries* of the *Penis*, as they appear injected with Wax, in each cavernous Body of the *Penis*.

68. The *Capsula* and *Septum* of the *Corpora Cavernosa Penis*.

69. The *Crural Arteries*.

70. 70. The *Arteries* which pass to the Muscles of the Thighs and *Tibia*.

71. That Part of the *Crural Artery* that passes the Ham.

72. The three large Trunks of the *Arteries* of the Leg.

73. The *Arteries* of the Foot, with their communicating Branch, from their superior to their inferior Trunk, as well as their Communications at the Extremity of each Toe, like those of the Fingers. *Diak's Anatomy*.

ARTERIACA, *apocrypha*, are Medicines against the Disorders of the Voice and *Aspera Arteria*, whence they take their Name. *Blancard*.

ARTERIOTOMIA, *Arteriotomy*. The opening of an *Artery* with a View of taking away Blood.

This Operation was much practised by the Antients, and is now actually much in Use in some foreign Nations, however rare in Europe. *Oribasius* gives an Account of it from *Galen* and

and *Antyllus*: *Paulus Aegineta* speaks of it as a thing commonly practised; and *Presper Alpinus* tells us, it is frequently performed in *Egypt*. It is from these Authors, and *Heister*, I shall give the Particulars of Arteriotomy.

Physicians cut the *Temporal Arteries* for a Defluxion of hot and flatulent Humours into the Eyes, and the *Arteries* behind the Ears of Persons subject to a Vertigo, especially if they have been long afflicted with Disorders in the Head, proceeding from Heat and Wind, or any other chronic Distemperature of that Part.

When any other Place is affected, they do not cut the *Arteries*, though there are many Parts which require to be relieved this way, rather than by opening a Vein; for where-ever a Disorder arises from a Collection of hot and flatulent Blood in the *Arteries*, the affected Part requires *Arteriotomy*. But since it is difficult to stop the Flux of Blood, and when the Wound is brought to cicatrize, there commences an *Aneurysm*; for these Reasons, Physicians have been cautious of opening the larger *Arteries*; and as for the smaller, they forbear them, as thinking them of little Service: However, the Cutting of a small *Artery* has been known to do much Good, and the Wound has been cicatrized without an *Aneurysm*; and even if one of the larger *Arteries* be opened, a Cicatrix may be induced on it without an *Aneurysm*, that is, by means of cutting it quite through, the doing of which has often delivered the Patient from the Danger of an *Hæmorrhage*. For it plainly appears, that when the *Artery* by a cross Section is divided in two, both Parts being retracted, one retires upwards, and the other downwards. For my own part, having received some clear Admonitions in my Dreams, I cut the *Artery* which lies between the Thumb and Fore-finger of my Right Hand, and suffered the Blood to flow till it ceased of itself; for so I was ordered in my Dreams; but the Quantity was less than a Pound. By this means an inveterate Pain, which principally affected that Part where the Liver joins to the Diaphragm, went off on a sudden. Another, by a Wound in his Ankle, had an *Artery* cut, which ceased not to bleed, till I was sent for; when I came, I divided the *Artery* in two, after which I applied a Remedy, which consisted of Aloes, Frankincense, and Whites of Eggs, spread upon the soft Fur of Hares; and the Wound was cicatrized without an *Aneurysm*, the Orifice of the *Artery* being incarn'd; and the Patient, who for four Years past had felt a Pain in his Hip, with very short Intervals, was perfectly cured from that Time. This Success has often induced me to use *Arteriotomy* in the Joints of the upper Extremities, and in the Head itself, for all Pains proceeding from a hot and flatulent Matter; but especially when a Membrane is affected with a sort of pricking Pain, which extends itself by Degrees in such a manner, that the pungent Sensation seems, as it were, fixed in the Centre of the Place affected, while all the circumjacent Parts labour under a Tension. *Oribasius, Med. Collect. Lib. 7. Cap. 13.* from *Galen*.

We cut the *Artery* that lies under the Top of the Head towards the hinder Part, among the Tendons; or we open the *Artery* behind the Ears, or those which lie on each Side of the *Vertex* towards the fore Part of the Head, for they belong to the coronal and middle Sutures. Those *Arteries* which reach from the Temples to the Forehead, are not cut, because they are situated against a Muscle; but they may be safely opened, if the Patient, in Compliance with Directions, move his Cheeks forcibly, by which means all the Muscles of the Temples, throughout their whole Extent, are visibly put in Motion. We have an Opportunity then of letting alone the Part in the Forehead that moves, and making the Section in the Part that is at Rest. However, the Blood does not flow very fast, nor in any great Quantity, from these *Arteries*, because of their Smallness; nor does it issue forth with much Spirit, because they approach the Nature of Veins. The *Arteries* before the Ears, where the Muscles of the Jaws arise, are very firm and strong; but are seldom cut without Danger, because of the Nearness of the Muscles, and the Foldings of the Membranes of that Place. In the *Arteriotomy* on the Occiput, the *Artery* is to be cut home to the Bone, which is to be scraped, that Flesh may repullulate upon it for the Reception of the Mouths of the *Artery*. In cutting the *Artery*, the best way is to treat it like a Varix, by taking it up with the Forceps, or some such Instruments, and making not a great Incision, but several small ones. When you have drawn off a sufficient Quantity of Blood, the Vessel is to be taken up with the Forceps, and quite divided; for by this means it will never be joined again, nor will there be any Danger of an *Hæmorrhage*; the Mouths of the *Arteries* being drawn back into the Flesh. *Oribasius, Med. Coll. Lib. 7. Cap. 14.* from *Antyllus*.

For Defluxions in the Eyes of long Standing, and vertiginous Affections, we use to cut the *Arteries* behind the Ears. In order to this Operation, the hinder Part of the Head is first to be shaved, and then felt with the Fingers; for by the Pulse in that Place, we very easily discover the Situation of the *Artery*. We then cut home to the Bone, making an Incision of two Fingers Breadth in Length, the Place being before marked with

Ink. If we miss the *Artery*, we are to take the Distance of three Fingers Breadth from the Ears, and perform the Operation, cutting the *Arteries* across, till we perceive the Blood to flow with a Pulsation, and our Instrument touches the Bone. After taking away a moderate Quantity of Blood, we divide the *Pericranium*, that it might not be distended; and so inflamed; and having scraped the Bone, thrust a Linen Tent into the Wound, and heal it with Dressings of Lint. If the Bone in that Place still remains bare, we repeat the scraping it. *P. Aeginet. Lib. 6. Cap. 4.*

Arteriotomy, or the opening *Arteries* in order to procure an Evacuation of Blood, was among the *Egyptians* an Operation as common, and undertaken with as little Dread, as Venesection itself. This Practice they not only used on many Occasions, but looked upon it as a divine Secret, and the safest and most infallible Means of Recovery in long-standing and inveterate Inflammations of the Eyes; as also for long-protracted Head-achs, and obstinate Pains of the Viscera.

Some Physicians in After-ages declared themselves Enemies to this Practice, and supported their Judgment by a Passage of *Galen*, who [in *Lib. de Curat. per Sang. Miss.*] has these Words: "I have known some die in Consequence of the inferior *Artery* of the Cubit lying under the Vein being opened. In some I have found Gangrenes immediately produced by the Application of Bandage, with a View to stop the *Hæmorrhage*; and I have known others expire under the Operation for the *Aneurysm*." They imagined, that an opened *Artery* could not be agglutinated, and that the Danger of an *Aneurysm*, at least, and even of Death itself, must of Consequence be the Result of *Arteriotomy*. But these Physicians seem to have forgot the Reasoning of *Galen* their great Master, in the sixth Chapter of the fifth Book of his *Methodus Medendi*, where he uses these Words: "Some, says he, assert that one of the Coats of an *Artery* is hard and cartilaginous; and a Substance of that Nature cannot possibly coalesce and agglutinate, since a Disposition to join and unite is only found in soft Bodies. As in external Objects we do not find, that a Stone, for Instance, unites with its Neighbour Stone, nor a Shell with a Shell; so neither with ourselves do Cartilages unite with Cartilages, nor Bones with Bones; for broken Bones do not cohere by Union, but are joined by a glutinous *Callus*, which the *Greeks* call *σπέρμα*. It must be owned, that such is the Nature of an *Artery* as to render the Agglutination of its hard Coat difficult; but yet this Difficulty is not altogether unsurmountable, since an *Artery* is neither so dry nor so hard as a Bone or Cartilage, but much softer, and of a more fleshy Nature. And we have the less Reason to despair of agglutinating the Orifice of an *Artery*; since the *Artery* itself is small, and the Body of a Man of a soft and yielding Nature. Experience herself seems in this Case to join her friendly Voice to Reason, since in Children and Women, who have moist and soft Bodies, I have seen the *Arteries* agglutinated; and especially in one Youth, who had one of his *Arteries* slightly cut. But though an Orifice in an *Artery* is more difficultly agglutinated, than that in a Vein, yet the Medicines used in both Cases are not very different, but plainly of the same Species, and only vary in Degree; for an *Artery* requires Medicines somewhat drier than a Vein; but if the Intention is to produce Flesh around the Orifice, the Medicines to be used are the same in both Cases." Two things concur to render the Agglutination of *Arteries*, and the Cure of Ulcers formed in them, difficult; for, as *Galen* justly observes, that Ulcers in the Lungs cannot be cured by reason of their continual Motion; so the Motion and Pulsation of the *Arteries* is a great Obstruction to the Agglutination of Wounds made in them. The Difficulty of Agglutination is also augmented by the Hardness of that Substance of which the *Artery* consists. The Pulsation of the *Artery* is most efficaciously prevented by the Application of a smooth, round and thick Plate of Brass, after having duly united the Orifice. The *Egyptians* used to open all the *Arteries* discoverable in the Head; for in Head-achs of a long standing, especially such as are attended with Pulsation, and in all Inflammations of the Head, they used to cut the *Arteries*, and those placed behind the Ears; in opening all of which they were successful; but they most commonly opened that in the Forehead, especially in case of old Inflammations of the Eyes; and I myself, when in *Grand Cairo*, saw many cured, as by a Charm, of old Head-achs, and obstinate Inflammations of the Eyes, by opening the *Artery* in the Forehead, and making a sudden Evacuation of Blood. This Practice was known to *Galen*, as is plain from these Words in the fourteenth Book of his *Methodus Medendi*: "The Head, says he, must be shaved, and those *Arteries* which are situated near the Ears, and those behind them, those also in the Forehead and Temples, are to be carefully felt. And those of them which are felt warmer, and whose Pulsation is stronger than that of the others, are to be cut. But of those which are small, and lie near the Skin, it is proper to cut out a Part, as we used to do in *Varices* of the Legs." This Practice is very frequent among the *Egyptians*, and

and that very deservedly; since the *Arteries* which appear large and warm, contain much hot Blood mixed with a kind of stultent Matter.

“Among the several *Arteries* of the Head, the *Temporal* is sometimes burned; and this is done with a View to intercept and cut off these subtle Defluxions, which fall down upon the Eyes: And the two *Arteries* behind the Ears are opened for certain Species of Ophthalmies, watry Humours, *Nyctalops*, and old Pains of the Liver; but there is always some Danger in opening them, and they require a long Time to consolidate.”

I never indeed saw the *Egyptian* Physicians cut an *Artery* quite thro', or contract any Part of it; but I have often seen them open *Arteries* just as we do Veins. They often burn the *Temporal Arteries* in order to prevent Fluxions on the Eyes; for which Reason you may observe many People in all Parts of *Egypt* with their Temples burned. This Practice of burning the *Temporal* and other *Arteries*; they first had from *Ethiopia*; for many of the *Ethiopians* and *Abyssinians* use this Method of burning. I never saw, that any of them used this Operation on the *Arteries* behind the Ears for Disorders of the Eyes, and Pains of the Liver; for when the Liver is affected, they used to open the *Artery* between the Thumb and Fore-finger, which Practice is also approved of by *Galen*, in his Book *De Curat. per Sang. Miss.* These Physicians also told me, that they opened the *Jugular Arteries* in Patients who were in Danger of Suffocation, but I never had an Opportunity of seeing that Operation performed. They open the *Artery* between the Thumb and fore Finger, for Pains and Inflammations of the Viscera. The Method of opening an *Artery* among the *Egyptians* was this: The Operator first of all applies a Linen Ligature to the Part in which the *Artery* is to be opened, just as in Venesection; and suffers the *Artery* to become turgid, and full of Blood; then he makes an oblique Incision with a very sharp Lancet or Incision-knife; but in performing this Operation, the Incision ought always to be made very little, because the Blood contained in the *Arteries* is very thin, and because a large Orifice agglutinates with more Difficulty than a small one. Having thus opened the *Artery*, he takes away as much Blood as he judges necessary: But the Rule observed by most, with regard to the Quantity of Blood to be taken, is to let it flow till it stops of its own Accord. When a sufficient Quantity is taken away, they bring the divided Lips of the *Artery* into Contact with their Fingers, just as we use to do these of Veins; then they apply a little Cotton to the Orifice of the *Artery*, over which they lay a large Brass Coin, called by them *Follara*, which they tie upon the wounded *Artery* for three Days; at the End of which Time they take away the Ligature and Coin, using no other Step in the Cure; and all the times I saw this Operation performed, I observed the Patients rendered entirely sound by the foregoing Method. Others, before tying the *Artery*, and applying the Cotton to it, use a little Frankincense made warm in the Flame of a Candle, with which they unite the Lips of the Orifice; then they apply the Cotton, and, last of all, the *Follara*. Two things then, in the *Egyptians* Method of performing this Operation, deserve to be duly reflected upon: First, that they made the Incision very small, oblique, and with a very sharp Instrument. Secondly, the Application of the Brass Coin, by means of the Coldness and Hardness of which the Pulsation of the *Artery* was so far destroy'd, as to allow the Agglutination and Cure of the Incision made in the *Artery*. *Prosper. Alpini Medicina Egyptiorum.*

The Word *Arteriotomy*, according to its Etymology, signifies that Chirurgical Operation, by which, for the Safety of the Patient, the *Arteries* are opened almost in the same manner with the Veins, in order to procure a Discharge of Blood. But though in our own Days this Operation is not so frequently attempted as in former Ages, for fear not only of too great an Effusion of Blood, but also of an *Aneurysm*; yet if it is cautiously performed, it has the Suffrage of the greatest Physicians in its Favour, as being a Practice of singular Use, and unattended with any bad Consequences. Accordingly we read of the more antient Physicians opening *Arteries* in various Parts of the Body; in the Forehead, for Instance, in the Temples, behind the Ears, in the hinder Part of the Head, between the Thumb and the fore Finger, and in every other Part of the Body where the Pulsation was felt by the Touch. The modern Physicians; on the other hand, scarce open any other *Artery* than that situated in the Temples; for it is generally most easily opened, because it is sufficiently exposed to the Touch; and its Aperture is attended with the least Danger, either of an Effusion of Blood, or an *Aneurysm*, because it lies on the *Os Frontis*, and may therefore be easily compressed. No one in his Senses will, however, deny that 'tis, for the most part, far more difficult to open *Arteries* than *Veins*; since the former are not exposed to our Sight, but must be discovered by the Impressions made on the Touch by their Pulsations. But not to spend Time in describing the now obsolete Methods of *Arteriotomy* practised by the Antients, I come to give an Account of that used by some of the later and more modern Surgeons.

The first Step then to be taken is, to place the Patient in a Chair or Bed, and make him recline his Head from that Side on which the *Artery* to be opened lies. Then the Surgeon is carefully to explore and find out the *Artery*, in which the Incision is to be made; the most proper Method of doing which, is by applying his Left Hand to the Temple in which it lies. Then having discovered the *Artery* by its Pulsations, and duly observed its Situation, he is to fix and secure it by his two first Fingers, which must yet be removed at such a Distance from each other, that a Lancet may be commodiously passed between them into the Cavity of the *Artery*. But the Lancet must, for the most part, be passed deeper in this Operation than in Venesection, and carried transversely upwards in its Retraction, to the end the *Artery* may be the more infallibly reached; nor is there any Danger, though the whole *Artery* should be cut asunder. As soon therefore as the Incision is made, if a ruddy and florid Blood, whose Stream, as it were, beats Time to the several Pulsations of the *Arteries*, bursts from the Orifice, we are sure the *Artery* is opened, and the Operation well performed. But if it should happen otherwise, the Lancet is a second time to be passed deeper, till by the forementioned Signs we discover, that the *Artery* is either opened, or cut asunder. But as the Point of an ordinary Lancet is slender, and may on this Occasion be easily broken on the Bones of the Head, I have learned from Experience, that this *Artery*, especially if the Incision is made downwards, and not upwards, may more commodiously be laid open by a strait Incision-knife, represented by the Letter G, in *Tab. 22.* But that the Operation may produce the more happy Effects, a large Quantity of Blood, that is, a Pound, or, if a Plethora call for it, a Pound and an half, may be allowed to flow from the *Artery*, otherwise its having been opened proves of little Service; so that we need not be surpris'd at the antient Physicians, whose Practice was to allow the Blood to flow till such time as the Patient began to faint away. If an *Artery* is to be opened behind the Ear, in the back Part of the Head, or in any other Part of the Body, this same Method is to be followed, so far as the different Situations of Parts, and other Circumstances, will admit of it.

When as much Blood is taken from the Patient as the Physician shall judge proper, Bandage must be forthwith applied; for which Purpose three square Compresses of different Sizes must be provided. The least of these must be applied immediately to the Orifice, the intermediate one over it, and the largest over both: Nor on this Occasion is it improper to fold up a Piece of Money, or a small Piece of Lead, in the undermost or intermediate Compress, or to apply a Piece of chewed Paper to the Orifice itself, using the Compress at the same time over it; for thus the Blood will not only be the more easily stopped, but the opened *Artery* the more effectually preserved from bursting out afresh. And that all these may be the more securely fixed upon the Wound, the knotted Bandage, (See *FASCIA NODOSA*) or some other proper Bandage, must be applied pretty tight, and kept so for about eight Days, that an *Hæmorrhage* or *Aneurysm* may be the more effectually guarded against; and if it should happen to be relaxed, it is again carefully to be rendered tight, and so kept, if possible, till the Wound is entirely agglutinated.

As for the Uses of *Arteriotomy*, they are by some Physicians extolled as so numerous, and of a Nature so uncommon, that the most obstinate Diseases of the Head and Eyes, provided they owe their Origin to too great a Quantity of Blood, must receive remarkable Relief from this Operation, even after they have resisted the Force of all other Medicines. It is also a common Observation, that *Arteriotomy* is generally highly beneficial in Vertigos, obstinate Head-achs, Epilepsies, Suffusions, and Inflammations of the Eyes, proceeding from too great a Quantity of Blood. And *Catherwood*, a late *English* Writer, has in a Book, intitled, *A new Method of curing the Apoplexy*, endeavoured to shew, that the *Morbus Attonitus*, or *Apoplexy*, may be very speedily removed by it; but I must on this Occasion take Notice, that I myself performed the Operation of *Arteriotomy* upon two *Apoplectic* Patients, one of whom was young, and the other old; but they both soon after died, notwithstanding the Operation was performed in the very Beginning of the Disease, and other proper Remedies were used; so that *Arteriotomy* is not always effectual in Apoplexies. Since *Arteriotomy* then is observed in many Cases to be attended with Advantages superior to those of Venesection, and since the whole Danger of it may be prevented by proper Compress and Bandage, we may hence be enabled to make a due Estimate of the Opinion of those who not only pronounce it dangerous, but also place it upon a Level with Venesection in point of Efficacy. Notwithstanding what has been said, I must nevertheless own, that those Physicians most effectually consult both the Welfare of the Patients, and their own Reputation, who in Diseases, where Life is not immediately threatened, never have recourse to *Arteriotomy*, till they have found all other Remedies ineffectual. But, that the Effects to be expected from this Operation may be the more speedily and sensibly produced, it seems necessary, at the same time, to injoin a proper Regimen, and

other Medicines, that have a Tendency to remove the Disorder under which the Patient labours, and for which the Operation was performed. *Heister's Institutiones Chirurgicae.*

ARTETISCIUS, ARTETISCOS. One who suffers the Loss of any Member. *Rulandus.*

ARTHANITA. A Plant of which *Dale* mentions two Sorts. The first is the

Arthanita Cyclamen, Offic. *Cyclamen*, Schrod. Lib. 4. p. 59. *Cyclamen orbiculato folio*, Ger. 694. Emac. 843. *Cyclamen orbiculato folio inferne purpurascens*, C. B. Pin. Tourn. Inst. 154. Elem. Bot. 158. Boerh. Ind. A. 2. 150. Hist. Oxon. 3. 552. *Cyclamen vulgare, folio rotundo*, Park. Parad. 198. *Cyclaminus folio rotundiore vulgatiore*, J. B. 2. 551. Raii Hist. 2. 1205. *Cyclamen, Panis Porcinus*, Chab. 510. SOW-BREAD.

The Root of Sowbread is round, and somewhat flattish, like a small Turnep, of a dark-brown Colour on the Outside, with several dark Fibres shooting from the Bottom. The Leaves grow on thick, reddish Stalks, of a darkish Green above; frequently marked with white Spots, and underneath of a reddish or purplish Colour, in Shape like the Leaves of *Asarabacca*, round, and hollow'd in next the Stalk. Among these arise the Flowers, each on its own Foot-stalk, which is usually slenderest next the Ground. They are made up of one single pendulous Leaf, divided into five sharp-pointed Segments, which turn themselves backward when they open, and are of a pale purple or bloom Colour: When these are fallen, the Stalk with the Seed-vessel coils itself round towards the Earth like a little Snaker. Sowbread is planted with us only in Gardens, its native Place being the *Alps*, and the Mountains of *Austria* and *Styria*. It flowers in *September* and *October*.

The Root of Sowbread is very forcing, and principally used to bring away the Birth and the Secundines, and to provoke the Menfes. The Juice is commended by some against vertiginous Disorders of the Head, used in Form of any Errhine. It is of Service also against cutaneous Eruptions. *Miller's Bot. Off.*

Dale says it should be used with Caution internally:

The second is the

Cyclamen Arthanita, Offic. *Cyclamen hederæ folio*, Ger. 694. Emac. 843. Raii Hist. 2. 1206. C. B. 308. Tourn. Inst. 155. Boerh. Ind. A. 2. 151. Hist. Oxon. 3. 552. *Cyclamen folio hederæ, Autumnale*, Park. Parad. 296. COMMON SOWBREAD.

This Species agrees in Virtues with the preceding; and is the sort which is kept in our Shops. *Dale.*

ARTHETICA, or ARTHRETICA, is the Herb Ground-pine, so called from *ἄρθρον*, a Joint. It cures Affections of the Joints. *Blancard.*

ARTHOICUM is a red Oil extracted from the Roots of Herbs together with Bread artfully digested in Dung. *Ruland. Johnson.*

It should rather be written **ARTOICUM**, as *Castellus* observes, because derived from *ἄρτος*, Bread. *Rulandus* calls it also *Pannonium*.

ARTHREMBOLUS, *ἄρθρεμβολος*, from *ἄρθρον*, a Joint, and *ἐμβάλλω*, to impel, or force in. An Instrument, by means of which the luxated Bone of a Joint is restored to its natural Place and Situation. *Castellus* from *Sponius*.

ARTHRITICA, *ἀρθρίτις*, is the same as

ARTHRITIS, the Gout, from *ἄρθρον*, a Joint; as if we should say the Disease of the Joints, or Joint-evil.

So much has been said on this Distemper by Authors of almost all Ages; and so many trifling Theories have been erected with respect to the Gout, that it would take up a great Number of Volumes to give only an Extract of what has been said on this copious Subject. Much of this I shall therefore pass over; and the Reader will sustain but little Loss by this Omission, because Success in Practice, the only thing which can render a Theory valuable, has not yet confirmed the Speculations of any Author; inasmuch that the Distemper has remained incurable, notwithstanding all the Visions of Theorists, and Boasts of Empirics.

The Method I shall take in this Article will be to give, first, the Sentiments of two Authors only amongst the Antients, which are *Arætaus*, and *Cælius Aurelianus*.

Secondly, the History of the Distemper from *Sydenham*.

Thirdly, the History of the *Anomalous*, or Irregular Gout, with the Method of Cure, from *Musgrave*.

And lastly, I shall take the Liberty of making some Remarks relating to this obstinate Distemper.

From **ARÆTÆUS.**

The Pain which affects all the Joints in common is an *Arthritis*; if it be seated in the Feet, it is called *Podagra*; if in the Hips, it is a *Sciatica*; if in the Hands, a *Chiragra*: And thus it is, whether the Pain immediately attacks the Patient from some sudden Cause; or the Matter of the Disease, which

had for a long time lain dormant; is, upon some slight Occasion, kindled into a Fit. If the Disease becomes universal, it affects the whole nervous System. The Pain, first seizes the Nerves, the Ligaments of the Joints, and all those Parts which arise from and terminate in the Bones. And here it is Matter of great Admiration, that the Bones, which are utterly insensible to a Cut, or a Bruise, should under this Distemper acquire so exquisite a Sensation of Pain, as no Blows from an Iron Bar, no Compression with Cords, no Wounds with a Sword, nor Burnings with Fire, are capable of producing, but are rather wish'd for and chosen as Alleviations and Remedies of greater Pains. Nay, if the affected Bones were even to be amputated, the Pain endur'd under the Section would be diminished, as a small thing is by Comparison with a greater; or, if it should happen to prevail, the Patient would by that means receive a Pleasure from the Oblivion of his former Pain. Such then are the Misfortunes which are incident to the Teeth, as well as the Bones.

The true and undoubted Cause hereof is only known to the Gods, but Men may be allow'd to assign a probable Reason for it, which I shall do in short as follows. Bodies of a very dense Substance are insensible to the Touch and Wounds, and therefore can feel no Pain from such Impressions: For Pain is a Sensation of Asperities; but a dense Substance is not subject to be exasperated, and therefore is unsuceptible of Pain: On the contrary, whatever is of a rare Contexture, is quick of Sensation, and exasperated with a Wound. But since dense Substances are also animated by their native Heat, they exercise Sensation by the same Heat. Tho' there be a substantial efficient Cause then of a Wound, as a Sword, or a Stone, the Substance of the suffering Body receives no painful Sensation, because of its natural Denseness. But if the native Heat be alter'd from its just Temperament, the Sensation is perverted, and the Heat of such Substances, being excited by an internal Impulse of the sensitive Faculty, begets its own Pain; but Pains proceed from an Increase or Luxuriance of Nature.

The *Arthritis* makes its Attacks after different Manners, according to the Nature of the Joint. Sometimes it seizes upon the Hips, and often leaves a Lameness behind it; but is more favourable to the rest of the Members, and spares the smaller ones, as the Feet and Hands. For if it fixes on a large Member, which has Room to entertain it, it does not transgress the Bounds of that Limb; but if it begins with a small Part, it makes its Entrance in a mild and unexpected manner. In the *Sciatica* it begins with the hinder Part of the Thigh, the Ham, or the Tibia; at other times the Pain seizes upon the Acetabulum of the Os Femoris, and then makes an Attack upon the Buttocks or Loins, and seems to be any thing rather than a *Sciatica*. In the Joints it begins its Course in the following manner: First, the great Toe is seized with a Pain; after that, the fore Part of the Heel, on which we lay most Stress; then the Cavity near the same Part, and last of all the Ankle-bone swells. The Patients ascribe their Illness to wrong Causes; some lay the Fault on their new Shoes, others on a long Walk; one imputes it to a Stroke, another to a Tread: None thinks the Cause to be internal, nor will the Patients believe those who are so wise as to tell them the Truth. For this Reason the Distemper becomes incurable, because it is not opposed by a Physician in the Beginning, when it was in its weakest State; but when it has acquired Strength with Time, all the Care and Thought spent about it are thrown away. Some then are fetter'd with the Gout in their Feet during Life; in others it extends itself through the whole Compass of the Body; but for the most part it rushes from the Feet upon the Hands; for the Difference is not much, whether the Disease be in the Hands or the Feet, both these Parts being of the same Nature, slender and void of Flesh, most exposed to the outward Cold, and most remote from the internal Heat. Hence it ascends to the Elbow and Knee, and seizes on the Acetabula of the Os Femoris, where altering its Course, and winding about, it makes a Transition to the Muscles of the Back and Thorax. The Disorder spreads at an incredible rate, takes Possession of the Vertebrae of the Neck and Spine, and fixes itself on the Extremity of the Os Sacrum; and though all these Parts labour under one common Disease, each Part has its peculiar Pain. To proceed, the Tendons, Glands, and Muscles, suffer all together under Pain and Tension; the Muscles of the Jaws, and of the Temples, and afterwards those of the Kidneys and Bladder; and, what is most of all to be admired, the very Nostriils, Ears, and Lips, are affected*, for Nerves and Muscles are found in every Part.

A certain Person was afflicted with a Pain of the Sutures of the Head, and being ignorant of the Parts affected, described the Figures of the Sutures, as the oblique, strait, and transverse Sutures, on the fore and hinder Part of the Head, complaining of a dull Pain which had fix'd itself in the Bones; for the Disease prey'd as much upon every Closure of the Bones, as upon a Joint of the Foot or Hand. The Joints are also beset with Callosities, which at first resemble an Abscess; but growing

* M. Petit here takes Occasion to profess his Wonder, how *Arætaus*, so exact and masterly in his Descriptions, should overlook what *Ætius* after him observed, which was, that in the Extremity of the Disease the Iris is sometimes affected.

more and more condensed, and the humid Matter being concreted, Inflexion becomes painful. At last white, solid Substances, or Tophi, are formed, and small Tubercles, like Pimples in the Face, and sometimes bigger, overspread the Part. The Humour itself is white, thick, and of a Substance like Hail; and indeed the Nature of the Disease is to diffuse a Coldness like that of Hail over the Body. To some this Distemper seems to consist in something different from Heat or Cold, for we receive Pleasure sometimes from one, and sometimes from the other; but I am of Opinion, that the Disease is one in Essence, and has one Cause, that is, innate Cold. But if it should increase very fast, and there appear all the Signs of Heat, there is Need of Refrigeration, in order to mitigate and repress the Violence of this, which they call the hot Species of *Arthritis*. But if the internal Pain of the Nerves continues, and the Joint be cold, without any Swelling, the Disease may be said to be of the cold Kind, for which heating Medicines are required for restoring Heat to the Part. And for the most part such Medicines as are endued with a great deal of Acrimony are necessary to be used, which, by their stimulating Warmth, may raise the collapsed Parts into a Tumor, and draw the internal Heat to the Superficies; after which Refrigerants may be serviceable, as appears from considering that the same Treatment does not always agree with the same Patients; for what is beneficial at one time, proves hurtful at another; but, to say all in a Word, Heat is necessary in the Beginning, and Cold at the End. The *Podagra* is seldom perpetual; sometimes it takes its Leave of the Patient for a long time together, because it happens to be rarefy'd. A gouty Person at the Olympic Games, on a Remission of his Fit, won the Prize at a Foot-race.

Men are more subject to this Distemper than Women, but endure it better; on the contrary, Women are not so frequently afflicted with it as Men, but more severely. For whatever Evils we submit to from Necessity, their strange and unfamiliar Form increases the Calamity. The Age which lies most obnoxious to the *Arthritis* is after five-and-thirty; but it may be contracted sooner or later, according to the Constitution, and way of Living. The Pains indeed are great, but the Symptoms which accompany them are more to be dreaded; such are, a Lipothymy at being touched, Inability to move, Loss of Appetite, Thirst, and want of Sleep. If the Patients recover, just as if they had escaped from Death, they lead a remiss Life, becoming intemperate, open, merry, bountiful, and luxurious in Diet; and, as if they were sure to escape from Death once more, enjoy the present Life with all manner of Freedom. The *Podagra* often degenerates into a Dropsy, and sometimes into an *Asthma*, in which Cases Death is unavoidable. *Arctæus πρὸς αἰσ. ὑπομ. χρο. παθ. Lib. 2. Cap. 12.*

*** Food, and Radishes often, after which recourse must be had to Hellebore. The Diet in such Cases must be such as is commonly prescrib'd in other chronic Disorders; and, next to Diet, Unctions, and cold Bathing in Sea-water, are the most usual Remedies for all gouty Patients. Hellebore is indeed a noble Medicine in the first Attacks of the Gout; but if the Disease be grown inveterate, and descend by hereditary Succession from the Parents, it accompanies the Patient to the Grave.

The following Method is advisable under a Fit of the Gout: Let the affected Part be wrapped in Sheeps greasy Wool, and embrocated with Wine and Oil of Roses. Some have received Benefit from the Application of a Sponge dipt in Oxycrate. After these let a Cataplasm be made of Bread, and Refrigerants, as Gourds, Pumpions, the small Gourd, Plantain, and Rose-leaves. The Herb *Sideritis* is also a Lenitive, used with Bread, Moss, Comfrey-roots, the Herb Cinquefoil, and Horehound with fine slender Leaves, the Decoction of which drank mitigates Pain; and the Herb, with Crums of Bread and Barley-flower, makes a Cataplasm. Also that Part of a Citron which is not eatable, together with Polenta, is an excellent Remedy; and so are dry Figs and Almonds, with Meal of one sort or other. These Remedies are of the Class of Refrigerants; and some of these have been found to relieve in particular Cases, and the same has also sometimes been effectual in others.

Others require heating Medicines, and among these the same does Good to different Persons, on a different Account. The following is commonly esteemed as an excellent Lenitive: Feed a Goat with Iris, as much as it will eat; and after allowing a sufficient Time for Digestion, kill the Goat, and let the Patient put his Feet into its Belly amongst the Dung. There are a thousand Remedies for the Gout; for this Distemper puts every one who has the Misfortune to labour under it upon being his own Physician. *Arctæus πρὸς ὁσπ. χρο. παθ. Lib. 2. Cap. 12.*

As to the Theory of *Arctæus*, it is much on a Level with those of later Date.

As *Arctæus* is imperfect with respect to the Cure, I shall give the Methods of the Antients

From COELIUS AURELIANUS.

If the Patient is costive, a simple Clyster is to be injected; and when the Disease has arriv'd at its greatest Height, so that the Parts appear tumid and inflated, Scarification is to be used;

and if the Situation of the Parts will admit of it, Cupping Glasses or Leeches are to be apply'd. But Scarification without Cupping is the more gentle of these Methods; for in this Case there is none of that Shattering of the Parts, which is the necessary Consequence of Cupping. The Bites of Leeches are also accompany'd with such a Degree of Pain, that a simple Scarification is still more tolerable. Vaporation with Sponges is also to be used; and Fomentation with warm Water, or warm Water and Oil; or with a Decoction of Fenugreek, Linseed, or Marshmallows. A lenitive Cataplasm is also now to be used, though before it was highly improper; because Parts that are swelling, ought not to be loaded and encumbered with any Weight. For this Purpose then we are to use Bread thoroughly softened, either alone, or mixed with the boiled Roots of Comfrey, which the Greeks call *σύνεργον*, or those of Marshmallows, or such other things as we approve of for Vaporation. When the Disease is evidently and indisputably on the Decline, we are to prescribe Bathings, Variety of Foods, and Water for the Patients Drink; and in order to allay the Pain caused by the Distemper, we are to use Cerats made up with sweet Oil, or Cyprian Oil, of that Medicine prepared of Far, which the Greeks call *διδυμῶν*, then a Malagma of *Dyachylon*, or *Mnafeum*, or what is commonly call'd *Diateles*, or *Diozeleum*, or *Diathalassestum*. The Patients Body is by little and little to be strengthened by walking in easy Shoes; he is at the same time carefully to guard against every thing that may hurt him, and all Excesses, especially in Wine, Venery, and every thing that has a Tendency to bring on Indigestion. 'Tis also proper to give Arthritic Patients Wax to mould soft by their Fingers; or those Instruments which the Gymnastics called *Halteres*, are to be held in their Hands, and mov'd; and these Instruments ought at first to be of Wax, or Wood with a little Lead melted here and there into it; then more weighty Bodies may be given them, according to the Advances of the Cure. And even though the Disease should be long protracted, the above-mentioned Simplicity of Cure is to be observed during the Paroxysms; but in the Intervals, the Body is to be strengthened and recruited: For this Purpose let Gestation, according to the Patients Strength, be used, then walking upon Ground made even with soft Straw, together with Vociferation, and Unction of the Body; for in this Case, as well as in other Disorders of an old Date, the want of due and proper Exercise renders the Patients gross and corpulent, by which means the Joints are rack'd, and the unexercised Nerves weakened. Bathings are also to be employed on stated Occasions, and the Patient is to have Variety of Food of a neutral Quality. He is also to use a small Quantity of mild Wine; but that must always be done after his Meals; then a simple or compound *Dropax*, and a *Paroptesis*, or Provocation of Sweat by Fire, the Heat of the Sun, warm Skins, or hot Sea-bath; after these, Sprinklings, which the Greeks call *συνδάματα*, of Nitre, *Adarce*, and *Euphorbium*. Then Ointments are to be apply'd; and such Medicines as remove Weariness and Pain, call'd by the Greeks *Acopa*, composed of Squills, wild Cucumber, as also of *Euphorbium* and *Adarce*. Then a Malagma is to be used of what we call *Diabalon* or *Diadaphnidon*, or *Diadarce*, or a Lixivium of *Diasfaste*, or any thing else of a like Nature. The Rubification of the Skin, by the Greeks call'd *κόκκινος*, is also to be procured by Applications of Mustard. He is also to be directed what the Greeks call *Drimsphagia*, or the Use of acrid Substances, and the Regimen of the *Metasyneritic Cycle*; as also Vomits of emetic Roots, and Hellebore, and Bathings, such as are prescribed for those who labour under *Sciaticas*. Fomentations are also to be used made of Decoctions of Mugwort, or warm Sea-water. Then the Patient is to use Swimming, either in warm or cold Water. The Use of natural Waters is also proper both of the hot and cold Kind, such as those of the *Tyber*, and *Cutilian Lake* in Italy. The Use of all the above-mentioned Remedies is to be continued; for they will either produce a perfect Cure, or, which is next to it, render the Return of the Paroxysms less frequent.

Some of the Antients prescribed Medicines in this Disease to be drank for a Year, such as that they call'd *Diacentaurion* and *Diastordeon*. These were to be used for a complete Year running, by those in whom the Distemper was not of long Standing, that is, if they had not contracted it above five Years before the Use of this Course, which they did not approve of, till the Patient's Body was disposed by proper Evacuations for entering upon it. If the Course was not persisted in for the Year running, yet it was to be followed for the Number of Days of which a Year consists, though considerable Intervals should happen between them. But in my Opinion, according to the Advice of *Sorānus*, a long-protracted Course of taking Medicines is to be dreaded in its Consequences, since of course the ordinary and most salutary Foods to which the Patient was formerly accustomed, cannot be used by him. Thus in some of the Antients we find Accounts of some Patients falling into acute Diseases, by a constant and protracted Use of Medicines; of others who have died of Apoplexies, Pleurifies, and Peripneumonies; and that others, by the same means, have been afflicted

afflicted with a continual Difficulty of Breathing, which the *Greeks* call *ἄστυα*. They who affirm, that they have found Advantage from such a Course, do not advert, that the Benefit they received was the Result of Digestion being preserved by means of a good and slender Regimen; for the Excess of peccant Humours abating, and Health continuing, some have been afraid to give over their Course, and have been so much prejudiced in its Favour, that they could not possibly believe, that any other Means could contribute to their Health and Preservation. Some advise burning the gouty Protuberances, and Parts most immediately affected. But I disapprove of this Practice, since it has a Tendency to draw the adjacent Parts into Consent, and by that means excite Tumors. Some also approve of trying different Means, and prescribe Ointments and Cataplasms of widely differing Qualities, till they light on the very Medicine by means of which the Patient is relieved; for some things seem in their Natures adapted to some Patients, and others to others; and the Use of different Medicines will in different Patients produce the same Effect; that is, the Mitigation of Pain. Remedies of quite contrary Intentions have also been order'd in this Case; for Instance, laxative Medicines in Conjunction with Astringents and Restorers, such as the Malagma call'd *Mnaseum*, or Diachylon. Some, on the contrary, have order'd the more violent Astringents alone, such as *Dyateon* (*ῥα ἰσὺν ἑῖς*) *Cyzicenum*, and the *Emplastrum Erasistratium*; as also a Cataplasm of the Powder of *Panic* and Lintseed; and of wild Cabbage or Groundsel, or Water-sea-green, or Mandrake, or Henbane, or Lentils, or the Heart of a Citron, or Pompion, or Origanum, or Thyme, or Lupins, or Purslain, or Beets, or Pomgranates with green Leaves; or its Blossom, which the *Latins* call *Ampullagium*, boil'd with Vinegar; or wild Rue with Vinegar alone, or with common *Alica*; or the Sediment of Vinegar with Smallage; or the Leaves of the Vine with common *Polenta*; or fine Meal of the bitter Vetch; or of Beans, Barley, Darnel, or Lupins, with the Dregs of Wine or Vinegar; or Figs boil'd with Water and Wine, and beat into the Consistence of Honey; then separating the harder Parts, they order the Remainder to be again boiled. As also of the tender Stalks of Poppy, which the *Greeks* call *κασία*; or their Leaves, and Quinces and Pomgranates boil'd in Wine, and their Pulp with Honey; or the Root of Henbane with Storax; or Roots and Leaves of Hyacinth and Horehound; as also Lime boil'd in Honey; and Opium, Storax, and bitter Almonds thoroughly boil'd in *Cyprian* Oil and Vinegar: With these they order the Parts affected to be anointed. Thus, without any Order, and, in a manner, repugnant to the Art of Physic, they order things the most directly opposite, and pass from one Medicine to another, till they light on such as are proper for the Disease; since different Patients are reliev'd by different Means. This Method of trying Experiments is, by the *Greeks* called *ῥηδισμὸς ὡς ἐστὶν*, which does not adhere to certain stated Medicines for the Cure of Diseases; but makes Trial of Numbers till the Intention is answer'd. Besides, it sometimes happens, that the Paroxysms do not seize the Patient for a long time, and of their own accord become gradually more gentle, and, the Disease declining apace, the Patient is perfectly cured. But those Medicines which are thought proper in the declining State of the Disease, are found hurtful in its Beginning or first Stage, since they are not applied at a seasonable Time; they therefore think, that some are relieved by one Set of Medicines, and others by another. But we ought to be very careful to adjust and proportion Medicines to the Stages of the Disease, and the State of the Patient; for, in the Beginnings of the Distemper, moderate Astringents are proper; but in its Increase and Height, mitigating and laxative Medicines are to be used. In the Declension, Emollients are proper. In the Intervals, corroborating and recruiting Medicines take Place. But cold and repellent Medicines, call'd by the *Greeks* *ἀνταρσινὰ*, are proper even when the Disorder is attended with an Erysipelas. But some affirm, that even in this Case Coolers are serviceable, as they moderate the Inflammation; for their Application, say they, is agreeable to those burning Heats which arise from Tumors, and allays them just as cold Water poured into hot Water reduces it to a mild and tepid Heat. But this Conclusion is plainly false, since 'tis what the *Greeks* call *σophisma*; for if their Reasoning was good, it would follow, that cold Substances were proper for all Tumors. We are therefore to adjust Medicines to the Natures of Disorders, and their several Stages. Some in gouty Cases commend an *Acopum* of Toads. Some anoint their Feet with the Fat of a Sea-calf, and wear Shoes made of its Skin. Others again boil this Animal alive, and others a Wolf, and affirm that anointing with the Oil, produced, is of singular Efficacy; for many foolish Medicines are believed by credulous People to be effectual, because they have been apply'd at a Time when the Disease was not fixed, but beginning with a gentle Attack on the Body, and often changing its Appearances.

Many have, in like manner, approv'd of Vomits exhibited after Meals twice or thrice every Month, imagining that by

that means the peccant Matter was hinder'd from reaching the Joints, and Indigestion prevented; not adverting that the Patient suffer'd still more and more, since by this means the Gums become putrid, the Teeth are render'd loose, the Eyes distorted and weaken'd, the whole Head fill'd, the Stomach violently affected, and all the Nerves drawn into Consent. A spare and slender Diet is therefore more commendable in this Case, and the Foundation of the Cure is to be laid in Abstinence.

Many Physical Writers in this Distemper recommend the more acrid Purgatives, and such Medicines as promote Urine; which they call *Diuretic*. But we must carefully guard against Irritations of the Stomach, which are very readily produced by Variety of Medicines; we must also take care not to irritate the Bladder, which is of a very nervous, and consequently a very sensible Nature; and when it is affected, by its nervous Quality it conveys Pain and Uneasiness to all the Parts of the Body: But, not to enumerate all the Errors of the Antients, I think what they have written concerning the Gout vain, prolix, and frivolous; and that the several Steps of Cure above-mention'd are sufficient; but as I have hitherto made no mention of the several Authors from whom they were taken, I shall here subjoin an Account of them. The first then is *Dioscorides* in the Books he wrote concerning Diseases, their Causes and Cures. *Praxagoras* in his third Book of Diseases. *Erasistratus* in the Book he wrote concerning the Gout, in which, tho' he forbids Purgatives call'd *Cathartics*, yet he promised a Malagma to King *Ptolemy*, a Receipt of which he has not left; tho' some People mention their having seen this Medicine of *Erasistratus*. Many also of the Followers of *Herophilus*, and *Asclepiades* in his Books wrote to *Erasistratus*, and *Heracides Tarentinus*; and *Themison* in his second Book of chronical Disease, who sometimes talks like one of the Methodic Sect, and sometimes not; for he recommends Phlebotomy in the Feet, does not account for any Part of his Practice, and confounds the Qualities of Cataplasms, not distinguishing between Astringents and Laxatives: But what occasion have we to confute his Sentiment in this Particular, since 'tis as well known, that Phlebotomy in the Feet occasions a Derivation of Humours to the Parts affected, as 'tis, that excessive Drinking weakens the Nerves? *Theffalus*, however, in his second Book, which he calls *Regularis*, has laid down the Cure of the Gout imperfectly indeed, but in a manner consistent enough with the Principles of the Methodic Sect. *Cael. Aurel. Chron. Lib. 5. Cap. 3.*

From SYDENHAM.

The Gout generally attacks those aged Persons who have spent most Part of their Lives in Ease, Voluptuousness, High-living, and too free an Use of Wine, and other spirituous Liquors, and at length, on account of the common Inability to Motion in old Age, entirely left off those Exercises, which young Persons generally use. And further, such as are liable to this Disease have large Heads, and are generally of a plethoric, moist, and lax Habit of Body, and withal of a strong and vigorous Constitution, and possessed of the best Stamina Vitæ.

The Gout, however, not only seizes the gross and corpulent, but sometimes, tho' less frequently, affects lean and slender People; neither does it always wait till old Age comes, but sometimes attacks such as are in the Prime of Life, when they have received the Seeds of it from gouty Parents, or have otherwise occasioned it by an over-early Use of Venery, or the leaving off such Exercises as they formerly indulged to Excess; and besides have had a voracious Appetite, and used spirituous Liquors immoderately, and afterwards quitted them of a sudden for those of a thin and cooling kind.

When it seizes a Person far advanced in Years, for the first time, it never has such stated Periods, nor proves so violent, as when it attacks one that is younger, because, he generally perishes before the Disease accompany'd with its natural Symptoms, comes to its Height; and because the native Heat and Vigour of the Body being diminish'd, the Distemper cannot be so constantly and effectually propell'd and fix'd upon the Joints. But when it comes on sooner, tho' it may not yet fix on one Part, nor prove so severe, but affect the Patient occasionally, keeping no certain Period, giving only a little Pain for a few Days, and coming on and going off without any Regularity; yet, however, in time it takes full Possession, and becomes regular both with respect to the Time of its coming, and the Duration of the Fit; so that it is more severe in its Progress than in its Beginning.

I shall first treat of the *Regular Gouts*, and next of the *Irregular*; whether occasioned by an unadvised Use of improper Remedies, or the Weakness of the Subject.

The Gout, when *regular*, generally seizes the Patient in the following manner. It comes on a sudden towards the Close of *January*, or the Beginning of *February*, giving scarce any Sign of its Approach, except that the Patient is afflicted for some Weeks previous thereto, with a bad Digestion, Crudities of the

Stomach, and much Flatulency and Heaviness, that gradually increase till the Fit at last commences; which, however, is preceded for a few Days by a Numbness of the Thighs, and a sort of Defect of Flatulencies thro' the fleshy Parts thereof, along with convulsive Motions; and the Day preceding the Fit, the Appetite is sharp, but preternatural. The Patient goes to Bed, and sleeps quietly till about Two in the Morning, when He is awakened by a Pain which usually seizes the great Toe, but sometimes the Heel, the Calf of the Leg, or the Ankle. The Pain resembles that of a dislocated Bone, and is attended with a Sensation, as if warm Water were poured upon the Membranes of the Part affected; and these Symptoms are immediately succeeded by a Chillness, Shivering, and a slight Fever. The Chillness and Shivering abate in proportion as the Pain increases, which is mild in the Beginning, but grows gradually more violent every Hour, and comes to its Height towards Evening, adapting itself to the numerous Bones of the Tarsus and Metatarsus, the Ligaments whereof it affects; sometimes resembling a Tension or Laceration of those Ligaments, sometimes the Gnawing of a Dog, and sometimes a Weight and Constriction of the Membranes of the Parts affected, which becomes so exquisitely painful, as not to endure the Weight of the Cloaths, nor the shaking of the Room from walking briskly therein. And hence the Night is not only passed in Pain, but likewise with a restless Removal of the Part affected from one Place to another, and a continual Change of its Posture: Nor does the perpetual Restlessness of the whole Body, which always accompanies the Fit, and especially in the Beginning, fall short of the Agitation and Pain of the *gouty* Member. Hence numberless fruitless Endeavours are used to ease the Pain, by continually changing the Situation of the Body, and of the Part affected, which notwithstanding abates not till two or three o'Clock in the Morning, that is, twenty-four Hours from the first Approach of the Fit; when the Patient is suddenly relieved by means of a moderate Digestion, and some Dissipation of the peccant Matter, tho' he erroneously judges the Ease to proceed from the last Position of the Part affected. And, being now in a breathing Sweat, he falls asleep, and upon waking finds the Pain much abated, and the Part affected to be then swell'd; whereas before only a remarkable Swelling of the Veins thereof appeared, as is usual in all *gouty* Paroxysms. The next Day, and perhaps two or three Days afterwards, if the *gouty* Matter be copious, the Part affected will be somewhat pained, and the Pain will increase towards the Evening, and remit about Break of Day. In a few Days it seizes the other Foot in the same manner; and if the Pain be violent in this, and that which was first seized be quite easy, the Weakness thereof soon vanishes, and it becomes as strong and easy as if it had never been indisposed: Nevertheless, the Gout affects the Foot last seized, as it did the former, both with respect to the Vehemence and Duration of the Pain: And sometimes, when the peccant Matter in the Beginning of the Fit is too copious for one Foot to contain, it affects both at the same time with equal Violence, but it generally attacks the Feet successively, as above remarked. When it has seized both Feet, the following Fits are irregular, both with respect to the Time of Seizure, and their Continuance; but the Pain always increases in the Evening, and remits in the Morning; and what we usually call a Fit of the *Gout*, which goes off sooner or later, according to the Age of the Patient, is made up of a Number of these smaller Paroxysms. For when this Disease lasts two or three Months, it is not to be esteemed one continued Fit, but rather a Series or Assemblage of small Fits, the last of which proves milder and shorter, till the peccant Matter being at length entirely expelled, the Patient recovers his former Health; which in strong Constitutions, and such as seldom have the *Gout*, often happens in the Space of fourteen Days; and in the Aged, and those that have frequent Returns of the Disease, in two Months; but in such as are more debilitated, either with Age, or the long Duration of the Distemper, it does not go off till Summer advances, which drives it away. During the first fourteen Days the Urine is high-colour'd, and, after Separation or Standing, lets fall a red, gravelly Sediment; and not above a third Part of the Liquids taken in is voided by Urine, and the Body is generally costive during this Time. The Fit is accompanied throughout with Loss of Appetite, a Chillness of the whole Body towards the Evening, and a Heaviness and Uneasiness even of those Parts that are not affected by the Disease. When the Fit is going off, a violent Itching seizes the Foot, especially between the Toes, whence the Skin peels off, as if the Patient had taken Poison. The Disease being over, the Appetite and Strength return sooner or later, according as the immediately preceding Fit hath been more or less severe; and, in Consequence of this, the following Fit comes on in a shorter or longer Space of Time; for, if the last Fit proved very violent, the next will not attack the Patient till the same Season of the Year returns again.

In this manner does the regular *Gout*, accompany'd with its genuine and proper Symptoms, appear; but when it is exasperated, either by wrong Management, or long Continuance,

so that the Substance of the Body is in a manner changed into Supplies for the Disease, and Nature unable to expel it according to her usual Way, the Symptoms differ considerably from those just described: For, whereas the Pain hitherto only affected the Feet, (which are the genuine Seat of the morbid Matter, which, whenever it attacks any other Part, clearly proves, either that the Course of the Disease is obstructed, or the Strength gradually impair'd) it now seizes the Hands, Wrists, Elbows, Knees, and other Parts, no less severely than it did the Feet before: For sometimes it renders one or more of the Fingers crooked and motionless by Degrees, and at length forms stony Concretions in the Ligaments of the Joints, which destroying both the Scarf-skin and Skin of the Joints, Stones not unlike Chalk or Crabs-eyes appear, and may be pick'd out with a Needle. Sometimes the morbid Matter is thrown upon the Elbows, and occasions a whitish Swelling, almost as large as an Egg, which becomes gradually inflamed and red. Sometimes it affects the Thigh, which seems to sustain a great Weight, yet without much Pain; but thence gaining the Knee, it attacks that Part more violently, depriving it of Motion, so as to nail it, as it were, to one Place in the Bed. And when it is necessary to move the Patient, either on account of the Restlessness of the whole Body, which is so frequent in this Disease, or some other urgent Occasion, it ought to be done with great Caution, as the least contrary Motion or Shock may perhaps give Pain, which is only tolerable for this Reason, because it soon goes off. And, indeed, this Necessity of moving the Patient with such Care and Tenderness by the Assistants, is no inconsiderable Part of the Evils which attend the *Gout*; for an Excess of Pain does not last during the whole Paroxysm, in case the Part affected be kept perfectly without Motion.

As the *Gout* heretofore did not usually come on till the Decline of Winter, and went off in two or three Months, it now continues all the Year, excepting two or three of the warmest Summer Months. And it is further to be observed, that as the cardinal or general Fit continues longer now than it did heretofore, so likewise those particular Fits, of which the general one is made up, rage a longer time; for whereas one of these did not last above a Day or two before, it now, where-ever it fixes, does not go off till the fourteenth Day, especially if the Feet or Knees be affected thereby. To this may be added, that the Patient on the first or second Day after its coming, besides the Pain, is afflicted with Sickness, and a total Loss of Appetite.

In the last Place, before the Disease came to such a Height, the Patient not only enjoy'd longer Intervals between the Fits, but likewise had no Pain in the Limbs, and the other Parts of the Body, all the bodily Functions being duly performed; whereas now his Limbs, during the Intermision of the Disease, are so contracted and disabled, that tho' he can stand, and perhaps walk a little, yet it is very slowly, with great Trouble, and so lamely, that it scarcely deserves the Name of walking; and if he endeavours to walk beyond his Strength, in order to recover the Use of his Feet, the stronger they grow, and the less liable they are to Pain upon this Account, so much more does the morbid Matter, not wholly dissipated during this Interval, threaten the Bowels, to the great Danger of the Patient, as it cannot be so freely thrown upon the Feet, which, in this State of the Disease, are never quite free from Pain, but always have an uneasy Sensation in some Degree.

Moreover, the Patient is afflicted with several other Symptoms; as a Pain in the Haemorrhoidal Veins, nidorous Eructations resembling the Taste of the Aliment last taken in, and corrupted in the Stomach; this happens always after eating any thing of difficult Digestion, or even no more than is proper for a healthy Person: Add to these a Loss of Appetite, and a Debility of the whole Body, for want of Spirits; which render his Life melancholy and uncomfortable. The Urine, which was before high-colour'd, especially in the Fits, and voided in a small Quantity, now resembles that which is evacuated in a Diabetes both in Colour and Quantity, and the Back and other Parts itch much towards Bed-time.

It also happens, when the Disease is grown inveterate, that after Yawning, especially in the Morning, the Ligaments of the Bones of the Metatarsus are violently convulsed, and seem to be forcibly press'd by a strong Hand. And sometimes, tho' no Yawning has preceded, when the Patient is composing himself to Sleep, he feels a sudden Pain, as if the Metatarsus were breaking in Pieces by a Blow with a Stick, so that he wakes crying out with Pain. The Tendons of the Muscles of the Tibiae are sometimes seized with so sharp and violent a Convulsion or Cramp, that if the Pain it occasions were to last only a short Time, it would overcome all human Patience.

But after many racking Pains, the following Paroxysms become less painful, as an Earnest of the Delivery which approaching Death is about to give, Nature being in part oppress'd by the Quantity of the morbid Matter; and in part by old Age, so as not to be able to propel it constantly and vigorously to the Extremities; but instead of the usual external Pain, a certain Sickness, a Pain in the Belly, a spontaneous Lassitude, and some-

sometimes a Tendency to a Diarrhoea, succeed. When these Symptoms are violent, they ease the Pain of the Limbs, which returns upon their going off; and the Paroxysms are much prolonged by this alternate Succession of Pain and Sickness. For it is to be observed, that when the Disease has continued several Years, the Pain diminishes gradually every Fit, and the Patient at last is worn out rather by the Sickness than the Pain, which in these Fits, tho' it be longer, is not near so violent as that which he usually suffer'd, when his Strength was less impaired. But nevertheless this Violence of the Disease was ordinarily recompensed by longer Intervals between the Fits, and the good State of Health the Patient enjoy'd during the Intermission. For Pain in this Disease is the disagreeable Remedy of Nature; and the more violent it proves, the sooner the Fit terminates, and the longer and more perfect is the Intermission; and so on the contrary.

But besides the above-mention'd Symptoms, as the Pain, Lameness, Inability to Motion of the Parts affected, the Sickness, and other Symptoms above enumerated, the *Gout* breeds the Stone in the Kidneys in many Subjects, either because the Patient is obliged to lie long on his Back, or because the secretory Organs have ceased performing their proper Functions, or else because the Stone is form'd from a Part of the same morbid Matter; which, however, I do not pretend to determine. But from what Cause soever this Disease proceeds, the Patient is sometimes at a Loss to know whether the Stone or the *Gout* be most severe. And sometimes it happens, that a Stone in one or both of the Ureters, intercepting the Passage of the Urine to the Bladder, destroys him without waiting for the slow Advances of the *Gout*.

The Patient is not only reduced to this helpless Condition, but, to complete his Misery, his Mind, during the Fit, sympathizes with his Body, so that 'tis not easy to determine which of the two is most afflicted. For every Paroxysm may be as justly denominated a Fit of Anger, as a Fit of the *Gout*; the rational Faculties being so enervated by the Weakness of the Body, as to be disordered upon every trifling Occasion; whence the Patient becomes as troublesome to others, as he is to himself. Moreover he is equally subject to the rest of the Passions, as Fear, Anxiety, and the like, which also torment him till the Declension of the Disease, when the Mind is restored to Health along with the Body, having recovered its former Tranquillity.

To conclude, the Viscera in time are so much injured, from the Stagnation of the morbid Matter therein, that the Organs of Secretion no longer perform their Functions; whence the Blood, overcharged with vitiated Humours, stagnates, and the *gouty* Matter ceases to be thrown upon the Extremities as formerly; so that at last the Patient is so happy, as to be freed from a most painful and burdensome Life, by Death, the ultimate Remedy.

But what may be a Consolation to me, and other *gouty* Persons of moderate Fortunes, and slender Abilities, is, that Kings, Princes, Generals, Admirals, Philosophers, and several other great Men, have thus lived and died. In short, it may in a more especial manner be affirmed of this Disease, that it destroys more rich than poor Persons, and more wise Men than Fools; which seems to demonstrate the Justice and strict Impartiality of Providence, who abundantly supplies those that want some of the Conveniences of Life, with other Advantages, and tempers his Profusion to others with an equal Mixture of Evil; so that it appears to be universally and absolutely decreed, that no Man shall enjoy unmixed Happiness or Misery, but experience both; and this Mixture of Good and Evil, so adapted to our Weakness, and perishable Condition, is, perhaps, admirably suited to our present State.

The *Gout* seldom infects Women, except they are far advanced in Years, and of a masculine Habit of Body; for such as are lean and emaciated, who in their Youth, or ripen Age, are seized with Symptoms not unlike the *Gout*, owe them to hysteric Disorders, or some preceding Rheumatism, the morbid Matter whereof was not sufficiently carried off in the Beginning. Nor have I hitherto found Children, or People not yet arrived at Maturity, affected with the true *Gout*. Yet I have known some who have felt slight Touches of it before Manhood; but these were such as were begot whilst their Father actually laboured under the *Gout*; and let this suffice for the History of this Disease.

Upon a thorough Attention to the various Symptoms of this Disease, I judge it to proceed from an universally depraved Concoction; for such as are subject to it, are either worn out by old Age, or have contracted prematurely the Infirmities of it by Debauchery; and hence labour under an universal Defect of Animal Spirits, wasted by the immoderate Exercise of the vigorous Functions in the Heat of Youth: For Instance, by a too early, and excessive Use of Venery; by an extravagant and incessant Pursuit after Pleasures, and the like; to which must be added, the leaving off such bodily Exercises on a sudden as they had formerly used, (whether through Age or Indolence)

which served to invigorate the Blood; and strengthen the Tone of the Solids; whence the Strength decays, and the Concoctions are no longer duly performed; but on the contrary, the excrementitious Part of the Juices, which was formerly expelled by means of such Exercises, is accumulated in the Vessels in order to nourish the Disease. And sometimes it has happened, that the Disease hath been increased by a long-continued Application to Study and Meditation, whereby the finer and more volatile Spirits are diverted from their proper Function of assisting the Concoctions.

Again, such as are subject to the *Gout*, besides having a voracious Appetite in general, principally covet Aliment that is difficult to digest; of which, when they have eaten as plentifully as they usually did when they used Exercise, their Organs are unequal to the Task of digesting it properly. But this way of Living does not occasion the *Gout* so frequently as the excessive Use of Wine, which destroys the Ferments designed for various Concoctions, hurts the Concoctions themselves, and overcomes and dissipates the natural Spirits, by reason of the Abundance of adventitious Vapours. Now the Spirits, which are the Instruments of Concoction, being weakened, and the Blood at the same time overburdened with Juices, all the Concoctions must necessarily be depraved, as all the Viscera are so oppress'd. Hence the Spirits, that have long been in a declining State, are now quite exhausted. For if this Disease proceeded only from a Debility of the Spirits, it would equally affect Children, Women, and People debilitated by a tedious Illness; whereas the strongest and most robust Constitutions are principally subject to it, but not before Abundance of Humours are collected in the Body, through the Decay and Waste of the natural Heat and Spirits, which in Conjunction pervert the vitiated Concoctions.

Again, as each of the Causes we have enumerated promotes Indigestion, so most of them contribute, in some measure, to introduce a Laxity of the Habit, and Muscles of the Body, which makes way for the Reception of crude and indigested Juices, as often as they are thrown upon the external Parts. For when, by lying long in the Blood, they are increased in Quantity, and have put on a morbid Quality, they at last acquire a Heat sufficient for Putrefaction; and, Nature being then no longer able to regulate them, they shew themselves in the Form of a Disease, and fall upon the Joints, and, by their Heat and Acrimony, occasion exquisite Pains in the Ligaments and Membranes that cover the Bones; which, being weakened and relaxed, either by Age or Intemperance, easily admit them. But this Translation of the Humours occasioning the *Gout*, and forming a *gouty* Fit, happens sooner or later, according as these Humours are put in Motion by adequate Causes.

As to the Cure, in treating of which I shall first specify the things to be avoided, if regard be had to the Humours, and the Indigestion occasioning them, it should seem at first View, that the curative Indications should principally tend, first, to evacuate the Humours already generated; and, secondly, to strengthen the Concoction or digestive Powers, so as to prevent the Accumulation of other Humours; these being the usual Indications to be answered in most other Humoral Diseases. But nevertheless, in the *Gout*, Nature seems to have this singular Prerogative, to expel the peccant Matter according to its own Method, and deposit it upon the Joints, there to be carried off by insensible Perspiration. Now there are only three ways proposed of expelling the morbid Matter of the *Gout*, which are Bleeding, Purging, and Sweating; but none of these will ever answer the End.

Though Bleeding seems to bid fair for evacuating the Humours, as well those which are upon the point of falling on the Extremities, as those already in the Joints, yet it manifestly interferes with that Indication, which the antecedent Cause, that is, Indigestion, arising from a Depravity or Defect of Spirits, demands, which Bleeding further weakens and diminishes. For this Reason, Bleeding is not to be practised either by way of preventing an approaching, or easing a present Fit, especially in those advanced in Years; for though the Blood which is taken away, generally resembles Pleuritic or Rheumatic Blood; yet Bleeding is found to do as much Mischief in this Disease, as it does Good in those. And Bleeding in the Intervals, though long after the Paroxysm, is subject to occasion a fresh Fit by the Agitation of the Blood and Juices, which may continue longer, and be attended with more violent Symptoms than the former; the Vigour of the Blood being thus impaired, by means whereof the morbid Matter should be powerfully and constantly expelled. This Inconvenience always happens from Bleeding in the Beginning of the Fit; and if it be used immediately after the Fit, there is great Danger, lest Nature, on account of the present Debility of the Blood, which has lost much of its Vigour by the preceding Fit, should be so far debilitated as to sink into a Dropsy. However, if the Patient be young, and overheated by hard Drinking, a Vein may be opened in the Beginning of the Fit; but if Bleeding be always used in the succeeding Paroxysms, it will soon render the

the *Gout* inveterate, even in Youth, and cause it to spread more universally in a few Years, than it otherwise would have done in many.

With respect to Vomiting and Purging, it must be observed, that as it is a fixed Law of Nature, and interwoven with the Essence of this Disease, that the morbid Matter thereof ought always to be translated to the Joints, Emetics or Cathartics will only invite the *gouty* Matter back into the Blood, which was thrown off by Nature upon the Extremities; and hence what ought to be thrown upon the Joints, fixes, perhaps, on some of the Viscera, and so hazards the Life of the Patient, who was before in no Danger. And this hath often been observed to prove fatal to those who have ordinarily had recourse to Purgatives by way of Prevention, or, which is worse, to ease the Pain in the Fit; for when Nature is prevented from pursuing her usual, safest, and best Method of translating the morbid Matter to the Joints, and the Humours are forced inwards upon the Bowels, then, instead of Pain in the Joints, which is either slight, or none at all, the Patient is afflicted, and almost destroyed, by Sickness at the Stomach, Gripings, Faintings, and a numerous Train of irregular Symptoms.

For my own part, I am abundantly convinced from much Experience, that either lenient, or more powerful Cathartics, of those Sorts which are usually thought to purge the Joints, prove very prejudicial, whether they be used in the Fit to lessen the morbid Matter; or in its Declension, to carry off the Remainder; or in a perfect Intermission, or healthy State, to prevent an approaching Fit. For I have learned at my own Peril, as well as that of others, that Purgatives exhibited at any of these Seasons have, instead of doing Service, hastened the Mischief they were intended to prevent. Purging, therefore, during the Fit, by disturbing Nature when she is employed in separating the *gouty* Matter, and throwing it off upon the Joints, sometimes causes a considerable Disorder in the Spirits, which renders the Fit more violent, and likewise evidently endangers the Life of the Patient. Secondly, Purgatives administered at the End of a Fit, instead of expelling the Remains of the Disease, excite another Fit, as severe as the former; and thus the Patient, deceived by fruitless Hopes, brings those Evils upon himself, which he had escaped, if the Humours had not been exasperated afresh. And this Inconvenience, I myself often experienced, after having had recourse to Medicine to expel what I esteemed the Remains of the Distemper. Thirdly, as to purging at certain times in the Intervals, by way of Prevention, though it must be owned, that there is not so much Danger of occasioning a fresh Fit, as in the Instance just mentioned, the Patient in that Case not being perfectly recovered, yet, even at this Time, it is productive of a Fit, for the Reasons above specified; and though, perhaps, it may not come on immediately, the Disease nevertheless will not go off entirely, by taking any Purge constantly at proper Intervals; for I have known some *gouty* Persons, who, to recover their Health, not only purged Spring and Autumn, but monthly, and even weekly, and yet not one of them escaped the *Gout*, which afflicted them more severely afterwards, and was accompanied with more violent Symptoms, than if they had totally abstained from Medicine. For tho' such Purging might carry off a Part of the *gouty* Matter, yet as it does not at all contribute to strengthen Concoction, but rather weakens it, and injures Nature afresh, it only strikes at one Cause, and is by no means adequate to the Cure of the Distemper.

To these Observations it must be added, that the same Defect of Spirits which impairs the Concoctions in *gouty* Subjects, renders their nervous System weak and languid, so that the Spirits in general are soon disturbed by any Cause which violently agitates either the Body or Mind, and consequently are very volatile, and easy to be dissipated, as they frequently are in hysteric and hypochondriac Patients. And from this Tendency of the Spirits to irregular Motions it happens, that the *Gout* usually follows the slightest Evacuation. For the Tone of the Parts being destroyed, which the Firmness of the Spirits, so long as they continue strong, preserves unrelaxed and healthy, the peccant Matter moves without Interruption; and hence a Fit immediately breaks out.

But notwithstanding this Method is so very pernicious, yet there have been Empirics, who have acquired a great Character by artfully concealing the Cathartic they used in this Case. For it must be observed, that whilst the Medicine operates, the Patient feels no Pain at all, or but a slight one; and, if a Course of Purgatives can be continued for some Days, without

bringing on a recent Fit, the present Paroxysm will soon go off. But the Patient will suffer greatly afterwards, on account of the Tumult occasioned by this Agitation of the Humours.

Finally, the carrying off the peccant Matter by Sweat is manifestly prejudicial, though in a less Degree, than the above-mentioned Evacuations; for though it does not repel the morbid Matter to the Viscera, but on the contrary propels it into the Habit, it is notwithstanding detrimental for these Reasons:

First, Because, during the Interval of the Fit, it forces the Humours, which are yet crude, and not fitted for a due Separation, upon the Limbs; and thus occasions a Fit before its Time, and in Opposition to Nature.

Secondly, The promoting Sweat in the Fit throws and fixes the *gouty* Matter too powerfully upon the Part affected, at the same time occasioning intolerable Pain; and, if there be a greater Quantity thereof than can be received by the Part affected, it immediately throws it upon some other Parts, and thus raises a violent Ebullition of the Blood and other Juices; and, if the Body abounds considerably with a ferous Matter fit for the Generation of the *Gout*, an Apoplexy is hence to be apprehended.

Hence therefore, it is a very dangerous Practice, both in this and all other Diseases, in which it is customary to extort Sweats by Art, with a View of eliminating the morbid Matter, without waiting till they naturally arise, to force it out too violently, and beyond that Degree of Concoction, which the Humours to be carried off have spontaneously acquired*. The excellent Aphorism of *Hippocrates*, intimating, that *concocted and not crude Humours are to be evacuated*, holds good with respect to Sweating, as well as Purging, as appears manifestly from that Sweat which ordinarily terminates the Paroxysms of Intermitents; which, provided it be moderate, and proportioned to the Quantity of febrile Matter, concocted by the preceding Fit, relieves the Patient considerably; but in case it be promoted beyond the Limits prescribed by Nature, by keeping the Patient constantly in Bed, a continued Fever thence arises, and, instead of extinguishing the former Heat, an additional one is excited. So in the *Gout*, the gentle breathing Sweat, that generally comes on spontaneously in the Morning after each of the small Fits, of which, as I have before observed, the Cardinal Fit is compounded, eases the Pain and Restlessness, which tormented the Patient so much during the Night; but on the contrary, if this gentle Moisture, which is naturally of short Duration, be violently forced, and continued longer than the Quantity of the morbid Matter concocted by the preceding Fit requires, the Disease is thereby exasperated. In this therefore, and all other Diseases that I have met with, excepting only the Plague, it is Nature's Province, more than the Physician's, to excite Sweat, as we cannot possibly learn how much Matter is already prepared for such a Separation, and consequently what Method is to be taken in order to promote Sweat.

Since then it evidently appears from what has been delivered, that it is both a fruitless and a pernicious Attempt to endeavour to cure the *Gout* by evacuating Medicines, we are next to inquire what other Purpose the curative Indications are to be directed to answer. And, from a thorough Attention to the Symptoms above enumerated, we learn, that Regard must be had to two Causes principally in the Cure of this Disease.

First, The antecedent or primary Cause, or the Indigestion of the Humours, proceeding from a Defect of the natural Heat and Spirits. Secondly, The immediate Cause, or the Heat and Effervescence of these Humours after the Putrefaction and Acrimony they have acquired by continuing too long in the Body, which is occasioned by the Indigestion above-mentioned. Now these Causes differ so much from one another, that the Medicines which do Service in the one, prove pernicious in the other; and hence it is, that this Disease is so difficult of Cure. For at the same time that we endeavour to cure the Indigestion by warm Medicines, we run the Risk, on the other hand, of increasing the Heat of the Humours; and on the contrary, whilst we strive to mitigate the Heat and Acrimony of the Humour, by a cooling Regimen or Medicines, we bring on Indigestion, the natural Heat being already impaired. But here, by the immediate Cause, I do not only mean that which is actually deposited in the Joints, and forms the present Fit, but that also which still lies concealed in the Blood, and is not yet prepared for Separation. For all the morbid Matter is seldom so entirely expelled by the Fit, how lasting and severe soever it be, as to leave no Remains of it in the Body, after the Fit is

* If *Sydenham* had never written more than this Paragraph, he had merited thereby immortal Honours. For nothing more pernicious can be contrived than to force Sweats by heating Medicines. When the vital Powers have rendered the morbid Matter of any acute Distemper fit for Expulsion, Nature will find a Method of discharging it out of the Habit; and Sweats, if they are necessary, will spontaneously arise, provided all Obstacles are removed. It must be confessed, that Art may assist the vital Powers in attenuating the Mass of Humours, and rendering them fit for a subsequent Extermination. This, however, cannot be done by hot Sudorifics. Warm Remedies, it must be confessed, considered as Cordials, may possibly be of Advantage in the latter End of some acute Cases, as they may rouse the vital Powers, and excite them to Action, when too languid; but the great Abuse of these, which has prevailed to a surprising Degree, renders this Note the more necessary, which does not so much relate to the *Gout*, as to febrile Disorders.

gone off; so that, of course, Regard is to be had to this Cause both in the Fit, and during the Intervals. But as the Expulsion of the immediate Cause is entirely the Business of Nature, and to be perform'd according to her own Method, since nothing in the mean time can be done to cool the hot and acrimonious Humours, without injuring the digestive Powers, unless it be by avoiding a hot Regimen, and Medicines which inflame the Humours; so, doubtless, the chief curative Intention is, after the indigested Humours are removed, to strengthen the digestive Powers, which I shall now treat of; but in such manner, however, that I may, in the Course of this Dissertation, as Occasion offers, also mention those Remedies which tend to mitigate the Heat of the Humours, and correct their Acrimony.

Whatever Remedies, therefore, assist Nature to perform her Functions duly, either by strengthening the Stomach, so that the Aliment may be well digested; or the Blood, that it may sufficiently assimilate the Chyle received into the Mass; or the Solids, so as to enable them the better to change the Juices, design'd for their Nutrition and Growth, into their proper Substance; and lastly, whatever preserves the Secretory Vessels, and the Emunctories, in such a State, that the excrementitious Parts of the whole System may be carried off in due Time and Order; these, and all Medicines of the same Kind, contribute towards answering this Intention, and are properly intitled Digestives, whether they be of the medicinal or dietetic Kind, Exercise, or any other of those Things which are call'd the fix Non-naturals.

Such Medicines, in general, are those which are moderately heating, bitter, or of a mild pungent Taste, inasmuch as they agree well with the Stomach, purify the Blood, and strengthen the other Parts. For Instance, the Roots of *Angelica* and *Elecampane*, the Leaves of *Wormwood*, the *Lesser Centory*, *Germander*, *Ground-pine*, and the like: To which may be added, such as are commonly call'd *Antiscorbutics*, as the Roots of *Horse-radish*, the Leaves of *Garden Scurvy-grass*, *Water-cresses*, and the like. But these acrid and pungent Herbs, how agreeable and serviceable soever they may be to the Stomach, yet as they agitate the morbid Matter, which has long been generated, and increase the Heat, are to be used more sparingly than those, which by their mild Heat and Bitterness both strengthen the Stomach, and mend the Blood.

And, in my Opinion, a judicious Mixture of some Kinds of them answers the End of digesting the Humours better than any single Simple of this Class. For tho', whenever we have Occasion for a specific Virtue of any Medicine, it be a true Axiom, that the more simple it is, the better it is for the Purpose; yet, when a Cure is intended to be made by answering a particular Indication, every Ingredient contributes something towards curing the Disease; and in this Case, the more Simples the Medicine contains, the more powerfully it will operate. For this Reason, various Forms of Medicines may be elegantly compounded of the Ingredients above-enumerated, and the rest of the like Kind. I give the Preference to an Electuary made after the manner of *Venice Treacle*; because the Fermentation of the Simples together improves their Virtues, and produces a third Substance; which possesses greater Virtues in the Mixture, than any single Ingredient in the same Quantity. But I freely leave the Choice of such Ingredients, and the Forms in which they are to be given, to the judicious Physician; for I never thought myself obliged to write Prescriptions, but rather to point at the true curative Indications. The following is, however, the Form I myself generally make use of:

Take of the Roots of *Angelica*, Sweet-flag, Master-wort, Elecampane, the Leaves of *Wormwood*, the *Lesser Centory*, White Horehound, *Germander*, *Ground-pine*, *Scordium*, common Calamint, *Feverfew*, Wild Saxifrage, *St. John's-wort*, *Golden-rod*, *Thyme*, *Mint*, *Sage*, *Holy Thistle*, *Penyroyal*, *Southernwood*, the Flowers of *Chamomile*, *Tansy*, *Lily of the Valley*, *English Saffron*, the Seeds of *Treacle-mustard*, *Garden Scurvy-grass*, *Caraway* and *Juniper-berries*, of each a sufficient Quantity: Let the Herbs, Flowers, and Roots, be gather'd when they are in their utmost Perfection; dry them in Paper Bags till they are reducible into fine Powder. To six Ounces of each, well mix'd together, add enough of clarify'd Honey and Canary to make the Whole into an Electuary, of which let the Patient take two Drams, Morning and Night.

Or, for want of this, let the following be used:

Take of the Conserve of *Garden Scurvy-grass*, an Ounce and an half; *Roman Wormwood*, and *Orange-peel*, of each an Ounce; candied *Angelica* and *Nutmeg*, of each half an Ounce; *Venice Treacle*, three Drams; compound Powder of *Arum*, two Drams; and, with a sufficient Quantity of the Syrup of *Oranges*, mix them up into an Electuary: Let two Drams of it be taken twice a Day,

Vol. I.

with five or six Spoonfuls of the following distill'd Water after every Dose:

Take of the Roots of *Horse-radish*, sliced, three Ounces; *Garden Scurvy-grass*, twelve Handfuls; *Water-cresses*, *Brook-lime*, *Sage*, and *Mint*, of each four Handfuls; the Peel of two *Oranges*; two *Nutmegs* bruised; *Brunswick Beer* or *Mum*; twelve Pints: Draw off only six Pints by the Alembic.

Of all the Medicines commonly known, *Venice Treacle* is the best for strengthening the digestive Organs; but as it contains many Ingredients that over-heat, and withal a large Quantity of *Opium*, an Electuary, like that above-describ'd, may be more commodiously compos'd of the principal warming and strengthening Plants. But Care must be taken to make Choice of such Simples as are most agreeable to the Patient's Palate, because it must be continued a long time; that is, for the greatest Part of his Life. Of all Simples the *Peruvian Bark* is the best; for a few Grains of it, taken Morning and Evening, strengthen and enliven the Blood.

And, in reality, these and such-like Medicines, which strengthen the Blood, and quicken the Circulation, (provided their Heat be not owing to vinous Spirits) do most Service in this and most other Chronic Diseases; inasmuch as every Disease of this kind is, in my Opinion, to be referr'd to the same general Cause, that is, the Indigestion of the Humours.

It is certain, that warm Herbs do great Service, where there is no manifest Contra-indication, not only in the *Gout*, but in most Chronical Diseases, as they procure a Warmth like that of Summer, even in the Midst of Winter; tho', if we accustom ourselves to use them in Summer, they will more effectually prevent such Diseases as are ordinarily occasion'd by the contrary Season: And, in reality, if we defer or neglect taking them till the Approach of Winter, at which time a considerable Quantity of Humours is amass'd, it is to be apprehended it may then be too late to have recourse to this Refuge.

But tho' (as I have already shewn) the *Gout* is of so peculiar a Nature, as to be render'd worse by Cathartics; yet, in most other Chronical Diseases, Bleeding and Purging are to be repeated as there is Occasion, previous to the Use of the strengthening and stomachic Remedies here recommended; but when the Patient has begun to take these, they must be continued without any intermediate Evacuations; for it is always to be remember'd, that whenever the Cure of any Disease is attempted by means of strengthening Remedies, all kinds of Evacuations prove highly injurious. Lastly, I do not assert, that the stomachic Medicines, just enumerated, are the most excellent of the Kind; but I maintain, that whoever can discover the most effectual Remedy to answer this Intention, is able to do much more Service in curing Chronical Diseases, than he himself may imagine.

But amongst the Remarks I proceed to communicate, relating to the Cure of the *Gout*, it is primarily and principally to be attended to, that all stomachic or digestive Remedies, whether they be medicinal, dietetic, or relate to Exercise, are not to be enter'd upon superficially, but are to be persisted in daily with great Exactness: For since the Cause in this, and most other Chronical Distempers, is become habitual, and in a manner chang'd into a second Nature, it cannot reasonably be imagined, that the Cure can be accomplish'd by means of some slight and momentary Change made in the Blood and Juices, by any kind of Medicine or Regimen, but the whole Constitution is to be alter'd, and the Body is to be in a manner fram'd anew. For it is otherwise here than in some acute Diseases, where a Person in full Strength, and perfect Health, is suddenly seiz'd with a Fever; whereas in the *Gout*, a Person, by indulging himself in Luxury, hard Drinking, neglecting his usual Exercise for several Years together, and debilitating his Constitution by Idleness, or an immoderate Application to Study, and other Errors of Life, injures, as it were designedly, the various Ferments of the Body, and oppresses the Animal Spirits, which are the principal Instruments of Digestion; whence the vitiated Juices, amass'd in the Habit, break out as soon as they are exalted to the utmost State, and produce great Evils, relaxing the fleshy Parts, and weakening the Joints, so that they readily receive the Humours thrown upon them. And in this manner a different Constitution is form'd by Degrees, the original one being quite destroy'd: And those Fits which engross the Attention of indiscreet and injudicious Physicians, are no more, in Effect, than the Succession and Order of Symptoms, resulting from that Method which Nature ordinarily employs to expel the morbid Matter. Hence, therefore, 'tis a fruitless Labour to attempt the Cure of this Disease, by using any Medicine or Regimen occasionally; for since this Habit is chiefly founded on, and consists in, a Weakness of all the Digestions, and a Relaxation of all the Parts, both these Disorders must be remedied; and the Strength of the digestive Powers, as well as the Tone of the Parts, must be restor'd and recover'd, by Degrees,

greets, to the former healthy State. But tho' it may seem impossible to accomplish this End effectually, not only because any particular Habit cannot easily be changed into a contrary one, but also because old Age, which ordinarily accompanies this Disease, greatly obstructs this Design; yet the Cure is to be attempted, as far as the Strength and Age of the Patient will permit, who will have the *Gout* more or less severely, in proportion to his Advancement in Years.

Further, it is to be observed, that digestive Remedies, either of the medicinal or dietetic Kind, are to be used principally in the Intervals of the *Gout*, and at as great a Distance as may be from the subsequent Fit: For Age obstructs the Cure so much, that the strengthening the digestive Powers, the recovering the debilitated Ferments of the Body, and restoring the Blood and Viscera to their due healthy State, cannot be speedily accomplished, and requires a continued Use of Medicine.

But tho' these and the like Remedies do Service, yet they are not able, alone, to answer this Intention of strengthening, but require the joint Assistance of such Things as do not properly belong to Medicine; it being an Error to imagine, that this, or any other Chronical Disease, can be cured, by Medicine alone. (1.) Therefore, Moderation in Eating and Drinking is to be observed; so as, on the one hand, to avoid taking in more than the Stomach can conveniently digest, and of course, increasing the Disease thereby; and, on the other hand, defrauding the Parts, by immoderate Abstinence; of the Degree of Nourishment requisite to preserve the Strength, which will weaken them still more; either of these Extremes being equally prejudicial, as I have often experienced, both in myself and others. (2.) As to the Quality of the Food, tho' whatever is easy of Digestion, singly consider'd, deserves the Preference, yet Regard must be had to the Palate and Appetite; because it is frequently found, that what the Stomach earnestly covets, tho' of difficult Digestion, does nevertheless digest better than what is esteem'd of easier Digestion, in case the Stomach nauseates it; but, however, Aliments, difficult of Digestion, should be used sparingly. (3.) I am of Opinion, the Patient ought to eat only of one Dish at a Meal, because feeding on different Sorts of Flesh injures the Stomach more than eating an equal Quantity of any one Kind; but, excepting Flesh, he may eat other Things at Pleasure, provided they be not acrid, nor season'd with Salt or Aromatics; because, tho' such Food does not hurt Digestion, it nevertheless does Mischief by agitating the morbid Matter.

As to the Times of Eating, it is prudent to eat at Dinner only; for, as the Night should seem peculiarly design'd to digest the Humours, it would be wrong to waste that Time in digesting the Aliment. For this Reason, *gouty* Persons should forbear Suppers; but they may drink a large Draught of small Beer, as being generally subject to the Stone in the Kidneys; the Increase whereof is considerably prevented by drinking such a Liquor at this time, as it cools and cleanses the Kidneys.

A Milk-diet, or the drinking Milk, either as it comes from the Cow, or boil'd, without adding any thing to it, except perhaps a Piece of Bread once a Day, hath been used these twenty Years past, and hath done more Service in abundance of *gouty* Subjects, whilst they persisted in it exactly, than all other kinds of Remedies: But upon quitting it, and returning to the ordinary way of Living of healthy Persons, tho' they used the mildest and slenderest Diet, the *Gout* return'd with much more Violence than ever; for, as this Regimen weakens the Constitution, the Patient cannot so well struggle with the Distemper, whence, of course, it proves more dangerous and lasting. Whoever, therefore, intends to begin and go on with this Regimen, ought, before-hand, to consider maturely, whether he be able to persevere in it for Life, which perhaps he will find too much for him, tho' he should have great Resolution. For I knew a Nobleman, who, after living a whole Year on Milk only with much Pleasure, during which time he had one or more Motions every Day, was constrain'd to leave it off, because he grew costive on a sudden; the Temper of his Body was alter'd, and his Stomach at last nauseated Milk, tho' he had still a Liking to it.

Again, it is observable, that some Hypochondriac Persons of a gross Habit of Body, or those who have been long used to drink spirituous Liquors freely, cannot bear Milk. And further, the short and fleeting Benefit which those who can bear Milk receive from this Regimen, is not only derivable from its exceeding Simplicity, whence I doubt not but Water-gruel may have the same Effect, provided the Stomach will bear it; but from its rendering the Blood softer and smoother, by blunting the sharp Particles contain'd in the Mafs. And moreover, which I esteem the principal Thing, Milk, being an Alimentary Motion of the Humours which occasions the *Gout*; and for this Reason, the few with whom it agrees, escape this Disease, so long as they live upon Milk only, but no longer: For as it runs directly counter to the original Cause of the *Gout*, which is the Debility of the Digestions and Ferments, it does

much more Mischief in this respect, than Benefit in the other. And for want of sufficient Attention to this Particular, some inconsiderate People have fallen into gross, and manifestly fatal Errors; having, by attempting to attack the containing Cause of the Disease, that is, the Heat and Acrimony of the Humours, destroy'd the Digestions, and all the natural Functions.

As to Liquors, those are best, in my Opinion, which are weaker than Wine, and not so weak as Water, such as our *London* small Beer, hopp'd or unhopp'd, Extremes on either hand being pernicious. For, first, as to Wine, tho' the common Proverb intimates, that whether a Person does, or does not, drink Wine, he will have the *Gout*; yet it is certain, and confirm'd by the Experience of abundance of *gouty* Patients, that Wine is, in Fact, detrimental: For tho' it may be supposed to do Service by strengthening the digestive Powers, the Weakness whereof I have long look'd upon as the antecedent or primary Cause of the *Gout*; yet, with respect to the containing Cause thereof, it must be deem'd wholly pernicious, because it inflames and agitates the Humours which feed the Disease. Neither do we grant, that Wine, used by way of common Drink, helps Digestion; but rather assert, that it destroys it, unless in such as have been long inur'd to it. For tho' Wine may, in passing thro' the Vessels, communicate some Heat to the Parts, yet it certainly depraves the Ferments of the Body, and wastes the natural Spirits: And hence I conceive it is, that great Drinkers generally die of the *Gout*, Palsy, Dropsy, and other cold Diseases. Furthermore, the continued and immoderate Use of Wine relaxes and enervates the Body, rendering it like the Bodies of Women; whereas moderately heating Liquors strengthen the Tone of the Parts; whence such as have always drank small Liquors are rarely afflicted with the *Gout*. It must farther be remark'd, that those are chiefly subject to this Disease, who, tho' they have naturally a weak Digestion, do notwithstanding receive too much Nourishment from a certain Richness of the Blood, and have their Bulk increas'd by a Kind of indigested Matter, instead of a solid, wholesome Substance: And the Use of Wine adds to this Richness of the Blood, and so not only amasses a new Collection of Matter, but also actually occasions the Disease, by stirring up the Cause of it, which had long lain conceal'd and inactive. Again, as the Blood of *gouty* Subjects nearly resembles that which is taken away in a Pleurisy, and other inflammatory Diseases, it is absurd to inflame it more with spirituous Liquors. And it is as dangerous, on the contrary, to have recourse to over-cooling Liquors, which, by utterly destroying both the Digestions, and natural Heat, do more Mischief; not occasioning Pain, as Wine doth, but Death itself; as Experience evinces in those Persons, who, having accustom'd themselves to drink Wine freely from their Youth upwards to old Age, and quitted it on a sudden for small Liquors, have soon destroy'd themselves thereby.

Gouty Persons should therefore observe it as a Rule in this Particular, to drink such Liquors as will not inebriate, if drank in a larger Quantity, or injure the Stomach by their Chilness. Of this Kind, as I before hinted, is our small Beer; and in other Countries a similar Liquor may be made, by diluting Wine well with Water.

As to Water alone, I esteem it crude and pernicious, and have found it so to my Cost; but young Persons may drink it with Safety; and it is, at this Day, the common Drink of the greatest Part of Mankind, who are more happy in their Poverty, than we are with all our Luxury and Abundance. This is confirm'd by the great Multitude of Diseases, with which we are afflicted upon this Account, as the Stone, *Gout*, Apoplexy, and Palsy; besides the Injury done to the Mind in being forcibly acted upon, contrary to its natural Rectitude, by the Disturbance which the preternatural Spirits of such Liquors, together with the Animal Spirits, which are subservient to Thinking, occasion, by volatilizing it too much, and suggesting vain and idle Notions, instead of solid and weighty Reasonings; and thus, at length, rendering us facetious and witty, instead of wise; between which the Difference is almost as great, as between a Substance and a Shadow. But enough of this.

But tho' a Person who has the *Gout* mildly, and only at Intervals, need only use small Beer, or Wine diluted with Water, this Degree of the Disease not requiring a stricter Regimen; yet, when the whole Substance of the Body is in a manner degenerated into the *Gout*, it cannot be conquer'd without a total Abstinence from all Kinds of fermented Liquors, how small and soft soever they be; inasmuch as all Liquors of this Kind contain a pungent Spirit, with some Degree of Acrimony; and, what is worse, being possess'd of a Ferment, they dispose the Humours to a perpetual Fermentation, in the same manner as Yeast, added to Malt Liquors, communicates its fermenting Quality to the whole Liquor. For this Reason a Diet-drink is to be order'd for common Drink, to be made of those Ingredients which are commonly known and used for this Purpose; but it must not be too strong, because in that

Cafe it will inflame the Humours as much as Wine; neither, on the contrary, must it be so small as to injure the natural Functions by over-cooling. And this kind of Drink, provided it be made of such Ingredients as are most agreeable to the Patient, tho' it may occasion some Loathing for the first Week or Fortnight, nevertheless proves as agreeable afterwards as any other Liquors he has been used to drink. It will also excite the Appetite, and render it more natural than it used to be with fermented Liquors; and will be attended with this further Convenience, that whoever uses it for his own common Drink, may indulge more freely in other kinds of Diet, than when he drank Wine or Beer: For the Errors in point of Diet, which it is hardly possible to avoid entirely, will be, in some measure, corrected and amended thereby. But the principal Benefit, derivable from it, is its preserving from the Stone, which is the general Attendant of the *Gout*; as sharp and attenuating Liquors both contribute to breed the Stone, and occasion a Fit thereof. I prefer the following Decoction for its agreeable Colour and Taste:

Take of Sarsaparilla, six Ounces; Sassafras-wood, China-root, and the Shavings of Hartshorn, each two Ounces; Liquorice-root, an Ounce: Boil them together in two Gallons of Spring-water for half an Hour; afterwards infuse them upon hot Ashes, close cover'd, for twelve Hours; then boil them till a third Part of the Liquor is exhaled; and as soon as it is taken off the Fire, infuse therein half an Ounce of Aniseeds for two Hours. Lastly, strain it off, and let it rest, till it becomes clear, and put it up into Bottles for Use.

It is most proper to begin with this Decoction, immediately after the Fit of the *Gout* is gone off; and it must be continued, both in the Fit, and in the Intervals, during the Remainder of Life. For it is not sufficient at a time when the Disease actually rages to study for new Medicines, as Nature, whilst the Humours are in such Commotion and Disturbance, cannot well bear the Exchange of fermented Liquors of an active and spirituous Quality, for such as are small and without Spirit. At the same time the above-mentioned Electuary must be used, taking it in like manner, both in the Fit, and in the Intervals; for the Warmth of this will in some measure correct the Smallness of the Diet-drink, as it will communicate a due Degree of Heat to the Blood and Viscera, without that Agitation which is generally occasioned by the Heat of fermented Liquors.

If it be objected, that a total Abstinence from Wine, and other fermented Liquors, would render Life in a manner insupportable, I answer, it must be considered, whether it be not much worse to be tortured daily by the Pain accompanying an inveterate *Gout*, (for, when it is gentle, there is no Need of so strict a Regimen) than to be confined to this Decoction, which if the Patient continues, he may indulge himself in most other Eatables; not to repeat, that this Drink, like all other things, grows pleasant by Custom. Doubtless, whoever hath had this Disease, supposing him not void of Reason, will not hesitate at all, to which he should give the Preference.

But notwithstanding, if the Patient, either from a long-continued and immoderate Use of spirituous Liquors, from Age, or, lastly, from great Weakness, cannot digest his Food without Wine, or some other fermented Liquor, 'tis certainly dangerous for him to leave off Wine on a sudden; an Error that has in Reality destroyed Abundance of People. Such a Person, therefore, in my Opinion, should either not use the dietetic Apozem above prescribed; or, if he be resolv'd to take it, should accustom himself to it by Degrees, (drinking a Glass of Wine for some time at Meals) and rather by way of Medicine than Diet, till it becomes more familiar to him. But *Spanish Wine* is to be prefer'd here to *Rhenish*, or *French Wine*, these last being subject to exasperate the Humours, and increase the morbid Matter, notwithstanding they are very grateful to the Stomach. To which we may add, that as they are almost as crude and indigested as our Cyder, they are consequently not so warm and cardiac, as the Case demands. And these Particulars may suffice concerning the Diet of *gouty* People. There is another Caution to be inculcated, which, though it may seem trifling, is of great Moment, both in digesting the *gouty* Matter during the Fit, and preventing the Generation thereof in the Intervals; and that is going to Bed early, especially in Winter; for, next to Bleeding and Purgings, nothing impairs the Strength more than sitting up late at Nights; which every Valetudinarian can affirm from his own Experience, provided he has only carefully observed how much more vigorous and chearful he rises in the Morning when he goes to Bed early, and how languid and faint he has found himself after sitting up late. And tho' there should seem to be no Difference betwixt going to Bed earlier or later, provided a Person lies in Bed for the same time, as for Instance, whether he goes to Bed at Nine and rises at Five, or at Eleven and rises at Seven, it is not an indifferent Matter; and I conceive, for this Reason principally, that in the Day the

Spirits are dissipated, either by Exercises of the Body or Mind, which are so weak in Valetudinarians, that they require the Assistance of Sleep earlier in the Evening; and, as the Approach of Night occasions a kind of Relaxation of the Animal Economy, which was preserved in the Day by the Heat of the Sun, the Heat of the Bed becomes necessary to supply the Place of the Sun, especially during the Winter Season. But the Spirits being refreshed and invigorated in the Morning by the preceding Night's Sleep, together with the Warmth of the Bed, and the ensuing Day likewise strengthening the Tone of the Parts still more, the rising early at this time, though it may take an Hour or two from the Morning Sleep, hurts the Constitution less than sitting up an Hour or two later in the Evening. This being the Case, I would advise such as are subject to the *Gout* to go early to Bed, especially in Winter, and to rise betimes in the Morning; though their having had less Sleep than usual may incline them to lie longer, in order to make it up. For the Sleep which is got in the Morning will rob them of as much the ensuing Night; and thus at last by doing Violence to Nature, and despising its wise Lessons, the Night may be preposterously turned into Day, and the Day into Night.

The Patient must also use his utmost Endeavour to keep his Mind easy, as all unbounded Appetites, and inordinate Passions, eminently tend to dissolve the Texture of the Spirits, which are the Instruments of Digestion, and so of course to increase the *Gout*. He should therefore wisely reflect on his Mortality, and not vainly imagine he is to escape the Evils that are necessarily annexed to this State. For, whether any Affliction of Mind befalls him through his own Fault, or that of others, certain it is, that he will never be able to prescribe Laws to the World, which has not always obey'd any single Person hitherto, how powerful and wise soever he has been; nor will every thing always answer any one's Expectation so exactly, as he may have promised himself; and perhaps, whilst he is intent upon worldly Affairs, unexpected Death renders him an Example of human Frailty, whilst he foolishly deprives himself of the transitory Enjoyments of Life. Too much Application to Study and Business is likewise equally pernicious; for as this Disease is more frequently accompanied with Melancholy than any other, such as are subject to it ordinarily fatigue and oppress the Spirits to that Degree, by long and intense Meditation, even without the artificial Help of Books, that the Body cannot long preserve itself in a healthy State; and hence I conceive it is, that few Fools have had the *Gout*.

But nothing so effectually prevents the Indigestion of the Humours, (which I esteem the principal Cause of the *Gout*) and consequently strengthens the Fluids and Solids, as Exercise. It must, however, be observed, as I have already mentioned, that as there is more Necessity for making a thorough Change in the Constitution in this than in any other Chronical Disease, so Exercise, unless it be used daily, will do no Service; for if it be intermitted at times, it will avail little towards changing the Constitution, now reduced to a languishing and effeminate Condition by Idleness and Indulgence, and may perhaps do Mischief by causing a Fit, after leaving it off for a considerable Space of Time. But Exercise should be moderate, because the contrary in aged Persons, who are principally subject to the *Gout*, wastes the Spirits too much, and consequently hurts the digestive Faculties. And though this may not be relished by one, who besides old Age, Inability to Motion, and Slothfulness, which are natural in this Disease, is likewise tormented with Pain, yet, if Exercise be omitted, all the Remedies which have been hitherto discovered will not avail. And as the Intervals between the Fits cannot be long without constant Exercise, so the Patient will likewise without it be more subject to the Stone, which is a more dangerous and painful Disease than the *Gout*.

To these add a Particular of some Importance, which is, that the chalky Concretions are considerably increased in the Joints, and especially in the Fingers by long Inactivity; so that at last these Parts are entirely deprived of Motion. For, however positively some may assert, that the Matter of these Concretions is only the Tartar of the Blood translated to the Joints, it will nevertheless readily appear, upon considering the Matter with a little more Attention, that when a large Quantity of indigested *gouty* Matter falls upon some of the Joints, and occasions a lasting Swelling of the neighbouring Parts, it happens at last partly from their assimilating Property being destroyed, and partly from the Obstruction caused therein by this sluggish Humour, that this Matter is generated; which is changed into this kind of Substance by the Heat and Pain of the Joint, and increased every Day in Bulk, converting the Skin and Flesh of the Joint into its own Nature, and may be got out with a Needle, and resembles Chalk, Crab's-eyes, or some similar Substance. But I have experienced in my own Case, that not only the Generation of these Concretions may be prevented by daily and long-continued Exercise, which duly distributes the *gouty* Humours throughout the whole Body, that otherwise readily attack a particular Part, but it also dissolves old and indurated

durated Concretions, provided they be not come to such a Degree of Hardness, as to change the external Skin into their Substance.

As to the Kind of Exercise, Riding on Horseback is certainly the best, provided it be not contra-indicated by Age, or the Stone; and indeed I have often thought, if a Person was possessed of as effectual a Remedy as Exercise is in this and most Chronical Diseases, and had the Art also of concealing it, he might easily raise a considerable Fortune. But if Riding on Horseback cannot be used, frequent Riding in a Coach nearly answers the same End; and in this respect at least, the Generality of *gouty* Persons have no Cause for Complaint, because their Riches, which excited them to indulge those Excesses that occasioned the Disease, enable them to keep a Coach, in which they may take the Air, when they cannot ride on Horseback. It must be remark'd however, that a wholesome Air is greatly preferable to one which is unwholesome for this Purpose: Thus the Country is better than the Town, where the Air is full of Vapours that exhale from the Shops of different Mechanics, and render'd still more dense by the Closeness of the Buildings, as it is in *London*, which is esteem'd the largest City in the Universe. But the great Difference there is between using Exercise in the Country, or in Town, a *gouty* Person will soon find upon Trial.

With respect to Venery, if the *gouty* Patient be in Years, as he is unprovided now with a sufficient Share of Spirits to promote the Digestions, and his Joints, and the neighbouring Parts, are consequently too much debilitated and relaxed, without any Assistance from this destructive Quarter; in this Case, I say, it is as imprudent for such an one, in my Opinion, to indulge those Pleasures, as it would be for a Person, after having engaged to go a long Journey, to spend all his Stock of Provisions before setting out. Moreover, besides the Mischief it does himself, for want of restraining the languid Inclinations of declining Age, he loses the great Privilege of enjoying that exquisite Satisfaction, which by the particular Indulgence of Nature is reserved for the Aged only, who, towards the Period of their Lives, are freed from the Violence of those Passions, which, like so many savage Beasts, prey'd upon them perpetually in Youth; the Gratification of them being by no means an Equivalent for the long Train of Evils which either accompany, or follow it.—And let this suffice for the Regimen.

But though a *gouty* Person, by carefully observing these Rules relating to Diet, and the rest of the Non-naturals, may prevent violent Fits, and so strengthen the Blood, and solid Parts, as to free himself from that Multitude of Evils, which render the Disease not only intolerable, but in, the End, fatal; yet, notwithstanding, after some Intervals, he will sometimes be seized with the *Gout*, especially towards the Close of Winter. For though in the Summer-season, whilst the Tone and Strength of the Blood are mended, and preserved in that State by the Heat of the Sun, and Perspiration goes on in a proper manner, the Digestions must necessarily be much better performed than in Winter; yet, as the Blood is weakened, and Perspiration obstructed, upon the Approach of this Season, there must necessarily be a copious indigested Matter amassed, which at last, by its long Continuance in the Habit, will form a Distemper, and manifest itself by proper Symptoms, giving a Fit upon the first Occasion, either by the Humours being put into Motion by the nearer Approach of the Sun, the Use of Wine, violent Exercise, or any other evident Cause.

'Tis clear from what has been delivered, that whoever undertakes the Cure of this Disease, must endeavour to make a thorough Change of his Habit of Body, and restore it to its former Constitution, as far as Age, and other Circumstances, will permit; and this must be attempted only in the Intervals between the Fits. For when the morbid Matter is not only generated, but already thrown upon the Joints; it will be too late to endeavour to change it, or to expel it, any other way; since it must be expelled by that Method only which Nature points out, and the Business is to be left entirely to her Management. This Practice obtains in the Paroxysms of Intermittents; which, for the same Reason, we do not attempt to remove till the Heat be over. For it is equally absurd to be solicitous to take off the Heat, Thirst, Restlessness, and other Symptoms of these Fevers, as to think the *Gout* is to be cured by endeavouring only to abate the Symptoms, whereas the Cure is by this means obstructed and prolonged. For the more the Pain is eased, the more the Concoction of the Humours is prevented; and, in the same Degree, the Lameness is relieved, and the Expulsion of the morbid Matter is check'd. Again, the more the Violence of the Fit is suppressed, the longer it will last, and the shorter likewise the Interval will be between the Fits, and less free from every Degree of the Symptoms accompanying this Disease; which will be acknowledged by any one who has attentively considered what we have delivered above, in our History of this Disease.

But though nothing considerable must be attempted in the Fit, excepting only, that those Symptoms are to be relieved,

which an improper Method of Cure sometimes occasions; yet, as this Disease is unanimously held to arise from a Plenitude of Humours, it may not, perhaps, be amiss for the Patient to forbear Flesh for a few Days in the Beginning of the Fit, and instead of it to use Water-gruel, or some such Aliment; for such a slender Diet will greatly contribute towards lessening the Quantity of the morbid Matter, and give Nature an Opportunity of digesting it sooner. But as Constitutions differ considerably, inasmuch that some Persons cannot bear to abstain from Flesh, without being immediately seized with a Disturbance of the Spirits, Faintings, and other Symptoms of the hysteric Kind; such therefore will receive Hurt by refraining from Flesh any longer than the Stomach is set against it, which, for the most part, is only the first or second Day of those particular Fits; all which, joined together, constitute the whole Fit, as we have intimated above. But whether the Patient eats Flesh sooner or later, he must be equally cautious, both with respect to eating more, during the Fit, than is requisite to support Nature, and to the Quality of the Food. For great Care should be had to guard against every Error, either in the Quantity or Quality of the Diet, both as to Solids and Liquids, even in the Intervals of the Fit, and especially in the Fit itself. And further, no little regard is to be had, in the Intervals, to the rest of the Non-naturals, of which we have discoursed largely above; and though the Pain, and great Inability to Motion, may seem to contra-indicate Exercise, which I have principally recommended in this Distemper, the Labour must nevertheless be undertaken; for though the Patient may think himself utterly unable to bear to be carried into a Coach in the Beginning of the Fit, and much more so to abide the Motion of it; yet, upon Trial, he will soon find himself more easy from such a Motion, than when he is at home in his Chair. Again, if this kind of Exercise be used Morning and Afternoon for some Hours; another Advantage attends it, which is, that it causes him to rest a great Part of the Night, which he could not do when he kept constantly within Doors; for very moderate Exercise fatigues a *gouty* Person so much, that he falls asleep. Besides, this kind of Exercise is, in some Degree, preventive of the Stone, which an idle and sedentary Life generally occasions. But the principal Advantage derivable from the constant Use of Exercise, is the preventing the Loss of Motion in the Limbs, which seizes several People after the first or second long Fit, occasioned by the Contraction of the Tendons of the Hams and Heels; for when the Pain has been so violent, that they have lain still a long time, not caring to stretch out their Legs when it has attacked the Knees, they at last lose the Use of their Legs and Feet, for the Remainder of Life, both during the Intervals, and in the Fits, which nevertheless they do not escape. Again, in aged People, whose Concoctions are considerably vitiated, and who, through the long Continuance of the Disease, have the Substance of their Bodies, in a manner, changed into the *Gout*, it is not to be expected, that the Disease can ever be brought to Digestion without Exercise; for when it exceeds the natural Strength, they frequently perish by Faintings and Sickness, occasioned by the copious morbid indigestible Matter; which cannot be assimilated, and destroys them like Poison.

But notwithstanding what has been said of the Usefulness of Exercise in the Paroxysms of the *Gout*, yet, if the Fit be so violent as to sink the Patient in the Beginning of it, (which happens chiefly in those Subjects in whom the *Gout* is in the Height, and hath continued in that State for many Years) and confine him to his Room, it will be proper for him to keep his Bed a few Days, till the Pain abates, as the Warmth thereof will, in some measure, supply the Want of Exercise; for lying constantly in Bed digests the morbid Matter more effectually in a few Days, than sitting up does in many, especially in the Infancy of the Disease, provided the Patient can forbear Flesh without Faintings, and other bad Symptoms, and be contented only with Water-gruel, small Beer, and the like. But it is well worth observing, that if the *Gout* be inveterate, and disposes the Patient to Faintings, Gripings, a Looseness, and the like Symptoms, he is in great Danger of being destroyed by one of these Fits, unless he uses Exercise in a free and open Air, for abundance of *gouty* Persons have been carried off by these Symptoms, which they have been subject to from being confined within Doors, and especially in Bed, who had lived longer, if they would have undergone the Fatigue of Riding in a Coach a great Part of the Day. For though a Person, who is afflicted only with a Pain of his Limbs, may keep his Room, yet another, who, instead of violent Pain, is troubled with Sickness, and the other Symptoms above enumerated, cannot do the same, without endangering his Life. And, in Effect, it is well for the Patient, that there is no great Necessity for Motion or Exercise, so long as the Pain continues so severe, that he cannot bear it; his Life being secured by the Pain, which is the salutary, though disagreeable Remedy of Nature.

But as to the Symptoms of the *Gout*, we are to relieve those which threaten Life; the most frequent of which are the Weakness and Languor of the Stomach, with Gripings, as if occasioned by Wind; and these happen either to those who have had

had the Gout many Years; or those, who, though they have not had it long, have nevertheless brought it on too hastily by quitting spirituous Liquors, on a sudden, for those which are thin and very cooling, or by applying repelling Plaisters, and other cooling Topics, to the Parts affected, to ease the Pain; whence the morbid Matter, which should have been deposited on the Joints, is translated to the Viscera: I have tried several Remedies in my Fits, of late Years, to relieve these Symptoms; but nothing did me so much Service as a small Draught of Canary, taken occasionally, as the Sickness and Faintness required. Neither red French Wine, Venice Treacle, or any other of the Cardiacs I am hitherto acquainted with, is so efficacious. But we are not to imagine, that Canary, or any other Cordial, can wholly secure the Patient without the Use of Exercise.

But if some violent Symptom comes on suddenly, from the striking in of the gouty Matter, and threatens Life, we are not to trust to the Wine or Exercise above commended; but here, provided only the natural or vital Parts, and not the Head, be affected, we must have immediate recourse to Laudanum, exhibiting twenty Drops of it in a small Draught of Plague-water, and the Patient must compose himself to Rest in Bed.

But if the gouty Matter occasions a Looseness for want of being translated to the Limbs, provided it be not the Crisis of a particular Fit, and yields not to Laudanum and Exercise of all Kinds, (for this is to be tried first in the Cure of a Looseness) but continues, attended with Sickness, Gripings, and the like Symptoms, the only Remedy I know in this Case, is to raise a Sweat by a suitable Method, and proper Medicines; and, if this be done every Morning and Night, for two or three Days together, keeping it up two or three Hours at a time, it generally checks the Looseness, and forces the morbid Matter to the Limbs. To this Method I owe my Recovery from this Disease some Years since, (which I had imprudently occasioned by drinking cold Water for my common Drink) after having used Cardiacs and Astringents of various Kinds to no Purpose.

There is another Symptom, which I have often seen, though it is not so common, which is a Translation of the peccant Matter to the Lungs by a Cough in the Winter-season, occasioned by taking Cold in the Fit, which, by Degrees, invites the Matter to those Parts; the Joints, the mean while, being in great part, or totally, freed from the Pain and Swelling, by the Translation of the morbid Matter to another Part. In this single Case, the curative Indication is not to be levelled at the Gout; but this Symptom is to be treated like a true Peripneumony; that is, by repeated Bleeding, and cooling and in-crasating Medicines and Regimen, as the Blood which is taken away, exactly resembles that of Pleuritic Persons. The Patient likewise should be gently purged in the Intervals of Bleeding, to carry off the Matter that is lodged in the Lungs. But Sweating, how effectual soever it may be in forcing the morbid Matter upon the Limbs, proves detrimental in this Case, by hardening the Matter that is forced upon the Lungs; whence proceed small Abscesses, and in the End, certain Death. See *Musgrave's Sentiments on this, below.*

It is farther to be remarked, that most gouty People, after the Disease has been of long Standing, become subject to the Stone in the Kidneys, and are generally seized with Nephritic Pains, either at the Height, or more frequently at the Decline, of the Cardinal Fit, which are very severe, and weaken the Patient considerably, who was too much debilitated and exhausted by the preceding Distemper. In this Case, omitting all other Remedies, let him immediately drink a Gallon of Poffet-drink, in which two Ounces of Marshmallow-roots have been boiled, and inject the following Clyster:

Take of the Roots of Marshmallows, and white Lilies, of each an Ounce; the Leaves of Mallows, Pellitory of the Wall, Bears-breech, and Chamomile-flowers, of each one Handful; Linseed and Fenugreek-seed, of each half an Ounce; boil them together in a sufficient Quantity of Water to a Pint and an half; dissolve in the strained Liquor brown Sugar, and Syrup of Marshmallows, of each two Ounces; mix the Whole for a Clyster.

As soon as the Poffet-drink is ejected by Vomit, and the Clyster come away, exhibit twenty-five Drops of *Liquid Laudanum*, or fifteen Grains of *Matthew's Pills*.

If outward Applications be inquired after to ease the Pain in the Gout, I know of none, (though I have tried abundance, both in myself and others) besides Coolers and Repellents, which I have already shewn to be unsafe. And I scruple not to affirm, from a long Course of Experience, that most of those who are supposed to perish by the Gout, are rather destroyed by wrong Management, than by the Disease itself. But if any one be desirous of trying the Efficacy of such external Medicines as are esteemed certain Anodynes, to prevent being mistaken, in-

VOL. I.

stead of applying them at the Declension of a particular Fit, when the Pain is just going off spontaneously, let them be used in the Beginning, and he will soon be convinced of their Insignificance, and the Groundlessness of his Expectation, as they sometimes do Mischief, but can never do Service.

For this Reason I have laid aside the Use of Topics for several Years; but I found most Benefit formerly from a Cataplasm, made of white Bread and Saffron boiled in Milk, with the Addition afterwards of a small Quantity of Oil of Roses; which, however, did not at all relieve me in the Beginning of the Fit. If therefore the Pain be extremely severe, the Patient had better keep in Bed till it abates a little, than to have recourse to Anodynes; but however, it will be proper, if the Pain be very violent, to take a Dose of Laudanum in the Evening, otherwise it is better omitted.

But now I am treating of external Applications, I must say something of a certain Indian Moss, intituled *Moxa*, which is highly esteemed of late in the Cure of the Gout; the manner of using it being to burn a small Quantity of it upon the Part affected. Now, though this Remedy is said to come from the *East-Indies*, and to have been unknown to the Europeans till of late Years, it will nevertheless appear to be of more antient Date with us, by consulting the Writings of *Hippocrates*, compiled above two thousand Years ago. Treating of the Sciatica, he advises, "If the Pain be fixed in any one Part, and does not yield to Medicines, in whatever Part it be, to burn it with raw Flax;" and a little farther, speaking of the Gout in the Feet, he says, "The same Things are proper here, that do Service in the Gout of the Joints; and indeed, this is a long and painful, but not a mortal Disease: If the Pain, however, continue in the Fingers, burn the Veins above the Joints with raw Flax." Now, I am of Opinion, that no one can imagine, that there is such a Specific Difference betwixt the Flame of burning Flax, and that of Indian Moss, as to render the latter more effectual in the Cure of the Gout than the former, any more than he can suppose, that a Fire made with Oak Billets can do more than another made of Ash. This Burning of the Part affected bids fair to ease the Pain, and may sometimes effect it, the most subtle and spirituous Part of the morbid Matter deposited on the Part being by this means expelled. But the Relief hereby obtained must necessarily be of short Duration, because it does not at all amend the Indigestion, which is the antecedent Cause of the Gout; and it seems superfluous to observe, that it is to be used only in the Beginning of this Disease. For when the Gout, either on account of its long Continuance, or through wrong Management, retreats to the internal Parts, which sometimes happens, and instead of Pain causes Sickness, Gripings, and Abundance of the like Symptoms, no judicious Person will be for using Fire. See *Moxa*.

And now I have delivered all that I have hitherto discovered concerning the Cure of this Disease; but if it be objected, that there are many specific Remedies for the Gout, I freely own I know none; and fear that those who boast of such Medicines are as ignorant as myself. And, in Effect, it is to be regretted, that the excellent Art of Medicine should be so much disgraced by such Trifles, which the Credulous are deceived with, either through the Ignorance or Knavery of Authors; Remedies of this Kind being extravagantly magnified in most Diseases by those who offer them to Sale. *Sydenham*.

Before I proceed to *Musgrave's* Account of the *Anomalous Gout*, I must specify the Preparation of some Remedies he frequently refers to. The first of these is what he calls

ALCOHOL MARTIS.

Put ten Pounds of the Filings of Steel into a Pan, or glazed Earthen Vessel; moisten them with human Urine, then dry them, either by the Heat of the Sun, or that of the Fire; then moisten them again with the same Liquor, stirring the Particles twice a Day with an Iron Spatula to prevent their Coalescence; continue this till the whole Mass is reduced, as it were, to Rust; when it is so, pound it in an Iron Mortar. When 'tis pounded, throw it into a Vessel in which there are about four Gallons of Spring-water; mix the Powder with the Water. About a quarter of an Hour after, gently draw off the uppermost and least turbid Part of the Water, and evaporate it till the Powder swimming in it is left dry. Let the Liquor also left in the Vessel be evaporated in like manner. Let the grosser Powder in the Bottom be moistened with Urine, and managed in the same manner as at first. Let the Nutrition, Trituration, and Separation by Water, be thus continued, till the Whole of the Iron is reduced to a very fine Powder. Put this Powder, when dry, into a Piece of coarse Paper wrapt up in the Form of a Cone; pour upon it by little and little, and at different times, warm Spring-water, till the urinous Salt being quite washed away, an insipid Water drops through the Paper; then dry the Powder again, and keep it for Use.

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This

This most subtle Rust of Steel is a mere *Alcohol* of uncommon Efficacy, not only in the Gout, but also in most other chronical Disorders, especially if the Patients are of weakly and tender Constitutions.

The Dose is half a Scruple, either once or twice a Day, as the Circumstances of the Patient seem to require.

PULVIS RUBER EXONIENSIS.

Take of the Tops of Pimpernel, Scabious, Dragons, Betony, Germander, and Tormentil, each four Ounces; mix them together, and cut them. Digest for twenty-four Hours in a Sand-heat, in four Pounds of white Port Wine, the Glass in the mean time being well stopp'd; then strain off, and make an Expression.

Then take of the Powder of *Armenian Bole*, one Pound; with the aforesaid Infusion let it be reduced to the Consistence of a Liniment; shake it often, then moisten it again with the Infusion. Thus let the Mass be nourished or moistened with the Infusion; but along with the last half Pound of the Infusion, let there be added to the Mass one Ounce of Mithridate, one Ounce and an half of Diacordium, Confection of Kermes, and Powder of Turmeric-root, each half an Ounce; *Virginian Snake-root*, and *English Saffron*, each two Drams. Mix all together, and dry the Whole; make into Troches, or little Cakes, to be hardened in the Heat of the Sun, and preserved for Use. The Dose is from one Scruple to one and an half, or two Scruples.

AQUA HISPANORUM ARTHRITICA.

The *Spanish Gout Water*, as 'tis called, is by some highly esteemed, and is indeed of very great Efficacy; 'tis prepared in the following manner:

Take of Cloves, Nutmegs, Ginger, Mace, Cinnamon, Black Pepper, Saffron, Zedoary, Galangals, Juniper-berries, Citron and Orange-peel, Spikenard, Cubebs, Hepatic Aloes, Wood of Aloes, Sweet Flag, and Stoechas, each half an Ounce; Tops of Sage, Basil, Rosemary, Mint, Marjoram, of common Bay-berries, Pennyroyal, Shavings of Gentian, Elder-flowers, White and Red Roses, Ground-pine, Germander, Calamint, Baum, Origanum, and Feverfew, each two Handfuls; of Figs, Dates, Bitter Almonds, Pine-nut Kernels, and Raisins of the Sun, each six Ounces; of Virgin Honey, one Pound; of the finest Sugar, one Pound; and grated Musk, one Dram. When these Ingredients are cut and bruised, let them be put into fifteen Pounds of the best Canary Wine to infuse for ten or twelve Days; then distil in Balneo Mariæ.

This Water is esteemed of uncommon Efficacy in Arthritic Disorders of the Stomach and Intestines. The Dose is half an Ounce, to be taken with a little Sugar or Crumb of Bread; it may be repeated at Pleasure. It is also used externally for removing arthritic Pains of the Joints; and the Method of applying it is, to make it very warm, and then embrocate the Part affected with it.

From MUSGRAVE.

Whilst the Arthritic Matter is deposited upon the Extremities, particularly the Joints, and remains there without any Danger of returning, Nature is pursuing her Purpose, and defending herself from the Danger she would be in from a Retrocession of the Gout, and its fixing upon any Part of the Trunk.

These anomalous Symptoms of the Gout, when they appear before the Patient has had a Fit regularly, are very difficult to be distinguished from other Diseases, which the Part where it fixes, is subject to. And therefore *Musgrave* says, 'tis impossible to know anomalous Symptoms of the Gout, without a previous Fit.

The Arthritis Vaga is attended with Pain, and sometimes with a white Swelling, like an Oedema.

Those who have the regular Gout, have seldom, unless by Accident, any other great Disorder.

The anomalous Gout visits most frequently the Stomach and Intestines; whence arise Loss of Appetite, and bad Digestion, Vomiting, Colic, Dysentery, Diarrhoea, and sometimes Arthritic Abscesses.

Sometimes it seizes the Head, and causes a Cephalalgia, Vertigo, or Apoplexy; and sometimes seizing the Nerves, causes a Palsy.

It often fixes upon the Organs of Respiration, and causes an Asthma, Cough, Hæmoptoe, and Phthisis.

Sometimes it appears in the Shape of an Angina.

At some times it seizes the Gums, and is called *Dentium Podagra*, improperly.

At other times it seizes upon the Kidneys, and causes the Stone, Dysury, and Strangury.

No Part of the Body is free from it.

The natural or acquired Weakness of any of the Viscera, or internal Parts, is the Cause of the Gout's fixing upon them.

Whatever repels the Gout from the Extremities, as Cataplasms, Plaisters, &c. causes it to fix upon the Viscera.

The Symptoms of the Anomalous Gout differ exceedingly, as they happen to fix upon different Parts, causing in Appearance different Distempers.

They also differ, as the Matter is sometimes purely gouty, and sometimes has with it a Mixture of some other Distemper, as Scrophula, Scurvy, or the like.

The Anomalous Gout is driven into the Extremities from some Parts much more easily than from others. From the Fauces it removes without much Trouble, and almost of its own Accord. On the contrary, it is removed from the Nerves with the utmost Difficulty.

Too tight Shoes are sometimes the Cause of the Gout's leaving the Extremities, and fixing on the Viscera.

Those things which evacuate the gouty Matter, tho' sometimes absolutely necessary, yet seldom cure the Distemper, but are even prejudicial when improperly used. But the Cure of the Distemper can be no otherwise completed, than by an Expulsion of the Gout into the Extremities.

Those Medicines which expel the gouty Matter, and drive it upon the Extremities, are taken from the Classes of Cardiacs and Diaphoretics, amongst which are the following:

Powders of Zedoary, Contrayerva, Gentian, *Virginian Snake-root*, *Gascoign's Powder*, the Pulvis Purpureus of *Bates*, Goa Stone, Contrayerva Stone, Species Diambæ, Confectio Liberans; the Pulvis Alexipharmacus, and Pulvis Stomachicus Amarus, of *Fuller*; the Pulvis Bezoarticus of *Willis*; the Pulvis Ruber Exoniensis; the Flowers of Sal Ammoniac, and others of the same Kind.

Venice Treacle, Mithridate, the Electuarium de Ovo.

Spirit of Hartshorn, either simple or succinated; Spirits of human Blood, of Urine, of Silk, and Sal Volatile Oleosum.

Amongst Wines, the most effectual are *French White-wine*, *Champaign*, *Mosel*, *Rhenish*, *Burgundy*, *Bordeaux*, *Portuguese Wines*, to which may be added subacid Cyder.

As gouty Patients are generally forbid the Use of some of these Wines, it may seem extraordinary to such, that *Musgrave* should recommend them. But it must be considered, that they are directed to abstain from such Wines, because they promote Fits of the Gout; with which View *Musgrave* recommends them, in order to render an anomalous Gout regular in the Extremities.

But of all Remedies, *Musgrave* thinks nothing so powerful as Steel, the best Preparation of which is, the *Alcohol Martis* above described.

If, after the Use of these Medicines for four or five Days, no Pain is perceived in the Extremities, we must then proceed to such external Applications, as invite the arthritic Matter downwards. Therefore apply to the Part, which used to be pained in Fits of the Gout, a Plaister of Gum Caranna, or that called *Oxyroceum*; or the Cephalic Plaister, with one half, a third, or a fourth of *Burgundy Pitch*.

Urtication (*whipping with Nettles*) is of Use, which was much practised by the Antients; as also extremely hot Baths, and the Skins of Animals just taken off, and Oil Cast.

In Cases of extreme Danger, where the Strength of the Patient can bear it, such a *Phænimus* as the following may be of great Use:

Take of old Barm, two Parts; of Mustard-seed, Horseradish, Garlick, the Tops of Rue, and Pigeons-dung, of each equal Parts; beat up these to the Consistence of a Cataplasm, with sharp White-wine Vinegar.

Part of this is to be applied, as hot as the Patient can bear it, and the Part must be covered with Flannels, or the Cataplasms may be spread on Flannels, and applied, renewing it when it grows cold, till it causes a Tumor. Mean time, if the Patient is low, or faint, through Excess of Pain, he should have a Cardiac Julap, or a Glass of generous Wine, which is much better. When a Tumor is formed, an Epispastic must be applied to let out the contain'd Matter, lest otherwise it should return into the Blood.

When there is no Necessity for immediate Help, and the Patient is weak, tender, or impatient of Pain, a common Epispastic should be applied to the Legs, or Cubit, according as the Gout used to verge towards the upper or lower Parts; and, this being taken off twelve or eighteen Hours after, the following Plaister must be applied to continue the Running:

Take of Hog's Lard two Drams and an half; of Melilot Plaster, a Dram and an half; Powder of Cantharides, a Dram.

By this means the Running should be continu'd six, eight, or ten Days, according to the Circumstances of the Case.

Either of these Proceedings generally relieves the *Gout* in a few Days. Mean time the Matter discharg'd is so salt, that it makes the adjacent Parts itch, and sometimes inflames them. When this Ichor is evacuated, the Symptoms generally are relieved, and the Patient gets hearty, and recovers his Appetite and Spirits, and for some time is free from another Fit of the *Gout*.

Musgrave is of Opinion, that the most dangerous thing a Person long afflicted with the *Gout*, and us'd to a free Way of living, can attempt, is to endeavour to conquer it by Abstinence.

Of the GOUT in the STOMACH.

As the primigenial *Gout* is often caused by Indigestion, and Weakness of the Stomach, so no Part is so often, or so much, afflicted with the anomalous *Gout*.

This Facility to receive and retain the *Gout*, is often owing to a connate Imbecillity; and sometimes to a Weakness contracted from too much Venery, Grief, Fear, or any other relaxing Passion of the Mind, by which Imbecillity the Stomach becomes more liable to receive, and less capable to repel, the arthritic Matter.

But it very frequently happens, that the *Gout* is invited into the Stomach by crude, acid, bilious, or some other vicious Juices contain'd therein, which stimulate the Coats thereof; and this happens just for the same Reasons that Sinapisms and Epispastics invite it to the Extremities.

Sometimes external repelling Cataplasms or Plaisters, apply'd injudiciously to the Extremities, are the Cause of the *Gout*'s fixing in the Stomach. External Cold has the same Effect, either from the Air or Baths.

When the *Gout* has been for some time regular, and the Patient has had many Accessions and Receptions in the Extremities at Intervals, we often see the Fit shorten'd, or broken off, unexpectedly, by means of Cold, repelling Plaisters, Cataplasms, or Unguents; or else by a Debauch, overloading the Stomach, or some Error in point of Diet; or else the Interval has been longer than usual, and the Paroxysm has been deferred longer than was consistent with Health.

This Interruption or Intermision of the *Gout* is often follow'd by Loss of Appetite, and loathing of Food; to which afterward a Weight in the Breast is joined, and then Eructations, Vomiting, and Heart-burn. To these frequently are join'd an Oppression of the Intestines, with Pain, Constriction, and sometimes Heat; an interrupted and freight Respiration; frequent Oscitation; (*Yawning*) Head-ach, Vertigo, and sometimes Dejectedness; frequent and sudden Dimness of Sight, Paleness of the Face, and, after some time, an universal Imbecillity and Leanness.

These Symptoms, perhaps, never appear all at the same time, in the same Person, but frequently a great many of them.

From the Time that these internal Symptoms appear, there is little or no *Gout* in the Extremities. The Patient, who before was confin'd to his Bed, can now get up and walk about with great Ease. Mean time, the internal Complaints grow daily worse and worse; and the Patient, worn out with want of Food, Languors, and Pain, after some Months miserably spent, dies, unless the Weather changing from immoderately cold, to warm and mild, or proper Medicines, restore a regular Fit of the *Gout*.

This *Gout* in the Stomach afflicts old People most frequently; however, young People often have it, probably, from their Carelessness and Licentiousness in point of Diet, because these generally fall into it, immediately after an Error in either Eating or Drinking.

Tho' this Distemper happens at any time of the Year, yet 'tis most frequent in Autumn, which may be owing, in some measure, to Fruits eaten at that Season, and lying in a State of Putrefaction in the Intestinal Tube.

Sometimes these Symptoms will happen, without any Cause so evident as is above specify'd; sometimes with a regular Fit; and sometimes at a greater Distance from its Interruption.

Sometimes old People, now grown sober and abstemious, but who have drank hard, and lived freely in their Youth, are subject to Hypochondriacal Disorders, which are somewhat like *gouty* Symptoms, as perpetual Languors, Eructations, Anxieties, Dejectedness, sometimes Pain, and other Disorders of the Stomach. Now, in order to enable us to distinguish these from the *Gout*, we are to weigh the Circumstances attending, as the Manner in which they seize the Patient, their Vehemence, and the Intervals, and then the Case will be pretty plain.

It makes no Difference in these Cases, whether the *Gout*, leaving the Intestines, goes directly into the Stomach; or whether

it takes a round-about Way, seizing first the Fauces, some contus'd Part, or any other Place; nor whether it immediately follows the fix'd or erratic *Gout*.

It is farther observable, that such as have an hereditary *Gout*, are more subject to these Disorders than others; those who are born of old Parents, than those born of young ones; those who have a bad Appetite, than those who enjoy a good one; those who have a languid, cold *Gout*, than those who have a hot, sharp, and painful one.

The CURE.

The Curative Indication is to relieve, as soon as safely may be, the Stomach, and to free it from the *Gout*: And, in order to this, two things are requisite:

First, To remove all Impurities from the Stomach, which attract and detain the *Gout* in its Coats, by proper Vomits or Purges.

Secondly, After this is done, or omitted, if not necessary, to drive the *Gout* from the Stomach into the Extremities.

If a Shortness, or Difficulty in Breathing, a Gravity and Inflation of the Stomach, and particularly an Eructation, Nausea, or Vomiting, are troublesome, a gentle, but effectual Vomit will be necessary; provided the Patient has sufficient Strength, and there are no Reasons to the contrary.

A great deal of Caution is necessary in making Choice of a proper Emetic; for, on the one hand, those which are too languid to operate well, are trifling; and, on the other, those which operate with too much Violence, are dangerous.

For such as vomit easily, an Infusion of green Tea-leaves, or the Tops of *Carduus Benedictus*, is sufficient, drank so as to vomit four, five, or six times, and in the Quantity of eight, ten, or twelve Pints in the Whole, if the Patient can bear it.

Those who are not sufficiently affected by this sort of Vomit, should take a proper Quantity of Salt of Vitriol in every, every other, or every third Pint of the Infusion.

Those who vomit with more Difficulty, should take Wine, or Oxymel of Squills, or equal Parts of both, in the Quantity of two or three Ounces together; and, half an Hour after taking it, should work it off with some simple or bitter Posset-drink.

But those who either cannot, or will not, drink a sufficient Quantity of Posset-drink, warm Water, or some other Liquid, should never take any officinal Emetic; for, by this means, there would be a great Quantity of Humours invited into the Stomach, and none discharg'd out of it, which would injure the Patient.

Sometimes neither Posset-drinks, Decoctions, nor any other Medicines of this Kind, can safely be given the Patient, because they give him violent Gripes and Spasms, especially Hard-drinkers.

The Reason of this seems to be, because they are too cold for the Stomach.

In this Case *Musgrave* says he has saved many Patients from the Jaws of Death, by giving Quantities of Wine as an Emetic, but which is, at the same time, a good Cardiac.

The Matter evacuated by Vomit is sometimes bilious, sometimes crude, especially after a Debauch of Eating or Drinking.

The good Effects of a Vomit appear in an Amendment of Respiration, and a Removal of the Gravity of the Breast.

And sometimes it happens, that the very Efforts of Vomiting, and the Agitation of the Blood caus'd thereby, drive the *Gout* from the Stomach, and it immediately falls on the Extremities.

An Hour after the Vomit, especially if promoted by any of the Officinals, a Clyster should be administer'd, in order to carry the Remains of it out of the Intestines; and at Night a Bolus, with *Venice-treacle*, and the *Countess of Kent's Powder*, with a Draught of burnt Wine, should be exhibited. After this, let the Patient take, three or four times a Day, a Draught of bitter Wine, with a Scruple or half a Dram of the *Countess of Kent's Powder*, till it is time to purge him.

After one Day's Interval from the Vomit, provided the Patient has sufficient Strength, he should be purged. But in case of too great Weakness, this should be deferr'd a little; however, as soon as possible, a Purge should be given, such a one as will sufficiently clear the Intestines, without causing a Hypercatharsis: For 'tis a certain Rule, that the Cure of this anomalous *Gout* is most likely to succeed, if 'tis begun by clearing the Stomach and Intestines.

Proper Purges on this Occasion are, *Tinctura Sacra*, in the Quantity of three or four Ounces. *Pill Rudii*; Dose half a Dram, or two Scruples. *Earl of Warwick's Powder*; Dose about half a Dram. *Manna* and *Salts* dissolved, with an Addition of *Daffy's Elixir*.

If the Purge does not operate in six Hours, it will be proper to give a Clyster.

At Night, let the Patient take such a Bolus as after the Vomit.

Sometimes it happens, that after even sufficient Vomiting and Purging, a troublesome Nausea remains, inasmuch that all Medicines are thrown off the Stomach, as soon as taken, by Vomit. This is probably caused by the Arthritic Matter lodg'd in the Coats of the Stomach. In order to prevent this, exhibit about ten Drops of *Liquid Laudanum*, in two Drams of *strong Cinnamon* or *Wormwood-water*, or *Spirit of Mint*, every fourth, fifth, or sixth Hour; that is, in such a Dose, and at such Intervals, as will stop the Vomiting, and give the Stomach Power to retain the Medicines destin'd to expel the Gout, which should be given in the Intervals betwixt the Doses of *Laudanum*: For Example, if the *Laudanum* is given at six and twelve, the other Medicines should be administer'd at three and nine. As soon as there is no farther Occasion for the *Laudanum*, it must be omitted, being then prejudicial.

What has been hitherto said about Evacuations, must be understood of such as have Occasion for both Vomiting and Purging, and Strength sufficient to bear it: But when there is no Occasion for it, as it happens when this anomalous Gout is brought upon the Stomach by Grief, or when there is a Deficiency of Strength, we must begin with Medicines that drive the Gout from the Stomach, omitting these Evacuations.

Steel has a peculiar Excellence in driving the Gout from the Stomach.

Musgrave recommends the following Forms:

Take either of *Gascoign's Powder*, or the *Pulvis Purpureus*, or *Goa Stone*, or the *Pulvis Ruber Exoniensis*, a Scruple, or half a Dram; of *Virginian Snake-root*, ten Grains; *Alcohol Martis*, five Grains. Mix and make a Powder.

Instead of *Virginia Snake-root*, *Gentian*, *Zedoary*, or *Contrayerva-root* may be used in the same or a larger Quantity.

Take of the compound *Arum-powder*, and *Pulvis Ruber Exoniensis*, each a Scruple; *Alcohol Martis*, five Grains. Make a Powder. Or,

Take of *Species Diambrae*, (or *Aromaticum Rosatum*) and *Gascoign's Powder*, a Scruple, or half a Dram; *Alcohol Martis*, five Grains. Mix and make a Powder. Or,

Take of *Ginger* candy'd in the *Indies*, a Scruple (or *Pods of Pepper* candy'd, six Grains); *Pulvis Purpureus*, a Scruple, or half a Dram; *Alcohol Martis*, five Grains; *Syrup of Wormwood*, a sufficient Quantity to make a Bolus. Or,

Take of *Species Diambrae*, and *Lapis Contrayerva*, in Powder, each a Scruple; *Alcohol Martis*, five Grains; Confection of *Kermes*, enough to make a Bolus. Or,

Take of the *Species* call'd *Aromaticum Rosatum*, (or *Dianthus*) two Scruples; *Flowers of Sal Ammoniac*, ten Grains; *Syrup of Cloves*, enough to make a Bolus. Or,

Take of the Conserve of *Roman Wormwood* and *Gascoign's Powder*, each a Scruple; *Oil of Caraway-seeds*, one Drop; *Alcohol Martis*, five Grains; *Syrup of Citron-peel*, enough to make a Bolus. Or,

Take of *Venice Treacle*, (or *Mithridate*, or the *Electuarium Stomachicum* of *Fuller*) and of *Gascoign's Powder*, each a Scruple; *Alcohol Martis*, five Grains; *Syrup of Mint*, enough to make a Bolus. Or,

Take of *Camphire*, five Grains; of the Powder of *Contrayerva-root*, fifteen Grains; of the Extract of *Rue*, a sufficient Quantity. Form into Pills. Or,

Take of the Powder of *Long-pepper* (or of the *Species Diatrium Piperaceum*) five Grains; *Gentian Powder*, half a Scruple; *Myrrh*, five Grains; Extract of the lesser *Centaury*, a sufficient Quantity. Form into Pills. Or,

Take of the Powder of *Virginian Snake-root*, one Scruple; of *Alcohol Martis*, five Grains; of *Syrup of Oranges*, a sufficient Quantity. Form into Pills.

With every Bolus, or Dose of the Powder or Pills, a Draught of the following Julap is to be taken:

Take of the Waters of *Carduus*, *Mint*, *Alexiterial Milk-water*, compound *Gentian-water*, compound *Wormwood-water*, or *strong Cinnamon-water*, each four Ounces; prepar'd *Pearls*, two Scruples; *Sugar*, a sufficient Quantity. Make into a Julap.

The Chymical Oils incorporated with the Julap, by means of *Sugar*, render it much more efficacious than it would otherwise be. For a liquid Form I recommend the following Infusions:

Take of *Zedoary-root*, of *Gentian*, of the Tops of *Roman Wormwood*, of *Agrimony*, or *Marsh-trefoil*, each two

Drams; *Cochineal*, one Scruple; *Orange-pill*, two Scruples. Infuse in two Pounds of *Red Port Wine*, or *Spanish Wine*, till the Wine is sufficiently impregnated. Then strain off for Use. The Dose is two or three Ounces.

After the same manner Infusions may be prepar'd from other Aromatics, as the *Cortex Winteranus*, *Cubebs*, the *Seeds of Cardamoms*, *Anise*, *Caraway*, *sweet Fennil*, and *Scurvy-grafs*.

Every Draught of bitter or aromatic Wine should have ten Drops of Tincture of Steel, or else *Alcohol Martis* taken with it.

The Poor may readily have an Infusion of *Garlick*, *Saffron*, *Ginger* rasp'd, with the Tops of *Roman Wormwood*.

It sometimes happens that the Patient cannot take Medicines in any solid Form, or by way of Infusion; and in this Case *Spirit of Mint*, *Juniper*, or *Wormwood*, may be both useful and serviceable. The *Aqua Hispanorum Arthritica* is much esteemed by some, the Preparation of which see above.

After sufficient Purging, *Musgrave* recommends the Use of the above described Medicines, or the like, in the following manner.

In the Morning, about Nine, a Draught of bitter Wine.

At Three in the Afternoon, Pills or Powders.

At Nine in the Evening, a Bolus, especially that with *Venice-treacle*.

At Three in the Morning, Powder or Pills.

The Patient must drink, after every Dose of each, a Draught of *Port Wine*, or of some proper Julap.

Sometimes it happens, that in two or three Days, by the Use of these Remedies given after this manner, the Gout is driven from the Stomach, and fixes upon the Joints. Sometimes this is not done without a long Perseverance; and sometimes not without other Remedies call'd in to our Assistance.

If, after persisting in the Use of these Medicines for two Days, no Pain or Tumor appears, it will then be prudent to apply to the Part where the Gout used formerly to fix, the *Cephalic Plaister*, with equal Parts of *Burgundy Pitch*; or the *Green Cerate*; or else a Blister to each Cubit or Leg, to invite the Humour downwards.

If these external and internal Remedies are not sufficient, with united Forces, to remove the Gout from the Stomach, the Strength of one or both must be increased, and other Aids must be called in, if necessary. The Dose, for Example, of the *Alcohol Martis* must be increased to ten Grains, and the Tincture of Steel to twenty Drops.

Moreover, every intermediate Hour betwixt the Doses of Medicines, let the Patient drink a Glass of *Port Wine*, so as to drink two or three Pints in twenty-four Hours, reckoning also what is taken with the Medicines. But this is principally serviceable to those who have used themselves to drink Quantities of Wine, and cannot well do without it.

Those who cannot drink such Quantities of Wine, should take some Drops of fuccinated Spirit of *Hartshorn* in a proper Julap, at the intermediate Hours.

Finally, the Use of these Medicines and Wine should be continued, till a Heat and Orgasm is raised in the Blood, and the Stomach is relieved, unless there should be some great Reason to discontinue them sooner.

At the same time, the Force of the internal Applications should be increased, and that till the gouty Humour is expell'd, and a Tumor is raised in some external Part, proper to receive the Gout. For this purpose, the Extremities may be wrapp'd in a Sheep-skin just taken off.

But nothing answers the End surer or sooner, than an acrid and stimulating *Phœnigmus* apply'd very hot to a proper Part, and renew'd as it grows cool, whilst the Tumor is rising.

Those who are too nice to bear the Smell of a Sheep-skin, or too tender to bear the Pain of the *Phœnigmus*, may use a hot Brick or Plate of Iron, wrapt up in Linen, and apply'd to the Part.

During the whole Course of this Method, the Patient should keep in Bed, or in his Chamber, and guard particularly against Cold.

Mean time let the Patient eat *Panada*, *Jelly of Hartshorn*, or *Chicken-broth*, or some such Food which is thin and easy of Digestion.

If the Pain thus raised should be so intolerable as to cause a *Lipothymia*, something of the Force of Medicines, and stimulating Applications, may be abated.

If the Fever should run too high, the Dose of the *Cardiacs* should be lessen'd, or they should be entirely omitted. Let the Patient drink as much white Decoction as he pleases, to temperate his Heat.

As soon as a sufficient Orgasm is excited in the Blood, the gouty Matter generally fixes where the external Applications invite it, upon the Extremities; inasmuch, that sometimes in an Hour's Time after the Application of the *Phœnigmus*, a Tumor will appear.

Mean time; such a Fomentation as the following should be apply'd to the Abdomen twice or three times a Day, by means of flannel Stuphs.

Take of the Tops of common Wormwood, Mint, Red Rose-leaves, and Chamomile-flowers, each half an Ounce; of Anise and Caraway-seeds, each two Drams; Powder of Cinnamon, Cubebs, and Cloves, each one Scruple; common Spirit of Wine, half a Pound; of Red Port Wine, one Pint and an half. Let them macerate for three or four Hours in a well-stopt Glass plac'd in *Balneo Mariae*. Let the strain'd Liquor be apply'd as hot as possible. Or, let such a Plaster as this be worn constantly on the Abdomen.

Take of Japan Earth, Balsam of Chili or Peru, each half a Dram; Gum Galbanum, a Dram; Burgundy Pitch, two Drams; of the Magisterial Stomach-plaster, half an Ounce; of Chymical Oil of Cinnamon and Nutmegs, each two Drops.

These Applications are of most Use after Purging, and that in those Constitutions which are enervated with Age, or the Distemper: However, the Physician is to take care, lest, in sanguine and robust People, these Applications do not rather invite the Gout to the Part, than defend against it.

As soon as a considerable Tumor is rais'd, *Musgrave* advises a Blister to be laid on the Part, to evacuate the Humour, lest it should return into the Blood. These sometimes discharge a vast Quantity, and continue running a great while, inflaming the Skin, and causing an Itching; insomuch that it is not to be doubted but that the arthritic Poison is discharg'd with the Serum.

As soon as ever the Tumor and Pain are sufficiently raised, the Dose of the Medicines is to be decreased, and not given so often.

But if it should happen, that by reason of the Inclemency of the Air, or the Coldness of the Season, or some Error in Eating or Drinking, the Gout should leave the Extremities, and return to the Stomach, which is often the Case, the Cause of the Relapse must be diligently inquir'd into, and immediately removed.

If fresh Crudities are collected in the Stomach, they must be evacuated by a lenient, and very gentle Purge.

If the Skin is contracted by Cold, it must be relax'd by external Warmth, and warm Cloathing: In both these Cases, internal Medicines must be plentifully administer'd.

Podagragogue Medicines are requir'd so strong, and in so great Quantities, in no Case, as in a Relapse, or where the Body is loaded with Crudities, which cannot be purged off by reason of the Weakness of the Patient, or the long Continuance of the Disease. In these Cases, the Medicines should be compos'd of Steel, Ginger, and Pepper, and full of volatile Salts; and should be taken in much greater Quantities, than above directed; and even then they will sometimes fail us, and the Patient will die sometimes unexpectedly, complaining all the while of an inexplicable Depression of Spirits, and Coldness of the Stomach. Sometimes, in the Irregularities of the *wandering Gout*, it is sufficient to reduce the Gout to the Inter-nodes: And sometimes 'tis even sufficient to free the Stomach from the gouty Matter, tho' it is only resorb'd and retain'd in the Blood. But in the Irregularities of the *fix'd Gout*, the most desirable Method is to have the Gout fix'd upon the Extremities.

It is entertaining to observe, that as the Pain, Tumor, and Symptoms of a regular Gout appear and increase, the Pain of the Stomach, Nausea, Cardialgia, and other Symptoms, disappear; to which succeed Hunger, good Digestion, a healthful Lustre of the Eyes, and other Signs of returning Health.

In order to guard against these irregular Fits, the Use of the Steel-waters is very good, drank properly, and for a long time; to which may be added, such Stomachics as cause Hunger and Digestion; particularly the *Conserve of Roman Wormwood*, *Red Roses*, or *Hips*; the *compound Powder of Arum*; *Salt of Steel*, and *Ens Veneris*. Mean time, Care must be taken to avoid Indigestions, Cold, and all evident Causes of these Irregularities.

It is also useful to have an Issue in the Arm, or below the Knee, according as the Gout is more subject to fix on the Hands or Feet.

Musgrave observes, that Affections of the Mind will sometimes make the Gout recede from the Extremities, and fix upon the Stomach, and gives a Case to this Purpose.

He also gives some Cases, which prove that cold Weather and Frost will sometimes prevent the Gout from falling on the Extremities, especially in old People; or make it recede.

THE ARTHRITIC COLIC.

The *Arthritic Colic* is very frequent, and extremely painful, and has its Seat in the whole intestinal Tube from the Stomach to the Anus, tho' not in every Part at the same time;

and it often happens, that the Stomach suffers at the same time.

Both the fixed and wandering *Gout*, the regular and irregular, the primogenial and symptomatic, sometimes appear in the Shape of the *Colic*: But principally that kind of symptomatic *Gout*, which begins originally with the *Colic*; for the Seat of this is somewhat ambiguous, fixing alternately on the Extremities and Intestines. This very often seizes upon old and infirm People, and sometimes affects those of Athletic Constitutions, who have not yet passed the Meridian of Life.

When a Person has been for a long time used to have regular Fits of the *Gout* at Intervals, and now grows old, Nature begins to leave off these Paroxysms, and gives no Fit at all, or very seldom, or else little and short ones, either thro' Weakness, or some other Cause, which must diligently be inquir'd into. And then an Evil of another Kind, either sooner or later, generally seizes upon the internal Parts.

First, the Patient perceives an universal Indisposition, and Loss of Appetite; and frequently a Nausea and Pain in the Intestines, which is usually fixed to some one Point of the Abdomen; generally about the Navel. Another Symptom is an Oppression and Heaviness of the Breast, as if it was press'd by a Weight. This happens to most of those that are afflicted with the *Colic*, and is extremely troublesome.

These two Symptoms, Pain in the Abdomen, and Oppression of the Breast, may be esteemed the primary Symptoms. The secondary are, a Distention of the Præcordia, Murmurs in the Intestines, Eructations, Vomiting of Matter generally bilious, and Costiveness. To these are to be join'd some others, which happen only sympathetically, as Languor of the Eyes, Dejection of the Spirits, Want of Sleep, Indolence, Anxiety; and if the Distemper continues long, a Weakness, and Emaciation of the whole Body.

This often, tho' not always, begins in Autumn, and, without proper Relief, miserably afflicts the Patient all Winter following: For from the first seizing of the Intestines, he languishes and is oppressed with Wind, Uneasiness, and Pain, lies awake all Night, and laments himself all Day, till at last, depriv'd of Sleep, Food, and all the Refreshments of Life, weary'd with perpetual Strainings to vomit, enervated and worn out with Pain, and extremely emaciated, Death, sooner or later, frees him from his Torments.

It seems to be very plain, that the *gouty Matter* is the Cause of all these Disorders. But these Symptoms, particularly the aforesaid Pain in the Belly, and Heaviness of the Breast, give a great Light into the Case; yet as these are not so peculiar to the *gouty Colic*, but that they sometimes appear in *Colics* of another Kind, we must take the Diagnostic from the preceding Distemper, that is, the *Regular Gout*: We must therefore observe, if the Patient has lately had a Fit, whether it has suddenly remitted, or gone off; and whether the *Colic* immediately follow'd this Intermision. And from these Circumstances we may easily judge of the Nature of the *Colic*.

The external Causes of the *Colic* are Cold, too tight Shoes, or any sort of Ligatures, repellent Plasters, Unguents, or Cataplasms.

The internal Causes are, a natural Imbecillity of the Intestines; an Accumulation of Impurities in the Viscera, which, being discharged from the Liver, Pancreas, and other Glands that empty themselves into the Intestines, invite the *gouty Humour* to those Parts by their Stimulus, just in the same manner as stimulating Applications do to the Feet. And Crudities from the Stomach act in just the same manner. But no Impurities are more frequent here than those which are bilious, as the Stools, and what is thrown up by Vomit, evidently shew. Amongst the internal Causes, may also be reckon'd the eating or drinking improper Things; as Fruit, too sharp Cyder taken in large Quantities, or any other Error in point of Aliment, especially those that are of a cold Nature.

This *Arthritic Colic* is often fatal, and always dangerous. If the Heaviness in the Breast, and Pain in the Intestines, especially if it is pungent, continue long, 'tis a bad Sign, and the Patient generally grows gradually worse and worse, till he dies.

There is seldom any Safety till the *Gout* is expell'd into the Extremities, and even then, not in every Case, nor always. For tho' the *Gout* gives Pain in the Joints, yet, if the Mass of Humours remain within, the Hopes we have from this Pain are very precarious; for the *Gout* is frequently invited thereby into the Intestines again, and destroys the Patient.

But if the Pain of the Intestines, Oppression of the Breast, and Costiveness, entirely vanish, and at the same time Pain appears in the Extremities, it gives a much better Prospect.

But if the Pains of the internal Parts entirely cease, the Appetite returns, and at the same time the Pain of the Intestines is considerable, the Patient in all Probability is out of all Danger.

In regard to the Cure, so far as a bilious Fever sometimes accompanies this Disorder, regard must be had to the Fever and its Symptoms, as Thirst, Heat, Velocity of the Pulse, &c.

Therefore, if Occasion requires, the first Step we take should be to bleed the Patient, but very sparingly, and only just so much as will prevent the Inflammation, lest, by taking away too much, we at the same time take away all Possibility of expelling the Gout.

Then, in case the Stomach is loaded with Crudities, the Patient should vomit, by means of Tea, or an Infusion of *Carduus Benedictus*; for it may not be adviseable to give any stronger Emetic.

The Day after the Vomit, the Patient should be purged, if his Strength will permit it, or else two Days after, with *Extractum Rudii*, and Refin of Jalap, to which may be added, *Mercurius dulcis*; or with Syrup of Buckthorn, and Elixir *Salutis*; or, if the Fever is considerable, with a Solution of Manna, and purging Salts, in Barley-water; or by any other proper Purge. But no Paregoric must be given at Night after it, unless in case of a Hypercatharsis, lest it should put a Stop to the Eruption of the Gout upon the Extremities.

Purging is here of the utmost Importance; for without it, and that too sufficiently, the Cure will be extremely perplex'd; and therefore Purging must be repeated, till the End of clearing the Intestines is answer'd.

Mean time, on the Days betwixt purging, the Patient must take the *Tessaceous Powder*, if the Intestines abound with an Acid; but if they abound with Bile, a bitter Alterative Infusion is preferable.

This Work being finish'd, which is half the Cure, we are then to endeavour at the Expulsion of the Gout, and not sooner.

To this End, besides the Remedies mention'd above for this Purpose, there are some others, which have always been esteem'd good for the Colic; and Aromatics too are here good; and, with these, those above-mention'd may be very properly join'd.

What is here meant, are these following:

Powder of Zedoary-root.
Compound Powder of Arum-root.
The Pulvis Aurantiorum Compositus, and } of Fuller.
Pulvis Bezoardicus,
Species Diatrien Piperacem.
Simple Species of Calamint.
Species Diambrae, and Dianthus.
Electuarium e Baccis Lauri.
Mithridate.
Ginger, candied in the Indies, and its Syrup.
The Chymical Oils of Juniper, Cumin, Caraway, sweet Fennel, Anise, and such-like Carminatives and Aromatics.
Amongst Wines, the strong Spanish and Portuguese red Wines, either alone, or impregnated with Bitters, have the Preference.

Prepar'd in this manner, we are to attempt removing the Gout in the following manner, and endeavour to throw it upon the Extremities.

The Patient must be put to Bed, and must take a Powder, Bolus, or Dose of Pills, made after some of the following Forms:

Take *Gascoign's Powder*, a Scruple or half a Dram; Alcohol Martis, five Grains: Mix and make a Powder. Or,

Take of the Powder of Zedoary, half a Scruple; Species of Calamint, or *Diambrae*, one Scruple; Alcohol Martis, five Grains: Reduce to a Powder.

The Forms of proper Boluses are these following:

Take of the Electuary of Bay-berries, or of Mithridate, of the compound Powder of Crabs-claws, each one Scruple, or one Scruple and an half; Alcohol Martis, five Grains; Syrup of Oranges, a sufficient Quantity: Make into a Bolus. Or,

Take of Ginger, candied in the Indies, compound Powder of Arum-root, each one Scruple, or one Scruple and an half; Alcohol Martis, five Grains; Syrup of Nutmegs, a sufficient Quantity: Make into a Bolus. Or,

Take of candied Nutmegs, and Species *Diambrae*, each one Scruple; Alcohol Martis, five Grains; Chymical Oil of Juniper, one Drop; Confection of Kermes, without Perfumes, a sufficient Quantity: Make into a Bolus.

Or, the following Pills may be used:

Take of the Species, with the three Peppers, and Powder of *Virginian Snake-root*, each half a Scruple; Alcohol Martis, five Grains; Extract of Rue, a sufficient Quantity: Form into Pills.

After each Dose of these Medicines the Patient is to drink a Glas of Spanish Wine, or red Port; or a Draught of some of the following Julaps:

Take of *Carduus* and Mint-waters, of Alexiterial Milk-water, and compound Chamomile-water, each three

Ounces; Spirit of Juniper, half an Ounce, or a whole Ounce; prepar'd Pearls, half a Dram; the finest Sugar, a sufficient Quantity: Make into a Julap. Or,

Take of Alexiterial Milk-water, twelve Ounces; *Brunswic Mum*, four Ounces; prepar'd Pearls, half a Dram; and a sufficient Quantity of Sugar: Make into a Julap.

If the Patient likes a liquid Form better than any other, let him have a Draught of the following Infusion, with the Addition of Steel:

Take of Zedoary-root, Galangals, sweet Flag, and Tops of *Roman Wormwood*, each two Drains; Juniper-berries, and *English Saffron*, each one Dram: Infuse in two Pounds of Spanish Wine, till the Liquor is sufficiently impregnated; then let the Infusion be strain'd off.

Take three Ounces of this Infusion, and five Grains of *Alcohol Martis*, for a Draught: Let it be shaken before the Patient drinks it.

Let the Patient take some one of these Medicines every four, five, or six Hours; and in the Middle of the Intervals, betwixt each Dose, let him drink a Glas of one of the above-mention'd, or some other generous Wine, in as large a Quantity as he can with Safety.

This Rule is to be observ'd in regard to his Medicines, that they must be taken in such a Dose, and repeated so often, as is sufficient to remove the Gout to the Extremities, without raising any greater Degree of Fever, or any greater Orgasm in the Blood, than what is sufficient for this Purpose.

It sometimes happens, that, after Vomiting and Purging, the Gout discharges itself upon the Extremities, and becomes regular, especially in robust Constitutions; and then nothing remains farther to be done, but to take care, that it discharges all its Fury there, and that it remains where it is.

But as many Difficulties often occur, before the gouty Matter can be brought to fix upon the Extremities, it is necessary to point them out.

Sometimes, then, the Intestines are so contracted with Spasms, that very strong purging Medicines will have no Effect, nor in the least purge the Patient: In this Case, a Fomentation must be apply'd to the Abdomen, which must be occasionally repeated:

Take of the Tops of Southernwood, and Mugwort, each an Ounce; of the Roots of round Birthwort, and Chamomile-flowers, each two Ounces; of Bay-berries, an Ounce; of the Seeds of Caraway, and sweet Fennel, each half an Ounce: Boil in ten Pints of Spring-water to five; and to the strain'd Liquor add camphorated Spirits of Wine, a Pint. Make a Fomentation, to be apply'd, as hot as it can be endur'd, to the Region of the Belly.

After each Fomentation, let the following Liniment be rubb'd in:

Take of Soldiers Ointment, two Ounces; Oil of Turpentine or Tar, and Chymical Oil of *Rhodum*, each six Drops: Make into a Liniment.

Instead of using this, the whole Belly may be anointed with the *Galbanetum Paracelsi*, describ'd in *Riverius* from *Crato*, *Cap. de Colica*, and is as follows:

Take of Gum Elemi, Hedera, Galbanum, Oil of Bays, each equal Parts: Distil in a Retort by a Sand-heat; let the Water which comes over first, the clear Oil, and the thick Oil which comes over last, of the Consistence of Honey, be kept separate; the last of which is to be used.

It sometimes happens, especially in tender Constitutions, that, after purging, considerable spasmodic Contractions, and a great deal of Pain, will still remain, which is sometimes continual, and sometimes intermittent. These must be cur'd partly by the above describ'd Fomentations and Liniment, and partly by the following Clyster:

Take of Canary Wine, half a Pound; Electuary of Bay-berries, half an Ounce. This Clyster is to be retain'd as long as possible.

Sometimes the Intestines are so weak, that they will not bear Steel, but immediately throw off that, together with whatever other Medicines are join'd with it, by Stool. In such a Case, it would be adviseable to give the other Medicines without the Steel.

Sometimes not only Steel, but even testaceous Powders, will run off by Stool. When this happens, the Diarrhoea must be stopp'd;

stopp'd; for there is no Hope of the regular Gout whilst that continues: And therefore we must, upon this Occasion, call in to our Assistance *Japan Earth*, *Chalk*, *Dragon's-blood*, *Venice Treacle*, *Electuary of Bay-berries*, and the above-mention'd Species taken from the Vegetable Kingdom, as also the Chymical Oils, in order to put a Stop to it.

As soon as a Medicine is found out which will agree with the Patient's Stomach, he must continue the Use of it for two or three Days; and if, in that Time, there is no Appearance of the Gout in the Extremities; we must call to our Assistance stimulating Plaisters, Cerats, or Cataplasms: And even after the Gout appears in the Extremities, it will be convenient to continue the internal Medicines till it is entirely fix'd there, and has quite left the Intestines. And when this Point is gain'd, we should still continue the Medicines, either in half the former Dose, or else repeated half as often, for four, six, or eight Days; that is, till we have Reason to believe the Intestines out of Danger from any Revisit from the Gout.

Mean time, 'tis very agreeable to observe, that as soon as the Gout is once fix'd upon the Extremities, all the Complaints of the Intestines suddenly vanish, and a certain Sprightliness returns to the Eyes, and appears in the Countenance; as does also a good Appetite, and due Digestion.

During this whole Course the Patient should have a most exact Diet prescrib'd him.

Panada, Jelly of Hartshorn, of Ivory, Biscuit, Chicken-broth, are very proper; but Wine is particularly useful, either by itself, or mix'd with the White Decoction.

But very great things may be expected from a plentiful Use of Wine, in the Cases of such as have been much used to it. But the very best Sort is red Port, of which the Patient may be allow'd to drink from half a Pint to a Quart in a Day and a Night, as Occasion requires. Mean time, if there is any considerable Costiveness, which is very common, the Patient should, every other Day, have a lubricating Clyster, either of Oils, or Mutton-broths. It is to be observ'd, that sometimes, tho' the Intestines are entirely deliver'd from the Gout, and it is driven into the Extremities, the Belly is inflated with Wind, and is still full of Pain, so as to make the Patient almost out of Hopes of a Recovery. But as this is only owing to a Flatus, (*Wind*) and the Weakness which the Distemper has left, it may be generally cur'd by this Clyster, continued every Day, or every other Day.

In this Case also the bitter Infusion, and such sort of Stomachics as increase the Appetite, and mend Digestion, are very useful.

In order to prevent Returns of this Disorder, the Patient must eat sparingly, and do all he can to promote Digestion. He must frequently take some gentle Purge which is stomachic, and must use other stomachic and gently restraining Medicines.

The Mineral Waters, both purging and diuretic, have been of signal Service to many; and many others have found great Benefit by taking, twice or three times a Year, either the *Alford Waters*, purging Salts, or *Tartarum Laxans*, dissolved in *Barley-water*. Some have found Relief by mixing the purging with the diuretic Waters. The *Bath Waters* have long been esteem'd good against the Colic, and are particularly useful in this Species of it. In the Intervals betwixt the Use of the diuretic Water, some proper Alteratives are to be taken; as, at ten in the Morning, a Draught of a bitter Infusion; made with white Port; as also every Day, after Dinner, some Spoonfuls of the same Wine alone. At five in the Afternoon a Dram of the following Electuary, with any convenient Vehicle, will be proper:

Take of the Conserve of Hips, or of red Roses, pass'd thro' a Sierce, *Roman Wormwood*, Ginger candied in the *Indies*, each half an Ounce; Salt of Steel, four Scruples; Syrup of Ginger, one Ounce and a half; Chymical Oil of Cinnamon, five Drops: Make into an Electuary. Or,

Take of Hedychroi Troches, and Conserve of Orange-peel, each half an Ounce; Salt of Steel, one Dram; Species Diabribæ, one Dram; Alcohol Martis, three Drams; Syrup of Wormwood, a sufficient Quantity: Make into an Electuary.

But forasmuch as this Colic generally takes its Rise from external Cold, we are to guard against it by warm Cloathing, and avoiding the Inclemencies of the Air.

It must be added, that People of an advanced Age, who have once had this Distemper, and have been hinder'd, either by their Business or Pleasures, from preventing a Return, have seldom fail'd to pay for this Neglect, either with their Health or Life.

Musgrave, in Confirmation of his Doctrine, very justly quotes a Passage of Hippocrates, from the sixth Book of Epidemics, Sect. 4. It runs thus, *ὅτι ἡ νόσος ἐν τῇ ἐξέσει ἀφ' ἑκτονος ἐγένετο, ἢ νουχάτερος ἐπεί τ' αὐτὸν ἰατροὺν, καὶ νοσητέον.*

certain Person, having a Pain in his Intestines, on the Right Side, being seiz'd with the Gout, became better; but when he was cured of this, he relapsed into his former Pain, and grew worse.

This Hippocrates repeats at the latter End of his Treatise *μετ' ἡμῶν*.

Musgrave might also have taken Notice, in Confirmation of his Practice, that Hippocrates, in the second Book of Epidemics, directs, when there is a slight Ileus, (*ἐίλεος*) that is, Pain in the Ileum, the Patient must drink a reasonable Quantity of unmix'd Wine, till he falls asleep, or perceives a Pain in his Legs.

If there is a thick white Crust upon the Surface of the Blood, after 'tis drawn away, it abundantly confirms this Colic to be Arthritic; because in the genuine Colic it is not usually so.

However, in an Inflammation of the Intestines, which is often mistaken for the Colic, the Blood generally appears fizy.

In History 3. Musgrave gives an Account of an old gouty and paralytic Gentleman, who, upon a Suppression of a Discharge of the Saliva, which had for a long time been considerable, and a Cessation of the Gout, and Swelling of the Feet, which had for many Years been very great, had this Colic; but upon purging, and taking *Goddard's Drops*, and *Alcohol Martis*, the Gout, Salivation, and Swelling of the Feet, return'd, and he was cured of the Colic.

The Purge he took was Calomel, with Refin of Jalap, and *Extractum Rudii*.

Hist. 8. he tells us of a Gentleman who was afflicted with the Gout for twenty Years, who, every Autumn that he mis'd having the Gout, had an Epiphora, which discharged an acrid and pungent Serum from the Eyes, for six or eight Weeks.

AN ARTHRITIC DIARRHOEA.

If a Person, long used to the Gout, in the midst of his Fit, falls into a Diarrhoea, and at the same time the Pain and external Swelling decrease, and soon entirely vanish, 'tis very evident, that this Diarrhoea is Arthritic.

It also frequently happens, that before the Patient feels Pain in the Joints, the Diarrhoea diverts the gouty Humours from the Extremities, where it would otherwise fall, and carries it off by the Intestines.

This Diarrhoea, which anticipates the Fit of the Gout, is frequently found to be salutary, Health and Vigour returning after it; but this happens only in good Constitutions, where the Fibres are robust, and the Spirits firm.

But the Cases where this Diarrhoea is most frequent are, when either a Purge has been given, or else when the Intestines are loaded with Crudities, which stimulate, and find a Passage for themselves, together with the gouty Matter.

The Event of this Diarrhoea is extremely uncertain; for if it stops in time, and is not excessive, it very often proves of Use, as it carries off the gouty Matter by a Way that is safe enough, tho' not the most common; and it has this Advantage attending it, that the Paroxysm does not return of a long time after it.

But in those whose Viscera are debilitated by Debauchery, so as to render Nature incapable of moderating the Crisis, it sometimes becomes so excessive as to destroy the Patient.

In this Diarrhoea nothing is more foolish nor dangerous, than to do too much; for an officious Diligence disturbs Nature, and interrupts her in the Work she has begun, when it is better to leave her to herself, and permit that to be discharged, which, if retain'd, would do Mischief.

But if the Diarrhoea becomes too excessive, and is too great for the Patient's Strength, it must be moderated by Astringents, and the Strength must be kept up by Cardiacs.

But whether the Diarrhoea stops of its own Accord, or is stopp'd by Medicines, after some time the Relicts are to be purg'd off by the Purging Waters, with an Addition of *Tartarum Laxans*, or Manna, if the Case requires such Addition.

If this Diarrhoea should happen from taking a Purge, Medicine in this Case, as in the former, is unnecessary, we having only to guard against an *Hypercatharsis*.

But in case this Diarrhoea arises from Crudities, which is, of all, the most dangerous Case, it must be treated in a different manner. Here it sometimes happens, that the Stomach is loaded, and then a Vomit of Tea, or Carduus, may be proper. After which, or without one, a gentle Purge should be given: And then recourse must be had to Restraining, and such Medicines as will moderate the Diarrhoea. Let the Patient take, every fourth, fifth, or sixth Hour, a Bolus of

Diafcardium, Species of the Confection of Hyacinth, astringent Crocus of Mars, *Japan Earth*, and Syrup of Roses. After which let him drink a Draught of the Cretaceous Julap.

Let the Patient have also a Clyster of *Canary Wine*, Jelly of Starch, or Diafcardium.

Let the Belly also be frequently fomented with a Decoction of the Roots of Bistort, Tormentil, and Balaustines, made in strong Beer.

Let his Drink be the White Decoction, or an Infusion of red Roses, and sometimes some red Wine burnt.

If the Pulse will permit, Opiates are of excellent Use, as a few Drops of Laudanum, or about a Grain of Opium, with half a Dram or two Scruples of *Venice Treacle*.

If there should be any Danger of the Diarrhoea running into a Dysentery, let the following Emulsion be taken :

Take of calcin'd Hartshorn, half an Ounce ; Gum *Arabic*, and Tragacanth, each two Drams : Boil in three Pounds of Rice-water, of the third Decoction, till they are reduced to two. Let the strain'd Liquor be pour'd upon decorticated sweet Almonds, and white Poppy-seeds, during the Time they are bruising : Then strain the Liquor a second time, and give it an aromatic Flavour with strong Cinnamon-water : Then edulcorate it with Sugar.

When the Patient is much reduc'd by the Diarrhoea, Vomiting and Purging must be omitted ; and Cardiacs and Astringents only must be used.

But to whatever Cause this *Arthritic Diarrhoea* owes its Origin, the best and most pleasant prophylactic Cure is that by the Steel-waters, to which some Preparation of Steel should be added ; and, amongst all the Preparations of Steel, the *Alcohol Martis* is the best.

In his sixth *History*, *Musgrave* mentions frequent Oscitation as a Fore-runner of a *gouty* Diarrhoea, in a certain Person he mentions.

AN ARTHRITIC DYSENTERY.

An *Arthritic Dysentery* principally seizes upon those who have a thin Habit of Body, and particularly weak Intestines, and are used to the *Gout*.

An *Arthritic Colic* generally precedes this Distemper, and when the Fibres of the Intestines are weaken'd by frequent Fits of it, and either some external Cause forces the *gouty* Humour inward, or some internal Cause invites it thither, it falls with Fury on the Intestines, by the Coeliac and Mesenteric Arteries.

Hence arises a gnawing and eroding Pain, with a quick Pulse, and a small Fever. If, at the same time, there is any *Gout* in the Extremities, it immediately vanishes, and all flies to the Intestines ; and there, breaking the distended Arteries, the extravasated Blood is pour'd into the Intestines ; and is thence thrown out by the Anus, and sometimes by the Mouth, in the Quantity of a Pint, and sometimes two. Great Languors immediately succeed this, and Loss of Strength ; the Extremities grow cold, the Patient falls into frequent Deliquia, and his Life is in imminent Danger.

The Pain is eased by this Evacuation ; and if the Patient can sustain the Violence of the Fit, he grows easy, and is for some time free from any Fit of the *Gout* : For after the *gouty* Matter has been in this manner discharg'd, a new Fit cannot happen, till new Matter is form'd in the Blood.

This Distemper is not always content with one Visit, but oftentimes returns, and exactly resembles the *Gout* in regard to its Periods ; and sometimes the first time, sometimes at its Return, leaves an Ulcer or Abscess in the Intestines.

The Patient must rest either in Bed, or in a Chair, whilst the Paroxysm lasts, lest the Motion should exagitate the Blood, and increase the Flux.

Mean time, it may be of vast Prejudice to give Cardiacs in Quantities large enough to inflame the Blood, and by that means increase the Disorder. They must therefore be carefully given, and only in such Proportion as is sufficient to support the Spirits, and keep off a Deliquium.

In case the Discharge becomes too considerable to be easily supported, it must be stopp'd by Laudanum : And therefore some Laudanum should be held upon the Tongue, and in the Mouth ; and must be continued in this manner till the Flux ceases ; for if it goes into the Stomach, it will immediately be return'd by Vomit.

Our Author has often found the White Decoction of great Service : It must be taken in small Quantities, and often ; and the Patient must take nothing else for some time, either of Food or Medicine.

As Care must be used, on one hand, that the Intestines are not too much open ; so, on the other, they must not be contracted ; and if the latter happens, they must be gently relax'd. It must be remember'd, that this Dysentery is critical, and that therefore an Error, on either Side, is attended with Inconveniencies, so that a Medium is best ; and this Mediocrity must be discover'd and obtain'd by having a proper Regard to the Patient's Strength.

It often happens, that after the *Gout* is expell'd by these bloody Stools, all is easy and quiet ; but in case it happens otherwise, and the Dysentery continues, it is proper to give

such Remedies as will stop it, and contract the Wound of the Intestines. As,

Tincture of *Japan Earth*, dropp'd into the White Decoction, or into some vulnerary Decoction ; or the Balsam of *Lucatellus*, with Olibanum, Mastich, Dragon's-blood, and the astringent Crocus of Mars ; or with the true Bole, in the Form of Pills ; or with Conserve of Hips, or red Roses, pass'd thro' a Sierce, the Species of the Confection of Hyacinth, with Syrup of dry'd Roses, in the Form of a Bolus, to be taken in the same Vehicle.

Let the Abdomen be fomented with Stuphs wrung out of a restraining Decoction, with an Addition of red Wine.

If the Vein, from whence the Blood is discharg'd, happens to be near the Anus, a Clyster of the Jelly of Starch, or some such gluish Medicine, should be injected, and retained for a long time. Mean time all Acids are to be avoided as pernicious, by reason of their Stimulus.

Let the Patient's Diet be Jelly of Hartshorn, or Ivory, or Calves Feet, poach'd Eggs, Rice boiled in Milk, or Cremor of Rice ; and such sort of things which nourish, incrassate, and agglutinate Wounds.

It is easy to perceive, that the Cure of this *Arthritic Dysentery* is very different from that of a common Dysentery ; for the latter requires repeated Purging, whereas the former seldom admits of any purging Medicines at all.

The *Tunbridge*, *Bampton*, or such sort of chalybeate Waters, are the best Medicines that can be used in order to guard against a Return, especially if some Preparation of Steel, with Restringtons, are taken at the same time.

In *Hist. 1.* *Musgrave* tells us, he directed a Sheepskin, just taken off, to be apply'd to the Feet, in order to invite the *Gout* thither.

In *Hist. 2.* he gives an Instance of his directing *Venice Turpentine*, with Powder of Marshmallows, in a Bolus, twice a Day, in order to heal the Wound in the Intestines, which the Dysentery had made, or rather the *Gout*.

ARTHRITIC OR GOUTY ABSCESSSES OF THE INTESTINES, see under the Article ABSCESSUS.

ARTHRITIC MELANCHOLY.

This sort of Melancholy affects those People most, who are of soft, tender, and delicate Constitutions, who are naturally timorous, or who from any other Cause have been inclined to Melancholy from their Infancy. These, whilst they have regular Fits of the *Gout* in the Extremities, are, during the Intervals, very chearful and well ; but when the Paroxysms either altogether cease, or are insufficient to carry off the *gouty* Matter, but particularly when the *Gout* seizes upon the Stomach and Intestines, the Appetite and Digestion begin to be deprav'd. Then the Patient is troubled with Hypochondriac Wind, Murmurings in the Intestines, Distention of the Præcordia, and sometimes an almost continual Pain of the Intestines. Hence, by the Consent of Parts, the Brain and nervous System is affected, and the Patient becomes melancholy. Nothing can be more miserable than the State of these unfortunate People ; for they neither sleep nor eat, and are so dejected, as to be even weary of their Lives, and will not so much as hope to be ever in a better State.

No Species of the anomalous *Gout* is more chronical than this, nor scarce any more frequent. It generally begins about the forty-fifth or fiftieth Year, and seldom leaves the Patient entirely, unless Medicine effectually interposes ; but returns at Intervals, and those often very short ones. However, when the *Gout* is worse, this Melancholy is better, and *vice versa*.

Musgrave distinguishes between the *Melancholia Arthritica*, and the *Arthritis Melancholica* ; the former being, according to him, a *Gout* terminating in Melancholy ; the latter, Melancholy terminating in the *Gout*. The Cure is to begin with unloading the Stomach and Intestines of the Mass of undigested Humours contained therein, by a Vomit, if necessary, and Purges of the milder Sort, as Tea and Carduus Posset-drink for a Vomit ; as Rhubarb, the Tartar Pills of *Bontius*, the Stomachic Pills with the Gums, or something of this Kind, for a Purge.

The Evening after the Operation of the Purge, a Cardiac must be given instead of a Purgative ; and afterwards, when we come to Alteratives, they must be given in a Quantity sufficient to expel the *Gout* from the external Parts into the Extremities.

In order to prevent a Relapse, the Diuretic Waters must be drank regularly for a considerable time ; and if the *Gout* does not return regularly at Spring or Autumn, or both, spontaneously, Fits must be procured by Medicines proper for that Purpose. Mean time the Patient must be extremely regular in point of Diet ; a gentle Purge must also be frequently given, in order to carry off any undigested Remains of the Aliment. *Musgrave* recommends the following, which he calls *Pilula Melancholica*.

Take

Take of the Pills of *Macrus*, (in the old *London Dispensary*) and of the Stomachic Pills, with the Gums, each one Dram and an half; of the Pills of *Rudius*, one Dram; Resin of *Jalap*, half a Dram; Chymical Oil of *Cinnamon*, ten Drops; Balfam of *Peru*, a sufficient Quantity: Form into a Pill.

The Dose is half a Dram, to be taken every Morning once a Month; or instead of these, the Laxative Tartar and Manna, each in the Quantity of half an Ounce or an Ounce, dissolved in a Quart of any purging Water, may be taken.

A Paregoric must be given at Night after each of these Doses, taken by way of Prevention.

Nothing is more serviceable in this Case than Exercise, particularly Riding.

N. B. The Cases which *Musgrave* relates are worth observing, in one of which, in order to clear the Head, he recommends the following Snuff:

Take of the Stalks of Tobacco, one Dram; Tops of *Margoram*, *Rosemary*, and *Sage*, each half a Dram; Root of white *Hellebore*, one Scruple; Musk, two Grains: Of all these dry'd make a Powder for an Errhine.

An ARTHRITIC SYNCOPE.

The Gout often causes a Syncope, especially after drinking cold and thin Liquors, or eating any thing which the Stomach is not able to digest.

In this Case the Patient first finds himself ill all over, then grows pale, and breaks out into a cold Sweat. His Pulse is weak, slow, and unequal, and sometimes intermits; at last he faints away, and loses all Sense and Motion. Mean time if there were any Signs of the Gout in the Extremities, it instantly retires, and the Patient dies, without immediate Assistance.

The best Medicines are Cardiacs in very large Doses, and a liquid Form, to be repeated often. *Musgrave* recommends the *Aqua Hispanorum Arthritica*: Or the following Julap:

Take of Compound Wormwood Water, twelve Ounces; Spirit of Mint, and Compound Spirit of Lavender, each two Ounces; and of the finest Sugar, a sufficient Quantity: Mix up into a Julap.

The Dose of this is half an Ounce, an Ounce, or two Ounces, to be repeated as Occasion requires.

With the first or second Dose of this may be given the following Bolus or Powder:

Take of *Venice Treacle*, half a Dram; Flowers of *Sal Ammoniac*, half a Scruple; Conserve of *Rosemary-flowers*, one Scruple; Syrup of *Citron-peel*, a sufficient Quantity: Make into a Bolus: Or,

Take of Powder of *Virginian Snake-root*, half a Scruple; *Species Diambrae*, one Scruple, or one Scruple and an half; of *Long-pepper*, three, four, or five Grains; of Chymical Oil of *Cinnamon*, one Drop: Reduce to a Powder.

For want of these Medicines, burnt Brandy will answer the End; or succinated Spirit of *Hartshorn* may be added to the Cordial Waters, for the same Purpose.

Mean time Frictions must be used; and Stups immersed in hot Wine or Brandy must be applied to the *Scrobiculum Cordis*, and all over the *Abdomen*, which must frequently be renew'd.

This Method must be pursued till the Patient comes to himself, and is recovered, which however seldom happens till the Gout is forced into the Extremities, and fixes there.

If the Patient has eaten any thing difficult to digest, and is inclined to vomit, as soon as he comes a little to himself, it should be brought off his Stomach, by a Decoction of Tea or *Carduus*. But if he is so bad, that there is no Time to lose, he must drink a large Quantity of Wine, in a very little time, that it may answer the End of a Cardiac, and at the same time of a Vomit.

If these Fits return frequently, the Patient must always have some Cardiac Waters by him, to take as soon as he finds himself disordered.

These strong Waters, though extremely injurious to People in Health, are, however, excellent for old gouty People, who have been accustomed to drink Quantities of Wine, and are troubled with this sort of Syncope.

In a Case of this sort *Musgrave* gave a Patient a few Grains of *Alcohol Martis* with his Julap, after he began to complain of a Pain in his Foot; the Consequence of which was, that in a few Hours, before he had taken a Scruple, his Pulse became more quick and strong; he began to be very hot all over; the Hemorrhoidal Veins discharged some Blood; he had great Thirst, a violent Agitation of his Spirits, and Swelling with Redness in his great Toe.

VOL. I.

He then blistered him in several Places, and apply'd a Plaister to his Toe, made up of equal Parts of *Burgundy Pitch*, and *Cephalic Plaister*, and put the Whole of the Foot in a Sock of green Cerate, tying it on with a woollen Roller.

Soon afterwards the Gout seized his Shoulder, whilst he all along used the Cordial Waters internally; and in order to invite it thither, he apply'd to the Part affected a Plaister of Gum Caranna.

The STONE in the KIDNEYS from the GOUT.

This Distemper is easily distinguish'd from the *Arthritic Colic*; for in this there is no Difficulty of Breathing, no acute Pains about the umbilical Region, no Melancholy, nor Discharge of crude, acid, and bilious Matter by Vomit, which are Symptoms of the other.

The Method of Cure of the Stone, attended with the Gout, differs from the Cure of the Stone without it in some Particulars: For in the former, we must be very cautious of Bleeding, and of using acid Medicines; nor must we apply Fomentations, Liniments, and Cataplasms, to the Back, especially if the Patient has a Fit of the Gout at the same time.

But a Paregoric may be given in such a Dose, and repeated so often, that the Pain may be eased without prejudicing the Head by driving the gouty Matter upon it.

But if the Stone happens in a gouty Constitution, without being accompanied with a Fit, the Method of Cure is different; for then the Patient must lose some Blood, especially if he is Plethoric; and soon after let him have the following Clyster:

Take of the common Clyster Decoction, and new Oil of sweet Almonds, each half a Pound; of *Venice Turpentine* dissolved with the Yolk of an Egg, one Ounce. Let it be injected.

Next Day give a Purge of Lenitive Electuary, or *Rhubarb*, or Manna, dissolved in a Decoction of *Sena*: At Night give as much of *Matthew's Pills*, as contains one Grain of Opium.

If the Pain is very violent, in order to relieve it, and prevent Spasms of the Intestines, a Paregoric may be given a few Hours before the Purge; and if it does not operate, give a Clyster.

When the urinary Passages are by these means dilated, the Stone must be brought away by *Opobalsamum*, or the Balfam of *Chili* or *Peru*, taken two, three or four times a Day, in Syrup of *Marshmallows*, or the balsamic Syrup.

The Dose of *Opobalsamum* is half a Scruple.

Mean time the Patient may drink soft Ale like that commonly called *Grout-ale*, or Apozems made of the Roots of *Marshmallows*, *Liquorice*, and *Eringo*, *Pearl Barley*, &c. or other things of a like Nature, or Green Tea, or Emulsions made of sweet Almonds, and the above-mentioned Decoction or Apozem.

Musgrave recommends an Emulsion made of ten sweet Almonds, and two Pounds of the Infusion of Tea, with the Addition of *Rose-water*, or *Cinnamon* or *Barley-water*, and a sufficient Quantity of fine Sugar; or a proper Liquor may be prepared of *White-wine*, Oil of sweet Almonds, and fine Sugar.

This Author recommends, by way of Prophylactic, *Bristol Waters*, taken with *Opobalsamum*, and some lubricating and diuretic Syrup; or for want of these Waters, green Tea every Morning.

It has however been found, that sometimes the *Bristol Waters* cause stony Concretions, and increase the Disorder.

Musgrave says, he knew one who in some measure kept himself free from the Stone, by taking three or four times a Year one Dram of *Venice Turpentine*, reduced to the Form of Pills by the Addition of *Liquorice-powder*; after which he drank some Pints of Small-beer or Posset-drink, and immediately rode four or five Miles upon a trotting Horse.

Lenient Purges must always precede Diuretics.

In case of a Dysury proceeding from Spasms of the urinary Ducts, nothing is more efficacious than Opiates joined with Diuretics.

The Dose of *Peruvian Balfam* is ten Drops taken in a Spoonful of the balsamic Syrup twice, or at most three times, a Day.

An ARTHRITIC ASTHMA.

Those People are subject to an *Arthritic Asthma*, who have a bad Conformation of the Breast and Organs of Respiration; and those whose Parents were Asthmatic, or *Arthritic*, or both, are most subject to this Disorder.

An Opiate improperly given, any thing that repels the Gout from the Extremities, a sudden Suppression of any habitual Evacuation, either of Blood, the *Lochia*, or from an Ulcer, cause this sort of Asthma; and it often happens, that an Asthma immediately follows a regular Gout, when the Fit has by any means

means been shortened; as a Fit of the *Gout* often cures an Asthma.

Arthritic Asthmas, like others, are of two Kinds, the dry and moist Asthma: In the former the Patient's Respiration is very short and difficult, gasping as it were for Breath, with a great Oppression of the Breast; mean time he has very little, if any Cough, and spits but little. Those who have used themselves to drink Brandy, and such spirituous Liquors, are most subject to this Sort.

In the moist Asthma the Patient coughs up generally a thick, viscid Matter, by which he is relieved, till a fresh Supply is furnished by the Blood. This commonly affects People of a thin, lax Habit, and principally in Autumn.

Musgrave says, the *Arthritic* Matter is cough'd up inviscated as it were in this Phlegm, insomuch that he has known several *gouty* People preserved from more dangerous Distempers by this Discharge, when regular Fits on the Extremities have been wanting.

This Author imagines, that in a dry Asthma the *Arthritic* Matter is fixed upon the Membranes, Nerves, and Muscles of the Organs of Respiration; and in the moist Asthma, that the same Matter is mixed with the Serum of the Blood.

Sometimes the *Gout* appears originally in the Shape of an Asthma, with much the same Symptoms as those which attend a genuine Asthma, from which it is not easily distinguished, till in Process of Time the *Arthritic* Matter falling upon the Joints sets the Lungs at Liberty.

The Prognostics in an *Arthritic* Asthma are different from those in a genuine Asthma; for whereas in the latter young Men are said to be cured with Difficulty, and old ones not at all; in the former, Patients are more easily relieved, more frequently freed from it, and sometimes so as not to return again. However, the dry Asthma is much the most dangerous, and often suffocates those whom it seizes.

The Cure is to be attempted by Evacuations, or by forcing the *gouty* Matter upon the Extremities. Amongst Evacuations Bleeding is most proper for Plethoric People, and Purging for such as have indulged themselves in eating.

When the Strength will permit, take nine Ounces of Blood from the Patient; and soon after give a Clyster. The next Day give a Purge of Aloes, Pilulæ Cochiae, or some such Cathartic, without any Paregoric at Night after its Operation.

After these Evacuations, Spirit of Hartshorn, Flowers of Sal Ammoniac, and such-like Volatiles, are of great Service in a dry *Arthritic* Asthma.

Take of Gascoign's Powder, and Conserve of Colts-foot, each one Scruple; Flowers of Sal Ammoniac, half a Scruple; of balsamic Syrup, a sufficient Quantity: Make a Bolus, to be taken every fifth or sixth Hour in a proper Vehicle.

In the moist *Arthritic* Asthma Vesicatories apply'd between the Shoulders very much relieve the Lungs. Preparations of Sulphur, such as the balsamic Tincture of the Flowers of Sulphur, dislodge the Phlegm, and at the same time expel the *Gout*. Gum Ammoniac, Gum Bdellium, Balsam of Peru of *Cbili*, and of *Capivi*, produce the same good Effect.

Give twenty Drops of the Tincture of Sulphur in a Spoonful of balsamic Syrup, and repeat the Dose every six, nine, or twelve Hours; or prescribe ten or fifteen Drops of the following Balsam in the same manner:

Take of the Tincture of Gum Guaiacum, and of Balsam of Peru, equal Parts: Mix together. *N. B.* This is like the Balsamum Polychreston.

Though Clysters and Purging may properly enough be repeated in a genuine Asthma, in the *Arthritic* Sort 'tis never to be prescribed more than once, for fear it should hinder the *gouty* Matter from falling upon the Extremities.

In both the dry and moist *Arthritic* Asthma, the Patient must persist in the above-mentioned Remedies, till his Lungs are easy, and he respire without Difficulty.

The Cough may sometimes be relieved by the common expectorating Medicines, such as Oil of sweet Almonds, Linseed Oil, the balsamic Syrup, or Syrup of Maiden-hair.

In case the Fit is very violent, and not to be relieved by the above-mentioned Remedies, give Oxyssel of Squills, either by Spoonfuls at certain Intervals, or in a Dose sufficient to operate by way of Vomit, which helps to remove the *gouty* Matter to the Extremities; for *Musgrave* says, he has often known an irregular *Gout* made regular by one Vomit.

This Author recommends the Smoke of Tobacco, Coffee, and Frictions; but says Unguents and Liniments, which are recommended for a genuine Asthma, are here of no Service.

By way of Preservative, *Musgrave* recommends, in a moist Asthma, Diuretics and Antiasthmatics, after previous Cathartics, scapulary Issues, and Vesicatories, especially those made perpetual.

In the dry Asthma he recommends Steel joined with Antiasthmatics, as Gum Ammoniac, &c.

In both Sorts fresh Air is of great Service; as is also an exact Regimen, avoiding various Kinds of Diet, and keeping to simple Aliment.

The Piles are of great Relief in this Disorder.

Some Patients breathe with most Difficulty when the Wind is in the East or North-east. 'Tis not proper for Patients under any of these Disorders to eat Suppers.

An ARTHRITIC CATARRH, COUGH, and PERIPNEUMONY.

Those are most subject to these Disorders who have naturally a bad Conformation of the Breast, and a tender Constitution, or whose Lungs have been hurt by a Blow, Fall, Vociferation, or violent Exercise; or those whose Parents were Consumptive or Asthmatic.

'Tis very difficult to distinguish when the *Gout* is the Cause of these Distempers in such as have never had it in their Extremities; but as the Distempers of the Parents may give us some Light in this Affair, 'tis prudent to have them always in view.

When People that have been used to regular Fits of the *Gout* have them more seldom or more mild than usual, or the Fit is interrupted by an external Cause, as improper Applications to the Part, Cold, &c. there frequently comes on a Heaviness of the Breast, and Infarction, Shortness of Breath, a Titillation of the Aspera Arteria, a Cough, and thereby a Discharge of Matter, at first very thin, and afterwards more thick; and these Circumstances assure us, that the *Gout* is the Cause of the Disorder.

Sometimes, though the Fit is not interrupted, these Accidents will happen, because it is too mild; and this may make it doubtful, whether the *Gout* is the Cause or not; but a regular Fit returning some time after with greater Violence, frequently manifests the true Cause.

Old Men, and those of a middle Age, are most subject to these *gouty* Disorders of the Lungs; but young Men seldom are troubled with them.

Women are seldom affected with these *gouty* Symptoms before they have born Children, or before the Catamenia cease.

The Spitting is, at first, but small in Quantity, and that thin; but in a little time increases, and that so much, as to oppress the Breast greatly, and stuff the Lungs, at the same time causing Hoarseness, and Difficulty of Breathing; and if it lasts for a long time, wastes and weakens the Patient, and at last destroys him.

The *Gout* in the Extremities decreases, as the Spitting increases.

Though this Discharge by Spitting, provided it is not immoderate, is found generally to be of Service; yet in extreme old Age 'tis sometimes too great, so as to weaken, and at last destroy the Patient; but this seldom happens.

All these Disorders are relieved by a regular Fit falling upon the Extremities; and as that increases, these decrease, and vice versa.

A Cough is the most frequent of all these Accidents, and generally follows a regular Fit; but seldom accompanies it, unless in very *Arthritic* Constitutions, and where the Lungs are at the same time weak.

This Cough sometimes ends in a regular Fit, especially if assisted by some brisk Cathartic, that is capable of exagitating the Blood.

Sometimes a Cough is very troublesome for four or five Days before a Fit, and may be looked upon as one of the preceding Symptoms thereof.

A Catarrh is always accompanied with an Asthma and Hæmoptoe, which, though it may affright the Patient, is not dangerous, provided the Lungs are naturally good, and are hurt by no Accident, and a proper Method of Cure is early applied.

These Coughs and Catarrhs have often their Intervals, and return by Fits when the *gouty* Matter abounds in the Blood. They most frequently happen in Autumn.

These Coughs are generally without any Fever, or are accompanied with a very slight one; but if the Patient takes Cold, or indulges himself in the Use of spirituous Liquors, there is Danger of a Peripneumony, the Signs of which are the same as those of a Peripneumony from any other Cause. But when it appears to be *Arthritic*, some regard is to be had to the Cause.

In all these Bleeding is proper, when nothing contra-indicates; in tender and weak Constitutions, it is scarce ever proper; in those worn out with Age and Diseases, never. In case of an Hæmoptoe or Peripneumony, Patients seldom recover when that is omitted; but upon these Occasions we must always bleed with Caution, for fear of rendering the Constitution too weak to expel the *Gout*, and throw it upon the Extremities.

The next thing to be done is to purge, which is serviceable in all these Disorders; but more particularly in a gross Constitution, or where the Intestines are loaded, and the Patient has lost no Blood. Those Purges are best, which exagitate the Blood considerably,

considerably; and help to move the *gouty* Matter. After these Evacuations, we must proceed to such Medicines as help to remove the *Gout* from the Lungs, and drive it to the Extremities, and with these Pectorals must be joined: For Example,

Take Alcohol Martis, and Balsam of Capivi, each half a Scruple; Conserve of Hips, one Scruple; Syrup of Maiden-hair, a sufficient Quantity; make into a Bolus: Or,

Take Flowers of Sulphur, or Benzoin, and Alcohol Martis, each half a Scruple; Gum Ammoniac dissolved, a sufficient Quantity; make into Pills.

Let this Bolus, or these Pills, be taken twice a Day in a Spoonful of Balsamic Syrup, drinking after it a Draught of the Pectoral Decoction, provided there is no Suspicion of a Fever. Let the Patient also take a little of the same Syrup frequently every Day.

If a liquid Form is more agreeable,

Take of the Syrup of Colts-foot, or Maiden-hair, half an Ounce; Tincture of Sulphur, ten Drops; to which, when well mixed, add of the Powder of Olibanum, and Alcohol Martis, each half a Scruple; Hyssop-water, two Ounces and an half; use as a Draught.

Instead of the Tincture of Sulphur, the following Medicines may be taken in their proper Doses.

Anisated Balsam of Sulphur, or Balsam of Sulphur prepared with Turpentine, Balsam of Capivi, of *Chili*, of *Gilead*, and that of *Peru*.

Musgrave says, when the Disorder has been inveterate, he has frequently given, with great Success, the *Peruvian Bark*, in order to prevent too great a Colliquation of the Blood.

Pectorals either in the Form of Troches, Eclegmas, &c. are proper to relieve the Cough.

If after three or four Days Use of these Medicines, no Signs of the *Gout* appear in the Joints, apply to the Part it usually affects, the Cephalic Plaster, either alone, or with an equal Quantity of Burgundy Pitch, or the Green Cerate.

But if these do not answer the End proposed, and the Lungs are not relieved thereby, more stimulating Applications must be used, as acrid Cataplasms, and Vesicatories. But in the Use of these, it must be observed, the weakest are always to be tried; nor are we to use the most severe, unless the Patient's Strength will permit them.

By way of Preservative, the Patient should have Issues opened in the Back; should contrive to breathe an Air that is dry, and agitated by the Winds; and should direct all his Endeavours to procure a regular Fit of the *Gout* at proper Intervals.

If this Method is omitted, or negligently pursued, the Cough grows worse, and the Body becomes emaciated; the Matter discharged by the Lungs, which was at first thin, grows more thick, and more difficult to cough up, and sometimes bloody: Hence the Lungs are exulcerated, and the Patient dies of a Consumption.

In an *Arthritic* Peripneumony there is much more Danger, and care must be taken in the very Beginning, or else it will afterwards be in vain. Therefore immediately let the Patient lose some Blood, a few Hours after give a Clyster, and the next Day a Purge; let the Patient also take, every Hour, Oil of Sweet Almonds, or Linseed Oil in the Form of a Linctus.

Emulsions and Decoctions, that are too cold, must be avoided; and if there is any Appearance of the *Gout* in the Joints, or any Hopes of bringing it thither, *Musgrave* advises Medicines which will promote it: He therefore recommends, from repeated Experience, Diaphoretics, and such external Applications as are likely to bring the *Gout* into the Extremities, contrary to the Opinion of *Sydenham*, which see in the above Quotations from that Author.

ARTHRITIC CONSUMPTION.

When the *gouty* Matter is repelled by any external Cause, and driven upon the Lungs, or is invited thither by the Weakness of the Part, the Patient is first seized with a Heaviness in the Breast, Difficulty of Breathing, and Hoarseness; then he begins to spit, first a thin Phlegm, which, by Degrees, grows thicker: In Process of Time his Flesh grows flaccid, he wastes by Degrees, and loses his Strength in proportion as the Discharge from his Lungs increases. Mean time, there is no *gouty* Tumor, or Pain, in the Extremities, or, at most, but very little, and that of a short Duration. The Paleness of his Face, and an universal Emaciation, daily increase; and the violent Cough, which attends it, sometimes brings on a Spitting of Blood. At last, an *Hectic Heat* comes on with a quick Pulse, and dry Skin, especially in the Evening, which is succeeded by symptomatic Sweats. So that at last the Patient is worn out by a violent Cough, great Spitting, colliquative Sweats, obstinate Diarrhoea, or, if there is no Diarrhoea, Swelling of the Feet.

A genuine Phthisis generally seizes upon young People; but that which is *Arthritic* rarely affects any but those who are old.

Women however are subject to it when they cease to breed; and the Catamenia leave them.

An *Arthritic* Phthisis is generally very chronical and slow, and is attended with an *Hectic Fever* only in the last Stage; whereas a genuine Phthisis is accompanied with an *Hectic Heat* from the very Beginning, and sometimes it precedes all the other Symptoms.

Sometimes a Cough does not end in a Consumption till after the *Arthritic* Matter has for several Years been changing its Situation, and falling alternately upon the Lungs, and Extremities.

Therefore, in order to adapt a proper Method of Cure to this Distemper, a Physician must carefully examine what Analogy it has with the *Gout*.

In the Beginning of the Distemper, when the Cough is troublesome, and a Phthisis is coming on, very good Effects are to be expected from Bleeding and Purging, if properly administered; for by these means the *gouty* Matter is sometimes evacuated, or at least removed, from the Lungs; but as this Effect is not perpetual, and cannot be depended on, these Evacuations must be used with Caution, and confined to proper Limits, lest the Constitution should be so far weakened by them, as to be rendered too weak to expel the *Gout*.

After either Bleeding, or Purging, or both, if necessary, or without either, if improper, we must have recourse to Pectorals, and Remedies calculated to expel the *Gout*. Let the Patient therefore take every other, or every third Hour, a Spoonful of a Linctus of recent Oil of Sweet Almonds, or Linseed Oil, with Balsamic Syrup, Syrup of white Horehound, Syrup of Turneps, or some other expectorating Syrup.

When there are no Signs of a Fever, let him take, with the Linctus, a proper Dose of Pills every sixth or eighth Hour, made of *Gascoign's Powder*, Alcohol Martis, Juice of Liquorice, and Balsam of *Peru*.

The Patient may take, in a liquid Form, ten Drops of the Balsam of *Peru*, or Tincture of Sulphur, in a Spoonful of the Linctus; and in the Intervals, six or eight Grains of Alcohol Martis.

These warm Medicines must be used in such Doses, and so often repeated, as the Expulsion of the *Gout* requires, and the Danger of the Fever will permit.

Musgrave assures us, he has never observed any great Danger from this Method, especially in old *Arthritics*, who are most subject to this Sort of Phthisis.

If the Fever is too much raised, either of its own Accord, or by the Use of warm Medicines; that is, if it runs higher than the Expulsion of the *Gout* requires, it must be mitigated by withdrawing these heating Medicines, by Clysters, by Bleeding, and the *Peruvian Bark*, together with such Medicines as are usually serviceable in a Peripneumony; and, when the Fever is conquered, the Patient must return to warm Medicines as much as the Circumstances will admit of.

After these Remedies have been used for two or three Days, or sooner, if any *gouty* Pain is perceived in the Extremities; stimulating Topics must be applied to the Part in Pain, or, if there is no Pain, to the Part which used to be most frequently affected.

Opiates, and such Medicines as render the Discharge from the Lungs thick, must not be used without great Caution, and in very small Quantities.

As soon as the *Gout* is expelled, and driven upon the Extremities, the Patient is surprisingly relieved, and the Lungs grow easy in proportion as the extreme Parts become painful. *Musgrave* says he has seen, by this Method, the Cough made tolerable, the Spitting diminished, and at last both entirely cured; insomuch that the Patient has soon recovered his Colour, Flesh, and Strength.

When these good Effects begin to appear, those Remedies which expel the *Gout*, and those Topics which invite it to the Extremities, must be obstinately persisted in, till the Lungs are entirely free.

As the Lungs are generally left weak, in order to prevent a Relapse, the Steel Diuretic Waters are excellent, as is also a good Air; therefore let them be drank for a Month; or, if that cannot conveniently be done, let half a Pint of Tea be drank every Morning for some Months, and let the Patient take a Diet-drink constantly, made with pectoral Ingredients, as Ground-ivy, Harts-tongue, Maiden-hair, Fir-tops, Cypress-tops, Burdock, Seeds of the Wild Carrot, Juniper-berries, and dried Millepedes. Let this be used for the Patient's ordinary Drink.

A Maritime Air is much recommended by *Musgrave*, because, he says, the Sailors are seldom affected with a Cough, and very seldom die of a Consumption.

Riding also is much recommended, and Frictions of the external Parts, and those pretty strong ones, twice or three times a Day, as also large Issues upon the Back. *Musgrave* also mentions Chocolate, either with or without the Yolk of an Egg, as a proper Food; and cautions particularly against taking Cold, and contracting Catarrhs; to guard against which, he orders,

orders, during the Winter Half-year, a Decoction to be taken twice a Day of Sassafras Wood with its Bark, and the Roots of China and Sarsaparilla.

Musgrave thinks Cyder does Hurt in this Disorder.

The ARTHRITIC QUINSEY.

Musgrave says this Distemper has yet been but very little considered by Physicians.

It often seizes the Patient at the very same time with the Arthritic Pain in the Joints; and frequently follows some little time after a regular Fit.

When it forms an Abscess, which discharges Pus plentifully, it supplies the Place of an Arthritic Fit, renders the Patient healthful and chearful, and frees him for some time from the Gout.

This Quinsey often ends in a Fit of the Gout, by a Translation of the gouty Matter upon the Extremities, which sometimes happens by Accident, and sometimes is procured by Art.

This Species of Quinsey those People are most subject to, that have short and thick Necks, and moist lax and weak Constitutions.

Women are not so often affected with it as Men; the latter generally have it about the middle Time of Life, the former after the Meneses have for some time left them; but in both Sexes, those whose Blood is bilious, hot, and thin, are most liable to it.

Musgrave is of Opinion it never happens to any body, unless when the Blood is full of the Arthritic Matter, and ready to break out into a Fit.

A greater Fever precedes this Quinsey than any other Species of Anomalous Gout; this is soon after succeeded by a Pain, and inflammatory Tumor, in the Fauces, which is sometimes so great as to prevent the Patient from eating, or drinking, or taking his Breath without the utmost Difficulty, for three or four Days; sometimes a great Quantity of Saliva is discharged from the Fauces, the Patient has no Stools, and the Blood, when taken away, appears extremely fizy, even more than in the regular Gout.

The gouty Matter is frequently transferred from the Fauces, and falls upon the Hand, Foot, Knee, or any other Part of the Body.

If a Nausea and Sickness of the Stomach, Heaviness, Torpor, and wandering Pains, have preceded this Disorder, there is great Reason to believe it proceeds from a gouty Cause, when these Symptoms happen to a Patient who has been used to violent regular Fits at stated Times, which have been interrupted for a long time.

The Method of Cure must begin with taking away a considerable Quantity of Blood: Presently after give a Clyster; the next Day give a Purge, which must be of the lenient Kind, because of the Fever, already too violent, which would be increased by one more stimulating.

After the Intestines are evacuated by one Purge, they should not be stimulated any more for four or five Days, for fear of inviting the Gout to them.

After the Operation of the Purge, apply a very large Blister to the Neck; twenty-four Hours after, apply to the vesicated Part Melilot mixed with powdered Cantharides, in order to continue the Discharge of Serum.

Incising and aperient Gargarisms are of perpetual Use from the very Beginning.

Take of Barley-water, one Pound; Diamoron, four Ounces; Spirit of Sulphur by the Bell, as much as the Tongue can endure; use as a Gargarism: Or,

To Honey of Roses, add Spirit of Salt or Nitre, so that the Tartness be not too great; let it be kept in the Mouth a little while, and then discharged with the Saliva.

But nothing is more effectual, or causes a greater Discharge of Saliva, than the following Powder:

Take of Sal Prunellæ, and Sugar-candy, each equal Parts; mix, and let a Scruple of the Mixture be held in the Mouth till 'tis full of Saliva; then spit it out, and about a quarter of an Hour, or half an Hour after, let it be repeated, provided the Patient is not asleep.

'Tis of great Service to receive into the Mouth the Vapour of a Decoction of the following Plants: Mugwort, Sage, Marjoram, Rosemary, Elder, Chamomile, Calamint, and Feverfew.

The next Day but one, or sooner, if the Symptoms run high, as Difficulty of Breathing, and of Swallowing, Bleeding must be repeated in the Jugular Vein, which is sometimes necessary more than once.

If the Throat is in great Pain, apply to it a Cataplasim of Marshmallow-roots, Mallow-leaves, and bruised Figs, boiled in Barley-water, adding three Ounces of this Magma:

Take of boiled Onions, one Ounce and an half; Linseed; half an Ounce; Crums of Bread, an Ounce; Oil of white Lilies, a sufficient Quantity.

Let the Mouth be frequently gargled with Milk and Water in equal Quantities.

If the Case grows so desperate, that the Patient would immediately be suffocated without instant Help, the Operation of Bronchotomy must be performed.

During the Use of these Medicines, all Methods must be used to bring the Gout into the Extremities. Therefore, after Purging, let the Patient be permitted to drink Cyder, White-wine, Rhenish, and such sort of acidish Liquors, and sometimes pretty freely.

Apply to the Joint which used to be most frequently affected with the Gout, a Plaister made of equal Parts of Oxycroceum, the Cephalic Plaister, and Burgundy Pitch; or, if more acrid Applications are necessary, stimulating Cataplasms.

Bathing the Feet in Water as hot as the Patient can bear it, invites the Gout to the Part.

As soon as any Tumor is excited, let it be wrapped in soft Flannel, or double Linen.

As soon as a Tumor appears in the Extremities, that of the Fauces generally subsides; and soon after Pain, with all the Signs of a regular Gout, returns, and the Patient soon gets rid of the Quinsey.

If a Vomica should be formed in the Throat, and break, an Emollient and Suppurative Gargarism must be used; for Example, of a Decoction of Barley, Liquorice, and Figs; and after that, one moderately restraining. Meantime, let the Patient live on Gruel, Barley-water, and such sort of thin Aliment. In the Day-time, let him abstain from lying on the Bed as much as possible. When he is in Bed, let his Head be elevated: When he is up, the Legs ought to hang down.

When the Case is over, let the Cure be finished with a lenient Purge.

The Cyder that is drank in this Disorder, should be generous and rough, such as that of Devonshire.

Musgrave says, that of all the Patients he has seen labouring under this Disorder, all but one were young Men.

This Author sometimes allows a Pint or two of Cyder in twenty-four Hours.

The ARTHRITIC HEAD-ACH and VERTIGO.

An Arthritic Head-ach generally seizes those who have been gouty for many Years, and who, being now past the Meridian of Life, indulge themselves too much in eating and drinking, and, at the same time, use but little Exercise, and hence become plethoric and gross. People that are full of Blood, are most of all subject to this Disorder, especially if they have short Necks.

This Head-ach is frequently preceded by the Signs of an approaching Fit of the Gout, which last for some Days, and then end in a regular Fit: But the Gout then receding, or being too languid, an Head-ach ensues, which lasts for many Weeks, and sometimes Months; and at last ends in an Apoplexy, unless the Gout is transferred to the Extremities, or, at least, removed from the Head; and, indeed, it seldom ends, except in a regular Fit, or an Apoplexy.

The Pain is sometimes not very great, but of long Continuance; sometimes excessive and intolerable, arising almost to a Delirium.

Sometimes the Patient complains of the Head-ach only; but 'tis commonly accompanied with a Vertigo, and sometimes with a Noise in the Ears, Difficulty of Breathing, a large Pulse, wandering Pains in the Limbs, and a florid Colour of the Face; all which Symptoms vanish as soon as the gouty Matter, falling upon the Extremities, causes a regular Fit.

An Arthritic Vertigo exactly agrees with an Arthritic Head-ach; the same sort of People are principally subject to it; it has the same Causes, is accompanied with the same Accidents, and is in like manner cured by a regular Fit.

A Vertigo is sometimes slight, and a Sign of an approaching Fit, ceasing when the Fit becomes regular. But 'tis sometimes very troublesome, insomuch that the Patient can scarcely walk without falling.

This in a little time ends in an Apoplexy, if a regular Fit does not happen time enough to prevent it.

Musgrave says, he never knew an Arthritic Vertigo terminate in an Epilepsy, which is very common in one of the genuine Kind.

The Cure must begin with Bleeding in both Cases, that of a Head-ach, or Vertigo; especially when accompanied with Dimness of Sight, Redness of the Face, and Pulsation of the Temporal Artery, which threaten an Apoplexy. But as in all Arthritic Disorders, so in this, regard must be had to the Gout; so that we are not to bleed so much, and so often, as in these Distempers when the Gout is not in the Case. This must therefore be regulated in such a manner, that enough may be taken away

away to relieve the Head, and no more, for fear of preventing the Expulsion of the Gout to the Extremities.

Sometimes the Gout begins to be felt in the Joints, immediately after Bleeding.

If there is any Complaint of Sickness at the Stomach, it may be proper to wash it with a Decoction of Tea, or Carduus Posset-drink, taken by way of Vomit.

Purge with Pilulæ Ruffi, the lesser Pilulæ Cochizæ, or the Pilulæ ex Duobus, with an Addition of some few Grains of Resin of Jalap, very soon after Bleeding or Vomiting, if that is thought necessary.

In Constitutions which are easily purg'd, a Solution of Cathartic Salt in Water, or the Alford Waters, are sufficient.

One Purge is not always enough, when its Operation is but gentle, or the Constitution is much loaded; it must therefore be repeated in such a manner, as to answer the End of removing the Gout from the Head to the Extremities.

After Purging, the Patient very frequently begins to feel Pain in the Extremities; but if he does not, we must proceed to such Medicines as remove the Gout into the Joints; but these must be used with great Care and Caution, lest, instead of answering the Design, they should drive the Blood, and with it the gouty Matter, more forcibly into the Head, increase the Disorder, and destroy the Patient. Therefore, we must abstain from powerful Chalybeates, and strong Podagragogues, and substitute the following Cephalics in their room; but even these must not be used, till the Heat has been much reliev'd by Bleeding and Purging.

Proper Cephalics, in this Case, are red Coral, simple or compound Powder of Crabs-claws, and white Amber: These, and such of this Class as are yet milder, may be taken by themselves, or made into the Form of a Bolus, with Conserve of Rosemary-flowers, Flowers of Betony, Syrup of Stoechas, simple Syrup of Piony; or they may be made into Pills, with Extract of Gentian, together with Powder of Dittany of Crete, Castor, or Piony-seeds.

After plentiful Evacuations, three or four Grains of Salt of Steel, or even Alcohol Martis, may be added to these Medicines, and repeated every six or eight Hours.

After each Dose, let the Patient take a Draught of a Julap made of the simple and compound Waters of black Cherries, Lime-tree-flowers, and Piony, with compound Spirit of Lavender: Let him take, once in the Intervals, a few Drops of the Tincture of Amber; or, if the Fever does not run high, of the Spirit of Sal Volatile Oleosum, or Hartshorn, in an Infusion of the Tops of Sage, Rosemary, or Tea.

To these may be added the Species Diambraz, without the Perfumes, or its Tincture.

Coffee is very good, especially if made with an Infusion of some Cephalic-Plant.

In like manner in an Arthritic Vertigo, after Evacuations, the following Medicines may be taken alone:

Powder of Rue-seeds, Male Piony, Castor, Valerian-root, Wild Cypress, Winter's-bark, Orange-peel, compound Powder of Rosemary-flowers, Species *Diamoschi dulcis*; or some of these may be made into an Electuary, with Conserve of Piony-flowers, or Syrup of Piony, or Syrup of Nutmeg candied in the Indies.

Pills may also be given, made of the *Pulvis de Gutteta* and *Ens Veneris*, with Extract of *Calamus Aromaticus*, or a Solution of *Asa-fetida*.

To these may be added Salt of Steel, or Salt of Amber; and these may be taken every six or eight Hours, in a moderate Dose; that is, in such a manner that the Spirits may be reliev'd, and not disturb'd thereby.

After each Dose of these, a Draught of the Cephalic Julap should be taken.

In the Intervals let one Dose of the above-mention'd Infusion be taken, with some Drops of Tincture of Amber.

Fetids, apply'd to the Nose, are also of Service, as Spirit of Sal Ammoniac, with Salt of Tartar, Castor, and *Asa-fetida*.

Things of a grateful Flavour have also sometimes a good Effect.

Musgrave advises to anoint the Temples and Nostrils with the following Balsam:

Take of the Chymical Oils of Rosemary, Lavender, Marjoram, Thyme, Origanum, Hyssop, each one Scruple; Oils of Cinnamon, Oranges, Angelica, and Rue, each one Dram; Oil of Amber, half a Dram; Oil of Cloves, half a Scruple; Oil of Nutmegs, by Expression, four Ounces; Ambergrise, two Drams; Musk, one Dram; Balsam of Peru, five Drams: Let the Ambergrise and Musk be laid upon a Marble; let them be moisten'd with the Oils, and levigated with the Stone for that Purpose, till they are reduced to a Mass of the Consistence of Pomatum. To this Mixture add some Peruvian Balsam, and

continue the Levigation for half an Hour: Then add the Oil of Nutmegs by Expression; and continue the Trituration for an Hour longer. Let this fragrant Cephalic Balsam be preserv'd for Use in a Phial.

After these Cephalic Medicines have been taken for a Day or two, in either of these Disorders, apply to the Joint commonly affected some stimulating Topic, as a Plaister, made of two Parts of Gum Caranna, one Part of yellow Wax, and a sufficient Quantity of the Oil of Worms: But if this is not sufficient, and the Disorder of the Head still remains, or increases, we must proceed to Sinapisms, Vesicatories, Flannel, and Ligatures.

Musgrave is of Opinion, that cooling Emulsions and Decoctions, Narcotics, cooling Embrocations, Epithems, and washing the Head with cold Water, are dangerous in this Case, tho' they may be of Service in Disorders of this Kind from another Cause.

He also disapproves of applying Leeches to the Hemorrhoidal Veins, for fear of an Inflammation or Fistula.

By way of Precaution, and to hinder a Return of the Disorder, it would be proper to apply a Blister sometimes to the Neck or Arm, to bleed in the Spring; to take a Purge every Month, and always to avoid being costive, and to keep the Feet very warmly cloath'd.

Those that are subject to these Disorders, should religiously abstain from Errhines, from sleeping after Dinner, and from hard Drinking.

An ARTHRITIC APOPLEXY.

Gouty People, who have been so for many Years, have short and thick Necks, who begin to grow old; and particularly those who indulge themselves in Eating and Drinking, and become plethoric, after leaving off some accustom'd Exercise, are most subject to an Arthritic Apoplexy; which happens when a regular Fit of the Gout is interrupted, or deferr'd too long, or else is not sufficiently violent to carry off the gouty Matter.

The Cure of this Distemper is different from that of a genuine Apoplexy.

The Signs of an approaching Arthritic Apoplexy are, a Head-ach, or Vertigo, or both together; the Head is heavy, the Face is bloated and red, the Tongue falters often, the Motions of the Patient's Body are disorderly, and his Steps unequal; and if the Disorder increases, he is suddenly deprived of all Sense and Motion, and his Eyes become greenish, as if he was dead: A Stertor and Snoring, and all the other Symptoms of a genuine Apoplexy, attend this, so that its Arthritic Nature must be discover'd by adverting to the State of the Constitution, and considering what Sort of gouty Paroxysms have preceded.

Tight Bandage about the Neck very much contributes to keep the Blood in the Head, and cause an Apoplexy, especially when People are full of Drink: These People, therefore, when they go to Bed, should have the Collars of their Shirts unbutton'd.

An excessive Use of Opiates and Errhines contributes much to this Disorder; as does also whatever repels the Gout from the Extremities.

The Spring and Autumn favour the Production of an Arthritic Apoplexy.

If a right Method of Cure is apply'd, many Patients recover of this Distemper; and afterwards enjoy a much better State of Health, than those who recover of a genuine Apoplexy, especially if they become regular, temperate, and sober.

The proper Method of Cure consists in relieving the Brain by Evacuations and Revulsion, and removing the Gout to the Extremities; at the same time removing all Obstacles which may prevent a regular Fit, as Shoes or Stockings that are too tight. Bleed therefore immediately, to twelve, fourteen, or fifteen Ounces, according to the Strength and Constitution of the Patient.

Immediately after give a Clyster of human Urine; or the common Decoction for Clysters, with common Salt, or roasted Aloes, or some other stimulating Ingredients.

Soon after this give a stimulating Purge, as half a Dram or two Scruples of the Countess of Warwick's Powder; or else one Scruple of the Extract of *Rudius*; between six and ten Grains of the Resin of Jalap; of Elixir Proprietatis, a sufficient Quantity to form into Pills; or three Ounces of the purgative bitter Decoction; or one Ounce, or an Ounce and an half, of the Syrup of Buckthorn.

If the Purge does not work briskly in three or four Hours, let a Clyster be repeated.

During all this time let the Patient be kept in an erect Posture.

After Purging repeat Bleeding, either in the Arm or Neck. Cupping betwixt the Scapulæ is of great Service.

After these Evacuations, apply to the Joint that has lately been painful, some powerfully stimulating Plaister, as, for Instance, that made of Burgundy Pitch and Venice Turpentine;

or the Cephalic Plaister, with Euphorbium: Mean time keep the whole Limb extremely warm with Flannels.

Musgrave relates, that he has known exceeding great Effects from keeping the Feet a considerable time in Water, as hot as the Patient could possibly bear it; for by this means he was saved, tho' before, in all Appearance, expiring.

If this Method does not relieve the Patient, apply a Blister to the Neck, to the Sinciput, or all over the Head, after it has been shav'd, and let it lie on four or five Days.

Apply also Blisters to the Ankles, if the Gout used to appear principally in the Feet; or to the Arms, if the Hands were usually affected.

If the Patient is extremely ill, a Cupping Glass should be apply'd to the Neck, or to that Part of the Head where the Lambdoidal and Sagittal Sutures meet, if the back Part of the Head is most affected; or, if the fore Part of the Head, to the Place where the Sagittal and Coronal meet.

But if none of these Applications are thought necessary for the Head, it should at least be shaved, and rubb'd well, in order to relax the Skin; and a Cumin Plaister should be worn upon it, in order to increase the Perspiration of the Part.

But if the Disorder still continues, it will be serviceable to make use of such Errhines as draw the Serum from the Nose, without making the Patient sneeze, which in this Case is dangerous.

The Patient should frequently chew in his Mouth acrid Plants, which cause a great Discharge of Saliva: For this Purpose,

Take of the Shavings of Horse-radish, and bruis'd Mustard-seed, each half a Dram; Powder of Pellitory of Spain, one Dram: Mix up with Honey, and put the Whole in a Piece of Muslin. This the Patient must squeeze between his Teeth, and discharge the Spittle as 'tis generated in his Mouth.

Mean time, whilst these Evacuations are making, the Patient should frequently take a Dose of Spirit of Sal Volatile Oleosum; or Spirit of Hartshorn succinated, with a Cephalic Julap; or a Dose of Pills should be taken twice or three times a Day, made of the *Pulvis ad Guttetam* and Castor, reduced to a Mass fit for Pills, with Oil of Amber, and a Solution of *Asa-fetida*.

These raise the Spirits, at the same time that they contribute to expel the Gout; but should never be used without plentiful Evacuations preceding.

If these Remedies are not sufficient to bring the Gout to the Extremities, we must proceed to the most stimulating Cataplasms.

As soon as any Tumor or Pain appears in the Extremities, we must endeavour to keep it there; and hinder a Retrocession. To this End, a Blister must be apply'd to the Part, which must be kept running a considerable time by Mellilot, mix'd with Cantharides, if necessary. Mean time let the Part be kept extremely warm, with Flannel and Woollen Rollers; and let the Foot, if that Part is affected, be kept all Day in a declining Position.

Violent Frictions of the Extremities, apply'd twice or thrice a Day, are of the utmost Importance.

The Gout appearing in the Extremities is the most happy Circumstance that can happen; and then, and not till then, some gentle Podagragogues may be given, that is, when we perceive the Course of the *gouty* Matter to be alter'd, and there is no longer any Danger of driving it more forcibly upon the Head.

The Countess of Kent's Powder, in the Quantity of a Scruple, every six or eight Hours, is a proper Medicine in this Case. And to this may be added, once a Day, or, in a phlegmatic Constitution, twice, five Grains of *Alcohol Martis*.

But if by any means the Gout should be repell'd from the Extremities, or the Head should suddenly grow worse, these Podagragogues must immediately be left off, and recourse must be had to stimulating topical Applications, and the above-mention'd Medicines, which contribute gently to raise the Spirits.

During the Use of these Remedies, let the Patient's Diet be extremely low; let him live, for Example, on Chicken-broth, Gruel, or Panada, with Currans or Raisins: Chocolate may sometimes be allow'd. Instead of small Beer let the Patient drink Cyder, Wine and Water, and Infusion of Tea, or Sage, or of Clove-gilly-flowers.

Nothing is more dangerous than full Meals, especially in the Evening.

As to Stools, let the Patient be kept in a moderate way; for too many may invite the Gout to the Intestines, and Constiveness oppresses the Head.

By way of Prevention, nothing is more serviceable than Scapulary Issues, Country Air, and purging Spring and Autumn, and bleeding in the Beginning of October, in strong Constitutions.

But the best Preservative is to keep the Gout to regular Fits.

There is another Sort of the *Arthritic Apoplexy*, which Musgrave calls Symptomatic, whose Cause is in the Stomach and Intestines. This, he says, must be cur'd by Vomiting and Purging, by Medicines exciting the Spirits, and which expel the Gout.

The ARTHRITIC PALSY.

The *Arthritic Matter*, sometimes falling upon the Origins of the Nerves, causes a Palsy of the respective Parts to which they belong; and that more particularly in such *gouty* Constitutions as incline to a Plethora.

A moist and fenny Air, a sedentary Life, a bad Regimen, a frequent Use of Opiates, and of Spirituous Liquors, immoderate Venery, Cold, too frequent Use of warm Medicines in hot and bilious Constitutions, or whatever hinders the Gout from falling upon the Extremities, or repels it when there, are the usual Causes of an *Arthritic Palsy*.

The Nerves of the Tongue are sometimes affected, and then the Patient loses the Use of his Speech, or can utter but half Words confusedly.

If that Branch of the *Par Vagus* that belongs to the Stomach is affected, the Patient loses his Appetite and Digestion, and has an Aversion to all Aliment; insomuch that he daily wastes, and insensibly becomes tabid.

This Case Musgrave says he has known happen in *Arthritic* Constitutions, where there has been also a Plethora; and from these Causes first an *Apoplexy*; then a *Palsy*.

When an *Arthritic Palsy* happens in bilious Constitutions, especially when it follows a bilious Colic, the Patient loses his Appetite, his Flesh wastes, the Skin does not perspire, but is dry, and of an icteritious Colour, as are particularly the Whites of the Eyes.

Sometimes one Side only, or one Member, is affected, as the Tongue in particular: Sometimes the Distemper is accompany'd with convulsive Motions, and 'tis sometimes without: Sometimes the Palsy is imperfect, and only renders the Parts it seizes on unwieldy, and unfit for Motion; sometimes 'tis perfect, and renders them entirely useless and immoveable.

This Disorder is very difficult to be cured, especially when it succeeds an *Apoplexy*; and, if the *Apoplexy* returns, 'tis generally fatal; however, if a right Method of Cure is pursued, the Patient sometimes recovers, beyond all Expectation.

If the Pulse is full, and the Patient inclin'd to a Plethora, begin the Cure by Bleeding, either in the Arms or Jugular Vein, or by Cupping, with Scarification upon the Back.

A few Hours after Bleeding give a Clyster. Purging is perpetually useful; but the Purges should be of the stimulating Kind, capable of exagitating the Blood, and removing the Gout to the Extremities.

As soon as ever an *Arthritic Palsy* seizes the Patient, apply to the Joint, which used to be most affected with the Gout, the Apoplectic Cataplasms of Bates, Fuller's Cataplasms of Horse-radish, or some other equally stimulating.

As soon as the Tendency of the *gouty* Matter is chang'd from the Head towards the Extremities, and not before, the Patient may take some gentle Podagragogues, as Gascoign's Powder, or the Purple Powder, twice or three-times a Day, with a Draught of a Cephalic Julap.

As soon as any Tumor appears in the Extremities, apply to it a Vesicatory.

'Tis proper also, in this Disorder, to apply an Epispastic to the Neck; and to the Head, after shaving, the Cumin Plaister, or some other drawing Plaister; but not till after general Evacuations.

Gargarisms, which cause a great Discharge of Saliva, must be used; and a very thin Diet must be injoin'd.

Mean while, let the Patient take, from time to time, a Dose of volatile Spirits, Tincture of Castor, or of Amber, in a Draught of a Cephalic Julap, or an Infusion of Rosemary or Sage.

When the *gouty* Matter is much fix'd upon the Nerves, 'tis necessary to attenuate it by Decoctions of Guaiacum, and of the Wood and Bark of Sassafras, by Preparations of Steel, by Frictions, Baths, Embrocations, proper Cloathing, Liniments, Cerats, and Plaisters, as in a genuine Palsy.

Musgrave recommends a Decoction of the Bark, with Chalybeates, as a Thing he has known of great Service.

Musgrave also directs us to examine diligently, whether the Patient is hot or cold; whether the *gouty* Poison is accompany'd with a Viscidity of the Blood, or not; or whether 'tis join'd with a Redundancy of Bile, as in the Case of an *Arthritic Palsy*, immediately following a bilious Colic, of which he gives an Instance.

In the last-mention'd Cases, warm Medicines, taken in Quantities, for any time, make the Patient unquiet, feverish, and deprive him of Sleep; nor is he, in the least, rais'd or made stronger by their Use; but, on the contrary, much weaken'd and disturb'd.

In such Cases, therefore, the Author recommends *German Spaw*, or *Bristol Water*, as Things of great Efficacy, if drank fresh; and, he says, other Chalybeate Waters may have the same good Effects: And if Chalybeates are added to these at proper Times, and in proper Doses, he says, the Cure of such Disorders is perform'd very agreeably, and with great Certainty.

By way of Prevention, nothing has so good an Effect, as procuring regular Fits of the *Gout*; for the more the Extremities are in Pain, the less the nervous System is affected.

Therefore, as soon as there are any Signs of the *Gout* abounding in the Blood, if nothing contra-indicates, let the Patient take a Draftic Purge; and afterwards, twice or three times a Day, five Grains of *Alcohol Martis*. A few Days after, apply some stimulating Topic to the Joints, in order to invite the *Gout* thither.

Mean time, the Patient must never be suffer'd to be coftive. He must also keep Issues perpetually running in the Arms, or upon the Back.

IRREGULAR ARTHRITIC PAINS in the BODY; ARTHRITIC OPHTHALMY, ERYSIPELAS, and ACHORS.

'Tis common enough for a *gouty* Person to feel wandering Pains in the Back, Loins, Scapulæ, Sternum, and external Parts of the Head, which affect him for some time, and then remove elsewhere; insomuch that these Pains are frequently mistaken for a Rheumatism. But sometimes these Pains remain a considerable Time in the same Part, and give the Patient a great deal of Uneasiness; and this happens frequently in the Loins, affecting the Patient as if he had the Stone in his Kidneys. The Seat of the *gouty* Matter upon this Occasion is the Spina Dorſi, and its Membranes; and it seldom happens but in Constitutions worn out with Age and the *Gout*, and not able to throw out a regular Fit.

The *Gout* will also fall sometimes upon the Tunica Adnata of the Eye, and cause an *Ophthalmia*, which immediately vanishes as soon as a regular Fit of the *Gout* appears in the Extremities.

Musgrave relates, that he knew an old *gouty* Patient, who had the superior Palpebra in very great Pain for a whole Month and more, which disappear'd upon a Fit of the *Gout* immediately following.

The same Author says he has known an Erysipelas terminate in the *Gout*; from whence he infers, that it was caus'd by the Arthritic Matter.

In some Arthritic Constitutions, when the Fits are too mild and interrupted, the *gouty* Matter is evacuated by the Ears, and in others by Achors only, without any Appearance of it in the Joints.

In all these Cases, the Danger is much less than when the *gouty* Matter fixes upon the internal Parts, and affects any of the Viscera; and they are attended with these Advantages, that they very seldom recede, and fall upon the Viscera; but are very often transferred to the Extremities, and cause a regular Fit.

The same Method of Cure is requir'd in all these *gouty* Disorders.

The first Step to be taken therefore, if they are violent, is to bleed; and after that to give an Aloetic, or some other Draftic Purge, that the Arthritic Matter may in part be evacuated, and in part be removed to the Extremities.

After these general Evacuations, *Musgrave* advises to do no more, unless the Pain is very violent; and in this Case, the Patient may endeavour to evacuate the Arthritic Matter, or to remove it to the Joints, by Sweating; and to this End let him be well cover'd with Bed-cloaths; or let him take Spirit of Hartshorn, Venice-treacle with Gascoign's Powder, the Pulvis ruber Exoniensis, or some such Cordial with Rosemary Posset-drink.

These Cardiacs are proper in fixed or wandering Pains, or in an Erysipelas.

If an *Ophthalmia* should grow worse after Evacuations, *Musgrave* advises the following Collyrium:

Take the White of an Egg, beat it, dilute it in Rose-water, and add some Grains of Camphire; make into a Collyrium, a few Drops of which must be put into the Eyes every Morning, and let a Linen Cloth soaked in it be apply'd to the Eyelids twice or thrice a Day. Lapis Calaminaris, or Lapis Tutie, may very properly be added to the Collyrium, provided they are duly prepared.

As for the above-mentioned Achors, they are to be treated in the same manner as others, which are not from a *gouty* Cause; but *Musgrave* says they are so safe, and even useful, that he would not advise any Attempt to procure a Pain in the Extremities upon this Account.

AN ARTHRITIC EPIPHORA, and TOOTH-ACH.

Joh. Steph. Strobelbergerus wrote a Treatise *De Podagra Dentium*.

Sometimes the *gouty* Humour falls upon the Glands in the Orbits of the Eyes, and causes a Discharge of sharp Serum from them:

And sometimes upon the Gums and Membranes which surround the Roots of the Teeth, and causes violent Pain. These sometimes happen after the *Gout* has been repell'd from the Extremities, and sometimes end in a regular Fit.

If these Disorders become considerable, bleed in the Jugular Vein rather than in the Arm: Then give a Draftic Purge the next Morning. After this, lay an Epispastic to the Neck; and when that is taken off, apply some stimulating Ointment to the vesicated Part, in order to continue the Discharge.

But if, notwithstanding these Remedies, the *Gout* continues in the Part, we must proceed to use those Medicines which force it, and those Topics which draw it to the Extremities.

In an Epiphora, *Musgrave* recommends Woman's Milk, which he advises to be put into the Eye; or a Collyrium of the Mucilage of Flea-bane and Quince-seeds made with Rose-water, or Plantain-water, with the white Troches of Rhafes.

In case of Pain in the Teeth, the same Author advises a Gargism, that will cause a Discharge of Saliva.

If 'tis absolutely necessary to pull out the Tooth; the same Author advises to gargle the Mouth with Spring-water, Honey of Mercury, and common Salt; and after this he directs that the Tooth should be put into its Place again, which he says will become more useful for having been drawn.

MISCELLANEOUS OBSERVATIONS.

When the *Gout* seizes upon any of the Viscera; or other Part, it exactly imitates the genuine Distemper which the Part is subject to, so as to be distinguished from it with Difficulty.

The *Gout* seldom destroys any body without becoming first anomalous.

People are frequently for a long time in a bad State of Health, and complain of Pains in the Shoulders, Breast, Back, and Loins, like those of the Rheumatism; sometimes of Disorders in the Head, like Hysterics, and at other times of Disorders that seem to be Scorbutical; all which at last terminate in the *Gout*.

Musgrave calls that *Gout Symptomatic*, which derives its Origin, and proceeds from some other Distemper, as the Rheumatism, Venereal Disease, Dropsy, or Scurvy.

Having given an Account of the Treatment due to the Regular, and the several Species of the Anomalous *Gout*, it remains that I say something with respect to the Causes of this obstinate and excruciating Distemper.

Sydenham, as we see above, and after him *Boerhaave*, and most Authors who have written intelligibly on the Subject of the *Gout*, are of Opinion, that its original Cause is Indigestion. And yet this Disease, when not hereditary, generally attacks those whose Constitutions are robust and good, whose Appetites are keen, and who have at least the Appearance of digesting their Aliment very regularly. Hence it may be asked, How it happens, that such People have the *Gout*, whilst others, who are of a weak Habit, whose digestive Organs are lax and unbrac'd, and whose Digestions are manifestly performed with less Vigour, should be so fortunate as to escape it.

In order to reconcile these seeming Contradictions, and give a clearer Idea of the *Gout*, than most People seem to have form'd, two Things are principally necessary to be adverted to.

The first is, That there is in animal Bodies a decreasing Series of Vessels destin'd to convey Juices to the several Parts. Physicians know what I mean by a decreasing Series of Vessels; but that I may not be mistaken by others, I shall explain it farther.

Suppose, then, the Vessels whose Diameters are largest, are destin'd to convey the red Globules of the Blood, (and together with these, all the other Parts of the circulating Fluid) which are either reconvey'd to the Heart by correspondent Veins, when they arrive at Vessels whose Diameters are too small to receive them; or, perhaps, being divided into several Parts, till at last they become transparent, circulate forward in the next Series of Vessels, which we may conceive adapted to convey Serum. The next may possibly be capable of receiving Lymph; the next a Fluid still finer, till at last the most minute Vessels in the Body may convey a Fluid consisting of finer Particles than we can form any Idea of, as not being the Objects of our Senses.

That this is in some measure the Case, is certain, because, if red Globules of Blood were to circulate in the Humours or transparent Membranes of the Eye, Vision could not be performed; as we find it is not, when thro' an *Error Loci*, as *Boerhaave* very properly calls it, such Particles get into the Vessels of the Parts not adapted naturally to receive them.

Thus, also, if a Part furnish'd with Vessels which convey these red Globules is wounded, red Blood is extravasated; but wound a Tendon, and nothing but a fine Lymph or Ichor shall be discharged.

The second Thing I would have attended to is, that a great deal of Earth resides in the circulating Fluid, which I believe nobody

nobody will dispute. It will be of some Importance in our present Inquiry to trace this Earth from its Source, the Ground to its Entrance into the Blood, after having observ'd, that human Bodies, as well as those of other Animals, are nourish'd either by Vegetables, or by Animals, which gain their Sustainance from the Soil.

In the Ashes of all Vegetables we find a great Quantity of pure Virgin Earth, which, when perfectly freed from the adhering Salts, is neither capable of being alter'd by Fire, nor dissolv'd by Water; and yet, without such a Solution, it is inconceivable how this Earth could pass thro' the extremely minute Pores of the Roots, circulate in the Sap, and contribute to the Formation of the Vegetable. It is therefore highly probable, that this Solution is brought about by some means, which it is not our Business at present to inquire into: But, for Information in this Particular, see the Article *ACETUM*.

When Vegetables are taken into the Stomachs of Animals, the Earth which they contain, or at least a Part of it, must necessarily undergo a second Solution, otherwise it could not enter the minute Orifices of the lacteal Vessels, circulate with the Fluids, and ultimately be converted by the vital Powers into Nourishment for the solid Parts of Animals: And that it does actually enter the Lacteals, circulate with the Fluids, and is converted into Nourishment, is certain, because we find a great Quantity of this Earth both in all the Solids and Fluids of Animals, which is not convey'd thither by Magic.

If Animal Substances are taken by way of Aliment, the contain'd Earth must undergo a third Solution, perhaps more difficult to be brought about than the former two, as the Parts of Animals cohere more strongly than those of such young Vegetables, as are generally us'd in Food.

This Solution of the Earth in Animal and Vegetable Substances, is made by the Powers of Digestion; and if these are vigorous, and perform their Duties regularly, the Mass of Blood is supply'd with fresh Chyle, suited to perform all the Offices requir'd by the Animal Economy.

But if the Powers of Digestion are defective, this Solution is imperfect in proportion; inasmuch that if the Aliment be scarcely dissolved at all, it is either discharg'd by Vomit, or passes off by Stool little alter'd, as it happens in a *Lientery*.

Again, let us suppose the Bile viscid and unactive, and consequently incapable of completing, by its saponaceous Quality, the Solution begun in the Stomach; so that the Aliment is not comminuted sufficiently to supply Chyle fine enough to circulate thro' the Lungs; in this Case, Difficulty of Breathing will be the Consequence, as it happens in a *Chlorosis* (*Green-sickness*); and as in this Case the Chyle is farther deprived in a great measure of the Action of the Lungs, which was necessary to comminute it, and convert it into good Blood, the Blood hence form'd is too gross to circulate thro' the Glands; and the superfluous Water, which ought to be carry'd off by the proper Emunctories, remains in the Mass; and hence Obstructions in the Glands, and Dropsies.

It would, perhaps, be somewhat difficult to trace the Aliment thro' all the different Degrees of Solution, and account for all the various Disorders caus'd by the Stagnation thereof in the different Series of Vessels. It suffices for my present Purpose, that whenever any Particles of the Blood, that is, of the dissolved Aliment, arrive at a Series of Vessels, whose Diameters are less than their own, they must there stagnate, unless they are capable of being divided into smaller Particles.

Now, with respect to the *Gout*, let us suppose a Man in full Vigour, who eats and drinks with Appetite, and by the Help of due Exercise preserves a Tone and Elasticity in the Organs of Digestion, sufficient to dissolve his Aliment effectually. Suppose also this Person on a sudden leaves off, either in part or totally, his habitual Exercise, and that his Appetite does not diminish in proportion to the Powers of Digestion. It may happen in this Case, that the Aliment may be sufficiently comminuted for most of the Purposes of the Animal Economy, whilst the Earth is not so perfectly dissolved as to circulate freely thro' the remote Series of Vessels, which convey Juices to the exanguious Parts, or Parts which are nourish'd by Lymph, Ichor, or some finer Fluid; such are the Tendons, Ligaments, and nervous Membranes. When, therefore, the partially dissolv'd Portions of Earth arrive at very remote Vessels, whose Diameters are smaller than their own, they there stagnate, being hard and incapable of farther Division, and distend the extremely sensible nervous Fibres; being also impell'd by the succeeding Fluid, they are driven against, cut and tear the nervous Fibres, and are productive of that excessive Pain, which *gouty* People are too sensible of in the Paroxysms of that Disorder.

When a sufficient Quantity of this obstructing Earth has, in repeated Fits of the *Gout*, been fix'd upon the Part, the Tendons and Ligaments grow stiff and immovable; and by Degrees the obstructing Matter works thro' the Integuments, and appears in its proper and original Form, that of *Earth* or *Chalk*.

If this obstructing Matter should be repell'd, or hinder'd from fixing on the Extremities, by Design or Accident, it may be impell'd upon the nervous Membranes of the more noble Organs, and cause the Disorders peculiar to each respective Part, in the manner specify'd above.

Hence we may understand the Reason why the *Gout* has been in all Ages esteem'd incurable; that is, because the Cause resides in very remote Vessels, in a great Degree out of the Sphere of the Operation of Medicines.

Hence also, according to the System of *Sydenham*, if the digestive Organs are strengthen'd by warm Aromatics, the Force of the Circulation is increased, and the *gouty* Matter is impell'd with greater Force upon the Extremities, and consequently with a greater Degree of Pain. On the contrary, if the Disease is treated with cooling Remedies, the digestive Organs are relax'd, and a Foundation is laid for a greater Store of the *Arthritic* Matter.

That this short Theory of the *Gout* may not appear utterly barren, I must farther remark, that alkaline Salts are the only Substances known in Nature, which afford a Menstruum capable of dissolving Earth. Thus alkaline Salts of all Kinds dispose the Earth to a Solution sufficient for a subsequent Vegetation, and promote remarkably the Fertility of the Soil.

It is therefore in alkaline Salts, that a Remedy for the *Gout* must be sought for; and if any one can render those sufficiently penetrating, to reach into the remote Series of Vessels, where the material Cause of the *Gout* resides, and to attenuate it in such a manner, as to make it capable of perspiring thro' the Pores of the Part affected, he will be able not only to cure a present Fit, but to weed it so far out of the Constitution, as to render it very little, if at all, troublesome for the future.

I must not omit taking Notice of a Topic for the *Gout*, of which I had an Account from a Gentleman of Honour and Fortune, which gave me much Pleasure, as he had us'd it himself for many Years with great Success, and recommended it to many of his Friends, who had found much Relief from the Use of it.

The Receipt is thus:

Take an Earthen Pot, capable of containing five Gallons; fill it full of Elder-flowers full ripe, and clean pick'd, which, as they putrify, will sink down; continue filling it every Day as long as any Flowers are left upon the Trees; then put in three Pints of common Vinegar, and half a Pound of Bay Salt; then stop it quite close, and set it in the Sun for two Months, stirring it every Day with a Stick; then stop it close, and set it in a Cellar. If it breeds Worms, stir it with a little Salt, and mix them together. Apply it every twelve Hours to the Part afflicted with the *Gout*. It must be laid on cold. If too dry, put some Vinegar to it. It must be laid upon the Part of the Feet affected, just when the Violence of the Fit is over, half an Inch thick.

It is remarkable, that this Cataplasim makes the Part perspire excessively, inasmuch that almost every Pore discharges a limpid Liquor.

If apply'd in the Manner, and at the Time above directed, that is, when the Excess of Pain begins to abate, it removes all that Pain and Lameness, which otherwise afflict the Patient for many Weeks, and sometimes Months, as the Gentleman who communicated this assures me from his own Experience.

If we examine into the Nature of this Composition, we shall find it very likely to perform all that is attributed to it.

The Ingredients are *Vinegar*, *Salt*, and *Elder-flowers*.

The Nature and Properties of Vinegar are sufficiently explained under the Article *Acetum*. As to *Salt*, I must refer my Reader to the Article *SAL*, after having taken Notice, that it contains an extremely penetrating acid Spirit, and an alkaline Earth.

It is not material to our present Purpose, what Properties Elder-flowers are endowed with, or what medicinal Virtues they possess, when in a natural State; because these Flowers, when put into the Pot, putrefy, sink down, turn to a sort of foetid Pulp, lose all the native Virtues of the Plant, and acquire new ones very different from the former. Thus it has been shewn under the Article *ALCALI*, that putrefy'd Vegetables yield by Distillation a volatile, urinous Spirit, and Salt not to be distinguished from Spirit of Hartshorn, or any other animal Spirit or Salt; whereas before Putrefaction no such Spirit could by any Art whatever be procured from them.

By the Mixture therefore of Elder-flowers putrefy'd into an oily Pulp, and abounding with a volatile alkaline Salt, together with Vinegar and Salt, both which are impregnated with a most penetrating Acid, a third Substance is formed very different from the several Ingredients which enter the Composition; for the Acid of the Vinegar acts upon the alkaline Salts of the putrify'd Vegetable; and these again upon the Acid, so as to destroy each

each other, and by their Union to form a *neutral* Body, somewhat like the *Tartarus Regeneratus*, otherwise called *Terra Foliata Tartari*. But as the Salt used in preparing the *Tartarus Regeneratus* is fixed, and that of the putrefy'd Elder-flowers is volatile, the Mixture resulting from the Union of the latter with Vinegar, must of the two be the most penetrating.

It is now well known, that neutral Substances are extremely saponaceous, and resolvent; and that they will act as a Menstruum upon Substances, especially those which are earthy, which neither Alcalis nor Acids will touch. It is probably such a Menstruum as this, which originally dissolves the Earth in the Soil, and prepares it for the Purposes of Vegetation. And we have some Reason to believe, that the neutral Composition, which is our present Subject, penetrates to the obstructing Matter which forms the Paroxysm of the Gout, resolves it, and renders it capable of perspiring through the Pores of the Skin. And I make no doubt, but that whenever a Method can be discovered of conveying alkaline Salts to the remotest Series of Vessels, cloath'd or neutraliz'd in such a manner, that their caustic Quality shall do no Injury to the fine Vessels, the Gout will be as easily and effectually cured, as any other Distemper.

ARTHRODIA, ἀρθρώδια, from ἀρθρῶν, to articulate. A Species of Articulation. See ARTICULATIO.

ARTHRON, ἄρθρον, a Joint.

ARTHROSIS, ἀρθρωσις, from ἀρθρῶν, to articulate. The same as ARTICULATIO, which see.

ARTIA, ἀρτία, ἀρτίη, according to some, is taken in the same general Sense as ἀρτηρία; others, as Erotian observes, limit it to the Aspera Artery.

ARTICOCA, ARTICOCALUS, Artichoke. The same as CINARA, which see.

ARTICULARIS MORBUS. The same as ARTHRITIS, which see.

ARTICULATIO, ἄρθρωσις, Articulation.

The Bones cannot serve the Purposes they are design'd for, except the several Pieces are fitly adjusted, and then kept together in different Ways. The most antient Osteologists (speaking only of the perfect Bones of an Adult) call'd the first of these *Articulation*, and the other *Symphysis*.

Articulation, thus understood, is of two Kinds, one moveable, by which the Bones are allow'd a certain Degree of Motion; the other immoveable, by which they are fixed together without Motion. The first is commonly call'd *Diarthrosis*; that is, (according to the Expression of Carolus Stephanus, an antient Physician of the Faculty of Paris) an *Articulation* separated; the other *Synarthrosis*, or an *Articulation* conjoined.

In the *Diarthrosis*, or moveable *Articulation*, the Pieces are really separate; and the Parts in which they touch, are each of them cover'd by a smooth Cartilage, by means of which they easily slide upon one another. In the *Synarthrosis*, or immoveable *Articulation*, the Pieces are joined together in such a manner, as that the Parts in which they touch have something particular on their Surface; and cannot slide upon each other.

There is still another Species of *Articulation*, which cannot well be reduced to either of the two former, because it partakes of both; and therefore I think it necessary to establish a third Kind, by the Name of *Amphiarthrosis*, which agrees better to this Sort, than to the other *Articulations*, to which it has sometimes been apply'd.

DIARTHROSIS.

Diarthrosis is either manifest with large Motion, or obscure with small Motion. Each of these again is of two Kinds, one *indeterminate*, or with Motion many different Ways, as that of the Os Humeri upon the Scapula, or of the Os Femoris on the Os Innominatum; the other *alternative*, or with Motion confin'd to two opposite Sides, as that of the Ulna on the Os Humeri, and of the two last Phalanges of the Fingers on the first and second.

A Bone is said to be moveable many different Ways, when it can be turn'd upwards and downwards, forwards and backwards, to the Right and to the Left, and quite round.

The Motion quite round is made either on a Pivot, that is, about an Axis, or in the manner of a Sling, where the Bone describes a sort of Cone, or the Figure of a Funnel, one End of it moving in a very small Space, the other in a large Circle.

The first of these round Motions is termed *Rotation*, by Anatomists; the other is only a Combination of several Motions upwards, downwards, &c. and it must be remarked, that *Rotation* is not to be met with in all the *Articulations* for Motion many different ways; for Example, the *Articulation* of the first Phalanges of the Fingers with the Metacarpal Bones does not admit of it.

Moreover this *indeterminate Diarthrosis* is of two Kinds; one *orbicular* or *globular*, the other *flat* or *planiform*.

The *orbicular Diarthrosis* is when the round End of one Bone moves in the Cavity of another, more or less proportionable to it, as the Head of the Os Femoris in the Acetabulum of the Os Innominatum; or when the Cavity in one Bone moves upon

an Eminence in another, as the Bases of the first Phalanges on the Heads of the metacarpal Bones.

The planiform *Diarthrosis* is when the articulated Bones slip upon one another, much in the same manner as when we rub the Palm of one Hand against the other: This *Articulation* is found in the Bones of the Carpus and Tarsus, and in the oblique Processes of the Vertebrae.

The Antients call'd the first of these two Kinds of *Articulation*, *Enarthrosis*; the other *Arthrodia*. Some modern French Writers seem to comprehend both under the Word *Genou*, a Term borrowed from Workmen, who probably first ignorantly took it from the human Body, to apply it to their Instruments. I own, that this Term, as used and explained by them, agrees well enough to all the Degrees of the *orbicular Diarthrosis*; but there are undoubtedly many *Articulations* of the other Kind so very flat, that a skilful Workman would not allow them the Name of *Genou*.

The *alternative* or *reciprocal Diarthrosis* bears some Resemblance to a Hinge; and for that Reason the antient Greeks termed it *Ginglymus*, which signifies the same thing; and has accordingly been translated in some modern Languages. It is called by Mechanics *Charnall*.

It has been divided into several Kinds; but, properly speaking, I think there can be but two. The first is that which is confin'd to *Flexion* and *Extension*; and as in one of these Motions the two Bones always make an Angle, I term it an *angular Ginglymus*. This is exactly the same with the Motion of a Hinge. The second Kind is adapted only to small Turns toward each Side, or to small lateral Rotations, in the Language of Anatomists; and therefore I term it a *lateral Ginglymus*. In each Kind several Differences are to be taken notice of.

In the *angular Ginglymus* either each Bone partly receives, and partly is received by the other, there being reciprocal Eminences and Cavities in each, as in the *Articulation* of the Os Humeri with the Ulna; or there are only several Eminences in one Bone, received into the same Number of Cavities in the other, as in the *Articulation* of the Os Femoris with the Tibia.

The *lateral Ginglymus* is either single, as in the *Articulation* of the first Vertebra of the Neck, with the Apophysis Denti-formis of the second; or double, that is, in two different Parts of the Bone, as in the *Articulation* of the Ulna with the Radius.

It must in general be observed, concerning these kinds of *Articulations*, that some of them are more perfect and close than others; and that they are not all confin'd to *Flexion* and *Extension*, or to the reciprocal Turns already explained, as we shall afterward see.

The *obscure Diarthrosis*, or that which admits only of small Motions, is also of different Kinds. Examples thereof are found in the *Articulations* of the Bones of the Carpus and Metacarpus, and of the Fibula with the Tibia.

This *Articulation* was formerly called doubtful and neutral, and by some *Amphiarthrosis*, while others reduced it to *Synarthrosis*. The first of these Names might pass; the rest are improper.

SYNARTHROSIS.

Synarthrosis, or the *Articulation* of Bones so join'd together as to remain fixed in their Situation, is of two Kinds; one is made by Ingrailing; and the other in the same manner as a Nail or Pin is fixed in Wood. The first may again be subdivided into a deep and more superficial Kind. The deep Kind is observable in the *Articulations* of the broad Bones. The Antients term'd it Suture, because of some Resemblance it bears to a coarse Seam, as is seen in the upper Bones of the Skull. It is made by Jags, Notches, and Holes in each of the articulated Bones, by which they are mutually indented, much after the same manner as what is called Dovetailing by the Joiners. By the Antients it was called Unguis, probably because the indented Pieces are rounded like Nails.

The other Kind is that which is observed in Bones joined together by more extended Surfaces, in which no Indentation appears outwardly. This the Antients termed *Harmonia*, and the *Articulations* of some of the Bones of the upper Jaw were given as Examples of it. But though they describe it as running in a single Line, they did not mean this in a strict Sense, but only that the Joint was like that of two rough Boards without Grooves. They have expressly told us, that some small Inequalities might be observed in these Joints; and some of them have used the Terms of *Suture* and *Harmonia* indifferently.

Suture differs very much from *Harmonia*. In the first, the Jaggings and Notches are very considerable, and the Indentation is made likewise by small lateral Eminences therein; so that the Bones thus join'd cannot be separated without breaking a great many of these Jags, and their little Eminences; whereas those that are joined by *Harmonia*, may easily be parted without breaking any thing, or at most but very little.

Harmonia differs from *Suture*, in that the Inequalities therein are very small, their Union is superficial, and there is no Appearance

pearance of them on the Surface of the Bones; the Joint there representing only a kind of Line, more or less irregular.

The other Kind of *Synarthrosis*, an Example of which we have in the *Articulation* of the Teeth, is called *Gomphosis*, a Greek Term still retained.

AMPHIARTHROSIS.

The third general Kind of *Articulation* partakes of both the former two, the moveable and immovable; and for that Reason I have termed it *Amphiarthrosis*, or the mixt *Articulation*; as resembling *Diarthrosis* in being moveable, and *Synarthrosis* in its *Connexion*.

The Pieces which compose it have not a particular Cartilage belonging to each of them, as in the *Diarthrosis*; but they are both united to a common Cartilage, which being more or less pliable, allows them certain Degrees of Flexibility, though they cannot slide upon each other, such is the *Connexion* of the first Rib with the Sternum, and of the Bodies of the Vertebrae with each other.

SYMPHYSIS.

Having examined the *Articulation* of Bones, we come now to consider their Union or *Connexion*, properly so called, which the Antients named *Symphysis*, taking this Term in an improper or large Sense, when they apply'd it to the *Connexion* of Bones; but in its proper Meaning they used it only to signify *Offification*.

The Authors who say, that the Antients took *Symphysis* for a Species of *Articulation*, misunderstand them; neither are they more in the right, who advance that the Antients looked upon *Articulation* and *Symphysis* as opposite to each other. If they speak of the most early Antiquity, both these Propositions are false.

In the first Place, the Antients do not confound *Articulation* with *Symphysis*, but plainly distinguish them, taking *Articulation* for the simple setting of Bones together, independently of their being connected, or kept together. In the second Place, they do not look upon these two as Opposites, that is, where they talk of *Articulation*, they do not exclude *Symphysis*; because their Writings clearly shew, that in order to compose the Sceleton, they thought it necessary to bring them both in together.

The Words of *Galen* alone are sufficient to prove this. In general he tells us, "That the Sceleton is a regular Disposition of all the Bones connected together." And afterwards, "That their Composition is by *Articulation* and *Symphysis*;" "that *Articulation* consists in the Bones being naturally rank'd," " *Symphysis* in their being naturally connected." In fine, after having enumerated all the Differences of *Articulation*, he declares in plain Terms, that by *Symphysis*, or the Union of Bones, he understands not only that, by which two or more Pieces become one by Age, but also that, by which the Bones are naturally united and connected together in different ways. Of these he reckons three, (as his Predecessors had done) by Cartilage, Ligament, and Flesh. The first Kind of *Symphysis* they called *Synchondrosis*; the second, *Synneurosis*; and the third, *Syffarcofis*. He likewise takes Notice, that his Predecessors did not take the Word *Synneurosis* so far in a literal Sense, as if it signify'd the Union of Bones, by means of Nerves; but that they were accustomed to call both Ligaments and Tendons by the Name of Nerves, though they were very well apprised of the Distinction of these three things.

The Distinction of *Symphysis* into that without a Medium, and that with a Medium, can have no Place here; for the first, of which the lower Jaw is cited as an Example, belongs not to the *Connexion* of Bones, but to their Formation while imperfect; and therefore may be called *Symphysis* of *Offification*; and the other *Symphysis* of *Articulation*.

In another Sense, however, this Division may still be made use of in this manner: All the Pieces which compose the bony Fabric are naturally connected and united together. This Union or *Connexion*, which, with the Antients, I term *Symphysis*, is either without or with a Medium.

Symphysis, without a Medium, is where the articulated Bones support themselves in their Situation, without any other Assistance than that of their Conformation only; thus the parietal Bones are mutually fixed by their Indentations, and so give us at once an Example of *Articulation* and *Symphysis*. In the same manner the Bones in the Basis of the Scull are supported by those which make the convex Part of it. In a natural State however, none of these Pieces touch one another immediately, but are separated by Membranes which run in between them.

The *Connexion* or *Symphysis* of Bones, with a Medium, is of three Kinds, cartilaginous, ligamentary, and fleshy or muscular, that is, as the Antients termed them, by *Synchondrosis*, *Synneurosis*, and *Syffarcofis*.

Synchondrosis, or the cartilaginous *Symphysis*, is either moveable, as in that by which the Bodies of the Vertebrae are kept together, on which joins the first Rib to the Sternum; or immovable, as that of the *Ossa Pubis*, in an ordinary State. The

Symphysis of *Offification* is different from this, and the Union of *Epiphyses* belongs to that, rather than to the *Symphysis* of *Articulation*.

Synneurosis, or the ligamentary *Symphysis*, is found in all the Joints designed for Motion.

Syffarcofis, or the muscular *Symphysis*, is as real as the two former, and may be said to be much more general, because it accompanies and strengthens the others, and supplies what is wanting in them. The *Connexion* of the *Ossa Humeri* with the Scapula is a sufficient Proof of this; for the Strength and Security of that Joint is owing more to the Muscles, than to the Ligaments. *Winslow's Anatomy*.

ARTICULI Plantarum are those Parts of Plants which swell into Nodes, or Joints, which usually send forth Branches: *Blancard*.

ARTICULUS, ἀρθρον. A Joint, or *Connexion* of Bones adapted for the Performance of Motion. *Blancard*.

ARTIFEX, δημιουργός, *Hippoc.* τεχνίτης, *Galen*. An Artist. What the Word signifies in general, is well known; but it is often appropriated to the Physician, who exercises the Art of Medicine from rational Principles confirmed by Experience. Sometimes the Chymists and Spagirists take the Liberty to apply the Terms to one another. *Castellus*.

ARTIFICIALE. Whatever is made or prepared either of the native Stone of Cinnabar itself, or from the Vein of Cinnabar. *Rulandus*.

ARTIOS, ἀρτίος. Sound, whole, perfect, complete in all its Parts, unhurt, *Hesych*. Ἀρτίως, the Adverb, signifies wholly, perfectly, ἀρμόδιως, that is, coherently, and fitly, as *Hesychius* expounds the Word. Ἀρτίως also signifies the same as ἀπαρτίως, ἀπαρτίσμενος, and ἀρετῶς, Adverbs importing Exactness, Adequateness, Exquiteness, in which Sense it is used by *Hippocrates* in his Aphorisms, and *Lib. de Humoribus*.

Ἀρτίοι οἱ σπόνδυλοι ἐντὸς ἀλλήλοις, "the Vertebrae are within-side even with each other." *Lib. de Art. et Mochl*.

Ἀρτίαι ἡμέραι, with respect to Crises, are even Days, to which *Hippocrates* opposes περιαι, odd, as ἀρτίος ἀριθμὸς καὶ περιαιός is an even and an odd Number. So *Lib. 1. Epid.* τὰ δὲ παροξυνόμενα ἐν ἀρίστοι, κρινέται ἐν ἀρίστοι ὅν δ' οὐ παροξυσμοὶ ἐν περιαιῇσι, κρινέται ἐν περιαιῇσι. "If the Paroxysms happen on even Days, the Crisis will be on an even Day; but if they molest the Patient on odd Days, the Crisis will in like manner fall out on an odd Day." Again, *Lib. eodem*, ἐστὶ δ' ἡ πρώτη κρίσις τῶν περιόδων ἐν ταῖς ἀρίστοις κρινέσθω δ'. "Of those periodical Fevers which come to a Crisis on an even Day, the first critical Day is the fourth."

ARTIPHYES, ἀρτίφυες, from ἀρτί, just now, and εἶναι, to produce, signifies new-born; but **ARTIPHYES**, ἀρτίανες, from ἀρτίος, whole, and οὖν, is complete. Thus in *Hippocrates*, περὶ ἐκτεταμένῃ ἀρτίφυῖς ἀριθμὸς καὶ τέλεις is a complete and perfect Number.

ARTISCUS, ἀρτίσκος, from ἀρτί, Bread, a Loaf, from its being in the Figure of a little Loaf, signifies in general a Troche of any Kind; but specially, and κατ' ἐξοχήν, *Artisci* are Troches prepared of Vipers Flesh. *Castellus*.

ARTISTOMA, ἀρτίσμομα, in *Hippocrates*, περὶ τῶν ἐν νεφράῃ τραυμάτων, is expounded by *Galen* in his *Exegesis*, πανταχόθεν ὁμαλὰ, "plain and smooth on all Sides." **ARTISTOMOS**, ἀρτίσμομος, in another Sense, is one who pronounces the Words of any Language perfectly and entirely without Mutilation.

ARTIPOCHROS COLOR, ἀρτίποχρος χροίη, in *Hippocrates*, περὶ τῶν ἐντὸς παθόν, is a palish and yellowish Colour, which attends a Disorder of the Spleen.

ARTIZOA, ἀρτίζωα, from ζῶν, Life, signifies short-lived, and is expounded by *Galen* and *Hesychius* ὀλιγοχρόνια, "enduring but a little Time." *Hippoc.* περὶ ἐπικυνήσι, ταῦτα τὰ παιδία ἀρτίζωα, "these Children are but short-lived."

ARTOCREAS, ἀρτίκρεας, from ἀρτί, Bread, and κρέας, Flesh. The same as **PASTÆTUM**. A sort of Pasty.

ARTOMELI, ἀρτίμελι, from ἀρτί, Bread, and μέλι, Honey. A Cataplasm made of Bread and Honey. *Blancard*.

ARTOPTA, ἀρτίπτη, a Vessel to bake a Pye or Pudding in, metaphorically apply'd to such Women as have easy Labour. *Castellus*.

ARTOPTICIUS PANIS, from ἀρτί, Bread, and πτήναι, to toast. Toasted Bread. *Blancard*.

ARTOS, ἀρτί, Bread. Ἀρτί, in *Hippocrates*, περὶ γυναικείης φύσεως, is a Mass of farinaceous and other Substances inclosed in a Linen Cloth, and apply'd warm as a Fomentation to the Uterus. Of ἀρτί, as it signifies Bread, there are many Sorts to be found in *Hippocrates*, as

Ἀρτί ἀζύμη, from α Negative, and ζύμη, Ferment, or Leaven; unleavened Bread; this nourishes most, and affords the least Excrement. *Lib. 2. περὶ διαίτης*.

Ἀρτί ἀνίσχυρῆτος ἢ ἀνίσχυρος, from ἀνός, mere, very, and πυρός, Wheat. Bread made of Meal, where the Bran is not separated from the Flour, but the whole Corn goes into the Loaf. This is drying, and easily passes off. *Lib. περὶ τῶν ἐπὶ τὸς παθόν*.

Ἀρτοποιία, from *dis*, twice, and *πῦρ*, the Fire. Bread twice baked, or that has twice proved the Fire. It is prescribed in the Dropsy. Ἀρτοποιία μὲν χρῆσθαι πυρὶν ἐπὶ τῷ, ἢ τῶν σκληρῶν διαπύριτον. "Let him use wheaten Bread toasted, or hard Bread twice baked." *Lib. prædict.* This is also called *disarthos*, and dries powerfully.

Ἀρτοποιία, from *κρύπω*, to hide. Bread baked under the Embers, called by the Romans *Panis Subcineritius*. This, according to *Galen*, was the worst of all Bread, being the driest, and least nourishing. *Lib. 2. περὶ διαίτης*, and *Lib. 2. περὶ γυναικ.*

Ἀρτοποιία, from *ἐστῆναι*, to toast. Toasted Bread, which is very drying, and prescribed by *Hippocrates* in a Dysentery, *Lib. 7. Epid.* and *Lib. περὶ τῶν ἐν ὅσῳ παθόντων*, where, in one Place, it is call'd *ἄρτος ἐστῆναι ἐωλός*, "stale toasted Bread;" and *Lib. περὶ ἀρχ. ἰητρ.* *ἄρτος ἐστῆναι ἢ ἐνωμός*, "toasted or crude Bread," are opposed one to another.

Ἀρτοποιία, from *ἐχάεσθαι*, a Crust; Bread broil'd on the Hearth, or a Gridiron; whence some call it *Panis focalis*, *focarius*, or *craticularis*, from *Focus*, a Hearth or Fire-place, and *Craticula*, a Gridiron. This is a very bad sort of Bread, in *Galen's* Opinion, because the Outside is burnt to a Crust, while the Inside remains crude. It easily passes off, but hurts the Stomach. According to *Hippocrates*, *Lib. 2. περὶ διαίτης*, such Bread (ὡς ἐχάεσθαι ἄρτος) is less nutritive than what is baked in an Oven, but more drying, because more scorched by the Fire.

Ἀρτοποιία, from *ζύμην*, Leaven. Leaven'd Bread, what is a little fermented. This Sort is light, has an easy Passage, nourishes little, and is easily digested. *Hippocr. Lib. 2. περὶ διαίτης*.

Ἀρτοποιία, from *ὀψός*, an Oven. Bread baked in an Oven. This is very nourishing, because very little burnt. *Hippocr. Lib. prædict.*

Ἀρτοποιία καθάρως, pure Bread; that is, Bread made of fine Flour. This is opposed to *συνκομιζόμενος* (see below) and *ἀύσπετος*; (see before) in several Treatises of *Hippocrates*. Opposite to this may also be reckon'd *ἄρτος ῥυπαρός*, and *ἀχυρώδης*, from *ῥύπος*, Filth, and *ἀχυρῶν*, Chaff; impure Bread, and chaffy Bread; and also what is call'd *πιτυρώδης*, and *πιτυεύς*, from *πίτυς*, Bran, branny Bread; for, says *Galen*, *Lib. 2. de Cur. ad Glauc.* as in fine or pure Bread we have the Meal, not as Nature made it, but cleansed from the Bran; so in the coarse branny Sort the finest Flour is taken out.

Ἀρτοποιία κλιβανίτης, (from *κλίβανος*, a little moveable Oven, made of Earth, Iron, Copper, or any other convenient Matter) Bread baked in a portable Oven, by some call'd *Panis Testuarius*, from *Testus*, the Vessel in which it was baked. This sort of Bread, according to *Hippocrates*, *Lib. 2. & 3. περὶ διαίτης*, is very dry, but not very nourishing. In *Galen's* Opinion, *Lib. 1. de Alim. Facult.* it is the best, with respect to its way of Preparation and Dressing; and *Diphilus*, in *Athenæus*, *Lib. 3.* extols it as having all good Qualities, and being preferable to all other Kinds; for it is grateful to the Stomach, generates good Juice, is easily digested, readily distributed, and neither binds the Belly, nor distends it with Inflations.

Ἀρτοποιία, or *ὀβελίτης*, from *ὀβελός*, a Spit. Bread spitted and roasted. It is moderately nutritive, drying, and is not much burnt. *Hippocr. Lib. 2. περὶ διαίτης*; where it is also call'd *ὀβελίτης*. In *Athenæus*, *Lib. 3.* it is said to be call'd *ὀβελίτης ἄρτος*, ὅτι ὅτε ὀβελῷ πιπτερόμεται, ὡς ἐν τῇ Ἀλεξανδρίᾳ, ἢ ὅτι ἐν ὀβελίοις ὀπίζεται. "Either because it was sold for an Obolus, as in Alexandria, or because it was roasted on Spits."

Ἀρτοποιία ἐκ πυρῶν, Bread of Wheat. It is very nourishing, and yields but little Excrement. *Lib. 2. περὶ διαίτης*, & *Lib. περὶ ἀρχαίων ἰητρ.*

Ἀρτοποιία ἐκ πυρῶν ἀπλίστων ἢ ἐπὶ τῷ πύρῳ, (from *πλίσσω*, to pull off the Rind or Bark, or cleanse from Husks) Bread made of Wheat husk'd, or unhusk'd; that is, cleansed or uncleansed. *Lib. περὶ ἀρχαίων ἰητρ.* Bread ἐκ πυρῶν ἀπλίστων seems to be the same as the *πυρῶδης*, "branny," which has not been cleansed from the Bran. There is also *πύρρον ἄρτος ὀπτός*, ἢ τῶν σκληρῶν πυρῶν. "Wheaten Bread toasted, or made of harden'd Wheat," which was prescribed in Dropsies, *Lib. περὶ τῶν ἐν ὅσῳ παθόντων*.

Ἀρτοποιία πυρῶν ἀλάντων πρὸ χυλῶ ἢ πύρρον ἐζυμώμενος, Bread of *Sitavian* Wheat, (a sort of Wheat that comes to Perfection in three Months) fermented with the Juice of Bran; *Lib. 3. περὶ διαίτης*. This easily passes thro' the Body.

Ἀρτοποιία σεμιδάλιτης, from *σεμιδάλις*, fine Flour. Bread made of fine Flour. This was powerfully nutritive, tho' less than what was made of *Alica* or *Siligo*, and but little of it pass'd thro' the Body, *Lib. 2. περὶ διαίτης*. *Galen*, as well as *Celsus* and *Paulus*, tells us, that this kind of Bread affords most Nourishment, next to what is made of *Siligo* (see below); and *Phibition*, in *Athenæus*, will have it more strengthening than Bread made of *Alica*.

Ἀρτοποιία συγκομιζόμενος, from *συνκομιζω*, to collect or bring together. Bread made of all the Parts of the Corn taken together. This is drying, and easy of Passage, *Lib. 2. & 3. περὶ διαίτης*. This is opposed to *καθάρως*, "pure," *Lib. de Rat. Viâ. in*

Morb. acut. and *Lib. περὶ ἀρχ. ἰητρ.* *Galen*, in his *Exegesis*, expounds *συνκομιζόμενος ἄρτος*, by *ῥυπαρὸν διὰ τὸ πᾶσι ἀμα τὰ ἀλευρὰ συγκομιζέσθαι, καὶ μὴ διακρίνεσθαι*. "Coarse, because all Parts of the Meal were thrown together without Distinction."

Ἀρτοποιία ἐκ χιόνος ἢ χονδρῆς, from *χιόνος*, *Alica*, Bread made of *Alica*. It is extremely nourishing, and but little of it passes off as excrementitious, *Lib. 2. περὶ διαίτης*.

Ἀρτοποιία ἐωλός, stale Bread. It is drying, not very nutritive, and attracts Phlegm, *Lib. περὶ τῶν ἐν ὅσῳ παθόντων*. It is call'd by *Celsus*, *Lib. 1. Cap. 3. Panis Hesternus*.

There are other Distinctions of Bread in *Hippocrates*, as τῷ χυλῷ περυσμένῳ, Bread kneaded and macerated in the Juice of Wheat: This is very nutritive, light, and easy of Passage, *Lib. 2. περὶ διαίτης*. Ἀρτοποιία πολλῷ ὕδατι περυσμένῳ, ἢ ἀφύρῳ, Bread work'd up with a great deal of Water, or not work'd at all, *Lib. περὶ ἀρχ. ἰητρ.* Ἀρτοποιία μεγίστη, Bread in large Loaves: Such Bread is more nourishing than what is in smaller Loaves, because less burnt and dry'd, *Lib. 2. περὶ διαίτης*. Ἀρτοποιία θερμὴ, hot Bread, which dries the Body; Ἀρτοποιία ψυχρὴ, cold Bread, which is less drying than the former, but nourishes little, and in some measure emaciates, *Lib. 2. περὶ διαίτης*.

Besides the foremention'd Sorts there was a more modern kind of Bread in Use among the Romans, which was made of *Siligo*, the finest and purest Flour, of which *Pliny* says, *Siliginem proprie dixerim Tritici Delicias; Candor est, & sine virtute, & sine Pondere*: "Siligo may properly be call'd the delicious Part of the Wheat; it is Whiteness, without Virtue or Weight," *Lib. 18. Cap. 8.* And *Galen*, speaking of the different sorts of Bread, has these Words: "Ὁ μὲν καθάρως ἄρτος καλεῖται σιλιγνίτης, ὁ δ' ἐξ ἑξῆς σεμιδάλιτης, ἀλλ' ἢ μὲν σεμιδάλις Ἑλληνικὸν τε καὶ παλαιόν, σιλιγνίς δ' ἔχ' Ἑλληνικόν, ἐτέρας δ' αὖτις ἐνομαζέμεν ἐκ ἔχω." "The finest Bread is call'd Silignites; the next in Fineness, Semidalites; now Semidalis is an old Greek Word, but Silignis is not Greek, and I have no other Name for it." *Silignis* is plainly coin'd from the Latin *Siligo*. He goes on to compare the different kinds of Bread, with respect to Nutrition, as follows: *Τετταράτῳ δ' ὁ σιλιγνίτης αὐτῶν, ἐξ ἑξῆς ὁ σεμιδάλιτης, καὶ τρίτῳ δ' ὁ μέσος καὶ συγκομιζόμενος, ὁ δ' αὐτοπυρέτης, ἐξ ὧν τετταρτὸς ἐστὶ τῶν ῥυπαρῶν ἔιδῳ, ὡς ἐχάεσθαι ὁ πύρρον, ὅς δ' καὶ ἀτετταρτῶν ἐστὶ*. "The most nutritive of these sorts of Bread is the Silignites; the next, in that respect, is the Semidalites; the third is a middle Kind, call'd also *Syncomistos* and *Autopyrites*; the fourth is a kind of black and coarse Bread, the worst Sort of which is the *Pityrias*, which also affords the least Nourishment." *Galen. de Alim. Fac. Lib. 1. Cap. 2.*

ARTUS, τὰ κῶλα. The extreme and most compacted Parts of the Body, as the Hands and Feet, *Castellus*. According to others, they are the Members which extend themselves from the Trunk, and are divided into Joints. *Castellus. Blanchard.*

ARTYMA, ἄρτυμα, from *ἀρτύνω*, to season, or prepare. The same as *CONDIMENTUM*, which see.

ARUBUS, Crude Butter. *Johnson.*

ARVINA, ἄρβινος, εἶδος. The same as *ADEPS*, which see.

ARUM, Offic. J. B. 2. 783. Chab. 258. Raii Hist. 2. 1208. Synop. 3. 266. Dill. Cat. Giff. 56. *Arum vulgare*, Ger. Emac. 834. Merc. Bot. 21. Phyt. Brit. 11. *Arum vulgare maculatum*, & non maculatum, Park. Theat. 372. *Arum vulgare maculatum & sine maculis*, Mer. Pin. 11. *Arum maculatum maculis candidis vel nigris*, & non maculatum, C. B. Pin. 195. Tourn. Inst. 158. Elem. Bot. 130. Hist. Oxon. 3. 542. Rupp. Flor. Jen. 203. Boerh. Ind. A. 2. 74. Buxb. 26. CUCKOW-PINT. Dale. Or. WAKE-ROBIN.

Arum, among the Syrians, is call'd *Lupba*. It shoots forth Leaves like those of the *Dracunculus*, but smaller, and not spotted: The Stalk is a Span long, reddish, and shaped like a Pestle, on the Top of which grows a yellowish Fruit. The Root is white, much like that of the *Dracunculus*; and, being boil'd, loses so much of its Acrimony as to become eatable. The Leaves are pickled for Food, and, being left to dry of themselves, are boil'd and eaten.

The Root, Seed, and Leaves, have the same Virtues as those of the *Dracunculus*; besides which, the Root is apply'd as a Cataplasm, with Cow-dung, to the Parts affected with the Gout. It is preserved like the Root of the *Dracunculus*, and is commonly so little acrimonious as to be eatable. *Dioscorides, Lib. 2. Cap. 197.*

The Roots of *Wake-Robin* are roundish and tuberous, about as big as a Walnut, of a white Colour on the Inside, sending from the Sides several white Strings, by which it is fix'd in the Earth: The Leaves are long and large, of a shining-green Colour, in Shape like the Head of a Spear, or a barb'd Arrow; in some Plants they are full of black Spots. From among the Leaves arises a round Stalk, having, at the upper Part, a long Skin or Husk, closed at Bottom, and open at the Top; of a greenish Colour on the Outside, and purplish within; in which is inclosed a long naked purplish cylindrical *Pistillum*, encompass'd on the lower Part with a Circle of Chives standing

standing above the Rudiments of the Berries; which, after the Pistillum and its Covering are fallen off, grow to be large round Berries, of a yellow-red Colour, full of Pulp, each containing one round Seed. The whole Plant, Root, Leaves, and Seed, are very hot and biting, inflaming the Mouth and Throat for a long time. It grows every-where in Hedges and dry Ditches, and flowers in May, and the Berries are ripe in July.

This Herb is call'd *Aron*, *Jarus*, *Pes Vituli*, *Barba Aronis*, *Sacerdotis Virile*, *Serpentaria Minor*, *Dracontia Minor*, *Alim-mum*. The Root has a pungent Taste like Ginger, which burns the Tongue. But 'tis said, that in the Fields about *Cyrene* there is an *Arum* found which eats like a Turnep, and is entirely void of Acrimony. It is gather'd in the Month of March, and, when dry, is principally used in the Shops of Apothecaries. It is of a hot and drying Nature, dissolves and liquifies the coagulated Humours of the Body, is an excellent Antiscorbutic, and opens and dissolves internal Obstructions, especially in Dropsical Cafes. It purifies and sweetens the Blood when impregnated with saline Particles, opens the Breast, and facilitates Expectoration in Disorders of the Breast, and Coughs; for Instance,

Take of the best fresh Arum-root, half an Ounce; boil it in White Wine till it becomes soft, and make it into a Linctus, with Syrup of Hyssop.

It relieves old Coughs, and is good for Consumptions, especially when it is often moisten'd, and afterwards dry'd, with Tincture of the Flowers of Daisy and wild Poppy; *Joh. de Muralt. in Hipp. Helvet. P. 653. Ephem. N. C. Dec. 2. Ann. 5. Obs. 180. Dieuches*, according to *Pliny, L. 24. N. H. C. 16.* gave the Powder of it, mix'd with Meal, and baked in Bread, to those who were afflicted with Coughs, heavy Sighs, or an *Orthopnea*, or a Spitting of purulent Matter. It promotes Urine, and cleanses the Urinary Vessels, and the Matrix. It promotes the Menfes when obstructed, warms the Stomach when cold, excites the Appetite, and strengthens the Digestion. *Hartman, in Prax. Chym. Helmont. Pharmac. ac Dispens. Modern. N. 46.* says, that it cures Ruptures; as also long and tedious Fevers. *Vid. Dan. Milii Pharm. Spagir. L. 2. C. 10. Pet. Laurenberg. Appar. Plant. L. 2. C. 6.* and is very good in Hysterical and Epileptic Cafes. *Gregor. Horstius*, with the Root of it alone, recover'd a *Hessian* Girl of five Years old, who had been entirely deprived of the Use of her Speech for almost a whole Year, *L. 3. Obs. Med. 24.* The same is related by *J. Hotnung, in Cista. Med. Epist. 132.* The Root is also an excellent Medicine against the Plague and Poisons, *Plin. l. 1. H. Trag. L. 2. Hist. Plant. C. de Aro. Jo. Bruyer. de re Cib. L. 8. C. 6. Tarqu. Schnelleberg. Tr. de 20 Herbis Pestilentibus veneno adversantibus*, who styled this Plant the *Miracle of Nature*, on account of its remarkable Efficacy against the Plague; *M. Unzer. Antidot. Pestilent. L. 2.* The Root when fresh, if boil'd, warms and corroborates the Stomach, strengthens the Appetite, purges the Breast, and is good for Rheumatic Disorders, and the Vertigo; as also for Stiffness of the Limbs, Swellings, and fetid Wounds. The Herb itself, boil'd with Victuals, makes People lean. The Leaves, when fresh, as also the Powder of the Root, cure inveterate Ulcers, Fistulas, fetid Cancers, and the Bites of venomous Animals, if they are apply'd to them: *Tragus* says, that for pestilential Swellings he knew no Herb more efficacious, than the Leaves of *Arum*, apply'd green to them. *Georg. a Turre* has observ'd, more than once, from undeniable Experience, that Burns are heal'd by its Leaves when apply'd to them, and frequently renew'd; *De Hist. Plant. L. 2. C. 244.* In order to cure Ulcers and Wounds, some People make an excellent Ointment of its Root, reduced to Powder, and boil'd with Butter made in the Month of May. *El. Beynon*, that tender-hearted Samaritan, commended the Root of *Arum*, mix'd with Flowers of Sulphur, as one of the most efficacious Remedies in a Phthisis; *Jo. Dolaeus, Encyclopad. Med. L. 2. C. 4.* See also *El. Beynon, P. M. 23.* The Juice, express'd from the bruised Root, is good for a Polypus of the Nose, if put up the Nostrils on a little Cotton. The Foetuses of all Animals in Nature are expell'd by *Arum*, says *Pliny*. Many reduce the Root to a Powder, and apply it to the Part affected by the Gout, *Crat. L. 2. Conf. 26.* The Water distill'd from its green Leaves in Spring, is an admirable Remedy for the Scurvy; *Tb. Willis, Tr. de Scorbuto. C. 7.* It is also good for Maniacs, and such as are melancholy. Many distil, from the whole Substance of this Herb, a Water, which they give to those who labour under Ruptures. This Water is also good against the Plague, purifies old Wounds and Ulcers, takes Spots off the Face, whitens the Skin, and destroys the Wrinkles of the Face. Several People inspissate the Juice of the Root at the Sun, and, when they want to use it, dissolve it in Rose-water, with which they wash their Faces. Country Girls, when its Kernels are ripe, use them for a Varnish, to give a purple Colour to their Cheeks, which they rub heartily with them, almost to the Loss of the Epidermis or Scarf-skin, *Georg. a Turre, L. C.* The *Tragea*

Stomachialis of *Birckmanus*, made of Arum-root, describ'd by *Quercetan, Pharm. Restit. L. 2. C. 20.* is known in the Shops of some foreign Apothecaries. This Medicine warms cold Stomachs, promotes Digestion, procures an Appetite, prevents the Vertigo, removes Obstructions of the Liver, Spleen, and Mesentery; and is good for those who labour under Hypochondriac Disorders, Melancholy proceeding from Flatulencies, or the Scurvy. It is also serviceable in the Chlorosis in Girls, Cachexies, Swellings of the Belly, beginning Dropsies, Quartan, and other protracted and intermitting Fevers, and other Disorders caused by gross and corrupt Matter in the Stomach. It is also given for the Stone. In Apothecaries Shops there was formerly prepar'd, from its Root, a particular farinaceous white Substance or Powder, call'd by Chymists *Faecula*, from the Latin Word *Faeces*, because that Substance separates, of its own Accord, from the rest of the Liquor, and subsides to the Bottom of the Vessel. It operates in the same manner with the Root, tho' more mildly; for which Reason 'tis successfully used among the Pectoral Tinctures and Powders, employ'd to dissipate Phlegm, and glutinous Humours, and facilitate Expectoration. It also removes inveterate Obstructions, and is an efficacious Remedy in Quartan Fevers, Cachexies, and Scurvies. *J. Const. de Rebecqu. Atr. Medicin. Helvet. P. M. 242. Jo. Otto. Helbig. in Ephem. N. C. Dec. 1. An. 9. & 10. Obs. 194.* says, that, among the Indians, the Root of *Arum*, boil'd, is used instead of Bread.

PULVIS RADICUM ARI COMPOSITUS: Compound Powder of Arum-root.

Take of the Root of spotted Arum, two Ounces; of the common Acorus-root, and Saxifrage Pimpinell, each one Ounce; of Crabs-eyes, half an Ounce; of Cinnamon, three Drams; of Salt of Wormwood, one Dram; and let them be made into a Powder. *N. B.* The Arum-root is always to be fresh added to it.

This is but lately introduced into the Dispensatory; and here is left out the Salt of Juniper, which was order'd in the preceding, because it is a thing not usually made, and answers no Intention; but what is provided for by the Salt of Wormwood; but this makes it necessary to be kept close from the Air, because it will else grow moist, and spoil the Medicine; tho' the principal Necessity of so keeping it, is to preserve the Pungency and Volatility of the Ingredients, which otherwise would soon exhale. And for the same Reason also, it is now directed to mix the *Arum* Root always fresh, as it is used; because that is the chief Ingredient, and soonest spoil'd by keeping. *Quincy's London Dispensatory.*

Ray enumerates the following Species in his Chapter of *Arum*:

1. *Arum*, *J. B. Vulgare*, *Ger. Vulgare maculatum* & *non maculatum*, *Park. Arum 2. & 3. frue maculatum Maculis candidis vel nigris, & vulgare non maculatum*, *C. B.*
2. *Arum venis-albis*, *C. B. Magnum rotundiore folio*, *Park. Majus Veronense*, *Lob.*
3. *Arum Byzantinum*, *Clus. J. B. C. B. Park. Dracontium minus*, *Ger. quoad Icon.*
4. *Arum montanum*, *Alpin. Exot.*
5. *Arum maximum Aegyptiacum*, *quod vulgo Colocasia*, *C. B. Ar. Aegypt. rotunda & longa Radice, vulgo Colocasia dicta*, *Park. Colocasia*, *Clus. J. B. Aegyptiacum*, *Ger.*

The Root of this, as well as the whole Plant, is acrimonious like the common *Arum*, but in a milder Degree, and is therefore used in Food, and for other Purposes. In *Egypt*, *Syria*, and other Eastern Countries, it is eaten as commonly as Turneps in *Germany*; and is very much coveted by the Turkish and African Slaves at *Naples*. *Bontius* writes, that it is of a venomous Nature, and requires three Days Maceration in Water, to render it eatable.

6. *Dracunculus aquaticus*, *Ger. J. B. Noster aquaticus*, *Park. Palustris frue radice arundinacea Plinii*, *C. B.*
7. *Arum orientale*, *Ardabar dictum Zanon*, *Hist. Bot. Cap. 12.*
8. *Arum Indicum*, *Rumphal. Dictum Zanon*, *Hist. Bot. Cap. 92.*
9. *Arisarum latifolium*, *Park. Ger. Latifolium quibusdam*, *J. B. Latifolium alterum*, *C. B. Item latifolium majus ejusdem.*

THE BROAD-LEAVED FRIERS-COWL.

10. *Arisarum angustifolium*, *J. B. Ger. Longifolium*, *Park. Angustifolium Dioscoridis forte*, *C. B.*

ARUNDO, the Reed. Of this Dale takes Notice of several Species: The first is the

Arundo, *Offic. Arundo vallisoria*, *Ger. 32. Emac. 36. Raii Hist. 2. 1275. Synop. 3. 401. Mer. Pin. 11. Arundo vulgaris palustris*, *J. B. 2. 485. Hist. Oxon. 3. 218. Arundo vulgaris vallisoria*, *Merc. Bot. 1. 21. Phyt. Brit. 11. Arundo vulgaris frue phragmites Dioscoridis*, *C. B. Pin. 17. Theat. 269. Tourn. Inst. 526. Elem. Bot. 418. Boerh. Ind. A. 2. 161. Dill. Cat. Giss. 175. Rupp. Flor. Jen. 155. Buxb. 27.*

Harundo

Harundo vulgaris *sive* *vallatoria*, Park. Theat. 1208. *Arundo*, *Harundo*, *Calamus*, Chab. 193. COMMON REED. Dale.

The Reed has thick, knotty, join'd Roots, which spread and increase much, running obliquely in the Earth: The Stalks grow to be above the Height of a Man, hollow, and with several Joints; at each of which grow long narrow Grass-like Leaves, rough and hard; and on their Tops a large husky Spike or Panicle, of a brownish-red Colour, full of a soft, downy Substance, hanging down the Head, without any visible Seed. The Stalks die away every Winter. The Reed grows by River-sides, and in Marshes.

ARUNDO DONAX, Offic. Park. Theat. 1208. *Arundo* *Cypria*, Ger. 32. Emac. 36. *Arundo sativa*, *seu* *Donax Dioscoridis*, Raii Hist. 2. 1275. C. B. Pin. 17. Tourn. Inst. 526. Elem. Bot. 419. Hist. Oxon. 3. 219. Boerh. Ind. A. 2. 162. C. B. Theat. 271. *Arundo maxima* & *hortensis*, J. B. 2. 485. Chab. 193. THE GREAT REED. Dale.

The Medicinal Virtues of these are said to be alike, which, according to *Bartholomæus Zorn*, are as follows:

Its Root attracts any Matter lodg'd in Wounds, if it is reduced to Powder, with Wine, and apply'd to the Wound; or if it is taken fresh, and reduced to Powder, with an Onion; or if the Powder of it is mix'd with Honey, it produces the same Effect, *Oribas. de Morb. Cur. L. 3. C. 32*. It also removes the Pains arising from Dislocations of the Limbs, and carries off Pains in the Hips. When bruised, and apply'd to any Part that aches, it is of wonderful Service, *Hier. Mercurial. Med. Pract. L. 4. C. 2*. If it is boil'd in any Lixivium, and the Head frequently wash'd therewith, it causes the Hair to grow; and cures scald Heads. *Julius Cæsar Claudinus, Ep. Vincenzo Tanar. fol. 88*. says, that the Root of the *Arundo* produced the same Effect in Rheumatisms and Catarrhs, with the *Peruvian* Bark. It is also good for those who labour under Consumptions. *Actius* says, it is of a drying and warming Nature, and is therefore of Service to dropical Patients, *Serm. 10. c. 32*. See also *Ephem. N. C. Dec. 3. An. 3. Obs. 159*. It brings Apostems to Suppuration, *Lev. Lemn. de Herb. Biblic. c. 27*. The green Leaves, cut and apply'd, carry off the Wild-fire and *Erysipelas*. Poor People boil the Flowers in Water, or in Beer, which they mix with Honey, and drink, after having filtrated it, in order to cure Coughs, Oppressions of the Breast, and Consumptions. The Antients made Flutes, and other musical Instruments, of the *Arundo*.

ARUNDO SCRIPTORIA, Offic. Ger. 34. Emac. 37. J. B. 2. 487. Raii Hist. 2. 1276. Hist. Oxon. 3. 219. *Arundo scriptoria atro-rubens*, C. B. Pin. 17. Theat. 273. Tourn. Inst. 526. *Harundo minor* *sive* *Elegia*, Park. Theat. 1211. WRITING REED. Dale.

I do not find any Medicinal Virtues attributed to it.

ARUNDO TABAXIFERA, Offic. *Arundo Mambu*, Pison. Mant. Arom. 186. Raii Hist. 2. 1315. *Arundo Indica maxima arborea cortice spinoso Hermannii*, Syen. in not. Hort. Mal. C. Comm. Flo. Mal. 36. *Arundo arbor Tabaxifera*, C. B. Theat. 285. *Arundo arbor in qua humor lacteus gignitur, qui Tabaxir Avicennæ & Arabibus dicitur*, C. B. Pin. 18. Hist. Oxon. 3. 219. *Arundo arborea Mambu vel Bambu dicta*, Pluk. Almag. 53. *Canna ingens Mambu vel Bambu dicta*, Park. Theat. 1630. *Tabaxir sive Mambu arbor*, J. B. 1. 222. *Mambu arbor, Tabaxir Garcie & Acoftæ*, Chab. 67. *Bambu & Bambæ*, Nienhou. Leg. 91. Ily. Hort. Mal. 1. 25. Tab. 16. THE BAMBU CANE. Dale.

Piso writes, that the young Bambou-canes are full of a light, spongy, and liquid medullary Substance, (not so much stuffed as the common Sugar-canes) which the common sort of People greedily suck, on account of its grateful Taste. The young Shoots, which are very succulent and favoury, are much valued in *India*, by Strangers as well as the Natives, as being the Base of that famous Composition call'd *ACHAR*, which is imported into *Europe*, and accounted a Delicacy among those of nice Palates: And I myself, says he, have more than once tasted it with Pleasure. But when these Canes are grown tall and old, the contain'd Liqueur is alter'd in Substance, Colour, Savour, and Efficacy; and by degrees is protruded forth, and coagulated, near the Joint, by the Heat of the Sun, and harden'd like a white Pumice-stone: Soon after it loses its native Sweetness, acquiring a peculiar Savour, much like that of burnt Ivory, with a little Astringency, and is call'd by the Natives *SUCAR MAMBU* (the *Tabaxir* of *Garcias* and *Acoftæ*); which the lighter, whiter, and smoother it is, the greater is the Value set upon it; and the more uneven its Surface, and the more of an Ash-colour, the worse it is accounted.

The *Tabaxir* is very fit for Medicinal Purposes, eagerly sought after by the *Persians* and *Arabians*, and purchased at its Weight in Gold or Silver. The *Indians* use it for Wounds of the *Testes* and *Penis*. It is also said to be efficacious in Choleric Affections, and the Dysentery. *Garcias* writes, that it is proper to be used in burning Heats, internal and external, and in bilious Fevers and Dysenteries; but especially in bilious Fluxions, the Strangury, and bloody Urine. The Decoction of

the Leaves and Bark, being drank, purges Wounds of Blood retain'd in them; and is proper for Women in Childbed, to cleanse the Uterus after the Birth: These Canes, cut off and burnt in the Fire, yield a most fertile kind of Ashes; in burning they make loud Cracks with as great a Noise as the Explosion of an hundred Guns; for the Air, which is stopp'd in by means of the Joints, being rarefy'd, and wanting more Space, bursts its Inclosure on all Sides, and makes its Way out by Violence: They grow in the Sand of the Sea-shores. Raii Hist. Plant.

The *Gramen Arundinaceum*, Reed Grass, enumerated amongst the Reeds by Dale, agrees in Virtues with the common Reed: See CALAMUS.

ARYSTER, ἀρύστηρ, from ἀρύω, to draw out: A sort of Vessel mentioned by *Hippocrates*, Lib. περί γυναικῶν; to which he opposes ἀγγεῖον μέγα, a large Vessel. *Foesius*.

ARYTÆNOIDES, ἀρυτæνοειδής, from ἀρύττω, a Funnel; and εἶδος, Shape. An Epithet of two Cartilages, which, together with others, constitute the Head of the Larynx. It is also apply'd to some Muscles of the Larynx. *Castellus. Blancard. See LARYNX*.

ARYTHMUS, or ARRHYTHMUS, ἀρυθμός ἢ ἀρρυθμός (from a Negative, and ῥυθμός, properly signifying a Modulation or Modification of Time and Sound in Music, but used to express Order and Harmony in other Things). An Epithet apply'd by *Galen* to a Pulse not modulated according to Nature. It is opposed, he says, not to *Enrythmus* (ἐνρυθμός) "modulated," for every Pulse is modulated after some manner or other, but to *Eurythmus*, (εὐρυθμός) "justly modulated;" so that *Enrythmus* is a common Genus to *Arythmus* and *Eurythmus*. A *Pulsus Eurythmus* is but one, and indivisible; but a *Pulsus Arythmus* is of three Kinds, as *Pararythmus*, *Heterorythmus*, and *Ecrythmus*. To shew what these are by an Example: Every Age has its natural Pulse, which, as long as it keeps its due Rhythmus, or Modulation of Time and Force, is call'd *Eurythmus*; but if it in any way transgresses, it is a *Pulsus Arythmus*. If it transgresses into a Modulation proper to the next Age, it is *Pararythmus*; if it changes to a Pulse proper for any other Age, it is call'd *Heterorythmus*; but if it passes into a Modulation proper to no Age at all, it is then a *Pulsus Ecrythmus*. The same Judgment is to be form'd of Natures, Seasons of the Year, Places, and all other Things; for all have their determinate Rhythmus, and, if this be corrupted, they pass into one or other of the three Classes of the *Arythmi* before-mention'd. *Galen. de Diff. Puls. Lib. 1. Cap. 9*.

AS, ASSARIUM, ἀσάριον, μῶν, sometimes means a particular Weight, in which Sense the Roman *As* is the same as the *Libra*, or Roman Pound, consisting of twelve Ounces. Sometimes it signifies a Roman Coin, which was of different Matter and Weight, according to the different Ages of the Commonwealth; therefore *Varro* derives the Word *As* from *Æs*, because this Piece of Money was first made of Copper of a Pound Weight; and *As*, *Æs*, *Pondo*, and *Mina*, among antient Authors, generally pass for the same. It is also used to signify an Integer, divisible into twelve Parts, whence comes our Word *Ace*, or *Unit*; and, for this Reason, some will have *As* deriv'd from the *Doric* αἰς for *eis*, one. In *Galen*, *de Ponderibus & Mensuris*, the ἀσάριον is the Weight of two Drams.

ASA DULCIS, the same as BENZOINUM, which see.

ASA FÆTIDA. See SILPHIUM.

ASABON, Soap. *Rulandus. Johnson*.

ASÆSTUS, ἀσάυς. See CALCARIUS LAPIS, and CALX.

ASAGEN, Dragon's-blood. *Rulandus. Johnson*.

ASAGI, Vitriol, or Atramentum Rubrum, calcin'd Vitriol. *Rulandus. Johnson*.

ASAMAR, ASAGAR, ASINGAR, Verdigrise. *Johns*.

ASAMAZ, Vitriol. *Rulandus. Johnson*.

ASAPEOS, ἀσάπιος, in *Hippocrates*, Lib. de Rat. Viâ, in *Morb. acut.* signifies the same, according to *Galen*, as ἀσπίλιος, that is, without Concoction. *Foesius*.

ASAPES, ἀσάπης, unconcocted; otherwise express'd by *Aseptus*, ἀσπής, (from a Negative, and σήπω, to corrupt, putrefy) unputrefy'd, according to the Notion of the Antients, confounding Concoction with Putrefaction. *Castellus*.

ASAPHATUM is a sort of *Serpigo*, *Impetigo*, or intercutaneous Itch, generated in the Pores like Worms: If the Skin be press'd, they come forth like oblong Threads, with a black Head. *Johnson*.

ASAPHEIS, ἀσάφης, (from a Negative, and σάφης, clear, open) in *Hippocrates*, in *Prorrh. & Coac.* are such Patients as do not utter their Words in a clear manner. This Defect is occasion'd, as *Galen* says, *Comm. 2. in Prorrh.* ἢτοι διὰ τὴν τῶν διαλεκτικῶν ὀργάνων βλάβην, ἢ ἐκ τῆς τῶν νεύρων κακώσεως ἔχον, ἢ διὰ τὴν διαβολὴν αὐτῶν, "either by some Hurt, which the Organs of Speech have contracted from a Disorder of the "Nerves, or else by a Delirium." In the same Sense we are to understand ἀσάφης γλώσσα, Lib. 7. *Epid.* of a muffled hesitating Tongue, that has no plain Utterance; and ἀσάφεια, in the same Book, means such a Confusedness of Voice as proceeds from an Indisposition of the Vocal Organs. *Ἀσάφης παρρησιότης, in Lib.*

Lib. 1. Prorrh. means a dubious kind of Delirium, which can hardly be discover'd by the Attendants, or even by the Physician. The Patient lies at Rest, like one in a Slumber, sometimes with his Eyes shut, as if betaking himself to Sleep, sometimes with them open, and his Hands thrown about, and employ'd in searching and groping here-and-there: Now, because he lies quiet, and does not cry out, nor start up in his Bed, like other phrenetic Patients, his Phrensy or Delirium is said to be *ασαρις*, "obscure or dubious;" and, being join'd with a Coma in the Beginning, is to be accounted very dangerous. This is the Substance of *Galen's* Comment on the Place.

ASARABACCA, the same as ASARUM, which see.

ASARCON, *ασακον*, from *α* Negative, and *σαρξ*, Flesh, strictly signifies void of all Flesh; but is comparatively applied by *Aristot.* to the Head, in respect of the Middle and Lower Belly, compared with which it has but little Flesh.

ASARINA, a Species of ASARUM, which see.

ASARITES, *ασαριτης*, from *ασαρον*, *Asarum*, *δινω*, Wine, being understood, is Wine of *Asarum*, which is made by putting six Pints of Must to three Ounces of *Asarum*. This Wine is diuretic, and good for those who are afflicted with the Dropsy or Yellow Jaundice, a distemper'd Liver, or the Sciatica. *Dioscorides*, *Lib. 5. Cap. 68.*

ASARUM, *Offic. Ger. 688. Emac. 836. C. B. 197. J. B. 3. 548. Chab. 510. Raii Hist. 1. 207. Tourn. Inst. 501. Boerh. Ind. A. 2. 95. Dill. Cat. 36. Buxb. 28. Asarum vulgare, Park. 266. Asarum vulgare rotundifolium, Hist. Oxon. 3. 511. Nardus rustica, Hoff. Flo. Altorff. ASSARABACCA.*

ASARUM is by some called *Wild Nard*; it has Leaves like Ivy, but much thicker, and rounder. The Flower grows in the Middle of the Leaves near the Root, and is of a blue Colour, resembling that of Henbane, and inclosing a Seed like a Grape-stone. The Roots are numerous, jointed, slender, running obliquely, resembling those of Dogs-grass, but much slenderer, of a fragrant Smell, and taste very hot and biting upon the Tongue.

The Roots are heating, diuretic, and emetic, and are good in a Dropsy, or inveterate Sciatica; they also provoke the Menstrues; six Drams thereof, taken in Hydromel, purge like White Hellebore. They are also an Ingredient in Ointments.

ASARUM grows plentifully on shady Hills, and in the Countries of *Pontus*, *Phrygia*, *Illyricum*, and the Territories of the *Vestines* in *Italy*. *Dioscorides*, *Lib. 1. Cap. 9.*

It is called *Asaron*, as *Pliny* says, because it is not worn in Garlands. It has the Virtues of *Nard*. They dig it when it shoots forth Leaves, and dry it; it very soon grows mouldy.

The Root of *Asarabacca* consists of a great Number of slender Strings, of an aromatic Scent when dry. The Leaves are smooth, and of a Sea-green Colour; of a thick firm Substance, of a roundish Shape, somewhat hollowed in, next the Foot-stalk, resembling a Kidney; among these arise the Flowers on short Stalks, in form of Cups, or brownish green Husks, divided at Top into three Parts, and containing Seed like Grape-kernels. It is planted with us in Gardens, and flowers in June. But the dried Roots are brought from *Leghorn*.

Asarum, according to *Pliny*, [*Lib. 12. Cap. 13. & Lib. 21. Cap. 6.*] takes its Name from the Greek Word *ασαω*, to adorn, and the privative Particle *α*, without, because it was not used by the Antients in adorning their Crowns and Garlands. It is also called the *Nardus Montana*, *Sanguis Martis Mogorum*, and *Nardus Sylvestris*, and *Rustica*, from its Smell and Virtues, resembling those of the *Nard*. The greatest Virtue is lodged in the Root, which is aromatic, very strong, and burns the Tongue like Ginger. But, according to *Georgius a Turre*, [*De Hist. Plant. Lib. 2. Cap. 23.*] it scarce retains its original Nature and Qualities above a Year. *Helmont* [*De Mag. Vuln. Cur. p. m. 479.*] affirms, that it vomits, and sometimes purges very strongly. *Dioscorides* says, that an Infusion of six Drams of its Root purges like Hellebore. It nevertheless loses a great deal of its emetic Quality by being boiled in Water.

Helmont, in *Pharm. & Dispens. Modern. Sect. 46. Heurn. Meth. ad Praxin, Lib. 2. Mich. Etmuller. Oper. Med. Tom. 2. p. m. 15.* The English affirm from their Experience, that the Powder of *Asarum*, boiled in Wine, purges; and that, when boiled in Water, it excites a Discharge of Urine. It removes Obstructions of the Liver and Spleen, purges the Body of all malignant Humours, strongly promotes the Menstrues, and expels the After-birth, and the Fœtus, when dead. *M. Ruland. in Thef. Med. a C. Reyger. Ed. p. 77.* says, that a Decoction of *Asarum* Root, infallibly promotes the Monthly Discharges, and expels the Secundines, and dead Fœtus. It dissolves the thick and viscid Matter lodged in the Lungs. See *Joh. Freytag. Auror. Med. Lib. 2. Cap. 31. Gu. Rolfinc. Lib. de Purg. Veget. Sect. 1. Art. 4. Cap. 3.* It is of great Service in the Jaundice, Dropsies, Pains of the Limbs, Gout and Fevers; and is the great Panacea of such as are afflicted with Quartan Agues. See *Simon Pauli in Quadr. Bot. Class. 2. Matth. in Diosc. Lib. 3. Cap. 42. Alex. Pedemont. Secret. Lib. 1. J. Steph. Strubelberg. Rem. Singul. pro Cur. Febr. intr. p. 28. & 29. Resin. Lentil.*

Miscell. Med. Pr. p. 13. p. 197. G. H. Velsch. Chil. 1. Exot. Cur. & Obs. 664. It is principally used by the Country People in what they call a *Fever-cake*, in order to remove Fevers. *Petr. Bayrus, Lib. 12. Pr. Cap. 6.* says it is of wonderful Efficacy in the Jaundice. *Jo. Soph. Kozak, Tr. de Sale, Sect. 14. Cap. 6.* affirms, that by its means he has restored many, who laboured under the Jaundice, to perfect Health. *G. Rondelet, Meth. Cur. Morb. Lib. 3. Cap. 82.* affirms, that in many Instances, he found a Decoction of it to cure Sciatic Pains of long Standing. See also *Joh. Ruel. de Natur. Stirp. Lib. 2. Cap. 8.* In the City of *Dresden* there was one *Lotichius*, Physician to the Court, who mixed the Root of this Herb almost with every Medicine he prescribed. See *Joh. Michael Not. in Joh. Schrod. Pharm. Med. Chym. p. 608. & 624. Frid. Hoffmann. Clav. Pharm. Schrod. Lib. 4. Sect. 4.* Women with Child ought carefully to abstain from this Root, because it is very hurtful to the Fœtus; though *Fernelius, Lib. 5. M. M. C. 13.* informs us, that it may be given to Women in that Condition without any Danger. Its Leaves reduced to a Powder, and applied to the Pulse, occasion Sleep, and cure Fevers. *B. Mortagnan Consil. 191.* affirms, that a Plaster made of the Leaves of *Asarum*, and applied to the Region of the Kidneys, wonderfully cleanses the renal and urinary Ducts. If the Head is washed with any Lixivium, in which its Root and Leaves have been boiled, it fortifies the Brain and Memory, tinges the Hair black, and prevents its falling off. Its Root reduced to a Powder, and applied to old and foul Wounds, cleanses and cures them. If its Root is cut, and steeped in Rose-water, the Liquor removes Stains and Blotches in the Face. *Forest. Lib. 31. Obs. 3. in Schol. & Lib. 4. Obs. Chir. 11.* When Hares, and other wild Beasts are indisposed, they eat this Herb, and find a Cure in it. The Antients, observing this, did for that very Reason mix this Herb with Salt, and give it to their Sheep, their Oxen, and Cows, in order to prevent a Putrefaction of their Flesh. When Horses will not eat their Food, some People mix the Root of this Herb with Oats, upon which the Horses begin to eat, and are rendered sprightly. Some Women put its Leaves into new-drawn Milk, imagining that by their means it will produce more Cream than it would otherwise have done. This Herb was also by the Antients accounted good against Witchcraft.

Joh. Fernelius, Lib. 7. Meth. Med. has a Composition, which he calls *Diasarum*; and which he at first prepared with a View to vomit. This Composition, says *Hor. Aug. [Epist. Med. Tom. 1. p. 207.]* when exhibited at certain Intervals, proves a safe and agreeable Vomit to Persons of all Ages and Sexes, and even to Women big with Child; and with this very View it is prepared in many foreign Shops, where we also find the Extract of *Asarum*, called also the *Coagulum Asari*, which is excellent in Disorders proceeding from Melancholy, cures the Jaundice and Falling Sickness, excites a Discharge of Urine, promotes the Monthly Evacuations, kills Worms, and cures Fevers, especially those of the Quartan Kind. *Hartmann. Prax. Chym. de Vomitor. Sennert. Instit. Lib. 5. p. 3. Sect. 3. Cap. 9. Collectan. Chymic. Leydens. Cap. 48. Joh. Helf. Jungken. Corpus Pharm. Chym. Med. Sect. 3. Cap. 12.* Many from its Leaves and Root distil a Water, which they prescribe for Oppressions of the Breast, the Jaundice, the Dropsy, Tertian and Quartan Agues. It must also be good for Disorders of the Eyes. *Joh. Camer. Hort. Med. p. 22.* A Conserve made of its Leaves fortifies the Memory and Hearing. *Croll. Tr. de Sign. intr. rer. Marc. Ant. Zimar. Antr. Magico-Med. Part. 2. p. 113. H. Petrus Nofol. Harm. Tom. 1. Dissert. 11. Sect. 52.*

The Juice of *Asarum* has of late obtained great Reputation as a Vomit in Maniacal Cases. The *Pharmacopœia Pauperum* gives the following Form:

AN EMETIC DRAUGHT.

Take of the Juice of *Asarabacca*, six Drams, or an Ounce; of Oxymel of Squills, half an Ounce; Carduus-water, two Ounces; mix into a Draught.

This is a very strong Emetic, and is much used at *Bedlam*, amongst the Maniacs; for it will operate when neither Crocus, nor any of the common Mercurial Emetics, will move them. And it has been confirmed by all Experience, that such Patients are much more difficult to be wrought upon than any others, either by Cathartics or Emetics; insomuch that they will bear enough at a Dose for six or ten ordinary Persons; their Fibres, and all the Parts of the Brain, most administering to Sensation, being extremely clogged with viscid Humours, which this Medicine is very powerful in draining off; and upon the same Account likewise it is of good Service as a Sternutatory; for it greatly drains the Head by the powerful Twitches and Vellications it gives to the Fibres of the Nose, and Parts adjacent.

Asarum Virginianum, Serpentaria nigra, Offic. Asarum Virginianum folio cordato Cyclaminis more maculato, Hist. Oxon. 3. 511. Asarum Virginianum Pistoleticie foliis subrotundis Cy-

clamini more maculatis, Pluk. Almag. 53. Phytog. 78. Raii Hist. 3. 129. *Asarum Cyclamini folio Virginianum*, Banif. MSS. Cat. *Serpentaria major Officinatum*, Bobart. BLACK SNAKEWEED.

This is the *Asarum* of Virginia, with Leaves of *Pistolochia*, spotted like Sow-bread, *Plukenet's Phytographia*, Tab. 78. Fig. and the Roots of it are brought over among the true *Serpentaria Virginiana*, and are used promiscuously with them, being accounted of the same Diaphoretic and Alexipharmic Nature. *Miller's Bot. Off.*

ASBESTUS, ἀσβέστης, from a Negative, and σβέννυμι, to extinguish; unextinguished, as *σβέννυμι* ἀσβέστης, Quick-lime. But this Word is often put substantively, for Quick-lime, without the Addition of τίτανος, Lime. For its other Signification, see AMIANTUS.

ASBO, ἄσβος, the Name of an unknown Animal, whose Fat, among others, is prescribed as an Ingredient in a Plaster for the Pleurisy. *Myrepsus de Emplastris*, Cap. 79.

ASCALABOTES, ἀσκαλαβώτης, and καλώς, a kind of Lizard, mentioned by *Galen*, 11. de Simp. Fac. and Lib. de Theriac. ad Pis. Cap. 9. For a Description of it, see ALDROVANDUS.

ASCALONIA, ASCALONITIS, a Species of CΕΡΑ, Onion, which see.

ASCARDAMYCTES, ἀσκαρδαμύκτης, from a Negative, and σκαρδαμύκω, to wink; in *Lib. 2. de Epidem. Sect. 6.* is one who keeps his Eyes long fixed and immoveable without Twinkling.

ASCARIDES, ἀσκαρίδες, (from ἀσκαρίζω, the same as σκαρίζω, to leap, palpitate, move, as ἄσκαρις, and σαρῖς, ἄσκαρυς, and σάχρυς, in *Hippocrates*, are the same thing) are expounded by *Galen*, in his *Exegesis*, to be ἐλμίνθες ἰσχυαὶ καὶ μικροὶ ἐν τῷ ἀπενδυμένῳ ἐντέρω γεννώμεναι, "small slender Worms bred in the Intestinum Rectum;" and *Paulus*, Lib. 4. Cap. 58. καὶ ἀσκαρίδες εἰδὸς εἰσὶν ἐλμίνθων σκόληξιν παρὰ πλῆθος, συνίστασθαι περὶ τὰ ἔσχατα τῷ ἀπενδυμένῳ, καὶ τὰ πρῶτα τῷ σφιγνίσθῳ, ἐμφέρεσθαι τῶν τόπων τῶν κνησίων ἰσχυρῶν. "The Ascarides are a kind of Worms much like the Scolex, which lodge about the Extremity of the Intestinum Rectum, and Beginning of the Sphincter, and excite a vehement Itching in those Parts;" or, according to *Aetnarius*, *Metb. Med. Lib. 1. Cap. 21.* are ἀεὶ ἐρεθίζουσαι καὶ γαργαλίζουσαι τὸν κάρυον, "molesting the Patient with a continual Irritation and Titillation."

The Signs of these Worms, called *Ascarides*, are a continual Itching in the Fundament, which sometimes causes fainting Fits and Swoonings; this Itching proceeds from the Motion of these Worms, and the quick Sense of the Part where they lie; for we must not believe with *Mercurialis*, and some others, that the great Guts have only a dull sort of Feeling, feeling that the Torments of the Colic, which are felt in the Colon, and Pains in the Intestinum Rectum, caused by the Wind inclosed therein, are a good Proof to the contrary.

REMEDIES against the ASCARIDES.

The *Ascarides* are a Worm difficult to be expell'd, and that for several Reasons: The first is, because those Creatures are remote from the Stomach, so that Remedies lose their Virtue before they can come where the Worms are. The second is, because the *Ascarides* are wrapt up in viscous Humours, which hinder the Operation of Medicines. The third is, because these Worms ascend sometimes into the Cæcum. Now that Gut being like the Bottom of a Sack, the *Ascarides* keep themselves, as it were, intrenched in that Place. However it be, 'tis better to attack them below; and for that Reason there is no better Remedy, than to put up into the Fundament a Suppository of Cotton dipped into Ox's Gall, or in Aloes dissolved. One thing which I prescribed with Success to several Patients, was, to put up into the Fundament a little Piece of Lard tied to a String, if left there for some time; and after that, if drawn back, it will be full of Worms. Instead of Lard, you may use old Flesh salted. Clysters of the Decoction of Gentian are wonderful against the *Ascarides*. You may add to the Gentian, Birthwort, Succory, Tansy, Arfe-smart, Orach, and make a Decoction of it in Water and White-wine: When it is done, you may add a little of the Confection of Hiera.

For Children you may use the following Clyster;

Take Mallows and Violet-leaves, of each a Handful; Colewort-leaves, one or two Handfuls; Coriander and Fenel- Seeds, of each two Drams; Flowers of Chamomile, and the Lesser Centaury, of each a little Handful: Make a Decoction of the Whole in Milk, and dissolve in the strained Liquor an Ounce of Honey, and two Drams of the Confection of Hiera.

Hippocrates advises, for the expelling of the *Ascarides*, to take Agnus-castus-feed, to bruise it well with a little Ox-gall, and then to mix the Whole with a little Oil of Cedar, and

make a Suppository of it with a little greasy Wool. *Andry.* See LUMBRICI and VERMES.

ASCELES, ἀσκέλης, from a Neg. and σκέλω, a Leg. Without Legs. *Galen de Hippoc. & Plat. Diet. Lib. 4. Cap. 4.*

ASCENDENTIA, Ascending; spoken of the Signs or Constellations of the Firmament of Heaven, and especially of the Sidereal Spirits. *Castellus* from *Dornæus* in *Dist. Par.*

ASCENSUS MORBI, the Ascent of a Disease, is the same as the *Augmentum* or Increase of the same. See AUGMENTUM. *Ascensus* also, or *Ascensio*, signifies a manner of chymical Sublimation and Distillation, oppos'd to *Descensus*. See AQUA.

ASCESIS, ἀσκήσις, from ἀσκέω, to exercise. The same as EXERCITATIO, which see.

ASCETES, ἀσκητής. The same as *Athleta*; or *Athletes*, a Wrestler. Thus ἀσκητέων, in *Erotian* on *Hippocrates*, is expounded by ἀθλητέων; for *Ascetæ*, he says, are called by the *Attics*, *Athletæ*.

ASCHEMON, ἀσχήμων, from a Neg. and σχῆμα, a Form, or Figure; deformed; ἀσχημονέσθην σκέλω, a more deformed Leg, *Hipp. Lib. de Artic.*

ASCHIA, *Thymallus*, *Offic. Thymallus*, *Schrod. 5. 333.* *Salv. de Aquat. 81.* *Jonf. de Pisc. 81.* *Aldrov. de Pisc. 593.* *Charlt. de Pisc. 36.* *Raii Ichth. 187.* *Ejussd. Synop. Pisc. 62.* *Bellon. de Aquat. 182.* *Thymallus*, seu *Thymus*, *Gefn. de Aquat. 978.* *Thymus*, *Rondel. de Pisc. 2. 187.* THE GRAYLING, or UMBER.

This Fish resides in rapid, shallow, and stony Streams, and is esteem'd excellent Food. The Part us'd in Medicine is the Fat, which is said to take away Specks and Pearls from the Eye: Melted in the Sun, and mix'd with Honey, it takes away Freckles, and Marks left by the Small-pox. *Dale.*

ASCIA, σκεπάριον ἢ σκεπάρνιον, properly an Ax, or Hatchet, but, by a Metaphor, taken from the Figure, used to signify a sort of simple Bandage, which is described by *Galen*, *Com. 2. in Lib. de Art.* The *Ascia* is a sort of Bandage, that declines a little from the Transverse. And, on *Hippocr. ἐν τῷ κατ' ἰσθ.* he tells us, that *Hippocrates* calls the Bandage which declines but a little, *Ascia*, and what considerably declines, *Sime*. Now an *Ascia*, he says, is a Carpenter's Tool, which towards its Extremity, by which it cuts the Wood, is gently incurvated, and shelves away like a Rock. But *Erotian* seems to give us the clearest Idea of it, from *Asclepiades*, ἐν τῷ ἰσθ. as follows; ἐστὶ γὰρ ὁ σκεπάριον, ὅταν ὁ ἐπίδεσμος ἐπιβάλλων αὐτὸς εὐθείᾳ, καὶ χιλιόμενον, κλάσιν τινα ποιῇ καὶ γανίαν, διὸν ὅταν ὀρθόλωσῃ ἐπιδέσθῃ. "The *Ascia* is, when the Fillet, after one Revolution, runs into the Figure of the Letter χ, making a Break and Angle, as in the Rectoblique Bandage." This agrees with that of *Hippocrates de Fract. ἐπιδέσιον γὰρ ἐστὶ αὐτὴ ποικιλωτάτη, καὶ πλείους μὲν σκεπάρνιος ἔχουσα* "This Bandage has the greatest Variety, and a Multitude of *Ascia*;" and in the same Sense is σκεπαρνίδιον used. *Lib. de Fract.*

ASCITES, ἀσκίτης, from ἀσκή, a Bottle, because it distends the Belly in Form of a Bottle. A Species of Dropsy. See HYDROPS.

ASCITICUS, ἀσκίτικος, one who labours under an *Ascites*. *Blancard.*

ASCLEPIADÆ.

The Descendants of *Æsculapius*, called *Asclepiadæ*, have been said to preserve Medicine in their Family without any Interruption; but of this we should have a more distinct and accurate Knowledge, if we had the Writings of *Eratosthenes*, *Pherecydes*, *Apollodorus*, *Arius* of *Tarsus*, and *Polyanthus* of *Cyrene*, who took care to write the History of these Descendants of *Æsculapius*; but though the Works of these Authors are lost, yet we have the Names, at least, of some of the *Asclepiadæ* preserved, as appears from the Catalogue of the Predecessors of *Hippocrates*, who called himself the Eighteenth Descendant of *Æsculapius*. Now the Genealogy of *Hippocrates* is still entire, and stands thus:

That *Hippocrates*, whose Writings are handed down to us, was the Son of *Heraclides*, who was the Son of another *Hippocrates*, the Son of *Gnosidicus*, the Son of *Nebrus*, the Son of *Sostratus* the III. the Son of *Theodore* the Second, the Son of *Cleomytides* the II. the Son of *Crysamis* the II. the Son of *Sostratus* the II. the Son of *Theodore* the First, the Son of *Crysamis* the First, the Son of *Cleomytides* the First, the Son of *Dardan*, the Son of *Sostratus* the First, the Son of *Hippolochus*, the Son of *Podalirius*, who was the Son of *Æsculapius*. *Stephanus Byzantinus* ascribes two more Sons to *Gnosidicus*, besides him already mentioned; one of whom was called *Ænius*, and the other *Podalirius*. *Nebrus*, the Father of *Gnosidicus*, had also another Son, whose Name was *Chrysus*.

This Genealogy may possibly be thought fabulous; but, granting that there was some Error, or something of a fictitious Nature, in this Succession of the *Asclepiadæ*, 'tis, at least, certain, that several Branches of the *Æsculapian* Family were known, besides that of *Hippocrates*, before his Time; and that the particular Branch of it, from which that Physician sprung, was distinguished by the Name of the *Asclepiadæ Nebrides*, or the

the Descendants of *Nebrus*, who had become particularly famous in Physic, and of whose Skill the Priestests of *Apollo* had, in one of her Responses, given a very great Character, as *Stephanus Byzantinus* observes.

There were still more Branches of the *Asclepiadae* spread up and down in different Parts, and they had even established three famous Schools, one at *Rhodes*, which failed first by the Extinction of that Branch of the Successors of *Æsculapius*; and this probably happened, long before the Days of *Hippocrates*, since he makes no Mention of it, as he does of that of *Cnidos*, which was the Third, and that of *Cos*, which was the Second. These two last flourished at the same Time with the School of *Italy*, of which were *Pythagoras*, *Empedocles*, and other Philosophers, who cultivated Physic, though at the same time the *Greek* Schools were much more antient. As these were the only three Schools which made any Noise, so they had a mutual Emulation, and were for ever contending for the greatest Improvements in Physic. *Galen*, however, gives the Preference to that at *Cos*, as having produced the greatest Number of famous Disciples, among whom was *Hippocrates*. That of *Cnidos* was ranked in the second Place, and that of *Italy* in the third.

Herodotus lib. i. also speaks of a School of Physicians at *Cyrene*, where *Æsculapius* had a Temple, in which the Service was different from that practis'd in *Greece*; which may lay a Foundation for suspecting, that in that Nation there might have been *Asclepiadae*, of a different Sort from the others.

The same Historian in the above-quoted Book also mentions a Medicinal School at *Crotone*, the native Country of *Democedes* the famous Physician, who was contemporary with *Pythagoras*. This Physician, according to *Herodotus*, being banish'd by the Cruelty of his Father *Calliphon*, arriv'd first at *Ægina*, and afterwards at *Athens*, where he was had in great Esteem. From thence he went to *Samos*, where he had an Opportunity of attending *Polycrates* King of that Island; and the good Fortune to cure him of a very terrible Disorder, for which he receiv'd two Talents of Gold. Some time after, being taken Prisoner by the *Persians*, he concealed his Profession, but was at last discover'd, and compell'd to employ his Skill for the Relief of *Darius*, who was rack'd with Pain in Consequence of a Dislocation of one of his *Ancles*. He had also for his Patient Queen *Atossa*, Wife to the same King, for a Cancer in her Breast. The Historian adds, that having been successful in both these Cures, *Democedes* receiv'd very rich Presents, and acquir'd so great a Share of the King's Favour, that he was invited to eat at his own Table. But finding an Opportunity of returning into *Greece*, on account of a Promise he had made to act in Quality of a Spy, he remained in it altogether, despising all the Honours they had paid him in *Persia*, and laughing at those who had given him a Commission to betray his native Country. He was afterwards marry'd to a Daughter of the famous *Milo* his Countryman.

We know no other memorable Circumstances relating to the Physic of *Democedes*, or that of the other Physicians of *Crotone*: Neither have we any thing of Importance to say concerning the School of *Rhodes*. As for that of *Italy*, 'tis possible *Polycletes* might belong to it, since he was Physician to *Phalaris* the Tyrant of *Agrigentum*, the Town of *Sicily*, in which that School was.

We may judge of the Method follow'd in the School of *Cnidos*, by some Hints of *Hippocrates* relating to that Affair. "Those, says he, [*De Ratione Viæ in Acutis*, Lib. i.] who have compiled the *Cnidian Sentences*, have very well described what Patients suffer under every Disease; how some Symptoms of their Disorders happen; and, in a word, all that any Person ignorant of Physic could write, after inquiring of Patients what their several Ailments were; but they have forgot most of what a Physician ought to know, without hearing the Report of the Patient."

The same Author besides observes, that the *Cnidians* used very few Medicines; for *Elaterium*, which is a Purgative extract from the wild Cucumber, Milk, and Whey, made up almost the Whole of their *Materia Medica*. From what *Hippocrates* here says, we may gather, that these Physicians were content with giving an Enumeration, or exact Description, of the Symptoms attending Diseases, without giving themselves the Trouble to inquire into their Causes, or prognosticate their Events; we may also gather from what he says, that they only used a very small Number of Medicines, the Virtues of which they and their Predecessors had discover'd by Experience.

These two Observations are sufficient to convince us, that the *Cnidians* were little more than Empirics, or, at least, that they did not value themselves on the Accuracy and Justness of their Theories. The farthest they went in this Way, was sometimes to reason from *Analogy*, or a Comparison of Diseases and Remedies, as we may see by the Example *Galen* gives us of it in these Words: "The *Cnidians*, says he, attempted to cure Abscesses of the Lungs in this manner: As they had observed, that a Cough occasions a Discharge of any

"Matter in the Lungs, they pull'd the Tongues of those who labour'd under Abscesses of the Lungs, without their Lips, and endeavour'd to convey some Drops of Water into the *Aspera Arteria*, with a View to excite a violent Cough, which in their Opinion made them discharge all the Pus contain'd in their Breasts."

As for the Physicians of *Cos*, it may be also said of them, if the *Prænotiones Coacæ*, found among the Works of *Hippocrates*, are only a Collection of Observations made by these Physicians, as many of the Antients believed, that they were not great Reasoners; and we plainly perceive, that they were not at the Pains to account for their Prognostics. *Hippocrates* was of the Number of these Physicians, and we know of no more of them, except his Predecessors, whom we have already mentioned.

What we have said proves, that what *Pliny* and *Celsus* have advanced, is not absolutely true, when they said, that we had no Accounts of Physic during the Interval they have mention'd; and still less true, that Physic only began with Philosophy, as *Celsus* affirms; unless he means rational Physic, or that which is employ'd in investigating the hidden Causes of Diseases, and accounting for the Operations of Medicines. This sort of Physic had, indeed, little Existence in the World, before the Arts and Sciences came to be cultivated.

It may possibly be thought, that I forget one Circumstance, which not only does a great deal of Honour to the *Asclepiadae*, but intirely overthrows what *Celsus* and *Pliny* have advanced; and even what I myself affirmed, when I said that the *Asclepiadae* were little more than Empirics; and that is, that they were look'd upon as great Anatomists. *Galen*, 'tis true, was of this Opinion: "At the Time, says he, when Physic was confin'd to the Family of the *Asclepiadae*, the Fathers taught their Children Anatomy, and from their Infancy trained them up to the Dissection of Animals; so that this Branch of Knowledge passing from Father to Son, like a manual Tradition, as it were, it was to no Purpose to write down the Manner in which these Dissections were performed, since it was as impossible they should forget it, as that they should forget the Letters of the Alphabet, which they learned almost at the same Time."

There are still some other Passages of this Author, from which we perceive, that he believed, that the *Asclepiadae* were perfect Masters of Anatomy. But to his Authority we may oppose that of an antient Commentator upon *Plato*, who asserts that the Philosopher *Alcmaeon* was the first who dissected an Animal; which destroys what *Galen* affirms of the *Asclepiadae*, at least, of such of them as came before *Alcmaeon*, who are the Persons of whom we now speak; as for those who came after him, they were either contemporary with *Hippocrates*, or succeeded him. But though the Testimony of *Hippocrates*, in this Case, were not to be depended on, yet we may conclude from the small Progress they had in his Days made in Anatomy, that till then the Bodies of Animals had been very superficially inquired into; which is quite the Reverse of what *Galen* says, when he affirms, that *Anatomy was in its Perfection in the Days of the Asclepiadae*.

I would not by all this insinuate, that the *Asclepiadae* were entirely ignorant of the Parts of the human Body, since without such a Knowledge they could neither practise Physic in general, nor Surgery in particular; which, by the way, they understood better than any other Branch of the Business. But the Knowledge they had in Anatomy was in a great measure owing to what they observed in the killing of Beasts, and in their Sacrifices. They were also very industrious in improving themselves in *Anatomy*, if at any time they found in the Fields human Bones stript of their Flesh by wild Beasts, or wasted by Time; or when they found the Bodies of Travellers killed by Robbers, or those of Soldiers killed in Battle. It is also possible, that the *Asclepiadae* might have got acquainted with the Improvements of the *Egyptians*, who embalmed their Dead for Preservation. But their chief and principal Scene of Improvement was in the Practice of Surgery, where in the Cure of Wounds, Ulcers, Tumors, Fractures, and Dislocations, they had an Opportunity of discovering in the Living, what they wanted sufficient Opportunities of finding in the Dead. *Le Clerc*.

ASCLEPIADES.

Though the Descendants of *Æsculapius* were called the *Asclepiadae*, that is, the Children of *Asclepius*, which is the Greek Name of *Æsculapius*; yet there was a Physician of the Name of *Asclepiades*, who was not of that Family.

This Physician was in great Reputation at *Rome*, during the Life of *Mithridates*, that is, towards the Middle of the Thirtieth Century, according to the Testimony of *Pliny*, from which I conclude, that this Author contradicts himself, when he says, in the same Chapter, that Physic was not known in *Rome*, till after *Pompey's* Victory over *Mithridates*. *Archagathus*, a Greek Physician, came to *Rome* about an hundred Years before; where, on his first Appearance, he was well received; but his Profession was afterwards brought into Disgrace. Now in

in all Probability, this *Asclepiades* was one of the first who re-established its Character and Reputation. This Physician [according to *Pliny*, *Lib. 26. Cap. 3.*] was a Native of *Prusa* in *Bithynia*, but happened at last to settle in *Rome*, in Imitation of a great many other *Greeks*, who had now begun to establish themselves in this Capital of the World, hoping there to acquire greater Riches than in their own Country. Upon his first Appearance in *Rome*, he taught Rhetoric; but not finding his Expectations answered by that Profession, he resolved to try whether that of Physician would not be more fortunate to him; and though, according to *Pliny*, he had at that time no Knowledge of the Business, yet he imagined, that by the Brightness of his Genius, he should soon surmount the Disadvantages arising from his not having been regularly bred to Medicine.

The Method this Physician used to establish his Character was, to run directly counter to the Practice of *Archagathus*, who had been condemned for his Cruelty; and to decry not only his Method, but also a great Part of the Medicines daily recommended by other Physicians. The Practice of *Asclepiades* consisted principally, [according to *Pliny*, *Lib. 26. Cap. 3.*] in throwing the Patient into a Sweat, by means of warm Coverings, or by exposing him to the Heat of the Fire, or the Rays of the Sun. *Asclepiades* also condemned the ancient Manner of curing Quinsies by thrusting an Instrument forcibly down the Throat, in order to clear the Passage. But of all other things, he made the highest Remonstrances against Vomits, which, in these Days, were frequently used; and even against Purgatives, which he looked upon as hurtful to the Stomach.

At the same time that *Asclepiades* condemned and decried the above Medicines, he substituted in their room very mild ones, saying, *Tuto, celeriter & jucunde, id Votum est*: But adds *Celsus*, *Lib. 3. Cap. 4.* *Sed fere periculosa esse nimia & Festinatio & Voluptas solet*. It were to be wished, that Diseases could be cured surely, soon, and agreeably; but Attempts to cure too suddenly, or by means of too agreeable Medicines, are generally attended with Danger.

The superstitious Methods of curing Diseases; or the Magical Remedies, of which, before the Arrival of *Asclepiades*, they were so fond, which *Cato* himself had on some Occasions used, but which were beginning to be in Discredit, contributed not a little to the favourable and ready Reception of this new Physic of *Asclepiades*. This Observation *Pliny* makes in the Beginning of his twenty-sixth Book, where he uses these Words: *The Vanity of Magic was a Circumstance of more Use to him than any thing else*. One *Doringius*, a German Author, *de Medicina & Medicis*, not adverting that these Words of *Pliny* had a Relation to what he had said in the Beginning of the foregoing Chapter, explains this Passage, as if *Pliny* had intended to say, that *Asclepiades* had, in a particular manner, used Magic in his Practice of Physic, which is quite the Reverse of what *Pliny* thought, and inconsistent with the Character of *Asclepiades*, who was an Epicurean.

"Till the Days of *Asclepiades*, says *Pliny*, Antiquity stood it well out. In vain did *Herophilus* advance his refined Speculations; neither he, nor any of a like Character, were followed universally; and considerable Remains of ancient Physic as yet supported themselves, with all the Authority they had ever acquired. But this second *Æsculapius*, having reduced all the Learning of a Physician to the Knowledge or Investigation of the Causes of Diseases, Physic, which at first was an Art founded on Experience, became conjectural, and entirely changed its Face."

What easily gained a Party to *Asclepiades*, to the Prejudice of ancient Physic, and made People relish his Reasoning, was, his using very mild and gentle Remedies, which *Pliny* reduces to five: Abstinence from Food; Abstinence from Wine on certain Occasions; Frictions; Walking; and Gestation. As People saw, that they could easily submit themselves to these, they judged the Physic of *Asclepiades* so much the better for its being easily practised. Besides, being very eloquent, and a great Philosopher, he attracted the Esteem almost of all Mankind, and was looked on as one sent from Heaven.

Pliny adds, that this Physician had the Art of gaining the Affections of People by certain Stratagems peculiar to himself; such as promising his Patients Wine, and actually giving them some on proper Occasions, and allowing them to drink cold Water, in order to refresh themselves. And as he had been among the first who used this Remedy, he took a certain Pleasure in being called *δοσι-ψυχες*, or *The Giver of cold Water*. Wine, in the mean time, contributed no less to the Establishment of his Reputation. *Apuleius* says, that *Asclepiades* was the first of the Physicians, who prescribed Wine for the Relief of his Patients; and the same Author afterwards tells a Story of a Man being restored to Life by *Asclepiades*, after he was thought dead, and ready to be interred. He does not indeed mention his using Wine upon that Occasion; but from what he had before said, one may infer, that the Miracle was wrought by means of that Liquor, though the Author ascribes the Recovery of the Man to certain Medicines which *Asclepiades* gave him.

This Physician also contrived, almost every Day, some new Invention to please and humour his Patients: He ordered them to be laid in penile Beds, which were a Species of Cradles shaked, in order to lull the Patients to sleep; or mitigate their Pains. He also invented an hundred new Sorts of Baths, some of which were penile.

This is, according to *Pliny*, the Character of *Asclepiades*; but as that Author is suspected of Partiality in characterising, we shall inquire what Sentiments others entertained concerning this Physician.

We find then, that almost all the Antients give a favourable Character of *Asclepiades*: *Apuleius* styles him *The Prince*, or *First of Physicians*, after *Hippocrates*. He is also by *Scribonius Largus* [in *Epistol. ad Callistum*] called, *A very great Author in Physic*. And *Sextus Empiricus*, *Adversus Mathematicos*, *Lib. 7.* calls him *A Physician inferior to none*. *Celsus* also had him in great Esteem. Another Proof of the great Reputation he had acquired, was his being desired by *Mithridates* to assume the Character of his Physician. But a Circumstance of all others the most advantageous to his Character is, his having been the Physician and intimate Friend of *Cicero*, as he himself testifies, [*De Oratore*, *Lib. 1.*] and at the same time seems to pay a great Deference to his Eloquence, which proves that this Physician did not quit the Profession of Rhetorician for want of a Capacity.

Galen, who declares himself against the Practice of *Asclepiades*, yet owns him to be very eloquent, but upbraids him with being a Sophist, and having a Practice of contradicting every one he had any thing to do with. *Cælius Aurelianus*, *Acutor*, *Lib. 1. Cap. 15.* charges him with the same Fault. When *Asclepiades*, says he, was called to a Patient who had another Physician, he condemned all the Medicines that Physician had ordered, and approved of others which he had not mentioned, as if the same Medicines, which, when ordered by others, were noxious, became safe and salutary, when prescribed by him. The Author last quoted, draws this Consequence from a Passage in one of the Books of *Asclepiades*, where, in speaking of the Cure of a Phrensy, he says, that if a Person labouring under that Distemper should fall into his Hands, before having come through those of any other Physician, or used any other Medicine, that in that Case he would use external Applications of strong-scented Substances, such as Castor, Hogs-senel, Rue, and Vinegar, or the Liquor in which these Substances had been infused; and that he would afterwards order him a Clyster to relieve the obstructed Parts; but, said he, if another Physician has before dealt with the Patient, all Cataplasms, Oils, and strong-scented Medicines, must be discharged in the very Beginning of the Cure, and the Patient must be removed from a dark Place to a clear and open Light. 'Tis possible, *Asclepiades* might not have followed this Practice from a Principle of Envy or Contradiction, as *Cælius Aurelianus* insinuates, but from a quite different Motive. As the same Disease may sometimes be cured by different Methods, he might possibly believe, that Success, on some Occasions, might attend a Change of the Method of Cure, from what it was in the Infancy of the Disease, or the passing from the Use of cold to hot Medicines, and from hot to cold. As a Proof, that *Asclepiades* entertained this Notion, he calls the Cure here mentioned, bold and extraordinary, not to be undertaken but in desperate Cases.

Pieces of Practice like this undoubtedly made People who were ignorant of the true Principle upon which *Asclepiades* acted, conclude, that he was an errant Quack. This is the Idea which *Pliny* seems to entertain of this famous Physician, in what he has hitherto advanced concerning him; and we can have no Reason to doubt, that this was his real Sentiment, if we consider the finishing Stroke of these Encomiums, which he pretends to bestow upon him [in *Lib. 7. Cap. 37.*]. "*Asclepiades*, says he, having bid a Defiance to Fortune, by saying, he consented not to be esteemed a Physician, if ever he was attacked by any Disease whatever, remained victorious in this Point; for he died in an extreme old Age, and that by an accidental Fall from a Stair-case." It is not probable, that a Man of so philosophical a Turn as *Asclepiades* was, would have talked in so ridiculous and foolish a manner.

We should be better able to form a Judgment of the Sentiments of *Asclepiades*, if his Writings had reached our Hands; but they are lost, as well as a great many other valuable Pieces of Antiquity, which would have undoubtedly given us Satisfaction with regard to a great many things, of which we must now be contented to remain ignorant. Tho' *Asclepiades* might not, possibly, have been a Model for the Direction of Practice, yet there would have been a certain Pleasure in reading his Works, since 'tis to be presumed they were beautifully written; and if they had not been a Standard for Physicians, they would have, at least, proved an Amusement for Philosophers, and served to illustrate the Doctrines of *Epicurus*, *Lucretius*, and *Democritus*. As the Reputation of this *Asclepiades* was very great, both during his Life, and after his Death, so he had a great Number of Disciples and Followers.

Among other antient Authors, who wrote on the Composition of Medicines, there were two called *Asclepiades*; but both different from the *Asclepiades* above-mentioned; for they are both quoted by *Galen*; and that Author observes, that they both lived after *Andromachus*, who was Physician to *Nero*.

The *Asclepiades* most frequently quoted by *Galen*, and whom he ordinarily calls by the single Name of *Asclepiades*, was more particularly distinguished by the Surname of *Pharmacion*, as *Galen* informs us; and this Surname denoted the principal Business of this Physician, which was the Composition of Medicines, by the *Greeks* called *Pharmaca*.

This *Asclepiades*, whom the learned Mr. *Di Capoa* confounds with the first-mentioned *Asclepiades*, wrote ten Books, five upon Medicines to be used externally; and five other upon such as were to be used internally. *Galen* says, he wrote very well, and ranks him among the best Authors who had handled that Subject. He even praises him in a particular manner, for his Exactness in describing the *Modus Faciendi*, or the precise Method one ought to take in making the Compositions he described. He also commends him for his Exactness in determining the Qualities of these Medicines, and the particular Manner in which they were to be used. The following is an Example of the Exactness of *Asclepiades*, and of the Advantages attending it:

The PLAISTER of ASCLEPIADES for CHIRONIAN ULCERS; and others of difficult Cure.

- “ Take of Verdigrise, one Ounce; of Wax, half a Pound;
- “ of the Resin of the Larch-tree, [*Venice Turpentine*]
- “ half an Ounce. The Wax and Resin must be melted;
- “ and after pounding the Verdigrise, add it to them; then
- “ stir the Whole.”

The way of using it is this: Spread a little of this Plaister upon as much Leather as will cover the Ulcer; place round it some Medicine for preventing Inflammation, and let your Plaister lie on for three Days. Then wash the Part affected gently; wash also and soften the old Plaister, and apply it again to the Ulcer; continue this Method every three Days till the Cicatrix is formed.

Galen, who gives us an Account of this Method, after approving of it, tries to account for its Success, by a certain Relation the Plaister acquires to the Body of the Patient, by means of its long Stay upon the Ulcer. But this may be the more rationally accounted for in another way, which is, that by rarely raising the Plaister, or allowing it to remain on the Ulcer for three Days, the Cicatrix has more Time to form itself, and the Flesh is more commodiously nourished, because the Ulcer is by that means less frequently exposed to the Air, which, by introducing some foreign Substance into the Wound, breaks the Fibres which began to unite themselves, and form Flesh and Skin. Besides, the Motion excited in the Ulcer, or Part affected, by the taking away, and again applying, the Plaister, interrupts the Formation of the Cicatrix, by breaking and putting out of Order the Fibres, which, in such a Case, are very tender. In short, the renewing the Plaister, for the same Reason, retards the Cicatrix, because a fresh Plaister has always more Force and Penetration, than one which has been used before. There are a great many more *Asclepiades*; but as their Characters have nothing very remarkable in them, and as the Accounts we have of them, are involved in such Obscurity and Perplexity, as can never be surmounted by the greatest Industry, we shall say no more concerning them. *Le Clerc*.

ASCLEPIAS, a Plant thus distinguished:

- Asclepias*, Diof. *Vincetoxicum Hirundinaria*, Offic. Chab. 119. *Asclepias flore albo*, Ger. 731. Emac. 898. Park. Theat. 387. C. B. Pin. 303. Raii Hist. 2. 1091. Hist. Oxon. 3. 611. Tourn. Inst. 94. Elem. Bot. 80. Boerh. Ind. A. 312. *Asclepias sive Vincetoxicum multis, floribus albicantibus*, J. B. 2. 138. *Apocynum Asclepias dictum*, Par. Bat. 43. *Vincetoxicon*, Rupp. Flor. Jen. 20. Buxb. 336. SWALLOW-WORT. Dale.

ASCLEPIAS runs up with long Shoots, on which are long Leaves like those of Ivy. The Roots are numerous, slender, and sweet-scented; the Flower of a strong Smell, the Seed like that of the *Securidaca* (Hatchet-vetch). It grows in the Mountains.

The Roots, drank in Wine, give Relief under the Gripes, and the Bites of venomous Animals. The Leaves, applied as a Cataplasm, are good in malignant Diseases of the Breasts and Uterus. *Dioscorides*, Lib. 3. Cap. 106.

The Roots of Swallow-wort are small and stringy, spreading very much in the Ground; and sending up many tough Stalks, about a Foot and half, or two Foot high, hardly able to support themselves; having at every Joint two Leaves, set opposite to one another, on very short Foot-stalks, which are round at the Base, an Inch and an half broad in the widest Part, and about three Inches long, growing narrower and sharp-pointed; on the Tops of the Stalks come forth small Bunches, of five-leaved Star-fashion white Flowers; each of which, in warm

Countries, where it is natural, is succeeded by two long slender Pods, containing small flat Seeds, lying among a silky Down. It grows with us only in Gardens, and flowers in June.

The Root, which is the only Part used, and that not very often, is accounted a mighty Counter-poison, both against the bad Effects of *Apocynum*, and other poisonous Herbs, and against the Bites and Stings of venomous Creatures: It is also helpful against malignant pestilential Fevers, which it carries off by Sweat; it is good likewise against the Dropsy and Jaundice. *Miller's Bot. Off.*

The Roots of Swallow-wort are bitter, acrid, and give a faint and red Colour to the blue Paper; the Leaves taste a little saltish, and give the same Paper a fainter red Colour, which makes me believe the Salt of this Plant is, in some measure, like the Oxyfal Diaphoreticum of *Angelus Sala*, a fixed Salt, a little too much impregnated with Acid; but in the Swallow-wort, it is involved in a great deal of Sulphur and Earth: Thus it is no wonder, that this Plant should be sudorific and detensive. *Tragus* affirms, that the Wine in which a Pound of its Roots has been macerated, and boiled to the Consumption of a Third-part, powerfully provokes Sweat, and gives Ease to those who are troubled with the Dropsy: The Decoction of this Plant renders the Humours volatile, and works both by Urine and Transpiration. This Decoction is preferable to that of *Scorzonera*, in malignant Fevers, and the Plague. For the Suppression of the Menses, put one Ounce of the Root of Swallow-wort in a Pint of boiling Water; strain the Infusion, and give three Glasses of it to drink every Day, with the Syrup of Mugwort, or the Cachectic Aperitive Syrup of M. *Charras*, which is also very good for the Biting of a mad Dog. The Extract of its Roots and Leaves, from half a Dram to a Dram and an half, has the same Effect. The Herb, applied as a Cataplasm, dissolves the Tumors of the Breasts; the Powder of the Leaves and Root cleanses Ulcers, as well as that of Birthwort. *Martyn's Tornesfort*.

ASCLEPIOS, ἀσκληπίος, the Name of a dry Smegma, described by *P. Aeginet. Lib. 7. Cap. 13.* and of a Troche in *Aetius, Tet. 4. Serm. 2. Cap. 50.* also of a Collyrium in *Galen, de C. M. S. L. Lib. 4. Cap. 7.* from *Scribonius*, which is also called *Athenippum*.

ASCLITES, a corrupt Word, used by Mistake, instead of *Asclites*, by *Paracelsus* and *Avicenna*. *Castellus*.

ASCOMA, ἀσκάμα, from ἀσκά, a Bottle: The Eminence of the Pubes at Years of Maturity, most properly in the Female. *Ruffus Ephesius*.

ASCOS, ἀσός, a Bottle. Ἀσὸς σούριον, (from σούριον, Leather) was a Leather Bottle filled with some Matter, as hot Water, or Oil, for the Fomentation and Warming of a diseased Part, and prescribed by *Hippocrates, Lib. 2. de Morb.* to be applied to the Forehead for easing Pains of the Head. He uses also the *Ascus* inflated with Wind, for restoring a gibbous Affection of the Spinal Vertebrae, and a Luxation of the Os Femoris, *Lib. de Artic.* *Galen*, in his *Exegesis*, expounds ἀσός by ἀσκαμίδις, ὅτις ἐστὶν ἀσκαμίδις καὶ φανερὸν ὅτι ἀσκαμίδις, “ Earthen Pots, called also *Pyriati*, and *Phaci*,” (*Lentils*) that is, Vessels of a lenticular Figure, used in Fomentations. *Celsus, Lib. 2. Cap. 17.* speaking of Fomentations, says, *Quintiam calido Oleo replentur Utriculi, & in Vasa fistilia ad Similitudinem, quas Lenticulas vocant, Aqua conjicitur.* “ More-over, Bottles are filled with hot Oil, and Water is put into “ Earthen Vessels, from their Figure called *Lentils*.” *Galen* seems to confound the *Utriculi* with the *Vasa fistilia*. Fomentations by these Earthen Vessels, and *Utriculi*, or little Leather Bottles, and Bags, are also prescribed by *Hippocrates, Lib. 2. de Morb.* and Fomentations with the ἀσσοί, or *Utriculi*, *Lib. 7. Epid. and Lib. de Rat. Viti. in Acut.* for a *Tetanus*.

ASCYRUM, Offic. Ger. 434. Emac. 542. Raii Hist. 2. 1019. Merc. Bot. 1. 21. Phyt. Brit. 12. Mer. Pin. 11. *Ascyrum vulgare*, Park. Theat. 574. *Hypericum Ascyron dictum*, Chab. 445. *Hypericum Ascyron dictum, caule quadrangulo*, J. B. 3. 382. Raii Synop. 3. 344. Tourn. Inst. 255. Elem. Bot. 222. Boerh. Ind. A. 241. Dill. Cat. Giff. 171. Rupp. Flor. Jen. 99. Buxb. 163. *Hypericum seu Androsæmum Ascyrum dictum, caule quadrangulo glabro*, Hist. Oxon. 2. 471. SAINT PETER'S WORT.

It grows in watery Places, and flowers in July and August. The Herb, the Flowers, and the Seed, are in Use; the Herb and Flowers having the same Virtues as *Hypericum*, or *St. John's Wort*. The Seed is useful in the Sciatica, and purges bilious Humours by Stool. Dale.

ASCYRUM, otherwise called *Ascyroides*, and *Androsæmum*, is a Species of *Hypericum*, but of a different Bigness, having larger Branches, and being more shrubby, or fuller of Shoots, with fine scarlet Leaves. It bears a purple Flower, and a Seed like that of *Hypericum*, which smells like Rosin, and stains the Fingers of those who handle it with a bloody Colour, whence it took the Name of *Androsæmum*.

The Seeds drank (to the Quantity of two Drams, according to Pliny) in a Pint of Hydromel, is good for the Sciatica, for it purges Bile plentifully; but the Dose ought to be continued till Health

Health is restored. It is also effectual against Burnings, if used in a Cataplasm. *Dioscorides, Lib. 3. Cap. 172.*

ASDENIGI, AZEDEGINI, the Blood-stone. *Johns.*

ASE, ASSE, *αση, ασση*, in *Hippocrates*, sometimes signifies a Loathing of Food, or Nausea, from a Conflux of Humours to the Stomach. So in *Aph. 61. Lib. 5.* if a Woman miss her Menfes, and no Shiverings or Fever succeed, *ασαι δ' αψη προσπίπτει*, "but a Loathing comes upon her," she has conceived. In *Lib. 7. Epid. αση πει την καρδιαν*, is, "an Anxiety about the Heart (Mouth of the Stomach)." *Asen* is also very often used by the same Author to express an Anxiety with a Restlessness and Jactation; and such Patients are called *ασωδες*, though they be free from a Nausea; for, as *Galen, Comm. 2. in Prorrh.* writes, sick Persons are *ασωδες*, on two Accounts; first when the Strength is so unable to support the Body, that the Patient can bear to lie in no Posture; and, secondly, when the Mouth of the Stomach is vellicated by corrupt Humours. The former Case is very dangerous, and the latter attended with a Nausea. So *ασωδες πυρετοι*, in several Places of *Hippocrates*, signifies such Fevers as are attended with great Jactations and Anxieties.

ASEB, Alum. *Rulandus, Johnson.*

ASED, *Leo. Ibidem.*

ASEDENIGI, the Lapis Hæmatitis, Bloodstone.

ASEF, ALBASEF, Arabic Words for HYDROA, which see. *Blancard.*

ASEGEN, Dragons-blood. *Rulandus, Johnson.*

ASELLI, the same as MILLEPEDES, which see.

ASELLUS, Offic. *Jonf. de Pisc. 1.* *Asellus major*, *Charit. de Pisc. 2. Schonf. Ichth. 38.* *Asellus major vulgaris*, *Raii Synop. Pisc. 53.* *Asellus major vulgaris*, *Belgis Cabellau, Ejusd. Ichth. 165.* *Asellus*, *Merluccius*, *Cabellau*, *Mer. Pin. 184.* *Gefn. de Aquat. 84.* *Morhua vulgaris*, (*maxima Asellorum Species*) *Bellon. de Pisc. 118.* *Morhua vel Molva altera*, *Aldrov. de Pisc. 289.* *Molva*, *Rondel. de Pisc. 1. 280.* *Molva vel Morhua altera minor Rondeletii*, *Gefn. de Aquat. 88.* THE COD-FISH, or KEELING. *Dale.*

You are to chuse that which is white, tender, fresh, and well tasted.

It is nourishing enough, and is a tolerable good Food.

Salt Cod is not near so well tasted as that which is fresh, neither is it so easy of Digestion, but harder and tougher. You are to steep it in Water before it is eaten; for, without that, it will heat much, and make you very dry.

It contains much Oil and volatile Salt.

It agrees at all times with any Age and Constitution.

REMARKS.

The Cod is a Sea Fish well known. It is much used for Food. When it is fresh and new, it produces good Juice; and is nourishing, because it contains a great Quantity of oily and balsamic Parts; but when it has been salted, and is too old, it is not so well tasted, nor so easy of Digestion; not only because the Bay-salt hath fixed and sunk down its more volatile Parts, and such as excite an agreeable Taste; but also because that being introduced into the Pores of the Fish, it makes it more solid, compact, and hard.

The Pickle of Cod is of a dissolving and drying Nature; when outwardly applied: They also use it among other things in Clysters; for it is laxative, because it contains much Salt, irritates the Intestinal Glands, and forces more Liquor out of them than before.

The Stock-fish used in France, and other Parts, is not so good as salted and dried Cod: Some pretend otherwise, and will have it to be the Melwel, called in Latin, *Molva major*: Be it as it will, Stock-fish is no good Food; because it is hard, tough, and not easily digested: However, there are many People that make a Ragou of it.

The Pickle of Melwel has the same Virtues as that of Cod. *Lemery on Foods.*

The ASELLUS MARINUS is the same as MERBANGIUS, which see.

ASEMOS, *ασμος*, from a Negative, and *σημα*, a Sign; is an Epithet, applied to Events that fall out contrary to all Appearance, and without any manifest Cause. Thus the Adverb *ασμως*, in *Hippocrates*, is expounded by *Ætius*, *αδωγος*, or *παροξυσμος*. Thus, *Lib. 2. Epid. οσθα ασμως απαντιζεται, δυσχεστα*, "whatever Symptoms disappear unaccountably, or without the critical Signs, shew a bad Crisis;" and in his *Prorrh.* *τα ελθοντα ασμως πασησαστα δαυασην σημαινει*, "bad Symptoms, alleviated and mitigated for no Reason; and without the Signs of a Crisis, signify Death;" and again, *τα ασμως πασησαστα φιλυποσσορα*, "Mitigations, or Remissions, without the usual Signs which accompany a Crisis, foretel a Return of the Disease," which is often quoted by *Galen*, as in the Beginning of his *Lib. πει νεωσιμων ημερων*, and these are the most celebrated Axioms in the whole Doctrine of Crises. *Asmos* *εσθην επδεμαστα*, "Tubercles appeared without Significations," is explained in *Galen, Comm. 2. in Prorrh.* by *χωρις σημειων, ητοι εκλεισσεως, η πεφωσ,* "without any Signs

"either of Excretion or Concoction; and *ασμως πασησαστα*, before-mentioned, is expounded by *Erotian*, *τα χωρις παρηγοσ επικλειας εις το βελιον αποκλινοστα*, "Things changing for the better, without any manifest Assistance or Means."

Asmia *πνευμαστα*, in *Lib. 6. Epid.* is a small and scarcely sensible Respiration; and *ασμια κατ'α πλευρον αλγυμαστα*, is a slight and insignificant Pain in the Side.

ASENEC, the Son. *Ruland. Johnson.*

ASEPH, Plumous Alum. *Iidem.*

ASEPTA, *ασηστα*, from a Negative, and *σηπω*, to putrefy. Unputrefy'd; but *ασηστα*, in *Hippoc. Lib. πει πασων*, is expounded by *Galen, Com. ad Aph. 1. Lib. 6. απηστα*, "unconcocted;" and he tells us, that it was usual with the Antients *ασηστα καταν' απερ ημεσ απηστα λεγομεν*, "to call those things unputrefy'd, which we say are unconcocted." Thus, *Lib. 3. πει διαιτης, ασηστον διαχωρημα*, is a crude or unputrefy'd Stool; as *σεσηπος διαχωρημα. ibid.* is a putrefy'd or concocted one. And *Galen, Lib. 1. de Loc. Affect. Cap. 3.* has the following Expression from *Erasistratus*: *Τα γιγαστα, η τα σισαμα, η παστα τα διαχωριμενα πασάσασ ασηστα τε η αμελεβηστα*. "The Stones of Grapes, and Sesamum, and all other Matters which pass off by Stool, quite unputrefy'd, (unconcocted) and unchang'd."

ASERON, *ασηρον*, from *αση*, Molestation, Uneasiness. Troublesome, uneasy, noxious. *Hipp. Lib. de Fract. ασηρον εδ' εις πους την ιγνυνν πρεσβαλλόμενον*. "It might create Uneasiness, if apply'd to the Ham," speaking of a Chirurgical Cradle. Again, *ibid. ην τε ασηρον η*, "if it be hurtful," that is, the Bone be hurtful to the Flesh. And, *Lib. de Artic.* you have *ασηρον φερμα*, "an uneasy Burden," speaking of a Bandage apply'd to a fractur'd Nose. In the foremention'd Places *ασηρον* is expounded by *Erotian* *ασησ ποιησιν*, "causing Molestation and Uneasiness."

ASIGI. The same as ASINGAR, which see.

ASILUS, *Οεστрус, Τάβανος, υσες, μυωφ*. An Insect with one Pair of Wings, which carries its Sting in its Mouth, and is describ'd by *Aldrovandus*. *Pliny* calls *Astus* the Fly that infests Cattle, and tells us, from the Magi, that the Worms out of which these Flies were bred; were used, before their Wings budded, as an Amulet against Fevers. *Pliny, Lib. 11. Cap. 28. and Lib. 30. Cap. 11.*

ASIMION, *ασιμιον*. The Name of an Ingredient in *Myrepsus, Antidot. 465.* of which his Translator and Commentator *Fuchsius* ingenuously confesses himself ignorant. *Myrepsus.*

ASINEOS, ASINES, *ασινεος, ασινος*, from a Negative, and *σινος*, Hurt, Mischief. Without Harm or Damage. *Lib. 1. & 2. Epid.*

ASINGAR, ASUGAR, ASMIAR, ASIGI, Verdegrise. *Rulandus.*

ASINUS, Offic. *Schrod. 5. 269.* *Mer. Pin. 166.* *Schw. Quad. 61.* *Raii Synop. A. 63.* *Aldrov. de Quad. 295.* *Jonf. de Quad. 12.* *Charlt. Exer. 4.* *Gefn. de Quad. 1.* THE ASS. *Dale.*

The Ass is an Animal too well known to require a Description. It has the Misfortune to be much less esteem'd in our Days, than amongst the Antients; who paid it a very great Respect, as we may infer from a great Number of Passages in the Greek Writers.

Mr. Baxter is of Opinion, that the *Anchialus* mention'd by *Martial*, as something sacred amongst the Jews; and by which he insinuates that they swear, means an Ass, *Rudens Deus*. For why, says he, may it not be said *Ανχιου*, *Anchiel*, that is, *Rudens Deus*, or *Ουβηος*; in the same Form as *Ανριου*, *Ariel*, *Leoninus Deus*, or *Λεονιδεος*; We know the old Reproach in *Tertullian*, *DEUS CHRISTIANORUM ONOCHOERITES* (for so it should be read); whence *Patronius*:

*Judeus licet et portinum Numen adoret,
Et cilli summas advocet Auriculas.*

Epiphanius also speaking of the *Gnostics*: *Φασι δ' τον [θεον] Σαββαθ οι μεν ονε μοσων εχεν, οι δ' χοιρα*. "They say, that the [God] Sabacch has the Form of an Ass; others say of a Swine." It appears also from *Plutarch*, in *Iside*, that the Ass and Swine, among the Egyptians, were both sacred to *Typhon*; and even that this *Typhon* begat *Hierosolymus* and *Judeus*. 'Tis probable therefore, that the antient Jews spared Asses and Swine out of Contradiction to the Egyptians, by whom they were slaughter'd as opposite Deities. *Baxter's Glossarium.*

ASSES DUNG.

We have known, says *Aetius*, the Juice of Asses Dung highly beneficial in a Dysentery, especially if the Beast has been fed upon the Mountains, or has had an astringent Pasture. If the Juice be insufficient, let the Dung be moisten'd with the Juice of Plantain, which must afterwards be express'd and infused. *Aetius, Tetrab. 3. Serm. 1. Cap. 45.*

It is also recommended for stopping Hemorrhages.

ASSES

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ASSES HOOF.

The Hoofs of Asses calcin'd, and drank every Day, are said to cure the Epilepsy; and, mix'd and work'd with Oil, to discuss strumous Swellings: Also the Ashes of the same, well-beaten in Woman's Milk, and reduced to a Collyrium, are supposed to deterge Cicatrices in the Eyes, if rubb'd thereon, together with Milk. *Actius, Tetrab. 1. Serm. 2. Cap. 157.*

It is also recommended for healing Chilblains, Chaps in the Skin, for discussing Apoftemations, and for expelling the dead Foetus, and in Hysterical Cases.

ASSES FLESH.

Next, inferior to the Flesh of Stags, which is itself of bad Juice, hard, and difficult of Digestion, is the Flesh of wild Asses; but that of tame Asses, especially when they are old, tho' eaten by some, is of very bad Juice, difficult of Concoction, quite foreign to the Stomach, and ungrateful to the Palate. *Oribas. Med. Coll. Lib. 2. Cap. 28.*

The Flesh of Animals which have solid Hoofs, is most vile Food; but of these the best and lightest (as they say who have travell'd over Asia) is the Flesh of wild Asses. *Ibid. Cap. 68.*

The Blood of an Ass is said to be sudorific; and that of a young Ass to cure the Jaundice.

Asses Milk is very nourishing and abstergent, and is therefore esteem'd good in a Consumption, in Disorders of the Stomach, Abscesses of the Kidneys, the Stone in the Bladder, and Arthritic Pains. It is esteem'd gently cathartic, and was frequently directed by Hippocrates as a Purge, in large Quantities. As a Topic, it makes the Gums firm, eases Arthritic Pains, and gives the Face an agreeable Whiteness, if wash'd with it. See LAC.

The Urine of an Ass is a powerful Remedy, as is said, in Disorders of the Kidneys; cures the Itch; takes away Warts, and callous Excrescences; and relieves in Atrophies, and Palfseys of the Limbs, and Pains of the Gout. *Dale from Schroder.*

ASJOGAM, *H. M. Part. 5. Tab. 59. Arbor Indica Folii aduersis, flore flavescente tetrapetalo odorato, Fructu nondum comperto.*

It is a Tree of a moderate Bigness, about fifteen Feet high, and grows in the Kingdom of Malabar in the East-Indies.

The express'd Juice of the Leaves, mix'd with Cumin-seed pulveriz'd, is said to cure the Colic; and the Powder of the Leaves, taken with Sugar and yellow Sanders, to amend and purge the Blood. *Ray Hist. Plant. 1786.*

ASIRACUS, ἀσίρακος. A Species of Locusts, call'd also Onoi, ὄνοι, in Dioscorides, Lib. 2. Cap. 57. See LOCUSTA.

ASITOI, ἀσίτοι, from a Negative, and ὄσιος, Food, are those who abstain from Food. In *Aph. 32. Lib. 2.* they are call'd ἀσίτουρες, who, in *Aph. 8.* of the same Book, are said to be τερὸν μὴ λαμβάνουτες, "such as receive no Aliment," as ἀσίτουεν is oppos'd to εὐστρέφειν, which is express'd by τερὸν λαμβάνειν, "to take Food," in the same Aphorism. This is according to the usual Way of speaking among the Greeks; for, as Galen says, *Com. ad Aph. 8. Lib. 2.* λέγουσιν οὕτως ἐπὶ μὴ λαμβάνειν μὲν τερὸν τὰς ἀνορέζουσας, λαμβάνειν δὲ τὰς ἐρεγομένους τε καὶ τρεφόμενους ἀχρεὶ κόπον "It is usual with us to say of "those who have no Appetite, that they receive no Aliment; "and of those who hunger and feed to Satiety, that they receive Aliment." Hence it comes, that ἀσίτοι signifies the same as ἀπόσιτοι, "such as have an Aversion to Food;" and Galen, on *Aph. 32. Lib. 2.* expounds ἀσίτουρες by ἀποσίτους and ἀνορέζουσας. And ἀσίτη also means the same as ἀποσίτη.

ASITIA, ἀσίτη, from a Negative, and ὄσιος, Aliment. See ANOREXIA and APOSITIA.

ASIUS Lapis. See ASSIUS.

ASMAGA, a mixing of certain Metals together. *Rulandus. Johnson.*

ASMUM, Weight. *Johnson.*

ASODES, ἀσώδης. See ASE.

ASOPER, Soot. *Rulandus.*

ASPALATHUS. *Lignum Aspalathi, & Rhodium, Offic. Rhodium Lignum, Schrod. 4. 137. Geoff. Tract. 313. Radix Rhodina, Lignum Rhodium, Mont. Exot. 7. Aspalathus, Ind. Med. 15. ROSE-WOOD, or RHODIUM.*

Aspalathus, which some call *Erysisceptrum*, is a woody Shrub thick set with Thorns. It grows by the Danube, and in Nisyrus, Syria, and Rhodes. The Perfumers use it to thicken their Ointments. What is good is ponderous and reddish, or purplish, when stript of the Bark, close, sweet-scented, [of the Smell of Castor, *Pliny*] and bitterish to the Taste. There is another Species of it, which is white, ligneous, and has no Smell, and this is less valued.

It is of a heating Quality, join'd with an Astringency; for which Reason a Decoction thereof, in Wine gargariz'd, is good for Aphthæ, and to wash spreading Ulcers, and other Impurities in the Pudenda, and also the Ozaena. Mix'd in a Pessary, it expels the Foetus. The Decoction thereof, drank,

ASP

stops a Looseness, and throwing up of Blood; and relieves under Difficulty of Urine and Inflation. *Dioscorides, Lib. 1. Cap. 19.*

The *Aspalathus* grows in Egypt and Cyprus: It is a white Thorn, of the Bigness of a moderate Tree, and has a Flower like a Rose: The Root is used in Ointments. It is of a smaller Growth, but equally thorny, in Nisyrus and Rhodes. They call it also *Erysisceptrum*, *Sceptrum*, *Adipsatheon*, *Dipsacon*, and *Diacheton*. *Pliny, Lib. 12. Cap. 24. & Lib. 24. Cap. 13.*

The Tree which bears this Wood, is believed, by *Herman* and others, to be a *Cytisus*. It is brought us from the *Morea*, where it grows, being very resinous, and of a pleasant Smell, resembling that of Roses. The *Hollanders*, being in Quest of some Ships which perish'd on the Coast of *New-Holland*, in the thirty-third or thirty-fourth Degree of Southern Latitude, found on that Coast a great Quantity of this Wood. It is also much esteem'd in China, where its Infusion in Water is believ'd to cure or prevent many Diseases. An essential Oil is got from it, which has so much the Smell of Roses, as to be often substituted for their essential Oil; but the Smell of the first Kind is never so strong as that of the other. This Oil is sometimes used by Barbers, to make their Water smell agreeably. When the Antients term'd this Wood *Lignum Rhodium*, we know not whether they intended to express, that it grows in the Island of *Rhodes*, or smells like a Rose. *Geoffroy.*

ASPALTUM, for ASPHALTUM, which see. *Rulandus. Johnson.*

ASPARAGUS, Offic. Park. Parad. 503. *Raii Hist. 1. 683. Synop. 3. 267. Ασπάργος, Dioscorides. Asparagus sativus, Ger. 953. Emac. 1110. Mer. Pin. 11. Asparagus sativa, C. B. Pin. 489. Tourn. Inst. 300. Elem. Bot. 249. Boerh. Ind. A. 2. 65. Rupp. Flor. Jen. 126. Asparagus hortensis & pratensis, J. B. 3. 725. Asparagus frve Aspharagus, Chab. 550. Asparagus domesticus, Hist. Oxon. 2. 3. Asparagus vulgaris, Merc. Bot. 1. 21. Phyt. Brit. 12. SPARROW-GRASS.*

The Root of *Asparagus*, corruptly call'd *Sparrow-grass*, has a Head thick and spongy, shooting out, all round, long cylindrical Shoots, about the Thickness of a large Goose-quill, with few or no Fibres. From the Roots, in the Spring, arise many greenish-yellow Stalks, with brittle scaly Tops, bigger or less, according to the Difference of their Culture; which, as the Summer comes on, arise higher, and open into numerous Branches, cover'd with Leaves, as fine as Fenel, but very short, and encompassing the Stalk Star-fashion; among these grow small greenish six-leaved Flowers, one of which is follow'd by a round Berry, green at first, and, when ripe, of a shining-red Colour, in which are hard tough Seeds.

Asparagus is found wild in some Parts of England, near the Sea-coast; as in Cornwall, near the Lizard-point; about Bristol, and other Places; but the best is cultivated in Gardens.

The Root is one of the five opening Roots.

The Top of the Plant, or first Bud, is a Species of Food highly esteem'd by every body. *Augustus* made very much use of it, as *Suetonius* informs us in that Emperor's Life. *Erasmus* also, in his *Adagia*, tells us the same thing. It is very grateful to the Stomach, especially if eaten in the Beginning of Dinner. It procures Appetite, and tho' the Quantity of Nourishment it affords is not a great deal, 'tis still more than other Pot-herbs yield, especially if it is well digested, as *Galen* informs us, *Lib. Aliment. Cap. 59.* If 'tis eaten before Dinner, it refreshes and opens the Liver, Spleen, and Kidneys, puts the Body in an agreeable State, and excites a Discharge of the Urine, which it renders fetid and ill-smell'd, *Rod. a Fonseca, Tom. 1. Consil. Med. p. 599. Carol. Rayger. in Schol. ad Obs. Med. 61.* It is of admirable Service to those who labour under Suppressions of Urine, or the Gravel. It is excellent for those who are scorbutic or dropical: It augments the Seminal Secretions, and proves a Stimulus to Veneris. It is also of singular Efficacy in Disorders of the Eyes, *Plin. Lib. 2. Cap. 10.* But it is very hurtful to such as labour under the Gout, *Crat. Lib. 7. Conf. 21.* 'Tis also prejudicial to those who have weak Stomachs. *C. Hoffman [Lib. 5. Instit. Med. C. 12. Sect. 1.]* says, he knew Instances of their being thrown up undigested next Day, even tho' they had been very well prepar'd, especially by Women with Child. Their frequent and immoderate Use renders Women barren, *Ephem. N. C. Dec. 2. Ann. 5. App. p. 67. Claud. Deodat. Panth. Hygiast. L. 2. C. 22. Querc. in Diat. Polyhist. S. 3. C. 2. Got. Maebius, Epit. Instit. Med. L. 4. Part. 2. C. 3. Cbr. Fr. Paullin. Libr. Sing. de Jalapa. L. 2. P. 3. C. 23. & Cent. 3. Obs. Med. Phyl. 58.* The Root is principally in Use in the Shops, which is of a sweet and agreeable Taste, and is one of the five opening Roots; for which Reason 'tis used in those Disorders which proceed from Constipation. It in a remarkable manner purges the Breast, the Liver, Spleen, and Kidneys; and is esteem'd good for the Jaundice, Dropsy, and Consumption. *Theod. Tabernamontanus* gives us the Preparation of a Wine from the *Asparagus*, which performs Wonders in Cases of the Stone in the Bladder or Kidneys. See also *Gualt. Charlet. de Lithias. p. 170.* If the Root

Root is put upon a Tooth that aches violently, it causes it to come out without Pain, according to *Ant. Mizald. Cent. 7. Memorab. Aph. 34. Schenck. Obs. Med. L. 1.* Its red Grains, when dry'd and reduced to a Powder, cure Dyenteries and Fluxes.

Asparagus sylvestris, Diosc. *Asparagus pratensis*, J. B. 3. 725. Chab. 550. *Asparagus sylvestris, tenuissimo folio*, C. B. Pin. 490. Tourn. Inf. 300. Elem. Bot. 249. Boerh. Ind. A. 2. 65. Bot. Monsp. 30. WILD SPARROW-GRASS.

This only differs from the preceding by Culture. Dale.

Its Root is sweetish and glutinous, like that of the common *Sparagus*; it gives hardly any Tincture of Red to the blue Paper, which makes it probable, that its Salt resembles the vitriolated Tartar, dissolved in a great deal of Phlegm, thickened with some Earth and Sulphur, by which the Root is an Aperitive, a little temper'd. *Martyn's Tournefort.*

Asparagus petraea, Corruca, Offic. *Asparagus petraea*, Ger. 953. Emac. 1110. *Asparagus petraeus, five Corruca*, Raii Hist. 1. 683. Hist. Oxon. 2. 3. *Asparagus petraeus, five Corruca aculeata*, Park. Theat. 454. *Asparagus foliis acutis*, C. B. Pin. 490. Tourn. Inf. 300. Elem. Bot. 249. *Asparagus spinosus Corruca dictus*, Rupp. Flor. Jen. 126. *Corruca*, J. B. 3. 726. *Corruca five Asparagus sylvestris*, Chab. 550. ROCK SPARROW-GRASS.

The young Shoots and Roots of these are used in the same Intentions, as those of the *Asparagus sativus*.

ASPASIA, the Name of a constrictive Medicine for the *Pudenda muliebria*. It consisted only of Wool, moistened with an Infusion of unripe Galls. *Castellus.*

ASPER, a sort of small River-fish found in the *Rhone*. It takes the Name from the Roughness of the Scales and Jaws. It is good to eat, and is esteem'd aperitive.

The common People inquire frequently for Oil of *Asper* at the Chymists, which they use, as is pretended, to catch Fish. It is probably Oil of Ospray which they mean; for a Fable has, for time immemorial, prevail'd amongst the Vulgar, that the Ospray drops, as he flies on the Surface of the Water, something into it, which allures the Fish to it, that he may take them. Hence the Oil of this Bird has been esteem'd to have the same Effect. As there is no such thing as this Oil, the Chymists oblige their Customers with Oil of Box, or some other fetid Oil.

ASPERA ARTERIA. See ARTERIA, and PULMONES.

ASPERATA. See ASPERUM.

ASPERELLA. The same as ASPRELLA, which see.

ASPERGULA ASPERUGO. See ASPERULA.

ASPERIFOLIUS, of *Asper*, rough, and *Folium*, a Leaf. *Asperifolius* is an Epithet for such Plants as are rough-leaved, having their Leaves placed alternately, or without any certain Order, on their Stalks. They have a monopetalous Flower, cut or divided into five: After every Flower there succeed commonly four Seeds, such as Bugloss, Borage, Comfrey, Hound's-tongue, &c. *Miller's Dictionary.*

ASPERISIO, *πείσχυμα, παύσις, παύσις, παύσις*. Sprinkling is a well-known Application of some medicinal Liquid, or pulveriz'd Matter, in a thin superficial Way, or by small Portions. *Scrib. Larg. N° 46. 207. & alibi.* Hence such Medicines as are administer'd by way of Sprinkling, or Asperision, are call'd, in *Greek*, *σπινδισμα*, and in *Latin* *Aspergines*. *Castellus. Blancard.*

ASPERULA. *Asperula odorata*, *Aspergula*, *Asperula*, Offic. *Asperula odorata*, S. Paul. 25. *Asperula*, Ger. 966. Emac. 1124. Raii Hist. 1. 483. Synop. 3. 224. *Asperula aut Asperula odorata*, Park. Theat. 563. *Asperula seu Rubeola montana odorata*, C. B. Pin. 334. *Asperula odorata flore albo*, Boerh. Ind. A. 149. Hist. Oxon. 3. 331. *Asperula sylvatica*, Rupp. Flor. Jen. 4. *Rubus accedens Asperula quibusdam, five Hepatica stellaris*, J. B. 3. 718. Chab. 548. *Aparine latifolia humilior montana*, Tourn. Inf. 114. Elem. Bot. 93. Buxb. 23. *Matrifylva Trago*, Volck. 281. *Hepatica stellata*, Chom. 501. WOOD-ROOF. Dale.

The Stalks of Woodroof seldom grow above a Foot high, square and slender, and but little branch'd; having seven or eight long green Leaves growing in a Circle at every Joint, broader than Clivers, but with little or no Roughness: The Flowers grow on the Tops of the Stalk, in small Umbels, of little single-leaved white Flowers, cut into four Segments, of a sweet Smell; each of which is succeeded by two round roughish Seeds, less than those of Clivers. The Root is small, slender, and creeping in the upper Crust of the Earth. It grows in Woods and Copfes, and flowers in May.

Woodroof is esteem'd to be a good Hepatic, and useful against Inflammations of the Liver, and Obstructions of the Gall-bladder, and the Jaundice: The *Germans* put it into their Wine, as we do *Borage* and *Burnet*, as a great Cordial, and Comforter of the Spirits. The green Herb, bruised, is apply'd by some Country Folks to hot Tumors and Inflammations, and to fresh Cuts. *Miller's Bot. Off.*

ASPERUM, *τεχνη*, rough, is an Epithet apply'd to a Body of an uneven Superficies, grating to the Touch, which Property is call'd *Asperitas*, or *Aspritudo*, *τεχνη*, Roughness. In *Scribanus Largus* we read *Asprum* for *Asperum*, by a Syncope, N° 180. Every rough Body is uneven, says *Galen*; but, on the contrary, every uneven Body is not rough. Roughness or Asperity, according to the same Author, is occasion'd from Constriction, or too great Dryness, or from Acrimony. *Gal. Comment. in Lib. 1. Hipp. de Morb. vulg. & Lib. de Ptisana, C. 5.*

Asperata quæ levent; simple Medicines smoothing Asperities enumerated by *Celsus*, are, Spodium, Ebony, Gum Arabic, the White of an Egg, Gum Tragacanth. *Celsus, Lib. 5. Cap. 13.*

ASPHALATUS. The same as ASPALATHUS, which see.

ASPHALEIA, *ἀσφάλεια*, from a Negative, and *ἀσάλλω*, to deceive. Security, Firmness; and *ἀσφαλές*, safe, secure. *Hippocr. 5. Aph. 22. & 2. Aph. 15.*

ASPHALITIS, *ἀσφαλitis*, according to *Archigenes*, a kind of Trefoil with a larger Leaf, used by the *Coronarii*; (Garland-weavers) but *Dioscorides* writes, that Trefoil was simply so call'd, *Gorræus*. *Dioscorides* makes the Name of it *ἀσφαλίσκος*, not *ἀσφαλitis*; *Lib. 3. Cap. 123. Edit. Wechel. 1598.*

Asphaltitis is also a Name given by some to the last of the Vertebrae of the Loins. *Gorræus.*

ASPHALTOS & Bitumen Judaicum, Offic. Bitumen, Calc. Mus. 174. Bitumen Judaicum, Worm. 30. Charit. Foss. 14. Aldrov. Mus. Metall. 381. Bitumen nigrum crassum, Kentm. 21. Bitumen Judaicum Asphaltum, Mont. Ind. 12. JEWS PITCH.

The Asphaltum of *Dioscorides*, and Bitumen Judaicum of the Shops, call'd *Carabe* and *Gummi Funerum* by *Serapion*, and by others *Mumia*, is a solid, brittle, ponderous Substance, of a red, blackish, or dark Colour; easily inflammable, and of a strong bituminous Smell, especially when warm, and fusible by Fire. It is found in several Parts, but the best is that which comes from *Judea*, where it is gather'd on the *Dead Sea*, call'd from thence the *Lake Asphaltites*. It is probable, that a great Quantity of this Bitumen rises from the Bottom of that Lake to the Surface of the Water. At first it is so soft, viscid, and glutinous, that it can with Difficulty be separated from any Part which it touches, but in time it grows harder than Pitch; and, from the Place where it is found, it is call'd *Carabe* of *Sodom*; *Carabe* being used often by the *Arabians* to denote any solid Bitumen, and the *Dead Sea* being the Lake where *Sodom* stood. The Names of *Gummi Funerum* and *Mumia* were given it, because the common People, among the *Egyptians*, used it in embalming and preserving dead Bodies.

The true Bitumen Judaicum is seldom brought to us; for *Dioscorides* directs us to make Choice of that which shines like Purple, and to reject the black Kind as being foul, and of small Value; but all that we see of that Kind is black; though even that, when broken in Pieces, appears, against the Light, to be of a Saffron Colour; and therefore it is possible this may be the same Kind recommended by *Dioscorides*, only boil'd to a hard Consistence in Brass Kettles, before it is sent to us.

It is of a discutient, emollient, and agglutinating Quality. It dissolves coagulated Blood, and promotes the Menstrual Discharge. It is an Ingredient in the *Venice Treacle*, and in the Embalming Powder of *Charas*. *Geoffroy.*

ASPHARAGUS. The same as ASPARAGUS, but spelt with a *ϕ* instead of a *π*, according to the *Attic Dialect*. *Blancard.*

ASPHENDAMNOS, SPHENDAMNOS. A Mountain Maple. *Blancard.*

ASPHODELUS. The Asphodel.

The Asphodel is a well known Plant, with Leaves like a large Leek, and a smooth Stalk, bearing on its Top a Flower call'd *Anthericos*. [The Translator of *Nicander* makes *Anthericos* the Fruit, and *Anthérix* the Stalk of the Asphodel. See ANTHERICOS.]

The Roots are oblong, smooth, and like an Acorn, of an acrimonious Taste, and heating Quality. Being drank, they provoke Urine and the Menes; and the Weight of a Dram taken in Wine cures Pains in the Side, Coughs, Convulsions, and Ruptures. The Quantity of a Dye eaten as Food facilitates Vomiting; and three Drams are an effectual Dose for those who are bitten by Serpents: But a Cataplasm of the Root, Leaves, and Flowers, with Wine, must at the same time be apply'd to the Place. The Root boiled in Lees of Wine makes a good Cataplasm for foul and spreading Ulcers, and for Inflammations of the Breasts or Testicles; to recent Inflammations it is apply'd with Polenta: The Juice of the Root mixed with old sweet Wine, [*παλαιὸν γλυκὺν*] Myrrh, and Saffron, and boiled all together, makes a good Medicine to anoint the Eyes. The same warm by itself, or with Frankincense, Honey, Wine, and Myrrh, is proper for purulent Ears, and cures the

Pain of the Teeth, if dropped into the opposite Ear. The Ashes of the burnt Root rubbed on an Alopecia cause new Hair to spring. Oil boiled in the Roots hollowed, and set over the Fire, is good to anoint exulcerated Chilblains, and Ambuſſions; and dropped into the Ears it eases the Pains therein. The Root abſterges the white Alphas, [*ἀλφιδον λευκὴν*] if the Part affected be firſt rubbed with a Linen Cloth, and then anointed. The Seed and Flowers drank in Wine are a moſt effectual Antidote againſt the Scolopendra and Scorpion, but diſturb the Belly. *Dioſcorides, Lib. 2. Cap. 199.*

This Aſphodel does not ſeem to be the ſame as that taken Notice of by *Hefiod*, which he repreſents as eatable, by way of Food; and joins it with the Mallows.

Aſphodelus verus albus, Offic. *Ἀσφόδελος*, *Dioſcorides*, *Aſphodelus ramosus*, Ger. 86. (*figura eſt tranſpoſita*) *Emac. 93.* *Aſphodelus albus ramosus mas*, C. B. Pin. 28. *Tourn. Inſt. 343. Elem. Bot. 286.* *Boerh. Ind. A. 2. 110.* *Aſphodelus major albus ramosus*, Park. Parad. 146. *Aſphodelus major ramosus flore albo*, J. B. 2. 625. *Chab. 221. Raii Hiſt. 2. 1191.* *Aſphodelus albus ramosus*, Hiſt. Oxon. 2. 330. WHITE ASPHODEL.

The Stalks of the white Aſphodel grow to be two or three Feet high, branched toward the Top, divided into ſeveral Spikes of ſtarry white Flowers, each being monopetalous, divided into five Parts, with a purple Line on the Back of each, and ſeveral yellow Chives in the Middle. The Leaves are long and narrow, and ſharp-pointed, hollow'd in the Middle like a Sword-blade. The Root is compoſed of a great many long, roundiſh, tuberous Glandules, growing from a ſtringy Head. It is planted with us in Gardens, its native Place being *Italy*, *Spain*, and the Southern Parts of *France*, and flowers in *May*.

The Roots of this Plant were uſed by the Antients to provoke Urine, and bring down the Menſes; but it is very rarely met with in the Practice of Phyſic. *Miller's Bot. Off.*

Aſphodelus verus luteus, haſta regia, Offic. *Aſphodelus luteus*, Ger. 87. *Emac. 94. J. B. 2. 632. Chab. 221. Raii Hiſt. 2. 1192.* *Aſphodelus luteus, & flore, & radice*, C. B. Pin. 28. *Rupp. Flor. Jen. 124. Tourn. Inſt. 344. Boerh. Ind. A. 2. 110.* *Aſphodelus luteus minor ſive Haſtula regia*, Park. Parad. 147. *Aſphodelus folio fiſtuloſo ſtriato, non ramosus, luteus, & flore, & radice*, Hiſt. Oxon. 2. 331. **KINGS SPEAR.** *Dale.*

This is a lower Plant than the former, and much leſs branch'd. The Leaves are long, hollow, and fiſtular, ſomewhat triangular; the Leaves grow in Spikes of a yellow Colour, larger than the other, of the ſame Shape and Make. The Root is compoſed of the like Clogs and Glandules, of a yellow Colour. This likewiſe is a Native of *Italy* and *Sicily*, and is planted here in Gardens, flowering in *May* and *June*.

The ſame Virtues are attributed to this, as to the former, but it is ſeldom uſed. *Miller's Bot. Off.*

Bartholomæus Zorn is more particular with reſpect to this Plant; for which Reaſon I ſhall give his Chapter upon it.

Aſphodelus, Affodilus & Haſtula regia. Aſphodelus luteus, *Dod. J. B. Chabr. Luteus & flore et radice*, C. B. *Luteus minor ſive Haſtula regia*, Park. *Folio fiſtuloſo ſtriato, non ramosus. Luteus & flore & radice*, *Moriſ. H. 2. Iphion Theophrasti, Ἀσφόδελος*, Græc. *Erizambac*, Arab. *Bernhardi Teſticulus*. Others call it *Anthericum*, which, according to the Fiction of *Lucian*; the Ghoſts of the Damn'd eat in Hell. It is an Herb well enough known in our Gardens, on account of its beautiful Flowers. It grows naturally in many Parts of *Italy*, *France*, and *Spain*. The Poet *Hefiod* makes very honourable mention of it. There are three Sorts of it, two of which are white and prickly on the Edges, but the other Species is of a yellow Colour. The Root is principally uſed, which is hot, and of a ſtrong bitter Taſte. *Fallopius, L. de Cauter. C. 10.* reckons it among the beſt of the milder Cathartics. It is of a warming, drying, opening, diſcuſſing, purgative, and cleaning Nature. It alſo excites a Diſcharge of the Urine and Menſes; is good for Spasms, cures Ruptures, Jaundice, and the Dropſy. A Decoction of the Roots of Aſphodel, uſed as common Drink, is a powerful Medicine. *Guil. Varign. Secret. Med. p. m. 131.* The Root boiled in Wine or Water, and ſufficiently tritured when dry, cleanses and cures old corroſive and fetid Wounds and Ulcers, Swellings of the Breasts and Privy-parts; as alſo bloody Ulcers, *Plin. L. 22. C. 22.* A Cataplaſm is alſo prepared of it and Pitch, for removing the Stenich of the Feet, *P. Laurenb. Floricult. L. 2. C. 7. p. 114.* If beat, and laid upon ſcrophulous Swellings, it cures them, *Foreſt. L. 3. Obſ. Chir. 11.* and heals Chilblains, whether exulcerated or not, *J. Prævoſt. in Med. Pæp. Joh. Scultet. in Armament. Chir. Obſ. 83.* The Vinegar in which the Root has been boiled, if uſed for waſhing the Body, cures the Itch, and other ſcorbutic Eruptions. Some roaſt the Root in hot Aſhes, and rub their Faces and Hands with it, in order to remove all Blotches, and purify the Skin. The Root alſo cauſes the Hair to grow faſt, and curl: See *Laurenberg. Apparât. Plantar. L. 2. C. 7.* The Root burnt to Aſhes, and

mixed with Honey, makes the Hair grow again on thoſe Parts from which it is fallen off. This Root reduced to Powder, and mixed with calcined Alum, corrodes the proud Fleſh of foul Ulcers, if apply'd to them. If a Houſe is ſmoaked with this Root, it baniſhes Mice, and proves a Poiſon to them. If its Root is put into the Water which Swine drink, it prevents their being affected with a peſtilential Leproſy; or if they are ſo, it reſtores them to their natural State. It alſo produces the ſame Effect, if they are frequently waſhed with ſuch a Water. *Florentinus.*

ASPHYXIA, ἀσφυξία, from a Negative, and σφύξω, a Pulse, from σφύζω, to leap, or beat like an Artery. A Privation of the Pulse, when no Artery ſeems to be moved, or no Motion is perceptible to the Touch. A total Privation of the Pulse indeed cannot be while the Animal is alive; but with reſpect to our Senſe of Feeling, a Privation often happens, *Galen. Lib. 1. de Præcogn. ex Pulſ.* The ſame is occaſioned two Ways, which are either a total Abolition of the Pulse of the Arteries, which is the moſt mortal of all Symptoms, or becauſe it beats ſo weakly and remiſſly, as to eſcape all Notice by the Touch. *Galen. Lib. 2. de Præſag. ex Pulſ.*

Ἀσφυξία is rendered by *Cælius Aurelianus, Cap. 3. Lib. 4. Tard. Paſſ. Pulſus Parvitas et Amputatio*, “a Smallneſs and “Amputation of the Pulse.”

Ἀσφυξία, in *Galen, Lib. 4. de Diff. Pulſ. Cap. 3.* are ſuch as are deprived of Pulse, or have no perceptible Motion of their Arteries.

ASPIC.

There is an Oil, called by the French Oil of *Aſpic*, drawn from a Plant which *C. Bauhine* calls *Lavendula latifolia*; but to which *J. Bauhine* gives the Name of *Pſeudonardus*, and the French that of *Aſpic*.

This Plant is commonly found in all Parts of *Provence*; and when it produces its Flowers, we put them, when almoſt dry, into a large Still, with a great deal of Water. After a Maceration for ſome Days, we diſtil the Whole, upon which there is carried along with the Water an Oil of a yellowiſh or amber Colour; and this is the Oil of *Aſpic*, pure and unadulterated, as it ought to be. The Flowers of this Plant are to be choſen for this Purpoſe, rather than any other of its Parts, becauſe they contain the largeſt Quantity of eſſential Oil; and indeed, upon ſtrict Obſervation, we find, that the Cup of the Flower contains almoſt all the oily Parts of the Plant.

We muſt here obſerve, that aromatic Plants generally yield but a ſmall Quantity of Oil; ſo that before the Oil can be diſtilled with ſmall Expence, a large Quantity of the Flowers muſt be eaſily procured; which is the Reaſon that in *Provence* the eſſential Oil of *Aſpic* is not only to be found in greater Abundance, but is alſo ſold cheaper, than the Oil extracted from that Plant in moſt other Parts.

But notwithstanding the Eaſineſs of extracting the Oil in thoſe Parts, where the Flowers are found in Abundance, yet the immenſe Quantity of it uſed, and the low Price paid for it, ſhew that we very rarely have it perfectly pure and unadulterated. There are ſeveral ways of adulterating this Oil, two of the leaſt fraudulent of which I myſelf have diſcovered; one is by mixing it with Spirits of Wine; and the other by adding to it Oil of Turpentine. This Oil is for the moſt part imported to us from *Provence* and *Montpelier*; but as 'tis a great deal more employed in Painting, Enameling, and Varniſhing, than in Phyſic, it does not ſo properly come under our preſent Conſideration, *Mem. de l'Acad. 1715. by Mr. Geoffroy the younger.*

ASPIDION, ἀσπίδιον, a Diminutive of ἀσπίς, a Buckler. A Name for the *Alyſſon* of *Dioſcorides*, becauſe it has ſmall round Pods reſembling a Buckler. *Blancard.*

ASPIDISCOS, ἀσπίδισκος, from ἀσπίς, a Buckler, properly ſignifies a little Buckler, or the exterior Ornaments of Bucklers; but is apply'd by Metaphor to the Sphincter Muſcle, as being in a manner the Ring of the Anus, as we are informed by *Cælius Aurelianus, Tard. Paſſ. Lib. 3. Cap. 3.*

ASPIS, ἀσπίς. The Aſp, a very poiſonous Serpent; of which *Galen, Lib. 1. de Theriac. ad Piſon. C. 8.* makes three Species, the firſt called *χερσαία*, the ſecond *χενδρία*, and the laſt *ἄσπας*, which is the moſt pernicious; for it extends its Neck, and ſuddenly ſpits its Venom upon a Perſon, as if it were endued with Reaſon to eſtimate the Diſtance. This is the Sort that is ſuppoſed to have bit Queen *Cleopatra* to Death; for after the Overthrow and Death of *Antony*, when *Auguſtus* had a Deſign to lead her away captive, to adorn his Triumph, ſhe held out her Breaſt to one of theſe Serpents, and by its Bite received a very ſpeedy Death. The Mark of this Bite is very ſmall, like the Puncture of a Needle, without a Tumor, and but a ſmall Quantity of Blood, though black in Colour, diſſils from the Wound. This is ſoon ſucceeded by a Dimneſs of Sight, and various Kinds of Pain in the Body, but very ſlight, and not without ſome Mixture of Pleaſure. Wherefore *Nicander* had Reaſon to ſay, in his Verſes, that it kills without Pain. The Colour changes to a Green and Herbaceous; there is a ſlight Gnawing at the Mouth of the Stomach; the Forehead has continual Spasms; the Eye-lids move involuntarily, as

at the Approach of Sleep; and the Patient dies in less than the third Part of a Day.

The most ready and effectual Remedy is Amputation of the affected Part, if it be one of the Extremities, and may be done; if not, let the circumjacent Flesh be speedily scarify'd, and cut away even to the Bone, that the Venom may not spread itself into the neighbouring Parts, and the rest are to be treated with Cauterics; for the Poison of this Serpent, as well as that of the Basilisk, like Bulls Blood, very soon congeals the Blood and Spirits in the Arteries. *P. Aeginet. Lib. 5. Cap. 18.*

Emplastrum ex Aspidibus. A Plaster of Asps for stumorous Swellings, and other Hardnesses, and for the Gout in the Intervals of the Paroxysms, you are taught how to prepare by *Actius, Tetrab. 4. Serm. 3. Cap. 15.*

It is probable, that anointing the injured Part with common Oil of Olives by a warm Fire, would cure the Bite of the Asp; as it does that of the Viper. See ALEIPHA, and VIPERA.

ASPENIUM, a Plant thus distinguish'd:

Asplenium Ceterach, Scolopendria, Offic. Asplenium, Scolopendrium, Ceterach, Chab. 556. Asplenium sive Ceterach, J. B. 3. 749. Ger. 978. Emac. 1140. Raii Hist. 1. 139. Synop. 45. Park. 1046. Hist. Oxon. 1. 561. Elem. Bot. 434. Tourn. Inst. 544. Ceterach officinarum, C. B. 354. SPLEEN-WORT or MILTWAST. Dale.

This is a small Plant, consisting only of Leaves, which spring from a fibrous Root. They are about three or four Inches long, hardly half an Inch broad, cut into small roundish Segments, which stand not opposite to one another, but alternately; they are of a greenish Colour on the upper Side, and brownish, and full of dusty Seed underneath, generally crumpled, or folded inward, in Shape somewhat like the Insect *Scolopendra*, whence it takes one of the Names. It grows upon old Stone Walls and Buildings, especially in the West of England.

This is one of the five Capillary Plants, having its Name from its good Effects in curing Diseases of the Spleen, taking away the Swellings thereof, and hindering its too great Largeness; whence likewise it is called Miltwast; it also opens Obstructions of the Liver, helps the Jaundice, and is very good for the Rickets in Children. *Miller's Bot. Off.*

Vitruvius gives an extraordinary Instance of the Effects of Asplenium in Crete, which is specify'd in the Extract from that Author under the Article AER.

ASPREDO *Cernua, Offic. Bellon. de Aquat. 291. Cernua fluviatilis, Gefn. de Aquat. 192. Charlt. Pisc. 39. Raii Ichth. 334. Ejsid. Synop. Pisc. 144. Mer. Pin. 190. Aspredo, Caius de Rar. Animal. 107. Aurata, Rondel. de Pisc. 1. 115. Perca fluviatilis minor, Aldrov. de Pisc. 624. Jonf. de Pisc. 108. THE RUFF.*

This Fish is common in many of our large Rivers. *Gesner* recommends a Bone found in the Head of this Fish, for the Stone in the Kidneys; and for pungent Pains about the Ribs, and in other Parts. *Dale.*

ASPRELLA: A Name which *Blancard* gives to the *Equisetum majus*, on account of its Asperity; for which it is used to polish Chests and Cupboards.

ASPRIS. A Tree, the same as the *Ægilops*, which see.

ASSA-FŒTIDA: The same as ASA-FŒTIDA. See SILPHIUM.

ASSALA. A Nutmeg. *Ruland. Johnson.*

ASSALLÆ, Worms that breed among Planks, otherwise called *Coffi, Terebrones, Termes, Thripes, Xylophagi.* *Rulandus.*

ASSANEGLI, ASANIRGLI, ASARAGI. The Powder that falls off from the Walls of Salt in the Salt Mines. *Rulandus.*

ASSANUS. A Weight among the Antients, consisting of two Drams. *Galen. de Ponderibus et Mens.*

ASSATIO, *ἀσσις*, Assation, is an artificial way of dressing Eatables, by means of an extrinsic and foreign Heat, which by its prevailing Force is effectual towards drying of the same. There are several Kinds or Modes of Assation; for either the Meat is moved near the Fire, or placed in a Vessel, put under, or but an insufficient Quantity of Moisture, and Fire with none it. To this Class belong fry'd Meats, whence Frying is a Species of Assation. Hither also may we refer *Tostio, satevont, Toasting.* Roasted and fry'd Meats, according to *Galen, Lib. 3. Alim. Fac. Cap. 2.* afford drier Aliment to the Body. The first in Greek are called *ἀσσις*, the other *σάτυρις*. *Scribonius Largus* mentions *Ova assa*, N° 221. *Assare*, in the Spagirical Language, is to dry a Thing, and put it in such a State, as to be reducible to Powder; and sometimes it is the same as to congeal. What is all red-hot both within and without, undergoes a wrong Assation. *Assare*, by way of Allegory, is called the seventh Regimen, which is that of the Moon, whose Office it is to heat and compose for the Space of twenty-five Days, and this is called the Silver Regimen. Lastly, Assation, in the Magistery of the Philosophers Stone, is a sweet and gentle Desiccation of Bodies dissolved and separated from their Menstruums by a small Fire decreasing towards the End, which sweet Desiccation is a Calcination. *Castellus.*

ASSATURA is the Animal or Piece of Meat but just removed from the Fire after Assation, and wrapped in a Cloth. They are called *Assatura suffocata*, by *Santes Ardoynus*, and reckon'd among Poisons. *Castellus.*

ASSERAC, the same as *Assis*, is a Species of *Bangué*, which is the *Assis* of the Egyptians, and differs from the Opium and Maillac of the Turks. *Castellus.*

ASSERVATIO, or CONSERVATIO, in Pharmaceutics, is repositing such Collections of Simples as are necessary for Use in proper Vessels and Places, that they may be always in Readiness. *Castellus.*

ASSIDENS *Signum, συρδεδευσις*, an assident Sign, or Symptom, that is, such a one as usually accompanies a Disease. It differs, however, from the *Pathognomonic* in this, that this last is inseparable from the Distemper, as being essential to it; but the other not so, *Gal. 3. in 3. Epid. C. 34.* For Illustration, let the Pleurisy be an Example, in which an acute Fever, a Difficulty of Respiration, Cough, and pungent Pain of the Side, are pathognomonic Symptoms; but that the Pain should extend to the Hypochondrium, or Clavicle, or that the Patient should find more Ease in lying upon the affected Side than upon the other, are no more than assident Symptoms. *Castellus.*

ASSIDUUS is used by some instead of *continuus*; thus with them *assidua Febris* is the same as *continua Febris*, and is opposed to *intermittens*. *Castellus.*

ASSIMILATIO, *ἐξομοίωσις, ὁμοίωσις*, an Assimilation. It is the Action by which the Supply of Nourishment is alter'd and assimilated to the Part nourished, *Galen. 3. de Fac. Nat. Cap. 1.* In order to this there must be first an *Appositio, προσέσθσις*, an Apposition; and then an *Agglutinatio, or Adhærentia, πρόσσθσις*, an Agglutination, or Adhesion, *Lib. 1. de F. N. C. 11.* It differs only in Name from Nutrition, *Lib. 3. de Caus. Sympt. C. 2.*

ASSIS is either the same with Opium; or Meconium; or else it is a Powder prepared of Hemp-leaves, of which, being mixed with Water, the Egyptians take five or more Boluses of the Bigness of a Chestnut, which throws them into a drunken Ecstasy for an Hour, during which they delight themselves with imaginary Scenes. *Prosp. Alpinus de Medic. Egypt. Lib. 4. Cap. 2.* The Turks also call it *Asserac*. See BANQUE.

ASSISTENTES, or *Assites glandulosi*. The same as PARASTATÆ, which see.

ASSITRA. A Tree in the East-Indies, the same as MANDARU, which see. *Raii Hist. Plant. 1751.*

ASSIUS LAPIS, *ἄσσιος λίθος*, Diof.

Lapis Assius, Offic. Matth. 1380. Aldrov. Mus. Metall. 692. Assus vel Assius Lapis, quem etiam Sarcophagum vocant, Worm. Aq. Charlt. Foss. 21. Sarcophagus, sive Assius Lapis, De Laet. 133. Sarcophagus, & Assus seu Assius Lapis, Boet. 403. ASSIAN STONES. Dale.

This is so called from *ἄσσιος*, a City of Troas in the Lesser Asia, where it was found. The Assian Stone is of a tephrous, soft, friable, and loose Substance. Something grows upon it like very fine Meal, such as we see sticking upon the Walls of Mills. They call it the Flower of the Assian Rock: It is of subtle Parts, and consumes Flesh that is too soft and fluid by Colliquation without Mordacity. The Stone on which it grows has the same Virtue, but weaker; for the Flower is not only colliquative, digestive, and preservative like Salt, but performs all this without any remarkably corrosive Quality. It has somewhat of Saltiness to the Taste, which makes it conjectur'd to be a Dew arising from the Sea, which is condensed by the Rock, and dry'd by the Sun. *Galen de Simp. Med. Fac. Lib. 9.*

The Assian Stone, says *Dioscorides*, ought to be of the Colour of the Pumice-stone, spongy, and light, and also friable, with intercurrent yellow Veins from the Top to the Bottom: Its Flower is a yellowish and saltish Substance, on the Surface of the Stone, of a thin Contexture, some white, some of the Colour of the Pumice-stone, inclining to yellow; it tastes somewhat biting upon the Tongue.

Both the Stone and the Flower have an astringent and gently colliquative Virtue, and, being mixed with Resin of Turpentine or Tar, discuss Tubercles; but the Flower is esteem'd most effectual, and is, indeed, when dry'd, an extraordinary Remedy for inveterate Ulcers, which are difficult to be cicatrized, and represses carnosus Excrescences. Mixed with Honey it absterses foul and virulent Ulcers; it deterges also and incurs Ulcers which are hollow, and mixed with Cerate restrains the spreading Kind. It is made into a Cataplasim with Bean-meal for the Gout, and for splenetic Disorders with Vinegar and Quick-lime. The Flower made into an Eclegma with Honey is good in a Phthisis. Vessels are made of the Stone, in which gouty Persons put their Feet when they bathe, and find Relief thereby. Coffins are made of the same, for the speedy Consumption of dead Bodies; and Persons of a very fleshy and gross Habit are extenuated by sprinkling the Flower instead of Nitre in their Baths. If any one thinks fit to wash the

the Stone or Flower, he must do it as he washes *Cadmia*. *Di-ascorides*, *Lib. 5. Cap. 142*.

About *Affes*, a City of *Troas*, grows a Stone which consumes all Bodies; they call it *Sarcophagus* [from *σάρξ*, Flesh, and *φάγω*, to devour]. *Pliny*, *Lib. 2. Cap. 96*. Dead Bodies inter'd in it are found to be consum'd within forty Days, Bones and all, except the Teeth. *Idem*, *Lib. 36. Cap. 17*.

ASSOS, Alum. *Rulandus*.

ASSUETUDO, the same as CONSUETUDO.

ASSUMTIO, *ἀρσίλησις*, *ἀρσίζεα*, a Reception. The Word is apply'd to every thing, whether Aliment or Medicine, which is communicated by the Mouth to the Body, not excepting Air itself. *Castellus*.

ASTACUS, Offic. *Gesn. de Aquat. 91. Rondel. de Aquat. 1. 538. Astacus verus*, *Aldrov. Exang. 112. Astacus marinus communis*, *Jonf. Exang. 13. Astacus marinus*, *Mer. Pin. 191. Charlt. Exer. 55. Schonef. Ichth. 23. THE LOB-STER. Dale*.

This Fish is too well known to require a Description. The Shell calcin'd, and drank in Wine, is said to break and carry off stony Concretions in the Kidneys; and it is likely enough to have some Effect in such Cases, because the Shells of Fish calcin'd are a sort of Lime, and the Salts of Lime are the grand Dissolvents of stony Concretions. It is now well known, that whatever good Effects *Mrs. Stevens's* Medicine for the Stone may have, are owing to the Salts of Lime.

Lobsters as a Food are highly calefcent, and of consequence must be very proper Food, when an acid Acrimony prevails in the Stomach, and general Habit; but the contrary in case of a Tendency to an alkaline Putrefaction. They are esteem'd very nourishing, and good in a Consumption. See ALIMENTA.

ASTACUS FLUVIATILIS, Offic. *Rondel. de Pisc. 2. 210. Schonef. Ichth. 20. Gesn. Aquat. 104. Mer. Pin. 192. Charlt. Exer. 56. Aldrov. de Exang. 129. Jonf. Exang. 15. Cammarus*, *Bellon. de Pisc. 355. Cancer*, *Schrod. 5. 325. The CRAWFISH, or CREVIS*.

They are found in Rivers, and the Parts of them used in Pharmacy are, the *Flesh*, and what we call the *Lapilli*, or *Oculi Cancrorum*, known by the Name of *Crab's-eyes*. In their Head, according to some, or rather in their Stomach, are found two white Stones, as large as a Pea, of a kind of lenticular or orbicular Form, but compress'd, and somewhat hollow on one Side, whereas the other is convex, and dispos'd in *Laminae*. These Stones are of an earthy Taste. We frequently meet with a counterfeit Species of this Commodity prepar'd of a whitish Earth, and made up in the same Form; but this fictitious Kind is easily distinguished by breaking them; since they want those *Laminae* which are always found in the convex Part of natural and genuine *Crab's-eyes*. The *Flesh* of this Animal is cooling, moistening, and adapted to nourish such as labour under Atrophies. The *Stones* or *Eyes* are cooling, drying, abstergent, and discutient; they resolve tartarous Concretions, and coagulated Blood, and are possess'd of a lithontriptic Quality; for which Reason they are often prescrib'd in nephritic Pains, Pleurifies, Asthmas, and Colics; they are also proper for cleansing the Teeth. The Shell is possess'd of the same Virtues with the Stones, and is besides of Service in curing such Itches in Children as arise from saline Humours, and in carrying off the Paroxysms of intermittent Fevers. *Schrod.*

ASTAPHIS, *ἀσταψίς*, in the *Attic* Dialect, for *σάπης*, a Raisin.

ASTARZOF. The Name of an Ointment in *Paracelsus*, consisting of one Ounce of Litharge wash'd, one Ounce and a half of Spenniola, with three Ounces each of the Juices of House-leek, and Water-lily. He gives also the same Name to a Mixture of two Ounces of Rose-water with an Ounce of Camphire. These he uses in the Cure of a *Formica*. *Paracels. de Apostem. Cap. 38*.

ASTCHACHILLOS is a Name given by *Paracelsus* to a malignant gangrenous Ulcer, which begins at the Juncures of the Feet, and ascends up the Legs to the Knees. When there is a Redness, he says, above the Juncures at the Root of the Heel, and the Ulceration occupies a large Surface, making its way by many little Ulcers up the Leg towards the Knee, you may venture to say there will be an *Astchachilos*, which I also call *Araneus*. *Id. ibid. Cap. 18*.

ASTEION, *ἀσείων*, from *ἀστυ*, a City, in the same Sense as *Urbanus* comes from *Urbs*. Good, laudable, civil, polite, In *Hippoc. Lib. de Alim. ἀσείων* is oppos'd to *βλαβερός*, hurtful; and soon after to *ελαφρός*, bad, corrupt. In *Hipp. Epist. ad Democ. ἀσείων* ἐλλεβορμῆς, *ἀσείων* τὰ σώματα are such as enjoy a good State of Body. *ἀσείων*, in the same Author, signifies civil, polite, laudable, and is commonly oppos'd to *ἀγέων*, rude, barbarous, malignant. *ἀσείων*, according to *Varinus*, signifies τὸ χαλεπὸν καὶ τὸ δεξιὸν, καὶ δαύματ' ἀξίον, δαυμάσιον, σπυδαῖον καὶ αἰδέσιμον, "graceful and handsome, worthy of Admiration, honourable, just, and venerable."

ASTERES THALATTII, *ἀστέρες θαλάσσιοι*, (from *θάλασσα*, or *θάλαττα*, the Sea, *Star-fish*) are prescribed, together with Cabbage and scented Wine, by *Hippocrates*, *Lib. 2. περι*

γυναικ. in the Hysteric Passion; and for Hysterical Pains, Lib. 2. περι γυναικ. 900.

The *Stella Marina* is very small in Bulk; its Inside is *Flesh*, but its Outside a pretty hard Callus. They say it is of so fiery a Nature, that it scorches every thing it touches, and digests all its Food in an Instant. *Plin. Lib. 9. Cap. 60*.

ASTERGES, *ἀστέργης*, from *ἀστυ* and *σέργω*, properly, to love with a natural Affection. Inhuman, unnatural, severe; in *Hippoc. ἀστέριον*, it signifies hard, dense, compact, and is oppos'd to *ἀραιός*, *μαλακός*, rare, soft; as τὸ ὃ ἀστέριον ἐκ ἀντὶ τοῦ ἀστέριον, πυκνὸν τε ἐστὶ καὶ ἀστέριον. "But the Male does not receive any [Moisture]" being dense and compact."

ASTER ATTICUS, *Ἀστὴρ Ἀττικὸς*, *Dioscorides Inguinalis. After Atticus*, Offic. *After Atticus*, *Ger. 392. Emac. 486. Raii Hist. 1. 338. After Atticus luteus verus*, *Park. 128. After luteus, foliis ad florem rigidis*, *C. B. 266. Chrysanthemum conyzoides, foliis circa florem rigidis*, *Hist. Oxon. 3. 18. Chrysanthemum Asteris facie, foliis ad florem rigidis*, *Herm. Cat. Asteriscus annuus foliis ad florem rigidis*, *El. Bot. 398. Tourn. Inst. 497. Boerh. Ind. A. 164. Aët. Reg. Par. An. 1710. 382. GOLDEN STARWORT. Dale*.

The *After Atticus* [by some called *Bubonium*, *Oribasius*] is a ligneous Stalk, which has a purple or yellow Flower on its Top, divided round about, like that of Chamomile, with radiated Leaves like a Star. The Leaves about the Stalk are oblong and hairy.

Made into a Cataplasm it is effectually apply'd in hot Disorders of the Stomach, Inflammations of the Eyes, Buboës, and falling down of the Anus. They say that the purple Part of the Flower drank in Water cures the Quinsy, and frees Children from the Epilepsy; and being apply'd while it is yet moist and recent, by way of Cataplasm, is proper for inflammatory Buboës. If the Flower, when it is dry, be crott by the Left Hand of the Patient, and ty'd about the Bubo, it takes off the Pain. *Dioscor. Lib. 2. Cap. 120*.

After by some is called *Bubonium*, because it is a present Remedy for a Bubo. It also relieves the *Sciatica*, being ty'd on the Part. *Pliny, Lib. 27. Cap. 5*.

After is also the Name of a Medicine invented by *Andromachus*, against Distillations, and various Sorts of Pains. *Gal. de Comp. Med. Sec. Loc. Lib. 7. Cap. 5*.

The lower Leaves of this *After* are about four or five Inches long, and about an Inch broad at the End, which is round-pointed, and growing narrower towards the Root; the Stalk is downy and hairy, about a Foot and a half high, with the like Leaves, but smaller, set on it without Order: Toward the Top it is divided into three or four Branches, at the End of which grows a yellow Flower like a Marigold, but with a broader Thrum, and narrower Petals: Close under each Flower grow six or seven stiff roundish Leaves, in form of a Star, whence it takes its Name; the Seed is oblong, thin, and flat; of a blackish Colour: The Root is small and fibrous, perishing every Year. It grows in *Italy*, *Spain*, and the Southern Parts of *France*, and also in *Greece*. *Millar's Bot. Off.*

This Plant is found in the Gardens of Botanists, and flowers in *May*. Its Leaves are only used, which are of a vulnerary Nature, tho' rarely prescribed in Practice. The Leaves and the Herb itself are of Service in preternatural Commotions, and Heats of the Stomach, Inflammations of the Eyes, the falling down of the Fundament, and Tumors in the Groins. The Water distill'd from its Flowers, if drunk, is of Service in Quinsys, and the epileptic Fits of Children. *Dale*.

There are several other Plants called by the Name of *After*, which are Species of *CONYZA*, which see.

The *Helenium*, or *Enula Campana*, is also call'd *ASTER OMNIUM MAXIMUM*.

ASTERIA GEMMA, Offic. *Asteria, aut Solis Gemma*, *Boet. 226. The BASTARD OPAL, or STAR-GEM. Dale*.

This Gem is transparent like Crystal, but of a harder Nature. 'Tis thought to be a Species of the *Opal*, but neither the one nor the other are now kept in the Shops. If carried about with one, 'tis thought to procure Sleep, and prevent frightful Dreams. *Boet.*

ASTERIAS, *ἀστέριος*, *ἀστέριος*, *ἀστέριος*, *ἀστέριος*, from *ἀστυ*, a Star. The same as *ASTROITES*, which see.

ASTERION. The same, according to *Blancard*, as *ASTER* before.

ASTERISCUS, of *After*, or *Starwort*, which it is very like, except that the Seeds are not papous, but chanell'd. *YELLOW STARWORT*.

The Cup of the Flower is stellated with little Leaves, which are extended beyond the Petals of the Flower in Length.

This Plant having no *English* Name, I have call'd it *YELLOW STARWORT*, altho' it is very different in its Character from that Plant; the Seeds of this being plain, and for the most part border'd round the Edges, having no Down adhering to them, and the Flowers being furrounded with a foliaceous Calyx.

There are several Species of this Plant cultivated in curious Botanic Gardens; but in England we have but three Sorts, which are preserved for their Beauty.

1. *Asteriscus annuus, foliis ad florem rigidis*, Tourn. THE ANNUAL ASTERISCUS, WITH STIFF LEAVES AND FLOWERS.

2. *Asteriscus annuus Lusitanicus odoratus*, Boerh. THE PORTUGAL SWEET-SMELLING ANNUAL ASTERISCUS.

3. *Asteriscus maritimus perennis patulus*, Tourn. THE MARITIME PERENNIAL DWARF ASTERISCUS. *Miller's Dictionary*.

ASTERITES. A Flint Stone to strike Fire with. *Rolandus*.

ASTEROIDES. BASTARD STARWORT.

The Characters are;

It hath a compound radiated Flower, whose Disk is composed of many Florets which are Hermaphrodite, and of Semi-florets which are Female, and rest upon the Embryos, which are all included in a scaly Empalement. These Embryos afterwards become Seed, for the most part oblong.

The Species are;

1. *Asteroides Alpina, foliis folio*, Tourn. Cor. BASTARD STARWORT OF THE ALPS, WITH A WILLOW-LEAF.

2. *Asteroides orientalis, petaloidis folio, flore maximo*, Tourn. Cor. ORIENTAL BASTARD STARWORT, WITH A BUTTER-BUR-LEAF, AND A LARGE FLOWER.

3. *Asteroides Americana minor annua*, Vaill. LESSER AMERICAN BASTARD ANNUAL STARWORT. *Miller's Suppl.*

ASTHENES, ἀσθενής, from α Neg. and σθένος, Strength. Weak, infirm. The Difference between ἀσθενής and ἀδυνάμειος lies in this, that the former signifies one weak by Nature, and prone to Sickness, but the other denotes a Person actually sick. *Hip. Lib. ασελ ἀρχ. ιδλ. ἐνύστατα ὃ τὸ ἀδυνάμειος ἐστὶν ὁ ἀσθενής, ἐστὶ ὃ ἀδυνάμειος ὁ ἀσθενής*. "The weak Person is next to the sick, but the sick Person is the weaker." *Asθενής* is also apply'd to *diadema*, *Lib. 6. Epid. Aph. 16. Sect. 4.* which must mean, according to *Galen*, a weak or low Regimen of Diet, or such as renders a Person weak. By a weak Diet also may be understood such as yields but little Nutriment. So *Lib. 6. Epid. Sect. 5. Aph. 20.* τὰ ἀδυνάμειος ὀρτία are such Food as nourish little; and so *Galen* explains the Place, as on the contrary strong Food is such as contains much Nourishment. In the same Sense must we take ἀδυνάμειος πρὸς τὴν ψυχὴν, *Lib. de Rat. Viā. in Morb. acut.* very weak Pufan, for such as affords but very little Nutriment; or, as *Galen* expounds it, ὃ ἀδυνάμειος αὐτῆς, ἥτοι διότι βραχύνει τὴν ἐν τῷ σώματι δυνάμειον, ἀδυνάμειος ἐστὶν, ἢ διότι ποτὶς αὐτὴν ἔχει σφοδρῶς, ὥς ἥτοι ὅτι νύκτωρ ἢ ἐν γυμνασμίᾳ, καὶ ἀπὸ τοῦ ὅτι τὸ ἐν τῷ σώματι. "By its Weakness we are to understand, either that it affords but slender Nourishment to the Body, or that it possesses no vehement Quality, by which it may offend the Nerves, or subvert the Reason, as Vinegar or Wine."

ASTHMA, see DYSPNOEA.

ASTITES. The same as PARASTATÆ, which see.

ASTOMOS, ἀστος, from α Neg. and σμα, a Mouth. Without a Mouth. This can be apply'd to nothing but Monsters. For the Fable of *Pliny*, which gives an Account of an Indian People who live by Exhalations only, and have no Mouths, is utterly extravagant and puerile.

ASTRABES, ἀστράβης, from α Neg. and στρέβης, distorted, undistorted. *As γένυες ἀστράβητος*, the Jaws undistorted. *Hippocrates de Articulis*.

ASTRAGALOIDES, BASTARD MILK-VETCH.

The Characters are;

It hath a papilionaceous Flower, out of whose Empalement rises the Pointal, which afterwards becomes a Pod, shaped almost like a Boat, and full of Kidney-shaped Seeds.

We have but one Sort of this Plant, which is;

Astragaloides Lusitana, *Inst. R. H.* PORTUGAL BASTARD MILK-VETCH. *Miller's Dist. Vol. 2.*

ASTRAGALUS. The Name of a Bone in the Foot, and of a Plant.

According to the natural Situation of the Foot, and its Connexion with the Leg, the *Astragalus* is the superior and first Bone of it. This Bone may be divided into two Portions, one large and posterior, which is, as it were, the Body of the Bone; and one small and anterior, which is an Apophysis, or the anterior Portion.

The Body or posterior Portion has four Sides, one superior, two lateral, and one inferior. The upper Side is the largest, cover'd all over with a Cartilage cylindrically convex from below backward, with a Depression running thro' the Middle of its Breadth, which represents half a Pulley, and is continuous with the two lateral cartilaginous Sides, of which the external is broader than the other. This upper Side is articulated with the lower Side of the Basis of the Tibia, the internal lateral Side with the inner Ankle, and the external lateral Side with

the outer Ankle. Below the internal lateral Side there is a great Depression without Cartilage, and several other Inequalities.

The lower Side is likewise cartilaginous and obliquely concave for its Articulation with the Os Calcis. At the very lowest and posterior Part of the Body of the *Astragalus*, on the Edge of the lower Side, is a small, oblique, smooth Notch or Chancel for the Passage of Tendons.

The Apophysis or anterior Part of the *Astragalus* is distinguished from the Body by a small Depression on the upper Part, and on the lower, by a long, oblique, unequal Notch, very broad toward the Outside. The anterior Side of this Apophysis is all cartilaginous, and obliquely convex, for its Articulation with the Os Scaphoides. The lower Side, likewise cartilaginous, is parted in two, and articulated with the Os Calcis; being distinguished from the lower Side of the Body of the Bone by the long oblique Notch already mentioned. Besides these two cartilaginous Sides, there is a third below the anterior, towards the inner Part, which in the Skeleton touches nothing. *Winflow's Anatomy*.

ASTRAGALUS. The Plant called by this Name is thus distinguished:

Astragalus, *Offic. Astragalus Dioscoridis quibusdam*, J. B. 2. 341. Chab. 153. *Astragalus Dioscoridis, vulgò Christianæ radix*, *Rauwolf*. *An Astragalus Syriacus*, J. B. 2. 140. Ger. 1058. Emac. 1238. Park. Theat. 1085. *Astragalus Syriacus bifurcus*, C. B. Pin. 351. *Astragalus Syriacus, Onobrychis peregrina quibusdam*, Chab. 151. *Astragalus argenteus*, Wheel. Itin. THE SILK VETCH OF DIOSCORIDES.

The *Astragalus* is a small trailing Shrub, with Leaves and Branches like those of Chiches, and small purple Flowers. The Root is round, and of a good Size like a Radish, with solid, black, [*Pliny* says red] and very hard Appendices, which are entangled within one another like Horns, and of an astringent Taste. It grows in windy and shady Places, [in rocky and sunny Places, *Pliny*] and where much Snow falls. There is great Plenty of it at *Memphis* [*Pheneum*, according to *Pliny*, *Galen*, and *Oribasius*] in *Arcadia*.

The Root drank in Wine stops a Looseness, and provokes Urine; dry'd to a Powder, it is with good Effect sprinkled on old Ulcers, and stops Bleeding; but it is difficult to cut on account of its Solidity. *Dioscorides, Lib. 4. Cap. 62.*

Its Root is sweetish, astringent, and gives a deep Tincture of Red to the blue Paper; the Leaves give it hardly any; they are bitter, and smell like Elder, which shews that the fetid Oil is found in greater Quantity in the Leaves, and that it involves the acrid Salt and Earth. This Plant is not in Use; Nevertheless, a Night's Infusion of it in Wine is given with Success for Retention of Urine, and for the Gravel by some Herbarists at *Paris*. *Martyn's Tournesfort*.

Dale observes, that the Description of the *Astragalus* in *Dioscorides* is so short and imperfect, that to this very Day it remains doubtful to what Plant it belongs, some ascribing it to one, some to another. But whatever others may think, says he, I chuse to refer it with *Rauwolf* to the above-mentioned.

ASTRANTIA. A Name for Masterwort. See IMPERATORIA.

But there is another Plant also called *Astrantia*, which is thus distinguished by Authors.

Astrantia nigra, *Offic. Ger. 828. Raii Hist. 1. 475. Astrantia*, *Rivin. Irr. Pent. Buxb. 33. Astrantia major*, *Mor. Umb. 7. Elem. Bot. 263. Rupp. Flor. Jen. 226. Astrantia nigra major*, *Hist. Oxon. 3. 279. Astrantia major, corona floris purpurascens*, *Tourn. Inst. 314. Boerh. Ind. A. 73. Astrantia nigra seu Veratrum nigrum Dioscoridis*, *Ger. Emac. 978. Helleborus niger, Sanicula folio, major*, C. B. Pin. 186. Park. Theat. 213. *Sanicula femina quibusdam, aliis Helleborus niger*, J. B. 3. 638. Chomel. 567. BLACK MASTERWORT.

This Plant is cultivated in the Gardens of Botanists, and flowers in July. Its black and fibrous Roots are only used. It is said to purge melancholic Humours; and *Dodonæus* thinks that it resembles the *Veratrum nigrum* of *Dioscorides*, both in its Form and Qualities. *Hildanus* prescribes it for the Cure of a scirrhus Spleen. *Dale*.

ASTRAPE, ἀστραπή, Lightning. It is reckon'd by *Galen* amongst the Procatartetic Causes of an Epilepsy. *Castel*.

ASTRICTA. An Epithet very frequently apply'd to *Alvus*, the Belly: It implies Costiveness, and is oppos'd to *Soluta*, loose.

ASTRICTORIA. The same as ASTRINGENTIA.

ASTRINGENTIA. Astringents.

I shall here principally consider Astringent Remedies taken by the Mouth; for Astringent Topics come more properly under the Article *Styptica*.

Astringents are very proper to restore a Tone and Elasticity to the animal Fibres, when debilitated by Diseases, Intemperance, or Accident. But these are very seldom proper without a previous Attenuation of the Juices, and a Course of

Deobstruent Medicines; because Obstructions are more firmly riveted, and the viscid Juices circulate with more Difficulty, when the Diameters of the Vessels are contracted by Astringents.

Among the several Classes of corroborative Medicines, that of *Astringents* is none of the least considerable and important. The several Substances which come under this Denomination are also by the *Latins* styl'd *Vulnerary*, and by the *Greeks* *Traumatic Medicines*. Their Virtues in general consist in a certain fix'd and gently constrictive Principle, by means of which they brace up the Parts and Fibres that are too much relaxed, corroborate those which are weakened, and consolidate and agglutinate such as are corroded and wounded. The principal Medicines belonging to this Class are; the Roots of Avena, Tormentil, Bistort, the greater Consound, Cinquefoil, Plantain, and Rhapontic. The *Herbs* Periwinkle, Sanicle, Wintersgreen, the greater Consound, Bugle, Saracens Consound, Gooseberries, Agrimony, St. John's Wort, with its Flowers; Yarrow with its Tops, Horse-tail, Paul's Betony, Strawberries, Vervain, Moufe-ear, Tree Germander, all sorts of Plantain, Oak-leaves, Jerusalem Oak, Baum; Mint, Betony, and Lamium, or the Dead Nettle; the *Flowers* of Roses and Balauftines; the *Peruvian Bark*, that of Pomgranates; and of the Root of the *Egyptian Thorn*; the *Juice* of the *Egyptian Thorn*, Japan Earth, Dragon's-blood, Hurtle-berries, and Quinces; of *Spices*, the Nutmeg; of *Mineral Substances*, the Bloodstone, Alum, and all Species of Earths and Marles; of *Chymical Preparations*, the Chalybeate Flowers of Sal Ammoniac, and the Chalybeate Liquor prepar'd from the *Caput Mortuum* of the Chalybeate Flowers of that Salt; of *Officinal Preparations*, the Traumatic Essence of *Wedelius*.

The several Substances now mention'd operate by means of a considerably fix'd terrestrial Principle, in Conjunction with an Acid: And as, by constricting the too much relax'd Fibres, they free them from a Congestion and Stagnation of Humours; so, by bringing them into a nearer Contact with each other, they promote their Consolidation and Coalescence. But this constrictive Virtue is not equally strong and powerful in all the Substances we have mention'd; for in the Tormentil-root, in the Bistort-root, and its Extract, in the Balauftine-flowers, the Pomgranate-bark, the Oak-leaves, the Alum, the Chalybeate Liquor, the Juice and Bark of the *Egyptian Thorn*, the Quinces, and dry'd Hurtle-berries, this astringent Quality is much stronger than in what we commonly call the vulnerary Herbs, which consisting of a subtile, earthy, and alkaline Principle, intermix'd with Particles of a sulphureous, balsamic, and somewhat fix'd Nature, operate more safely and mildly, and are of singular Use and Advantage in the Practice of Physic. But that these *Vulneraries*, as well as the stronger and more powerful Astringents, contain a Principle of a subtile, dissolvable, and earthy Nature, is plain from this, that rich Infusions of them, upon the Admixture of Vitriol of Mars, or even of any Chalybeate Liquor whatever, become black, and assume an inky Colour, just as they would do by the Addition of Galls.

If Skill and uncommon Caution are requisite in the Use of any Medicines whatever, they are certainly so in the Administration of *Astringents*; for since not only the Soundness of the Body in general, and of its several Parts, but also Life itself, is maintain'd and preserv'd by the perpetual, progressive, and circulatory Motion of sufficiently attenuated and fluid Humours thro' the Compages of the Body, which is almost quite vascular, and composed of inconceivably minute and slender Ducts; and since, at the same time, such are the Natures and Properties of *Astringents* as to inspissate our Fluids, when mix'd with them, and brace up the Pores and Ducts of our Solids; 'tis therefore obvious to every one, that Remedies of this Class must be unfriendly to the very Natures, and vital Motions, of animal Bodies; for which Reason they are not so safe and secure as some may imagine, unless when used with the utmost Care and Circumspection: For daily Experience convinces us, that Medicines of an astringent Quality, rashly and unskilfully apply'd for stopping Hæmorrhages or Fluxes, produce numberless fatal Consequences, and generally bring on slow Fevers, Cachexies, cedematous Swellings, spasmodic Disorders, Colics, and hypochondriacal Indispositions: For this very Reason, we are carefully to guard against the imprudent and immoderate Use of the *Peruvian Bark*; for carrying off the Paroxysms of intermittent Fevers; since by its violent Astringency the viscid, bilious, and salival *Sordes*, lodged in the *Primæ Viæ*, and which ought to be discharged, are so much the longer shut up and retain'd, by which means a still more formidable Disorder is sometimes brought on.

If Necessity should, at any time, call for the Use of Astringents of this Nature, they are not to be administer'd all at once, but successively in gentle Doses, and in Conjunction with a sufficient Quantity of some proper Liquid; prescribing at the same time a due Degree of Exercise for the Patient, which I always do, when I either order the *Peruvian Bark*, or any Medicines whatever of the Chalybeate Kind.

'Tis highly unsafe and dangerous to repress excessive Vomit-

ings, Discharges of bloody Urine, Hæmorrhages of the Nose, Uterus, or Anus, and Spittings of Blood, by means of Astringents; since the Patients are always sure to suffer by such a Practice, unless the Spasms, on which these Discharges of Blood for the most part depend, as much as Effects do upon their immediate Causes, are first sooth'd, the violent and impetuous Motions of the Fluids check'd, and the exorbitant and preternatural Affluence of Humours derived to other Parts.

The Traumatic or Vulnerary Herbs, and Decoctions of them, are of very singular and uncommon Service, not only in Wounds, Erosions, and Solutions of Continuity, but also in some Diseases of a chronical and violent Nature; such as a Phthisis, Scurvy, Cachexy, and Disorders arising from the Stone, when these Indispositions draw their Origins from the Tone of the Viscera and Glands being weaken'd, or from a preternatural Stagnation of the Juices. But we ought, at all times, carefully to avoid using them in Cases where there is too great an Obstruction of the Vessels, a Constriction of the Fibres, or in a Phthisis, when the Lungs are full of hard Tumors and Tubercles. However, in other Cases, Infusions of vulnerary and gently astringent Medicines, are of singular Service, and produce excellent Effects; especially in preventing fabulous and stony Concretions in the Kidneys, which, for the most part, arise from these Organs being too much relax'd or ulcerated. Upon this Subject I would recommend *Hencherus's Dissertation, concerning the Use of Astringents in the Stone*. This Intention is also very well answer'd by Infusions of Yarrow and its Tops, of Paul's Betony, Ground-ivy, Strawberries, Agrimony, and the Bark of the *Egyptian Thorn*-root. In involuntary Discharges of the Urine, arising from too great a Relaxation of the Sphincter Muscle of the Bladder, whether in Children or in Adults, I have found Infusions of this Nature produce very happy Effects; applying externally, at the same time, rectify'd Spirits of Wine.

In Cases where the external Parts are hurt or wounded, well rectify'd Spirit of Wine proves, by itself, a noble and efficacious Vulnerary; since it puts a speedy Stop to Defluxions of the Blood and Humours, and is of singular Service where the more sensible nervous and tendinous Parts have suffer'd by too great an Effusion of Blood; for spirituous Liquors not only coagulate the Juices of the human Body, as we find by making the Experiment upon Blood and Lymph, but also, by removing the superfluous Humidity, render the Fibres tense and rigid, and, by bracing them more strongly up, prevent Stagnations of the Blood, and carry off Pains and Inflammations. Nor is the spirituous Water, call'd *L' Eau d'Arquebuse*, or *Aqua Sclopetaria*, used in our own Days, a despicable Vulnerary, since 'tis prepar'd, by Distillation in *Balneo Mariæ*, from some of the best vulnerary Herbs, and *Rhenish Wine*: But its Virtues and Efficacy are to be ascrib'd to the Spirit and the Wine, rather than to the Herbs, whose Virtues are lodged in a fix'd earthy Principle, which does not come over the Helm of the Still. *Hoffman. Lemery directs the Aqua Sclopetaria to be made with White Wine. See AQUA.*

The Simples commonly term'd *Astringents*, principally abound with rough, earthy, or saline Particles, and are of a heavy compact Texture, which, at first View, forbids them to be meddled with by Distillation. In Tincture likewise, with a spirituous Menstruum, they are very unsuitable; because their superior Gravities and Bulks will not suffer them to unite with, and be suspended in, such Liquors.

In Decoction, indeed, many *Astringents* may be retain'd with Efficacy, especially those of a saline and styptic Nature, as Alum, Galls, and Oak-bark; but few others can be thus order'd to Advantage, because they are too heavy for Suspension in an aqueous Fluid.

There is somewhat, 'tis true, peculiar in the *Peruvian Bark*, that fits it for this Management, beyond any other Simple of the same Class: Its Particles are so very fine and light, when broken in the Mortar, that a great deal would be lost, were it not for a Mixture of somewhat moist and oily to keep it from flying away, which is commonly practis'd with Almonds, or somewhat of a like Nature; but this is certainly prejudicial to the medicinal Intention of this Drug. But in Decoction, with an aqueous Vehicle, this finer Part is not only saved, but likewise all that is most subtile therein is suspended in the Liquor, the grosser Parts only falling to the Bottom, as is very manifest from the Thickness of such Decoctions. So that, in ordering of this by Decoction, there is only obtain'd the finest of its Substance, which cannot be procur'd any other way; a thing very different from what is commonly expected by this Process; for here the Ingredient is in some measure dissolved, and intimately united with the Liquor. Doubtless, in the Management of this Drug by Decoction, somewhat more is obtain'd than can be got by simple Tincture, especially where such Ingredients are added, that, by boiling, give a thicker Consistence to the Water; because then a much greater Quantity of the Bark will remain suspended therein. Thus, some order a small Portion of Storax or Benjamin to be boil'd herewith, which not only enables the Liquor to hold up more of the Bark, but

but gives also thereunto such a Warmth and Scent, as is very grateful to a Stomach weaken'd and pall'd by a Fever and Medicines.

The usual Distrust therefore of the Bark, in this Form, is ill-grounded, because it depends upon a Supposition, that it is not this way given in Substance; whereas it is not only thus given in Substance, but also with greater Advantages than can by any other means be come at. For when it is given in the finest Powder that can possibly be obtain'd from the Mortar and Sieve, it is yet too coarse for a weaken'd Constitution, and therefore frequently, by its Stimulus, brings on a Diarrhoea; whereas this way it is too fine to give any such Disturbance in the first Passages, and not only strains, by the common Course of Circulation, much farther, but gives a more uniform and general Contraction to the debilitated and relax'd Fibres. Those who try it this way also, seldom find so many Relapses as are customary, after some Days, with the coarser Powder.

A very considerable Addition may be made to the medicinal Virtues of most of this Class in Decoction, by a Mixture of Acids, because they greatly improve any astringent of styptic Quality; and whosoever tries this, with the Bark in particular, will experience its Success in most Intentions for which it is ever used, but especially in that of a Styptic in Hæmorrhages; in which Case also an Addition of red Roses, at the latter End of the Decoction, is not only of Service, but also helps agreeably to disguise the Medicine.

One Caution ought by no means to be here omitted, concerning this Form, with the Simples of this Class. It is a very common way, in the Shops, to clarify their Decoctions with the White of an Egg, to render them more beautiful to the Eye; but where their Virtues are expected from any thing glutinous, gross, or earthy, such Procedure quite destroys the Intention, because those Parts are entangled with the Egg, and rise up with it in the Scum; and for this Reason it is, that almost all Syrups made from Decoctions are good for nothing, because in their Clarifications they are robb'd of their Virtues.

There are, indeed, some Official Syrups from Materials of this Division, as the Syrup of Mint, that of Myrtles, and some few others; but the Neglect they are under in common Practice, shews what Service is to be had from them: They may, perhaps, serve as weak Auxiliaries, to things of more Efficacy, in sweetening them, or reducing them into some convenient Forms, as Boles, Electuaries, or the like; but no further are they to be trusted.

In extemporaneous Electuaries likewise, things of this Texture are very suitable, and some, which require but small Quantities for a Dose, come well enough in Pills; but they are contrived into Official Electuaries with great Disadvantage, because of their long Continuance in a moist Form; and more especially with Honey or Syrups, which are much inclin'd to ferment; and this subjects them to such Changes as quite destroy their medicinal Virtues; for that Hardness or Rigidity, wherein their Astringency consists, softens, and, as it were, rots, with continual Moisture. Thus the Confection of *Præcæstorius*, which is a Composition wholly selected out of this Class, grows extremely bad by Age, and will in time change from a warm, rough Astringency, into an almost tasteless, soft, slippery Mixture. This Alteration, indeed, is much hasten'd by the *Cassa Ligneæ*, and *Gum Arabicæ*. For this Reason many Shops preserve the Species for this Electuary dry; as also those for the Confection of Hyacinth, tho' the College have now thought fit to reject the latter Composition. All the Simples, therefore, of this Denomination, are with the greatest Advantage kept in dry Powders, for extemporaneous Occasions. *Quincy's Prælect. Pharmacæut.*

ASTRION, ἀστρον. The same as **ASTRAGALUS**.

ASTROBLES, ἀστροβλή, or ἀστροβλήτης, from ἀστρον, a Star, and βάλλω, to strike. Planet-struck, blasted. This is properly spoken of Plants; but is sometimes apply'd to human Bodies, and then signifies *Apoplectic*, and sometimes *Sphacelated*. Hence,

ASTROBOLISMOS, ἀστροβολισμός, Sideration, or Blasting of Trees. But this is also sometimes apply'd to the Body, as in Sphacelations and Apoplexies.

ASTROCYNOLÓGIA, from ἀστρον, a Star, κύων, a Dog, and λόγος, a Dissertation, or Treatise. The Name of a Treatise written on the Subject of the Dog-days.

ASTROITES, seu *stellaris lapis*, Offic. Cod. Med. 16. *Astroites primus*, Boet. 298. *Astroites quartus*, Plot. Hist. Nat. Ox. p. 88. Tab. 2. Fig. 7. Lithog. Brit. N^o. 163. Charlt. Foss. 28. Worm. 67. Schw. 366. Mer. Pin. 211. *Stellaris lapis*, De Laet. 97. Aldrov. Mus. Metall. 872. *Stellaris lapis primus*, Gesn. de Lap. 35. **STAR-STONE**.

This Stone is porous, moderately hard, and white, and as big sometimes as a Man's Head. It is found in some Quarries in England and Germany. It is esteem'd antipeffilential, and is said to destroy Worms in Children.

ASTROLOGIA, from ἀστρον, a Star, and λόγος, a Word. Astrology. See **ASTRONOMIA**.

ASTRONOMIA, from ἀστρον, a Star, and νόμος, Law; Astronomy.

No Part of natural Knowledge has more employ'd the Thoughts of the Learned, than the Influence of the Stars upon human Bodies; and, indeed, no one, who has but a moderate Acquaintance with polite Learning, can be ignorant of the Disputes and Controversies started on this Subject by the Physicians and Philosophers of our own Age. Some deny and explode an Influx of the Stars altogether; but at the same time admit and patronize the Influence and Efficacy of the Sun upon terrestrial Bodies. They who embrace this Opinion, assert, that the Planets and fix'd Stars are removed at such an immense Distance from our Globe, that the very Light they diffuse can have no Influence upon it, much less that they themselves can produce any Effects upon such Bodies as are contain'd in it. The Sun, on the other hand, is, according to them, the only Body whose benign Influence extends to our Earth, and whose kindly Warmth rears up the vast Variety of Plants, and cherishes the several Species of Animals, with which it abounds; for they will by no means allow, that the Planets produce any sensible or manifest Effects upon any Parts of this our Habitation. But tho' I absolutely deny, that the Fates, the Morals, and the Fortunes of Men depend upon the Stars alone, I nevertheless affirm, that these have a very surprising and remarkable Influence upon the several Bodies on our Earth. This Opinion has been embraced by many of the Moderns, but more especially by the *Literati* of England, whose Industry, in clearing up this Point, deserves to be crown'd with all the Encomiums that are due to profound Learning, and a disinterested Love of Truth; for these Gentlemen have, with a great deal of Judgment, maintain'd the Influence of the Stars, not only with regard to the Phenomena of *Meteors*, but also with regard to the human Body, consider'd as subject to Diseases and Disorders. Nor, indeed, could this Doctrine be unknown to the Antients, who ascrib'd a great deal to the Stars, and even carried the Point so far, as to deduce the immediate Causes of the several Accidents and Revolutions of Life from them. In short, they were so prepossess'd in Favour of this Notion, that they accounted for Health and Diseases, the Tempers and Dispositions of Men, and, which is still more, the Fates of Kingdoms, and the Origins of Wars, from the Influences of the heavenly Bodies. As this is the Case, it must be a Task no less curious and pleasant, than useful and profitable, to inquire, whether there really is such an Influx of the Stars upon terrestrial Bodies, how far it extends, and what Notions Truth and Fact will authorize us to entertain concerning it; and this is what I at present design.

Astronomy, then, or a Knowledge of the Stars, has all along, even from the earliest Ages, been highly esteem'd, and had in the greatest Honour. It is at first said to have been invented by the *Egyptians*, and by them transmitted to other Nations, where it met with a favourable Reception, and many zealous Votaries. And, indeed, the Reasons are plain why the earlier Ages paid such an uncommon Veneration to this Science, since they were sufficiently apprised of the numberless Advantages which accrue to Mankind from the Stars and heavenly Bodies: For Astronomy acquaints us with the various, but still regular, Courses of different Stars, and discovers their Positions, Motions, and Conjunctions; which are not only glaring Instances of the amazing Grandeur and Extent of the universal System, but also irrefragable Proofs of the Skill and Wisdom of its adorable Author. Besides, all sublunary Bodies partake of the benign Influence of the Stars, which by their genial Rays diffuse a certain Life and Vigour to them. By observing the Stars we are enabled to discover the Situations of different Seas and Countries, to ascertain the Distances of Places, and measure out Time into the several Divisions of Years, Months, and Days. By means of the heavenly Bodies timorous Mortals were taught to despise the Fury of the Waves; and the daring *Phœnicians*, trusting to their Skill in *Astronomy*, first ventur'd to sail upon the Main, and trust their Lives to Ships, render'd less dangerous by their Knowledge of this Science. By this we are also enabled not only to account for, but also to foretel and calculate the several Eclipses of the Sun and Moon, with the greatest Exactness and Precision. 'Tis not therefore to be doubted, but the different Situations and Positions of the Stars vary the State of the Weather, and the Seasons of the Year, and consequently induce various Changes both upon Vegetables and Animals. For this very Reason, 'tis necessary every Physician should be acquainted with *Astronomy*, that he may be enabled to account for epidemical Distempers: But let it be remember'd, that, when I require *Astronomy* in a Physician, I do not mean that Mock-science below all Regard, which, with a great deal of *superstitious Solemnity*, and no Truth at all, predicts the Fortunes, the Distempers, and the Deaths of People, by drawing what we call their *Horoscope*, or inquiring into the Positions and Aspects of the Stars at the Hour of their Nativity. Those trifling Mortals, who apply their Minds to this diminutive Study, lose their Labour in an egregious manner; since they cultivate and adore a Science, (pardon the Name)

Name) which has neither *speculative Truth*, nor *Use in human Life*, to recommend it. They might indeed, with my Leave, reverence it as highly as they would, provided the Dignity of genuine and real *Astronomy* was not brought into Disgrace by their Folly and Impertinence: But I find myself animated with a just Indignation, when I reflect, that this *predicting Art* has, in some measure, deprived *Astronomy* of that Esteem and Veneration which were once so justly paid it. I frankly own, that the Stars, considered as remote Causes, may contribute somewhat even in Things of this Nature; but I can never, at the same time, admit, that any such Occurrences can possibly be predicted from them alone: For this Reason many of the Antients not only mentioned this Practice as an Abuse, but severely censured it as such. Of these the most noted is *Albertus*, who, considering the Time in which he liv'd; is deservedly esteemed a great Man. This Author, in his Book *de Mineral. Tract. 3. C. 3.* has these Words, "Many," says he, "who pretend to foretel Things from the Stars, are often found to be wrong in their Predictions; and by their Lyes bring *Astronomy*, which is a valuable and useful Science, into Contempt and Disgrace." *Averrhoes* is of the same Opinion; for in the *Cantica Avicennae* he uses these Words: "The Art of Astrology is ill founded, and its Principles are for the most part false." *Apollonius* also is, by *Philostratus*, represented as giving his Suffrage in our Favour. "As for my Share," says he, "I think the Power of predicting Events from the Stars, and the Art of Divination in general, are Things placed beyond the Reach of the human Faculties; neither do I know, that any Mortal is a real Master of them." No less intolerable is the Insolence of those who distinguish Days into *lucky* and *unlucky*; and with that View compose annual Calendars. These infallible Prophets, with a happy Clause of Reservation, which bears, *If God please*, pronounce like so many Oracles, that such and such Days shall be lucky, and such and such others the Reverse; and what crowns the Farce is, that their Knowledge and Skill in this way extend to the most ridiculous and inconsiderable things in Life; for, in the Books of this worthy Class of Mortals, you may be informed which Days are most lucky for putting on a new Suit of Cloaths; and which most proper for counting your Money. From these Magazines you may learn, which Days you ought to choose for selling, and which for making Purchases. These Treasures of useful Knowledge will also direct you to the very Day on which you ought to cut your Hair, or shave your Beard. Here their matchless Impudence does not stop, but boldly incroaches on the sacred Province of Physic, by fixing some Days as particularly proper for Venesection, Purging, and the Exhibition of other Medicines. *Langius*, who was Master at once of the Simplicity and Learning of the Antients, in *Ep. 35. p. 1.* on this Occasion falls into this rapturous Exclamation, *O Flagris dignum Facinus, quo innumeros perdunt agros!* "O blackest of Crimes, and worthy of the severest Chastisement, since by it Numbers of Patients are destroyed!"

But tho' we reject the superstitious Fables of Astrologers, as impertinent and idle, yet we must beware of running into the opposite Extreme, and utterly denying all Influence and Efficacy of the Stars. If we should, our Conduct would be highly impious, and throw a manifest Reflection upon the Wisdom and Skill of that Being who formed the vast and harmonious Frame of Nature; for we cannot possibly suppose, that the spacious Canopy of Heaven was thus bespangled with radiant Orbs, and adorned with twinkling Stars, for no other End than to direct our Steps by their Light, feast our Eyes by their Splendor, or gratify the noble Excursions of our Fancies by the Immensity of their Number. We ought rather to conclude, that the adorable Author of Nature designed them for dispensing Blessings of a higher and more important Nature to the human Species. The surprising Number, the vast Bulk, and the regular Motions, of the heavenly Bodies, struck the Antients with such an awful Veneration for them, that they paid them a divine Homage, erected Altars for their Worship, and in short neglected no Circumstance by which they could testify an unfeigned, but impious and ill-founded Regard for the Stars. They were well apprised of the Efficacy of these Bodies, and thoroughly convinced, that they imparted Life and Vigour almost to every sublunary Object. For this Reason 'tis the less to be wondered, that the ancient Physicians consulted the Stars so much in the Cure of Diseases, and rely'd so firmly on the Observations they made from them. But though their Diligence in this respect calls for due Encomiums at our Hands, yet their Fate is to be lamented; because their want of due Experience, and proper Observations, left them in the Dark, as to the real Manner in which the Stars operate on terrestrial Bodies. The Nature and Extent of this Influx or Operation is what I now intend to handle, and that in such a manner, as to separate Truth from Falshood, and distinguish between what is useful, and what is trifling. For this Purpose it seems necessary, that I not only confirm my Opinion by the Authorities of the

Learned, but also give it the more noble and weighty Sanction of Reason and Argument.

'Tis therefore my Opinion, that not only the Sun and Moon, but also the other Stars, the Planets more especially, operate upon terrestrial Bodies; and that immediately by the Æther and Atmosphere, these, being influenced and changed by the Stars, must of Consequence induce various Changes and Alterations, not only on vegetable, but also on animal Bodies. Thus 'tis past all Dispute, as I shall afterwards endeavour to shew, that the Stars are capable of exciting various Storms, Winds, and Commotions in the Atmosphere; from which Circumstance we may easily conceive the Possibility of their inducing Alterations, and exciting Commotions, in our Bodies. Hence any one, who allows himself to think, must plainly see, that Astronomy is not only an Ornament, but also a real and genuine Advantage, to a Physician.

I shall now collect the most noted Passages of the divine *Hippocrates*, which have a Tendency either to illustrate the Truth, or prove the Importance, of this Doctrine. The first of these is that elegant Passage in his Book *de Aere, Locis, et Aquis*: "If," says he, "any one diligently observes the Changes of the Seasons, and the Manner in which the Risings and Settings of the Stars happen, he will by this means be qualified to foresee the State of the Weather throughout the Year." And in another Treatise he affirms, in as many Words, "That no one ought to commit the Care of his Health to him who is ignorant of Astronomy, because such a one cannot be a well-qualified Physician." And again, in his Book *de Aere, Loc. & Aquis*, "Tis," says he, "absolutely necessary we should consider the Risings of the Stars, especially of the Dog-star, Arcturus, and the Pleiades, since, at these very Seasons, Diseases are most skilfully prognosticated; and those which will prove mortal, best distinguished from those milder ones, which will either entirely quit the Patient, or pass into Disorders of some other Form and Nature." On the Whole, *Anatomy* is the Right Eye of Medicine, and a Knowledge of the Stars its Left. And the Physician who is ignorant of Astronomy, says *Albo Hazen Halii Filius Avenragel*, "is like a blind Man, who, groping for his Way without a Staff, stumbles hither and thither at random; or like an infatuated and irresolute Fool, who is guided in his Conduct by false and delusive Appearances of Good and Evil."

That the heavenly Bodies operate on our Atmosphere, is also asserted by the divine *Hippocrates* in that memorable Passage of his Book *de Flatibus*, where he uses these Words: "All the intermediate Space between the Heavens and our Earth is filled with Spirit; and indeed the Efficacy and Virtues of the Sun, Moon, and Stars, are imparted to us by means of this Spirit." By the Spirit, or *πνεῦμα*, in this Passage, he without Doubt understands the Winds, the Æther, and the Atmosphere. But *Galen, Lib. 2. Prorrheticor.* beautifully demonstrates the Influx of the Stars upon terrestrial Bodies in these Words: "If," says he, "the mutual Aspects of the Stars had no Influence on things below; and if the Sun alone, that glorious Source of Light and Life, should only be allowed to act upon our Earth, then the four Seasons of the Year would invariably preserve the same Appearances and Temperature, since the Sun performs the same Course in one Year that he does in another. But the Seasons of the Year are not, in Consequence of this, invariably of the same Nature and Temperature. The Stars must therefore concur in producing their different Qualities in different Years." But I shall now have recourse to the Suggestions of Experience, and from them deduce the Power and Efficacy of the Stars in raising Storms, exciting Tempests, and modulating the State of the Weather in general. And here 'tis particularly to be remembered, that we are not so much to regard the several Aspects of the Moon with respect to the Planets, as the mutual Aspects of the Planets with regard to each other; though the Moon is not at the same time to be entirely overlook'd and disregarded in this Affair. *Cook and Goad*, two celebrated *English* Philosophers, have very judiciously made the same Observation; and indeed repeated Experience has confirmed me in the full Persuasion of it.

When *Saturn* has an Aspect to any Planet, except the Sun, whether he is in Conjunction with that Planet, or in Opposition to it; whether his Aspect with regard to it be sextile, trine, or quartile, he compresses the Air, and excites cold Winds, which for the most part blow from the North. Hence in the Winter Season he produces keen and intense Frosts, and renders the Nights serene and clear; and in the Spring Season, especially in the Month of *May*, such Aspects usher in a sudden and unexpected Cold, which proves hurtful to Plants, especially those of the exotic Kind, or such as are not the natural Produce of our own Soil; when, on the other hand, *Saturn* is in Conjunction with *Venus*, we may expect cold Rains, accompanied with Westerly and Northerly Winds.

Jupiter concurring in any of the forementioned Aspects with another Planet, is generally observed to excite Winds, especially

in the Spring and Autumn; and it rarely happens, that loud and boisterous Winds blow, but *Jupiter* has at that very Season an Aspect to some of the rest of the Planets, which favours the Production thereof. Among the Rain-producing Planets, *Venus* is the principal, especially when she is in Conjunction with *Mercury*, *Saturn*, or *Jupiter*. The principal Planets which exhilarate the Face of Nature with serene Weather, and convey a genial Warmth to our Atmosphere, are the *Sun* and *Mars*, especially in the Summer Season, and when they happen to be in Conjunction with each other. They also produce the same Effect, though in a milder Degree, when they are in Conjunction with *Jupiter* and *Mercury*.

Mercury produces such inconstant Weather, that by his Influence Showers, serene Weather, and cloudy lowering Skies, mutually succeed each other, frequently in one and the same Day. He excites Winds when in Conjunction with *Jupiter*, and Rains when joined to *Venus*. 'Tis also to be observed, that the Operations of these Planets vary very widely, according to the different Situation of the Sun, and the various Seasons of the Year: For in the Winter Season *Saturn* excites far more nipping Colds than in the Summer. *Sat* and *Mars* also produce fainter and weaker Heats in the Winter, than in the Summer Season. *Jupiter* and *Mercury* exert their Force and Influence more powerfully in producing Winds in the Spring and Autumn, than in the Summer. But of all the Seasons of the Year, none has the Misfortune to be rendered so disagreeable and pernicious by stormy and inconstant Weather, as the Autumn; for which Reason it is a very dangerous Season, and puts an End to the Lives of many, by the great Variety of too sensible Changes induced on the State of the Air and Weather; since about Noon the Air is hot, and in the Evenings, Nights, and Mornings, very cold.

'Twill not on this Occasion be improper to inquire how far the Moon contributes either to increase or diminish the Force and Influence of the Planets; for 'tis plain, from many accurate Observations, that the Full Moon so surprisingly imparts her Light to the other Planets, as in a remarkable Manner to increase and heighten their Influence and Efficacy. And, what is still more wonderful, her Influence upon them is so considerable, that they sometimes anticipate it two or three Days before the Aspect becomes perfect and complete. Besides, the Power and Influence of the Moon is sufficiently demonstrated by this Circumstance, that under all her Quadratures the State of the Air is not only affected, but undergoes very considerable Changes. For this Reason the Antients, by way of Eminence, styled her the *Mistress of the Weather*, because by her Means they were able to account for the Seasons, and their various Changes. Every one also knows how sensibly the State of the Weather is altered by the various Changes of the Moon; so that, according as the New Moon approaches, the Weather we enjoy'd during the Old is proportionably banish'd, and a different State of Weather gradually comes in. If the Curious desire farther Satisfaction in this Particular, they may consult the learned *Cook's Meteorology*, and *Goad's Meteorological Treatise*. 'Tis past all Dispute, as that excellent Astronomer *Kepler* has observed, that the Aspects of the Planets induce a very sensible Change on Meteors, and are of very considerable Influence in exciting Storms and Tempests; the Degrees and precise Times of which it were to be wish'd we could more accurately predict and determine: But we want a sufficient Number of Observations for that Purpose. How difficult it is to form an infallible Judgment in Matters of this Nature, may be gathered from this, that the preceding Aspects produce very considerable Alterations and Changes in those that follow them. To this may be added the Situation of the Place, the Nature of the Effluvia, and the Climate itself, which, upon an accurate Calculation, will be found to produce Changes no less considerable.

Experience itself, the surest Guide to Truth and Knowledge, evidently demonstrates to us, that the Aspects of the Stars have a surprising Influence, not only on Meteors, but also on our Bodies. This is sufficiently proved by the Vernal Equinox, and the Summer Solstice, about which Seasons the Force and Violence of Intermitting Fevers are either considerably weakened, or totally eradicated and destroyed. And, upon the Approach of the Summer Solstice, obstinate Quartan Fevers, which are generally produced by the Autumn, and are for the most part unconquerable at other Seasons, do of their own Accord remit, and easily yield to the Force and Efficacy of Medicines. It is also confirmed by undeniable Experience, that, about the Vernal and Autumnal Equinoxes, the Humours of our Bodies are in greater Commotions than at other Times. At these Seasons also the Motion of the Blood is more unequal than at others; for which Reason large and frequent Hemorrhages then happen to those who are subject to them. These Seasons are principally hurtful to old Men, who, in Consequence of them, are troubled with hemorrhoidal Discharges, or at least with the Efforts of Nature to throw the Blood off by the Mouths of these Veins. And if these Excretions are not duly carried on, especially in those of tender and delicate Constitutions, various Disorders arising from Spasms, together with Pains in the Abdomen, and

about the Parts destin'd for the Evacuation of Blood, are by that means brought on. These Seasons are no less dangerous to those whose Circulations are languid, and who are advanced in Years, who at these Times have Reason to be afraid of various Stagnations and Infarctions in these Parts. For this Reason they have both Theory and Experience on their Side; who before the Equinoxes carefully recommend and injoin Venesection to People of plethoric Habits, and such as are subject to Effusions of Blood; for by this means the most effectual Method is taken to prevent the Disorder; and the Effusion of Blood, which otherwise seemed ready to make its Appearance, is both quickly and safely warded off. If the Blood discovers a Tendency to discharge itself by the hemorrhoidal Veins, Venesection in the Foot is most proper. If on the other hand it is inclined to come away by the Lungs and Nostrils, a Vein is most advantageously opened in the Arm.

The Equinoxes are particularly prejudicial to Phthical and Hectic Patients, and such as languish under slow Disorders. If at these Seasons chronical Disorders happen, they generally terminate in the Death of the Patient, or in a welcome Recovery; but it rarely happens, that Patients labouring under Diseases of this Nature survive the Equinoxes, but for the most part fall unavoidably Victims to the Force of the Disease with which they struggled.

During the Winter Solstice, Nature is in her weakest State, the Body languishes, and becomes less fit for Secretion and Excretion, than at other Times. For this Reason those who at this Time are seized with acute Disorders, are in imminent Danger, and frequently die. At this Season also the smallest Error committed with regard to Regimen, and the Non-naturals, is attended with fatal Consequences, and often lays too sure a Foundation for Diseases. The learned *Sanctorius*, in his *Treatise de Medicina Statica*, well observes, that, about the Winter Solstice, we perspire a Pound less than at other Times. By which Observation he plainly demonstrates, that at this Season the Perspiration is defective, the Motion of the Blood languid, and the Force of the moving Fibres weakened and impaired. For this very Reason the divine *Hippocrates*, in his *Book de Aere, Locis, & Aquis*, discards the Use of Medicines about any of the Solstices, in these Words: "But we are above all things to have a Regard to the more remarkable Changes of the Seasons, especially the Solstices, on which Occasions we must neither exhibit purging Medicines; *καθαρον*, without urgent Necessity, apply Cauteries, nor make Incisions on the Belly and adjacent Parts, 'till ten Days or more, but never fewer, after the Solstice."

I now come to speak of the Force and Influence of the Sun upon terrestrial Bodies; and indeed of this we have not the least Reason to doubt, since the Point is plainly proved by the different Seasons of the Year, and their several Changes and Alterations. The sensible Changes produced in our Bodies by the different Seasons of Spring, Summer, Autumn, and Winter, are Circumstances too plain and obvious to stand in Need of a long and tedious Proof. Each of these Seasons has Diseases proper and peculiar to itself, as Experience teaches us, and as *Hippocrates* strenuously inculcates in all the Aphorisms of his third Section, but more fully and particularly in the nineteenth, where he uses these Words: "Diseases, indeed, of every Kind, happen at all Seasons; but some Disorders more readily appear at certain particular Times, than at others: Thus Madness, Disorders arising from black Bile, Epilepsies, Effusions of Blood, Quinsies, Heaviness, Hoarseness, Coughs, Leprosies, Tetters, ulcerated Pustules, Tubercles, and Disorders of the Joints, are more frequent in the Spring than in any other Season." And in the succeeding Aphorisms he enumerates the Disorders peculiar to each Season. In the twenty-first he musters up those peculiar to the Summer; in the twenty-second, those which rage in the Autumn; and in the twenty-third, he gives a Catalogue of the several Disorders which harass Mankind in the Winter Season.

'Tis a Circumstance particularly worthy of our Regard, - that more People die in *March*, than in any other Month of the Year, except *October*, whose Influences prove equally fatal; and destroy a no less considerable Number. This is owing to nothing else but the Inequality and Inconstancy of the State of the Air during these Months; for at these Seasons an intense and nipping Cold sometimes prevails; sometimes, soon after, the opposite Extreme of Heat succeeds: Besides, the State of the Atmosphere is on these Occasions highly corrupted, and impregnated with noxious Exhalations, which being too gross and weighty to be carried up, remain near the Surface of our Earth, and produce numberless Disorders and Diseases. Hence the Body, not being able to bear the Intemperature of the Air, is suddenly thrown into various Disorders, and the Tone of the Fibres is miserably weakened; for the Strength and Elasticity of the Fibres bear a direct Proportion to the State of the Air. The Circulation of the Fluids, on the other hand, bears a direct Proportion to the Elasticity and Tone of the Fibres; and, in fine, such as the Circulation is, such will the several Excretions

be. Since then at these Seasons the Secretions are faint and Languid, the Humours must of Consequence become impure, stagnate in different Parts, and produce various Disorders; for either, by stuffing up the Vessels, they dispose some to slow and chronical Disorders, or, by distending them by their too great Quantity in others of more robust and hardy Constitutions, they excite spasmodic Contractions, which usher in Hemorrhages, a Species of Disorder more frequent at these, than at any other Seasons.

The Influence of the Sun, though great in several Instances, is yet most remarkable in this, that Diseases either remit, or resume their Vigour according to its Course. Thus 'tis plain from Fact and Experience, that the Exacerbations of continued Fevers happen about the Rising of the Sun, and that the Paroxysms of Tertian Fevers generally seize the Patient about Noon. The Paroxysms of Quartan Fevers, on the other hand, generally happen in the Afternoon; and Catarrhal Fevers, for the most part, exert their highest Violence towards the Evening. The same holds true in Defluxions, heavy Pains, and Tumors, which generally afflict People most in the Evening.

The Moon also produces very considerable Changes and Alterations in morbid Constitutions. We shall therefore first consider the Effects of her being eclipsed, a Phenomenon of which the Valetudinary and Indisposed are too, too sensible. To this Purpose, *Joan. Matth. Faber, in Append. Dec. 2. Ann. 8vo. p. 49.* relates the following Fact: "A Gentleman, says he, of more than ordinary Distinction, and naturally of a melancholic Habit, became sad, morose and pensive, the Day before the Eclipse; but at the very Time of the Eclipse, he, like a Mad-man, with a Sword in his Hand, ran furiously, not only up and down his own House, but also those of his Neighbours, and the adjoining Streets, not only wounding Men, but also breaking Chairs, Doors, and whatever came in his Way." The illustrious *Ramazzini* has made a very curious and important Observation concerning the Constitution of the Years 1692. and 1693. which is, that after the Full Moon, and much more at the Change, the Petechial Fever, which raged in these Years, became more fierce and violent; whereas it assumed a milder Nature, and a more favourable Set of Symptoms, upon the Approach of the New Moon, but generally killed the Patients upon the Access of an Eclipse.

The Quadratures of the Moon also induce very remarkable Changes and Alterations upon languid and valetudinary Constitutions: Thus Epileptic Fits, in some, return on stated Days and Hours, that is, when the Moon returns to a certain Point of Quadrature, and at the New and Full Moons. And the inspired Penmen themselves [*Matthew, Cap. 4. Ver. 24 and 47.*] styled the Maniacs, and such as were subject to Epileptic Fits, *Σελυιαζόμενοι*, for no other Reason, but because they were in a peculiar manner affected by the Changes of the Moon. A certain Baron of *Limburg* had a young Man for his Servant, who, at every Full Moon, used to thrust his Head out a Window when it shined, and twist his Neck like a Serpent, till, being seized with a kind of Ecstasy, he dropped down, and remained for some time motionless. *Observ. Rumleri 66. ap. Velsch. Curat. & Observat. Cent. I* myself know several, who about the Full Moon are often subject to Head-achs, and Cardialgias, arising from the Stone. That, about or after the Full Moon, many have been seized with Apoplectic Fits, the learned *Wessfer*, in his *Dissertation de Apoplexia, p. 3. & seq.* has sufficiently confirmed by many Instances.

How great the Influence of the Moon upon the Female Sex is, may be plainly deduced from this, that the New and Full Moons carry on and support those Monthly Discharges on which their Health depends; hence this Discharge is, by way of Distinction, styled the *Lunar Tribute*, because the more remarkable Changes of the Full and New Moon rarely happen, without ushering in the Menstrual Evacuations of such Women as are blessed with Health, and Soundness of Constitution.

This Influence of the Moon upon Bodies induced the more superstitious of the Antients to pay it an uncommon Adoration, and foolishly address her for fruitful Seasons in their public Prayers. The *Roman Women* imagined, that it was very serviceable to them in bringing their Children into the World; for this Reason they paid a religious Veneration to *Lucina*, or the Moon, thinking by this means to render her propitious at their Deliveries. The Moon seems to have been invoked by Women in Labour, for this Reason principally, that her peculiar Office consists in dilating the Apertures, and enlarging the Passages of the Body; a Circumstance, as Women well know, of no small Importance in ushering a Child into the World. See *Macrob. Saturnal. Lib. 7. Cap. 16.*

At the Full Moon, scrophulous Tumors, as also those of the Belly, and glandular Parts, become larger than at other times, but subside, and become gradually less, in proportion as the Moon decreases. To this Purpose, the learned *Maurit. Hoffman* [*Dec. 11. An. 6. Observ. 161. Misc. Curios.*] relates the following Story: "A Girl, says he, of fourteen Years of Age, and the Daughter of an Epileptic Mother, had her Belly gra-

"dually swelled as the Moon increased, and as gradually rendered less, and reduced to its natural State, as it decreased. "She was also racked with the most violent and intense Pains, "during the Time her Belly was thus distended." *Aulus Gellius, Noct. Attic. Lib. 20. Cap. 8.* in like manner informs us, that Oysters, and all Shell-fish in general, become gradually large as the Moon increases; and as gradually waste away, and become less, as it decreases, and becomes old. He also informs us, that other Animals are enlarged and diminished, according to the various Changes of the Moon; and *Hippocrates* is of Opinion, that most Women generally conceive about the Full Moon.

R. Bennet, whose Industry cannot be enough admired, has [*in Theatro Tabidorum, p. 98. & 99.*] observed, that during the first Quadratures of the Moon, or when it begins to arch itself into Horns, and more especially on the Nights preceding the New Moon, those Diseases which arise from a saline Matter, are exasperated: For the same Reason, Aches, Itches, and all the various Species of exanthematous Eruptions, do, on these Occasions, exert their highest Rage, to the no small Uneasiness of the Patients; whereas in the last Quadratures of the Moon, and when it is become quite full, Water and Humours are accumulated in the Body, as is plainly proved from those Diseases which arise from a vitiated Serum. For this Reason Coryzas, Lethargies, Asthmas, Palies, Cachexies, and all Diseases arising from a corrupted State of the Lymph, rage more at these Seasons than at others.

Galen [*in Lib. 3. Proorrh.*] has written beautifully on the Influence the Moon has on the human Body; and how much terrestrial Bodies are subject to its Impressions, is too much felt by those who are troubled with Arthritic or Venereal Defluxions; for, according as the Moon bears an Aspect to temperate or intemperate Planets, it accordingly procures Days of Ease and Rest, or the Reverse, to such Patients. Its monthly Motion not only produces sensible Alterations in the human Body, but its diurnal Course has also a manifest Influence upon it. This Fact has been observed by many, but is by none more distinctly talked of, than *Carolus Piso*, in these Words [*Hist. Natural. Lib. 1. p. 24.*]: "The State of the Sick plainly proves, that "Diseases are heightened, and Pains increased, in those six "Hours, during which the Tide flows; and that the Sym- "ptoms are again remitted in the six Hours, during which the "Flood ebbs. This Fact holds in chronical as well as acute "Disorders; but more especially in such as draw their Ori- "gins from Defluxions, and too great a Fulness of the Vessels. "It is also known, that when high Tides, and Swells of the "Sea, happen about the Full Moon, some People are valetu- "dinary; and that most People die during the Ebb of the "Tide." This judicious Author asserts, that these Phæno- mena, in a great measure, depend upon the powerful Influence of the Stars, and the occult Qualities of the Sea and Heavens.

I need not here mention the surprising Influences of the Moon, on the Fruitfulness, Increase, and Decrease of Plants, since the Experience of Botanists and Husbandmen places that Truth in a Light too strong not to be perceived. However, among other Instances concurring to prove this Point, it is observed, that after the New Moon Trees are transplanted with the greatest Prospect of their proving fruitful. Upon this Occasion I must also take Notice of this Difference, that Trees grafted when the Moon is in the Full, bear Fruit sooner than others; but their Fruit is less, and more stony. Those Trees, on the other hand, which are planted about the New Moon, bear later; but make amends for this by the Beauty and Quantity of their Fruit.

All Plants, which are valued for their Flowers, are most properly committed to the Earth, when the Moon is in the Full; those, on the other hand, whose Roots we intend for Service, are most seasonably planted during the Decrease of the Moon. Wood also cut at the Full Moon, rots sooner, and is less proper for building, than that which is cut whilst it decreases. This is confirmed by repeated Experience, and is taken Notice of by *Macrobius* in these Words: [*Saturn. Lib. 7. Cap. ult.*]: "Wood cut either when the Moon is already in the Full, or "when it is increasing, is entirely improper for building, since "it is softened by the too great Quantity of Juice in it; and "Farmers take care to reap when the Moon is on the Decrease, "that by that means their Corn may prove dry." The same Author, in the above-cited Part, affirms, that Flesh carried in the Night-time, whilst the New Moon shines, becomes putrid and rotten, sooner than other Flesh. He there inquires at Length into the Cause of this Phænomenon, and ascribes it to the moist and humid Nature of the Moon.

Without saying any thing more on the Influences of the Moon, I now proceed to consider those Powers and Virtues which both antient and modern Astronomers have observed the other Planets to have upon the human Body, especially when in a weak and sickly State. And first, *Mars* and *Saturn* are thought to produce none of the most benign Effects; for when either in Conjunction with each other, or with any of the rest of the Planets, they have in all Ages been believed to produce various

various Diseases, and Commotions of the Blood and Humours. *Jupiter* and *Venus*, on the other hand, are thought to be more benign Planets; and many Authors have affirm'd, that during their Conjunction the Body acquires new Strength, and Diseases are brought to terminate happily. *Mercury*, again, has always been thought a Planet of an indifferent Nature, and to assume the Qualities of the Planet with which he happens to be in Conjunction. That this Planet is principally instrumental in promoting the Diseases which arise from Serum, has with very good Reason been believed.

But more particularly, they believed certain Conjunctions to be either benign or malignant; thus they rightly enough imagined, that the mutual Aspect of *Sol* and *Jupiter* was subservient to the Cure of chronical Diseases, such as the Hypochondriac Disorder and Scurvy. Besides, under this Aspect they recommended Venesection, the Use of Purgatives, and other Medicines. The Aspects also of *Jupiter* and *Venus*, *Sol* and *Mercury*, as also of *Jupiter* and *Mercury*, are said to be salutary to phthical and hectic Patients, as also to such as labour under burning and inflammatory Fevers; favourable Crises are also said to happen under this last-mentioned Aspect. The Aspects of *Mars* and *Mercury*, on the other hand, as also of *Mars* and *Jupiter*, are bad, since they not only excite Inflammations, Spittings of Blood, and burning Fevers, but also portend the worst under these Disorders.

The Aspect of *Sol* and *Mercury* is favourable to those Disorders which arise from Phlegm and Serum. But the Conjunction of *Mars* and *Sol* is thought to excite Commotions in the yellow Bile, and by that means to bring on Inflammations of the Stomach, Fauces, and Brain. When *Mars* is in Aspect with *Mercury*, then People are disposed to the Gout, and to Pains, especially such as arise from Phlegm, and a too great Abundance of Humours. The Aspect of *Mars* and *Saturn* is said to be prejudicial to choleric and melancholic People; it also excites Cardialgias, Cephalalgias, Phrensies, and provokes the Mind to Wrath, and throws it into preternatural Commotions. The Conjunction of *Saturn* and *Venus* portends Danger to Women big with Child. It also excites Coughs, Coryzas, Gouts, Head-achs, Palsies, and is thought to be in a particular manner hurtful to Children. The Aspects of *Venus* and *Mars* are inauspicious to Women big with Child, and such as are in Labour; and are for that Reason principally to be dreaded by them.

The Aspects of *Saturn* and *Jupiter*, as also of *Saturn* and *Mars*, are the inauspicious Forerunners of terrible Calamities to Mortals; for acute epidemical, and even contagious Disorders, follow the Conjunctions of these Planets. The baleful Effects of the Aspects of these Stars are sufficiently shewn from the violent Fevers, which after them have often raged with implacable Fury almost over all Europe. *Matth. Zeisius*, in *Orat. de Caus. & Period. Pestil. Morb.* has shewn, from many Observations, that the Aspects of these Planets generally threaten us with an imminent Danger of a Plague. Thus he says, that in the Year 1127. a Plague raged with such irresistible Violence, that the World was like to have been unpeopled by it, and that the Astronomers assigned the Conjunction of *Saturn* with *Jupiter*, as its principal Cause. *Boccace*, and *Guido de Cauliaco*, have, in their Writings, informed us, that the Aspect of *Jupiter*, *Saturn*, and *Mars*, was the Cause of the Plague which raged in the Year 1348. And *Marsilius Picinus*, the greatest Philosopher of his Age, assigns the Eclipses of the Sun and Moon, and the Conjunction of *Saturn* and *Mars*, as the Cause of that which raged in the Year 1478. Thus also the learned *Caspar Bartholine*, Professor at *Tubingen* in Germany, from the Conjunction of *Saturn* and *Mars*, in the Year 1628. after a hot Autumn, and mild Winter, in a public Oration there delivered, predicted the Plague, which for some ensuing Years raged almost over all Europe. Thus also *D. Paulus de Sorbaci*, Physician to the Emperor, accurately predicted the Plague at *Vienna*, from a Conjunction of the same Planets. To these we may add, what *Daniel Sennertus*, *Lib. 3. Part. 2. Sect. 2. Cap. 7.* has observed, concerning the Epidemic Dysentery which happened in his own Time, in the Years 1624. and 1637. in Consequence of the same Position of these Stars.

How much almost all the Antients ascribed to the Moon, and the various Positions of the Planets, with regard to critical Days, is every-where to be discovered in their Works. Nor is it entirely without Reason, though at the same time they seem to deserve some Animadversion even on this Head, that they ascribe so much, and trust so far, to the Moon, in constituting critical Days, exclusively of the State of the Distemper, and Condition of the peccant Matter; for, besides what has been already said upon the Head, 'tis agreed upon by the *Literati*, that her Aspects with the rest of the Planets are of the utmost Importance. To this Purpose, I shall now quote a memorable Passage of *Eichstadius*, concerning critical Days, *Lib. 2. Eph. 11.* "If, says he, the Moon, in the Beginning of an acute Distemper, should happen to have no Aspect with the other Planets, but should in the Progress of the Disease come within the Influence of some baleful Planet, either by Con-

junction, Opposition, or Quartile Aspect; or if, in the Beginning of the Disease, she should be exposed to the Influence of malignant Planets, and, in its future Course, also come into malignant Aspects, you shall then see deep Tragedies acted, dangerous Perturbations and Commotions excited in the Body, and very often Crises, which prove mortal. We are not therefore, says the learned Astronomer *Mæbius*, in *Epist. Inst. Med. Lib. 3. p. 3. Cap. 8.* only to consider the Moon, but also the Force and Virtues of the other Planets, whose Influences she shall happen to receive."

As to the Method and Form of Practice, and the proper Seasons of exhibiting Medicines, the Antients also carefully consulted the Stars; for that Purgatives, or Venesections, used rashly, and without absolute Necessity, for the most part, produce bad Consequences at the Solstices and Equinoxes, the Eclipses of the Sun or Moon, or upon the actual Presence or Approach of a baleful Planet, for Instance, of *Saturn* with *Mars*, and their Conjunction with the Moon at the Hour in which these are used, is not only found from Experience, but fully demonstrated by that skilful Physician *Frederic Hoffman* senior. *Hippocrates*, in the Passage above quoted, absolutely discards the Use of Medicines about the Summer Solstices. Every Surgeon may observe a Fact, concerning which *Lev. Lemnius* has given a Caution, which is, that Wounds inflicted during the Conjunctions or Oppositions of the Luminaries, are more difficultly and slowly cured than Wounds received at other times. In all strumous Cases, Medicines exhibited during the Decrease of the Moon are more efficacious, than if used at other times. Patients who are afflicted with Epilepsies, or labour under Disorders of the Nerves or Head, ought at every Change of the Moon to use nervous, cephalic, and epileptic Medicines, from which they will find no small Relief. In Cases where the Intestines are racked with Worms, the Use of Anthelmintics is most successfully prescribed in the Decrease of the Moon. At that Time also Blood is most advantageously taken away; and this Practice is universally and religiously observed by the Inhabitants of *Switzerland*, who are uncommonly fond of this Operation. The Physician, who endeavours to promote the suppressed Menfes, will find his Intentions most effectually answered by prescribing the Use of Emmenagogues about the New and Full Moons. Three or four small bulbous Roots of Garlick are successfully taken by those who labour under the Stone, every Week, on the Days immediately preceding the Four Quadratures of the Moon. See *Frid. Hoffman. Clav. Pharmaceut. Schroed. p. 406.* In like manner, when large Evacuations by Stool are intended, the Design is best and most safely carried on three or four Days after or before the Full Moon.

Having thus given an Account of the Sentiments of some of the most learned of the antient Physicians, with regard to the Influence of the Stars on the human Body, it now remains, that I give my own Opinion in this Point. And, to be as brief as possible, I declare at once, that I am for keeping a due and proper Medium; I neither attribute too much to the Stars, nor absolutely deny their Influence and Operations, but am for making a due and just Distinction between rational and well-founded Astronomy, and that which is superstitious, fabulous, and empirical. It is not indeed to be denied, that upon this Head some of the Antients have advanced things, which are not only superstitious and fabulous, but, which is worse, directly repugnant to Reason, and inconsistent with a Divine Providence; for who, that is not forsaken of his Reason, and deprived of his Senses, can approve of their running to so intolerable a Length of Madness, as to determine the Morals, the Fortunes, the Diseases, and Deaths of Men, from them? Who, on the other hand, can help lamenting, that the Part of Astronomy, which relates to Meteors, should have been hitherto so little cultivated, as, in a manner, to remain imperfect, dubious, and even destitute of a due and proper Foundation? And, upon this Occasion, I cannot help condemning the want of Accuracy in our Almanacks, which boldly predict certain States of the Weather, but the Events rarely agree with the Predictions. By this unlucky Circumstance, several, not only of the modern Physicians, but Philosophers, have been induced to run into the opposite Extreme, and utterly deny every the least Degree of Influence or Virtue to belong to any of the Stars, or heavenly Bodies, except the Sun. As an Argument for their Opinion, they advance the immense Distance at which they are removed from us. But certainly this Distance is not so great as to cut off and destroy their Influence upon our Globe; for, if it does not hinder the Influx of the Light upon our Eyes, it cannot, *a fortiori*, prevent its Action upon our Atmosphere, since it is interposed between us and them. Besides, Who can be so miserably hoodwinked, as not plainly to perceive and confess, that the wonderfully regular Motions of these Planets, their regular Progressions, and stated Conjunctions, were by Heaven, whose Designs are always vast in themselves, and beneficent to Mortals, intended to answer some noble and important Purposes? Nor indeed can the so

surprising

surprising Variety of Weather and Seasons be easily accounted for upon any other Hypothesis than the different Operations and Influences of the Stars, in Consequence of their various Situations and Positions. The Effects, 'tis true, of the Sun, are so evidently felt, that the Man must be somewhat more than Sceptic, who can deny them; but yet its Influences are by no means sufficient to account for so surprising a Diversity of Seasons; for we frequently find one Winter mild and gentle, another excessively cold and inclement; one Autumn dry, another rainy; one Summer the Ground is refreshed with frequent gentle Showers, and in another it is parched with continual scorching Heat. The Winds also do not always retain the same Qualities, nor blow from the same Quarter; but alter both, accordingly as they are influenced by the Stars. Those which blow from the North, are ordinarily accompanied with a piercing Cold; yet, which is surprising, they sometimes lay aside their Inclemency, and are observed for a considerable time to blow in a mild and gentle manner. And Easterly Winds, which generally bring Rains, are sometimes also attended with clear and serene Weather.

But this Influence of the heavenly Bodies is placed beyond the Reach of Uncertainty or Doubt, when we consider, that the State of the Air is very much altered under the Aspect of two Planets. Though indeed we cannot predict and determine this Change in the State of the Air with that Accuracy and Exactness we could wish, yet we justly assert the Fact, since Experience adds her sacred and uncontrollable Sanction to it. I cannot, on this Occasion, forbear commending the Industry which Mr. Cook, an *Englishman*, and Mr. Schlitters, have used in this Affair, who, after long and accurate Observation, at last found every particular Change of the Air to be produced by the Situation of the Planets. I myself, for ten Years, carefully made meteorological and barometrical *Ephemerides*; and every Day frequently observed the Weather, the Changes of the Winds, and the Height of the Mercury in the Barometer. During the Course of these Observations, I can, without transgressing the Bounds of Truth, affirm, that the Aspects of the Planets, especially the superior ones *Saturn* and *Jupiter*, as also of *Mars*, whether with each other, or with other Planets, are invariably followed with certain and unavoidable Commotions of the Air, especially if several of these Aspects should happen at one and the same time.

There is no Occasion for proving by a long Train of Arguments and Observations, that Changes of the Weather happen about the Quadratures of the Moon, since that Fact is well enough known to the meanest and most ignorant of the Country People. But the Influence of the Moon on our Globe is, in my Opinion, remarkably confirmed by the Flux and Reflux of the Sea, a Phenomenon ascribed to the Changes of the Moon by the concurring Suffrage of all who know any thing of true Philosophy.

There is, then, an Influx of the Stars upon our Earth, and that too so sensible and manifest, that it cannot be denied by any one, who allows himself to observe the Alterations produced in Vegetables and Animals, by the Positions and Phases of the Moon. And I could heartily wish, that this Branch of Learning were more carefully cultivated and improved by a sufficient Number of Observations made in different Places at one and the same time, lest, for want of these, the Good to be expected from Researches of this Nature should be stifled in its Infancy. This may be best prevented by a sufficient Number of accurate Observations made in different Places at one and the same time, not only on the State of the Weather and Air, but also on the Winds, the Height of the Mercury in the Barometer, and the Degrees of Heat and Cold in the Thermometer. For this End, our new-invented Thermometer is well calculated, by which, though but one Machine, we not only discover the least Changes of Heat and Cold, but also the precise Proportion in which they are in the Air, without any Influence from the Weight of the Air, which is not the Case with other unscaled Thermometers.

If, then, the Stars have an Influence on our Earth, as they undoubtedly have, it will be no difficult Task to shew, that our Bodies must be subjected to very considerable Changes and Alterations in Consequence of such an Influence; for he must be utterly ignorant both of Physic and Philosophy, who is unacquainted with the Force and Action of the Air upon our Bodies. The Air is of all the other Elements most necessary to us; by its means, Respiration, in which Life immediately consists, is performed. By it the *Anima Materialis*, as it is called, is nourished and supported; and by it that divine and heavenly Part of our Composition, called the *Soul*, is kept united with our Bodies. The Air acting by its Elasticity on our Bodies, and their Humours, is deservedly celebrated as the *productive Cause* of the Motion of the *Fibræ Motrices* of the several Muscles. The Air conveys a due Strength and Tone to the Solids, which maintain and carry on the Circulation of the Blood. The Air by its Weight and Pressure preserves the several Humours of our Bodies in a due *Equilibrium*, lest, being expanded by their

too quick and intense Motions, they should interrupt the necessary *Systole*, or Contraction of the Vessels. In fine, a Change of the Air is by *Hippocrates* [*Lib. de Flat.*] affirmed to be the Cause of the most terrible Distempers. Witness *Epidemical Diseases*, by which such a Number of Mortals are hurried into the other World, and which arise from no other Cause, than the Malignity of the Air; for the Circulation of the Blood, *cæteris paribus*, bears a direct Proportion to the State of the Air; and Health bears a direct Proportion to the Circulation of the Blood. A serene and temperate Air contributes to carry on the animal Functions with Ease and Tranquillity, and renders the Body sound and vigorous. A gross and dense Air, on the other hand, renders it weak and languid, by injuring the Excretions: Hence, the Tone of the Fibres being impaired, the due Motion and Circulation of the Blood is disordered and disturbed.

For this Reason the great *Hippocrates*, every-where in his Writings, insists upon the Air and its Properties. And, which is still more, from a diligent Observation of the preceding Season, he so accurately predicts the Constitution of the ensuing Year, and the Diseases that will rage during it, that his Predictions seem to carry something of a divine and infallible Nature in them. His incomparable Book *de Aere, Locis, & Aquis*, as also that *de Flatibus*, are well worth the Perusal of those who want Satisfaction on this Head; since his Industry, and extensive Skill, of which he has given numberless other Proofs, no-where appear more conspicuously, than in these Performances; for he was the first who raised this Doctrine, as it were, from a State of Non-existence, and exalted it to a Branch of Physic, which is not only curious in itself, but beneficial to Mankind. And it were to be wished, that more had trod in his Steps, and used their highest Care and Industry to enrich this Branch of Learning with a sufficient Store of accurate and well-made Observations. The Words of this divine Author, in his Book *de Humoribus*, contain an Observation of such Importance to Physic and Mankind, that they richly deserve to be written in Characters of Gold. Such as the *Weather and Seasons are, such will the Diseases and Constitutions arising from them be*. If the Weather is seasonable and natural, Diseases which readily arrive at a Crisis are produc'd. And the Diseases peculiar to particular Seasons are subject to Alterations from the Variety of these Seasons.

From what has been said, every one must plainly perceive, that since the Situations and Positions of the Stars induce Changes and Alterations on our Atmosphere, they must of consequence affect our Bodies with various Changes. Nor is it to be doubted but they act on our Minds, and variously affect the Genius and Dispositions of Men; for every judicious and skilful Physician is well apprised, that the Temperament and Motion of the Blood give a particular Turn to the Mind, the Morals, and the Genius. But that the *Soundness of the Body* depends upon the Air, which is influenc'd and acted upon by the Stars, is a Point already so clear and undeniable, that it stands in need of no Proof. And, indeed, I am inclin'd to think, that the Antients were by this induced, not only to ascribe to the Stars an Influence over the Body and the Mind, but also from them superstitiously to predict the Fates of Men, and the lucky and unlucky Events of Things. In this they were wrong, and their Error is justly censurable as superstitious and trifling.

But though, by reason of our limited and shallow Capacities, we cannot comprehend the real and actual Manner in which this Influx is performed, yet this Circumstance ought not to shake and invalidate a Fact, to which Experience gives her daily Suffrage; for how many Phenomena are there, both in Medicine and Natural Philosophy, for which we cannot account, but which, at the same time, leave no room in our Minds for Doubt, *Scepticism*, and Uncertainty? Besides, 'tis a Maxim in Philosophy as just as 'tis old, *That from our Ignorance of the Modus, or, as the Greeks express it, from the τὸ τί πῶς, or Manner of Existence, to the τὸ ὅτι, or real Existence, there arises no just Conclusion*. But it seems worth while to make, at least an Attempt to remove this Doubt. The Manner, then, in which this Influx is made, seems to be by *Rarefaction, Compression, and Direction of Motion in this or that Line*.

Thus *Saturn* seems to act upon our Bodies, and the Atmosphere, by compressing the Air, and giving its Parts a rectilinear Direction in their Motion, by which means Cold and Winds are produced. *Sol* and *Mars*, if we may indulge Conjecture in a Point so little subjected to our Senses, produce a vertical and intestine Motion in the Particles of the Air, the natural Consequence of which is Heat. But *Venus* and the *Moon*, by rendering the Air lighter, lay a Foundation for Store of Vapours being raised, and are therefore found to occasion rainy Weather. The Moon at her Quadratures rarefies the Air too much. Hence our Bodies and Juices become turgid, and our Transpiration is too great. At New Moon again, or an Eclipse of the Moon, the State of the Air is compressed, a Circumstance which excites various Disorders.

The most noble of all the Planets, and that which most contributes to the Support of the Body, is the *Sun*, whose Efficacy in the Preservation of Health is so conspicuous, that the Antients ascribed a Power of curing Diseases to it; because they observed, that the gentle and temperate Heat of the Sun had a Tendency to remove and carry off all Distempers; for *Apollo*, the God who presides over Physic, is the same as the Sun. For this Reason he was, according to *Macrobius*, styled *Sospitalis ac Medicus Deus*, The God who procures the Safety, and protects the Health of Mankind; and had also Divine Worship paid it by the Heathens on this Account.

The Conjunction of *Sol* with *Jupiter*, of *Jupiter* with *Venus*, as also the Aspect of *Jupiter* and *Mercury*, are particularly beneficial in removing those Disorders which arise from Spasms, and spasmodic Constrictions of the Fibres. For this Reason they are propitious Planets to hypochondriac, hysterical, phthical, and inflammatory Disorders; for, by rendering the Atmosphere light, they relax the Tone of the Fibres, and promote the Transpiration of the impure and recrementitious *Sordes* lodg'd in the Body. For this very Reason also, under the Conjunction of *Sol* and *Jupiter*, all Attempts to restore and preserve Health, whether by Venesection, Purgatives, or other Remedies, are most proper.

The Aspect of *Sol* and *Mercury* is of Service to phlegmatic Disorders, and such as draw their Origins from Serum. The same Effect is also produced by the Aspect of *Sol* and *Mars*, which, on the other hand, is prejudicial and hurtful to the Choleric, whilst it too much increases the intestine Motion of the Blood, and by that means produces bilious and hot Diseases, especially Hemorrhages. The Conjunction of *Mars* and *Mercury* produces almost the same Effects.

The Aspect of *Venus* and *Saturn*, by compressing the Air, renders the Fibres tense, blocks up the Pores, and prepares and disposes the Body to Spasms, Rheumatisms, Fevers, Coughs, Coryzas, and Abortions. The Aspect of *Mars* and *Saturn*, by throwing the Blood into internal Commotions, and obstructing external Perspiration, disposes to Anger, and excites unbridled Passions. The same Aspect promotes the Diseases arising from Bile, and for that very Reason uses to pave an easy Road to Putrefaction and the Plague. The long-continued Aspect of *Venus* and *Mercury*, by rendering the Atmosphere lighter than it ought to be, disposes to Ulcers, putrid Diseases, Worms, *Aphthæ*, and catarrhus Fevers. The Aspect also of *Saturn* and *Jupiter* produces a Train of fatal and melancholy Effects; for the Aspect of *Jupiter* rarefies the Humours, whereas that of *Saturn*, by an external Pressure upon the Body, hinders Perspiration.

I have already said, that, during the Increase of the Moon, Tumors were enlarged; and this happens for no other Reason than this, that the Moon, not only by her Rarefaction, but her Humidity, relaxes the Tone of the solid Parts: Hence Perspiration is interrupted, and an Accumulation of Humours, Blood, and Serum, ensues. But, upon the Decrease of the Moon, the Perspiration acquires new Force and Strength, by which means the Tone and Elasticity of the Fibres are restored and augmented. For this Reason People at this Season receive the most considerable Advantage from the Use of Medicines; for then Evacuations of all Kinds, and Venesection, that great Preservative, are more proper, and more beneficial to the Constitution than at other Times.

That we ought to abstain from the stronger Purgatives during the *Solstices*, is evident from this, that, during the Summer Solstice, the Strength is dejected, and the Spirits languid, in consequence of the violent Heat. The Winter Solstice, on the other hand, is always accompany'd with the greatest Imbecillity, and Nature is then at her lowest Ebb. Since also the Equinoxes, in consequence of their Humidity, relax the Fibres, they must of course retain within the Body the Humours, whose Expulsion and Elimination are attempted. For this very Reason, if about the Equinoxes the more Draftic Purgatives are used, it readily happens, that the Humours, being by their Violence forcibly driven to particular Parts, excite dangerous and fatal Stagnations; for which Reason the Physician is at these Seasons to be particularly careful never to prescribe these strong Purgatives, but rather make Choice of the mild and gently operating Laxatives. In the Decrease of the Moon, such Medicines as are designed against Worms and Tumors, are most properly used; because at that Time Nature being in her most flourishing State, increases their Operations, and proves an excellent Assistant to them; and the more powerfully Medicines are assisted by the concurring Forces of Nature, the more speedy and successful their Operations will be, and *vice versa*.

But it is above all things to be remember'd, that the Influence of the Stars is to be rank'd among those Causes of Diseases only, which affect our Bodies, whether in a sound or valetudinary State, in a remote and secondary manner; for the Stars only dispose to particular Disorders, and particular States of the Body and Fibres; but they are not the proximate and immediate Causes producing the Disorders themselves.

The Maxim of the Antients relating to this Particular is very just, when they say, that the Stars indeed *inclin'd*, but could not *necessitate*. In order to produce a necessary Effect, a proximate and immediate Cause is necessarily requir'd; but, in order to produce any Effect, many remote Causes must concur. It must also be remember'd, that the Stars act upon our Bodies not *secundum modum activitatis*, or merely by their own Virtue and Energy; but *secundum modum Receptivitatis*, or according to the State and Disposition of the Objects on which they act. This Observation is on this Occasion so much the more carefully to be adverted to, as it ought to be fixed and riveted in the Mind, with regard to all morbid Causes whatsoever, the Effects of Diseases, and the Operations of Medicines. For this Reason we observe, that all Bodies are not affected in the same manner by the Stars, but the same Effect which proves beneficial to one, sometimes proves hurtful, and injurious to another. Lastly, 'tis not to be forgotten, that the Influences of the Stars are most conspicuous and perceptible in valetudinary and infirm Constitutions; for these, in consequence of their lax and spongy Habit of Body, and the too languid Motion of their Blood, are in a particular manner expos'd to the baleful Influences they diffuse, whereas those of a more hardy and athletic Make, are not easily injur'd by them.

In the last Place, this is to be duly remember'd, and carefully adverted to, That, in Cases of URGENT NECESSITY, neither the Position of the Stars, nor the State of the Atmosphere, are to be regarded; for no Physician ought to recede from what he thinks a rational Practice in acute Diseases, because the Aspects and Positions of the Stars are bad, according to the Advice of that skilful Physician *Levinus Lemnius*.

Thus in a Quinsy, Pleurisy, and Inflammations, we are to disregard the Stars, but have immediate recourse to Venesection: For as the skilful Pilot, on the Prospect of an approaching Tempest, loses no Time, but struggles for Life and Safety against Wind and Tide, till, by a prudent Management of his Sails and Oars, he has brought his Ship to a secure Station, where she may be shelter'd from the Violence of the raging Winds and Billows; just so the skilful Physician, neglecting the Stars, and their Influence, has recourse, as soon as possible, to such Medicines as remove the Violence of the Distemper, and place the Patient beyond its Reach. *Hoffman*.

ASTRUM, ἀστρον. The same as ἀστήρ, a Star.

Astrum, with the Chymists, signifies that Virtue and Power which accrue to Things from their Preparation: Thus the *Astrum* of Sulphur is its Kindling, by which it is changed into a most excellent Oil; and the *Astrum* of Salt is its Resolution into Water or Oil, by which, in like manner, it acquires greater Strength. The *Astrum* of Mercury is its Sublimation, by which it acquires a wonderful Force and Power, of more Extent and Subtlety than it was endu'd with by Nature. It is otherwise called *Alcol*, *Quinta Essentia*, *Extractum*, *Sperma*, &c. *Ruland. Johnston*. There is also the *Astrum Solis vel Auri*, *Lunæ*, &c. *Astrum ex Igne* is burning like Fire, and making a vehement Impression. *Diæ. Paracelsum*.

Astrum is also a Name given to certain Medicines, as Troches, or those in the Figure of little round Cakes, impress'd with an Asterisk. Hence we read in *Galen*, *Lib. 8. de C. M. S. L. Cap. 3.* and in other Places, of the invincible, somniferous, anodyne *Aster*. And with some Chymists a Remedy bears that Name, not so much on account of the Impression, as its extraordinary, and, I may say, *Astral* Virtues; for Example, the *Astrum* of Serpents.

ASTUR, in *Aldrovand. Ornithol.* is the same as ACCIPITER.

ASUB. The Galaxy. *Ruland. Johnston*.

ASULCL Lapis Lazuli. *Idem*.

ASUOLI Ink, Soot. *Idem*.

ASYMPHOROS, ἀσύνφορος, from a Neg. and σύνφορος, a Calamity, Misfortune; not detrimental or dangerous. Thus *Lib. 1. περί διατρῆς καὶ ἐν βρογχίτις ἐλεγχμονίς καὶ ἀσύνφορος μαινοῖται*, "after a short Inflammation, which was no way dangerous, they grow mad."

ASYMPHYTON, ἀσύνφυτον, from a Neg. and σύνφυσος, concrete, coalescent, in *Hippoc. Lib. περί τέχνης*, signifies whatever is disjoint'd by Nature, and not continuous.

AYSMTOTON, ἀσύνπιπτον, from a Neg. and σύνπιπτος, of συμπιπτεῖν, to subside, to be compressed, or contracted. Uncompressed, uncontracted. *Ἀσύνπιπτον*, in *Hippoc. Lib. περί χυμῶν*, denotes what is not contracted or compressed thro' Dryness. In *Gal. L. 1. ad Glauco. ἀσύνπιπτος ἢ πᾶσα ἐξ ἧς τὸ σώμασι*, "the whole Habit of the Body keeps up without sinking," was before expressed by ἐστὶ ὁ τὸ σώμασι ὀγκοῦ συμπιπτικῶν, "nor was the Bulk of the Body sunk or contracted." Thus *σύνπιπτος*, *Lib. περί χυμῶν*, signifies a Sinking or Contraction of the outward Limits of the Body; and *Aph. 3. Lib. 1. συμπίπτοντες* are called κενώσεις, Evacuations, importing such Compressions to be the subsiding of the Vessels upon Evacuation.

ASYNETHES, ἀσυνήθης, from a Neg. and συνήθης, customary; uncustomed. *Hippoc. Lib. 2. Aph. 49, 50.*

ATAC, Talc, or Nitre. *Ruland. Johnson.*

ATACTOS, ἀτάκτος, from a Neg. and τάξις, Order, Disorderly, irregularly. An Adverb often used by *Hippocrates*, in Conjunction with ἀπλάττειν, "after a wandering manner." Thus, for Instance, *Lib. 1. Ep. πῦρα ὃ πάσαν ἀτάκτως καὶ ἀπλάττειν ἐγένετο*, "all had Shiverings in a vague and irregular manner."

ATA MARAM, H. M. *Pomifera Indica, Fructu conoide squamoso viridi.* The same as AHATE DE PANUCHO RECHI, which see.

ATANOR. A Pot perforated. *Ruland. Johnson.*

ATARACTOPŒSIA, ἀταρακτοπνοσία, from a Negat. ταρακτός, troubled, and ποίω, to do. The performing an Action with an undisturbed and intrepid Mind, becoming a Physician. *Hippoc. περὶ εὐχρη.*

ATAxia, ἀταξία, from a Neg. and τάξις, Order. Irregularity. In a special Sense it signifies the Disorderliness and Irregularity in Crises and Paroxysms of Fevers, *Hippoc. Lib. 1. & 3. Ep.* A Pulse is said to be ἀτάκτος, irregular, when it observes no Order in the Time or Tone of the Strokes; and an erratic Fever is called ἀτάκτος, or ἀτυπός, which keeps no certain Character or Order in its Periods.

ATAXMIR. An Arabic Word in *Albucasis*, signifying the Method of treating an Eye when preternatural Hairs grow under the natural ones on the Eyelids, and incommode the Eye. *Castellus.*

ATEBRAS, uncus aquinus, that is, a Subliming Vessel. *Rulandus.*

ATECHNIA, ἀτεχνία, from a Negative, and τέχνη, an Art. Want of Art. Τέλο γὰρ ἐργασίης ἀτεχνίαν εἶναι, ὅτι μήτε ὀρθὸν ἐστὶ μὴδ' ἐν, μήτε ἐκ ὀρθόν. "I assert that to be void of Art, in which there is nothing right, and nothing wrong." *Hippoc. περὶ τέχνης.*

ATENES, ἀτενής, fix'd, immoveable, rigid. Thus ἀτενές ὄμμα is a fix'd and immoveable Eye, a rigid Aspect. *Galen, Comm. 3. in Protrhet.* explains it by δεσνός, bold, vehement, a fierce and wild Aspect, which portends a Phrensy. Ἀτενές ἐκλάμπουσιν ὀφθαλμοί, "the Eyes are fix'd, and shine," which is a Sign of a Delirium. Ἀτενίζοντα ὄμματα, Eyes fix'd, intent, looking earnestly. *Lib. 5. & 7. Epid.*

ATER SUCCUS, or ATRA BILIS, are sometimes used to express the Black Bile, Melancholy. See BILIS, and MELANCHOLIA.

ATERAMNA, ἀτέρευμα, in the following Passage of *Hippocrates, Lib. de Aere, Locis, & Aquis, δια τὰ ὕδατα ὄντα σκληρὰ τε καὶ ἀτέρευμα, καὶ ψυχρὰ*, is expounded by *Galen* in his *Exegesis*, by τὰ δυσκαίεργα καὶ σκληρὰ, "difficult of Concoction, and hard;" in which Sense the Place quoted will be render'd, "because the Waters are hard, and difficult of Concoction, and cold." The same Author, *Com. 4. in Lib. 6. Epid.* writes, that some of the Antients call'd bad Waters ἀτέρευμα, and ἀτέρευμα. And in another Place, *Comm. eodem*, he tells us, that Rain-water was better than what fell with Hurricanes, which could neither be digested nor alter'd, but was like the Water of some Fountains which the Antients call'd ἀτέρευμα. These Words import as much as untameable, indigestible.

Ἀτέρευτοι κοιλίαι, *Lib. de Aere, Locis, & Aquis*, are hard, dry, stubborn Bellies, not lubricous or mollify'd, and opposed to εὐεργετοι, "such as are more fluid, or loose." Ἀτέρευτοι, in the same Treatise, is expounded, by *Erotian, δυσμετέλλαις*, "difficult of Alteration." Ἀτέρευμα there also signifies Crudity, and Difficulty of Concoction; but when transferr'd to the Mind, it denotes an untractable Nature, a refractory Disposition, and rough and unciviliz'd Manners, incapable of being polish'd or soften'd. *Hippoc. ἐν παρρηγελίαις τῆς γῆς, ὃ πρὸς τοὺς ἰατροὺς, ἡδελφισμένον ἰστέος ἰστέου πῖσις ἢ ἀτέρευμα;* "The true Physician will undoubtedly perform his Office with Honour and Confidence, rather than by hard and rough Treatment."

ATERES, ἀτηρής, from ἄτη, Loss, Mischief. Noxious, detrimental. *Hippoc. Lib. de Aere, Locis, & Aquis: Εἰ μέντοι, ποταμοὶ μὲν μὴ εἴσιν, τὰ δὲ ὕδατα κρυαῖά τε καὶ σάσιμα εἶναι, καὶ ὁδὸν ἀνάγκη τὰ τοιαῦτα τῆς γαστρὸς ἀτρεῖα εἶναι καὶ σπληνός.* "But if there be no Rivers, and they drink of stinking and stagnating Springs, such Waters must of necessity be pernicious to the Belly and Spleen."

ATHANASIA, from a Negative, and θάνατος, Death (Immortality). An Antidote which *Galen* describes in the eighth Book of his Topics, as a Medicine for Infirmities of the Liver, the Gravel, and the Yellow Jaundice. It is thus prepared:

Take of Saffron, two Drams; Cinnamon, one Dram; Spikenard, two Drams; Cassia, Myrrh, Juncus odoratus, of each one Dram: Make them into an Electuary with Honey. Taken to the Quantity of a Grecian Bean, it provokes Sweat plentifully.

There is another Antidote of this Name, which *Paulus, Lib. 7.* ascribes to *Oribasius*, which takes in all the Ingredients of the former, but varies the Proportions, with an Addition of Opium; which, he says, is a Lenitive of Pain, and proper for the Pleurisy, and would have it supply the Place of *Philonium*.

Ἀθανασία signifies also the Collyrium ἀθανάτων, describ'd by *Actius, Lib. 7. περὶ ὧν ἀδύπτων καὶ λευκῶν κολλυρίων*, that is, of white and mild Collyriums. *Goræus.*

Athanasia is also a Name given to many Compositions in some foreign Dispensatories, one of which is in the *Augustan*.

Athanasia, according to *Blancard*, is a Name for TANCETUM, which see.

ATHANATOS, according to the last-named Author, is the LYCHNIS CORONARIA, which see.

ATHANOR. This is, by *Lemery*, deriv'd from *Tannaron*, an Arabic Word, which signifies a Furnace.

It is a sort of Furnace, contrived in such a manner as to keep up an equal and gentle Heat for any Length of Time, by only supplying it every twenty-four, or sometimes every forty-eight Hours, with a proper Quantity of Coals. It is very useful in Operations where a long-continued gentle Heat is required.

ATHARA. See ATHERA.

ATHARES, ἀθαρής, from a Negative, and θέρω, to corrupt. Uncorrupted. This is an Epithet sometimes apply'd to a Virgin; and sometimes to Iron, with regard to its Hardness, Incorruptibility, or Invincibility.

ATHELXIS, ἀθελξις, from ἀθελγμαι, to suck, or drain by Milking. Suction, or that Attraction which is perform'd by sucking or milking. The Verb ἀθελγμαι is used by *Hippocrates, περὶ χυμῶν*, and ἀθελξις, in the Treatise περὶ ἀρθρῶν but the best Copies, as *Foesius* says, for ἀθελξις, read ἀλθεξις, which he himself approves, and renders *Sanatio*, a Cure.

ATHENA, ἀθίνα, is a Plaster commended by *Asclepiades*, and describ'd by *Oribasius, Actius*, and *Paulus*. It is thus made:

Take of Cadmia, twenty Drams; of burnt Brass, Bark of Pomgranate, Galls, long and round Birthwort, Sal Ammoniac, Squama Aëris, round and scissile Alum, Orris, Misy, Chalcanthum, Chalcitis, Verdegrise, Aloes, Myrrh, Frankincense, Gum Ammoniac, Galbanum, each thirty Drams; of Wax, Pitch, each one hundred, or, as others, two hundred Drams; of Colophony, four hundred Drams; of Oil, six Ounces.

This is *Oribasius's* Receipt; but *Asclepiades* prescribes

Twelve Drams of Aloes, as many of Myrrh, and sixteen Drams of Gum Ammoniac: Pound the dry Ingredients for several Days together in the Summer's Sun; then melt those which are liquifiable, and incorporate them with the others.

It is very effectual in Wounds of the Head and Nerves, and is reckon'd by *Paulus* among the ἐμψία φάρμακα, Remedies spread upon Lint or Linen, and thus introduced into Wounds or Ulcers.

ATHENÆUS.

Athenæus was the first Founder of the Pneumatic Sect, and a Native of Attalia. There were several Towns of this Name; but it is most likely, that the Attalia which gave Birth to this Physician was a City of Cilicia, because *Cælius Aurelianus [Acutor. Lib. 2. Cap. 1.]* mentions one Athenæus of Tarsus, who is probably the same; for Tarsus being also a City of the Province of Cilicia, Cælius might have, very probably, put the one for the other.

This Physician appear'd after *Themison*, as we may gather from a Passage of *Galen*, where he says, that one *Magnus*, a Follower of *Athenæus*, had compos'd a Book, intitled, *Things discover'd since the Time of Themison*. 'Tis very probable, that *Magnus* compos'd this Book with no other View than to give an Account of the Innovations his Master had made in Physic. The Silence of *Celsus* and *Pliny*, with regard to *Athenæus*, are also a Proof, that he did not live, or at least was not known, in their Days; since 'tis probable, that, having mention'd other Innovators in Physic, they would not have forgotten him. It is indeed possible, that *Athenæus* might not have made his Appearance in the World in the Time of *Celsus*, who lived under *Augustus* and *Tiberius*: But as for *Pliny*, if we consider, first, that there were about fifty Years between him and *Archigenes*, the former having written under the Emperors *Nero* and *Vespasian*, and the latter, at the farthest, under *Adrian*; and secondly, that *Archigenes* was the Disciple of *Agathinus*, who again was the Disciple of *Athenæus*; we shall find, that this last must have lived at least fifty Years after *Archigenes*, and consequently must have been contemporary with *Pliny*. If this Representation is just, as we may suppose *Pliny* to be a little older than *Athenæus*, and to write before him, we have no Reason to be surpris'd, that *Athenæus* is not mention'd by him.

As for the Philosophical Opinions of *Athenæus*, he did not believe, [*Galen. Introduct. seu Medicus, Cap. 9.*] that the Fire, the Air, the Water, and the Earth, were true Elements; for he only gave the Name of Elements to the primary Qualities of these Bodies, that is, to Heat, Cold, Humidity, and Dryness; the two former of which were, according to him, efficient, and the two latter material Causes. *Athenæus* added a fifth Element, which he call'd *Spirit*: He imagin'd, that this *Spirit* penetrated all Bodies, and preserved them in their natural State. This Sentiment he borrow'd from the *Stoics*; and 'twas probably this which induced *Galen* to call *Chrysippus* the *Stoick*, the *Father of the Pneumatic Sect*.

This Opinion is also hinted at by *Virgil*, [*Æneidos, Lib. 6.*] in these Words:

*Principio Cælum, ac Terras, Camposq; liquentes,
Lucentemq; Globum Lunæ, Titaniaq; astra,
Spiritus intus alit: totamq; infusa per Artus
Mens agitat Molem, & magno se corpore miscet.*

Athenæus, applying this System to Physic, would have all Diseases to proceed from the *Spirit* suffering, or receiving the first Assault, *τοῦτο πρῶτον ἀσθενεῖ*, that is, *πρῶτον ἀσθενεῖ* [*Galen. Introduct. Cap. 9.*]. But as the Works of this Physician have not reach'd us, we know not particularly what he meant by this *Spirit*, nor what he understood by its suffering: Only from his Definition of the Pulse we may conclude, that he believed the *Spirit* to be a Substance capable of Dilatation and Contraction. "The Pulse," said he, is no more than a Motion produced by "the natural and involuntary Dilatation of the Spirit contained in the Arteries and Heart; which Spirit, moving of its own Accord, moves at the same time the Heart and Arteries."

This is all we know concerning the Sentiments of *Athenæus*, except some things relating to Anatomy, in which he follow'd *Aristotle*. *Galen* [*de Different. Puls. Lib. 4. Cap. 4.*] observes, that none of the Physicians of these Days had written so universally on Physic as *Athenæus*; but of all he wrote we have nothing remaining, except two or three Chapters in the Collections of *Oribasius*, from which we learn nothing that can explain this Opinion relating to the *Spirit*, much less any thing that can discover its Use with regard to the Practice of Physic.

ATHENATORIUM, a thick Glass Cover, which is in the *Theatrum Chymicum, Vol. 3. p. 33.* directed to be luted to a Cucurbit, when the Alembic is taken off, in a particular Process there describ'd.

ATHENIONIS CATAPOTIUM. The Name of a Pill in *Celsus, Lib. 5. Cap. 25.* which is recommended against a Cough. It consists of Myrrh, Pepper, Castor, and Opium.

ATHENIPPON. The Name of a Collyrium, describ'd by *Scribonius Largus, 26.* which is also call'd *Diasmyrnes*, said to be useful in some Distempers of the Eyes.

ATHENIPPON PANCHRESTON, *ἀθηνιππον πανχρηστον*, a Collyrium in *Galen, Lib. 7.* *ἡ δὲ νάρξ τοῦτος*, quite different from that of *Scribonius Largus*; whence it appears, that the Name *Athenippion* was common to many Collyria.

ATHER, *ἀθήρ*, as *Galen* says, signifies, in *Hippocrates*, both the prickly Part or Beard of Barley, as in *Lib. 2. de Morbis*, and also the Top of that Part in the Point of an Arrow, which is called the *πύργος*, Beard, as in *Lib. 5.* *ἡ ἐνιδρυμὸν*.

ATHERA, *ἀθήρα*, or *Athara*, as it is read in *Pliny, Lib. 22. Cap. 25.* signifies a thin sort of Pulticula, or Pap, fit to be supp'd: It is made of Wheat, or Zea, ground and reduced to a very fine Flour, and is proper for Infants. *Dioscorides, Lib. 2. C. 114.* tells us, that it is a forbile Liquor, made of very fine Flour of Zea, and may be used by way of Cataplasim. The Term is received among the *Greeks*, tho' *Pliny* says it has an Egyptian Original. *Goræus*.

ATHERINA, a small Fish mention'd by *Aldrovandus*, which is very full of Bones, but otherwise very good Food, as being easy of Digestion, and supplying good Juices.

ATHEROMA, *ἀθήρωμα*, is a colourless Tumor, void of Pain, containing, in a membranous Coat, Matter like Pap, called *ἀθήρα*, intermix'd sometimes with hard and stony Corpuscles, and others like the Scrapings of Sulphur, and now-and-then like chew'd Bones of Chickens. *Leonidas* writes, that he sometimes met with things like Hairs inclosed within a very gross Humour; and *Philoxenus*, that he found Animals lodged in the Humour, which were like Gnats or small Flies.

An *ἀθήρωμα*, then, is oblong, imminent, hard, not easily impress'd by the Fingers, nor, after Impression, hasty to restore itself; which Marks distinguish it from the Meliceris, which is more round, low, wide, soft, and easily gives Way to the Touch, and as soon returns. *Goræus*. See TUMOR.

ATHLETICUS, *ἀθλητικὸς ἔξυς*, *Athletica Habitudo*, an Athletic Habit of Body; so the Antients call'd that State of Body which was full, fleshy, and robust; for such was the Appearance of the *Athleta*, or Wrestlers. They were not of this Constitution by Nature, but acquir'd it by the closest Application to the Gymnastic Art. Their principal View in this Study

was to take such Care of their Bodies, as that they might be well fortify'd with much and solid Flesh, and have their Veins full of the best and most fibrous Blood. Nor did they only aim at Strength, but Bulk and Ponderosity, the better to overbear and foil their Adversary. For this End, it was necessary to use much Food and Exercise: The first was of such a Nature, as not easily to be dissolved and dissipated, such as Beef, Pork, Bread, and Cheese; and what, says *Galen*, is extoll'd by all, the finest Wheat-flour, with Cheese-cakes, and other Dainties made thereof, which he, in his fifth Book of the Preservation of Health, mentions as provided for Wrestlers, to increase their Strength and Vigour. Their Bread was anciently, by a peculiar Name, call'd *Colipbium*, *ἀπὸ τοῦ κόλου καὶ ἰσίου*, from Firmness of Limbs. They observed no Time or Order in Eating or Drinking, that they might the better be enabled to bear all Changes. 1. They indulged themselves in Sleep and Gluttony, and roll'd in the Dust and Dirt: As to all honest and necessary Offices of Life, they were quite indisposed and useless. They who, by such Methods, had acquir'd this Habit of Body, were accounted excellent *Athleta*, Wrestlers, and the Habit itself was call'd *ἀθλητικὴ ἔξυς*, an *Athletic Habit*. But it grew to a Custom in time to call every corpulent and robust State of Body by this Name, tho' not procur'd by the Athletic Art. Hence, in *Plautus*, *pugilice, pancratice, & athletice valere*, is put for *optime & firmissime*; and in *Celsus, Lib. 4. Cap. 6.* an Athletic Diet is put for a strong one, and such as is accommodated to repair the bodily Forces, as *Budæus* has observed in his Notes on the *Pandectæ*. But this Athletic Habit is censur'd by *Hippocrates* as preternatural, and not so good as a healthful one; for it is in continual Danger from the Fulness of the Vessels. Therefore it ought to be accounted *neutral* rather than *healthful*, because of the imminent Danger that attends it, except it be soon solved by a *κρηταρσία*, an Evacuation, or Emptying of the Vessels. On other Accounts, as *Galen* writes, *Comment. in Aphor. 3. Lib. 1.* it is faultless, because *Athleta* abound with good Humours, and are in full Strength of Body; and, in his Book *de Atra Bile*, he owns their Blood to be very good. *Goræus*. See GYMNASTICA.

ATHLIPTOS, *ἀθλιπτός*, from a Negative, and *δύσβα*, to press. Uncompress'd. *Ἀθλιπτός ἐμβολή*, as *Galen* says, is an Expression used by some to signify the Approach of a feverish Paroxysm without Compressions. This kind of Fever, he says, at the very Beginning of the Fit, immediately raises the Pulse in Greatness and Swiftmess, and does not make its Approaches, as is usual with other Sorts, by Shakings and Shiverings, a Coldness of the extreme Parts, or outward Superficies, with a Vellication, Gravation, or Compression of the Stomach, and a small slow Pulse; for one or more of these Symptoms attend the Access of a Paroxysm, and soon after sometimes succeeds a Vomiting, which is a plain Indication of a Conflux of vicious Humours to the Stomach; and the Blood, retiring from the whole Superficies inward to the Viscera, must occasion Compressions, Obstructions, and Distensions of the principal Arteries. A Fever that does not make its Attack on the Patient by any of these Methods, is said to make an *ἀθλιπτός ἐμβολή*, "an Attack without Compressions." *Galen. de Præfag. et Puls. Book 3. Chap. 7.*

ATHONOR. The same as *ATHANOR*.

ATHORECTOS, *ἀθόρεκτος*, not drunk. Sober.

ATHRIX, *ἀθήριξ*, from a Negative, and *δείξ*, a Hair, Smooth, without Hair.

ATHROESMA, *ἀθροισμα*, from *ἀθροῖς*, collected together. This is a Term in frequent Use among the Physicians of the Empiric Sect. It signifies the entire Collection of all their Observations.

ATHROOS, *ἀθροός*, an Adjective, or Athroon, *ἀθροῖς*, an Adverb, in Medicinal Authors, imports copious, accumulated, or sudden, and is the Reverse to *by degrees*. It is apply'd to the Secretions, Nutrition, and other things.

ATHYMIA, from a Negative, and *θυμός*, Courage. Pusillanimity. In Medicinal Authors it usually signifies that Dejectedness, Despondency, and Despair, which frequently occur in the Course of Distempers, especially in some Constitutions.

ATINCAR, or **ATINKAR**, Borax. *Rulandus. Johnson.*

ATTITARA, the *Brasilian* Name for the *Palma humilis spinosa*. *Raii Hist. Plant.*

ATLAS. The first Vertebra of the Neck, mark'd *Fig. 9.* in *Table 8.* is call'd Atlas, because it supports the Head, as *Atlas* did the Globe of the Universe, according to the ancient Fable. It has neither Body, nor spinal Apophysis. The Hole or Opening in it is much larger than in the rest. It looks like an irregular bony Ring, fill'd all round with Eminences and Cavities. It may be divided into two Arches; the anterior, or largest; and posterior, or smallest.

The anterior Arch is form'd by two thick lateral Portions, and a small curve middle Part, which, with the other, makes a Notch in the anterior Part of the great Cavity of the Vertebra. The lateral Portions may be look'd upon as a Body in two Parts, without which the first Vertebra would have been too weak to sustain the Articulations.

In the Middle of the convex Side of the posterior Arch, is a Tubercle, a little pointed, larger than the anterior Tubercle, and mark'd with Muscular Impressions on each Side, and on the upper and lower Edge. This Tubercle seems to be in the Place of the spinal Apophysis.

The transverse Apophyses of the first Vertebra arise from the Middle of the Breadth of the lateral Portions, being perforated perpendicularly at their broad Origins. They are much longer than those of the five Vertebrae below them, and, contracting gradually, they terminate in an obtuse Point, which is sometimes in a manner double, and mark'd on the upper and lower Side with Muscular Impressions.

The superior articular Apophyses are larger than any other Apophyses of the same Kind in the whole Spine. Their Situation is almost horizontal, and their anterior Extremities are turn'd more inward, that is, nearer one another than the posterior: They are, in a Word, every way proportion'd to the Condyles of the Os Occipitis.

The inferior articular Apophyses are less hollow, shorter, and broader. They are inclin'd laterally from within outwards, and from above downward. They are directly under the superior Apophyses; and thus the articular and transverse Apophyses, the Holes and lateral Portions on each Side, are all in the same Line.

There is a long Notch, or kind of Groove, between each superior articular Apophysis, and the posterior Arch of the bony Ring, reaching from the Hole in the transverse Apophysis backward; in which Notch the Vertebral Blood-vessels, in the natural State, make a Turn, before they enter the great Occipital Foramen. Sometimes, tho' very rarely, there is a complete Hole in the room of this Groove. There is another Notch, but more shallow, on each Side, between this Arch and the inferior Apophyses.

In the internal Circumference of the great Hole of this Vertebra, in the Middle of the great Notch, is a Cartilaginous Impression for the Articulation of the Axis of the second Vertebra; and on each Side of that Notch, between the superior and inferior Apophyses, there is another small Impression for the Insertion of a transverse Ligament, which secures the Axis in its Place. All round this Circumference, both toward its upper and lower Edges, there are many other Inequalities or Impressions. *Winflow's Anatomy.*

ATLE, an Egyptian Name for the Tamarisk. *Blancard.*

ATMOSPHERA, the Atmosphere. The whole Body of Vapours, and Air, surrounding the Earth. See AER. It is deriv'd from

ATMOS, ἀτμός, a Vapour, or Exhalation.

ATOCIA, from a Negative, and τίτω, to bring forth Young. Sterility. *Blancard.* But ἀτοκία, in *Hippocrates*, usually signifies Women who abstain from the Means of Fecundity, that is, the Embraces of the other Sex.

ATOCIUM, a Name for the *Lychnis Sylvestris*. *Blancard.* But ATOCIUM, ἀτόκιον, also signifies a Medicine which prevents Conception.

ATOLLI, a sort of *Pap*, made of the Meal of *Mays* and Water, which the *Indians* mix with their Chocolate.

ATOLMIA, ἀτομία, from a Negative, and τέλμα, Intrepidity. Pusillanimity.

ATOMUS, ἀτομός, from a Negative; and τέμνω, to cut or divide. An Atom. A Particle of Matter so small as to admit of no farther Division.

Cælius Aurelianus, *Acut. Lib. 1. C. 14.* giving an Account of the Philosophy of *Asclepiades*, says, it was his Opinion, that the *Primordia* of all Things were *Atoms*, which were not the Objects of our Senses, but were only perceptible by the Understanding. These *Atoms*, according to him, had of themselves no Qualities at all; for he asserted, that the Qualities of the Bodies which they compose depended upon the Order, Figure, Number, and Grandeur of many of these Particles join'd together: And when he was ask'd, How it happen'd, that Bodies possess'd several Qualities, since the *Atoms*, of which they were composed, possess'd none at all; he answer'd, That these Qualities depended upon the Order, Figure, Number, and Bulk of several of these *Atoms* united and join'd together; and, for illustrating his Opinion, drew a Simile from Silver, which is white when in the Lump, but black when filed down; and from the Horns of Goats, which are black when entire, and white when rasp'd down.

From this Account of the Philosophical Sentiments of *Asclepiades*, we plainly see, that they were somewhat different from those of *Epicurus* or *Democritus*, tho' all the three acknowledged *Atoms*; for the *Atoms* of *Asclepiades* were divisible, whereas those of *Democritus* and *Epicurus* were supposed incapable of being divided. I am of Opinion, that *Cælius Aurelianus*, by *Atoms*, means no more than the ὄγκοι, or *Molecules* of *Galen*. *Epicurus* acknowledged *Molecules* as well as *Asclepiades*; and *Lucretius*, who was contemporary with *Asclepiades*, also mentions something of the same Nature: But then *Epicurus* and *Lucretius* do not look upon *Molecules* as the first and constituent Principles of Bodies, but only as the first Ef-

fects produced by an Assemblage of *Atoms*; which, according to them, were the true and genuine Principles: Whereas *Asclepiades*, according to the Account of *Cælius Aurelianus*, seems to mean *Molecules* by his *Atoms*; tho', at the same time, he gives the Name of *Atoms* to the *Molecules* themselves. But we have some Reason to think, that this Author did not thoroughly understand *Asclepiades*, if we reflect upon a Passage of *Galen*, *de Theriac. ad Pison. Cap. 11.* where he says, "That *Asclepiades*, adhering to the Sentiments of *Democritus* and *Epicurus*, with regard to the Principles of Bodies, had only changed the former Names of Things, calling *Atoms* *Molecules*, and a *Vacuum* Pores." But *Galen* himself (*de Hippocrat. & Platon. Decret. Lib. 5. C. 3.*) establishes a formal Difference between the Sentiment of *Asclepiades* and that of *Democritus* or *Epicurus*, in these Words: "Whether, says he, the Bodies of Animals are composed of *Molecules* and Pores, as *Asclepiades* believed, or of small indissoluble Particles, as *Epicurus* imagin'd." The former of the above-cited Books is suspected not to be written by *Galen*; but the latter has undoubtedly him for its Author. The Author of that Book call'd the *Introduction*, *Cap. 9.* which is falsely ascrib'd to *Galen*, informs us, that the Elements of Bodies were, according to *Asclepiades*, ὄγκοι θεαυροί, or *Molecules*, or small brittle Masses; and that it was probably this Brittleness which distinguish'd *Asclepiades*'s Principles of Bodies from those of *Epicurus*, which were indissoluble and indivisible. The Principles of *Descartes* seem, in some Things, to agree with those of *Asclepiades*; and those of *Gassendi* with those of *Epicurus*. *Le Clerc.*

ATONIA, ἀτονία, from a Negative, and τένω, to stretch. Relaxation, Laxity, Debility, or Distemperature. This Word was much in Use among the Physicians of the Methodic Sect, who ascribed the Causes of all Distempers to Relaxation, Stricture, or a Mixture of these.

ATOPOS, ἀτοπος, from a Negative, and τόπος, a Place. It signifies absurd, or inconvenient. It is used by *Hippocrates*, *Aph. 52. Sect. 4.*

ATRA Bilis. See BILIS.

ATRACHELUS, ἀτρέχηνος, from a Negative, and τρέχηνος, the Neck; short-necked. It is used by *Galen*; and sometimes also signifies beheaded.

TRACTOS, ἀτρακτός, a Distaff, or the wooden Part of a Dart. This Word is sometimes used in *Hippocrates*.

TRACTYLIS, Offic. Ger. 1008. Emac. 1171. Raii Hist. 1. 304. *Ατρακτύλις*, Dioscorides. *Atractylis lutea*, C. B. 379. *Atractylis flore luteo*, Park. 963. *Atractylis vera, flore luteo*, J. B. 3. 83. Chab. 353. *Cnicus Atractylis lutea distus*, Hort. Lugd. Bat. 164. Tourn. Inst. 451. Boerh. Ind. A. 140. *Carduus luteus erectus reticulatus, ramis fusum referentibus*, Hist. Oxon. 3. 160. *Carduo-Cnicus Atractylis dicta*, Pluk. Almag. 82. DISTAFF-THISTLE.

The lower Leaves of this Thistle are long and narrow, deeply cut in on both Sides, somewhat hairy, and but little prickly. The Stalks also are hairy, without any Prickles; but the Leaves which grow on them are very full, being smaller, but broader in Proportion than the lower Leaves, stiffer, and not so deeply cut in. The Stalk at the upper End is divided into three or four Branches, on which stand the Flowers, inclosed in stiff hard prickly Leaves, among which grow yellow fistular Flowers in scaly Calices; after which come whitish angular Seeds, like those of *Carthamus* inclosed in Down. It grows in warm Countries, as Italy and Greece, where the Women use the Stalks for Distaffs. It flowers in Summer.

The Leaves only of this Thistle are used, and those very rarely, though some Authors affirm they have the same Virtues with those of *Carduus Benedictus*; and it is particularly commended against the Stinging of Scorpions. *Miller's Bot. Off.*

It is aperitive, sudorific, and a good Antidote against Poison, being taken in Decoction. They extract by Distillation a Water, which hath the same Virtues of the Water of the *Carduus Benedictus*. *Lemery de Drogues.*

ATRAGENE, Offic. *Viorna*, Ger. 739. Emac. 886. Mer. Pin. 125. *Viorna vulgi*, Herm. Flor. 2. 12. Merc. Bot. 1. 77. Phyt. Brit. 130. *Clematis sylvestris latifolia*, C. B. Pin. 300. Boerh. Ind. A. 46. Tourn. Intt. 295. Elem. Bot. 244. Dill. Cat. Giff. 143. *Clematis sylvestris latifolia seu Viorna*, Park. Theat. 380. *Clematis latifolia seu Atragene quibusdam*, J. B. 2. 125. Raii Hist. 1. 620. Synop. 3. 258. *Clematis Arthragene Theophrasti quibusdam*, Chab. 116. *Flammula sepium foliis integris*, Rupp. Flor. Jen. 54. Buxb. 114. TRAVELLERS JOY.

This Plant is to be found under Hedges, and flowers in the Month of July. The Whole of the Plant is used. Its Flowers, Bark, Seeds, and Root, are of a caustic Quality.

The Bark apply'd to the Skin raises Blisters. *Dale.*

ATRAMENTUM SUTORIUM. Vitriol. Chalcantum. See VITRIOLUM.

ATRAPHRAXIS, or ATRAPHAXIS. A Name of the ATRIPLEX, which see.

ATRECEOS, ἀτρεκέως, from ἀτρεκής, true, certain, has various Significations in *Hippocrates*; for the most part, as *Erotian* says, it is put instead of ἀκριβώς, exactly, and but seldom for ἀληθώς, truly, certainly. The Word is also variously expounded by the Interpreters of *Hippocrates*. In *Bacchius* it signifies ἀληθώς, ἀνιδέως, ἀκριβώς, truly, sufficiently, exactly. In *Philinus* it is ἀκριβώς only: And *Epicles* expounds it by σαφώς, ἐπιεικρῶς, openly, sincerely, perfectly. In *Prognost.* ἡ δύναμις διὰ ὅλην ἡμέραν ἰδὲν τὴν ἀριθμῶσθαι ἀτρεκέως, "none of these (Diseases) can be exactly calculated by whole Days." In *Prorrh.* 2. ἀτρεκέως διατρώμεθα, is one who observes a certain Method of Diet, and Way of Living. And again, in the same Book, ἀτρεκέως δὲ καὶ ἐπὶ πλείον χρόνον τὰς σουλὰς αἰεὶ τῶν δεινότητων ποιέσθαι. "We must very carefully, and for a long time, be upon our Guard against the most formidable Accidents." In his Book of Fractures, ἀτρεκέως δὲ ἰδὲν, "there is nothing certain." In his Treatise περὶ ἁθρῶν, κλῆσις δὲ κατὰ γυναικῶν, ἢ μὲν ἀτρεκέως ἀποκαταστῆναι, "a Fracture of the Clavicle, if it be wholly broken off like a Stalk, that is, transversely." Here *Galen* explains ἀτρεκέως by ἀκριβώς, δὲ ὅλως, ὁλοκλήρως, exquisitely, wholly, quite, entirely.

Ἀτρεκέειν, in *Hippocrates*, signifies an Affeuration, or affirming a Thing for perfectly known and certain. Thus in his second Book of Predictions, ἀμφὶ δὲ τῶν γυμναζομένων καὶ θαλασσιπλοίων, τὰς μὲν ἀτρεκέως τὰς λεγόμενας, ὡς λέγουσιν οἱ λέγοντες, ἕτε δὲ οὐκ εἶναι, ἕτε, ἢ τις δοκεῖ, καλῶς δοκεῖν. "As for what relates to those who fatigue themselves with Labour and Exercise, there are Things asserted for certain Truths by the Relators, to which I give no Credit myself; but, however, leave every one at Liberty to believe them, if he thinks fit."

ATREMEAS, ἀτρεμέας, in *Hippocrates*, is put for ἀτρέμας, (from a Negative, and τρέμω, to tremble) placidly, quietly, remissly. Thus *Book 5. Epid.* ἐν ἀτρεμέας, that is, ἐν ἀτρέμας εἶχεν, he had no Rest, which in *Epid.* 7. is express'd and explained by ἰδὲν ἡρέμειν. Ἀτρέμας is expounded, in *Hesychius*, by ἡσυχίας, ἡσυχῇ, quietly, as ἀτρεμία is by ἡσυχία, ἀτρεμίαν by ἡσυχάζων, and ἀτρεμίαν by ἡσυχάζας. By ἀτρεμέειν, *Hippocrates* means those Parts of the Body which are at Rest; such are understood to be those Parts which are without the Articulation in two Bones which meet at the Joint, as the Parts about the Thigh and the Leg with respect to the Knee. Ἀτρεμέειν, in *Erotian* upon *Hippocrates*, is expounded by ἡρεμούνη, resting, with an Eye to that Passage in his Book of Fractures, καὶ τὰ μὴ ἀτρεμέειν ἐν τῷ τῆς στήθους σχήματι, "those (Bones) which remain not at Rest in the same Posture."

ATRESIA, ἀτρεσία, from a Negative, and τρέω or τρέω, to perforate; Imperforation.

ATRETI, ἀτρετία, imperforate. Those are called so in either Sex, whose Anus or Urethra are not perforated; and Women, whose Vaginas are closed, have also this Name in Chirurgical Writers. See **IMPERFORATIO**.

ATRICES. Small Tubercles about the Anus, which recede, and return again, especially at first. They are, by *Valesius de Taranta* reckoned among Condylomata and Fici. *Castellus*.

ATRICI. Small Sinuses in the Extremity of the Intestinum Rectum, which do not reach so far as to perforate into its Cavity.

ATRIPLEX. There are three Plants which usually go by this Name. The first is the

Atriplex, Offic. Chab. 305. *Atriplex alba hortensis*, J. B. 2. 970. Raii Hist. 1. 191. *Atriplex frut. olus aureum*, Park. Parad. 488. *Atriplex hortensis alba*, sive pallide virens, C. B. 119. Hist. Oxon. 2. 606. Tourn. Inst. 505. Boerh. Ind. A. 2. 89. *Atriplex sativa alba*, Ger. 256. Emac. 325. *Atriplex spuria hortensis candida*, Volck. 53. **WHITE ORACHE.** Dale.

Dioscorides says this Plant is also call'd *Chrysolachanon*.

This is an annual Plant arising yearly from Seed. The Leaves are triangular, but longer than broad, with two Ears, or sharp Pieces, at the End next the Stalk, covered, especially when young, with a slippery Measiness, which may be easily rubb'd off, of a palish-green Colour. The Stalk is angular and branch'd, growing about two or three Feet high, having the Leaves which grow on them somewhat longer than those below, and without Ears. On the Tops grow Spikes of herbaceous Flowers, of a greenish-yellow Colour; which are succeeded by blackish round Seed in flat Seed-vessels, of two round Leaves clapt together. The Seeds are of two Sorts, one smaller by half than the other, and blacker and more shining. There is one Species of this *Orache*, which has the Leaves, Stalks, and Seed-vessels, all of a purple Colour, differing in nothing else from the former. They are both cultivated in Gardens, being used promiscuously. *Miller's Bot. Off.*

It was by the *Greeks* called Ἀτρεφάσις, from ἀτρέως and αὔξω, because it soon grew to a great Height. There are three Species of it, the Red, the pale Green or White, and the blackish *Atriplex*. 'Tis a well known Pot-herb, and very often boiled with Cabbage; though generally 'tis more used by the Poor than the Rich and Luxurious. Yet *Ja. Joseph Joesper*

Manuduct. ad Vit. Long. p. 2. Cap. 8. informs us, that the Inhabitants of *Brabant*, the Low Countries, *France*, and *Burgundy*, esteem it so much, and use it so frequently, throughout the whole Summer Season, that there is scarcely ever a Dinner, or a Supper, in which the Garden *Atriplex* does not make a Part. It affords but little Nourishment, and is cold and moist; but the Humidity it contains is of a softening and mollifying Nature, since the Soup or Victuals among which it has been boiled, proves laxative. It is esteemed good for People of hot, choleric Constitutions, and such as are subject to Vomiting of Blood. But when eaten too plentifully, it renders the Mass of Blood watery, and brings on the Jaundice and Dropsies: For this Reason the Use of it was discarded by *Pythagoras*, as we are told by *Pliny*, L. 2. H. N. C. 20. The same Author also quotes *Dionysius* and *Diocles*, who both assert, that this Herb is very prejudicial to the Stomach, and lays a Foundation for numberless Disorders. The Herb itself, bruised and applied to the Parts in which Thorns or any other small Splinters have been plunged, extracts them, and cures the Wounds occasioned by them. When apply'd to the Navel, it dislodges and expels Worms. It is also used in mollifying Clysters, and in such Dressings as are intended to mitigate and allay Pain. Its distilled Water, mixed with Aloes, stops Hemorrhages, and cures scald Heads. The Seeds are purgative, but often operate like an Emetic. The Country People in *Lombardy* make Pies of this Herb, in Conjunction with Butter and Cheese, which they look upon as excellent Food. In *Virginia* the Inhabitants prepare a Salt from the Stalks of this Herb, which they use in Dressing their Victuals. *Barth. Zorn. Botanologia.*

Dioscorides says the Seeds cure the Jaundice, if taken in Hydromel.

Atriplex sylvestris, Offic. J. B. 2. 972. Raii Hist. 1. 197. Chab. 305. *Atriplex sylvestris altera*, C. B. 119. Ger. Emac. 326. *Atriplex sylvestris, folio sinuato, saturate virente, spica rubra*, Hist. Oxon. 2. 604. *Atriplex sylvestris vulgatio* *sinuata*, Park. 747. *Blitum Atriplex sylvestris dictum*, Raii Synop. 63. *Chenopodium folio laciniato, comâ purpurascete*, Tourn. Inst. 506. Boerh. Ind. A. 2. 90. Buxb. 69. *Chenopodium folio sinuato candicante*, Dill. Cat. 106. **WILD ORACHE.**

The Leaves and Seeds are used as Emollients like the preceding. These, either raw or boiled, are said to discuss Boils. Dale.

Atriplex olida, Offic. Ger. 258. Emac. 327. Raii Hist. 1. 198. *Atriplex foetida*, C. B. Pin. 119. Cod. Med. 16. J. B. 2. 974. Hist. Oxon. 2. 605. *Atriplex foetida & Vulvaria*, Chab. 307. *Atriplex olida, sive sylvestris foetida*, Park. Theat. 749. *Blitum foetidum Vulvaria dictum*, R. Synop. 64. *Chenopodium foetidum*, El. Bot. 406. Tourn. Inst. 506. Boerh. Ind. A. 2. 90. Dill. Cat. 106. Buxb. 68. *Atriplex Chenopodia foetida*, Hort. Monsp. 26. **STINKING ORACHE.** Dale.

The Stalks of stinking *Arrach*, or, as it is usually called, *Orris*, generally lie flat on the Ground, spreading about round the Root, striated or channelled, and of a whitish Colour; the Leaves are small and roundish, and pointed at the Ends, set alternately on the Stalks, and covered over, as is the whole Plant, with an unctuous Measiness; the Seed grows inclosed in Spikes, of small green herby Flowers; being small, black and shining. The whole Plant has a strong fetid fishy Smell: It grows upon Dunghills, and waste Places.

This is an Herb particularly appropriated to the Female Sex, being aperitive and deobstruent, and useful in uterine Disorders, good to promote the menstrual Evacuations, to expel the After-birth, and help Child-bed Purgations, to appease the Strangulation of the Womb, and take off Hysterical Fits. It is usually given in a Decoction. There is a Syrup kept in the Shops, made with the Juice of this Plant and Sugar. *Miller's Bot. Off.*

ATROPHIA, ἀτρεφία, from a Negative, and τρέφω, to nourish. An Atrophy.

Morton defines the different Species of Consumptions thus:

A Consumption in general is a Wasting of the Muscular Parts of the Body, arising from the Subtraction or Colligation of the Humours, and that either with or without a Fever, and it is either original or symptomatical.

An original Consumption is that which arises purely from a morbid Disposition of the Blood, or animal Spirits, which reside in the System of the Nerves and Fibres, and is not the Effect of any other preceding Disease; of which there are two Sorts, that is, an *Atrophy*, and a Consumption of the Lungs.

An *Atrophy* is an universal Consumption proceeding from the whole Habit of the Body, and not from any Distemper of the Lungs, or of any other Entrail, without any remarkable Fever, and is either nervous; or the Effect of Evacuations.

A nervous *Atrophy*, or Consumption, is that which owes its Original to a bad and morbid State of the Spirits, and to the Weakness or Destruction of the Tone of the Nerves; from whence, an Imbecillity, and an universal Consumption in the whole Habit of the Body, ultimately proceed from the want of a due Assimilation of the nutritious Juice; so from the Beginning

ning of the Disease there is to be found a want of Appetite, and a bad Digestion in the Stomach, from an imperfect Elaboration and Volatilization of the Chyle. Which Sort of *Atrophy* may justly be reckoned one of the fatal Symptoms of the Scurvy.

An *Atrophy* from Inanition is that which derives its Original from a preternatural Defect or Subtraction of the nutritious Juice, and that long and habitual, which differs according to the Variety of the Outlets formed in the Body either by Nature or Art, by which this precious Liquor either has or may run off, and be wasted.

A Consumption of the Lungs is an universal Wasting of the Parts of the Body, caused by some Distemper of the Lungs, as Infarctions, Swellings, Inflammations, and Exulcerations; and thence it is attended with a Cough, Difficulty of Breathing, and other Symptoms of the Breast; and accompanied with a Fever, which at first is slow and hectic, afterwards inflammatory, and at last putrid and intermitting.

A Symptomatical Consumption is that, which, though it immediately proceed from a preternatural and ill State of the Blood and Spirits, yet has a mediate Dependence upon some other preceding Disease, which impress'd that morbid Disposition on the Spirits and Humours.

A NERVOUS ATROPHY.

A Nervous *Atrophy*, or Consumption, is a Wasting of the Body, without any remarkable Fever, Cough, or Shortness of Breath; but it is attended with a Want of Appetite, and a bad Digestion, upon which there follows a languishing Weakness of Nature; and a wasting of the Flesh, every Day more and more. Which kind of Consumption I have sometimes observed in England, but most frequently amongst those that have lived in Virginia, after they have come over hither.

In the Beginning of this Disease the State of the Body appears cedematous and bloated, and, as it were, stuffed with dispirited Chyle; the Face is pale and squalid, the Stomach loaths every thing but Liquids, the Strength of the Patient declines so fast, that, before the fleshy Parts of the Body are evidently consumed, he is render'd feeble, and almost always confin'd to his Bed. The Urine also keeps not constant to any Colour, tho' for the most part it is high-colour'd, and but little in Quantity; yet it is sometimes, (as it frequently happens in Nervous Distempers) tho' seldom, pale and plentiful. But there is no considerable Fever to be discover'd either by the Pulse, or a Thirst, or Heat, how high-colour'd soever the Urine appears: So that the Pathognomonic Signs, or those which evidently manifest the Beginning of this Consumption, are, a Decrease of the Patient's Strength, and a Loss of Appetite, without any remarkable Fever, Cough, or Shortness of Breath, tho' in the Progress of the Distemper, when a Consumption of the Flesh has gradually affected the whole Habit of the Body, there is some Difficulty and Uneasiness in Breathing to be observed, as it happens to all those who are very weak.

The immediate Cause of this Distemper I apprehend to be in the System of the Nerves, and proceeding from a preternatural State of the Animal Spirits, and the Destruction of the Tone of the Nerves, whence I usually call this a Consumption in the Habit of the Body. For as the Appetite and Digestion are destroy'd, thro' the weak and infirm Tone of the Stomach, so also the Elaboration, Assimilation, and Volatilization of the nutritious Juices, are hinder'd, in the whole Habit of the Body, from the distemper'd State of the Brain and Nerves.

The Causes which dispose the Patient to this Disease, I have generally observed to be violent Passions of the Mind, the intemperate Drinking of spirituous Liquors, and an unwholesome Air, by which it is not surprising that the Tone of the Nerves, and the Temper of the Spirits, should be destroy'd.

This Distemper, like most nervous Diseases, is Chronical, but very hard to be cured, unless a Physician be called at the Beginning. At first it flatters and deceives the Patient; for which Reason it usually happens, that the Physician is consulted too late. It terminates in an Hydropical and Oedematous Swelling of the Body, especially of the lower and depending Parts: In which Case no Hopes remain of the Patient's Life, neither is there any thing more to be done for his Cure, than giving him some Ease, whereby his miserable Life may be protracted for some Days.

The CURE.

The Cure, if attempted in due Time, consists in the convenient Use of Stomach Medicines, and such as comfort and strengthen the Nerves, such as Chalybeates, antiscorbutic, cephalic, and bitter Medicines of all Sorts: For Example,

Let the Patient, if his Body be cossive, take every third or fourth Morning four Ounces of the bitter Decoction, with Sena; or every fourth Night, two Ounces of the Tinctura Sacra, or of our sacred Cephalic Tincture, made with the Species of Hiera Picra infused in Rue-water, Black Cherry-water, and strong Piony-water.

For his common Drink let him use Ale, in which a Bag of Cephalic and Antiscorbutic Ingredients has been suspended. An Hour before Dinner let him take thirty Drops of *Elixir Proprietatis* in a Draught of Wormwood White-wine. To the Region of the Stomach let there be applied the magisterial Stomach-plaister, with some Drops of the Chymical Oil of Cinnamon, and Oil of Wormwood. Or let the Stomach be fomented every Day with French Claret, in which Aromatic Bags of the Leaves of Mint, Wormwood, Cinnamon, Mace, Zedoary, Galangal, Cyperus-roots, and Calamus Aromaticus, have been boiled. If it be in the Summer, let him use the Chalybeate Waters; but if Winter, let him make Use of a Chalybeate Syrup, or our Chalybeate and Aromatic Wine, made with the Filings of Steel quenched three or four times in strong White-wine, and with Zedoary-roots, Galangal, Nutmegs, the best Cinnamon, Mace, Cubebs, Cloves bruised, and steeped in the same Wine. But for Chalybeates, I prefer *Mynsicht's* Extract before any other, which I order to be given for twenty or thirty Days, in the Form of a Bolus, or Pills. For Example:

Take of *Mynsicht's* Extract of Steel, half a Scruple; Balm of Gilead, (which in this Case is very proper and beneficial, because it is not a little grateful to the Stomach and Nerves) seven Drops; old Conserve of red Roses, a Dram: Mix them, and make them up into a Bolus, to be repeated every Day: Or if the Patient chooses to take Pills, let the Extract be made up into that Form, in the manner following:

Take of *Mynsicht's* Extract of Steel, half a Scruple; of Balm of Gilead, seven Drops; of *Haly's* Powder, six Grains; of the compound Powder of the Roots of Arum, four Grains; of Powder of Liquorice, as much as will make them into the due Consistence of Pills: Make the Mass into Pills of a middle Size; let them be gilded, and repeated once every Day.

Opobalsamum also by itself, as likewise Spirit of Hartshorn, and Spirit of Sal Ammoniac, are of Use in this Case, because they are good for the Nerves. For Example:

Let the Patient take eight or ten Drops of Opobalsamum, or Spirit of Hartshorn, in a convenient Quantity of Sugar-candy, twice a Day.

Let the Patient endeavour to divert and make his Mind cheerful by Exercise, and the Conversation of his Friends: For this Disease almost always proceeds from Sorrow and Cares. Let him also enjoy the Benefit of an open, clear, and very good Air, which very much relieves the Nerves and Spirits. And because the Stomach in this Distemper is principally affected, an agreeable Diet will be convenient; and the Stomach ought not to be too long accustomed to one Sort of Food.

Of an ATROPHY from INANITION.

To this sort of original Consumption from the whole Habit of the Body, belongs also another kind of Consumption, arising from the Impoverishment of the Blood, occasioned by the preternatural Subtraction and Loss of the nutritious Juice. Whence the whole Mass of Blood, being deprived of the nutritious and balsamic Juices, grows too hot, affording none or very little Nourishment to the muscular Parts; and hence there follows a Consumption of the whole Body, and an hectic Heat fixed in the whole Habit, without any considerable Cough, or Difficulty of Breathing, or any other remarkable Affection of the Lungs, at least, in the Beginning of the Distemper. But it must be confessed, that, in the Progress of it, the Lungs seem to be, in some measure, affected, especially where the preternatural Evacuations, which are the Cause of the Distemper, are stopped by Art without any Correction of the whole Mass of Blood, by which means it may recover a natural balsamic Nature, and such as renders it fit for Nourishment. In this Case it is not surprising, that the hot and sharp Serum of the Blood continually passing, after the Passages where it used to be evacuated are stopped, through the soft and glandulous Substance of the Lungs, at last should stuff, inflame, and in the Progress exulcerate them; whereby it comes to pass, that this Consumption, which was originally in the Habit of the Body, a little before Death ends in a Consumption of the Lungs, with a Cough, Difficulty of Breathing, and other Pathognomonic Signs of that Distemper. And therefore I have often observed, that if the Appetite and Digestion are not restored by such Medicines as have a peculiar Quality of altering the Blood, and strengthening the Stomach, so that the Mass may be supplied and filled with a sweet and balsamic Juice, the Consumption is not cured; but at last is changed from a Consumption in the Habit of the Body, to a fatal Consumption of the Lungs.

And this Consumption is indeed akin to the Nervous Consumption before-mentioned. For as in that, which proceeds from

from a preternatural State of the nervous Juice and Spirits, the nutritious Chyle which is continually carried into the Blood, is rendered less fit for the Nourishment of the Parts; and thence, as the Mass of Blood is loaded with stale and dispirited Juices, such as are unfit for Nutrition, and there being no Demand for fresh, a Loss of Appetite ensues, and a Sickness of the Stomach, and consequently a Consumption of the whole Body, and at last a fixed hectic and colliquative Heat in the solid Parts, from the Heat of the Blood and Spirits: So in this kind of Consumption, the nutritious Juices running off from the Mass of Blood with a full Stream, the muscular Parts of the Body, being thus deprived of their due Nourishment, fall into an *Atrophy*; whereupon likewise the Mass of Blood which remains, for want of new balsamic Chyle, is not only dispirited, and rendered unfit for Nourishment, but a preternatural, fixed and hectic Heat is kindled, not only in the Blood, but also in the Spirits, and all the solid Parts; whereupon there follows a Drought and want of Appetite. This kind of Consumption is that, which we are now in the first place professedly to treat of. But because the Cure of this kind of Consumption is to be altered, according to the Variety of the Evacuations, which are the Cause of it, I shall add nothing concerning the general Cure of it, but refer that to the several kinds of Evacuations, which are the Cause of this Distemper, to be spoken of under their proper Heads.

The things which cause these Consumptions, according to Morton, are

An Hæmorrhage.
A Gonorrhœa, or Fluor Albus.
Abscesses and Ulcers.

Giving Suck beyond what the Strength of the Nurfes can bear.

A Dysentery, or Diarrhœa.
A Diabetes.
A Salivation.
A Dropsy.
Profuse Sweats.

Consumptions from all these Causes will be treated of under their respective Articles.

Besides the Causes above-mentioned, this general Consumption, proceeding from Evacuations, frequently depends upon other Distempers; and therefore it may justly be called a general *Symptomatical Consumption*: As first, upon a Lientery, that is, when the Faculty of the Stomach, which makes the Chyle, is injured by a preternatural Disposition of the Spittle, and the ill Temper of the nervous Liquor: Whence it comes to pass, that the Blood and Habit of the Body (since the Food that is taken is carried down through the Intestines, and comes away as it went in, without any Alteration) cannot receive any Recruits from the Food; and from hence there necessarily follows an *Atrophy* caused by Inanition.

Many times this general Consumption proceeds from a preternatural Alteration, or Obstruction of the Gall and Pancreatic Juice, or else of the Juices, which naturally use to be separated by the small Glands, planted through the whole Duct of the Intestines, and which serve for the Separation of the excrementitious Parts of the Food from those which are nutritious. Hence the chylous Parts of the Food, which pass out of the Stomach, slipping by the small Orifices of the Lacteals, are thrust together with the Excrements by Stool; and that either white, and as such are evidently chylous from the Defect, or preternatural Disposition of the Bile, (which is the proper Menstruum for separating the Chyle) as it commonly happens in the Jaundice, together with a great Weakness of the Body, and wasting of the Flesh; or else in yellow Stools, as in the Cæliac Passion, which either is from an Obstruction of the Pancreatic Juice, and that which is separated by the Glands of the Intestines, or happens from the Depravation of the Nature of those Juices. In the first Case, the Urine is much tinged with a yellow, or Jaundice-colour; but in the latter, it is quite contrary. In both of them, the Chyle not being separated from the excrementitious Parts of the Food, the Blood is deprived of its due Recruits; upon which I have often observed, that an *Atrophy*, or Consumption, and that a very acute one, has seized the Patient.

Lastly, this general Symptomatical Consumption is sometimes caused by many and large scrophulous Kernels preternaturally situated in the Mesentery, by which (the Lacteals being straitened as with a Thread, or being compressed) the Passage of the nutritious Liquor, which is separated in the Intestines, and taken in by the Mouth of the Lacteal Vessels, into the Mass of Blood, is either totally, or in part, hindered; in which Case the Stools are large and chylous, the Belly grows hard, and is swell'd; but the Urine flows in a very little Quantity, yet keeps its natural Colour; thereupon, the Blood not being every Day replenished with fresh Chyle, the muscular Parts are deprived of their due Nourishment, and daily become thin, and at last are wasted to the degree of a Marasmus; though the Appetite at the same time be keen, and the Patient continues

always free from any thing of a Fever; an Instance of which kind I once met with in a Boy about four Years old.

All these Symptomatical Consumptions are evidently incurable, unless a particular Respect be first had to the Distempers upon which they depend; but if these are once removed by Art, this kind of Consumption ceases of its own Accord; and therefore the Cure of this Consumption is to be sought for in another Place; that is, in the Cure of those Distempers which are the Cause of it.

ATTA, ἄττα, Father, an antient *Pelasgic* Word, in another Dialect, ἄττα. Ἐπιθεγμα τιμωμένων νεώτερος πρὸς παλαιότερον, Didymus. "A Compellation of Honour given by a younger Person to an elder." We say *Atta* to an old Man, by way of Reverence, as if we called him *Avus*, "Grandfather." *Festus*. Children, in Lissping, doubled the Letters, as ἄττα, τᾶτα, τᾶττα, or τῆττα ἄττα, πάπας, πάππας, or πάππας, ἄμμα, μάμμα. The Egyptians said ἄτ, τᾶτ, and ἄθ, θᾶθ. Our Britons (Welsh) call Father and Mother by no other Names but *Tat* and *Mam*.

ATTA is also a Name for such as have an infirm Tread in their Walk, LIMPERS. "Atta, one who walks on the Fore-part of his Feet." *Isidorus*. ἄττα, ὁ τοῖς ποσὶν ἀρχόμενος πρὸς πᾶσιν, *Vet. Gloss.* that is, "who first sets his Foot to the Ground," from the Verb ἄττω, or ἄωω, to hop, or limp, which is a Contraction from ἄνωω, or ἄττω. The following Passage of *Festus* has also a Relation to this Matter: "The ἄττα, says he, are such as, on account of some Defect in their Legs or Feet, stand upon their Soles, and seem rather to touch the Ground than walk; hence *Quintius* the Poet, who was remarkable for this Defect, got the Nickname of ἄττα, which always stuck by him."

ATTAGAR, a Stone. *Rulandus*.

ATTAGEN, ἄτταγᾶς, or ἄτταγῆν, an *Asian* Partridge, commonly called a *Francolin*. The Greeks called it λαγόπτερος, (whence *Lagois* in *Horace*) *Leporipes*, or *Leporarius*, "Hare-foot," because of its downy Feet, wherein it resembled those of a Hare. *Pliny* calls it *Attigena Phrygia*. To me, ἄτταγᾶς, seems to be a *Phrygian* and *Pelasgic* Word, and to sound like ἄττα γᾶς, "the Father, or Chief, of the Country;" for this Bird was in principal Esteem for its delicious Savour. But ἄττα γᾶν, would be more like the *Phrygian*; γᾶν, or γᾶνθ, is the *Hebrew* גַּן *Gan*, the *Syriac* גַּנָּא *Ganna*, and the *Arabic* *Ginna*, which was the Name they had for their verdant Garden, or Paradise. In the same Form of speaking did the *Phrygians* call a He-goat ἄτταγᾶς, according to *Arnobius*, as being ἄττα γᾶς, "the Father of the Goats;" for the *Scythian* *Cas* is our Goat, and the *Hebrew* קֵזֶשׁ *Qesh*. Of the *Attagen* thus speaks *Martial*:

*Inter Saporess fertur Alitum primus
Ionicarum Gustus Attagenarum.*

And *Aristophanes* in *Athenæus*;

ἄτταγᾶς ἡδίστον ἐστίν ἐν Ἐπινικίῳ κρέας.

"The Flesh of an *Attagen* is the sweetest that is dressed at publick Feasts."

Horace also;

*Non Asra Avis descendat in Ventrem meum,
Non Attagen Ionicus.*

Pliny also says thus of it: *Attagen maxime Ionicus celebratur, vocalis alias, captus obmutescens, quondam existimatus inter raras Aves*: "The *Attagen* of *Ionia* is the most celebrated; it makes a Noise when at Liberty; but is mute after it is taken. Formerly it was reckoned one of the rarest Birds." Ὁ ἄτταγῆν κομιστὴς ὄρνις τῶν γὰρ ὀρνίθων ὅσοι μὲν μὴ πτερυγίζουσιν, ἀλλ' ἐπιγῆστοι, κομιστῆς. "The *Attagen* is a pulverarious Bird; for all Birds that make little Use of their Wings in flying, but keep themselves upon the Ground, are called *pulverarious*." *Athenæus* tells us, that the *Attagen* is a little bigger than a Partridge, and thus describes its Colours: Ὀλὴ καλὰ γὰρ ἐστὶν τὰ περὶ τὸ νῶτον, καὶ γὰρ τὴν χεῖρα, ὑποπυρρίζων μᾶλλον. "It is all over the Back of the Colour of a Tile, only somewhat more upon the Red."

By all these Circumstances, the *Attagen* must be the same as our Red-game, which is thus distinguished:

ATTAGEN, Offic. Aldrov. Ornith. 2. 75. Bellon. des Oyse. 241. Jonf. de Avib. 41. Gefn. de Avib. 199. *Attagen Aldrovandi*, *Francolino Italorum*, Raii Ornith. 174. Ejusd. Synop. A. 54. *Attageni Aldrovandi seu Francolino Italorum*, Will. Ornith. 125. *Lagopus altera Plinii*. An *Gallina Corylorum*, Schw. A. 277. THE GOR-COCK, MQOR-COCK, or RED-GAME.

Oribasius says, *Medic. Collect. Lib. 1. Cap. 3.* that the Flesh of this Bird is best in Autumn. And in the same Collections, *Lib. 2. Cap. 42.* he says, it is of very easy Digestion. And *Aetius* in this agrees with him.

Trallian recommends this Bird in a Phthisis; *Galen*, in Nephritic Complaints; and *Avicenna* believed it increased the Seminal Secretions.

The Inside of the Gizzard of this Bird is extremely fragrant when fresh kill'd.

The Red-game lives principally on Vegetables, and uses but little Exercise, scarcely ever being on the Wing, unless to avoid Danger: Hence it does not abound with highly exalted Salts. It is a very agreeable and wholesome Food.

ATTALUS, and ATTALICUS, are Names appropriated to some compound Medicines, mentioned by *Galen*, and transcribed from him by others.

ATTELABUS ARACHNOIDES.

ATTELABUS ARACHNOIDES (*Aldrov. Jonst.*).

This is an aquatic Insect, which partakes of the Nature of the Spider and Grasshopper: The Head resembles a Grasshopper; the Eyes are prominent. The other Parts resemble a Spider, but it has but six Feet; it swims on the Water, or creeps upon the Earth. It is Ash-coloured.

It is esteemed resolute, when externally applied. *Lemery des Drogues.*

It is a sort of Locust.

ATTENUANTIA.

Attenuating or *inciding* Medicines are of the utmost Importance in Physic, as a little Reflection upon their Natures, Qualities, and Manners of Operation, will easily convince us. To this Class belong the *Roots* of White Burnet, Arum, Sweet-flag, Asarabacca, Wild-radish, Elecampane, Succory, Florentine Orris, Solomon's-seal, Swallow-wort. The *Herbs* German Leopards-bane, Brook-lime, Scurvy-grass, Water-cresses, Indian Cresses, Dittander, Rosa Solis, Fumitory, Marsh Trefoil, the Lesser Centaury, Hyssop, Germander, Chervil, Carduus Benedictus, the Lesser Houfleeck, all the Species of Garlicks, Onions, and Leeks; Wood of Guaiacum with its Bark; of *Spices*, Pepper and Ginger; the *Seeds* of Mustard, Scurvy-grass, and Cresses; the *Gums* Ammoniac, Galbanum, Sagapenum, Opopanax, Myrrh, and Benzoin; of *Chymical and Pharmaceutical Preparations*, Mercurius Dulcis, Æthiops Mineral, Flowers of Sulphur, alkaline fixed Salts, and the Salts of Vegetables prepared by Incineration, but especially the Salts of Tartar and Wormwood; Salts also of a neutral Quality, such as the *Digestive of Sylvius*, my own aperient Salt, Sal Ammoniac, Sal Polychrestum, *Epsom* and *Sedlitz* Salts, vitriolated Tartar, the *Terra foliata Tartari*, otherwise called *Tartarus Regeneratus*, the *Arcanum Duplicatum*, a Solution of Crabs-eyes, Nitre and Sal Ammoniac. Volatile Substances also, such as the volatile Salt of Sal Ammoniac, and the urinous Spirit of Sal Ammoniac; as also Oxymel of Squills, acrid Tincture of Antimony, Essence of Gum Ammoniac, and of Guiney Pepper; Resin of Guaiacum, and the Syrups of Tobacco, Hedge Mustard, and the Fecula of Aron. Medicated Springs also belong to this Class, which, besides their diluting and aperient Natures, are also possessed of an attenuating Quality, such as the acidulated Springs of *Egra* and *Sedlitz*, and the *Caroline Waters*; as also Infusions in the Form of Tea, which in Consequence of the copious watery Principle they contain, possess a remarkably attenuating Quality, and are very efficacious in separating and disjoining coalescent Molecules; and, in the last place, to this Class of Medicines belongs sweet Whey, which, in Consequence of the sweet and subtle Salt with which it is impregnated, is of a highly deterfitive Quality, and wonderfully efficacious in opening the Excretory Ducts.

Of the above-mentioned Substances, some act upon the fluid, and others upon the solid, Parts of the human Body. Such as operate upon the Fluids by immediate Contact, are very few in Number; and indeed this Effect is only to be ascribed to watery Diluents, which are, without Doubt, of singular Efficacy in colliquating the glutinous and viscid Humours; and to alkaline, fixed, volatile, and nitrous Salts, which, if mixed with the inspissated Blood and Humours, especially when in a liquid Form, colliquate and attenuate them in so powerful a manner as to be perceptible even to the Eye. All the other attenuating Medicines mentioned, act only upon the Solids by increasing their Tone, augmenting their Strength, heightening their contractile Force, and adding to the Elasticity and systolic Motion of the Vessels, by which means they press and shake their contained Juices more forcibly, and accelerate their progressive and intestine Motions; so that the tenacious and viscid Humours, being thus frequently and forcibly carried through the minute and capillary Vessels, are by that very means divided and broken into smaller Globules; a Circumstance absolutely necessary for preserving their due Degree of Fluidity. Among those attenuating Medicines which operate upon the Solids, some produce their Effects by means of a considerably fixed and acrid Salt; such as the Roots of Arum, White Burnet, Asarabacca, Florentine Orris, and Solomon's-seal; the Herbs German Leopards-bane, Dittander, Rosa Solis; as also Pepper and Ginger, which, though of a pungent Taste, yet neither yield an acrid volatile Oil, nor a Water of an acrid Taste,

when subjected to Distillation with Water, which sufficiently proves their fixed Nature. Others again of the attenuating Medicines, which operate upon the Solids, produce their Effects by means of an acrid subtle volatile Salt, such as the Wild-radish, Elecampane, Cresses, Scurvy-grass, Mustard, and all the Species of Garlicks, Onions, and Leeks. Some *Attenuants* also operate by means of a neutral stimulating Salt, of which Kind are those neutral Salts, whose Acrimony, and irritating Quality, are not only discovered by the Taste, but also by their proving purgative or diuretic, when exhibited in pretty large Doses. Other *Attenuants* again, operate by means of an acrid Salt, impregnated with a large Quantity of sulphureous Particles, which is evidently the Case with Gum Ammoniac, Sagapenum, Opopanax, as also Guaiacum and its Resin, which, besides an acrid Salt, contain also an Oil, which they yield in great Abundance when subjected to Distillation. And, in the last place, some *Attenuants* operate by means of a subtle penetrating and metallic Salt, such as Mercury, especially Mercurius Dulcis, and Æthiops Mineral.

Attenuating and *inciding* Medicines are of very extensive Use in the Practice of Physic, and come under different Denominations, according to the different Effects they produce. Thus, when tenacious and viscid Juices not only stagnate in the Cavities of the Vessels, but obstruct the minute Ducts of the Viscera, and Emunctories, these Medicines by their *inciding* and *attenuating* Quality, discharge the Humours, and remove the Obstructions; for which Reason they may not improperly be called *Aperients*. They also deserve the Name of *Antiscorbutics*, and Sweeteners of the Blood; for since the Purity and proper Temperament of the vital Juices depend upon the due *Secretion* and *Excretion* of every thing superfluous and recrementitious in the Constitution; and since the necessary Degrees of *Secretion* and *Excretion* are intercepted by the minute Ducts of the Glands and Emunctories being blocked up by thick and viscid Juices; 'tis therefore obvious, that such Medicines as *attenuate* the inspissated Humours, and remove the Obstructions, must be Sweeteners of the Blood, and excellent Remedies against the Scurvy, in which the Humours have evidently lost their due Temperament, and are become impregnated with heterogeneous, viscid, saline, sulphureous, and acrid Particles. Now, since *attenuating* Medicines produce so great a Variety of different Effects, 'tis highly proper we should know what Species of *Attenuants* are best adapted to such and such particular Disorders.

The Intention therefore of dissolving and *attenuating* viscid Crudities in the Stomach, and *Prima Viæ*, is excellently answered, by the Roots of Arum, White Burnet, and Sweet-flag; by Pepper, Ginger, depurated Sal Ammoniac, vitriolated Tartar, *Arcanum Duplicatum*, the digestive Salt of *Sylvius*, my aperient Salt, Salt of Wormwood, the simple Spirit of Salt, or Spirit of Salt dulcified, as also the aperient Tincture of *Mæbius*. And when crude and un concocted Humours are to be evacuated by Stool, this Intention is very well answered by the neutral Salts, especially those of *Sedlitz* and *Epsom*, and the *Sal Polychrestum* exhibited in pretty large Doses, and in Conjunction with a sufficient Quantity of a watery Vehicle.

When viscid Humours, occasioning Disorders of the Breast, are to be *attenuated* and expectorated, the Intention is most effectually answered by the Roots of Elecampane, and Florentine Orris, by Rosa Solis, Hyssop, Germander, Maiden-hair, Gum Ammoniac, Myrrh, Benzoin, Sulphur, Balsam of Peru, Nitre prepared with Antimony, the *Terra foliata Tartari*, otherwise called *Tartarus Regeneratus*, Oxymel of Squills, a Solution of Crabs-eyes in distilled Vinegar, and the Syrups of Tobacco and Hedge-mustard.

When the Mass of Blood is tainted with thick and tenacious Sordes, and the Emunctories are by that means obstructed, and the Humours contaminated by a saline, sulphureous, and scorbutic *Dyscrasy*, the most efficacious of the *Attenuants* are, the Root of the Wild Radish, Scurvy-grass, Water-cresses, Indian Cresses, Dittander, Brook-lime, the lesser Centaury, Marsh Trefoil, Carduus Benedictus, Fumitory, the lesser Houfleeck, Mustard, Gum Ammoniac, Sagapenum, Myrrh; the Oil of fix'd Nitre per Deliquium, Oil of Tartar per Deliquium, a Solution of Nitre, my temperate Elixir, acrid Tincture of Antimony, Essence of the Woods, Spirit of Sal Ammoniac, Salt of Wormwood, with Citron Juice; as also the Salts of the medicated Waters of *Sedlitz* and *Egra*.

When grumous or coagulated Blood, occasioned by Blows or Contusions, is to be attenuated, and again dissolved, the Intention is admirably answer'd by the Root of Solomon's Seal; by the Herbs German Leopard's-bane and Chervil, Vinegar distill'd with Crabs-eyes, the *Terra foliata Tartari*, and Nitre prepar'd with Antimony.

In Cases where the Lymph has acquir'd a preternatural Thickness and Viscidity, especially from a Venereal Taint, the Curative Intention is best and most effectually answer'd by Guaiacum, Soapwort, acrid Tincture of Antimony, Mercurius Dulcis, and Æthiops Mineral, which, when cautiously and

add skilfully used, is of singular Efficacy in resolving and attenuating the viscid Juices impacted on the Glands and Liver. *Hoffman, Vol. I. Sect. 2. Cap. 4.*

ATTENUATIO, Attenuation. See **ATTENUANTIA**.

ATTICUS, Ἀττικός. *Attic*, of *Attica*, *Athenian*. The *Attic Honey* is frequently mention'd by Medicinal Writers as the best.

ATTICUM, Ἀττικόν, should be the Name of a Plaister, by the Use *Hippocrates* makes of it in the fourth Book of *Epidemics*, where he says, a certain Person had an Ulcer in the Leg, and anointed it with *Atticum*, Ἀττικόν. Ἀττικόν is also sometimes used as an Epithet for Ἀγνός, or χύτρος, and signifies an *Attic Vessel*.

Attic Wax is mention'd by *Scribonius Largus*.

ATTILUS. A River Fish, very common in the *Po*, not unlike the Sturgeon. The Flesh is flabby, and not very agreeable.

ATTINCAR VENERIS. The Albification of Copper, in order to transmute it into Silver.

ATTINGAT. The same as *Flos Æris*. See *Æs*.

ATTINGIR. An Earthen Box. *Rulandus*.

ATTONITUS MORBUS, An Apoplexy. See **APOPLEXIA**.

ATTRACTIO, Attraction, Drawing.

ATTRACTIVUM, Attractive. *Paracelsus* gives the following Account of his **SPECIFICUM ATTRACTIVUM**.

It attracts, says he, every thing superfluous in the Body, and draws out of it every thing of a hurtful Quality; for some attractive Specifics are in their own Natures so exquisitely calculated to operate on Flesh, that they will attract an hundred Pounds of it, in the same manner as a Loadstone does Iron. It happen'd in our own Days, that an Attractive of this Kind drew a certain Man's Lungs up into his Mouth, by which he had the Misfortune to be suffocated. Another was also so unlucky, as to have the Pupil of his Eye drawn from its natural Situation to his Nose by the same Means, after which there was never any Possibility of restoring it; for there are not only Attractives accommodated to Iron, but also to Wood, Herbs, Flesh, and Water; for I myself saw a Plaister which attracted as much Water as was sufficient to fill a Cistern; and the Water flow'd from it just as if it had fallen from the Top of some House.

In like manner, Lead, Tin, Copper, Silver, and Gold, may be attracted by certain Compositions of Attractives; and, by these very Attractives, Branches may be torn from Trees; and, which is still more surprising, a Cow may be carried up into the Air.

For this Reason we are to apply some Medicines of an attractive Quality, in order to extract from the Body every thing of a hurtful and corrupt Nature, that what is prejudicial may be separated from what is profitable. These Attractives are to be apply'd upon an Emunctory in the Part affected, or upon an Ulcer which supplies the Place of an Emunctory; or, if a Gland should present itself, it is to be open'd like an Emunctory; for I know from my own Experience, that an Attractive of this Kind has extracted and eliminated the Matter, which occasioned a Plague, in a more effectual manner than on this Occasion it may seem proper to mention. No Patient, however formidable his Distemper might have been, ever died by having this Medicine administer'd to him. The following is a Receipt for preparing this Attractive:

Take of the Quintessence of each of the Gums, one fourth Part; of Magistery, one half that Quantity; of fiery Element of Amber, one Pound; of fiery Element, Mastich and Myrrh, each one fourth Part and an half; and of Element of Scammony, ten Ounces. Of all these make a Cerate, with Wax, Gum Tragacanth, and Turpentine, to be used in the Manner above directed. *Paracels. Archidox. Lib. Sept.*

Notwithstanding the Gravity and Air of Importance which it is sometimes expected a Physician should assume, as there is no Crime, or even Indecency, in Laughing, I have inserted the preceding Paragraph from *Paracelsus*.

Attractivus is also apply'd to any Remedies to which the Faculty of drawing or attracting is attributed.

ATTRACTORIUS, Attractive; endow'd with the Power of attracting.

ATTRAHENS, is used much in the same Sense as the preceding.

ATTRITA. Galls from Attrition, or rubbing one Part against another. See **INTERTRIGO**.

ATTRITIO. A superficial Galling of the Feet, Thighs, or any other Part, by Walking, or otherwise.

Attrition is also a Word much us'd in Medicine and Philosophy, to express the rubbing two Bodies against each other, so as to wear away their Surfaces, or to excite Heat, without any Loss of Substance. Or it is in general a rubbing together.

ATTY-ALU. The Indian Name for the *Ficus Malabarica*. Vol. I.

barensis, folio oblongo acuminato, fructu vulgari amulo. Raii Hist.

ATUREB. *Rulandus* explains this, if it may be call'd an Explanation, by *Vitrum Azazeze*; but does not tell what *Azazeze* is; neither does *Castellus*.

ATYPOS, ἀτυπος; from a Neg. and τυπος; a Form; or Tenor. Erratic, irregular. It is apply'd to Diseases which have no Regularity in their Periods. It also imports a Deformity of the Limbs. But ἀτυποι, Atypoi, from a Neg. and τυπος, to strike; signifies People who, by some Defect in the Organs of Voice, cannot strike the Air so as to articulate certain Sounds.

ATZOYATL. The Mexican Name for the *Mirabilis Mexicana*, the Marvel of Mexico, which Ray says is a very different Plant from the Marvel of Peru. *Raii Hist. Plant.*

AVACCARI.

Avaccari, (*Garcia*) is a little Indian Tree, the Leaves, the Flowers, and the Fruit of which resemble Myrtle; but a great deal more astringent. It grows on Mountains; and in the Province of *Malabar*.

They esteem this very much in the Country where it grows; for inveterate Dysenteries proceeding from a cold Cause. *Lemery des Drogues*.

AVANACU. See **CADEL-AVENACU**.

AUANSIS, ἀυανός; from ἀνα, to dry. Exiccation in general, but properly of Plants thro' Age.

AUANTE, αὐαντή, or αὐαντή, derived from the same Verb as the preceding. It may be translated, the dry Disease. *Hippocrates*, in his second Book de Morbis, gives the following Account of it.

The Patient can bear neither Abstinence nor Eating. When Fasting, he has a Rumbling in his Belly, with a gnawing Pain in his Stomach, and vomits up Variety of Matters, as Bile, Saliva, Phlegm, and an acrimonious Matter; and after Vomiting seems to be a little easier. After Eating he is molested with Eructations, and an inflammatory Heat and Redness. He always fancies he has occasion to make a plentiful Stool; but, when he is upon the Seat, discharges nothing but Wind. He is afflicted with a Pain of the Head, and a Sense of Pricking as with Needles, in different Parts of his Body. His Legs seem heavy, and grow feeble and extenuated, and he becomes very weak.

In this Case, a Purge must be first given, and afterwards a Vomit; and the Head in particular ought to be purged. The Patient is to abstain from sweet, oleous, and fat Kinds of Food, and not indulge himself in Drinking. After Meals, provoke Vomiting with the Juice of *Ptisan*; and, if the Season will permit, after drinking Asses Milk, or Whey, let him take a Vomit or a Purge, as the Physician shall think most suitable to his Case. If it be Spring or Summer, let him bathe in cold Water: if it be Autumn or Winter, let him use Unctions; Walking, and moderate Exercise; but if he be too weak to bear Exercise, let him take a Journey: His Diet must be cooling and laxative; but if the Belly be costive, you are to open it with an emollient Clyster. This is a Chronic Disease, and does not forsake the Patient till Old Age, and then either takes its Farewell, or accompanies him to his Grave. *Hippocrates, apud Vesalium, Lib. 2.*

This Distemper is, by *le Clerc*, placed among those which have not preserved the Name by which *Hippocrates* called them, but which may be known by the Accidents which accompany them. This, by the Description, the above-mention'd Author takes for *Hypochondriacism*.

AVANTURINE, is a reddish or yellowish Stone, cover'd all over with Sparkles which resemble Gold, which make it look agreeable to the Sight. There are two Species of these, one natural, and the other artificial: The natural is found in many Parts of *France*, They mix it in Powder, which they put upon Paper to render it shining.

The artificial is made by Vitrification, or by mixing Sparkles of Copper with Glass, whilst it is in Fusion.

It is used by Enamellers, but I don't know; that it is employ'd in Medicine.

AVARAMO TEMO. The Name of a siliquose Tree, which grows in the *Brazils*.

The Bark is externally of a cineritious, and internally of a deep Red Colour, and is the only Part of the Plant used by the Skilful for Medicinal Purposes, tho' the same astringent Qualities are by some ascribed to its Leaves; for the Bark, which is of a bitter Taste, whether reduc'd to a Powder, or boil'd and us'd by way of Fomentation, happily cures inveterate and obstinate Ulcers, and has been found to cure Cancers themselves by means of its remarkably cleansing and drying Nature.

Besides these Purposes, 'tis also made Choice of on account of its effectually astringent Quality, for Baths design'd to strengthen and invigorate the muscular Parts of the Body, when weaken'd, or too much relax'd. Ray says it is much used by the Courtezans for contracting the Pudenda. *Raii Hist. Plant.*

AUCHEN, *αυχην*. The Neck.

AUCHMOS, *αυχμος*, from *αυω*, to dry. It imports Weather which is extremely hot, sultry, and squalid. The *Latins* translate it by *squalor*. *Hippocrates* frequently uses this Word.

AUCTIO, Augmentation, Accretion.

AUCUPALIS SORBUS, and AUCUPARIA, are Names for the Ornus, or Sorbus Sylvestris. *Blancard*.

AUDACIA, in a Medicinal Sense, is that Sort of Boldness and Audaciousness, which we meet with in Deliria and Madness. It also signifies Impudence, which *Hippocrates* advises a Physician not to be guilty of.

AUDE, *αυδη*, the Voice. See VOX.

AUDITORIUS, Auditory. Thus there is the *Meatus Auditorius*, the Auditory Passage; and *Nervus Auditorius*, the Auditory Nerve. See AURIS.

AUDITUS, the Sense of Hearing. See AURIS.

AVELLANA, Offic. *Corylus sylvestris*, Ger. 1250. Emac. 1438. Raii Hist. 2. 1379. Synop. 3. 439. Mer. Pin. 30. C. B. Pin. 418. Merc. Bot. 1. 31. Phyt. Brit. 31. Tourn. Inst. 582. Elem. Bot. 453. Boerh. Ind. A. 2. 176. Dill. Cat. Giff. 35. Buxb. 86. Rupp. Flor. Jen. 265. *Corylus seu Nux Avellana sylvestris*, J. B. 1. 269. Park. Theat. 1416. Chab. 38. *Nux Avellana sylvestris*, Jons. Dendr. 112. The HAZEL. Dale.

Miller takes Notice of six Sorts of Nuts, the first of which is the preceding mention'd by Dale, which he calls the wild Hazel-nut.

The second is the *Corylus sativa, fructu albo minore, seu vulgaris*, C. B. The SMALL-MANURED HAZEL-NUT.

The third is the *Corylus sativa, fructu rotundo maximo*, C. B. The LARGE COBNUT.

The fourth is the *Corylus sativa, fructu oblongo rubente*, C. B. The RED FILBERT.

The fifth is the *Corylus sativa, fructu oblongo rubente, pellucula alba testo*, C. B. The WHITE FILBERT.

The sixth is the *Corylus Hispanica, fructu majore anguloso*. Pluk. Alm.

The first of these Trees is common in many Woods in England, from whence the Fruit is gather'd in Plenty, and brought to London by the Country People.

The second and third Sorts are planted in Hedge-rows, in moist shady Places in Gardens; but the Fruit is much better, and in greater Quantities, when they have an open free Air, and are not suffer'd either to grow too thick, or be overhung with other Trees.

The fourth and fifth Sorts, that is, the red and white Filberts, are mostly esteem'd for their Fruit, being much sweeter, and their Shells much tenderer.

The sixth Sort is annually brought from Spain in great Plenty, and sold in London all the Winter Season, from which Nuts there have been many Trees raised in the English Gardens; but I have not yet seen whether they prove the same with the Nuts sown.

Every body knows, that the Hazel, or Nut-tree, never arises to be a Tree of any great Magnitude, shooting forth from the Root a Number of long, smooth, tough, and pliable Branches, bearing large, round, rough Leaves, indented about the Edges, before whose appearing, early in the Spring, there come forth on the Branches, a great many long, loose *Iuli* or *Catkins*. The Nuts grow two, three, or four together, on one Stalk, each cover'd with a membranous Husk, open and jagged at the Top: When ripe, the Shell is hard and brittle, having a sweet Kernel. This Tree grows every-where in the Woods and Hedges.

I know not of any great Use that is made of any Part of this Tree in Medicine. Some account the *Iuli* and Nut-shells to be restraining or binding; the Kernels are hard of Digestion, and stuffing, causing Shortness of Breath and Wheezing; tho' an Emulsion made of them with Mead is commended for an old dry Cough. *Miller's Bot. Off.*

You are to chuse such Filberts as are large, full-grown, and each having a Kernel that is almost round, reddish, full of Juice, of an excellent Taste, and not Worm-eaten.

Filberts are more nourishing than Nuts; they are by some esteem'd pectoral.

They are windy, and hard of Digestion.

They contain a middling Quantity of volatile and essential Salt, much Oil and earthy Parts.

The moderate Use of this Fruit agrees at all times with every Age and Constitution, provided there be a good Stomach.

REMARKS.

The Filbert is a Fruit well known; they are of a different Bigness, grow upon a common Shrub in Hedges and Woods, and the same is also planted in Gardens.

Filberts, as well as Nuts, contain a great Quantity of Oil, and the same is easily extracted. In the mean time, Filberts have a more agreeable Taste than Nuts, because their

Salt is not so sharp as that of Nuts, and because it is also closely united to the oily Parts.

Filberts are pectoral, and nourishing, because of their oily Parts; they are also of a binding Nature, by reason of their earthy Principles, which communicate a greater Consistence to the Liquors, and swallow up the over-abundant Moistures that loosen the solid Parts. In the mean while they are hard of Digestion, when immoderately used, because of their solid and earthy Substance.

The Husks or Covers of the Filberts are astringent, and proper for binding the Body, but provoke Urine.

They cover Filberts with Sugar, and make Comfits of them of an excellent Taste; they are commonly used for a Desert, and help Digestion. *Lemery on Foods.*

Nuts and Filberts will purge People, when taken in considerable Quantities.

The Cream of these Nuts is good in the Stone and Heat of Urine. Emulsions may be made of them. *Quercetan* gave a Dram of the Powder of Nutshells, mixed with an equal Quantity of prepared Coral, in a Glass of the Water of *Carduus Benedictus*, or Corn Poppy, in the Pleurisy. *Martyn's Tournefort.*

AVENA, Offic. *βρώμη*, *Dioscorides*. *Avena vesca*, Ger. 68. Emac. 75. Park. Theat. 1134. Mer. Pin. 13. *Avena alba*, J. B. 2. 432. Raii Hist. 2. 1253. Synop. 3. 389. Chab. 176. *Avena vulgaris*, Merc. Bot. 2. 16. Phyt. Brit. 14. *Avena vulgaris seu alba*, C. B. Pin. 23. Theat. 469. Hist. Oxon. 3. 209. Tourn. Inst. 514. Elem. Bot. 415. Boerh. Ind. A. 2. 161. Rupp. Flor. Jen. 244. Buxb. 34. OATS. Dale.

This Grain grows not to be so tall as Wheat or Rye, but it is fuller of Knots or Joints: The Leaves are like Wheat, and it bears on the Top a loose Panicle of several distinct Grains, standing on long slender Foot-stalks; the Grain is longer, slenderer, and smoother than Barley, cover'd with a loose Husk or Skin. It is sown in March or April.

Oats are restraining, and drying; and Oatmeal is of great Use both in Health and Sickness, being a wholesome and cleansing Food; Water-gruel, made thereof, being much used in all Kinds of Distempers. Oats fried, and put into a Bag, and apply'd to the Side, are good to ease pleuritic Pains; and to the Belly, help the Colic, and Pains in the Bowels. *Miller Bot. Offic.*

As for unprepared Oats, they are only used for feeding Cattle; but when reduced to what we call Oatmeal, for which Purpose the largest and best Oats must be chosen, they may be made into Cakes and Gruels, which are very agreeable, and excellent for People in Health; as also for such as labour under Pains of the Breast and Throat, especially if Sugar-candy, Conserve of Violets, Currans, or Figs, are added to them. They render the Body soluble, and evacuate the glutinous Humours, which prove offensive to it. Some affirm, that they breed Worms; which may nevertheless be prevented, by preparing them with Anise or Fenel-seed. Oatmeal Cakes cure Belly-aches and Fluxes, and are esteem'd good for such as labour under Consumptions, Impostumations, or Pains arising from the Stone. *Pliny*, L. 18. *N. H. C.* 17. informs us, that the Germans eat no other Cakes than those made of Oatmeal; and Experience teaches us, that Children brought up with it generally become very robust, and have a fresh lively Colour, *Theod. Tabern. Herbar. L. 1. Sect. 7. C. 21.* and *Joan. Gufers, Tab. Med. S. Medicin. Domest. Tab. 60.* In many Parts they make not only Bread, but Ale, of Oats; and a few Grains, eaten rough, are said to cure Heart-burns. The Bread is a coarse and hot Food, of a disagreeable Taste, hard Digestion, and a dissipating Quality, *Galen. L. 1. de Aliment. Fac. C. 14. J. Bruyer. de Re Cib. L. 5. C. 20. Claud. Deodar. Panth. Hyg. L. 2. C. 2.* It is nevertheless very good for rendering People, that are too fat and corpulent, lean, and reducing them to a more moderate Size. *Cardan. L. 8. Subtil.* affirms, that, of Oats, the *Muscovites* make an Ale, or Drink, which is of a hot Nature, and so strong, that it intoxicates sooner than the richest Wines. Oatmeal, used in Emulsions, is serviceable in Paroxysms of the Stone. Decoctions of Oats, in Conjunction with Piony-water, are good against Fevers, according to *G. H. Velsch. Chil. 1. Exot. Cur. & Obs. 643.*

Oatmeal, boil'd to a considerable Consistence in Water, and apply'd to hot Tumors and Fistulas, disposes them to heal; and if mix'd with Butter, cures scald Heads. Oats and Cumin, put into a Bag, and apply'd hot to the Belly, give Ease in the Colic, and Disorders of the Matrix, *Casp. Hoffman. in Consil. a L. Schelz. edit. L. 3. Conf. 14.* Some add Juniper and Bayberries, and Salt. 'Tis here proper to observe, that a Medicine may be prepar'd of Horse-dung, which is of admirable Use in the Colic, Jaundice, Pains arising from the Stone, acute Pains of the Sides, and in expelling the Secundines. A Poultice of Oatmeal, prepar'd with Water and Powder of Marshmallows, is of singular Use in removing Roughness and Chaps in the Nails, *Ger. Blasius, Med. Univers. part. 4. C. 3.* The

Straw

Straw of Oats is used in such Baths as are intended to ease the Pains arising from a Stone in the Kidneys. If the Hairs are washed with a Lixivium of it, it renders them of a yellowish Colour. This Straw is very good for Cows, and they eat it with Pleasure; but 'tis not so proper for Horses, since it generally gives them Pains in the Belly. If a Horse is afflicted with a Suppression of Urine, boil Oats in Wine, and give him them to be eaten pretty hot, and his Disorder will very soon be removed. When Fowls cannot lay Eggs, Women give them roasted Oats to be eaten, with a View to remove that Defect. *Barthol. Zorn, Botanolog.*

Oatmeal, made into flat Cakes, is the common Food of the ordinary People in *Scotland, Wales, Derbyshire*, and the *North of England*. But the Dough, of which these Cakes are made, is fermented generally with Barm, which takes away all Viscidities, renders it more acefcent, and consequently very proper Aliment for People who use much Exercise, and eat a great deal of Animal Food. Oatmeal unfermented, like the Meal of all farinaceous Seeds, is subject to generate Viscidities in the Stomach and Intestines; but is more proper when an Alcalescence prevails in the Constitution, than if fermented.

The famous Remedy for acute Distempers, and which has very undeservedly been the Subject of much Ridicule, I mean *Water-gruel*, is made of Oatmeal boil'd with Water. This is endow'd with the same Medicinal Virtues as the *Ptisan of Hippocrates*; and, as an Acefcent Aliment, is very good when there is a Tendency to an Alcaline Putrefaction, which is the Case in most acute Distempers. Farinaceous Vegetables, by being digested, and boil'd in Water, grow more acefcent. See that Part of the Article *ALCALI*, which specifies the Regimen proper in acute Diseases.

Dale takes Notice of another Species of Oats, which is the *AVENA NIGRA*, *Ind. Med.* 16. *Chom.* 746. *Raii Hist.* 2. 1253. *Synop.* 3. 389. *Mer. Pin.* 13. *J. B.* 2. 432. *Chab.* 176. *C. B. Pin.* 23. *Theat.* 472. *Tourn. Inst.* 514. *Elem. Bot.* 415. *Boerh. Ind. A.* 2. 161. *Hist. Oxon.* 3. 209. *Buxb.* 35. *Avena semine nigro*, *Rupp. Flor. Jen.* 244. **BLACK OATS.**

It is sown in Fields, for the Use of Horses as well as the preceding.

There are some other Species of Oats mention'd by Botanic Writers, possess'd of much the same Virtues as those above-mentioned. See *ÆGILOPS*.

AVENQUA, the *Portuguese* Name for the *Adiantum Brasiliense*, Maiden-hair of *Brasil*.

AVENZOAR, the Name of an *Arabian* Physician.

Avenzoar, tho' his Age cannot be precisely determin'd, seems to have lived after *Avicenna*; and we are sure he lived before *Averrhoes*, who more than once gives him a very high and deserved Encomium, calling him *admirable, glorious, the Treasure of all Knowledge*, and the most *Supreme* in Physic, from the Time of *Galen* to his own. He was born, or at least resided much, at *Seville*, the Capital of *Andalusia*, and the Seat then of the *Mahometan* Chaliph. He lived to 135. began to practise at 40, or, as others say, at 20; and had the Advantage of a longer Experience than almost any one ever had; for he enjoy'd perfect Health to his last Hour. He tells us himself, how he was imprison'd, and barbarously treated, by *Haly*, the King's Constable in that City; tho' it appears, by his own Account, that once, either before or after, he cured that Minister's Son of a Jaundice. He wrote a Book call'd *Thaasser*, that is, one which contain'd all Rules for Medicine and Diet in most Distempers; and this Work, indeed, shews him to have been a Man of Business and Experience. It appears too from hence, that he had the Care of an Hospital, and was employ'd often upon the *Miramamolins* Commands.

He is reckon'd, by the Generality of Writers, an Empiric; tho' I can't imagine, why they pitch'd upon him for this Character, which suits him, I think, less than any of the rest of the *Arabians*: One would naturally suspect by this, that they had never read further than his Preface, which, indeed, does contain a Collection of Receipts used by himself and others. For, not to mention that he was bred in a Physic Family, (his Father and Grandfather being both Practitioners, whom he always remembers with great Gratitude and Honour) we have his own Testimony, that he had a regular Education; and that he not only learnt what properly belongs to a Physician, but, out of a great Desire of Knowledge, every thing besides which relates to Pharmacy and Surgery. He lays it down for a Maxim, That Experience chiefly is the right Guide and Standard of a warrantable Practice, and must absolve or condemn him, and every Physician, both in this Life and the next. He expresses himself more remarkably in another Place, where he is speaking how indifferent it is to apply this or that Oil in the Case of some Tumors; and observes by the way, that the Art of Curing is so little to be attain'd to, by any logical Distinctions, or sophistical Subtleties, that long Use, assisted by a good Judgment, can only furnish out so extraordinary a Talent. For Example, says he, if any one would take it into his Head to refine, and nicely distinguish, about laxative Medicines, and pretend to find out the proportional Quantity and Quality of any

Purge, so as to square it exactly to the Constitution of the Patient, and the Nature of the Humours to be discharged; and calculate it so as not to be even a Hair over or under; such Speculations, in his Opinion, contribute very little to form a Judgment about any right Method of Cure. And here, no doubt, he had *Alkindus* in his Eye, who wrote a fanciful Treatise in this way, concerning the Doses and Qualities of Medicines.

And this Author is so little addicted to Quackery, and has so mean an Opinion of a bare Receipt, that he exclaims against the Impudence of old Women in this Point, as well as rejects the idle Superstition of Astrologers. It is a very remarkable Story he tells of himself, in a particular Case, where he was at a Loss how to proceed, and ask'd the Opinion of several other Physicians to no Purpose: At last he took a Journey to the Town where his Father lived, and desired his Advice: The old Man would give him no direct Answer, but shew'd him a Place in *Galen*, and bid him read that; if he could find out the Cure of the Distemper by it, it was very well; if he could not, he bid him never think of making any Proficiency in Physic: The Advice succeeded, so that the Patient was cured, to the Satisfaction both of the Father and the Son. And, indeed, throughout all this Work, he professes himself so much of the Dogmatical or Rational Sect, which was directly opposite to the Empirical, that he has a great deal of Reasoning about the Causes and Symptoms of Distempers; and as in his Theory he chiefly, if not only, follows *Galen*, so he quotes him, upon all Occasions, oftener than the rest of the *Arabians* do. *Freind's History of Physic.*

The Works of *Avenzoar*, or *Abhomeron Aben-Zoar*; are, **LIBER THESIR DAHALMODANA VAHALTABIR**, which imports *Rectificatio Medicationis & Regiminis*.

This was printed at *Venice*, 1496. in *Fol.* and again at the same Place, 1514. *Fol.* And in 1531. in 8vo. with the Addition of his *Antidotarium*, and the *Colliget of Averrhoes*. *Vander Linden, de Scriptis Medicis.*

AVERICH, Sulphur. *Johnson.*

AVERRHOES lived not long after *Avenzoar*; for he intimates himself, that he was acquainted with his Sons. He died at *Morocco*, *A. H.* 595. as some say, or 603. as others. He made a great Figure in Life; and his Works made him celebrated over all *Europe*, after his Death. He was a Native of *Corduba*, bred to the Law, tho' he afterwards studied Mathematics and Physic. *J. Leo* gives a long Account of his Grandfather, that he was sent by his Countrymen, who intended to revolt, to offer the Crown to the Emperor of *Morocco*; that he was by him constituted Chief of the Priests, and great Judge of the Kingdom of *Corduba*, a Post which he enjoy'd a long while, and was succeeded in it by his Son, and his Grandson. Our *Averrhoes* was famous for his Liberality and Patience, and for his continual Application to Study; and, without doubt, he was a Man of strong natural Parts, and a very subtle Reasoner. He had the Title of *Commentator* given him, from the many Volumes he wrote upon *Aristotle*, and was call'd, besides, the *Soul of Aristotle*. In Physic he wrote a Book, at the *Miramamolins* of *Morocco's* Command, which goes by the Name of *Colliget*, divided into seven Parts, containing the whole Science of Medicine, and is chiefly a Compendium, as he owns himself; of what had been said by others, with some Additions of his own. He begins with the general Rules of this Art, and so descends to Particulars; and therefore, he says, nobody will be able to understand what he wrote, but who is well versed in Logic, and natural Philosophy: Accordingly he mixes more of the *Aristotelian* Philosophy with his Theory of Physic, than the other *Arabians* do; for which Defect he finds Fault with the wise Men of *Andalusia*. And this, I suppose, he must be understood to mean, when he says, he shall use Expressions, and explain Things, which his Predecessors never did, and shall deduce every thing from the Roots of natural Science. In Anatomy, he professes he gives us nothing new; and, indeed, he here entirely copies after *Galen*. And as to the practical Part of this Work, there is scarce any thing in it but what is borrow'd; and tho' he speaks several times of his own Experience, yet he does not seem to have been much conversant in Practice, as indeed we may guess he was not, from the History of his Life. However, there is one Observation he makes, which I find no-where else, that the same Person can have the Small-pox only once. The chief Design, indeed, of this Treatise appears to be, to lay down right Notions concerning the speculative Part of Physic, in which there were, in his Time, great Disputes; and therefore, as he follows much the same Method as his Master *Aristotle* observes in the History of Animals, so one great Aim he had in writing this Book, was to reconcile the Opinions of that Philosopher with those of *Galen*, an Author who seems to have the second Place in his Esteem.

Mr. *Bayle* has collected a great many Passages out of Authors, relating to *Averrhoes*; and as he seems never to have been acquainted with the Original, he follows these Authors implicitly, who often mislead him: As where he tells us, from *Champerius*, that he was a bitter Enemy to *Avicenna*; and that, for this Reason, he avoids ever naming him, which he does in this

this Book often, and in his Metaphysical Disputations; not to mention the Comment he has writ expressly upon that Author's *Cautica*. And as to being his Enemy, as is here suggested, if we look into this very Comment, we may easily be convinced of the contrary; for he thinks this Treatise of *Avicenna* one of the best Introductions to Physic which ever appear'd; and therefore because it was concise, and sometimes wanted an Explanation, he undertook the Task himself; and to shew his Candour, even when *Avicenna* seems to lay down some wrong Positions, he explains in what Sense they should be understood, so as to be consistent with Truth; as particularly in the Doctrine about bleeding old Men, (which he distinguishes perfectly right) and the making Use of subterraneous Caverns. The last Rule particularly, he says, would not so well suit his Climate, which was the fifth, that is, *Spain*; but might be very proper for the fourth, which was hotter, and where *Avicenna* lived. What Mr. Bayle recites from Mr. Pasquier, about *Averrhoes* bleeding his Son at three Years old, is equally a Mistake; for *Averrhoes* himself tells us, that it was *Avenzoar* who used this Practice in the Case of his own Son. So where he quotes Mr. Petit for saying, that *Averrhoes* never gave any Medicine to the Sick, and that he owns as much himself, is directly contrary to what this Book will inform us; tho' I agree, that it is probable he was no very great Practitioner.

Mr. Bayle wonders why Mr. *Herbelot* is so short in his Account of this famous Author; and I should wonder why Mr. *Bayle* is so prolix upon the same Head, did I not consider, that he picks up a few odd Stories, which have been handed about, concerning his Irreligion, particularly the celebrated Saying he is charged with, *Sit anima mea cum Philosophis*; a Saying which, perhaps, there was no more ground to fasten upon *Averrhoes*, than any of those Particulars I have mention'd. This Writer has, with no little Pains, amass'd together all that he could meet with, upon this Article, in modern Authors; and, in a more emphatical manner, enlarges upon what he found quoted from the Disputations which this *Arabian* wrote against *Algazel*, a Man famous in the preceding Century, for being the Founder of a Sect call'd the *Motazelas*, and who died A. H. 503. a Piece finely written, as he tells us from *Rapin*; but, in his own Opinion, very pernicious. In this are contain'd a great many Speculations concerning the Soul, consonant to the Doctrine of *Aristotle*; amongst the rest, the Unity of the Intellect is explain'd: From which Mr. Bayle would infer, that he was a very impious Person, and one who must of course maintain the Mortality of the Soul; and consequently deny any future Rewards or Punishments. Why he should be so fond of drawing *Averrhoes* into these Opinions, I will not take the Liberty so much as to guess; only give me Leave to observe, that if he would have consulted the Author himself, instead of the Collectors he here quotes, he would have found a very different Account of his Notions: For, in one Dissertation, *Averrhoes* asserts, that the Soul is not material; and in another, that it is immortal. So usual is it with these Compilers of secret History to run into infinite Mistakes, merely because they take every thing at second-hand, and upon Trust; whereas would they have been at the Pains to go to the Fountain-head, and cast an Eye only upon the Original, their Memoirs would have been much more exact.

But, to digress no further, as there is little material in this Author, *Averrhoes*, relating to Practice, I shall not trouble you now with any further Account of him, or his Works. I shall only mention, that he takes Notice of *Alkindus*, the Author of a Treatise now extant, concerning the Proportion and Doses of Compound Medicines; and who, perhaps, might be the same with the famous *Peripatetic* of that Name, in the Reign of *Almanon*. In this Book he endeavours to reduce the Qualities of Medicines to the Rules of *Arithmetic* and *Music*; but *Averrhoes* justly thinks he refined too much, and that it is not only a Work of mere Speculation, built upon no solid Ground, that is, that of the Quality of a Medicine in the Compound increasing always in a double Proportion, but owing altogether to his mistaking the Sense of *Galen* upon the same Subject. *Freind's History of Physic*.

The Works of *Averrhoes*, are,
Collectaneorum de re Medica Sectiones tres, a *Johanne Bruyerino Campegio Latinitate donata*, Lugdun. 1537. Fol.
Averrois Opera. Venetiis apud Juntas, 1552. Fol.
His *Colliget*, and Commentaries on the *Cautica* of *Avicenna*, and some other Pieces, are extant with the Works of *Avenzoar*, Venet. 1496. Fol. and Lugduni, 1531. 8vo.
His Book *De Venenis* was printed Lugduni, 1517. 4to.
And his Commentary upon *Avicenna*, Venetiis, 1484. in Fol. and again at the same Place, 1555. Fol. *Vander Linden de Scriptis Medicis*.

AVERSIO, Aversion. It signifies the diverting a Flux of Humours from one Part to another, whether by Revulsion, Derivation, or Repulsion.

Aversio also implies a Nausea, or Inappetency; and sometimes is used to express that Recession of the Uterus from its

proper Place, which the Antients imagin'd to happen in Hysterical Disorders.

AVES, Birds. The Natures of these, consider'd as Aliment or Medicines, are express'd under their different Names.

Avis Medica, is the Peacock.

Aves, or *Aviculae Cypriz*, are perfum'd Candles, or Sticks of Wax.

Aves also is a Word made use of by some of the Enthusiastical Chymists, to express, or rather to conceal, their Meaning; in which they have effectually succeeded. *Rulandus*, for Example, thus defines the *Avis Hermetis*: *Æs Hermetis, avis volans, quia in altum evolat, & tamen iterum in terram propter nutrimenta descendit: unde nutritrix omnium est terra*.

The *High Dutch* Interpretation of the same Author is rather greater Nonsense than the *Latin*; for which Reason the Reader need not regret, that I have not translated it.

AVEVETL, and **AHOHOETL**, are Indian Names for the *Abies Mexicana*. *Raii Hist. Plant*.

AUGARES, *αυγares*, a Name of an Ingredient in a Clyster for the *Cœliac* Passion, in a Prescription given by *N. Myrepsus*, *Secl. 17. Cap. 45*. I don't know, that it has ever been discover'd what it means. The Interpreters keep the Word, and confess they do not understand it.

AUGITES, *αυγιτης*, the Name of a Gem, which *Pliny* says many People esteem to be not very different from the *Callais*. It is said to be of a pale Green, and not so valuable as a *Topaz*. *Pliny* says the *Callais* imitates the *Sapphire*, but is more white.

AUGMENTATIO, Augmentation, Increase, Accretion, Growth.

AUGMENTUM. Diseases, especially Fevers, are divided by Authors into the Beginning, the Augment or Increase, the State or *acme*, and the Decline. The *Augmentum*, therefore, is that Part of the Disease which lasts from the Beginning, or first Seizure, to the State, or till it arrives at its utmost Violence.

AUGURISTA. By the Explication which *Castellus* gives of this Word, it should signify what we call a Conjuror. A Person who pretends to shew preternatural Images in Looking-glasses, Crystals, and Water; and to foretel Events by the Singing and Flight of Birds.

AUGUSTUM, A specious Epithet given to some Medicinal Compositions by their Authors or Describers.

AVICENNA. The famous *Avicenna*, the Son of *Hali*, was born at *Bochara*, in *Chorasan*, about 980. He studied Philosophy very early; so that, if we believe *Sorfanus* his Disciple, he was Master of *Euclid*, and other mathematical Books, when he was but sixteen Years old; and soon made such Proficiency in the Study of Physic, as to become very celebrated for his Skill in that Art. The *Arabic* Writers tell this Story of his Sagacity, That he found out, by the Pulse, the Dis temper the Nephew of *Cabous* laboured under, which was Love; and that by a Stratagem he made use of, he discovered likewise the particular Object of his Passion: The Case is so parallel, that one would be apt to think, they stole this Account from what *Appian* relates of *Erasistratus*, in a like Illness of *Antiochus*, the Son of *Seleucus*. *Avicenna* lived, for the most part, at *Isfahan*; he is represented by them, as one very much addicted to his Pleasures, so that he fell into several Sorts of Distempers; and it was a Saying, they tell us, in those Times, *That all his Philosophy could not make him moral, nor all his Physic teach him, how to preserve his Health*. He died in the 58th Year of his Age, or rather, if we calculate to a Nicety, the 56th, in 1036. at *Medina*; and was buried in the City of *Hamadan*.

History tells us, that he made a very considerable Figure in the World; so that by some of his own Countrymen he is reported to have been raised up to the Dignity of *Vizir*; from whence, I suppose, some more modern Writers have fancied, that he was really a Prince; and others have given out, that he was a King; though they do not agree, whether he reigned in *Corduba*, or *Bithynia*.

This is the Account the best Historians give of the Origin and Age of *Avicenna*, though he is supposed by some, without any Ground, to have been a Spaniard, and by others an Egyptian. It is amazing, where *Neander* could pick up the Materials to furnish out such a Romance, as he has made of this Writer's Life: He tells us, very formally, that he was born at *Edeffa*, the Capital of *Commagena*, in 1145. that he went from thence to *Alexandria*, where he studied under *Rhazes*; and that afterwards he travelled into *Spain*, where he was the Disciple of *Averrhoes*, at *Corduba*. But it is no new thing in this extraordinary Author, to write as many Falsities and Contradictions, as he does Pages.

Avicenna compiled a large Work, which he called the *Canon*; and the Fame of this Book was so great throughout all *Asia*, that it was epitomiz'd and commented upon by several other *Arabians*, in the twelfth and thirteenth Centuries; and, even long before this, it began to prevail so much in *Europe*, that there

there was no other Doctrine taught in the Schools of Physic; and it happened to be the good Fortune of *Avicenna*, to continue his Empire there, till the Restoration of Learning.

One would naturally expect to find something in this Author, answerable to such a Character; but though I have very often looked into his Writings upon several Occasions, (for you won't suppose, I believe, that I have gone through him in any regular Course of Reading) I could meet with little or nothing there, but what is taken originally from *Galen*, or what at least occurs, with a very small Variation, in *Rhazes*, or *Haly Abbas*. He in general seems to be fond of multiplying the Signs of Distempers, without any Reason; a Fault too much imitated, as Errors are the easiest to be followed, by our modern Writers of Systems. He often indeed sets down some for essential Symptoms, which arise merely by Accident, and have no immediate Connexion with the primary Disease itself. And, to confess the Truth, if one would chuse an Arabic System of Physic, that of *Haly* seems to be less confused; and more intelligible, as well as more consistent, than this of *Avicenna*. *Freind's Hist. of Physic*, Vol. 2.

The Works of *Avicenna* were printed at Venice, 1596. in Folio.

The *Liber Canonis, de Medicinis Cordialibus, & Cauticis*, together with some other Pieces, were printed Venetiis, apud Juntas, 1544. & 1555. in Fol. Basiliae, apud Joh. Hervagium, 1556. in Fol. Venetiis, apud Octavo. Scotum, 1500. in 4to. Groningæ, 1649. in 12mo.

Canon Medicinæ. Venetiis, apud Juntas, 1595. & 1608. in Fol. 2 Vol. apud Vinc. Valgrifum, 1564. in Fol. 2 Vol. Ibidem, 1580. in 4to. Lovanii, apud Mempæum, 1658. in Fol. Uratislaviæ, Fol. per Petrum Kirstinum.

Libro quinque Canonis Medicinæ Aben Ali, Principis Filii Sinæ, alias corrupte Avicennæ. Arabicè nunc primum impressi. Romæ ex Typographia Medicea, 1593. in Fol.

Libellus de removendis Nocuentis, quæ accidunt in Regimine sanitatis: Tractatus de Symplo acetoso, uno cum Syraci Medici expositione in 2. & 3. partem. 4. Fen. 1. Can. Avic. & Ebenesi super 5 Can. Venetiis, apud Demitium de Tridino, 1547. in maj. Fol.

De Corde, ejusque Facultatibus, Libellus, Job. Bruyerino Campegio Interprete. Lugduni, apud Nicol. Edvardum, 1559. in 8vo.

De Animalibus, per M. Mich. Schotur ex Arabico in Latinum translatus. This is extant in Folio, without any Specification of the Time when printed, or the Place where.

Canonis Libri 3. Fen. 1. Tractatus quartus, in quo scribit de ægitudinibus Capitis, & noxâ multâ illarum in functionibus sensus, & moderaminis, sive partis rectricis, à Johanne Quinquaborræo Latinè versus, & ad fidem codicis Hebraici correctus. Parisiis, apud Martinum Juvenem, 1572. in 8vo.

Canonis Libri 3. Fen. 2. quæ est de Ægitudinibus Nervorum, à Quinquaborræo Latinè versa. Parisiis, apud Mart. Juvenem, 1570. in 8vo.

Quarti Libri Canonis Fen. prima de febribus. Patavii, 1659. in 12mo.

De Tinctura Metallorum Tractatus. Francofurt. apud Cyriacum Jacobum, 1550. in 4to.

This is thought supposititious, as is the following:

Chymicus Liber, Porta Elementorum dictus. Basiliae, apud Petrum Pernam, 1572. in 8vo.

AVICULÆ HERMETICÆ. The universal Salt, which *Sendivogius* says is to be found in the Dew, is called by this Name in the *German Ephemerides*.

AVICULARIA SYLVII, a Name for the *Speculum Veneris majus*, a Plant; called otherwise, *The greater Venus's Looking-glass*.

AVILA, is a Species of Apple produced in the Indies. It is larger than an Orange, of a considerable Size. It is of a round Figure, plump, and of a yellow Colour. It grows in those Colonies of America which belong to the Spaniards, upon a sort of Shrub, or creeping Plant, which adheres to the adjacent Trees. This Apple includes eight or ten flat orbicular Nuts, which have a small Cast of the Oval, and at one of their Extremities terminate in an obtuse Point. These Nuts, tho' joined to each other, are yet easily separable. They are convex on one Side, concave on the other, almost as large as our half Crown, half a Finger's Breadth in Thickness, covered with a moderately thick Bark, which is hard, of a woody Texture, a little rough, especially on the convex Side, and of a yellowish Colour. Under this Bark is a tender, white, and bitter Almond, which is esteemed an excellent Medicine against Poisons, and Malignity of Humours. One or two of these Almonds may be taken for a Dose. *Lemery Traité universel de Drogues Simples*.

AULOS, αὐλός, properly signifies a Pipe, or Canal, or Foramen. In *Hippocrates de Mulierum Morbis*, Lib. 2. it imports the exterior Foramen of, or Entrance into, the Vagina Uteri; as ἐναυλὸν, is the Vagina itself.

AULOS also signifies a Pipe to blow through.

VOL. I.

Aulus, in *Pliny*, is a Shell-Fish, which we call the Scallop.

AULISCOS, αὐλίσκος, is a Catheter, or a Clyster-pipe.

AVORNUS, the *ALNUS NIGRA*, is thus called by *Crescentius*.

AVOSETA.

Avoseta Italarum, seu Spinzago d'Aqua, is an aquatic Bird as large as a Pigeon; its Beak is four or five Inches long, black; turned up, and pointed at the End. Its Head is blackish, the Body white, the Feet bluish, having the Toes joined by Membranes; the Legs are long: It is found in Italy. The Fat is esteem'd very resolutive, emollient, and anodyne. *Lemery des Drogues*.

AURA.

Aurifera Gallinassa, (Jonston)

Is a Species of Raven of Mexico; which approaches the Size of a large Eagle; the Indians call it *Tropillotl*. Its Colour is black; the Beak is made like a Perroquet's; the Forehead is covered with a Skin wrinkled without Feathers: It is armed with black crooked Claws. This Bird is common in New Spain; it keeps at Night upon the Trees, and upon the Rocks; but comes in the Day near the Cities; it lives upon Ordure and Excrements. They say, that the young ones are white, but that they blacken as they grow larger. They fly in Flocks, pretty high; they make no Cry, and are of a bad Smell. They contain a great deal of volatile Salt and Oil. The Heart of this Bird, being dry'd in the Sun, is very fragrant. The Flesh, being eaten, is good for the Small-pox; the Feathers, burnt, are deterfive, vulnerary, and proper to prevent the Hair from falling off, if the Ashes are sprinkled upon the Flesh. *Lemery des Drogues*.

AURA also signifies a Vapour or Exhalation, such as those which arise from Mephitical Caves.

Helmont speaks much of the *Aura Vitalis*, which seems to mean what others call the *Flamma Vitalis*, *Vital Flame*. Both are mere Jargon, and only mean Chimæras existing no-where but in the extravagant Imaginations of those who make use of them.

AVRANCUM, Egg-shells. *Rulandus*.

AURANTIA, a Fruit-tree, thus distinguished:

Mahis Aurantia, Offic. Ger. 1279. Emac. 1463. Rati Hist. 2. 1658. *Malus Aurantia vulgaris*, Park. Theat. 1508. *Malus Aurantia major*, C. B. Pin. 436. *Aurantium*, *Mala Aurantia*, Mont. Ind. 37. *Aurantia Malus*, C. B. 1. 97. Chab. 5. *Aurantium vulgare*, Ferr. Hesp. 377. Tourn. Inst. 620. Elem. Bot. 493. Boerh. Ind. A. 239. *Mala Aurantia*, Aldrov. Dendr. 489. *Malus Aurantia vulgaris major*, Jonst. Dendr. 22. **THE ORANGE-TREE.** Dale.

This beautiful Tree grows to a pretty great Bigness in its native Places, having many Branches, the younger of which are of a greenish Colour, with several sharp Thorns growing on them; the Leaves are of a pale, yellow, green Colour, in Shape like Bay-leaves, each of which is set on a Foot-stalk in Shape of a Heart, of a pleasant fragrant Smell, when bruised: The Flowers grow on the younger Shoots among the Leaves, of a single Cup-fashioned Leaf, cut into five Parts, with several yellow Stamina in the Middle, of a fragrant odoriferous Smell; they are succeeded by large round Fruit, green at first, and of a reddish-yellow Colour, covered with a tough Skin or Peel, under which is contained the Pulp, consisting of a great Number of small Vesiculae, full of a sharp Juice, (among which lie longish round Seeds pointed at both Ends) divided by a Skin into several Cloves, or Partitions.

This Tree grows in Plenty in Italy, Spain, and Portugal; and bears Flowers and Fruit all the Year; but the Fruit is chiefly gathered in October and November.

The Juice of Oranges is used as Sauce to whet the Appetite. It is cordial and cooling, good to quench Thirst, and serviceable in burning Fevers; it is of great Use in the Scurvy, being frequently mixed among other Antiscorbutics. The Peel or Bark is cordial and stomachic, strengthens and warms the Stomach, prevents Nausea and Vomiting, and helps the Colic.

Official Preparations from Oranges are, a Water distilled from the Flowers, the *Aqua Naphæ*, Off. a Conserve of the Peel, and the same candied, and a Syrup of the Juice.

N. B. The *Sevil Orange* is only used in Physic, the *China Orange* being only eaten for Pleasure. *Miller's Bot. Off.*

This Fruit has different Names, such as the *Mala Aurantia*, *Aurantia*, *Arangia*, *Mala Aurea*, *Chrysomelea*, *Poma Anarantia*, *Aurantia* & *Nerantia*, *Orangia*, or *Aurangia*. The Poets undoubtedly meant no more by the *Golden Apples* produced in the Gardens of the *Hesperides*, than *Oranges*, which are the Fruit of this Tree. Thus *Virgil* is to be understood in this Line:

Aurea Mala decem missi: Cras altera mittam.

But some of the Fruit differ very much in Taste from others: Some are very bitter, whilst others are sweet: Others again keep, as it were, a due Medium between sweet and bitter; and this last Sort are justly preferred to the others, not with regard

regard to the Peel or Bark, which, in Heat and Dryness, surpasses that of the Lemon, but with regard to the Qualities and Agreeableness of the Juice, which is less cold than that of the Lemon. Their Virtues are the same with those of the Citron and Lemon; for which Reason, we find, in some foreign Shops, their Peel dried and preserved, a Water, a Syrup, an Essence, a Tincture, and a distilled Oil of Oranges; but particularly we find the preserved Flowers, and a Water distilled from the Flowers. Fresh Oranges, if eaten, resist Putrefaction, and prevent the Scurvy. *Bald. Ronseus, de Scorbuto*, says, he knew some who got entirely free from the Scurvy, only by the Use of Oranges, and their Peel. *L. Riverius*, in his fourth Century, *Obs. 84.* makes Mention of a Shoe-maker, who had laboured under a Quartan Ague for near half a Year, and who was at last cured by the Use of Oranges, which he cut into small Pieces, and boiled in White-wine; by taking some of which for a few Mornings, his Disorder was removed. The Juice of sweet Oranges, exhibited with Syrup of Violets, is excellent for procuring Sleep in Fevers. *Jo. Camerar. Hort. Med.* The Peel dried, reduced to a Powder, and drank in White-wine, corroborates the Stomach, helps Digestion, procures an Appetite, sweetens a stinking Breath, and is serviceable in Swellings of the Belly, Colics, Pains which succeed Child-birth, Suppressions of Urine and the Colic. See *Ephem. N. C. Dec. 3. Ann. 1. Obs. 35.* This Virtue is still stronger in the distilled Oil, four or five Drops of which are to be taken in Wine. *Domin. Panarolus, Pent. 2. Obs. 8.* says, that the Oil expressed from Orange-peel, proves a very expeditious Cure in Fevers. The Flowers preserved with Sugar are an excellent Cordial, and esteemed very good in burning and pestilential Fevers. The Water distilled from the Flowers has a very fragrant Smell, and is good in malignant and virulent Fevers; for it promotes a plentiful Diaphoresis, comforts the Heart, refreshes the vital Spirits, gives Ease in the Colic, allays Pains of the Stomach, and kills Worms. It is also applied to the Pulse with a View to comfort the Heart. It is elegantly prepared in *Italy*, where it is called *Napha* and *Angelica*. See *Remed. Lib. 1. de Mat. Med. Sect. 6. Cap. 4.* In *Spain* 'tis usually given to Women in hard Labours. It is also used with Success in Hysterical Fits, but must be mixed with Musk and Dragons-blood for answering that Intention. *R. Solenandr. Sect. 5. Consil. Med. 15. L. River. Lib. 15. Prax. Med. Cap. 6. & Cent. 1. Obs. Med. 65. 94.* The Water distilled from the Seed cures Pains arising from the Stone in the Kidneys. *Ferrar. Lib. 4. Hesper. Fol. 478.* The Leaves, by means of a chymical Preparation, yield an Oil which is excellent in Cases where the Shin-bones are laid bare. The Seed resists Poison, and kills Worms. The Leaves, if boil'd in Red-wine, and drank, put a Stop to the Catamenia.

We may here mention the Poma Sinensia, the Mala Aurantia Chinenia, or China Oranges, which are of late become well enough known, and are superior to the others in Delicousness of Taste, and bear the Name of the Country, from which they are imported to *Lisbon*, where they are now produced in considerable Quantities as well as in *Spain*. Their Juice is much better adapted to the Intentions of Physic, but must not be taken in too large Quantities, especially by those who have cold and weak Stomachs. In the Shops, they make of their Peel an Essence or Tincture, which is highly cordial and stomachic. *Barthol. Zorn. Botanolog.*

The Rind of the bitter Orange heats much.

The Juice of the sweet Orange, immoderately taken, weakens the Stomach, and causes Wind. As for the Juice of the bitter Orange, it sometimes incommodes the Stomach and Breast, by a little too rough pricking of those Parts.

The Juice of the bitter Orange contains much Phlegm and essential Salt, and a little Oil.

The Rinds of the sweet and bitter Oranges agree at all times, in all Sorts of Ages, to Persons who have a weak Stomach, and those of a phlegmatic and melancholy Constitution. As for the Juice of these Fruits it is very good in hot Weather for bilious Persons, and those whose Humours are too sharp, and too much agitated.

R E M A R K S.

Oranges are brought from several Parts: The best and the most in Esteem for a good Taste, are those which grow in hot Countries; not only because the Soil of those Places, having Store of exalted Sulphur and volatile Salts in it, communicates a great Quantity of the same to these Fruits, and gives them an agreeable Smell, but because the Heat of the Sun there digests, and more completely ripens their Juice, and gives them a more delicious Taste.

The Juice of the bitter Orange is sharp, because it contains much acid Salt in it, and because this Salt is but little embarrassed with the rosy Parts; which is the Reason it communicates almost all its Acidity to the little nervous Fibres of the Tongue. As for the Juice of the sweet Oranges, as it contains less Salt than that of the bitter one, and as this Salt is

kept under by a great Quantity of oily Parts, it is easy to be understood, that it can make but a slight Impression on the Parts it touches.

They prefer the Juice of the bitter Orange in Medicinal Use before the other, as was before observed, for cooling and moistening, and mitigating Fevers; because this Juice has more of the Acid in it, and can more easily thicken the overthinned Liquors, allay their violent Motions, and keep down those sharp Humours, that throw them into an extraordinary Fermentation. I suppose, by the bitter Orange, Lemery means the sour.

Of the ORANGE-FLOWER.

You ought to chuse such as are white, fair, of an agreeable Smell, and fresh gathered.

They cheer the Heart and Brain, promote the Menfes, strengthen the Stomach, and assist Digestion.

The immoderate Use of this hot Flower renders the Bile more sharp, and by that means may cause different Diseases.

It contains much exalted Oil, volatile Salt, and Phlegm.

The Orange-flower agrees at all times with aged, phlegmatic, and melancholy Persons; as also with those that have a weak Stomach, and do not easily digest their Food.

R E M A R K S.

The Orange-flower is used in Food and Physic; they preserve it whole, and, by distilling, extract from it a Liquor of a very pleasant Smell, and much used in Cordial, Hysterical, and Cephalic Potions. Its pleasant Smell proceeds from those Sulphurs and Salts contained therein, which are elevated with the Liquor, and mix therewith. The Orange-flower helps Digestion by its volatile Principles, which divide and attenuate the gross Parts of the Aliments. It also refreshes the Heart and Brain, and promotes the Menfes, because the same exalted Principles revive the Mass of Blood, increase the Quantity of the Spirits, and rarefy the viscous Juices which obstruct the Course of the Blood. *Lemery on Foods.*

AVRARIC, Mercury.

AURATA, a Fish, called *The Gilt-head*, or *Piscis Sacri*. According to *Athenæus*, it was esteemed very delicious Food by the Antients. It is called also *Orata*.

AUREA ALEXANDRINA, an Opiate or Antidote, invented by *Alexander*. See ALEXANDER.

AURES, the Ears. See AURIS.

AUREUS, a pompous Appellation for many Medicinal Compositions, either on account of their Costliness, Efficacy, or because Gold enters their Composition.

AUREUS RAMUS, is the Art of making Gold.

AUREUS is also a Weight equal to a Dram and an half. *Castellus.*

AURICHALCUM, Brass,

Is a Mixture of Copper and Lapis Calaminaris, which is put together in Fusion by a very vehement Fire, in a Furnace made for that Purpose.

The Discovery was made by the Alchymists, who, endeavouring to turn Brass into Gold, found the way to give it a yellow Colour. The Calaminaris Stone embarrasses the acrid Salts of the Metal to that Degree, that it makes no Impression on Liquors, as the Copper does. Besides, as the Calaminaris Stone costs but little, so the yellow Brass is cheaper than the natural. *Lemery des Drogues.*

In making of Medicines great Care must be taken, that nothing acid is put into a naked Brass Vessel, because Acids dissolve Brass, and that renders the Medicine emetic.

AURICOLLA, the Gue, or Cement of Gold. It should seem to signify the same as CHRYSOCOLLA, which see.

It is mentioned in the *Turba Philosophorum. Theatr. Chym. Vol. 5.*

AURICULÆ Cordis, the Auricles of the Heart. See COR.

AURICULA Judæ, & Fungi Sambuci, Offic. *Fungus membranaceus auriculæ referens, sive Sambucinus.* C. B. 372. Raii Hist. 1. 106. Synop. 18. *Fungus membranaceus auriculæ referens*, Hist. Oxon. 3. 642. *Fungus Auriculæ Judæ, coloris ex cineraceo nigricantis, perniciosus, in Sambuci caudice nascens*, J. B. 3. 840. *Fungus Auriculæ Judæ, coloris ex cineraceo nigricantis, perniciosus*. Chab. 588. *Fungus Sambucinus, sive Auricula Judæ*, Ger. Emac. 1481. *Fungus Sambuci, vel Auricula Judæ*, Sterb. 256. Tab. 27. H. *Fungus Sambucinus*, Park. 1320. *Agaricus Auriculæ formæ*, El. Bot. 441. Tourn. Inst. 562. Poerh. Ind. A. 14. Buxb. 7. *Agaricum Auriculæ formæ*, Mich. Nov. Gen. 124. Tab. 66. 1. *Peziza Auriculæ referens*. Dill. Cat. 195. JEWSEAR. Dale.

AURICULÆ JUDÆ, or *Jews Ears*, are a sort of Fungus, or a Species of Agaric, which is found adhering to the Trunk of the Elder-tree. This is of the Figure, and oftentimes the Size, of a Man's Ear; but they are found larger and smaller. It is of a membranous, cartilaginous, and pliant Substance, like Leather,

Leather, of a blackish-grey Colour. It contains a great deal of Oil and volatile Salt.

It is very resolute, proper for Tumors, and for Inflammations of the Throat, and other Parts, being broken and applied thereto. It should be used internally with Caution, for it is a sort of Poison. *Lemery des Drogues.*

It is directed to be boil'd in Milk, or macerated in Vinegar, in order to make a Gargle for the Throat, in a Quinsy: And sometimes it is infused in Water for the same Purpose, with other Ingredients.

Dale says it is astrigent.

AURICULA LEPORIS. See BUPLEURUM.

AURICULA MURIS, Mouse-ear. See PILOSELLA.

AURICULA URSI, Offic. *Auricula Ursi flore luteo*, Ger. 640. Emac. 784. Raii Hist. 2. 1082. Elem. Bot. 100. Tourn. Inst. 120. Boerh. Ind. A. 200. J. B. 3. 490. Chab. 492. Rupp. Flor. Jen. 14. *Auricula Ursi flore flavo*, Park. Parad. 239. *Auricula Ursi, Sanicula Alpina*, Mont. Ind. 37. *Sanicula Alpina lutea*, C. B. Pin. 242. Hist. Oxon. 2. 557. YELLOW BEARS-EARS. *Dale.*

This Herb grows in great abundance at or about *Utrecht*, in *Stiria*, *Tyrole*, *Savoy*, and *Switzerland*, about the Middles, and on the Tops, of large Mountains. It bears large thick green Leaves upon its Stalks, at whose Tops there are Flowers of different Colours. The Inhabitants of *Utrecht* call it *Primula odorata*, on account of its agreeable Smell. Tho' this Herb is not ordinarily kept in the Shops, it may nevertheless be rank'd among the Vulneraries, and is of singular Service, both for internal and external Purposes. It abounds with a mild, temperate, and glutinous Juice, which, when express'd, may be apply'd to old Wounds, with a great deal of Success: When mix'd with Ointments and Plaisters, it is of great Service in Ruptures, *Jo. Camerar. Hort. Med. p. 25.* Four or six Spoonfuls of the Water, in which the Herb has been boil'd, taken every Morning, cure Coughs and Ulcers of the Lungs. Such as go a-hunting on the large Mountains, where 'tis to be found, use its Root against Vertigos. See *Conr. Gesner. de Lunar. Herb. p. M. 34. Sennert. L. 1. Pract. p. 2. C. 4.* The Juice of the Flowers removes Spots of the Face, and beautifies the Skin; and with the same Intention some distil a Water from it. *Barthol. Zorn, Botanolog.*

AURICULARIA, Ear-wort, Marlow, or Cylonian Plant. It is a Species of Mint. See MENTHA.

AURICULARIUS, belonging to the Ear. *Auricularius Medicus* is a Physician for the Ears.

AURIGA, a sort of Bandage for the Sides, described by *Galen*.

AURIGA also signifies the fourth Lobe of the Liver. *Castellus.*

AURIGO, the Jaundice. See ICTERUS.

AURIPIGMENTUM, Offic. Matth. 1367. Ind. Med. 17. Worm. 28. Kentm. 17. Agricol. 592. *Auripigmentum luteum*, Aldrov. Mus. Metall. 353. *Arsenicum croceum Auripigmentum*, Charlt. Foss. 12. *Arsenicum flavum Auripigmentum*, Mont. Exot. 13. ORPIMENT.

The Orpiment of the Shops, *Auripigmentum* in Latin, ἀρρευινον of *Dioscorides*, ἀρερινον of *Galen*, *Naruth* of *Serapion*, *Zarnick Arfar* of the *Arabians*, and Orpiment or Orpin in French, is an Arsenical Juice, in squamous or foliaceous Glebes, like the *Lapis Specularis*, the *Squamæ*, or *Strata*, being easily separable from each other.

Orpiment is of three Kinds; one of a Gold Colour; the second of a deeper Red, or Cinnabarine Colour, mix'd with Yellow; and the third greenish and yellowish, mix'd with a large Proportion of Earth, and therefore the least valuable. These three Kinds are found in the Veins of Gold, Silver, and Copper Mines; but we know not what was the other Kind of Orpiment, mention'd by *Dioscorides*.

Orpiment is of an acrid Taste, soluble in Oil, and inflammable by Fire, emitting a thin Flame with a great deal of Smoke, smelling strongly of Sulphur or Garlick. This Smoke, if collected, turns to yellowish Flowers like Sulphur, and a red or blood-colour'd Mass remains behind; which, when cold, concretes into a hard solid *Regulus*, like Cinnabar, called by some Red Orpiment, or Realgar. If the Orpiment be kept in a subliming Vessel for a long time on the Fire, the whole Mass is raised to the upper Part of the Vessel, and there concretes into a beautiful, red, pellucid Substance like a Ruby, only a small Quantity of Metallic Earth remaining at the Bottom. The first Fumes, which come from this *Regulus*, will turn Copper white and brittle.

Orpiment therefore must consist of the same Parts as common Sulphur, with some Mineral Particles mix'd with them; or it is composed of an acid Salt, entangled in Particles of Mercury, and of a bituminous Substance. Its corrosive Quality arises from the acid *Spicula* stuck into the Particles of Mercury; but it has that Quality in a less degree than corrosive Sublimate, because of its bituminous Part. It is less inflammable than Sulphur, because the Energy of the acid Salts contain'd in it is weaken'd by the Mineral Parts; and, from its corrosive Quality, it is deservedly reckon'd among Poisons.

It was antiently used by Physicians to eat away fungous Flesh, but is now laid aside in that Intention, Chymistry having furnished us with much better Catheretics. It is used sometimes by Barbers, with a Mixture of Quick-lime, as a Depilatory, to eradicate the Hairs of any Part of the Body; but if they let it lie on too long, it corrodes the Skin. Some Physicians recommend the internal Use of Orpiment, in Substance, in a purulent Phthisis accompanied with Expectoration, and in Asthmas. The Fumes of it may likewise be received at the Mouth in the same Intentions, and the *Chinese* reckon it among the Purgative Medicines. However, I cannot think the inward Use of this Medicine in any respect allowable; for it is a strong Poison, destructive to the Nerves, and accordingly is found by Experience to bring on very terrible Symptoms, such as Spasms in the Hands and Feet, Stupors and Contractions, cold Sweats, Palpitations of the Heart, Faintings, Thirst, inward Burning, Vomiting, Belly-ach, Erosions, violent Pains, and Death itself, according to the different Doses of this Poison; and in the Bodies of such as die in this manner, the Oesophagus, Stomach, and Intestines, are found to be inflamed, corroded, and perforated in several Places.

The Antidotes for Orpiment, and all other Arsenical Substances, are whatever is able to blunt the Acrimony of these corrosive Medicines; such as Milk and Oil, drank in great Quantities, fat Broths, the Juice of Mallows or Marshmallows, Decoctions of Flea-wort, and Linseed, Marshmallow-roots, and such-like. Orpiment or Arsenic, worn about the Neck like an Amulet, cannot be so hurtful as some imagine; neither do we believe it of any Virtue in preserving against the Plague, or pestilential Diseases.

Of the *Lixivium* of Orpiment and Quick-lime is made the Sympathetic Ink, by the Effluvia of which alone, Letters written with Vinegar of Lead become visible; and the Painters use it for Gold Colours, from which Use its Name is derived. *Geoffroy.*

AURIPIGMENTUM RUBRUM, REALGAR, which see.

AURIS, the Ear.

Every one knows that the Ears are two in Number, that they are situated on the lateral Parts of the Head, and that they are the Organs of Hearing. Anatomists commonly divide or distinguish the Ear into external and internal. By the external Ear, they mean all that lies without the external Orifice of the Meatus Auditorius in the Os Temporis; and by the internal Ear, all that lies within the Cavities of that Bone, and also the Parts that bear any Relation thereto.

The greatest Part of the external Ear consists of a large Cartilage, very artificially framed, which is the Basis of all the other Parts of which this Portion of the Ear is made up. The internal Ear consists chiefly of several bony Pieces, partly form'd in the Substance of the Os Temporum, and especially in that Portion of it call'd Apophysis Petrosa, and partly separated from, but contain'd in a particular Cavity of that Bone.

The external Ear, taken all together, resembles in some degree the Shell of a Muscle, with its broad End turn'd upward, the small End downward, the convex Side next the Head, and the concave Side outward. Two Portions are distinguish'd in the external Ear, taken all together, one large and solid, call'd in Latin Pinna, which is the superior, and by much the greatest Part; the other small and soft, call'd the Lobe, which makes the lower Part. We may likewise consider two Sides in the outward Ear, one turn'd obliquely forward, and irregularly concave; the other turn'd obliquely backward, and unequally convex; for all Ears, which have not been disorder'd by binding the Head too tight in Childhood, are naturally bent forward.

The fore Side is divided into Eminences and Cavities. The Eminences are four in Number, call'd Helix, Anthelix, Tragus, and Antitragus. The Helix is the large folded Border, or Circumference of the great Portion of the Ear. The Anthelix is the large oblong Eminence, or Rising, surrounded by the Helix. The Tragus is the small anterior Protuberance below the anterior Extremity of the Helix, which, in an advanced Age, is cover'd with Hairs. The Antitragus is the posterior Tubercle, below the inferior Extremity of the Anthelix.

The Cavities on the fore Side are four in Number, the Hollow of the Helix, the Depression at the superior Extremity of the Anthelix, call'd Fossa Navicularis; the Concha, or great double Cavity, that lies under the Rising, term'd Anthelix, the upper Bottom of which is distinguish'd from the lower by a Continuation of the Helix, in form of a transverse Crista; and lastly, the Meatus of the external Ear, situated at the lower Part of the Bottom of the Concha.

The back Side of the external Ear shews only one considerable Eminence, which is a Portion of the convex Side of the Concha, the other Portion being hid by the Adhesion of the Ear to the Os Temporis. This Adhesion hinders us likewise from seeing the Hollow answering to the Crista, by which the Cavity of the Concha is divided.

I have already said, that the *external Ear* consists chiefly of a Cartilage, which is the Basis of all the other Parts. These other Parts are Ligaments, Muscles, Integuments, sebaceous and ceruminous Glands, Arteries, Veins, and Nerves; but I do not reckon among them a large Gland, call'd, by the *Greeks*, *Parotis*, because it lies very near the Ear.

The Cartilage of the *outward Ear* is nearly of the same Extent and Figure with the large solid Portion thereof, already mention'd; but it is not of the same Thickness, being cover'd by Integuments on both Sides. In the Lobe, or soft lower Portion of the *Ear*, this Cartilage is wanting. On the back Side, it shews all the Eminences and Cavities on the fore Side in an opposite Situation, with respect to each other, except the Fold of the great Circumference; and it consists only of one Piece from that Circumference all the Way to the Meatus Externus, except at the two Extremities of the folded Part of the Helix, where there are two small separate Portions connected to the great Cartilage only by the Integuments.

The cartilaginous Portion of the external Meatus Auditorius does not make a complete Circle, but rather a short Tube, in one Side of which there is a Break, and which terminates in an oblique Border, fixed to the Edge of the bony Canal by several small Inequalities, as by a kind of Ingrailing; and from this Obliquity it is that the cartilaginous Border terminates downward, in a kind of Apex or Point. The lateral Break in this Cartilage is between the upper and back Part of its Circumference, and on each Side thereof the cartilaginous Edges are rounded. There are likewise two or three other small Incisions in this Circumference, which, in regard to the Meatus, represent obliquely transverse Fissures. The anterior Fissure is in a manner quadrangular; neither are the intermediate Parts always opposite to each other, for the uppermost is a little further from the Os Temporis than the posterior.

The *external Ear* is fix'd to the Cranium, not only by the cartilaginous Portion of the Meatus already mention'd; but also by Ligaments, which are two in Number, one anterior, the other posterior. The anterior Ligament is fix'd by one Extremity to the Root of the Apophysis Zygomatica of the Os Temporis, at the anterior, and a little toward the superior, Part of the Meatus Osseus, close to the Corner of the Glenoid Cavity; and by the other Extremity to the anterior and superior Part of the cartilaginous Meatus.

The posterior Ligament is fix'd by one End to the Root of the Mastoid Apophysis, and by the other to the posterior Part of the Convexity of the Concha, so that it is opposite to the anterior Ligament. There is likewise a kind of superior Ligament, which seems to be only a Continuation of the Aponeurosis of the Frontal and Occipital Muscles.

Of the Muscles of the *external Ear*, some go between the Cartilages and Os Temporis, others are confin'd to the Cartilages alone. Both Kinds vary in different Subjects, and are sometimes so very thin, as to look more like Ligaments than Muscles. The Muscles of the first Kind are generally three in Number, one superior, one posterior, and one anterior, and they are all very thin. The superior Muscle is fix'd in the Convexity of the Fossa Navicularis, and of the superior Portion of the Concha; from whence it runs up to the squamous Portion of the Os Temporis, expanding in a radiated manner, tho' not in the same Degrees, in all Subjects; and is inserted principally in the Ligamentary Aponeurosis, which covers the posterior Portion of the Temporal Muscle.

The anterior Muscle is small, more or less inverted, and like an Appendix to the superior. It is fix'd by one Extremity about the Root of the Zygomatic Apophysis, and by the other in the anterior Part of the Convexity of the Concha.

The posterior Muscle is almost transverse, and of a considerable Breadth, being fix'd by one End to the posterior Part of the Convexity of the Concha, and by the other in the Root of the Mastoid Apophysis. It covers the posterior Ligament; but the Division of it into several Portions, mention'd by some Author, seems to be merely artificial, that is, owing to Dissection.

The small Muscles, which are confin'd to the Cartilages, are only small Strata of Fibres, found on both Sides of the Cartilages. In many Subjects they are of so pale a Colour, as not to look at all like Muscular Fibres. Of this Number are those which *Valsalva* discover'd in the different Cavities on the back Side of the Cartilage, and those found by *Santorini* on the Tragus, and along the convex Part of the anterior Portion of the Helix.

The Skin of the *external Ear* is, in general, a Continuation of that which covers the neighbouring Parts of the Temporal Region. The Skin on the fore Side of the Ear is accompanied by a very small Quantity of cellular Substance; and therefore we find all the Eminences and Cavities of that Side distinctly mark'd upon it, as far as the Bottom of the external Meatus Auditorius. In what I have said of the Skin, the Epidermis is likewise comprehended.

The back Side is cover'd by the Skin, continued from the fore Side; but as the Folds are there very close, it only passes over them, except that Portion of the Concha which surrounds

the Entry of the Meatus Auditorius, and which is join'd to the Os Temporis, by means of the cellular Substance. The Hollow of that common Fold, which lies between the Anthelix and Concha, does not appear on the back Side; for, as it is fill'd with the cellular Substance, the Skin passes over it.

The Lobe of the Ear, or that soft Portion, which lies under the Tragus, Antitragus, and Meatus Auditorius, is made up of nothing but Skin and cellular Substance. The Meatus Auditorius is partly bony, and partly cartilaginous. The bony Portion is the longest, and forms the Bottom of the Canal. The cartilaginous Portion is the shortest, and, in Adults, forms the external Opening, or Orifice of the Canal.

These two Portions, join'd endwise to each other, form a Canal of about three Quarters of an Inch in Length, of different Wideness in its different Parts, and a little contorted. It is lined on the Inside by the Skin, and cellular Membrane, thro' its whole Length; and thus these Integuments make up for the Breaks in the cartilaginous Portion, and form a kind of cutaneous Tube in the other Portion. The cellular Membrane is confounded with the Perichondrium and Periosteum of the Meatus.

The Skin which covers both Sides of the Cartilage contains a great Number of small Glands, which continually discharge an oily whitish Humour, collected chiefly near the Adhesions of the Ear to the Head, and under the Fold of the Helix; and these Glands are of the sebaceous Kind. The Skin which lines the Meatus Auditorius, contains another kind of Glands, of a yellowish Colour, and which may be plainly seen on the convex Side of the cutaneous Tube.

These Glands are disposed in such a manner as to leave reticular Spaces between them, and they penetrate a little way into the Substance of the Skin. They are call'd *Glandulae Ceruminosae*, because they discharge that Matter which is named *Cerumen*, or the Wax of the Ears. The inner Surface of the cutaneous Tube is full of fine Hairs, between which lie the Orifices of the ceruminous Glands. The first Place, in which we meet with these Glands, is on that Part of the convex Side of the cutaneous Tube, which supplies the Breaks of the cartilaginous Meatus.

The Arteries of the *external Ear* come anteriorly from the Arteria Temporalis, and posteriorly from the Occipitalis, which is a Branch of the external Carotid. It is proper to observe here, that the Occipital Artery communicates with the Vertebralis, and thereby with the internal Carotid. The Veins are Branches of the Jugularis Externa. And the Occipital Vein communicates not only with the Vena Vertebralis, but immediately with the neighbouring lateral Sinus of the Dura Mater.

The Portio Dura of the Auditory Nerve, having pass'd out of the Cranium, thro' the Foramen Stylo-mastoidaeum, in the manner that shall be afterwards described, gives off a Branch which runs up behind the Ear, to the back Side of which it sends several Filaments; and the Trunk of this Branch sends likewise Filaments to the Meatus, and fore Side of the Ear. The second Vertebral Pair sends also a Branch to the Ear, the Ramifications of which communicate with those of the other Branch from the Portio Dura.

All the bony Organ of Hearing may very naturally be divided into four general Parts:

1. The external Meatus Auditorius.
2. The Tympanum, or Barrel of the Ear.
3. The Labyrinth.
4. The internal Meatus Auditorius.

It may likewise be divided into immoveable or containing Parts, which take in all the four already mentioned; and moveable or contain'd Parts, which are four little Bones lodg'd in the Tympanum, call'd *Incus*, *Malleus*, *Stapes*, and *Os Orbiculare*, or *Lenticulare*.

The external MEATUS AUDITORIUS.

The external Auditory Passage begins by the external Auditory Hole, the Edge of which is rough and prominent; but backwards, towards the Mastoid Apophysis, it appears very much sloped. The Passage itself is about half an Inch in Length, running obliquely from behind forward, in a curve Direction, and sometimes winding a little in the Middle, like a Screw. Its Cavity is almost oval, wider at the Entry than at the Middle, after which it widens again by Degrees.

It terminates inwardly by an even circular Edge, lying in a Plane very much inclined, the upper Part of it being turn'd outward, and the lower Part inward; so that the whole Canal is longer on the lower Side than on the upper. The concave Side of the circular Edge is grooved quite round.

In Children this bony Canal is wanting, as well as the Mastoid Apophysis; and the inner circular Edge is a distinct Ring, which, in an advanced Age, unites entirely, and becomes one Piece with the rest: It is termed the *Bony Circle* in Infants; and, indeed, it is very easily separated from all the other Parts.

It should seem therefore, that the whole bony Canal in Adults is only a Prolongation of the bony Circle in Children; because, even in a more advanced Age, the whole Canal may without much Difficulty be taken out. The circular Groove lies between the Mastoide Apophysis and the articular Fissure or Crack.

The FIGURE and SITUATION of the TYMPANUM.

The *Tympanum* or Barrel of the Ear is a Cavity irregularly semispherical, the Bottom of it being turned inward, and the Mouth joined to the circular Groove already mentioned. Both Eminences and Cavities are observable in it.

EMINENCES.

The remarkable Eminences are three in Number: A large Tuberosity lying in the very Bottom of the Barrel, a little toward the back Part; and a small irregular Pyramid, situated about the Tuberosity, and a little more backward; the Apex of it is perforated by a small Hole, and on one Side of the Basis two small bony Filaments are often found in a parallel Situation; and, indeed, I believe they are seldom wanting, though their tender Structure exposes them to be often broken. In the third Eminence is a Cavity shaped like the Mouth of a Spoon, situated at the upper, and a little towards the anterior Part of the Bottom of the *Tympanum*. This Cavity is Part of a Half-canal, of which hereafter; and at a very small Distance from its Point, is a little bony Ridge, which goes from one Edge of it to the other, but is sometimes not entire.

CAVITIES.

The principal Cavities in the *Tympanum* are, the Opening of the Mastoide Cells or Sinusities, the Opening of the *Eustachian Tube*, the bony Half-canal, the *Fenestra Ovalis*, and *Rotunda*; and to these may be added the small Hole in the Pyramid.

The Opening of the Mastoide Cells is at the posterior and upper Part of the Edge of the Barrel. The Cells themselves, which end there, are dug in the Substance of the Mastoide Process, being very irregular, and full of Windings and Turnings.

The Opening of the *Eustachian Tube* is at the anterior, and a little toward the upper Part of the Edge of the Barrel. This Tube, in France generally term'd the *Aqueduct*, runs from the *Tympanum* towards the posterior Openings of the Nasal Fossæ, and Arch of the Palate. The bony Portion thereof, of which alone I here speak, is dug in the Apophysis Petrosa, along the Duct of the carotid Apophysis; and when it leaves that, it is lengthened out by the spinal Apophysis of the Os Sphenoides. These two Cavities, the Mastoide Cells, and the *Eustachian Tube*, are, in some measure, Prolongations of the *Tympanum*, one anterior, the other posterior.

The bony Half-canal, of which the Cavity resembling the Mouth of a Spoon is the Extremity, lies immediately above the *Eustachian Tube*, towards the upper Side of the Apophysis Petrosa, or rather in the very Substance of that upper Side. In a natural State, a small Muscle is lodged in it.

The *Fenestra Ovalis* is a Hole of Communication between the *Tympanum* and Labyrinth. It lies immediately above the Tuberosity, the upper Side of it being a little rounded, the lower a little flattened; and one Extremity being turned forward, the other backward. Towards the Labyrinth this Opening has a little flat thin Border quite round it, which renders it narrower at that Place than any-where else.

The *Fenestra Rotunda* is something less than the *Ovalis*, and situated in the lower, and a little towards the posterior Part of the large Tuberosity; the Opening of it, which is the Orifice of a particular Duct in the Labyrinth, lying obliquely backward and outward.

The Hole in the Apex of the Pyramid is the Orifice of a Cavity, which may be named the Sinus of this Pyramid.

The OSSICULA AUDITUS.

The *Tympanum* contains several little Bones, called the Bones of the Ear. They are generally four in Number, denominated from something to which they are thought to bear a Resemblance, as the *Incus*, *Malleus*, *Stapes*, and *Os Orbiculare*, or *Lenticulare*.

INCUS.

The *Incus* or *Anvil* resembles in some measure one of the anterior Grinding Teeth, with its Roots, at a great Distance from each other; at least it comes nearer to this than to the Shape of an Anvil. It may be divided into Body and Branches. The Body is a large Substance; the Branches or Legs are two, one long and one short. The Body is turned forward, the short Leg backward, and the long Leg downward.

The Body of the *Incus* is broader than it is thick. It has two Eminences, and two Cavities between them, much in the same manner as we see in the Crown of the first Grinders.

The short Leg is thick at its Origin, and from thence decreasing gradually, it ends in a Point. It is situated horizon-

tally, its Point being turned backward; and joined to the Edge of the Mastoide Opening of the *Tympanum*.

The long Leg, view'd through the external auditory Passage, appears to be situated vertically; but if we look upon it either on the fore or back Side, we see it is inclined, the Extremity of it being turned much more inward than the Root or Origin. The Point of the Extremity is a little flattened, and bent inward like a Hook, and sometimes a little hollowed like a kind of Ear-picker. By this we may distinguish the *Incus* of one Ear from that of the other, when out of their Places; for, turning the short Leg backward, and the long Leg downward, if the Curvature of this long Leg be toward the Left Hand, the Bone belongs to the Right Ear; if towards the Right, it belongs to the Left Ear.

MALLEUS.

The *Malleus* or *Hammer* is a long Bone, with a large Head, a small Neck, and two Apophyses, one in the Neck, the other in the Handle.

The Top of the Head is considerably rounded, and from thence it contracts all the Way to the Neck. Both Head and Neck are in an inclined Situation; and the Eminences and Cavities in it answer to those in the Body of the *Incus*.

The Handle is look'd upon as one of the Apophyses of the *Malleus*; and, in that Case, it is the greatest of the three. It forms an Angle with the Neck and Head, near which it is something broad and flat, and decreases gradually toward its Extremity.

The Apophysis of the Handle, termed by others the small or short Apophysis of the *Malleus*, terminates the Angle already mentioned, being extended towards the Neck, and lying in a strait Line with that Side or Border of the Handle which is next it.

The Apophysis of the Neck, called also Apophysis Gracilis, is in a natural State very long, but so slender withal, that it is very easily broken, especially when dry, which is the Reason why the true Length of it was for a long time unknown. It arises from the Neck, and sometimes appears much longer than it really is, by the Addition of a small dry'd Tendon sticking to it.

When the *Malleus* is in its true Situation, the Head and Neck are turned upwards and inwards; the Handle downwards, parallel to the long Leg of the *Incus*, but more forward; the Apophysis of the Handle upwards and outward, near the superior Portion of the Edge of the *Tympanum*, near the Centre of which is the Extremity of the Handle; and the Apophysis Gracilis forward, reaching all the Way to the articular Fissure in the Os Temporis. It is easy, after what has been said, to distinguish the *Malleus* of the Right Side from that of the Left.

STAPES.

The *Stapes* is a small Bone, very well denominated from the Resemblance it bears to a Stirrup. It is divided into the Head, Legs, and Basis.

The Head is placed upon a short flattened Neck, the Top of it being sometimes flat, sometimes a little hollow.

The two Legs, taken together, form an Arch like that of a Stirrup, in the concave Side of which is a Groove, which runs through their whole Length. One Leg is longer, more bent, and a little broader, than the other.

The Basis resembles that of a Stirrup, both in its oval Shape, and Union with the Legs, except that it is not perforated as the Stirrups now are, but solid, like those of the Antients. Round its Circumference, next the Legs, is a little Border which makes that Side of the Basis appear a little hollow. The other Side is pretty smooth; and one half of the Circumference is something more curve than the other.

The Subject being in an exact Posture, the *Stapes* is to be considered as lying on its Side, with the Head turned outward, near the Extremity of the Leg of the *Incus*; the Basis, inward, being fixed in the *Fenestra Ovalis*; the longest Leg, backward; the shortest, forward; and both in the same Plane. By this Situation it is easy to know the *Stapes* belonging to each Ear.

OS ORBICULARE.

The orbicular or lenticular Bone is the smallest Bone in the Body. It lies between the Head of the *Stapes* and Extremity of the long Leg of the *Incus*, being articulated with each of these. In dry Bones it is found very closely connected, sometimes to the *Stapes*, sometimes to the *Incus*; and might in that State be easily mistaken for an Epiphysis of either of these Bones.

LABYRINTH.

The *Labyrinth* is divided into three Parts, the anterior, middle, and posterior. The middle Portion is termed *Vestibulum*, the anterior *Cochlea*, and the posterior the *Labyrinth*, in particular, which comprehend the three semicircular Canals.

In the true Situation and Direction of the *Apophysis Petrosa*, the *Cochlea* lies forward and inward, towards the Extremity of

the Apophysis; the semicircular Canal backward and outward, toward the Basis of the Apophysis, and the Vestibulum between the other two.

VESTIBULUM.

The *Vestibulum* is an irregularly round Cavity, less than the *Tympanum*, and situated more inward, and a little more forward. These two Cavities are, in a manner, set Back to Back, with a common Partition-wall between them, perforated near the Middle by the *Fenestra Ovalis*, by which the Cavities communicate with one another.

The Cavity of the *Vestibulum* is likewise perforated by several other Holes; on the Outside, or towards the *Tympanum*, by the *Fenestra Rotunda*, but this is commonly seen in dry Bones only; on the back Side, by the five Orifices of the semicircular Canals; on the lower Part of the fore Side, by two Holes which are the Entry of the *Cochlea*, but one of them is shut up in fresh Bones; and on the fore Side, towards the internal *Meatus Auditorius*, opposite to the *Fenestra Ovalis*, by a great many very small Holes for the Passage of the Nerves. On the upper Side there are only small Pores.

SEMICIRCULAR CANALS.

The semicircular Canals are three in Number, one vertical and superior, one vertical and posterior, and one horizontal. The superior vertical Canal is situated transversely with respect to the Apophysis Petrosa, the convex Side or Curvature of it being turned upward, and the Extremities downward; one inward, the other outward. The posterior vertical Canal lies parallel to the Length of the Apophysis, the Curvature being turned backward, and the Extremities forward, one upward, the other downward; and the superior Extremity of this Canal meets and loses itself in the internal Extremity of the former. The Curvature and Extremities of the horizontal Canal are almost on a Level, the Curvature lying obliquely backward, and the Extremities forward, ending under those of the superior vertical Canal, but a little nearer each other; and the inner being almost in the middle Space, between the Extremities of the posterior vertical Canal.

The horizontal Canal is generally the least of the three; the posterior Vertical is often, and the superior Vertical sometimes, the greatest; and sometimes these two are equal. All the three Canals are larger than a Semicircle, forming nearly three Quadrants; they are broader at the Orifices, than in the Middle. These Orifices open into the back Side of the *Vestibulum*, as has been said, being but five in Number, because two of them are lost in each other. So that in the posterior Part of the *Vestibulum*, two appear towards the Inside, and three towards the Outside.

In Children the Substance of these Canals is compact, while that which surrounds them is spongy, so that they may be easily separated from the rest of the Apophysis Petrosa. In Adults, all the Parts of the Bone are so solid, that these Canals appear only like Passages dug in a Piece of Ivory. From this Description it is easy to distinguish the Right *Labyrinth* from the Left.

COCHLEA.

The *Cochlea* is a sort of spiral Shell, with two Ducts, form'd in the anterior Part of the Apophysis Petrosa, in some measure resembling the Shell of a Snail. The Parts to be distinguished in it, in its true Situation, are the Basis, the Apex, the spiral Lamina, or Half-septum, by which its Cavity is divided into two Half-canals, the Spindle round which the *Cochlea* turns, and lastly the Orifices and Union of the two Ducts.

The Basis is turned directly inward, toward the internal Foramen Auditorium; the Apex, outward; and the Axis of the Spindle is nearly horizontal; but in all of them Allowance must be made for the Obliquity of the Os Petrosum, in which they lie.

The Basis of the *Cochlea* is gently hollow'd; and towards the Middle, perforated by several small Holes. The Spindle is a kind of short Cone, with a very large Basis, which is the Middle of the Basis of the *Cochlea*. Through its whole Length runs a double spiral Groove, which, through a Microscope, shews a great Number of Pores.

The *Cochlea* makes about two Turns and an half from the Basis to the Apex; and the two Ducts, being strictly united together through their whole Course, form an entire common Septum, which must not be confounded with the Half-septum or spiral Lamina, as is often done. The first might be termed the common Septum; the other, the particular Septum, or Half-septum.

Both of them are closely joined to the Spindle, being thicker there than in any other Place. The common Septum is complete, and separates the Turns entirely from each other; whereas the Half-septum in the Sceleton is only a spiral Lamina, the Breadth of which is terminated all round by a very thin Border lying in the middle Cavity of the *Cochlea*. In the natural State

there is a membranous Half-septum, which completes the Partition between the two Ducts.

The two Half-canals turn jointly about the Spindle, one being situated towards the Basis of the *Cochlea*, the other towards the Apex; for which Reason I have always termed one of them internal, the other external; the Division of them into the upper and lower Flight not being agreeable to the natural State, but liable to convey a very false Idea thereof.

The Spiral or Volute of the *Cochlea* begins at the lower Part of the *Vestibulum*, runs from thence forward to the Top, then backward down to the Bottom, afterwards upward and forward, and so on from the Basis, which is turned inwards, to the Apex, which is turned outwards.

From this Description it is easy to know to which Ear any *Cochlea* belongs, when we see it prepared. It likewise teaches us, that in the Right *Cochlea* the Direction of the Turning is the same as in Garden-snails, and almost all the other common Shells; but in the Left *Cochlea* the Turnings are in a contrary Direction, as in one Kind of Shell, which is rarely met with.

The two Half-canals communicate fully at the Apex of the *Cochlea*. Their separate Openings are towards the Basis, one of them being immediately into the lower Part of the fore Side of the *Vestibulum*, the other into the *Fenestra Rotunda*. These two Openings are separated by a particular Turning, which shall be explained.

FORAMEN AUDITORIUM INTERNUM.

The internal auditory Hole is the Backside of the Apophysis Petrosa, in some measure behind the *Vestibulum* and Basis of the *Cochlea*. It is a kind of blind Hole, divided into two Fossulae, one large, the other small. The large one lies lowest, and serves for the Portio Mollis of the auditory Nerve, or seventh Pair. The small one is uppermost, and is the Opening of a small Duct, through which the Portio Dura of the same Nerve passes.

The inferior Fossula is full of little Holes, which, in the natural State, are filled with nervous Filaments of the Portio Mollis, which go to the Spindle, to the semicircular Canals, and to those of the *Cochlea*. It is this Fossula which forms the shallow Cavity at the Basis of the Spindle of the *Cochlea*.

The Passage for the Portio Dura of the auditory Nerve runs behind the *Tympanum*; and its Orifice is the Stylo-mastoide Hole. *Fallopian* gave to this Duct the Name of *Aqueduct*, from its Resemblance to some Aqueducts in Italy. It begins by the small Fossula, and pierces from within, outwards, the upper Part of the Apophysis Petrosa, making there an Angle or Curvature. From thence it is inclined backward, behind the small Pyramid of the *Tympanum*, and runs down to the Stylo-mastoide Hole, through which it goes out. It communicates likewise by a small Hole with the Barrel of the Ear.

In some Skulls this Aqueduct of *Fallopian* is open on the upper Part of the Apophysis Petrosa, a kind of Break appearing in it, formed by a double Hole. It is at this Place that it makes the Angle already mentioned. But commonly it is covered with a bony Lamina.

The other Parts of the Ear are principally the Membrana Tympani, the Periosteum of the Barrel, the Membrana Mastoidea Interna, the Muscles of the Ossicula, the Parts which complete the Formation of the Eustachian Tube, the Arteries, Veins, and Nerves. I find myself, however, under a Necessity of beginning by the Tuba Eustachiana, for two Reasons: First, because the bony Parts of that Tube are but of very small Use for the Knowledge of its whole Structure and Composition. And, secondly, because we are obliged to mention it in describing the Muscles.

The *Eustachian Tube*, otherwise called *Ductus Auris Palatinus*, and in France generally the *Aqueduct*: This, however, must not be confounded with the *Aqueductus Fallopii*. It is a Canal or Duct which goes from the *Tympanum* to the posterior Openings of the Nares, or Nasal Fossae, and toward the Arch of the Palate; it is dug in the Apophysis Petrosa, along the carotid Canal; and it is lengthened out by the spinal Apophysis of the Os Sphenoidale.

In its natural State, this Duct reaches from the Cavity of the Barrel to the Root or superior Part of the internal Ala of the Apophysis Pterygoidea; and through this whole Course it is made up of two Portions, one intirely bony, and the other partly bony, partly cartilaginous, and partly membranous.

The bony Portion lies through its whole Length immediately above the Fissure of the Glenoid, or articular Cavity of the Os Temporis, and terminates at the Meeting of the spinal Apophysis of the Os Sphenoidale with the Apophysis Petrosa of the Os Temporis, that is, between that spinal Apophysis and the inferior Orifice of the carotid Canal.

The other or mixed Portion reaches in the same Direction from this Place to the internal Ala of the Apophysis Pterygoidea, or to the posterior and outer Edge of the Nares. But, to form a more exact Idea of it, it will be proper to consider it as divided into four Parts, two-superior, and two inferior.

The

The two upper Parts or Quarters are bony; and of these the innermost is formed by the Side of the Apophysis Petrofa, the outermost by the Side of the Apophysis Spinalis of the Os Sphenoides, so that the upper Half of this Portion of the Tube is bony. Of the two inferior Parts, the internal is cartilaginous, and the external membranous; so that the lower Half of this Portion of the Tube is partly cartilaginous next the Os Sphenoidale, and partly membranous next the Apophysis Petrofa.

The Eustachian Tube, thus formed, is very narrow in the bony Part next the Ear; the other Portion grows gradually wider, especially near the posterior Nares, where the inner cartilaginous Side terminates by a prominent Edge, and the outer Side joins that of the neighbouring Nostril. The Cavity of the Tube is lined by a Membrane like that of the internal Nares, of which it appears to be a Continuation; and, on the prominent Edge, this Membrane is considerably increased in Thickness, representing a kind of half Pad.

The Situation of the two Tubes is oblique, their posterior Extremities at the Ears being at a greater Distance than the anterior at the Nares, and the convex Sides of the prominent Edges are turned toward each other. The Openings of the Tubes are oval at this Place, as is likewise their whole Cavity, especially that of the mixed Portion.

The Eustachian Tube is furnished with three Muscles, according to Valsalva, who discovered, that the *Pterygostaphylinus*, and the *Sphenopterygopalatinus*, do not properly belong to the Uvula, but to this Tube. To these he adds a third, which is the *Palatofalpingæus*, since called by some Authors, *Musculus Tubæ Novus Valsalvæ*. It arises broad and tendinous from the Edge of all the lunated Part of the Os Palati, several of its Fibres being spread upon the Membrane that covers the Foramen Narium; then growing into a small thin Tendon, it is reflected about the Hook-like Process of the inner Ala of the Processus Pterygoideus; but soon turning into a narrow and thin fleshy Belly, it runs close along the Inside of the *Musculus Pterygoideus Internus*, and is inserted carnosus into all the membranous, fleshy, and cartilaginous Part of the Tube.

Its Use is to dilate and keep open this Chancel, as Valsalva first has most ingeniously taken Notice.

The *Membrana Tympani* is a thin transparent flattish Pellicle, the Edge of which is round, and strongly fixed in the orbicular Groove, which divides the bony Meatus of the external Ear from the Tympanum, or Barrel. This Membrane is very much stretched, or very tense, and yet not perfectly flat; for, on the Side next the Meatus Externus, it has a small Hollowness which is pointed in the Middle; and, on the Side next the Tympanum, it is gently convex, and also pointed in the Middle.

This Membrane is situated obliquely, the upper Part of its Circumference being turned outward, and the lower Part inward, suitable to the Direction of the bony Groove already mentioned. It is made up of several very fine Laminæ, closely united together. The external Lamina is, in some measure, a Production of the Skin and Cuticula of the external Meatus; for they may be pulled at the same time like the Finger of a Glove. The internal Lamina is a Continuation of the Periosteum of the Tympanum; and, when the Membrane has been first macerated in Water, each of these Laminæ may be subdivided into several others, which I have sometimes made to amount in all to six. In very young Children, this Membrane is covered on the Outside by a thick mucilaginous Web.

The Depression in the Middle of the *Membrana Tympani* is caused by the Adhesion of the little Bone called *Malleus*, the Handle of which is closely joined to the Inside of the Membrane, from the upper Part of the Circumference all the Way to the Centre, to which the End of the Handle is fixed. This Handle seems to lie in a very fine membranous Duplication, by means of which it is tied to the *Membrana Tympani*, and which serves it for a Periosteum.

The Periosteum of the Tympanum, or Barrel of the Ear, produces that of the small Bones, and it may be made visible by means of Anatomical Injections, which discover capillary Vessels very distinctly ramified on the Surface of the *Ossicula*. It is likewise continued over the two *Fenestræ*, and enters the *Eustachian Tube*, where it is lost in the inner Membrane of that Duct.

The *Cellulæ Mastoideæ* are very irregular Cavities in the Substance of the Mastoid Apophysis, which communicate with each other, and have a common Opening towards the Inside, and a little above the posterior Edge of the orbicular Groove. These Cells are lined by a fine Membrane, which is partly a Continuation of the Periosteum of the Tympanum, and partly seems to be of a glandular Structure, like a kind of *Membrana Pituitaria*. The Mastoid Opening is opposite to the small Opening of the *Eustachian Tube*, but a little higher.

The Ligaments of the *Ossicula* come next in Order; the *Incus* is tied by a strong short Ligament fixed in the Point of the short Leg to the Edge of the Mastoid Opening. Between the *Incus* and *Malleus* we find a small thin Cartilage. The *Malleus* is connected through the whole Length of its

Handle, to the Inside of the *Membrana Tympani*, in the manner already said. I need only add here, that, by Help of a Microscope, we discover round the Point of the Handle, in the Substance of the Membrane, a small orbicular Plane, of a whitish Colour, a little inclined to red.

The *Malleus* has three Muscles, one external, one anterior, and one internal; and the *Stapes* has one Muscle. The external or superior Muscle of the *Malleus*, attributed to *Cassorius*, and mentioned by *Fabricius ab Aquapendente*, is a thin Fasciculus of fleshy Fibres, lying along the upper Part of the bony *Meatus Auditorius*, between the Periosteum and the other Integuments. The outer Part of it is pretty broad, and it contracts by Degrees as it advances towards the upper Part or Break of the orbicular Groove of the Tympanum, into which it enters by a small Tendon, above the *Membrana Tympani*, and is inserted in the Neck of the *Malleus*, near the small Eminence, or short Apophysis, of the Handle. This Muscle is sometimes so pale as hardly to be distinguished.

The anterior Muscle of the *Malleus*, called by Mr. *Duvernoy* the *External*, is fleshy, long, and thin. It runs along the Outside of the *Eustachian Tube*, to which it adheres very closely through its whole Length. Its anterior Extremity is fixed in that Side of the Tube just before the Sphenoidal Spine; and the posterior Extremity ends in a long thin Tendon, which runs in the Articular or Glenoid Fissure of the Os Temporis, thro' a small oblique Notch, at which Fissure it enters the Tympanum, and is inserted in the long thin Apophysis of the *Malleus*. It is partly accompanied by a Nerve, which forms what is called the *Chorda Tympani*.

The internal Muscle of the *Malleus* is very fleshy and distinct. It lies along the Inside of the *Eustachian Tube*, partly on the cartilaginous, and partly on the bony Portion, being fixed by one Extremity in the Apophysis Petrofa. Afterwards it runs along the Cavity of the bony Half-canal of the Tympanum, within which Cavity it is invested by a Portion of a membranous or ligamentary Vagina, which, being fixed to the Edges of the Half-canal, forms an entire Tube therewith; and this Vagina must be cut open before we can see the Muscle.

At the Extremities of this bony Half-canal, where we observe the Cavity shaped like the Mouth of a Spoon, this Muscle ends in a Tendon, which is bent round the transverse bony or ligamentary Ridge in the last-named Cavity, as over a Pulley, and is inserted in the Neck of the *Malleus*, above the small Apophysis, advancing likewise as far as the Handle. The Extremities of the anterior and internal Muscles sometimes meet, and there they cover the mixed Portion of the *Eustachian Tube*.

The Muscle of the *Stapes* is short and thick, and lies concealed within the small bony Pyramid at the Bottom of the Tympanum. The Cavity which it fills, touches very nearly the bony Canal of the Portio Dura of the Auditory Nerve; and it terminates in a small Tendon, which goes out of the Cavity through the small Hole in the Apex of the Pyramid. As it goes through the Hole, it turns forward, and is inserted in the Neck of the *Stapes*, on the Side of the longest and most crooked Leg of that Bone.

The three Parts of the Labyrinth, that is, the *Vestibulum*, *femicircular Canals*, and *Cochlea*, are lined by a fine Periosteum, which is continued over all the Sides of their Cavities, and shuts the two *Fenestræ* of the Tympanum.

In all the Subjects which I ever examined, I have found the femicircular Canals simply lined by a Periosteum adhering to their inner Surfaces, without any particular membranous Bands. The two Half-canals of the *Cochlea* are lined in this manner: The Periosteum of the two Sides of the bony Spiral Lamina advances beyond the Edge of that Lamina, and forms a membranous Duplication, which extending to the opposite Side, completes the Spiral Septum.

This Septum separates the two Half-canals from the Basis to the Apex, but there it leaves a small Opening, by which the small Extremities of the Half-canals communicate with each other. The large Extremity of the external Half-canal ends by an oblique Turn, in the *Fenestra Rotunda*, which is shut by a Continuation of the Periosteum of that Canal. The large Extremity of the other Half-canal opens into the *Vestibulum*; and these two Extremities are entirely separated by a Continuation of the Periosteum.

All the Periosteum of the internal Ear, especially that of the *Ossicula* and Tympanum, is in Children no more than a Mucilage; and in them likewise the *Membrana Tympani* is thick, opaque, and covered with a whitish slimy Matter.

Through the whole Extent of the Periosteum of the Internal Ear, especially on that of the *Ossicula*, femicircular Canals, and Half-canals of the *Cochlea*, we discover a vast Number of Blood-vessels, not only by Anatomical Injections, but in Inflammations, and even without the Help of a Microscope; for I have often shewn them to the naked Eye in the femicircular Canals, and Half-canals of the *Cochlea*. The Arteries come partly from the Internal Carotid, and partly from the Arteria Basilaris, which is a Continuation of the Vertebralis; the small capillary

capillary Ramifications of which may be observed to accompany the Auditory Nerve, through the Internal Foramen Auditorium.

The Portio Mollis of the Auditory Nerve ends by its Trunk at the great Fossula of the Internal Auditory Hole, from whence the Filaments pass through several small Holes in the Basis of the Cochlea, partly to the Periosteum of the semicircular Canals, and partly to the Internal Periosteum of the Half-canals of the Cochlea.

The Portio Dura, which I name *Nervus Sympatheticus Minor*, runs first of all into the small Fossula of the Foramen Auditorium Internum; then passes through the whole bony Duct, called *Aquæductus Fallopii*, and comes out again through the Stylomastoide Hole of the Os Temporis. In this Course it communicates with the Dura Mater on the upper or anterior Side of the Apophysis Petrofa, at the Place where the bony Duct is interrupted.

Having reached behind the small Pyramid in the Bottom of the Tympanum, this Nerve sends a small Filament to the Muscle of the *Stapes*; and, a little before it goes out by the Stylomastoide Hole, it gives off another more considerable Filament, which enters the Tympanum from behind forward, passes between the long Leg of the *Incus*, and Handle of the *Malleus*, and afterwards runs cross the whole Breadth of the Tympanum a little obliquely, and goes out at the same Place at which the Tendon of the anterior Muscle of the *Malleus* enters.

This small Nerve is generally called *Chorda Tympani*, because, in its Passage through the Tympanum, it has been compared to the Cord of a Drum. Having left the Cavity of the Internal Ear, it advances toward one Side of the Basis of the Tongue, where having joined the small Nervus Lingualis, it is considered as a kind of Recurrent.

The Portio Dura passes through the small Fossula in the internal Auditory Hole into the winding Duct of the Apophysis Petrofa, and goes out by the Foramen Stylomastoideum, to the Face and other neighbouring Parts. As it passes through the winding Duct, or Aqueduct of Fallopius, it touches the Dura Mater at the small Opening on the upper Side of the Apophysis Petrofa, where it joins some Filaments from the fifth Pair.

It likewise gives off a Filament to the Muscle of the *Stapes*, and, as it goes out, it gives or receives another Filament, which passes by the Tympanum, and joins the Lingual Branch of the inferior Maxillary Nerve.

I chuse to call this Portion of the Auditory Nerve, *Nervus Sympatheticus Minor*; to the Description of which I now proceed.

The Trunk of each Nerve of the Portio Dura, or of the *Sympathetici Minores*, having passed through the Ductus Petrofus Fallopii, and having communicated with the Dura Mater, as has been already said, sends off, at about the Sixth-part of an Inch from where it goes out at the Stylomastoide Hole, two Branches, one upward, the other downward.

The superior Branch runs up chiefly to the posterior Parts of the External Ear, to which it is distributed, communicating as it passes behind the Ear, with a Branch of the Second Pair of the Cervical Nerves; and forward with a Branch of the Maxillary Inferior.

The inferior Branch is spent on the three Musculi Styloidei, Digastricus, and on the superior Extremity of the Sternomastoideus, reaching in some Subjects as far as the Middle of that Muscle. Instead of these two single Branches, small Ramifications go out sometimes from the Trunk.

Afterwards the Trunk of the Portio Dura advancing forward, through the Parotid Gland, to which it gives several Filaments; some of these Filaments running from without inwards, and surrounding that Branch of the external Carotid Artery, which runs behind the Ear; sometimes, though very seldom, the Trunk itself is split to give Passage to the Artery.

This Trunk, having passed through the Parotid Gland, behind the Angle of the lower Jaw, is divided into two large Branches, one superior, the other inferior.

The superior Branch of the Portio Dura is the most considerable of the two; and, having run upwards for about the Third-part of an Inch, it divides into seven or eight Branches.

These Branches are spread superficially, and in an irregular radiated manner, on all the lateral Parts of the Face, from the Hair as low as the under Lip, between the Ear and Nose, distributing a prodigious Number of cutaneous Nerves.

In some Subjects these Branches, at their first Separation, form a kind of Plexus, which resembles a Goose's Foot.

The first, second, and third Branches, are distributed to the anterior Parts of the Ear, on the lateral Parts of the Head, the Temporal and Frontal Muscles, and the neighbouring Parts.

One of these Branches, and sometimes the large superior Branch, detaches inward behind the Condyle of the lower Jaw, and before the Temporal Vein, two or three Filaments, which communicate with the inferior Maxillary Nerve.

The fourth Branch goes to the Foramen Superciliare, or

Supra-orbitarium; giving in its Passage several Filaments to the external lateral and superior Parts of the Musculus Orbicularis Palpebrarum, and afterwards communicating with the Orbital Nerve, which goes out by the same Foramen.

The fifth Branch is distributed by small Filaments on the lateral Part of the Cheek; and is partly lost in some small Holes at the Basis or Root of the Zygoma, giving likewise some Filaments to the external lower Part of the Musculus Orbicularis Palpebrarum.

The sixth and seventh Branches, and likewise the eighth, when it is found, are spread on the whole Cheek as far as the Nose.

One of these latter Branches passes under or behind the Musculus Zygomaticus, to which it gives Filaments; and then perforating and giving Filaments to the middle lower Part of the Musculus Orbicularis Palpebrarum, it goes to the inferior Orbital Hole in the Os Maxillare, and communicates with the Nervus Maxillaris Superior.

The last Branch communicates by some Filaments, with a neighbouring Branch of the large inferior Ramification of the Portio Dura.

This large inferior Branch, which is something less than the superior, runs under the Angle of the lower Jaw, and is distributed by several Branches to all the inferior lateral Parts of the Face, and to the neighbouring Parts of the Throat, where it chiefly terminates by a vast Number of cutaneous Filaments.

The upper Branches of the large inferior Branch run upon the Musculus Masseter to the lower Part of the Zygomaticus, Buccinator, and other Muscles of the Lips.

One of these superior Branches communicates with one of the inferior Ramifications of the upper Branch, and by the Intervention thereof it communicates likewise, in some measure, with the Suborbital Branch of the Nervus Maxillaris Superior, or that which goes out by the Foramen Suborbitarium.

The most considerable of all these Branches runs forward along the Basis of the lower Jaw, sending Filaments to the Musculus Cutaneus, and to the Muscles of the under Lip, which it perforates near the Skin, and there communicates with the Nervus Maxillaris Inferior.

The inferior Branches run under the lower Jaw, giving Filaments to the Glandula Submaxillaris, and are distributed to the Throat on the Musculus Cutaneus, intersecting the external Jugular Vein. One or more of these Branches are observed to run down to the Middle of the Musculus Sternomastoideus, where it communicates with a Branch of the second Vertebral Pair.

As Winslow has not given the Uses of the different Parts of the Ear already described, I shall supply this Defect from Du Verney.

We may justly consider the external Ear as a kind of natural Horn, the clean and smooth Cavity of which serves to collect Sounds, and consequently render their Impressions on the other Organs of Hearing stronger. This Opinion is confirmed by Experience; for those who have the Misfortune to have their Ears cut off, labour under so great a Difficulty of Hearing, that they are obliged to use Horns, or their Hands formed into a kind of Tube, in order to supply this Defect. For the same Reason also, some Animals, such as Deer and Hares, for the sake of hearing more distinctly, direct their Ears to that Quarter, from which any Noise they hear, comes.

Some are of Opinion, that the direct Lines of Sound, whilst insinuating themselves into the Sinuses of the Ear, are there several times reflected before they reach the Concha; and that these Sinuses, and repeated Reflexions, serve to augment the Impression made upon the other Organs of Hearing, just as in a semicircular Vault, the Phonic Rays, reflected at equal Angles, according to the Circumference of the Angle of the Vault, at last pass from one Extremity to the other, by a great Number both of strong and faint Reflexions.

The Motion of the Muscles of the external Ear, is a Matter attended with a good deal of Obscurity; but yet it seems probable, that the Concha, must, by their Action, be either contracted or dilated, according to the Impetus or Faintness of the tremulous Motions of the Air.

The Meatus of the Ear, by redoubling the Reflexions, renders the Vibrations more brisk and lively; and the Obliquity of its Structure not only guards the Membrana Tympani against the Injuries of the Air, but is also the Reason why the Surface of the Meatus itself is larger than it would otherwise be; by which means a greater Number of Reflexions are made in it, a Circumstance which evidently tends to render the subsequent Impression proportionably stronger.

That Species of Wax, or viscid Substance, lodged in the anterior and cartilaginous Part of the Meatus, by the Greeks called *ῥίμα ἐν τοῖς ὠσὶ*, by the ancient Latin Physicians, *Aurium Sordes*, and now commonly *Cerumen*, retains, and, as it were, inviscates, any extraneous Substances or Insects, which might possibly convey themselves into the Ear, and infallibly injure the Membrana Tympani. But though this Wax answers very noble and excellent Purposes, 'tis nevertheless, on some

Occasions,

Occasions, productive of very considerable Inconveniences; for, unless the Ear was frequently cleansed, this viscid Substance would be accumulated in too large a Quantity, become inspissated by its long Continuance in the Ear, and at last hinder the tremulous Motions of the Air from reaching the *Membrana Tympani*. Some time ago, when I made an Attempt to discover the Cause of a Deafness, under which a certain Man had laboured for some Years before his Death, much about two Lines from the *Membrana Tympani*, I found a soft thick Pellicule, to the exterior Side of which a large Quantity of indurated Sordes adhered; and I don't, in the least, doubt, but this Species of Deafness occurs very often.

The cartilaginous Meatus, which is winding and variously interrupted in several Places, forms a certain Ridge, resembling a small Tongue, before the *Concha*, just at the Extremity of the Cheek, and at the very Entrance of the Meatus. This Ridge hinders the Reflexions, made within the *Concha*, from slipping out of its Cavity, and propels them more directly to the more remote and internal Parts of the Meatus. 'Tis also probable, that this Ridge serves to close up and stop the Ear on which we lie; and consequently hinder the Impression of the Air on its Parts; so that it may be said to perform the same Office to the Ear, which the Eyelids, when shut, do to the Eyes.

There are three nervous Branches arising from three different Pairs of Nerves, distributed upon the cartilaginous Meatus; and these Branches render that Part of so fine and exquisite a Sensation, that we instantly become sensible of the small and most minute extraneous Body, insinuating itself into the Cavity of the Ear.

I now come to consider the internal Ear, the first Part of which, that occurs, is the *Membrana Tympani*; and tho' we cannot affirm, that this Membrane is absolutely and indispensably necessary to Hearing, since deaf Persons, upon taking the Handle of any musical Instrument into their Mouths, are by that means, without the Assistance of this Membrane, enabled to hear the musical Sounds; yet 'tis nevertheless certain, that the *Membrana Tympani* is of such Importance to Hearing, that, if any Animal has the Misfortune to have it perforated or torn, the Hearing of that Animal cannot be long preserv'd, but becomes gradually weaker and weaker, till 'tis at last quite lost and destroy'd.

This Membrane is both render'd tense and relax'd, by means of those small and minute Muscles affix'd to the *Malleus*, which is situated immediately behind this Membrane. The external Muscle, by restoring it to the State and Condition of a perfect Plane, relaxes it; but the internal Muscle, situated on the Surface of the *Os Petrosum*, draws it inwards, and by that means renders it more tense than it was in its natural State. But this is perform'd in such a manner, that in the Tension of the *Membrana Tympani* both Muscles act at one and the same time; whereas its Relaxation is produced by the Action of the external Muscle alone. The Reason of this Phenomenon is plainly this: As the Insertion of the external Muscle is near the Head of the *Malleus*, and the Insertion of the other somewhat farther off, towards the Extremity of the *Manubrium*, the Effect produced by the Action of the internal Muscle is augmented by the Action of the external; for, by this means, these two Actions push inwards the Extremity of the *Manubrium* of the *Malleus*, to which the Tension of the *Membrana Tympani* ought principally to be ascribed.

'Tis therefore certain, that these small Muscles act; nor is it less evident, that the *Membrana Tympani* is render'd tense by the one, and relax'd by the other, in the manner already mention'd: But 'tis no easy Task to know, on what particular Occasions they act, or what determines them to put that Membrane into the various States and Conditions necessary for receiving the vast Variety of Impressions made by different Noises and Sounds.

If we affirm, that the *Will* determines and influences them to Action, this is not at all probable, since Noises, for the most part, strike our Ears before we are aware. I should therefore be inclined to think, that the Objects themselves, according to their respective Natures, determine these Muscles to render this Membrane tense, or relax it, as Exigencies require.

'Tis absolutely necessary, that the *Membrana Tympani* should, on different Occasions, be differently disposed, that thus it may be qualified for receiving the different tremulous Motions of the Air; and, indeed, 'tis impossible it should transmit these, such as they really are in themselves, unless it was in some measure adapted to their Natures, and accommodated itself, if I may so speak, to the Impressions made on different Occasions, by assuming Degrees of Tension, fit for representing the various Tones of sonorous Bodies. If, when two Lutes are laid upon a Table, you strike a String in one with your Fingers, in order to move the corresponding String in the other, every one knows, that, before you can produce this Effect, the corresponding String must be tuned to the same Key; or, as Musicians express it, must be in Unison with the String first struck, whether its

Note be an Octave, a double Octave, a fifth, a fourth, or any other Note whatever; otherwise the Vibrations of the String which is struck, will produce but slight, and scarce perceptible, tremulous Motions in the corresponding String of the other Lute.

Since, then, the Diversity of Noises and Sounds depends upon the different Natures and Collisions of sonorous Bodies; since, for Instance, an acute Tone proceeds from a Body, whose Parts are so disposed as to render them fit for producing only the most instantaneous Vibrations, which they forthwith convey to the ambient Air; since, on the contrary, a grave Tone is excited by the Collision of a Body which is only capable of slow and protracted Vibrations, it must of course follow, that the *Membrana Tympani* does, in its various Degrees of Tension and Relaxation, adapt itself to the several Natures and States of sonorous Bodies, and assume, if I may so speak, their respective Characters. For Instance, it is render'd tense for the Reception of acute Sounds, because, in such a State of Tension, it is susceptible of quick and instantaneous tremulous Motions. 'Tis, on the contrary, relax'd for the Admission and Conveyance of grave Sounds; because, during such a Relaxation, 'tis qualified and disposed for the Reception of the more slow and languid Undulations of the Air. In short, it is rendered tense and relax'd in a thousand different Degrees, according to the various Natures of different Noises and Sounds: But I must confess, 'tis no easy Matter to comprehend the Manner in which all this is brought about; for these mechanical Motions are not subjected to our Senses, and consequently it must be very difficult, if not impossible, to explain their Natures; and the several Laws to which they are subjected.

The *Membrana Tympani*, then, receives the various tremulous Motions of the Air, and, when not disorder'd, faithfully conveys them to the other Parts of the internal Ear. But it performs these Functions in consequence of its being dry, thin, and diaphanous; and if its State is changed, with regard to any of these three Qualities, 'tis no Wonder, if the Hearing becomes of course proportionably duller.

'Tis pretty probable, that the Air lodged in the internal Ear, being put into a Commotion by the tremulous Motions of the *Membrana Tympani*, serves at least in some measure to convey these Motions to the immediate Organ of Hearing: But 'tis by no means probable, that so small a Quantity of agitated Air is able to put the *Os Petrosum*, or rather the Labyrinth contained in it, into a Commotion sufficiently strong for the Purposes of Hearing; so that we may, with greater Appearance of Truth, affirm, that the Agitations of the *Membrana Tympani* are communicated to the *Malleus*; that the *Malleus* conveys them to the *Incus*; and the *Incus* to the *Stapes*, whose Agitation at last puts the *Os Petrosum* and Labyrinth into a Commotion; just in the same manner as the intermediate Air between two Lutes, placed on the same Table, is not able sufficiently to convey the tremulous Motion of the String of one of the Lutes to the corresponding String of the other; unless the String, which is struck first, agitates the wooden Plates to which it is affix'd, these Plates the Table, the Table the Plates of the other Lute; and these Plates at last that particular String affix'd to them, which is in Unison with the String which was first struck. Now, that this Effect is produced precisely in the manner now specified, is plain from this Circumstance, that if either of the Lutes is held at never so little a Distance from the Table, the Experiment does not succeed.

The Nature, Mechanical Structure, and Articulation of these three small Bones, seem very much to favour this Conjecture; for, in consequence of their Hardness, Driness, and Smallness, they must be very easily put into a Commotion: The *Manubrium* of the *Malleus* is uninterruptedly affix'd to the *Membrana Tympani*, in its whole Length: Hence 'tis obvious, that this Membrane cannot be put into Commotions, without communicating its tremulous Motions to the *Manubrium*, and so on successively to the other Bones, which are join'd by a mutual Articulation; and, as this Articulation is without the Intervention of Cartilages, it must of course facilitate the Communication of Motions from one to another.

'Tis no easy Matter to determine the precise Use of the *Musculus Stapedis*. However, we may reasonably conjecture, that by drawing the Basis of the *Stapes*, which is placed immediately above the *Fenestra Ovalis*, a little outwards, it renders the Pellicule, with which the superior Part of this Basis is cover'd, tense; and that, according as it renders it more or less tense, it gives it a proportionably greater or less Disposition for receiving the tremulous Motions of the *Membrana Tympani*, in order to be convey'd to the *Vestibulum* and *Labyrinth*.

We may farther add, that this Muscle, by drawing the *Stapes*, which is otherwise pretty flexible, renders it in some measure tense, and keeps it in a firmer State, and consequently disposes it for the better Reception of the tremulous Motions of the *Malleus* and *Incus*.

On the Sides of the *Tympanum* are two *Meatuses*, or Conveyances, one of which terminates in the Palate, but the other is continued to the Sinuses of the *Apophysis Mastoidea*. 'Tis

not improbable, that the Air contained in the *Tympanum* retires into these two *Meatuses*, when the *Membrana Tympani* is drawn inwards, and that it again returns into the *Tympanum*, when this Membrane is relax'd; otherwise the Motion of the *Membrana Tympani* might be obstructed by the Resistance and Elasticity of the Air; and, indeed, one may reasonably believe, that the Return of this Air into the *Tympanum* favours and assists the Reduction of that Membrane to its natural Situation.

The Conveyance from the Palate to the Ear supplies a Fund of Air necessary for renewing, at Intervals, that which is lodg'd in the *Tympanum*: But, that the Coldness of the external Air may not prove injurious to the Parts of the internal Ear, it undergoes all those Modifications, which are necessary to render it suitable to the Parts to which it is to be convey'd, whilst it ascends thro' the Nostrials, and during the Whole of its Passage to the *Tympanum*. Neither by this means does it lose that Degree of Elasticity, which renders it fit for the Purposes to which it was destin'd. For this Reason the Air which returns from the Lungs, and which is tainted with impure Vapours, cannot easily enter this *Meatus* or Conveyance, since its Orifice is so situated and disposed in the Mouth, as rather to admit the Air drawn in by the Nostrials, than that which returns from the Lungs. Almost every one believes, that some deaf People are, by means of this Conveyance, enabled to hear the Sounds produced by such musical Instruments as have Strings; and since their Deafness is owing to a Defect of the *Membrana Tympani*, as to the Performance of its Office, it is not to be wondered at, if the tremulous Motions of the external Air being communicated to the *Tympanum* by means of this Conveyance, these Persons should hear the Sounds of musical Instruments: But in order to shew, that those Commotions of the Air, contained in the *Tympanum*, which are produced by the Impulse of the Air carried through the *Meatus* or Conveyance, are not sufficient to enable deaf Persons to hear the Sounds of any musical Instruments, let it be observed, that these Persons must lay hold of the Handle of the Instrument with their Teeth, otherwise they will not hear the Sound at all, or at least not so distinctly. Hence we may infer, that the Teeth, being by this means put into a Commotion, communicate a tremulous Motion to the Jaw-bone, the Temporal Bones, and the small Bones more immediately employ'd in the Offices of Hearing, and this seems to favour my Conjecture relating to the Use of these small Bones; for People, who are by no means deaf, hear the Sounds of musical Instruments in a stronger and more forcible manner, if, after having shut up their Ears, they lay hold of the Handle of the Instrument with their Teeth. There are also some deaf Persons, who hear far better when the Voice is utter'd above the Crowns of their Heads: In these Persons the whole Cranium is, by this means, put into a Commotion, which is successively convey'd to the *Ossa Petrosa*, and all the other Parts employ'd in Hearing.

The *Fenestra Ovalis* is entirely block'd up by the Basis of the *Stapes*. After this dry and small Bone, one of whose Sides is covered with a Membrane, and whose Basis is very slender, has received the tremulous Motions of the other two Bones, and of the Air contained in the *Tympanum*, it can easily communicate them to the *Vestibulum*, and to the Air contain'd in it, and thence to the *Cochlea*, and the three semicircular Ducts.

Besides the *Fenestra Ovalis*, there is another called the *Fenestra Rotunda*, which is shut up by a Membrane not unlike the *Membrana Tympani*. We may conjecture, that this *Fenestra Rotunda* receives the tremulous Motions of the Air contained in the *Tympanum*, and conveys them to that included in the inferior Part of the *Cochlea*, in which the Air being strongly compress'd, for want of an Exit, is excellently calculated for putting the *Lamina Spiralis* into Commotions; and thus the tremulous Motions of the Air are convey'd to the immediate Organ of Hearing itself, of which we come now to speak.

This Organ, then, is comprehended under the general Name of *Labyrinth*, which, being included in the *Ossa Petrosa*, consists of two principal Parts, the *Cochlea*, and the *Vestibulum*, together with their three semicircular Ducts.

As for the *Cochlea*, no one can doubt of its being a constituent Part of the immediate Organ of Hearing; since this is sufficiently proved by its Make and Structure; for, first, the *Spiral Lamina*, which is a principal Part of it, is hard, dry, slender, and easily broken, all which Conditions are absolutely requisite in Bodies susceptible of tremulous Motions. Secondly, this *Lamina* does not lie within the semioval Spiral Canal; but is stretch'd out betwixt the *Spindle* to which it adheres, on one Side, and the slender Membrane which is join'd to the Surface of this Canal, to which it adheres, on the other; so that this Situation of the *Spiral Lamina* remarkably favours the Disposition or Tendency it ought to have, to be easily and readily put into a Commotion.

Thirdly, the *Spiral Lamina*, by means of this Pellicule, divides the Whole of the Spiral Canal into two Orders, as it were, of Gradations, whose Construction resembles that of a winding Shell, which rest upon the same *Spindle*, and of which the superior does not at all communicate with the inferior Order.

The *Fenestra Rotunda* opens within the inferior Order, and has no Communication either with the superior Order of Gradations in this Canal, nor with the *Vestibulum*: By this means, therefore, the Air included in the inferior Order is both agitated by the tremulous Motions of the *Fenestra Rotunda*, and by the Vibrations of the Air contained in the superior Order of Gradations of the semioval Canal; which is itself put into a Commotion, both by the tremulous Motions of the Air contained in the *Vestibulum*, with which it communicates, and also by the vibratory Motions of the Air contain'd in the inferior Order of Gradations in this Canal: And thus the undulatory Motions of the *Spiral Lamina* must be rendered more brisk and lively, since it is agitated on both Sides.

Fourthly, the Spiral Figure of this *Lamina* seems greatly to support the Truth of the above-mentioned Circumstances; for, whilst it makes two Circumvolutions and an half round the *Spindle*, it, in several Parts, receives the vibratory Motions of the Air; and this same curious Piece of Mechanism is observ'd in the Structure of the Tongue and Nose.

Fifthly, when the large Branch of the soft Portion of the Auditory Nerve arrives at the Basis of the *Cochlea*, it is divided into a great Number of smaller Branches, which, passing thro' all the small *Meatuses*, with which the *Spindle* is perforated, are distributed to the various Windings and Meanders of this *Spiral Lamina*, where they lose themselves. In a Word, this *Lamina* is not only calculated for receiving the vibratory Motions of the Air, but its Structure also ought to be look'd upon as a convincing Proof, that it is qualified and disposed for accommodating itself to all their different Characters and Degrees of these Motions; for since it is broader at the Beginning of its first Circumvolution, than at the Extremity of its last, and since the Breadth of its other Parts are, in like manner, proportionably diminished, we may venture to affirm, that its broader Parts are only fit for the Reception of slow and languid Vibrations, which are productive of grave Tones, since they may be put into a Commotion without its other Parts undergoing any Change; and, *vice versa*, that, when its narrow Parts are struck, their Vibrations are brisk and lively, and consequently produce acute Tones or Sounds; just in the same manner as the broad Parts of a Steel-spring excite slow and languid Vibrations, which are productive of grave Tones; whereas its narrow Parts excite more frequent and brisk Vibrations, and consequently are productive of acute Tones. In a Word, therefore, according to the various Commotions of the *Spiral Lamina*, the Nerves, distributed thro' its Substance, receive the various Impressions of the Air, which exhibit and represent various Tones, or Modulations of Sound.

As for the *Vestibulum*, and the three semicircular Ducts, tho' some imagine, that they only serve to heighten and augment the Impression of the tremulous Motion of the Air; and others, that their Use consists in diminishing and lessening this Impression; yet the following Reasons induce me to think, that they are constituent Parts of the immediate Organ of Hearing.

First, all Birds have only three Canals or Ducts, bended into a semicircular Form; and a fourth, which is strait, and shut at one of its Extremities, but which, with the others, opens into the common Cavity, which serves instead of a *Vestibulum* to them. These three Ducts are also found in Fish; but the *Cochlea* is neither found in Birds, nor in Fish, and yet both hear. 'Tis therefore obvious, that these semicircular Canals must be the immediate Organ of Hearing, both in the one and in the other. Why, then, should not they be subservient to the same Uses in Man, since, in all these three Species of Animals, their Structure is alike? Hence it follows, that these three semicircular Ducts must, at least, be a constituent Part of the immediate Organ of Hearing; and that thus that Organ must consist of two essential Parts.

Secondly, nobody doubts, but that the soft Portion of the Auditory Nerve conveys the Impressions of Sounds to the Brain; but two Branches of this soft Portion enter the Cavity of the *Vestibulum*, and are diffused and expanded into the Filaments and Membranes, which constitute the internal Coverings of the semicircular Canals: Hence I conclude, that this Part of the *Labyrinth* also constitutes a Part of the immediate Organ of Hearing.

Thirdly, such is the Mechanism and Structure of the *Vestibulum*, and semicircular Ducts, that we may, upon good Grounds, suppose, that the Impression of Sounds is augmented and heighten'd in their winding Meanders, and consequently better qualified for putting the Nerves, dispersed in these Places, into a Commotion.

But what I just now asserted of the *Spiral Lamina*, which is, that it did not simply receive the Vibrations of the Air, and that all its Parts were not indiscriminately adapted and accommodated to the same Tones or Sounds, holds also good with regard to these semicircular Ducts. Each of these Ducts, in Figure, resembles two Trumpets, whose narrow Extremities are joined together; for both Orifices of these Canals, in the Cavity of the *Vestibulum*, are found to diverge like the wide Extremity of a Trumpet; and their middle Part, which is just-

ly represented by the Place where the two Trumpets are join'd, is proportionably narrower. Two of these Canals have one common Opening within the *Vestibulum*, and at the same time expand their Extremities very wide, in Comparison of the others: But Experience proves, that the larger Circles, at the broad Extremity of a Trumpet, may be put into Commotions, at the same time that the lesser Circles are subjected to no sensible Change or Commotions whatsoever; and also, that the Vibrations of the larger Circles are slower, and more sensible, and that, in this Case, the Trumpet produces grave Sounds. On the contrary, 'tis equally confirm'd by Experience, that when the lesser Circles of this wide Extremity of the Trumpet are put into Commotions, the larger in the mean time remaining without any sensible Motion, an acute Sound is produced by the Trumpet; because the Vibrations of these smaller Circles are brisker, and more frequent, than in the former Case. The same holds true with regard to the *semicircular Canals*; for their wider Parts may be put into Commotions, whilst the others remain unmoved; at which time the Vibrations of these Parts will be slow, a Circumstance necessarily productive of grave Sounds. On the other hand, when the narrower Parts of these Canals happen to be put into a Commotion, whilst the wider and more diverging remain unmoved, an acute Tone will necessarily be form'd; because the Vibrations of these narrower Parts will be proportionably quicker. From what has been said, we may then justly conclude, that the *Cochlea*, and *semicircular Ducts*, are common and immediate Organs, which not only receive the vibratory Motions of the Air in general, but also the genuine Qualities and different Characteristics of Sounds, according to the different Parts of these Organs, which happen to be put into Commotions.

It may possibly be objected, that these semicircular Canals are too solid, and adhere too strongly to the rest of the *Os Petrosum*, to be so easily moved in their various Parts, and in so many different manners: But, besides that a considerable Noise can scarce be excited without the *Os Petrosum* being put into a Commotion, when these Circles are prepared for the sake of Anatomical Demonstrations, 'tis obvious, that they are only surrounded with a kind of spongy Substance. In the Heads, indeed, of old People, the bony *Laminae*, which cover these Circles before and behind, are pretty hard; but that Substance, which fills up the Space round about these Circles, is of a more porous Nature; for which Reason they are always sufficiently free and disengaged, and easily susceptible of Commotions and Vibrations.

The mutual Sympathy and Connexion between Hearing and Speech generally uses to be accounted for by the Communication of the soft Portion of the Auditory Nerve with those Branches of the fifth Pair of Nerves, which run off, and are distributed to the Parts destin'd for the Formation and Modulation of the Voice; for Anatomists think, that the Commotion of the Nerves of the Ear is propagated to the Nerves of the fifth Pair; whence the Spirits which flow from the Brain into those Nerves, which are distributed to the Parts destin'd for the Formation of the Voice, dispose their Muscles in such a peculiar manner, as to form Sounds exactly corresponding and similar to the Impressions made on the Brain by the Voice. For this Reason 'tis said, that Men and Birds can mutually incite each other to sing; and that those who are deaf from their Birth, must of course be dumb too.

Anatomists are also of Opinion, that the Communication of the second Vertebral Pair with the external Ear, is the Reason why, upon hearing the least Noise, we turn our Heads to the Quarter whence it comes; and why the Whole of the Body is disposed to various Motions, according as the Causes of the Noise are imagined to be hurtful or beneficial to itself: And since these Nerves communicate with those of the Lungs and Heart, hence it is, that we become sensible of proportionable Alterations in our Pulse and Respiration, according to the Diversity of Noises. But all are not agreed with regard to the Effects of all these Communications.

DISEASES of the ORGAN of HEARING.

Having thus given an Account of the Structure, and several Uses, of the Organ of Hearing, it now remains, that I consider the several Disorders incident to the Ear: And in executing this Part of my Design, I shall have a particular Regard to the Structure of this Organ, that it may appear, how indispensably necessary a Knowledge of the Parts is, in order to explain and account for its Diseases. Neither shall I follow the several Divisions of these Disorders commonly proposed by different Authors; but, adhering to the Method I have hitherto observed, I shall first examine the Disorders incident to the external Parts of the Ear; then I shall consider those which attack the *Membrana Tympani*, the *Tympanum*, and *Labyrinth*; after which I shall take a View of those which affect the Auditory Nerve itself; and, in the last place, shall explain and account for what we call a *Tinnitus Aurium*, since it is a common Symptom in all the Disorders incident to these Parts; and whatever I advance shall be supported by the Authorities of good Writers, and the

the Discoveries which I myself have made on the several Occasions, when I have had an Opportunity of dissecting the Ear.

The Symptom which most commonly attacks the external Parts of the Ear, is a Species of Pain which the *Greeks* called *Otalgia*: This Symptom generally seizes the *Concha*, and the Whole of the *Meatus*, as far as the *Membrana Tympani*; and Experience affords us a certain, but melancholy Proof, that it is accompanied with Punction, Erosion, Tension, Puffation, and a Sense of Weight.

Though 'tis not necessary on this Occasion to explain the Nature of Pain in general, yet 'tis not amiss to observe, that it arises from a Solution of Continuity in those Particles, by whose Union animal Bodies are originally formed; for this Solution of Continuity throws the animal Spirits into preternatural and tumultuous Commotions; and in these two Circumstances the very Nature and Essence of Pain consist.

Upon this Hypothesis 'tis obvious to every one, that whatever can occasion a *Solution of Continuity* in the Particles of that Membrane which covers the *Meatus* of the Ear, and excite this irregular and tumultuous Motion of the animal Spirits, must of course prove the Cause of Pain. Thus Inflammations, extraneous Bodies falling into the *Meatus*, Worms, and, in a Word, whatever excites Pain in other Parts, are likewise capable of producing the same Effect in the Ear. The Antients, indeed, imagin'd, that Pains of the Ears might be produced without Inflammation, and without the Concurrence of what they called a conjunct Cause: Hence they accounted for these Pains from abstract and immaterial Distemperatures, which, according to them, proceeded for the most part from an Excess either of Heat or Cold. But since these immaterial Distemperatures have only an Existence in the Imagination, and not in the Nature of Things; and since the Causes exciting these violent Pains may be found in the Parts themselves; I shall give my Sentiments on this Particular, in as concise a manner as I possibly can.

I find from Experience then, that the Wax lodged in the Ear is bitter and viscid, and consequently impregnated with acrid lixivial Salts, mixed with pinguous and oily Particles. These Principles render its Qualities pretty much the same with those ascribed to the Bile, with which it agrees in many Particulars; so that if on any Occasion these saline Juices should become active and disengaged, or, being exalted above their common Pitch, should exercise their Spiculae or Points more briskly than in a natural State, 'tis evident they must create great Pain and Uneasiness in the *Meatus* of the Ear, on account of the exquisite Sensibility of the Part. But this Effect is for the most part produced either by Heat or Cold; for Cold, by condensing this Wax, and rendering it more viscid, is the Cause of its becoming adhesive, and blocking up the excretory Ducts of the Glands, just as it happens in other neighbouring glandular Bodies, in which a like Action of the Air produces similar Obstructions. Hence it follows, that the saline Juices, having acquired a Motion, must distend and tumefy the Glands in which they are lodg'd; and that being rendered more acrid by their long Continuance, they must vellicate the tender Extremities of those Nerves dispersed thro' the Membrane of the *Meatus*: Hence arises a terrible Perturbation of the Spirits, and consequently an acute and racking Pain of the Ear. External Heat, on the other hand, divides and colliquates the saline Juices of this Wax, and by so doing produces the same Effect. The same is observed in Pains proceeding from the Bile excited by an Excess of Heat or Cold in the Parts destined for Nutrition.

But this Wax is not the sole and only Cause of these violent and racking Pains; for it often happens, that an acrid and saline Serum, discharged from the Glands of the Ear, excites a Pain in the *Meatus*; and this plainly appears in the Suppurations which happen in that Part; for when the Matter discharged is of a saline or acid Quality, it vellicates the Membrane of the *Meatus*, and excites that ungrateful and uneasy Sensation which we call Pain.

As for the Difference of Pains in the Ears, I think they may be accounted for in this manner: When the Particles of Wax, or other Humours contained in the Glands, are become saline, acute, and rigid, and, by their tumultuous Agitation, put the Filaments of the *Meatus*, which is full of Nerves, into a Commotion, they excite a pricking Pain, which happens in all Inflammations, but more especially in Persons of dry and bilious Constitutions, whose Humours abound with acid and saline Juices of this Kind; as also in People of melancholic Habits, whose Serum is also of an acid and saline Nature. When these Salts become very acrid and corrosive, they produce, as it were a Sense of Erosion or Gnawing, which is principally observed in Ulcers of these Parts. When the Wax, whilst as yet contain'd in the Glands, ferments either by itself, or in Conjunction with any other Substance, the Particles of the Membrane are extended and dilated, and hence arises a Sense of Tension. And, lastly, when the Glands are become turgid by the too great Quantity of their Contents, a Sense of Weight is the Symptom of which the Patient complains. As for that Species of Pain, which is

accompany'd

accompany'd with Pulsation, I am of Opinion, that the *Meatus* is never attack'd by it, except in Cases where there is an Inflammation.

The Violence of this Pain has something of a very singular and surprising Nature in it; for it scarce ever seizes the Patient without bringing along with it an acute Fever, which is attended with an Incapacity of Sleep, Deliriums, Convulsions, and Faintings; which Symptoms very often prove mortal, as appears from the Observations of many Authors. But that we may conceive more justly the Violence of this Pain, we are to observe,

First, that the Membrane, which lines the *Meatus Auditorius*, is very slender, full of Nerves, and of the same delicate Texture with the nervous Coat of the Stomach and Intestines; and that it has not, like them, a villous Crust to guard and defend it against the Acrimony of the Humours.

Secondly, this Membrane is stored with innumerable Nerves, arising from the fifth Pair, the hard Portion of the Auditory Nerve, and the second Vertebral Pair; so that this Membrane may justly be said to contain more Nerves, *ceteris paribus*, than any other in the human Body.

Thirdly, 'tis certain, that those Membranes which adhere to Bones, are possess'd of a far more exquisite Power of Sensation than others; which may probably be owing to this, that being firmer, more tense, and adhering to the Bones, by means of all the minute Vessels with which they supply them, 'tis impossible they should be vellicated, without at the same time all their minute Filaments being put into a Commotion. Hence it is, that the *Periosteum* and *Pericranium* are endow'd with so acute and exquisite a Sense of Pain; and perhaps, for the same Reason, violent and racking Head-achs are owing to the Adhesion of the *Dura Mater* to the superior Part of the *Cranium*, as has been observed by some. This may easily be applied to the Membrane of the *Meatus Auditorius*, which is partly bony, and partly cartilaginous; and as that Part of the Membrane which lies upon the Cartilage, is not so tense as that which lies upon the Bones, hence it happens, that those Pains which are felt in the Bottom of the Ear, and which have their Seat near the bony Part of the *Meatus*, are of all others the most severe and racking.

Fourthly, the Connexion of this Membrane with the neighbouring Parts, which are endowed with an exquisite Power of Sensation, may also contribute very considerably to the Violence of this Pain; for this Membrane is extended as far as the *Membrana Tympani*, which communicates with the Membranes of the *Tympanum* and *Labyrinth*; and, by their means, with the *Dura Mater* itself. If we carefully consider these Circumstances, we have no Reason to be surpris'd, that the Pains of the *Meatus* should prove so severe and torturing.

Though most of the Symptoms which accompany the Pains of the *Meatus*, may also occur in Pains of other Parts; yet as these Symptoms are most common, and most violent in it, I thought it might not be improper to account for them.

When the Pain proceeds from an Inflammation, 'tis no difficult Task to account for the Fever, and the Train of other subsequent Symptoms; but as I am thoroughly persuaded, that the Violence of the Pain alone may produce these Symptoms, without either Inflammation or Tumor, I shall confine myself precisely to this Supposition, and consider the Subject in this Light.

I shall begin then with that acute Fever, which almost always accompanies a Pain of the Ear; and I believe it may be owing to this, that the Spirits being hurried into preternatural and tumultuous Agitations by the Violence of the Pain, augment the Motion of the Heart and Arteries: And hence proceed such an elevated Pulse, and an intense Heat, as are observable when the Mind is under the direct Influence of any lawless and exorbitant Passion, especially that of Anger. But this accelerated Motion of the Heart and Blood could not produce a Fever, without inducing a Change on the Principles of the Blood itself. Now 'tis no great Difficulty to conceive, that when, by these strong and vigorous Contractions of the Heart, the Parts of the Blood are more divided and broken, its most active Parts should be then exalted, and its oily Part, whose accelerated Motion produces the febrile Heat, dissolved. Besides, the acrid and corrosive Juices of the Wax, and other Humours accumulated in the Ear, may again be mixed with the Mass of Blood, and there produce a preternatural Fermentation, in which the very Essence of a Fever consists. We shall be easily able to form a Judgment of the Nature of this Fever, if we consider, that Fevers, in Catarrhs and Rheums, are no otherwise produced, than by the Commixture of the acrid Juices, which, separating from the Mass which constitutes and cherishes the Rheums, join themselves to the Blood.

Though what Du Verney says of the Distempers of the Ear merits Attention, I must apprise the Reader, that a great deal of what he says with respect to Fevers, is not to be depended on, being mere Fargon.

The Incapacity of Sleep depends upon the preternatural Agitation of the Spirits, which, being irritated by the Violence of

the Pain, flow continually into the Parts, and do not permit them to cease from performing their Functions.

The *Delirium* does not differ from the Incapacity of Sleep, except that, in the former, the Spirits having acquired an irregular Motion in the Brain, imprint, as it were, many Traces upon the Memory and Imagination at one and the same time: Hence arises that surprising Confusion of Ideas, which these Spirits exhibit to the Mind.

Upon this Hypothesis the Convulsions are also very easily accounted for, and explained; for since the involuntary Contraction of the Muscles depends upon the tumultuous Motions of the Spirits, no more is requisite, than that the saline Juices should stimulate the Nerves dispersed in the Membrane of the *Meatus*, in order to transmit this Stimulus or Irritation to all the Spirits, by the Communication of the Nerves and Membranes; and this Irritation afterwards proves the Cause of Convulsions in the Muscles. Besides, it may happen, that these acrid Juices should return into the Mass of Blood; and being carried to the Brain, there irritate the Origins of the Nerves.

In order to conceive in what manner the *Lipothymia* or Fainting is produced, let us only consider, that whilst the Spirits flow with Rapidity, and in great Abundance, into the muscular Fibres, which contract and shut the Orifices of the Heart, they stop the Motion of the Blood; and that when this Contraction ceases, and the Blood again enters the Ventricles of the Heart, the Pulse begins again to beat, and Warmth returns. The Uneasiness about the Heart, and the Oppression of the Breast, which are felt in this Case, sufficiently prove that the Fainting proceeds from the Cause now assigned; and indeed this Uneasiness of the Heart may sometimes continue so long, as to prove the immediate Cause of Death.

As an Instance of a violent Pain in the Ear accompanied with the most formidable Symptoms, I shall only bring the fourth Observation, of the first Century, of *Fabricius Hildanus*, because it seems to comprehend all the principal Symptoms which occur in this Disorder. "Whilst," says he, "a Girl of ten Years of Age was taking her Diversion with her Companions, a Glass Bead, as large as a Pea, slipped into the Cavity of her Left Ear. Her Mother, being apprised of the Accident, called a Surgeon to extract it; but his Attempts were in vain. Then a second, a third, and a fourth, were called at different times; but the Patient was so far from being relieved by any of them, that the Glass Globule was lodged still deeper and deeper by their Attempts to extract it. Upon this the Mother despaired of the Possibility of dislodging it; and tho' she was grieved for the Fate of her Daughter, who was rack'd with uninterrupted Torments, yet she resolved to submit to the Will of Heaven, and patiently wait for the Result of Nature's own Operation. Soon after, the Pain of the Ear was indeed allay'd; but all that Part of her Head, as far as the Longitudinal Suture, was excessively painful, both in the Night and Day-time, tho' her Pains were acute, or the Reverse, according to the State and Constitution of the Air. Her Torments were most severe in moist and rainy Weather, such as what we usually have in the Winter and Autumn. Besides, her Left Arm was seized with a kind of Stupor, which reached as far as her Thumb and fore Finger, and affected her Loins, her Leg, and her Foot; and, in short, her whole Left Side languished under these Stupors. But her Torpors afterwards assumed another Shape; and in the Night-time, and during cold and moist Weather, appeared in violent Pains of her Shoulder, Arm, and Leg. She was continually afflicted with a dry Cough; and her monthly Evacuations, being in a great measure suppressed, flowed either very sparingly, or only once in the Space of three Months. After she had groaned under this Load of Misery for four or five Years, she at last began to be now-and-then seized with Epileptic Fits, and the Arm itself fell into an Atrophy. Her Mother, startled at the Appearance of such formidable Symptoms, employed several Physicians, Surgeons, and Empirics; and as she had no Pain in her Ear, (for it seems the Intenseness of her other Pains had in a manner destroyed it) she only complained of the other Symptoms, neglecting and overlooking the original Cause of the Disorder. But all their Efforts for her were vain and fruitless; and the Symptoms were so far from being abated, that they were rather augmented. At last, in the Month of November 1595. she apply'd to me (*Hildanus*). I purged her several times, anointed her Shoulder, her Arm, and the rest of the Parts affected, with hot and anodyne Oils; and, in short, apply'd every thing which to me seemed calculated for removing her Disorder; but, notwithstanding all my Attempts, I had as little Success as those who had gone before me. When I saw, that her Disorder would yield to no Medicines, however proper, I began to despair of her Recovery; for I was entirely ignorant of the Cause of her Disorder, unless it might have possibly proceeded from a Catarrh. In the mean time, whilst I was considering with myself what more efficacious Measures I should take for her Relief, she herself began to give me an Account of the Cause of her Disorder, though

" though she was not sensible of its being so; for she told me, that, about eight Years ago, a small Glass Bead had slipped into her Ear, which could not afterwards be dislodged. Upon hearing this Circumstance, I began to suspect, that it might possibly be the Cause of her subsequent Torments: And though she was very averse to an Operation; on account of the fruitless Attempts of the other Surgeons, when her Discharge was recent, yet at last she submitted to undergo it; upon which I happily, and without any Violence, extracted the Bead, though it was lodged very deep, near the *Tympanum*, and stuck very firmly in the Sordes of her Ear. The Pains of her Head; and of the other Parts of her Body, soon after disappeared; and next Night she was a little better: Thus, by gently anointing the Parts with Oil of Worms, she gradually recovered. Her Pains, her Stupors, her Epileptic Fits, and all her other Symptoms, disappeared; her Arm also was restored to its natural State; and, by the peculiar Blessing of Heaven, she has continued in perfect Health ever since."

Many things relating to this Observation of *Hildanus* might, on this Occasion, come under our Consideration; but as I have already explained the principal Symptoms with which the Patient was afflicted, I shall only insist on some of the most peculiar Circumstances of her Case. Pains then, and Convulsions, seized the Whole of her Left Side, and reached as far as her Foot. *Hildanus* accounted for this Symptom by saying, that the hard Portion of the auditory Nerve was distributed through all the Arm and Thigh; but since this Distribution is purely chimerical and imaginary, I shall endeavour to account for this Symptom in a manner more consonant and agreeable to the real Structure and Conformation of these Parts. I say then, that the Irritations and tumultuous Motions of the Spirits were, by the Communication of the second vertebral Pair, transmitted and conveyed to all the Nerves proceeding from the spinal Marrow on that Side; which would not have happened, if the Irritation had been communicated to the Brain; for in this Case 'tis probable, that the Patient would have been afflicted with Pains and Convulsions in all the Parts of her Body. But on the Supposition, that the spinal Marrow on her Left Side was affected, we may easily conceive in what manner the Disorder was communicated to her Arm and Leg, since we very well know, that all the *vertebral Nerves* of that Side communicate with each other by transverse Branches, after they have gone out of the *Foramina* of the *Vertebrae*.

All the Symptoms were aggravated in the Night-time, and in rainy Weather, on account of the Humidity of the Air, which, as it rendered the Glands and Membranes of the *Meatus* tumid, was the Cause of their embracing the fatal Bead more closely, and hence the Irritation was augmented.

The Stupors might, in all Probability, arise from this, that the irritated Spirits opened and dilated the Orifices of the Nerves to such a Degree, that they not only gave Admission to the Spirits themselves, but also to some gross Substances, which, being crowded into their small Ducts, produced a kind of Obstruction, sufficient to stop the Motion of the Spirits. A Circumstance abundantly able to bring on a Stupor! Besides, these gross Substances, being rendered more acrid by their Continuance, must of course have augmented the Pains and Convulsions. And when these made their most violent Attacks on the Patient's Arm, its Nerves must have been block'd up with such a Redundance of this extraneous and noxious Matter, as to interrupt the Motions of the Spirits: Hence the Arm was emaciated and wither'd, as in a Palsy.

The Bead being at last extracted, the Irritations caused by it, and consequently the Pains and Convulsions, ceased; upon which the Spirits again resuming their usual Motions, dissipated all extraneous and noxious Substances: Hence the Arm was restored to its former Motion and Vigour.

I now come to treat of the several Measures to be taken in the Cure of Pains of the Ears; and these ought to vary, according to the different Causes which produce the respective Disorders. As for those Pains of the Ears produced by Cold, they are sometimes cured only by removing the external Causes; or, in other Words, by defending the Ear from the Cold and Winds, and applying to it every thing that can warm it, such as greasy Wool, or hot Bread dipt in Spirit of Wine. But for the most part the Pain does not yield to these first Applications, in which Case we must have recourse to general Remedies. Venesection is necessary, in order to prevent the Congestion of the Matter pent up by the Cold: But Purgatives ought not to be exhibited, till the Pain is somewhat abated. Fomentations in the mean time are used with Success, or Injections of the Juice or Decoction of Bawm, Hyssop, Calamint, Origanum, and Marjoram; to which may be added a few Drops of the Gall of an Ox, or of the Oil of bitter Almonds, Chamomile, Cloves, or Anise; and some Physicians highly recommend the Practice of stopping the Ears with Cotton impregnated with Musk. 'Tis no difficult Matter to account for the Effects of these Medicines, since they are all impregnated with a highly penetrating volatile Salt, which, by warming all the Parts, opens the

Pores and Eminencies of the Glands; and promotes a Discharge of the peccant Matter pent up and detained by the Action of the Cold.

Pains of the Ears, proceeding from an Excess of Heat, are for the most part carried off by general Remedies, and especially Venesection, which is absolutely necessary, in order to prevent the Fluxion and Inflammation which might otherwise seize the Parts affected. During the Use of these Remedies, we may very successfully use Injections of Milk beaten up with the White of an Egg; and for this Purpose Womens Milk is far more proper than any other whatsoever. Injections may be also made of some emollient and cooling Decoctions, in which a proper Quantity of the Oil of sweet Almonds has been diluted. The Oil of Eggs is also highly extoll'd in this Case, by *J. de Vigo*. We may also apply over the Ear some anodyne and emollient Cataplasms; and, when the Pains are extremely violent and acute, we must have recourse to Narcotics, which are not only to be mix'd with the topical Applications, but may also be exhibited internally. All these Remedies are so well known, and so universally us'd, that I shall not spend Time in accounting for their Effects.

When Pains of the Ears are produced by Defluxions of an acrid and saline Serum, we in that Case use the Water of *Cardus Benedictus*, in which Millepedes, Earth-worms, and Ants Eggs, have been boiled; to this Decoction we may also add a few Drops of the Oil of Box. As these Remedies abound in a volatile alkaline Salt, they destroy that Acidity of the serous Humours, which was the primary Cause of the Pain.

Another Disorder to which the *Meatus Auditorius* is subject, is Inflammation, which is generally succeeded by Abscesses and Ulcers. This Inflammation is the Consequence of Wounds or Contusions in these Parts, and may even be produced by some Fevers, as well as a Pleurisy, a Quinsy, and several other Disorders of an inflammatory Nature. An Inflammation may happen in the *Meatus Auditorius* in two Manners: First, by an Obstruction of the Glands, which, by compressing the Vessels, is the Cause of the Blood's stopping, and bursting the Vessels, in which it is contain'd. Secondly, an Inflammation may be produced in the *Meatus*, by the Wax acquiring such a Degree of Acrimony, as to corrode the Vessels, and by that means occasion an Extravasation of the Blood. However, this Inflammation, and the subsequent Abscess, have nothing peculiar in their Symptoms, except the Violence of the Pain, of which I have already spoken.

As for the Ulcers of the Ears, they are form'd in the same manner with Ulcers of the other Parts; either by the Breaking of an Abscess, or by the Acrimony of some Humour. I generally observe, that a very large Quantity of Matter is discharged from these Ulcers, and that they are not cur'd without a considerable deal of Difficulty, especially when they happen in the bony Part of the *Meatus*. The great Quantity of discharg'd Matter is supply'd, not only by the suppurating Blood; but also by the Glands, which, being irritated by the Pus, furnish their excretory Ducts with a large Quantity of Liquor. As to the Difficulty of curing these Ulcers, 'tis owing to this Circumstance; that, being always moisten'd by the Humours flowing from the Glands, 'tis impossible they should be dry'd up, till that glandular Discharge be remov'd. Besides, the Matter secreted from these Glands being of an acrid and saline Quality, must, of Consequence, prevent their Reunion and Cicatrization. The same Symptom occurs in Ulcers of the Nose, and salival Ducts. Ulcers form'd in the bony Part of the *Meatus* are with more Difficulty cured, than those appearing in its cartilaginous Part; because the bony Part of the Canal declines towards the *Membrana Tympani*, and has a considerable Depressure at the Place where it declines, which is the Reason that the Pus is with Difficulty convey'd out of it; whereas the cartilaginous Part of the *Meatus* declining towards the *Concha*, Pus, and other offensive Substances, are easily discharged from it, and are not retain'd, as in the bony Part of the *Meatus*.

In old and fordid Ulcers of the Ears, Worms of different Sizes are sometimes discharg'd along with the Pus, as we may see in the Observations of *Forestus*, *Schenkius*, and in the *German Ephemerides*. I shall not here inquire, whether these Worms are produc'd by the Corruption of the Humours, or whether the Heat of these Ulcers only hatches the minute Eggs, which the numberless little Insects floating in the Air may have deposited on the Parts, since I shall afterwards have Occasion to handle this Subject.

Besides the Pus discharg'd from the Ears, when Ulcers are form'd in them, we observe, that the Ears almost of all Children discharge a great deal of Humidity, and that this Evacuation is very conducive to the Preservation of their Health. For this Reason we ought to beware of stopping this Discharge, lest the Children should, by that imprudent Step, be thrown into convulsive or epileptic Fits. This Circumstance has induced some People to believe, that not only this Liquor, but also the clear and fetid Serum flowing from the Ears of some Adults, and the Blood evacuated from them when the Head is wounded, proceeded

proceeded from the Brain: But, 'tis certain, there are no apparent Ways, or Passages, by means of which any thing can be convey'd from the Brain to these Parts*; for in the *Os Petrosum* there is only one Hole, which is imperforated at that Extremity which lies next the *Ear*, and which is closely shut up by the auditory Nerves; so that we cannot reasonably suppose, that any thing should be convey'd from the Brain to the *Ear* in this manner. But, supposing the Blood and Serum lodg'd in the Basis of the Cranium capable of corroding the Bottom of this Hole, and making a Passage to themselves thro' it, yet still they could only enter the *Vestibulum* and *Cochlea*; and before they can pass into the *Tympanum*, they must corrode the Membrane which shuts up the *Fenestra Rotunda*, the Basis of the *Stapes*, and the Membrane with which it is cover'd; and even after they should happen to be lodg'd in the *Tympanum*, they would, without Doubt, be convey'd to the Mouth by means of the Eustachian Tube, rather than corrode the *Membrana Tympani*, and discharge themselves by the *Meatus Auditorius*†. Upon my Hypothesis, I am involv'd in none of these Difficulties, and can easily account for these seemingly surprising Phenomena: For if a great deal of Serum is discharg'd from the Ears of Children, this is to be ascribed, not only to the State and Condition of their Blood, which is aqueous and serous, but also to the Relaxation of the Glands of the *Ear*, which is also observ'd to happen to the Glands of the adjacent Parts: And if the Suppression of this Evacuation should throw Children into convulsive or epileptic Fits, this Phenomenon is also easily accounted for, since the suppressed Juices may reasonably be suppos'd to become more acrid by their Continuance, and consequently occasion Irritations in the Membrane of the *Meatus*, and even enter the Mass of Blood again, and thus discharge themselves upon the Brain. As for those whose Ears discharge a clear and fetid Serum, 'tis to be observ'd, that tho' the Glands of the *Ear*, when in their natural State, are only destin'd for the Secretion of the Wax, for the Purposes I have already mention'd; yet, in this Case, they may also serve as a proper and commodious Drain for the Evacuation of the peccant Humours; which is evidently observ'd to be the Case in all the conglomerate Glands. And as for the Blood discharg'd from the Ears in Cases where the Head is wounded, 'tis sufficiently known, that it proceeds from a Rupture of the Vessels appointed for moistening the *Meatus*. 'Tis no hard Matter to conceive, how, by the violent Concussion of the Cranium, this Rupture should be produc'd in these Parts, as well as in the Brain: And, lastly, that the suppurated Matter, discharg'd from the Ears, has no manner of Communication with the Brain, is sufficiently plain from the following Observations.

A certain Man of sixty-five Years of Age, pretty corpulent, and of a sanguine Constitution, had labour'd under a plentiful Suppuration of both his Ears, but especially of the Right, for the Space of twenty-five Years, tho' in every other respect the State of his Health was very good. The Matter discharg'd was fetid, and considerably thick. And when this Evacuation was suppressed, he died of an Apoplexy within the Space of twenty-four Hours; upon which I laid open his Cranium, and, viewing the Parts of the Brain near the *Os Petrosum*, I found them perfectly sound, and the Bone itself in its natural State; neither did I find any Collections of Serum in any Part whatever, except in the Ventricles and Meanders of the Brain itself. But these Collections of Serum differ'd very much from that Matter, which, during his Life, had been discharg'd from his Ears. I have also dissected the Ears of several Children, in whom I have found the *Tympanum* filled with Pus; whilst, at the same time, I could never find any Indisposition or Disorder, either in the Brain itself, or the *Os Petrosum*.

In curing Inflammations of the *Meatus Auditorius*, we must be guided by the same Indications which are followed in all Inflammations of the external Parts. The Fluxion of Humours to the Parts affected is to be stopp'd by Venesections, and by anodyne Medicines, to which may be added Oil of Water-lilies, and the Juices of Lettice and Nightshade. But if the Inflammation continue, and tend to a Suppuration, we are then to apply maturing Medicines, such as Cataplasms of the Crum of Bread, or Cataplasms made of boil'd

Onions, Lily-roots, fresh Butter, and the Oil of Chamomile and Melilot.

When the Abscess is open'd, we must use detergent Injections, made of Barley-water and Honey of Roses; and, if more powerful Medicines are necessary, we must have recourse to Decoctions of Agrimony, Birthwort, and other vulnerary Plants, in White-wine, to which we may add a proper Quantity of Honey of Roses, or of Squills. If the Ulcer is sordid and putrid, we are to use Tincture of Aloes, extracted with Spirit of Wine; if 'tis deep, the *Balsamum Viride Metense* is proper.

When the Ulcer is deterg'd, it must be dry'd and cicatrized. Decoctions of Plantain, Birthwort, and Galls, are excellent for answering these Intentions; the Wine of Pomgranates, described by *J. de Vigo*, is also excellently calculated for this Purpose. As these Medicines have nothing peculiar in them, and are used in Inflammations and Ulcers of all kinds, 'tis not necessary I should here account for their Effects, or explain the Manner in which they operate: I shall only add, that, during the Time we use them, we ought not to neglect general Remedies, which are highly proper in all the various Stages of these Disorders. In order to kill the Worms, some People drop bitter Liquors into the *Ear*, such as the Juices of Wormwood, and the lesser Centaury, Decoction of the bitter Gourd, or a few Drops of the Oil of bitter Almonds, or of Box: In the *Ephemerides Eruditorum*, for the Year 1677, Spirit of Wine is affirm'd to be a most efficacious Remedy against Worms ingender'd in the *Ear*; but of all the several Medicines recommended for this Purpose, those which are somewhat thick, and of an oily Nature, are the most efficacious, because they block up the Bronchia of the Insects, and suffocate them in a Moment.

As for the Discharges of serous Matter, which I have call'd Suppurations, since, for the most part, they are not accompanied with Pain, and cannot be suppressed without bringing on a Train of very dangerous Symptoms, they are not, for this Reason, to be rashly and imprudently stopp'd: But, if at any time they should prove painful, we are to have recourse to the Medicines I recommended when I was treating of the Pain of these Parts.

A third Disorder, to which the *Meatus Auditorius* is subject, is an Obstruction, which is generally the Consequence of Inflammations, Abscesses and Ulcers, which usually swell these Parts; but this Disorder may be also produc'd by other Causes. First, extraneous Bodies may slip into the *Meatus*, such as Pease, Shot, or the Stones of some Fruits; and, when these Bodies happen to be lodg'd pretty deep, they are not easily extracted, because they are lodg'd in the bony Part of the *Meatus*, which is very oblique, and declining towards the *Tympanum*. Besides, they are in some measure detain'd by the Congestion of Wax and Sordes in that Part. Pease, and all other Seeds, are extracted with still greater Difficulty, since they not only distend themselves in the *Meatus*, but may also happen to germinate in it, as we may see in Instances given by *Fabricius Hildanus*, and *Schenkius*. The most common and ordinary Cause of the Obstruction of the *Meatus* is a Congestion and Inspissation of the Wax. In those who neglect to cleanse their Ears, this Wax is sometimes so largely accumulated, and in Process of Time so inspissated, as entirely to block up the *Meatus*. In Men of cold and phlegmatic Constitutions, whose Juices are tough and viscid, this Wax may sometimes happen to be naturally very thick. The Cold also of the external Air may contribute not a little to the Production of the same Effect. It is also probable, that this Wax may, on some Occasions, assume the Consistence and Hardness of a Stone; in which Case it produces an incurable Deafness. The Truth of this seems to be sufficiently prov'd by the near Resemblance and Analogy between this Wax and the Bile, which frequently petrifies in the Gall-bladder: And this is farther confirm'd by the forty-fifth Observation of the first Volume of the Journals of *Bartholine*, who tells us, that, after his Wife had been long afflicted with a Pain about one of her Ears, she discharg'd small Stones from the *Meatus Auditorius*, along with the Wax, after which the Pain ceas'd. However, 'tis certain that this Wax is often found inspissated like Plaster, and in so large a Quantity, as entirely to block up both the bony and cartilaginous Parts of the *Meatus*; Instances of which I myself have seen in more than

* *Jobus a Mekeru*, a celebrated Surgeon in *Amsterdam*, in a Letter to *Barbet*, endeavours to shew the Manner in which Blood is convey'd into the Ears, in Cases where the Head is wounded, in these Words:

"As soon, says he, as I had observ'd a considerable Depression in the superior Part of the Cranium, I found a large Mass of coagulated Blood, a Part of which had been discharg'd thro' the Ears, and another Part of it had closed up the *Meatus Auditorius*; upon which I was very desirous of discovering by what Ways this Blood had descended into the *Meatus Auditorius*. Whilst I was employ'd in this Research, I happily found the Reason why, in this Place, the Pericranium covers the temporal Muscles, but not the Bone lying under them. Upon this, I perceived the Truth of what *Tulpius* asserts, in his Answer to that Question, *Whence comes that Blood which is often discharg'd by the Ears in Wounds of the Head?* For I myself have found, as *Tulpius* asserted to me, that this Blood descended from the superior Part of the Head, between the Cranium and Pericranium, and so enter'd the Space between the *Os Parietale*, and the *Os Petrosum*; and that from thence it was percolated, as it were, thro' a Sierce, into the *Meatus Auditorius*. In this Dissection I found the *Os Petrosum* remov'd at a great Distance from the *Os Parietale*; so that in the Place where they had receded from each other, the Traces of their Motion might be observ'd beginning at the *Os Petrosum*, and ending in the *Os Parietale*; where a certain Symphysis, indented in the *Os Jugale*, and internally callous, is observ'd to prevent the Attrition of the Parts, as in all other Articulations."

† It is observable, that many People have got a Trick of letting the Fume of Tobacco, taken in at the Mouth, pass out of the Ears: Hence it is certain, that, in some Subjects at least, Things may pass from the internal to the external *Ear*, without a Rupture of the *Membrana Tympani*.

ten or twelve Subjects, during the Time I apply'd myself to the Dissection of the *Ear*. I have also consulted with several skilful Surgeons upon this Affair, who communicated to me more than thirty Observations, proving that this Species of Deafness is at once the most common, and the most easily cur'd. And indeed that celebrated Surgeon of *Mons*, who acquired such a Reputation for his Dexterity at curing Deafness, undertook the Cure of no Species of Deafness but this; and, that he might the better discover the immediate Cause of the Disorder, he turn'd the Patient's *Ear* to the Rays of the Sun, and, when he perceiv'd any Obstruction in the *Meatus*, he made use of a certain Instrument, proper for cleansing it; and by these simple Measures cur'd vast Numbers of deaf People.

Certain Membranes are also sometimes form'd within the *Meatus*, which shut it up entirely, and produce a particular Species of Deafness. I have already said, that upon inquiring into the Causes of a Deafness with which a certain Person had for a long time been afflicted, I found in his Right *Ear*, of which he was deaf, a pretty thick and lax Membrane, before which there was a very considerable Collection of Sordes, of the Consistence of Plaster, which was undoubtedly the Cause of his Deafness; for the *Membrana Tympani*, and all the other Parts of the *Ear*, were in their natural State and Condition.

The fungous and fleshy Excrescences, which sometimes succeed Ulcers of the *Meatus*, or those Excoriations accidentally made in cleansing the *Ear* with too sharp an Instrument, may also rise to such a Height, as entirely to close it up.

There is another Species of Obstruction incident to the *Meatus*, which happens when the adjacent Glands are tumefy'd, and drench'd with a superfluous Serum, just as it happens in the spongy Membranes of the Nose, which are sometimes so tumefy'd and distended, as to intercept all Passage of the external Air. This Species of Obstruction is always accompany'd with a Relaxation of the *Membrana Tympani*; and for that very Reason produces a Deafness, or at least a Difficulty of Hearing, which is remov'd by the Evacuation of this superfluous Serum, either by the *Ear* itself, or by some other Conveyance, in the same manner as in other Catarrhs.

In the first Species of Obstruction, the Whole of the Indication consists in extracting the extraneous Bodies. But, to succeed in this Attempt, we must carefully consider, whether these extraneous Substances are capable of becoming soft, such as Pease; or whether they are hard and solid, such as Shot, and the Stones of some Fruits: We must also diligently observe, whether they are lodg'd in the cartilaginous, or in the bony Part of the *Meatus*. In order to extract soft Bodies lodg'd in the cartilaginous Part of the *Meatus*, we must endeavour to break them; or the *Ear*-probe, or Spoon, is to be thrust beyond them, which may sometimes be easily done, in a pliant flexible Part, such as the Cartilage of the *Ear* is; and thus they are to be extracted from the *Meatus*. This Method may also be us'd with regard to hard Bodies lodg'd in the same Place, which may be extracted either with the *Ear*-probe, or the Trepan. As for Bodies lodg'd in the bony Part of the *Meatus*, they are with great Difficulty extracted, as we have already observ'd, especially when they fill the *Meatus* entirely up; for, in this Case, we may easily perceive, that neither the *Ear*-probe, nor the Trepan, can be of great Service. In a Case of this Nature I therefore think, that an Incision may safely be made in the posterior and superior Part of the *Ear*, since there are no considerable Vessels to forbid it, and since, in that Part, the Duct is only cover'd with a glandular Skin. The Obliquity of the *Meatus* is, in some measure, shunn'd by this Method, and we may use the Trepan which is apply'd for extracting Bullets. If a Fruit-stone should happen to be lodg'd in the bony Part of the *Meatus*, since by reason of its oval Figure it may be laid hold on by one of its Ends, we may in this Case make use of an Instrument describ'd by *Hildanus*, *Cent. 1. Observat. 4* which he calls a *Tenacula*, and which, properly speaking, is no more than a double *Ear*-picker, or Spoon, made in form of a Pair of Tongs; but for this Purpose the Branches of the Instrument must be very slender, and made of fine Steel. I need not, on this Occasion, describe all the minute Circumstances of these Operations, nor warn the Operator to lubricate and relax the *Meatus* with Oil of sweet Almonds, since I take it for granted, that these Circumstances are already well enough known.

In the second Species of Obstruction, produc'd by the Induration of the Wax, this Substance must be broken, and cleans'd out by means of Injections of warm Water, emollient Decoctions, Hydromel, Lintseed-oil mixed with a few Drops of the Spirit of Wine, Oil of bitter Almonds, and Oil of sweet Trefoil. Some, for this Purpose, use mineral Waters; and this Intention is very successfully answer'd by the Galls of all Animals in general. Others prefer warm Water to all other Liquors whatever, and add a few Drops of Spirit of Wine to it, with a View to render it more penetrating.

The Wax is sometimes disengag'd and discharg'd within five Days, and sometimes not till after fifteen; which is an evident Reason, that we ought patiently to persist in the Use of Injections, till the desir'd Effect be produc'd.

In the third Species of Obstruction, in which there is commonly a Congestion of Wax before the preternaturally-form'd Membrane, we must first cleanse the *Meatus* by means of the above-mention'd Injections, and afterwards perforate the Membrane itself; but, in this Operation, the Surgeon ought to take particular Care not to injure the *Membrana Tympani*.

In order to form a just Idea of the Method of Cure to be observ'd in the fourth Species of Obstruction, which is produc'd by fungous and fleshy Excrescences, little more is requisite almost, than to read the first Observation of the third Century of *Fabricius Hildanus*, where he gives us a Description of a fungous and scirrhous Excrescence, which appear'd in the *Meatus* after an Abscess. Before he attempted its Extirpation, he carefully prepar'd the Patient's Body for the Operation; after which he took as much of it off by the Ligature as he possibly could; but as the Root of the Excrescence was pretty deep, and as his Instruments could not reach the Bottom of the *Meatus*, he was oblig'd to use some Caustics, which he apply'd by means of a small Lamina of Wax, for fear of wounding the *Meatus*; which Method succeeded according to his Desire. But, to illustrate still farther the Method to be us'd in the Cure of Disorders of this Nature, 'tis to be observ'd, that if the fleshy Excrescence is very large, and appears without the Entrance of the *Meatus*, we may in that Case cut it off, either with the Scissors, or the Bistoury; or as much of it as can be laid hold of, may be tied with a Thread; but I should rather choose to cut it, because by that means more of it is taken off, than by tying it. As we are afterwards oblig'd to stop the Blood, we for that Purpose use a small Piece of Vitriol, fix'd in the End of a Quill, in the manner of a marking Pencil, that a small Point of the Vitriol may only appear without the Extremity of the Quill, in order to touch only such Parts as stand in need of it, and stop the Blood by inducing an Eschar, which also carries off a small Portion of the Carnosity. In order to consume the Remains of the Carnosity, which are deep-lodged in the *Meatus*, as we must guard against wounding the Membrane by Caustics, of which the most common are Powder of Savin, burnt Alum, and red Precipitate, boiled with Wax and Turpentine, I would not make use of Laminæ of Wax; but I believe we may safely apply Caustics in the Form of an Ointment put upon the End of a Tent, and introduced into the *Meatus*, having first pass'd in a small Leather Tube made in the Form of the Finger of a Glove, through which it would be no hard matter to push the Tent with the Caustic Ointment on its Extremity, without any Danger of hurting the Membrane of the *Meatus*. Instead of the Leather Tube, a small one may be used, either of Brass or Silver, and bended so as to answer the several Windings of the *Meatus*. After the Eschar is formed, we must drop a little of the Oil of Eggs, or of Almonds, into the *Ear*, not only to ease and lubricate the *Meatus*, but also to procure a Separation of the Eschar. These Remedies must be repeated till the Whole of the Carnosity is consumed; after which, we may make Tents, and arm them with the *Unguentum Ægyptiacum*. These Tents must be introduced and pushed beyond the Tube, that the Ointment may be applied to the Remains of the superfluous Flesh adhering to the Surface of the *Meatus*, where the Carnosity was, in order to prevent their sprouting out again, and with a View to procure a laudable Suppuration; after which we must use detergent and lenitive Medicines in order to incarn and cicatrize the Ulcer, always remembering now-and-then to mix with them some Substance that has a Tendency to prevent the Regeneration of fungous Flesh. A little Vitriol dissolved in a sufficient Quantity of some vulnerary and deterfive Decoction, to give it a small Astringency, is very proper for this Purpose. This is to be injected into the *Ear*, and a little Lint soaked in the same Liquor introduced, which, when it can be easily done, proves of excellent Service, because it compresses the Ulcer, and prevents the Generation of a new Fungus.

In the fifth Species of Obstruction, which is caused by a Distension and Inflation of the Glands of the *Meatus*, we must prescribe the same general Remedies as in all Rheums. The *Ear* is, in this Case, to be fumigated with the Vapour of *Cardus Benedictus*, or of the Decoctions of *Florentine Orris*, *Marjoram*, *Cardus Benedictus*, *Wormwood*, *Calamint*, *Bajoram*, and *Anise-seeds*. A Decoction of the bitter Galum in Oil is very much commended for this Purpose. *Barbet* uses a Decoction of Cloves in Red-wine, some Drops of which are to be convey'd into the *Meatus*, which he afterwards shuts up with a Clove. *Platerus* prescribes a particular Water for this Purpose, the Efficacy of which he highly extols. *Mendererus* proposes another Water, which has been corrected by *Zwelfer*, in his Notes on the *Pharmacopœia Augustana*; and *Hadrianus à Mynsicht* commends a certain compound Spirit of Wine, as very proper for answering this Intention. The expressed Juice of *Marjoram* alone is highly esteemed, as also Hares Urine, either alone, or mixed with Spirit of Wine, or the Water of the common Ash-tree, and the *Hungary Water*. It also affords some Relief, to close up the *Ear* with Cotton impregnated with Musk. Some People think the Membrane of the *Meatus*, and the

the *Membrana Tympani*, so delicate, and endowed with so exquisite a Power of Sensation, that they will not admit of Injections of acrid and spirituous Liquors. In this Case, a few Drops of these Liquors are only to be poured upon hot Bread, which is to be held upon the *Ear*. These Liquors are also with Success held in the Patient's Mouth; for their spirituous Parts, being elevated, ascend through the Eustachian Tube to the *Ear*. For the same Reason, Masticatories are used with Success.

'Tis no hard Task to account for the Action and Operation of these Medicines; for, since they are of a subtle and penetrating Quality, they must of course open the Pores of the Glands, and promote the Discharge of the superfluous Serum. To all these I shall subjoin an Observation communicated to me by that skilful Surgeon Mr. *Passerat*.

A young Gentleman about eleven or twelve Years of Age, about the Beginnings of the Spring and Autumn, used sometimes to have the Glands of the *Meatus Auditorius* so distended and swelled, that they touched each other, and it was impossible to introduce any thing between them. At first Oil of Sweet Almonds was dropped into his *Ear*, in order to allay the Pain; then a Decoction of Barley and Agrimony was used, which is of a detergent and drying Quality. By this means the *Ear*, after having discharged an apparently purulent Humidity for three or four Days, at last returned to its natural State.

I now come to consider the Disorders incident to the *Membrana Tympani*, which are Relaxation, too violent Tension, Induration, and Rupture. The Relaxation is caused by a superfluous Humour moistening this Membrane. This Symptom generally accompanies that Obstruction of the *Meatus*, which is produced by a Distension of the Glands, of which I have spoken already; and it contributes very much to a Dulness of Hearing in those Persons who are subject to catarrhus Defluxions. 'Tis also for this very Reason, that Southerly Winds, Fogs, and rainy Weather, impair the Sense of Hearing, as we find from daily Experience.

An extraordinary Tension of the *Membrana Tympani* produces a quite different Effect, by causing the least Noises to become insupportable. This Tension happens in violent Headachs, and in acute Fevers, because the Tensions and Irritations of the Membranes of the Brain communicate themselves to all the neighbouring Membranes.

The Induration of the *Membrana Tympani* may proceed from its becoming too dry, which is sometimes the Case with old People. Besides, we know from numberless Observations, that the Membranes of the Body may not only become callous, but also ossify. This I myself have particularly observed in the *Dura Mater*, and in the Coats of some Arteries, which I have often found ossified. This shews us, that the *Membrana Tympani* may sometimes become hard and cartilaginous, the Consequence of which is an incurable Deafness.

Lastly, the *Membrana Tympani* may be broken either by some external Cause, such as an Ear-picker, for Instance, inadvertently pushed too far, or by some strong Effort, such as is made when one shuts his Nostril and Mouth, and afterwards lets go the retained Breath with Violence, which happened to one of my Acquaintance. This Action of the Air is observed in Sneezing, when we feel, that the Air, which suddenly ascends through the Duct, drives the *Membrana Tympani* outwards, and occasions a painful Tension. This may also happen in Quinsys, and in Difficulties of Breathing; where the Bottom of the Mouth and Nose are distended and inflated by any Defluxion of Humours, or an Inflammation; for when the Air, thrust out of the Breast, cannot find a free Exit, it enters with such Violence into the Duct which goes from the Palate to the *Ear*, that it is capable of bursting the *Membrana Tympani*. *Tulpius* gives us two very remarkable Instances of this in the thirty-fifth Observation of his first Book. It is not easy to explain how the *Membrana Tympani*, which is so strongly inserted, as it were, in a Groove, should not be able to resist the Impulses of the Air. But if we consider, that this Groove does not run quite round it, but ends at that Part which corresponds to the Entry of the *Meatus*, which penetrates into the Sinuses of the *Mastoide Apophysis*; and that in that Part the *Membrana Tympani* only adheres simply to the Border of the bony Part of the *Meatus*; we shall easily perceive, that it may very readily be torn in this Place, and by that means afford a Passage for the Air to the external *Ear*.

By this we see how much *Tulpius* has been mistaken, when he imagined, that the Duct which goes from the *Ear* to the Palate, not only served to renew the Air in the *Tympanum*, but also, on some Occasions, to afford a Passage for the Air returning from the Lungs in Expiration; which Opinion he endeavours to confirm by the Observation concerning the two Asthmatic Cases already mentioned, and by the Authority of *Alcmeon*, who, according to *Aristotle*, imagined that certain Goats breathed through their *Ears*. Besides, the *Membrana Tympani* may be corroded by the Acrimony of the Pus retained in the *Tympanum*, or in the *Meatus Auditorius*, as is plain from Numbers of Instances brought by *Fabricius Hildanus*, *Schenkius*, and several others. But, in whatever manner the *Membrana Tym-*

pani is broken, the Air is discharged from that *Ear*, when the Mouth and Nostrils are shut, with such Violence as to extinguish a Candle. In such Cases as these, the Sense of Hearing remains for some time, but is gradually impaired, till at last it is quite lost; from which we may infer, that the *Membrana Tympani* is not absolutely necessary for the Purposes of Hearing, but that its principal Use consists in transmitting its Vibrations to the Air contained in the *Tympanum*, and to the small Bones employed in hearing, and in defending the Parts against the Injuries of the external Air. When this Membrane is broken, the external Air alone is indeed able to put the small Bones, and the immediate Organ of Hearing, into a Commotion, and thus excite the Sensation of Hearing; but since it destroys all the Parts of the internal *Ear* by Cold, or any Excess of its other Qualities, it at last destroys the Sense of Hearing.

In Cases where the *Membrana Tympani* is relaxed, we are to apply the same Remedies prescribed in other catarrhus Disorders; but in Cases where 'tis too tense, besides the Remedies prescribed in Diseases produced by Tension, we are to foment the *Ear* with Milk, Oil of Sweet Almonds, or any emollient Decoction. Both the Induration and Rupture of the *Membrana Tympani* are incurable.

As for the *Tympanum* and *Labyrinth*, as these Parts are bony, and only covered with a single Membrane, I can scarce allow myself to think, that they are subject to any other Disorders than Caries of the Bones, and Inflammation of the Membranes. Caries of the Bones sometimes happens after those Abscesses which open behind the *Ear*. In Cases of this Kind, Fistulas have been observed above the *Mastoide Apophysis*, which have penetrated its Sinuses, and made the little Leaves, of which it is composed, fall off in the Form of Scales. This Caries is attended with a very nauseous Smell, and very dreadful Symptoms; for the Caries sometimes penetrates into the *Tympanum* by means of a Duct which leads to it, where, destroying all the Parts included in it, it produces Deafness; but this is rarely the Case, and I have never met with more than one or two Instances of it. As for an Inflammation of the Membranes, when I applied myself to the Dissection of the *Ear*, I often found the *Tympanum*, the *Vestibulum*, the semicircular Ducts, and *Cochlea*, stuffed with a thick Sanies, which might have come from Abscesses of the Membranes which line these Parts. I don't doubt but Deafness is very often produced by this Cause, as well as by a Congestion of any other Matter in all these Cavities; and that so much the rather, because this Matter cannot easily be discharged from the *Tympanum*, since its Cavity descends lower than the Opening of the Duct which goes from the *Ear* to the Palate; and hence it happens, that these Humours cannot fall down into the Mouth, unless the Head be placed in a certain Situation. But, in order to make their Way through the *Meatus Auditorius*, they must corrode the *Membrana Tympani*, which they cannot do, till they have acquired a very considerable Acrimony. We have also Reason to suspect, that the Spiral Lamina may be corroded by the Acrimony of the Pus, and also become relaxed or callous, as well as the *Membrana Tympani*; but I will not positively assert, that this is the Case, since I have no Instances of the Fact to justify the Assertion.

I cannot possibly recommend more efficacious Medicines for curing a Caries of the Bones of the *Ear*, than those prescribed by that skilful Surgeon Mr. *Deymier*, from whom I had this Observation. He first of all dilated the *Ear* with a prepared Sponge, which made a considerable Opening, so that the Medicines could by that means be applied immediately to the carious Bone. Then he applied Lint soaked in *Imperial Water*, in which a little Camphire had been dissolved. But as that Medicine incarn'd the lateral Parts of the Ulcer too soon, whilst the Caries as yet remained, he had recourse to the Powder of Euphorbium, which produced very happy Effects. Slight and momentaneous burning Pains were indeed excited by it; but the Application of a very small Quantity of it answered the Intention by procuring an Exfoliation, and hindering the Flesh from sprouting out afresh. He also used the Tincture of Euphorbium extracted with Spirit of Wine, adding to it some Myrrh and Aloes. The Caries being consumed, and an Exfoliation made, he used the *Imperial Water* till the Cure was completed, applying to the Part affected Lint, and the *Emplastrum de Betonica*, to which a little of the Essence of Juniper, Cloves, and the Oil of Marigold, had been added.

In Inflammations of the *Tympanum* and *Labyrinth*, Topical Applications are scarcely of any Service; and we must only use internal and general Remedies, which are also attended with small Success, because the Abscesses open within the *Tympanum*, and the Cavities of the *Labyrinth*; whence, as I have already observed, the peccant Matter cannot be discharged; so that Humours accumulated in these Cavities produce an incurable Deafness.

The Disorders incident to the *Auditory Nerve* are Obstruction and Compression. When the whole Brain is overflowed and drenched with a sordid Serum, as in *Apoplexy* or *Palsy*, 'tis plain this Nerve must be obstructed as well as the other Nerves.

Besides,

Besides, the sole Obstruction of this Nerve, even when no other Fault is found in the other Organs of Hearing, may also produce Deafness, for the same Reason that an Obstruction of the Optic Nerve occasions a *Gutta Serena*. The Compression of the *Auditory Nerve* produces the same Effect; and this Compression may be owing to several Causes; the Blood, for Instance, or other Humours extravasated; as also to Tumors, of which we have an Instance recorded in the fifty-third Observation of the second Section of *Bonetus's Anatomia practica*, who informs us, that *Drelincourt* found in the Brain of a Man, who died of an Apoplexy, a *Steatoma* between the Cerebrum and Cerebellum, which at first produced Blindness, then Deafness, and, last of all, a Privation of all the Animal Functions.

'Tis easy to discover this Obstruction or Compression in the *Optic Nerve*, because all the Parts are transparent and diaphanous; and, when we discover no Defect in them, we have Reason to suspect an Obstruction of the *Optic Nerve*. But the internal Parts of the *Ear* are not subjected to our Sight; for which Reason 'tis very difficult to discern whether the Fault is in the Organ of Hearing, or in the *Nerve*. But if a Drowsiness or Palsy has preceded the Deafness, or if any of the rest of the Senses is also destroyed, we have Reason to believe, that the Brain, and the *Auditory Nerve*, are either obstructed, or too strongly compressed. In this Case we are to use the same Medicines prescribed in a *Palsy*, as repeated Purges, Vomits, Cephalic Waters and Spirits, Sudorifics, Baths, Masticatories, and Sternutatories. A Compression of the *Auditory Nerve*, produced by a Tumor, is absolutely incurable.

The Disorders already explain'd either impair, or quite destroy, the Sense of Hearing; but what we call a *Tinnitus*, is a Depravation of it; and this Depravation consists in this, that the *Ear* perceives Sounds which have no Existence, or, at least, which are not produced by the Motion of the external Air; so that, being already filled with a certain Species of Sound, it cannot admit the Impressions of external Sounds, unless they are pretty strong and violent.

The Antients imagined, that this Symptom was produced by the Motion and Agitation of the Air, which is lodged within the *Ear*: They also thought, that this Agitation was occasioned by Flatulencies and Vapours being conveyed to the *Ear*; and that those Vapours arose either from the whole Body, as in Fevers; or from some particular Part, such as the Stomach or Brain; or from any pituitous Humours lodged in the Cavities of the *Ear*. They also attempted to account for all the several Differences of *Tinnituses* from the Quality, Consistence, and Motion of the Humours or Vapours collected within the Organs of Hearing. I shall not here make it my Business to point out the Weakness and Absurdity of this Theory, since these will sufficiently appear from the Account of a *Tinnitus*, which I am now to give. I shall only observe, that there is little Probability, that all these different Noises, which People believe they hear, should be caused by something which in reality strikes the *Ear*, in order to produce the Sounds of Bells; for Instance, the Murmurs of Waters, and several other Noises, which People subject to a *Tinnitus* every Day seem to hear; and that 'tis probable, that most Part of these are false Noises, which may be produced in the *Ear* without either Wind or any other Matter striking the Membranes externally, as I shall now shew.

As I apprehend then, a *Tinnitus* consists in the Perception of a Sound which is not real, or, at least, of a Sound which is within the *Ear*. In order to conceive how People may hear Sounds which do not really exist, we must observe, that as the Action of Hearing consists in the Agitation of the immediate Organ appointed for that Purpose, it is sufficient, that, in order to form a Sound, such Agitation be produced, whether it be produced by the Air or not; for just as we conceive that Vision, which depends on the Manner in which the Retina is agitated by the visual Rays, may be performed without these Rays, when some other Causes produce the same Agitation, as happens when the Eyes see Sparkles in the Dark, upon receiving any Blow; so we may also affirm, that when any other Cause, besides the agitated Air, produces in the Organ of Hearing, I mean within the Substance of the Membranes, this Agitation modified in the same manner as it ordinarily is by the Air, which conveys Sounds, the *Ear* appears to be struck with a Sound, which is not more real, than the Sparkles in the other Case are real Light. But what renders this Comparison sufficiently just is, that, as these false Appearances of Light, which are not caused by external Objects, have nothing distinct and determinate, but only a simple Light, the circumstantiated View of an Object demanding a Concurrence of more Circumstances; so it happens, for the most part, that those Noises of the *Ear*, of which we are now speaking, are confused; for the Hummings and *Tinnituses*, which in this Symptom are the most distinct Noises, are still very simple.

In order to determine precisely what may be the Cause of this Agitation in the immediate Organ of Hearing, we need only examine the Disorders in which a *Tinnitus* occurs, and these are Inflammations and Abscesses of the *Tympanum* and *Laby-*

rinth, and the Disorders of the *Meatus Auditorius*. Inflammations of the *Tympanum* and *Labyrinth* necessarily produce Agitations in the *Spiral Lamina*, and in the *semicircular Ducts*; either by the Tension of the Membranes, or by the Vapours which transpire, and mix themselves with the Air in the *Tympanum*; acrid Substances, Worms, extraneous Bodies, a Constriction of the *Meatus* succeeding a Distension of the Glands; and in general every thing which can cause, in the *Meatus Auditorius*, Pain, and the other Symptoms I have mentioned, agitate the Membrane of the *Meatus*, and the *Membrana Tympani*; and this Agitation is able to communicate itself to the immediate Organ of Hearing.

The second Species of *Tinnitus* is, when one perceives a true Noise, but formed within the *Ear* itself. Thus we hear a humming Noise when we stop our *Ears*. This Noise is produced by the Friction of the Hand, or by the Compression which influences the Skin and Cartilages, whose Parts, being put into a Commotion, may produce an Agitation there. The Elasticity of the Air, and the Vapours which continually exhale from Bodies, may also contribute to this Effect, when those flowing from the Hand, joined to those proceeding from the Membrane of the *Meatus*, being pent up, strike the Sides of this Cavity, and produce Agitations, which, though very small, yet form a real Sound, which becomes sensible by reason of the Proximity and Continuity of the Parts, as also by means of the Reflexions which are made in this Cavity when blocked up.

Commotions of the Cranium, and Disorders which contract the *Meatus*, may also produce these Species of *Tinnitus*, if we suppose, that all the Shocks the Cranium receives, are communicated to the immediate Organ of Hearing, by means of the Continuity alone of the Temporal Bone; but this ought to be restrained to the very Time in which the Agitation happens; for those *Tinnituses* which afflict the Patient afterwards, must be accounted for from a Disorder of the Spirits, as we shall afterwards see. In like manner, the Distension of the internal Membrane of the *Meatus*, by rendering it narrower, may produce a like Effect with that of the Hand which shuts up the *Ear*. Besides, it frequently happens, that People feel a Pulsation within the *Ear*, which makes them imagine, that they hear something striking; and this Pulsation is sometimes so strong, that other People may also hear it. A Gentlewoman of *Picardy* afforded me an Instance of this, who, upon the least violent Exercise, feels so troublesome a Pulsation in her *Ear*, that she imagines a Pendulum to be tied to her Head; and this Pulsation is also heard by those who come near her. Now this Pulsation is undoubtedly produced by a dilated Artery, because it always keeps perfect Time with the Pulsation of the Heart; and this Perception of an interior Sound to me seems perfectly analogous to that Symptom observed in imperfect Cataracts. Persons who labour under this Disorder, see Motes and Flies dancing before the Objects they look at; and these Motes and Flies are no other than the thick and viscid Particles beginning to be accumulated in the aqueous Humour, which by their Motion agitate the Retina, and necessarily produce a certain Sensation. But it may be objected; If these are true Sounds, and if the Organ of Hearing distinguishes them as they really are in themselves, why should they be ranked among the Species of *Tinnituses*? I answer, That, in reality, these Sounds are perceived such as they are; but the Sense of Hearing is depraved, so far as it ascribes these Noises to some external Object; just as those in whom a Cataract begins to form itself, attribute the Motes and Flies to external Objects, and stretch out their Hands to catch them.

Besides, I am of Opinion, that there may be a Perception of a false Noise, without any Fault in the Organs of Hearing; which happens when the Parts of the Brain where the Filaments of the Auditory Nerve terminate, are agitated in the same manner they use to be by Objects. What induces me to believe this, is my observing, that many Disorders of the Brain, such as Delirium, Phrensies, and Vertigos, are accompanied with a *Tinnitus*; and that those who are subject to epileptic and fainting Fits, hear humming Noises, which are, as it were, the unwelcome Harbingers of the Paroxysm. As in all these Disorders there is an irregular and tumultuous Motion of the Spirits, it is much more easy to conceive, that the agitated Spirits may put the Extremities of the Auditory Nerve into Commotions, and by that means excite a Sensation of Noise, than to suppose any Fault or Defect in the Organs of Hearing. This Method of accounting for a *Tinnitus* to me appears sufficiently satisfactory and just; and I think I may say, that as the Motion of the Spirits is very irregular and tumultuous in these Disorders, so the Sounds and *Tinnituses* we hear, when labouring under them, must be very different from the Sounds we hear on other Occasions. I shall undoubtedly be told, That this is an Error of the Imagination, and not an Affection of the *Ear*. I agree to it; for 'tis the very thing for which I contend. As 'tis thought we can never hear any thing without the *Ear* being struck, we ascribe all Sounds to that Organ. But 'tis a matter of Indifference, whether the Fibres of the Nerve be agitated

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tated in the Brain, or in the Ear, since in both Cases the same Sensation will be produced. This happens in a manner analogous to that in which a *Vertigo* is produced; in which 'tis obvious, that the circular Motion of the Spirits produces the same Effect as the Objects seen would do, if they were actually in a gyratory Motion; or as it happens to phrenetic Patients, who imagine, that they see Motes, which have no real Existence; and this Symptom is only occasioned by the Agitation of the *Optic Nerve* within the Brain. Thus as we ascribe the Symptoms of Cataracts and Phrenies to a depraved Imagination, we must also ascribe to the same Origin those *Tinnituses*, which succeed the Disorders of the Ear, which very often by no means depend on the Indispositions of the Organs of Hearing.

On this Hypothesis we may establish two Species of *Tinnituses*, one of which is produced by the Disorders of the Brain, and the other by those of the Ear. Those produced by the Disorders of the Ear, as has been already said, are either true or false; and, of these last, some are called *Tinnituses*, some *humming Noises*, some *Tinglings*, and others *Murmurs*. And in general we may affirm, that dull and heavy Noises are produced by a languid Agitation, and sharp tingling Noises by a brisk and lively Agitation, which is sufficiently confirmed by the remote Causes of these Symptoms. Rheums, for Instance, and Suppurations, where the Membranes are relaxed, generally produce a heavy dull Noise; whereas Inflammations, and Pains of the Ear, where the Parts are generally tense and dry, produce *Tinnituses*, and acute Sounds. We have Reason to believe, that all these Noises make the same Impression on the *Spiral Lamina*, and *semicircular Ducts*, that acute and grave Sounds would do.

The Cure of a *Tinnitus*, in general, is to be managed according to the Diseases of the Brain, or Ear, which have produced it. I add, that in *Tinnituses*, or sharp Noises, we must use almost the same Remedies as in acute Pains, and Tensions of the *Membrana Tympani*; and that, in humming heavy Noises, we may use those prescribed against that Pain which is produced by Cold, and against a catarrhus Obstruction; after which it will be no great Difficulty to chuse the most proper, if we only have a due Regard to all the several Circumstances, from which just Indications may be taken. *Du Verney*.

DISORDERS of the EARS. From CELSUS.

Next to the Eyes, Nature has assign'd the most useful Office of Life to the Ears: But Disorders in these latter are the more dangerous; for the Diseases of the Eyes are confin'd to the Parts affected, but Inflammations and Pains of the Ears precipitate the Patient sometimes into Madness, and Death itself. Wherefore we ought to be more careful to apply a Remedy in the Beginning, in order to prevent a greater Danger.

As soon, therefore, as a Person feels a Pain in his Ear, let him betake himself to Abstinence and Rest. On the next Day, if the Disorder be increased, his Head is to be shaved, and anointed with *Unguentum Iridum* hot, and then be cover'd. But a great Pain, with a Fever and Want of Sleep, requires also Phlebotomy. If this be, for some Reasons, judged improper, the Belly is to be evacuated. Hot Cataplasms of Fenugreek, Linseed, or some other mealy Substance boiled in Mulsum, now-and-then changed, have a good Effect. Sponges also wrung out of hot Water, and apply'd at Intervals, are of Service. The Pain being mitigated, a Cerate made of *Unguentum Iridum*, or *Cypripium*, is to be put round the Ear; sometimes what is made of Oil of Roses proves effectual. If the Vehemence of the Inflammation wholly deprives the Patient of Sleep, half the Quantity of bruised Poppy-heads is to be added to the Cataplasma, and these are to be boil'd together in *Passum*, or *Mulsum*.

There ought also to be dropp'd into the Ear some Medicine, which is always to be warm'd, and is most conveniently instill'd by a *Strigil*: When the Ear is sufficiently full, some fine Wool is to be put over it, to keep in the Liqueur. So much is to be done in general.

Particular Medicines are, Rose-water, the Juice of the Roots of Reeds, Oil in which Earth-worms have been boiled, Juice of bitter Almonds, or of Peach-kernels. Compound Remedies for mitigating the Pain and Inflammation, commonly used, are, Castor and Opium bruised together, in equal Quantities, and then mix'd with *Passum*; or equal Quantities of Opium, Saffron, and Myrrh, thus bruised together, and moisten'd at Intervals with Infusions, sometimes of Oil of Roses, sometimes of *Passum*, or the bitter Part of the *Egyptian Bean*; bruised and mix'd with Oil of Roses; to which some add a little Myrrh, or Opium, or Frankincense, with Woman's Milk, or the Juice of bitter Almonds, with Oil of Roses.

Of Pus, and the ill Smell of the EARS.

If the Ears have Pus in them, it will be proper to instil *Lycium* alone, or *Unguentum Iridum*, or the Juice of Leeks with Honey, or the Juice of Centaury with *Passum*, or the Juice of a Pomgranate warm'd in its Shell, with the Addition of a little Myrrh. The following also is a good Medicine:

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Take of that sort of Myrrh call'd *Stacte*, and Saffron, each one Dram two Grains and a half; bitter Almonds, twenty-five; Honey, half a Quarter of a Pint: Pound them together, and, when you use them, let them be warm'd in the Shell of a Pomgranate.

Those Medicines also which are good for an ulcerated Mouth, are effectual for Ulcers in the Ears; but if they are old, and abound with Sanies, or corrupt Matter, the following Remedy, invented by *Erasistratus*, may very fitly be used: It consists of

Pepper, Saffron, each one Dram two Grains and a half; Myrrh, Misy boiled (*coctum*), each two Drams five Grains; burnt Copper, two Drams five Grains: Bruise them in Wine, and, when they are dry, add thereto a Pint and a half of *Passum*, and boil them all together. It is to be used with an Addition of Wine and Honey.

Menophilus's Remedy is also very effectual in this Case: It consists of

Long Pepper, one Dram two Grains and a half; Castor, two Drams five Grains; Myrrh, Saffron, Opium, *Syrian Nard*, Frankincense, Malicorium, the Inside of the *Egyptian Bean*, bitter Almonds, the best Honey, each four Drams ten Grains. While you are bruising them, add thereto some of the strongest Vinegar, till the Whole becomes of the Consistence of *Passum*.

If there be much Pus, with an ill Smell,

Take of Verdegriese, Frankincense, each two Drams five Grains; of Honey, one Sixth of a Pint; of Vinegar, one Third of a Pint: Boil them all together, and use them with an Addition of sweet Wine. The Juice of Henbane also is, of itself, very effectual in this Case.

A common and approved Remedy for all Disorders of the Ears, is the following, which was compos'd by *Asclepiades*:

Take of Cinnamon, Cassia, each one Dram two Grains and a half; the Flowers of the round Juncus, Castor, white and long Pepper, Amomum, Myrobalans, each two Scruples; Male Frankincense, *Syrian Nard*, fat Myrrh, Saffron, Spuma Nitri, each two Drams five Grains: Bruise them first separately, then mix them, and bruise them over again in Vinegar, and so put it by for Use. When you have Occasion to use them, dilute them with Vinegar.

If the Ear run with Sanies, and there be a Tumor, it will not be improper to syringe the Ear with mix'd Wine, and afterwards to instil some austere Wine mix'd with Oil of Roses, to which a little Spodium may be added; or instil Lycium with Milk, or the Juice of the *Herba Sanguinalis* with Rose-water, or the Juice of a Pomgranate with a little Myrrh.

Of a SORDID ULCER of the EARS.

If the Ulcers be sordid or foul, it is best to wash them well with Mulsum, and then use some or other of the Remedies before prescribed, mix'd with Honey. If Pus run the more, the Head is to be shaved, and wash'd with Plenty of hot Water, which is also to be gargled: The Patient must walk till he be tired, and be sparing in his Diet. If a bloody Matter issue from the Ulcer, Lycium with Milk is to be infused into the Ear; or Water boiled with Roses, and mix'd with the Juice of the *Herba Sanguinalis*, or *Atacia*.

If Flesh be grown over the Ulcers, and the same be of an ill Smell, and Blood issues from it, it must be well wash'd with warm Water; after which a Decoction of Frankincense, Verdegriese, Vinegar, and Honey, or a Decoction of Verdegriese and Honey, is to be infused into the Ear; or Squama *Aëris*, beaten up with Sandarach, are to be instill'd into the same through a Pipe.

Of WORMS in the EARS.

Worms bred in the Ears, if they lie near enough, are to be drawn out with an Ear-probe; if they are too remote, you are to destroy them with Medicines, and be careful to prevent their future Breeding. White Hellebore, bruised in Vinegar, is effectual to both these Purposes. The Ear also is to be rinsed with a Decoction of Horehound in Wine, which will cause the dead Worms to slide towards the exterior Parts of the Ear, when they may very easily be taken out.

For an OBSTRUCTION in the AUDITORY PASSAGE.

If the Auditory Passage be stuffed, and a thick Sanies lies within the Cavity, some of the best Honey is to be put into the Ear: If this has but little Effect, you must add to half a Quarter

ter of a Pint of Honey, two Drams five Grains of Verdegriſe, and boil them together for Uſe. Iris, with Honey, is effectual for the ſame Purpoſe, or two Scruples of Honey and Roſewater: Or,

Take of Galbanum, two Drams five Grains; Myrrh, Honey, and Bull's Gall, each two Drams five Grains; Wine enough to dilute the Myrrh.

For THICKNESS of HEARING.

If a Thickneſs of Hearing come upon a Perſon, which commonly happens after an inveterate Head-ach, the Ear is, firſt of all, to be examin'd; for either a Cruſt, ſuch as grows over Ulcers, or a Collection of Sordes; will appear in View. If there be a Cruſt, ſome hot Oil, or Honey and Verdegriſe, or Juice of Leeks, or Muſcum with a little Nitre, muſt be pour'd into the Ear: When the Cruſt is looſen'd, the Ear is to be riſed with warm Water, which may render the mollify'd and ſeparated Matter more eaſy to be extracted by the Ear-probe. If there be Sordes, and thoſe of a ſoft Kind, they are to be extracted with the ſame Probe; if they are hard, Vinegar with a little Nitre is to be injected, and the mollify'd Matter is to be extracted, and the Ear cleanſed as before. If there remains a Heavineſs of the Head, it is to be ſhaved, and rubb'd gently, but for a long time, and anointed with Oil of Iris, or of Bay, a little Vinegar being mix'd with either of theſe Oils. Then the Patient is to walk for a long while together; and, after Uñction, the Head is to be gently fomented with warm Water. The Food muſt be very low, and Aliments of a middle Nature only are to be taken, and Drink much diluted: Gargarifms are ſometimes to be uſed. Injections alſo are to be made into the Ear, of Caſtor with Vinegar, and Oil of Bay, and the Juice of the Rinds of Radishes, or of wild Cucumbers, adding that of Roſe-leaves bruifed. The Juice of unripe Grapes, inſtill'd with Oil of Roſes, is good alſo againſt Deafneſs.

Of a NOISE in the EARS.

There is another Kind of Diſorder, when the Ears ſound within themſelves; whence alſo it comes to paſs, that they are diſabled from receiving external Sounds. The Diſorder is flighteſt, when it proceeds from a Cold; worſe, when it is cauſed by a Diſeaſe, or an inveterate Head-ach; but worſt of all, when it takes its Riſe from the Approach of ſome great Diſeaſe, and eſpecially the Epilepſy.

If the Diſtemper proceeds from a Cold, the Ear muſt be cleanſed; and the Patient muſt hold his Breath, till ſome Humour froth out of his Ears. If a Diſeaſe, or Head-ach, be the Cauſe, the ſame Directions, as to Exerciſe, Friction, Perfuſion, and Gargarization, are to be obſerved as in the preceding Diſorders; and the Patient muſt keep to an extenuating Diet. The Juice of Radish, with Oil of Roſes, or with the Juice of wild Cucumber-roots, or Caſtor in Vinegar and Oil of Bay, are to be injected into the Ear. White Hellebore, bruifed in Vinegar, and afterwards infuſed in boil'd Honey, and made into a Collyrium, is to be put into the Ears. If the Diſorder be owing to none of theſe Cauſes, but terrifies the Patient with an Expectation of ſomething worſe, Caſtor with Vinegar, or with Oil of Iris or Bay, is to be put into the Ear; or Caſtor, mix'd with Oil of Bay, and Juice of bitter Almonds; or Myrrh and Nitre, with Vinegar and Oil of Roſes. But in this Caſe alſo there is more to be expected from a Regimen of Diet, in which the ſame Advice is to be follow'd, only with greater Strictneſs, as was given before; with this Addition, that as long as the Ringing in the Ears continues, the Patient muſt wholly abſtain from Wine.

If the Noiſe be attended with an Inflammation, the Ear muſt be abundantly mollify'd with Oil of Bays, or Oil of bitter Almonds, with which ſome mix Caſtor, or Myrrh.

How to extract Things fallen into the EARS.

Things ſometimes happen to fall into the Ear, ſuch as little Pebbles, or Animals. If a Flea be got into it, a little Wool is to be ſtuffed into the Cavity; into which the Animal may get, and ſo be taken out. If the Flea does not follow, or if be another Animal, take a Probe wrapt in Wool, and, dipping it in ſome very glutinous Reſin, particularly of Turpentine, introduce it into the Ear, and turn it about; by which means you will certainly take hold of the Creature, and ſo pull it out. If there be any thing dead, it muſt be extracted with the Ear-probe, or a blunt Hook, a little bent. If theſe fail, it may be drawn out with Reſin, in the ſame manner as the other. Sternutatories alſo are a convenient means to force it out, or an Ear-clyſter (*Oricularia Clyſtere*), the Water being forcibly impell'd into the Ear.

A Board alſo is ſometimes placed in ſuch a manner, as to be ſupported at each Extremity, and the Patient is bound upon this Board, with the affected Ear towards it, ſo as the Ear does not reach beyond the Board; then that Extremity of the Board, next the Patient's Feet, is to be ſtruck with a Hammer, and

what was in the Ear falls out by the Concuffion. *Celfus, Lib. 6. Cap. 7.*

DISORDERS of the External EAR.

Sometimes there happens a Fracture of the Cartilage of the Ear, in which Caſe, before Pus is found, a conglutinating Medicine is to be apply'd; for it often prevents a Suppuration, and confirms the Ear. Now we ought not to be ignorant, with regard to the preſent Subject as well as the Noſe, that the Cartilage itſelf is not conglutinated, but the Fleſh about it increaſes, and the Place is conſolidated; therefore if the Skin be broken, with the Cartilage; it is ſow'd up on both Sides; but I now ſpeak of a Fracture where the Skin remains entire. In this Caſe, if Pus be already generated, the Skin muſt be open'd in another Part; and the Cartilage againſt it be cut out, making a Wound in Form of a Creſcent (*Lunata Plaga*); after which ſome gentle Styptic muſt be apply'd to ſtop the Blood, ſuch as Lycium dipt in Water. This done, let a Linen Cloth with a Plaiſter be laid on the Place, avoiding all fat Things; and behind the Ear let fine Wool be apply'd, ſufficient to fill the Vacuity between that and the Head: After this, the Wound is to be gently bound up, and on the third Day fomented with a Vapour-bath. Abſtinence is as neceſſary, in the Beginning, in this as well as other Caſes, till the Inflammation ceases. *Celfus, Lib. 8. Cap. 6.*

For a CONTUSION of the EARS.

Hippocrates adviſes to let it alone; but; ſince we are often compell'd by the Patients themſelves to do ſomething;

Take of Myrrh, Aloes, Frankincenſe, Acacia, of each an equal Quantity; and, mixing them with Vinegar, or the White of an Egg, anoint the Part. Or,

Take the Inſide of a hot Loaf, and bruife it in a Mortar with Honey, and ſo apply it. Or,

Take of Bitumen, Frankincenſe, Aloes, the Fleſh of Houſeſnails, African Bulbi, of each an equal Quantity; bruife them in Vinegar, and ſo uſe them.

If an Inflammation ariſe, apply a Cataplaſm of Sefamum, or Alica, boil'd in Vinegar. Let the Cataplaſms be but thin, and not bound on, or but very ſlightly; and put Wool, moiſten'd with Oil, into the Hollow of the Ear. *P. Æginet. Lib. 3. Cap. 23.*

WOUNDS of the External EAR.

Wounds of the external Ear are either to be united and conſolidated by means of agglutinating Plaiſters; or, in Caſes where the Cartilage is quite cut aſunder, by the Aſſiſtance of proper Suture, taking care at the ſame time to dreſs the Part affected with Lint, ſoak'd in ſome vulnerary Balfam, and to ſecure the Dreſſing by proper Bolſters and Bandage. In Wounds of the Ear, happening near the *Meatus Auditorius*, we are to take particular Care, that no Blood, or other Matter, be allow'd to enter it, ſince, by that means, the Membrane of the *Tympanum* could not fail to be injured. In order, then, to prevent this Inconvenience, we ought always, on Occaſions of this Nature, carefully to guard the internal Ear by means of Lint, or Cotton, put into it. *Heiſter. Inſtitut. Chirurg.*

Of an IMPERFORATION of the AUDITORY PASSAGE.

This Defect is from the Birth, the Paſſage of Hearing being ſtopp'd by a Membrane, which ſometimes appears on the Superficies, ſometimes is deeply ſeated. It may alſo happen after the Birth, from a preceding Ulceration of the Parts about the Paſſage, by which means Fleſh grows over it, and ſtops it up.

If the obſtructing Membrane be deeply ſituated, the Undertaking is difficult; we ought, however, to attempt the Cutting it by ſome ſmall Inſtrument: If it lie on the Superficies, we are to cut it with a ſharp Knife, and, if it be neceſſary, take it quite off. If Fleſh be grown over the Paſſage, it muſt alſo be taken off with the Knife that is made for cutting out a Pterygium or Polypus: Afterwards we take a Linen Tent, of a Size adapted to the Paſſage, and, moiſtening it with Water, roll it in Chalcitis powder'd, or ſome other Powder of that Kind, and thruſt it into the Cavity, in order to prevent the Growth of new Fleſh. If there be an Inflammation, we immediately withdraw it; if Blood iſſue from the Paſſage, we apply a Sponge dipp'd in cold Water, and uſe other proper Means. *P. Æginet. Lib. 6. Cap. 23.*

Some Children have the Miſfortune to be brought into the World with the Auditory Paſſage cloſed up, and obſtructed by means of a certain preternatural Coat, which is ſometimes thicker, and ſometimes thinner; ſometimes diſcover'd as ſoon as they are born, and at other times not to be perceived, till the Children growing up, a Privation of Speech too palpably betrays it; for Deafneſs, and an Incapacity of uttering articulate Sounds, are generally inſeparable Attendants upon each other.

other. For this Reason, when we find, that a Child does not begin to speak at the Age in which other Children usually do, we are to take a very minute and careful Survey of his Tongue and Ears; for it frequently happens, that some Fault lies latent in the inner *Ear*, by means of which the natural Capacity of Hearing is prevented and destroy'd; and this Defect is removed with more or less Difficulty, in proportion as it is seated deep and remote in the *Ear*, or near its Entrance: For when the very Entrance of the Passage is closed up by means of a certain Coat, the Cure is soon brought about; but when this Coat lies deeper, the Cure is less certain, and more difficult; because in the last-mention'd Case, in our Attempts to cut or remove the preternatural Coat, the Membrane of the *Tympanum*, which lies immediately behind it, is generally wounded along with it. In Cases where a preternatural Membrane closes up the very Entrance of the Passage, 'tis proper to make a crucial Incision into it, and prevent its Reunion, by means of a Tent kept in it as long as the Circumstances of the Case seem to require. By this Method the deaf Patient, if free from every other Defect, will, in all Probability, receive his Sense of Hearing, together with its natural Consequence, a Capacity of Speech. If, on the contrary, this superfluous and preternatural Membrane should happen to lie so deep, as to be contiguous to the Membrane of the *Tympanum*, the Cure, as I have already said, is generally doubtful and uncertain. But because, in this Case, little, or rather no Relief at all, is to be expected without an Operation, it seems far more advisable, on some Occasions, to attempt a Cure, tho' it should prove unsuccessful, than to suffer the Patient to remain without any Assistance, and abandon him to Despair. And when the Operation is undertaken, this superfluous and preternatural Coat is to be cut, either longitudinally or transversely, as the Circumstances of the Case require; but the Operator ought to have an exact and steady Hand, lest with the Point of his Incision-knife he should wound, or even quite pierce through, the Membrane of the *Tympanum*, which, in the Ears of Children, does not lie very deep.

Of EXTRANEOUS SUBSTANCES in the AUDITORY PASSAGE.

Not only small Pebbles, but Glass, Beans, and Carob-stones, may fall into the Ears. As for Glass and Pebbles, they remain in their proper Bigness; but Beans, and Carob-stones, and other things of that Nature, by imbibing the natural Humidity of the Body, swell, and occasion very great Pain.

Your only way then is, to take them out, either with the Ear-probe Hook, or Forceps, or to get them out by violent Concussion, placing the Ear upon a sort of Circle. I have often extracted such things, as well as Water fallen into the Ears; by Suction with a Reed, putting Wax about the End of the Reed next the Ear, in order to exclude the Air. For Pebbles, and such Matters, I got them out by putting some Wool about a Probe; and after smearing it with Resin of Turpentine, or some other glutinous Substance, gently introducing it into the Chanel of the Ear. If this Way does not succeed, give a Sternutatory, and stop the Mouth and Nostrils; but if this also be ineffectual, we must have recourse to Surgery, before an Inflammation or Convulsions come on, or the Case be dangerous.

Placing therefore the Patient upon the opposite Ear, we make a small lunar Section at the Basis of the Ear, behind the Part called the Lobe, and with the Hollow of the Probe take out the offensive Matter; we then sew up the Wound, and perfect the Cure with Vulneraries. *P. Aeginet. Lib. 6. Cap. 24.*

In what Manner preternatural Substances lodged in the EARS, and Things that have casually fallen into them, are to be extracted.

The Wax of the *Ear*, which was originally designed for excellent Purposes, is sometimes preternaturally indurated; and sometimes extraneous Substances, such as a Pea, a Bean, a small Stone, a Cherry-stone, an Animal of a small Size, or other Things of a like Nature, fall accidentally into the Auditory Passage. Now two very important Reasons concur to render a cautious and expeditious Extraction of such Substances highly proper and necessary: The one is, that the Patient may be speedily freed from those Pains, which, in Cases of this Nature, are sometimes very violent: The other is, that he may not be deprived of his Sense of Hearing.

Which of the above-mention'd Substances is lodged in the *Ear*, may be learn'd not only from the Relation of the Patient himself, but also by an Inspection of the *Ear*, or by introducing proper Instruments, or Probes, for that Purpose. In Cases where the Wax, being preternaturally indurated and dry'd, either renders the Hearing dull, or destroys it altogether, the most proper and efficacious Method which can be taken, is to drop a little of the Oil of Olives, or Almonds, or even a little warm Milk, into the affected *Ear*; ordering the Patient at the same time to recline his Head the opposite Way. A few Mi-

nutes after this, we must introduce a proper Ear-probe, and with it draw out the offending Matter by little and little. And if it should happen, that the Wax is harder than to admit of being soften'd, and extracted by taking these Measures once, they are to be repeated in the same manner again and again, till such time as the obstructing Matter is entirely remov'd. But if a small Stone, or Cherry-stone, is lodged in the *Ear*, the Passage ought carefully to be lubricated, by dropping a little tepid Milk or Oil into it; after which a proper Ear-probe, or such a Forceps as is represented by Letter E in *Tab. 22.* is to be introduced, and the offending Substance extracted with the utmost Caution and Delicacy. If a Pea, a Bean, or any other Substance of a like Nature, should happen to be lodged in the *Ear*, and become turgid, by means of the Humours and Moisture which surround it, our most expeditious Method of Relief, if it can neither be extracted by the Probe nor Forceps, is to introduce a very small Knife, with which we must divide the tumefied Body with all possible Caution, and then extract the several Parts of it one after another.

Sometimes very small Animals, or Insects, are also lodged in the *Ear*, and excite a very troublesome Titillation or Itching, and sometimes very acute Pains, by their Efforts to disentangle themselves from the Wax in which they stick. In this Case, if the Animal or Insect can be discovered by the Eye, it is to be forthwith extracted by the Probe or Forceps. But if it cannot possibly be seen, the most safe and commodious Method we can take is, to drop some Oil of Almonds or Olives, or even some tepid Spirit of Wine, into the Patient's *Ear*; and to order him to recline his Head to the opposite Side, that the Liquor may be retained, till we think the Animal or Insect is killed; for by the above-mentioned Substances all Animalcules or Insects whatever are very speedily destroy'd. Then the Liquor dropt into the *Ear* is to be discharged, and the Passage to be carefully cleaned, by means of a Probe armed with Lint or Cotton. Some Physicians in this Case order bitter Liquors, such as the Decoction of Wormwood, or of Colocynthis, to be dropp'd into the *Ear*, because these Substances also generally kill Animalcules or Insects. But in my Opinion Oils, and Spirit of Wine, are, on these Occasions, preferable to any other Liquors whatever, since some Species of Animalcules are so far from being kill'd by bitter Substances, that they rather delight in them; whereas no Species of Insect can be found, to which Oils, and Spirit of Wine, do not prove mortal.

Of TUBERCLES form'd in the MEATUS AUDITORIUS.

'Tis no uncommon Thing for Tubercles, or certain Excrescences of Flesh, to arise in the auditory Passage, which not only prove very uneasy to the Patient, but also do a considerable Injury to the Sense of Hearing. If this Disorder is recent, the Tubercles, or superfluous Flesh, may, for the most part, be destroy'd by the Use of corroding Medicines: But we must, in this Case, take care, that the deeper and more internal Part of the Passage be sufficiently guarded, and clos'd up with Lint or Cotton; lest, in Consequence of a Neglect of this kind, any Part of the corroding Application should reach the Membrane of the *Tympanum*, and prove injurious to it: For which Reason it seems generally most advisable to use a Knife, or the Scissors, for extirpating Tubercles of this kind, especially when they do not lie deep and remote in the Passage. But when a Protuberance of this Nature lies more conceal'd, and at a greater Distance from the external Orifice of the Passage, we must use small Hooks, and a proper Forceps, for drawing it towards us, and then extirpate it as effectually and safely as we possibly can; after which, 'tis proper to apply the Lapis Infernalis, again and again, to the remaining Roots of the Tubercle, till we have, by little and little, so thoroughly extirpated them, as to leave but small Probability of the Tubercle's rising afresh. If corrosive Medicines do not answer the Intention, and if the Tubercle does not lie too deep and remote, a proper actual Caustery may sometimes be us'd with Success. And, lastly, that Ligatures may be properly and commodiously us'd in the Extirpation and Cure of Tubercles of this kind, is abundantly plain, from the Cases describ'd and illustrated with Figures in *Hildanus, Cent. 3. Obs. 1.* and in the *Chirurgia of Purmannus, p. 280.*

For the Method of burning the *Ear*, in order to cure the Tooth-ach, see ODONTALGIA.

Of ACOUSTIC Instruments, such as are intended to assist the HEARING.

As the Sight is assisted by Spectacles, or other Glasses contriv'd for that Purpose, so the Hearing is sometimes enliven'd, and render'd quick, by means of proper Instruments, which we call *Acoustics*. Tho' these are of very various Figures, and for the most part bear some Resemblance to a Trumpet; yet I have generally found, that those were most commodious, and best answer'd the End, which were like a kind of Pipe, a little bend'd, narrow at the Beginning, but diverging and growing wider, like a Trumpet, at the other Extremity, such as that represented in *Tab. 40. Fig. 2.* Those also describ'd by *Nuck and Deckers,*

Deckers, and represented in Tab. 40. by Fig. 3. and 4. are highly recommended. The two first of these Instruments, represented by Fig. 2. and 3. are us'd, by introducing the slender Part, A, into the Ear, and holding them in that Position by the Handles, B. The third of these Instruments, exhibited in Tab. 40. Fig. 4. being very small, and wreath'd up in form of a spiral Shell, is, by *Deckers*, in *Exercitat. Practicis*, recommended as the most commodious of all others; because, in consequence of its Smallness, it may be so conceal'd under one's Hair, or a Wig, as scarce to be observable; whilst the slender Part, represented by A, is introduc'd into the Ear, and the Chords represented by B B carried round the Ear, in order to secure it. But, after the most accurate Observation, I have found, from Experience, that the two last-mention'd of these Instruments are not so contriv'd, as to answer the Intention so well as the first of these Instruments, represented by Fig. 2. which, besides the Advantage of its Simplicity, I have always found to be more useful, in Cases of this Nature, than the other two. Some Years ago there was a public Report, that one *Truchet*, a French Monk and Mathematician, who, for the singular Excellence of his Genius, was created a Member of the Royal Academy of Paris, had, in that City, contriv'd a certain acoustic Instrument, which was not only so small as that it might be conceal'd within the Ear, without projecting in the least, but also so exquisitely adapted to the Intention, as to prove surprisingly beneficial to the Hearing. But what sort of Instrument this may be, or whether its Use is attended with such uncommon Advantages, are Circumstances of which I have not yet got sufficient Information; tho' I have not only diligently inquir'd after these Particulars, of some German Physicians of my Acquaintance, who resided for some time at Paris, but also endeavour'd to get Satisfaction in this Point, by writing Letters to some Surgeons and Physicians of Paris. It were, however, to be wish'd, that Men of a mechanical Turn were more solicitous and industrious in contriving an Instrument of this kind, since it could not fail to be of singular Use and Advantage to Numbers of their Fellow-creatures. Some Years ago *Reusner*, a Physician of Silesia, in *Ephem. Nat. Cur. Cent. 5. Obs. 6.* recommended the Use of a certain Pipe, made of gilded Silver, and about a Span in Length, in a Difficulty of Hearing, as also in Pains and ringing Noises of the Ears. He order'd this Pipe to be introduc'd into the affected Ear, twice or thrice every Day; and asserted, that, by Suction; the pernicious Air, which, he suppos'd, prov'd injurious to the Ear, and excited the above-mention'd Disorders, might be exhausted. But as 'tis very much to be doubted, whether this pernicious Air is the Cause of these Disorders of the Ears, so neither have I been able to discover, why this Pipe should be made of Silver, rather than any other Metal, why it should be gilt, or what its particular Form or Size should be, since he has not describ'd it. In the mean time, 'till better and more commodious Instruments for assisting the Hearing are found out, I must, from my own Experience, recommend that simple Instrument, almost of the Shape of a Horn, made either of Brass or Silver, and represented by Fig. 2. as the most useful and efficacious in Disorders of this kind.

The Method of boring the LOBES of the EARS.

The Method of boring the Lobes of the Ears is thus: First of all, the Place to be pierced, which ought to be the Middle of the Lobe, is to be mark'd with Ink. Then, taking the Extremity of the Lobe in one Hand, and a common Steel Needle, of a pretty large Size, in the other, you are to perforate the Middle of the Lobe, in the very Part mark'd. Then you are to pass thro' the Perforation a Thread, or round Piece of Lead, such as that represented Tab. 40. Fig. 7. This must be bended into the Form of a Ring, which, for some succeeding Days, must be anointed twice or thrice a Day with Oil of Eggs, or St. John's-wort, and now-and-then gently mov'd backwards and forwards, 'till the Lips of the Perforation are indurated, and healed. But, in performing this Operation, 'tis advisable to perforate a little higher than the Middle or inferior Parts of the Lobe; lest, by the Leaden Ear-rings, or Filaments, its Extremity should be dilacerated. But, for performing this Operation with the greater Accuracy and Expedition, some of the later Physicians have invented an Instrument for this very Purpose, which is represented Tab. 40. Fig. 5. Between the two Plates of this Machine, the Ear is plac'd, in such a Position, that the Hole, B, shall exhibit to the View the Part of the Ear mark'd for Perforation. Then the Ring, A, is to be drawn so far up, as to fix and secure the Lobe sufficiently. Then, by means of a Steel, a Golden, or a Silver Needle, either of the common Form, or, which is better, by one hollow at one of its Extremities, such as that represented in Fig. 6. A B, the Lobe itself is so perforated, that the leaden Filament, represented by Fig. 7. which is inserted within the hollow Part of the Needle, may be left in the Perforation by way of Ear-ring; which, as I have already said, must be gently mov'd backwards and forwards, till the Lips of the Perforation are heal'd. But, instead of this Needle, I think we

may still more commodiously use that represented by Fig. 8. which, at its obtuse Extremity, is divided like a Larding-pin, that it may the better retain and transmit the Leaden Filament, which is to be introduc'd into the Division, after half of the Needle is pass'd thro' the Lobe. But tho' Perforation of the Ears is generally perform'd, rather with a View to gratify the Fair Sex with the additional Ornaments of Ear-rings, than for any medicinal Purposes; yet, if we may believe *Riverius*, *Obs. Medic. 100.* and some other Physicians, it is so noble and effectual a Remedy against some Disorders, that none can possibly exceed it: For, says *Riverius*, if a triangular red-hot Needle is pass'd thro' the Lobe of the Ear; and if, as in a Seton, a Cord of Linen or Silk is introduc'd into the Perforation, in order to keep it open, by drawing it backwards and forwards; 'tis scarce credible what a large Quantity of noxious Humours shall be deriv'd to the Part, and discharg'd, or how successfully the most terrible Disorders of the Eyes, the Teeth, and even the Breast itself, may be cur'd, and the Danger of a Consumption carry'd off by this means. So that 'tis no wonder if some of our modern Physicians, especially such as are employ'd in curing Disorders of the Eyes, have begun by degrees to introduce the Perforation of the Ears into Practice. *M. A. Severinus* [*Lib. de Effic. Medic.*] also asserts, with *Paracelsus*, that this Operation is peculiarly advantageous in a beginning Deafness. *Heister. Institut. Chirurg.*

Explication of the Figures exhibited in Tab. 19. relative to the Organ of HEARING. From Du Verney.

Fig. 1. Represents the temporal Bone as large again as it naturally is, with its squamose Parts cut off, and its long Canal as much abraded as is necessary to give a fair and open View of the *Membrana Tympani*.

A exhibits a fore Prospect of the *Membrana Tympani* in its natural Situation.

B the Manubrium of the Malleus apply'd behind this Membrane.

C the long Branch of the Incus which appears thro' this Membrane, though 'tis situated at a small Distance from it.

D the Head of the Malleus.

E the solid Part of the Incus, with its short Branch.

F these discover'd by this Dissection of the adjacent Parts.

G the bony Canal half abraded.

H the Mastoid Apophysis.

I the Styloide Apophysis.

K the external Muscle of the Malleus in its natural Situation.

L a prick'd Line denoting the slender Apophysis of the *Malleus*, in which this Muscle is inserted.

Fig. 2. Exhibits a lateral Prospect of the *Membrana Tympani*, that its Inclination may be the better observed.

Fig. 3. Exhibits the same Prospect of the *Membrana Tympani* inserted in the Extremity of the bony Canal. It also represents the Manner in which that Side of the bony Canal, which is nearest the Face, lies distant at its lower Extremity from the *Membrana Tympani*, and how it insensibly approaches to it in proportion as it ascends. A, A, A, that Side of the bony Canal which lies nearest the Face.

Fig. 4. Exhibits a lateral View of the Incus and Stapes in their natural Situation.

A represents the solid Part of the Incus:

B its short Branch, of which, in this Disposition of the Parts, we have a fore Prospect.

C its long Branch.

D the Head of the Stapes join'd to the long Branch of the Incus, by means of the fourth small Bone.

Fig. 5. Represents the Rostrum or Beak of the long Branch of the Incus, the fourth small Bone, and the Head of the Stapes with its Cavity; but all four times as large as their natural Bulk.

A the Rostrum of the long Branch of the Incus.

B the fourth small Bone.

C the Head of the Stapes with its Cavity.

Fig. 6. Represents the Stapes five times as large as its natural Bulk.

A the Head of the Stapes.

B its Neck.

C C its Branches fulcated.

D its Basis.

E the Membrane of the Stapes.

Fig. 7. Represents the Basis of the Stapes in the same Situation, in order to shew, that it is also fulcated.

D the Basis of the Stapes.

Fig. 8. Represents the Stapes with its Muscle in their natural Situation.

A the Stapes.

B its Muscle: But both as large again as their natural Bulk.

Fig. 9. Represents the small Bones in the Situation, in which they are seen, when the Eye is apply'd to the Duct, which penetrates into the Mastoide Apophysis.

- A the solid Part of the Incus.
- B a fore View of its short Branch.
- C its long Branch.
- D a posterior View of the Manubrium of the Malleus.
- E represents the superior Part of the Stapes.

Fig. 10. Represents the small Bones in their natural Situation, as they are seen on the opposite Side when the Eye is apply'd to the Duct which goes from the Ear to the Mouth.

- A the Head of the Malleus, which conceals the solid Part of the Incus, and its short Branch.
- B the Manubrium of the Malleus.
- C the long Branch of the Incus.
- D a side View of the Stapes. In this Representation of the small Bones, a small Rod is across, in order to shew what is superior, and what inferior, according to the various Views and Prospects.

Fig. 11. Exhibits a posterior View of the temporal Bone as much abraded as is necessary, to expose the *Membrana Tympani* to the Sight. Upon which Membrane are discover'd the *Malleus* and *Incus* in their posterior and anterior Views, together with that small nervous Branch call'd the *Chorda Tympani*, as also the Tendon of the external Muscle of the Malleus, all in their natural Situation: As also the Cavity which receives the Head of the Malleus; and the solid Part of the Incus.

- A a posterior Prospect of the squamose Part of the Temporal Bone.
- B the Mastoide Apophysis exhibited in the same Situation.
- C C the Os Petrosium abraded.
- D the *Membrana Tympani*.
- E the Malleus.
- F the *Incus*, whose short Branch lies upon the Entrance of the *Meatus*, which penetrates into the Sinuses of the Mastoide Apophysis.
- G the Foramen of the Auditory Nerve.
- 1. the Tendon of the external Muscle of the Malleus.
- 2, 3. the *Chorda Tympani*.

Fig. 12. Represents the half of a Head, less by a third than the natural Bulk, with the whole superior Part of the Cranium taken away, and the remaining Part cut perpendicularly thro' the Middle of the Nose, that the Orifice of the Duct coming from the Ear to the Palate may be discover'd.

- A A the Cavity of the Nose, with its Laminæ.
- B the Bottom of the Palate.
- C the Orifice of the Duct coming from the Ear to the Palate.
- 1. its cartilaginous Side, which forms a Border resembling a Crescent.
- D the Wind-pipe cut thro' the Middle.

Fig. 13. Represents the Temporal Bone as large again as its natural Bulk, and prepar'd in such a manner as to expose to View the *Cochlea*, and the *semicircular Ducts*, in their natural Situation.

- A the Arch of the Vestibulum.
- B the *Fenestra Ovalis*, mark'd by a prick'd Line.
- C the *Fenestra Rotunda* open.
- D the *Spiral Lamina*, mark'd by a prick'd Line, separate from the spiral Canal which covers it; and from the Membrane by which it adheres to the Surface of that Canal.
- 1, 2, 3. the three *semicircular Ducts* in their natural Situation. 1. the Superior. 2. that in the Middle. 3. the Inferior. That in the Middle, and the Inferior, are open, in order to shew, that they are hollow.

Fig. 14. Represents the Covering of the *Cochlea* taken off, and view'd internally, in order to discover the *Spiral, Semioval Canal*.

N. B. This is also represented *Tab. 9. Fig. 2.*

Fig. 15. Represents the *Cochlea* several times larger than the natural Bulk, and view'd according to its Height. In order to view it in this Situation, the anterior Part of its Covering is only raised by a perpendicular Section, which shews in what manner the *Lamina* makes two Circumvolutions and an half round the Spindle; in what manner it adheres to the Surface of the Canal, which serves instead of a Vault to it; and lastly, in what manner the Sides of this Canal, adhering to the Spindle, become as small and slender as the *Lamina* itself.

- A the inferior Portion of the *Vestibulum*, which did not naturally belong to this Figure, but was left in order to shew in what manner the spiral *Lamina* comes out of its Cavity, and passes before the *Fenestra Rotunda*.
- B the *Fenestra Rotunda* shut up by a Membrane as slender as the *Membrana Tympani*.
- 1, 2, 3. the two Turns and an half made by the *spiral Lamina* round the Spindle.

4, 5, 6. the two Turns and an half made by the spiral Duct.

4, 5, 6. the two Turns and an half made by the spiral Duct.

Fig. 16. Represents the spiral *Lamina* suspended in the Air, and several times larger than its natural Bulk, together with the Membrane by which it adheres to the Surface of the Canal.

- 1, 2, 3. the *spiral Lamina* itself.
- 4, 5, 6. the Membrane which adheres to it, and which appears to be separated from it by an intermediate Line.

Fig. 17. Represents the Spindle several times larger than its natural Bulk; upon which we may observe the Traces of the Circumvolutions of the *spiral Lamina*, and *spiral Duct*.

- 1, 2, 3. the Traces of the Circumvolutions of the *spiral Lamina*, which are pierc'd with several small Holes, which give Passage to the Filaments of the auditory Nerve.
- 4, 5, 6. the Traces made by the Edges of the spiral Duct.

Fig. 18. Represents the *Cochlea* in an erect Position, with one half cut off by a perpendicular Section, almost as in *Fig. 3.* except that in this the Bone is more abraded. This Figure is only designed for the Illustration and better understanding the third Figure. It is sufficient to observe, that in this the *Lamina* appears separated from the Surface of the Duct, that the interior Part of this Duct may appear the more conspicuously, and that we may see more distinctly in what manner its Sides are lengthen'd out in order to be join'd to the Spindle.

Fig. 19. Represents the *Vestibulum* and the three *semicircular Ducts* open, in order to discover the Distribution of their Vessels:

- a the arterial Branch, which enters the *Vestibulum*.
- b a small Branch of this Artery, which passes thro' the common Entrance of the *Vestibulum*, and distributes itself to the superior and inferior *Ducts*.
- c the Branch which distributes itself over the middle *Duct*.

Fig. 20. Represents the Arteries of the *Cochlea, Vestibulum*, and three *semicircular Ducts*.

- A the *Fenestra Rotunda*.
- B the Aperture of the Duct affording a Passage for the Vessels; this is at the Entry of the inferior Winding of the *Cochlea*. It appears, that one Part of these Vessels is distributed to all the *Cochlea*, and another to the *Vestibulum*, and three *semicircular Ducts*, which last are represented as suspended in the Air.

Fig. 21. Represents a Portion of the *Vestibulum*, and the three *semicircular Ducts*, suspended in the Air, in order to shew their natural Situation, and their Orifices.

- A the inferior Portion of the *Vestibulum*.
- B the superior *Duct*.
- C the inferior.
- D that in the Middle.
- 1. the Orifice of the superior *semicircular Duct*.
- 2. the first Orifice of the middle *Duct*.
- 3. the Orifice of the inferior *Duct*.
- 4. the other Orifice of the middle *Duct*.
- 5. the common Orifice of the superior and inferior *Ducts*.
- 6. the first Aperture, which affords a Passage to one of the Branches of the soft Portion of the auditory Nerve.
- 7. the second Aperture, which affords a Passage to another Branch of the same Nerve.

Fig. 22. Represents the *Vestibulum* in the same Situation as in the former Figure, with the Nerves of the three *semicircular Ducts* suspended in the Air.

a a Branch of a Nerve which enters the *Vestibulum* by the Opening mark'd 6 in *Fig. 21*. It divides itself into three Branches, of which the first enters the Orifice of the superior *semicircular Canal*, the second the superior Orifice of the middle Canal, and the third, which is the smallest, descends to enter the common Orifice.

b the Branch which enters the Opening mark'd 7 in *Fig. 21*, and which is divided into two Branches, the inferior of which enters the Orifice of the inferior *Duct*, and the other advances into the common Orifice, and unites itself to the third Branch mark'd a. These Nerves are here represented somewhat larger than their natural Size.

AURIS MARINA. A Shell-fish, very common on the Coasts of *Guernsey* and *Normandy*, and those of *Scotland*. It has but one Shell which defends it from Injuries, and is much in the Shape of an Ear. It adheres to the Rocks like a Limpet.

This Fish is not eaten raw, but the People of the Country where it is found usually boil, and then fry it. They are esteemed to make a good *Ericassie*. It is, like all other Shell-fish, an *alcalescent Food*. It is called the *Aurmar*. It tastes somewhat like the Burs of Veal, but not quite so tender. The Shell on the Margin is perforated with five or six small regular Holes; and on the Inside resembles Mother of Pearl.

AURISCALPIUM, from *Auris*, an Ear, and *scalpo* to scratch. An Ear-picker, an Instrument to take Wax, or any other extraneous Body, out of the Ears.

AURORA CONSURGENS: A whimsical Phrase of the Alchymists, by which they would express the Vegetation of their Gold.

AURUM, Offic. Fabr. i. Schrod. 361. Worm. 114. Charlt. Foff. 45. Aldrov. Mus. Metal. 37. Mer. Pin. 208. Schw. 367. Calc. Mus. 436. Kentm. 58. *Aurum, Sol.* Mont. Exot. **GOLD.**

Gold, Aurum in Latin, *χρυσός* in Greek, *Sol* by the Chymists, is the most noble, most perfect, and heaviest of all Metals; ductile, sonorous, and of a reddish-yellow Colour. It is sometimes found pure and unmixed in the Earth, in Rivers, and in the Clefts and Fissures of Stones, either in Dust, or larger Pieces. The Ores from which *Gold* is extracted by Fire, are sometimes a kind of Pyrites, of an ash or purple Colour. It is often found with Orpiment, and is likewise sometimes hid in the Mines of other Metals, especially of Silver, from which it must be separated by various Contrivances. There are many Rivers, among the Sands of which *Gold* is found in small Grains, and there are large *Gold* Mines in *Norway, Hungary, and Guinea*; but the richest are in *Peru and Mexico*.

Gold is the heaviest of all Metals, and of all known Bodies; but withal so soft and ductile, that it may be extended so as to have its Surface increased to 652,500 times. In all common Fires, it remains fixed; and, even when exposed in the Focus of the greatest Burning-glass, it suffers that Heat for a great while, before it begins to evaporate. It never contracts Rust, and is dissoluble in *Aqua Regia*. It is capable of being penetrated by Mercury, and its Texture so far opened, as to be turned into a soft Amalgama. It may be calcin'd by common Sulphur, if set on Fire and flaming. When dissolved by *Aqua Regia*, it may by Oil of Tartar per Deliquium, be precipitated into a blackish Powder, which being gently heated, either by Fire or by Attrition, flies off into the Air with a great Noise; whence it has the Name of *Aurum Fulminans*. The same Effect will happen by using Spirit of Sal Ammoniac, or any other urinous Spirit, instead of Oil of Tartar; but then the Fulmination requires a greater Degree of Fire.

The Analysis or Resolution of this Metal has been hitherto attempted without any Success. The Sulphur and Earth seem to be so strictly united in it, as not to be separable by the common Powers of Fire; and in the Focus of the greatest Burning-glass, intire Parcels of it fly off, without any apparent Resolution into its Principles.

The Use of *Gold* in Physic was unknown to the antient Greeks. The *Arabians* first talked of its Medicinal Virtues, and mixed it in their Compositions, being previously reduced to thin Leaves, upon a Persuasion, that it comforted the Heart, and exhilarated the Spirits; and that therefore it was proper in Palpitations of the Heart, and in Melancholies. The Chymists add farther, that a most powerful fixed Sulphur is contained in *Gold*, which, if it be mixed with the Blood, preserves it from all Corruption, and restores and revivifies human Nature in the same manner as the Sun, the great Original of this Sulphur, enlivens all Nature. Many Authors are of a quite different Opinion, because the Effects of *Gold* are found not to answer these great Pretensions; and it may be reasonably question'd, whether *Gold* be at all useful in Physic. Leaf *Gold* is an Ingredient in the *Confectio Alkermis Regia*, the *Confectio de Hyacintho*, *Pulvis Diamargaritæ Frigidus*, *Pulvis Latificans*, and *Pulvis Pannonicus*, all of *Charas*. It is likewise used to gild Pills and Boluses.

The Virtues of the Chymical Preparations of *Gold* are equally dubious, because they seem to derive their Energy, not from the *Gold*, but from the Menstrua, and other Substances mixed with it. Whence we may conclude, that the most valuable and most precious of all Metals is the most useless in Physic, except when consider'd as an Antidote to Poverty.

The Tincture of *Gold*, or *Aurum Potabile*, made in this manner, is this:

Take of pure *Gold*, half a Dram; of *Aqua Regia*, two Ounces: Make a Solution, and pour upon it the limpid essential Oil of Rosemary, an Ounce. Shake the Mixture well, and the Spirit of Salt will subside, deprived of its yellow Colour, which is retained in the Oil that swims at the Top. Separate this Oil from the Spirit by Inclination. Mix it with four or five Drams of Spirit of Wine highly rectify'd; digest them for a Month, and the Mixture will acquire a purple Colour. This Tincture is Diaphoretic and Sudorific, and is recommended in malignant Fevers. The Dose is from three to fifteen Drops.

But, after all, this is not a genuine Tincture of *Gold*, being only the *Gold* divided into very small Parts, by the Spiculae of the *Aqua Regia*, swimming in the Oil of Rosemary; neither do we know any radical Tincture of *Gold*, which may not, by evaporating the Oil, be reduced to a Powder, and

by melting the Powder into *Gold*. The chief Virtues of this Tincture are owing to the Oil of Rosemary.

The *Aurum Fulminans* is esteemed, not only for its fulminating Quality, but also for the Medicinal Virues attributed to it; and is prepared in this manner:

Take of Spirit of Nitre, an Ounce; dissolve therein a Dram of Sal Ammoniac; throw into this Solution a Dram of *Gold* Dust, and dissolve it by a moderate Heat. Then pour into the Solution by Drops, Oil of Tartar per Deliquium, till the Ebullition ceases. The *Gold* will be precipitated like a yellow Mud: Then having poured off the Liquor by Inclination, wash and edulcorate the Powder, and dry it in the Shade.

This Powder, even by a gentle Attrition, goes off with a violent Noise, and, taken inwardly, is thought to be Diaphoretic; but it may more truly be said to relax the Intestines, as was observed by *Ludovicus* and *Koning*, who affirm, that this Preparation being given in Fevers, in which the Patient inclines to a Diarrhoea, promotes that Discharge, and, on that Account sometimes proves fatal.

Lastly, the Chymists tell us very wonderful Things about the Philosophers Stone, or an universal Tincture; which being projected on the ignobler Metals, penetrates their Parts so intimately, without any visible Shew, that they are in an Instant changed to a Metal, that has the Colour and Weight of *Gold*. They amuse us likewise with an universal Medicine, which cures all Diseases, and purges the Blood from all Disorders by a kind of Irradiation; so that Life and Health may be preserved for a very long Time, if not to Eternity. As I know nothing of this universal Medicine, I can say nothing about it. And for the Philosophers Stone, the Materials from which it is to be prepared are hitherto undetermined, as well as the Method of preparing it, whatever impertinent, ignorant Pretenders may boast. By these Pretensions, however, they have found the Secret, if not of making *Gold*, yet of getting *Gold* already made into their Hands, and for that Reason every prudent Man ought to beware of them. *Geoffroy*.

'Tis obvious to every one conversant in Matters of a physical Nature, that for a great while, especially since Chymistry began to be cultivated and improved with Care and Accuracy, Remedies prepared of *Gold* have been in great Repute, as being of a comforting Quality to the Constitution, and accommodated to the Cure of almost all Diseases; for the Antients imagined, that the Planets had a peculiar Connexion with, and Influence over, the Viscera of the human Body, and, in like manner, over the several Metals lodg'd in the Bowels of the Earth. For this Reason they affixed the Names of the Planets to Metals; and as they observed, that the Sun diffused Warmth, Vigour, Life, and Fruitfulness, to all Animals and Vegetables on our Globe, they imagined that *Gold* was also capable of producing a like Effect. And this common Tradition, or rather Fiction, infatuated not only the Vulgar, but also the *Literati*, and more especially the Physicians, to such a Degree, that they firmly believed, that Medicines, duly prepared from *Gold*, were far superior to all others, and operated like an universal Cordial and Comforter.

This mistaken Notion of *Gold* being able to cure Diseases, proceeded partly from an Ignorance of natural Philosophy, and of the real Manner in which Medicines acted, and partly from the insatiable Avarice of Practitioners; for when these so much extolled Preparations of *Gold* are brought to the Test in a chymical and rational Manner, it will be obvious, that they are so far from doing any Good, that they rather do Harm; for, first, Preparations of *Gold*, whether exhibited in Substance, or in the Form of Crocus, or in Powder, produce no manner of Effect, because nothing in Nature is capable of dissolving *Gold* besides *Aqua Regia*. And as Metals cannot act upon Bodies, till they be first so effectually dissolved, as to be able to enter their Pores; and since no Liquor or Menstruum capable of producing this Effect is found within the Body; 'tis plain that *Gold* in Substance must remain intire and untouched, and consequently can produce no manner of Effect upon the human Body.

Then again, when *Gold* is dissolved, this can be done by no other means than *Aqua Regia*, or common Salt and Nitre. These two last-mentioned Ingredients must be thoroughly boiled with *Gold* Leaves in a sufficient Quantity of Water. But the Solution procured in both these manners assumes a septic and corrosive Nature, though that obtained by the former Process is more remarkably so, than that procured by the other; for as Mercury, Copper, and Silver, when dissolved by Salts, or their Spirits, acquire so strong and virulent a Nature, as by corroding the nervous Coats of the Stomach and Intestines to excite Gripes, Spasms, Anxieties, Purging, and Vomiting; so the same Misfortune attends the Solution of *Gold*; a few Drops of which, exhibited in an aqueous Vehicle, I have often found to excite Gripes, Spasms, and Anxieties of the Præcordia.

For this Reason I think it highly proper to give a Caution with regard to the wary and prudent Use of metallic Medicines, whether

whether Gold or Silver, and to advise the Use of safer Remedies in their stead.

When many of the Chymists and Physicians observed, that when Gold was dissolved with Salts, or acid corrosive Spirits, it was so far from restoring and recruiting Strength in an incomparable and uncommon manner, that it assumed a drastic violent Quality, which was prejudicial and offensive to the Constitution; they began to think, that Gold was to be *radically* dissolved, and that by this means they should obtain a highly promising, and as it were an universal Medicine. By *radical and intimate Solution* they mean no more than a Solution by which the constituent Particles of Gold are so thoroughly and effectually separated and torn from their original Crasis, Union, and Texture, that the highest Attempts of Art shall never afterwards be able to reduce them to true Gold. For this Purpose they thought the common Menstruums entirely insufficient, and imagined that the Effect could only be brought about by some insipid Menstruum of so fine and subtle a Nature, as to enter its smallest Pores, and pervade its minutest Interstices.

But without any Contempt for the Abettors of this Notion, I must, for the Honour of Truth, declare, that I think these Conceits of the Chymists partly pleasing and delusive Chimeras, and partly interested and mercenary Frauds, by means of which they hunt for Fame and Riches; for the Subtlety and intimate Connexion and Adhesion of the Particles of Gold are almost incomprehensible, since one Grain of Gold dissolved is capable of communicating a metallic Taste, and a reddish Colour, to an incredible Quantity of Water. The Fluid then which must dissolve the intimate Commixtion and Adhesion of these minute Particles, must necessarily consist of the most subtle Parts, that it may penetrate into these inconceivably narrow Pores. Now 'tis very much, and at the same time very justly, to be doubted, whether there is in Nature a Substance from which such a Menstruum can be prepared. 'Tis true there is in Quicksilver a highly subtle insipid Fluid, which penetrates the Pores of Gold, but it cannot destroy the Texture of the smallest Corpuscle of that Metal; for, upon the Removal of the Mercury, the Gold is restored to its primitive Form and Nature.

And indeed I cannot help being surpris'd, why the happy Possessors of these wonderful *Arcana* do not talk of a radical Solution of some other Metal, such as Silver, Mercury, or Copper, since their perfect Menstruum ought to be capable of dissolving all Metals, because, being more ignoble than Gold, their Contexture is consequently looser, and the Cohesion of their Parts less; but what Chymist ever yet dared to subject a real Experiment to the Eyes or Judgments of the Intelligent, by means of which a radical Solution of Mercury or Lead might be obtained?

Then again, though it should be granted, that there is in Nature, or that there may be prepared by Art, such a Menstruum as is capable of so thoroughly reducing Gold to its first Principles, that there is no more any Possibility of their being reduced to Gold, yet still a Doubt remains, whether, when the Contexture and Adhesion of the Gold is thus dissolved, it still remains to be Gold, or whether it does not pass into some other Substance of a quite different Nature from that Metal, since it is well known, that the Form and Essence of Bodies depend upon the Disposition of their Pores, and the Cohesion of their Parts; and that all their Virtues and Operations flow from these, as from their original Source. Since then, upon their Hypothesis, so salutary and analeptic Qualities are ascribed to Gold, because it is so agreeable to the Heart, and vital Spirits; and since, when the Texture of that Metal is destroy'd, it is no longer genuine Gold; we may from this justly infer, that the Virtues of a Medicine thus prepared are not to be ascribed to Gold as Gold, but to another Mixture arising from the Dissolution of that Metal; for which Reason, such a Medicine cannot properly be called *Aurum Potabile*.

But still it would be sufficient for their Purpose, if it was absolutely evident, that such a Medicine could possibly be prepared from Gold; for 'tis to be observed, that no one has hitherto produced a fair and unexceptionable Example either of the Reality or Possibility of such a Solution. I have often told these impudent Boasters, that I absolutely deny'd the Existence of an insipid Menstruum, which, without producing a radical Solution, could so much as simply dissolve the more ignoble Metals, much less Gold; and have offered to pay them an hundred Dollars, if, in my Presence, they would exhibit an Experiment of this Kind, assuring them, at the same time, that I should never desire to be let into the Preparation of this mighty *Arcanum*; but I never could, nor ever shall, obtain this uncommon Favour at their Hands. 'Tis, however, a common Practice with these Artists to have recourse to an ingenious and pleasant Subterfuge, by confidently saying, if their *Aurum Potabile* is subjected to a chymical Examination, and no Traces of Gold are to be found in it, that the Metal is radically dissolved, and consequently can never by any Art be reduced to its primitive and natural State.

But as for my own Part, I should not hesitate to prefer a Medicine, the Gold of which could be reduced to its former

State, provided it had sufficient Virtues to recommend it, before a Medicine of less Efficacy, whose Gold could not be restored to its pristine Condition. I do not affirm, that all the Preparations sold for *Aurum Potabile* are absolutely good for nothing, since they may have Virtues lodged in the Menstruum, and other Ingredients, of which they are composed; but that they should be sold for universal Remedies, and at so high a Price, are Circumstances that must inspire every Lover of Truth, and Friend to Society, with just and reasonable Indignation.

These universal Medicines prepared of Gold are often affirmed to be compounded and made up in such a manner, that they may safely be exhibited in any Disease whatever. This I myself may possibly believe; but the grand Question is, Whether it can be demonstrated to skilful and knowing Physicians, that such Preparations have any peculiar Efficacy above other Medicines.

I very readily believe, that many employ Gold in preparing their universal Medicines; but because they are ignorant of a just and rational chymical Theory, they deceive themselves, whilst they foolishly imagine, that the Efficacy of these Medicines depends upon the Gold; for the Whole of the Gold may easily be obtained by one who is perfectly acquainted with the Art of Reduction. But let no one find Fault with me for delivering my Sentiments with regard to these Medicines in so open and candid a manner.

I now come to examine that *cordial solar Tincture*, which is prepared from Gold with the Oil of Cinnamon in the following manner:

Let a well saturated Solution of the purest Gold be in some measure inspissated; then dissolve one Dram of pure Oil of Cinnamon in highly rectify'd Spirit of Wine, and let one Part of the Solution of Gold be mixed with three Parts of this Solution in a small Cucurbit placed in a Sand-heat. By this means these two Solutions are united into a kind of resinous Mass, of a Colour resembling that of Pitch, which, when dissolved in highly rectified Spirit of Wine, forms an Essence of a deep brown Colour, and of a grateful, but somewhat bitterish and subastringent Taste, which may be exhibited with Success, when the Intention is to restore and confirm the Strength of the Patient.

But the Question is, Whether the Virtues of this Medicine depend upon the Gold thus dissolved? I absolutely deny, that they do; because when this Tincture is allowed to stand for a considerable time, a blackish Powder subsides, which, when washed with Spirit of Wine, and dry'd, is by *Aqua Regia* speedily again dissolved into a yellow Liquor, which, when apply'd to the Skin, soon after tinges it with a purple Colour, just as the Solution of Gold does.

The Reason of the Process is plainly this: The *Aqua Regia* concentrated in the Solution of the Gold, intimately uniting itself with the diluted Oil of Cinnamon, by means of an external Heat, constitutes the resinous Mass, into which the Corpuscles of the Gold by no means pass. But this resinous Substance, impregnated with the Oil of Cinnamon, is dissolved in highly rectified Spirit of Wine; and the Particles of the Gold, being by this means disengaged from it, subside to the Bottom of the Glass.

In like manner, that Tincture partakes very little of the Gold, which is commonly prepar'd of Sugar, sufficiently triturated with Leaf-gold, and afterwards calcin'd by a due Degree of Heat; for tho' the Acid of the Sugar may, by its Attacks, induce a certain Change upon the Gold, yet the Tincture, extracted in this Process by the Spirit of Wine, is no more than an Extract of the Sugar gently burnt, just as it usually happens in preparing the Tincture of Coral. Nor is this easily-prepar'd Tincture to be entirely deprived of the Praises due to it; for the sulphureous oily Principle, disengaged and set at Liberty by the gentle Combustion of the Sugar, is capable of imparting a brisker Motion to the languid Mass of Blood and Humours, which is a Circumstance of considerable Moment in Diseases accompany'd with a Defect of Strength, and in Cases where too hot Medicines are not proper: But, at the same time, this Remedy derives none of its Virtues from the Gold, the Whole of which is easily obtain'd from the liquid Sugar.

Others, mixing Gold with Antimony and Salt of Tartar, fuse the Mass, and, towards the End of the Fusion, add a certain Quantity of Sugar. Upon this Mixture, reduced to Powder, they pour tartariz'd Spirit of Wine, and so extract a Tincture of a brownish-red Colour, and a grateful Smell and Taste, which they believe to be the genuine Essence of Gold. 'Tis true, Gold is converted into a Powder, by being treated in this manner with an alkaline sulphureous Salt; but, at the same time, little or none of it is receiv'd into the tartariz'd Spirit of Wine. However, the Tincture obtain'd in this Process, which is partly the Tincture of Sugar, and partly that of Sulphur, can't be said to be altogether useless.

I now come to inquire, whether there is a Possibility of preparing, from Gold, a Medicine which shall be possess'd of any singular and uncommon Efficacy. And, indeed, I am of Opinion, that this may be done; for tho' Gold, consider'd as a Metal of a close and firm Texture, and which acquires a corrosive Quality from Salts, seems to promise very little in the Cure of Diseases, it nevertheless has a peculiar Use; as yet known to few, when skilfully treated with Mercury, or with Regulus of Antimony, which is of a mercurial Nature; for 'tis sufficiently known, that the penetrating active Quality of Mercury puts the Lymph of a human Body into strong Commotions. Nor are we ignorant of the active and violently emetic Qualities of the Regulus of Antimony; for these two Minerals, being easily soluble by an Admixture of any Salt, in Consequence of the Minuteness of their component Parts, penetrate very far, especially into the nervous and membranous Systems; where, producing violent Motions, they excite uncommon Tumults in the natural Functions; and, when judiciously used, are remarkably efficacious in obstinate Chronical Disorders.

Now, that Excess of Volatility, which, in Mercury and Regulus of Antimony, proves so prejudicial to those Parts of our Bodies which are destin'd for the Purposes of Sensation and Motion, cannot be more properly corrected, subdued, and balanced, than by an intimate Mixture of Gold with these Minerals; for, by this means, the excessive Minuteness of the Parts of Mercury, and Regulus of Antimony, is not only prevented by the more fixed Substance of the Gold, but their pernicious Solution on the Admixture of Salts is hindered in the Body; and because Gold itself is nothing more than a very fixed Mercury, hence it happens, that by the Addition of a more volatile Mercury it is put in Motion, and a Medicine is produced, which, when exhibited in gentle Doses, restores the languid Motions by mildly corroborating the Nervous System, an Effect of the last Importance in many Diseases both of the chronical and acute Kind.

But the purer the Mercury is, and the more thoroughly it is separated from its phlogistic and heterogeneous Substance by various Amalgamations with Silver and the Regulus of Antimony, by Triturations, Lotions, and Sublimations, the more easily and quickly it admits of a Conjunction with Gold, and affords a highly valuable Medicine. Now 'tis a sure Sign, that Mercury is pure and animated, when few Parts, four or five for Instance, to one of the Gold, are sufficient for its Amalgamation, or Solution, and when the Mercury becomes warm upon its being mixed with the Gold.

Then, again, another excellent Medicine is prepared from Gold, by mixing two Parts of the Regulus of Antimony with one Part of Gold in a proper Fire, and converting the Powder into a purple-colour'd Calx in a Glass Phial, by means of a circulatory Fire. This Powder, when duly prepared, is, on account of its diaphoretic Virtues, preferable to all the other Solar Preparations whatever.

I must, in the last Place, subjoin this Advice, that when People intend to prepare Medicines from Gold, they ought to make Choice of the purest and most free from all Alloy of Silver and Copper, with which, to use the chymical Term, it uses to be associated; for 'tis absolutely false, that the Gold of which the Ducats are coin'd is the purest, since in twenty-four Parts of the Gold there is one of Silver and Copper. But since the Copper passes into the Aqua Regia along with the Gold, and since we are well enough apprised of the virulent Qualities even of its minutest Particles, we may plainly perceive, that, in consequence of this, Solar Preparations must assume a hurtful and prejudicial Quality.

Aurum Fulminans, when prepared of impure Gold, as it commonly is, excites violent Gripes, and is not altogether free from a septic Quality, especially when it has not been wash'd with Rain-water; whereas no such hurtful Effect is to be dreaded from it, when prepared with the purest and most carefully edulcorated Gold.

Now there is no better Method of purifying Gold than by what Chymists call the *Fourth Treatment*, in which one Part of Gold is fused with three Parts of Silver, which when dissolved in Aqua Fortis, the pure Portion of the Gold remains in the Bottom of the Vessel. Then this Gold is to be dissolved in Aqua Regia, till it is so thoroughly saturated with it, that it can receive no more of the Gold; but the Aqua Regia ought to be of the best Kind, which is prepared by drawing Aqua Fortis off common Salt, or Sal Ammoniac. *Hoffmanni Obs. Chym.*

There is a Method of making Gold potable, which is specified under the Article *Æther*. One Drop of this is said to be a very great Cordial, inasmuch that, in some Parts of Germany, even things little less than miraculous are reported of its reviving Qualities; and I am well informed, it has been frequently sold in that Country for a Ducat a Drop.

Glauber gives a very great Character of a mercurial Medicine, which he calls *Aurum Horizontale*, which *Helmont* had before him taken Notice of, not without great Encomiums.

If these whimsical Writers were possessed of such a Medicine, Vol. I.

as there is some Reason to believe they were, they deserve very ill of Mankind for not giving the Process more intelligibly, and for depriving the World of so valuable a Remedy.

Helmont, in some Parts of his Works, seems to insinuate a Reason for his Conduct in this Particular, which, however, does not appear to be very satisfactory. He complains, that the Physicians, instead of giving him the Honour due to his Industry, loaded him with Reproaches, and persecuted him with Virulence, so as to endeavour to have his Book (*de Febribus*) prohibited. It is possible, that a Resentment of such Treatment might induce him to conceal, what it would have been much the Interest of his Enemies to have divulged.

Glauber's Account of the *Aurum Horizontale*, is thus:

First, vulgar Mercury, by the Help of our secret *Salmiac*, may be so purified in the Space of one Day, as the Day following, by one only Abstraction of the Water of *Saltaberis*, it may be coagulated into a red fixed Medicine. Which swift Mortification, Coagulation, or Fixation, was highly esteemed by *Paracelsus* and *Helmont*. This Mercury *Paracelsus* insignized with the Title of *Coralline Mercury*, and celebrated the same with this illustrious Phrase; That, in the whole Nature of Things, there was not any Remedy more excellent for yielding Relief in the Gout and French Disease, adding that it recreates the Mind of the Artist, because it hath Entrance into Gold, and with the same is converted into Gold, and so not a few impoverished Chymists may again be stored with Riches. But, since the Death of this Philosopher, you shall not find, that there hath been one or other of the Professors of Chymistry unto this Day, who could prepare such a red fixed Mercury. The Reason hereof is, because none of the Sons of Art could comprehend the Water of *Saltaberis*, by which Mercury is to be brought to a fixed Redness; none, I say, until *Helmont*, that most learned Philosopher of our Age, discovered himself, witnessing that he also could prepare such Mercury, which he insignized with the Name of *Horizontal Gold*, affirming it would sufficiently supply whatsoever the Physician and Surgeon should need.

In like manner, that most expert Philosopher *Nuysemantius* wrote of such a Mercury, testifying that two or three Grains of it only being taken in some Confortative, would purge out all Impurities from the human Body. Indeed *Helmont* expresses this in other Words, yet by them intimates, that it purgeth out all Filths from the Veins. Behold three famous Men, serving instead of the *Marpesian Columns* of all Hermetic Philosophy, and Medicine; for they have excellently written of this Mercury: Yet to the Inventions of these none of their Successors have added any thing, but have been still and quiet, shunning the Labour of preparing an Universal Medicine. Whosoever is seized with a Desire of succouring the Misery of the Sick, he will do better for publick Good, in using such a fixed Mercury, rather for expelling the Cruelty of a tyrannical Gout, and the French Disease, than for Gold making, unless so far as he hath need to use the same for necessary Aliments. *Glauber.*

AUSTER, *νῦστος*, the South Wind, which is hot and moist, and very productive of Diseases, according to *Hippocrates*, *Aphorism 5. Book 3.* For this *Galen*, *Com. 2. in Lib. 1. Epid. t. 62.* renders a Reason: "Because, says he, the South Wind causes a Dissolution of Bodies, and a Fusion of the Humours; whereby they are subject to putrefy, especially if this Wind be attended with great Rains." The Disposition of the Season of the Year in which the South Wind most frequently blows, is called *Notia*, *νῦστα*, *Australis*, or *Austrina*, *Austral*.

AUSTERUS, in *Scribonius Largus*, No. 188.

AUSTER, *αυστρός*, austere, a kind of Taste, which, according to *Galen*, *Lib. 1. de Sim. Fac. Cap. 37.* belongs to an earthy, mixed with a tartareous saline Substance, having an astringent Quality, and differing from the *Acerbus*, tart, only in Intensity. The *Cartesians* suppose Austere to consist in having obtusangular Particles, like a blunt Saw. Things of an austere Taste are supposed by some, from their glutinous and tenacious Quality, which obstruct the Course of the Fluids, to generate the Stone, though they are not without their good Effects.

AUSTROMANTIA, a pretending to foretel Events from a superstitious Observation of the Winds. *Rulandus.*

AUTARCIA, *αὐτάρκεια*, from *αὐτός*, himself, and *ἀρκέω*, to be sufficient. Self-sufficiency, Contentment with our own Condition; it is opposed to *Aplestia*, Insatiability. *Castellus.*

AUTETES, *αὐτέτης*, the same as AUTITES, which see.

AUTHADES, *αὐθάδης*, from *αὐτός*, himself. One who sets a high Value upon himself, and despises others.

AUTHEMERON, *αὐθεμερον*, from *αὐτός*, the same, and *ἡμέρα*, a Day. The very same Day, *Hippocrates*, 4. *Aph. Book 3.* Hence a Medicine is called *Authemerom*, which gives Relief on the same Day it is taken. There are two Remedies of this Kind for Disorders of the Spleen; in *Galen de C. M. S. L. Lib. 9. Cap. 2.* and in *Actius Tetrab. 3. Lib. 2.* there is a Phœnigmus Authemerom for a scirrhus Spleen.

AUTHIS, αὐθις, again. In *Hippocrates, Lib. Epid.* it signifies hereafter, as ὁ δὲ πυρετός αὐθις ἐκ ἐπεί, "the Fever afterwards never left (her)."

AUTITES, αὐτίτης, is by some derived from αὐτός, the same, and ἔτος, a Year. Thus αὐτίτης διῶς, is expounded in *Galen's Exegesis on Hippocrates*, by ὁ αὐτοῦ ἐτὸς, ὁ ἐκ τῆ ἐν ἐστὶ ἐτος, "Wine of this present Year." *Pollux* expounds αὐτίτης διῶς, by ὁ ἐκ τῆ αὐτῆς, "Wine of the same Country;" and *Suidas* by αὐτογενής, "the Product of the same Country." Others explain it by ὁ αὐτὸς καὶ ὁ ἕτερος παρὰ τοῦ αὐτοῦ, "undiluted, and without being diluted;" and *Erotian* by ἀπαρῆχτος, "undiluted."

AUTOCINETOS, αὐτοκίνητος, from αὐτός, itself, and κίνησις, to move; self-moved; a Word by which *Galen* expounds αὐτοδρόμος in *Hippocrates*.

AUTODROMOS, αὐτοδρόμος, from αὐτός, and δρόμος, to run. See the preceding Word.

AUTOGENES, αὐτογενής, from αὐτός, itself, and γίνομαι, to be produced. An Epithet of the *Narcissus* with a white Flower, because its bulbous Root, before it is set under Earth, puts forth Leaves, so that the Plant in one Sense seems to spring from itself. *Blancard*.

AUTOLITHOTOMOS, αὐτολιθοτόμος, from αὐτός, himself, λίθος, a Stone, and τέμνω, to cut. A Name bestowed on one who had the extraordinary Dexterity to cut himself for the Stone. *Castellus*.

AUTOMATOS, αὐτόματος, spontaneous. Things are said by *Hippocrates* to be done αὐτόματος, which are owing to the Efforts of Nature rather than the Violence of the Disease, or the Assistance of the Physician, *Aph. 2. Lib. 1. and Lib. πρὸς χυμῶν*. Thus again, *Aph. 2. Lib. 4. αὐτόματα ἰσθία*, signifies such Things as pass off naturally, or which Nature spontaneously discharges. *Ἀπὸ ταυτομάτης, Aph. 77. Lib. 4.* signifies, according to *Galen*, ἐξαίρτως, "suddenly," or ἀνευ φανεράς αἰτίας, "without manifest Cause." *Αὐτόματος, Lib. πρὸς τήχυνος*, denotes any thing that is supposed to happen merely by Chance, and spontaneously. The same Word, in *Lib. πρὸς φυσῶν*, is applied to a Flatus that passes off easily without being forced, and to the Air that insinuates itself insensibly into the Veins. *Αὐτόματα χυμοί, in Lib. πρὸς τερψῆς*, "spontaneous Juices," are such as we spontaneously, and for that very Purpose, provide for our Nutrition, and about which human Art and Industry are employ'd. So αὐτόματος imports the same as ἐκείναις, voluntarily, and of set Purpose; as ἐκείναις ἐκείναις are spontaneous Ulcerations, which have some external Cause.

AUTOPHOSPHORUS, αὐτοφωσφόρος, the same as PHOSPHORUS, which see.

AUTOPSIA, αὐτοψία, from αὐτός, himself, and ὥσπερ, to see; ocular Evidence. *Autopsia* was a Word formerly proper to the Empiric Sect, by which they meant the Memory of those Things which they had often seen, and in the same Manner. This *Autopsia*, or the Observation and Memory of what every one sees with his own Eyes, is also highly necessary in the Dogmatical or Rational Physic. *Gal. de Part. Art. Med. Cap. 2.*

AUTOPYROS, αὐτοπυρός. See **ARTOS**.

AUTOS, αὐτός.

Αὐτός ἐαυτὸν γινέσθαι, in Hippocrates, Lib. 7. Epid. signifies to come to himself, or to his Senses. Thus, in the same way of speaking, ἐξ ἐαυτοῦ εἶναι is to be out of his Senses; and αὐτός αὐτὸν εἶναι, in the same Book, is to be in his right Mind or Senses.

Αὐτός, in Galen's Exegesis, is expounded by μάταιος, vainly, rashly. *Hesychius* also expounds it by μάτην, in vain.

AUTOUR, a sort of Bark, in Shape and Colour much resembling Cinnamon, only a little thicker and paler; the Inside is of the Colour of a broken Nutmeg, with a Multitude of Spangles. It is almost insipid, and has no Smell at all. We have it from the *Levant*; and it is one of the Ingredients in the Carmine Dye. *Remery des Drogues*.

AUTUMNUS, φθινόπωρον, ὁ πῶς, the Autumn. The Diseases particularly incident to this Season are, Fevers of an anomalous Kind, Pain of the Spleen, Dropsy, a Consumption, which the *Greeks* call φθίσις (Phthisis), a Difficulty of Urine, which they call σπυγγία (Strangury), that Disease of the small Intestine, called by them ἐλκός (the Iliac Passion); besides a Flux (*Levitas Intestinorum*), called λευκίτις (a Lientery), Sciaticas (*Coxa Doloris*), and Epilepsies. This Season is also liable to long and tedious Distempers, and proves mortal to those who have lingered under Distempers during the preceding Summer. Some it destroys with new Diseases, and involves others in very lasting ones, and particularly Quartans, which hold all the Winter. Nor is there any other Season of the Year more subject to pestilential Distempers of all sorts, and of all Degrees of Malignity. *Celsus, Lib. 2. Cap. 1.*

The greatest Danger is in Autumn, because of the Variety of Weather; therefore never go abroad without (good warm) Garments and Shoes, especially on a cold Day; nor sleep in the open Air, at least without being well covered. You are now

allowed to eat somewhat plentifully, and to drink your Wine less diluted, but in smaller Quantities. Some think Apples hurtful, which are commonly eaten in immoderate Quantities all the Day long, without lessening that Proportion of more solid Food; so that not the Apples, but the Sum of all that is eaten, taken together, does the Mischief, in which, however, the Apples are the least concerned. But it is not proper to eat these more frequently than other Food; and, in short, it is necessary, when they come in Use, to diminish our Allowance of more solid Food. *Celsus, Lib. 1. Cap. 3.*

The Autumn being an unequal and disorderly Season, which produces all Kinds of Diseases, great Care is to be taken of the Diet and way of Living, that no Error may be committed in Concoction, the Use of Veneries, or drinking cold Liquors, but that Men should be temperate in all things. To this End, we are to avoid the Intemperance of the Air, which in the Morning is cold, and sultry at Noon, and not fill ourselves with Autumnal Fruits, which are prejudicial, not only on account of the Plenty, but Malignity of the Humours and Flatulencies, which they generate, since the best of them, which are Figs and Grapes, breed Flatulencies, and corrupt the rest of the Aliment, except they be taken before other Food, in which Case they have no such ill Effects. As the Air grows colder, the Body is to be heated in proportion, and we are to manage in all things with an Eye to the Approach of Winter. After the Equinox, it will be convenient to make use of some evacuating Medicine; that no superfluous Humours may create Disturbance, and interrupt our Health, during the Winter. *Oribas. Euporist. Lib. 1. Cap. 10.*

AUVER, pure, or soft Water. *Rulandus*.

AVULSUM, **AVULSIO**, ἀποσπασίς, ἀποσπάσις. See **APOSPASMATA**.

AUXESIS, αὐξήσις, from αὐξάνω, to increase. The same as **AUGMENTUM**, which see.

AUXILIUM, βόηθημα, βόηθεια, Assistance; in a medicinal Sense, whatever assists Nature against a Disease; and so is the same as *Remedium*, or *Medicamentum*.

Celsus, in Answer to those who said, *Omne Auxilium necessarium esse incrementibus Morbis, non cum jam per se finiuntur*, "That Assistance was always necessary in the Growth of Diseases, but superfluous in their Decline; when, if let alone, they would terminate of themselves," asserts the Case to be otherwise; because, says he, a Disease, which would of itself terminate, may yet be sooner taken off by proper Assistance, which is necessary for two Reasons: First, that the Health may be re-established as soon as possible; and next, that the Remains of the Disease may not, on some slight Occasion, be exasperated. For a Disease may be less troublesome than before, and yet not quit the Patient, but hold fast by Reliques, which by Assistance may be dissolved. *Celsus, Lib. 2. Cap. 14.*

In a quite desperate Case, it would be a Piece of Weakness to expose, by Trial, the most successful Remedies to the Reproach of ignorant and unskilful Pretenders. I know some Physicians unacquainted with Method, who, thinking to imitate our Practice, have tried our Medicines upon Persons who were almost dead, and so rendered the reasonable Use of them suspected and dreaded. *Actius, Tet. 2. Serm. 1. Cap. 78.*

AUXYRIS, a corrupt Word for **OSYRIS**, Poets Rosemary, which see.

AXEA COMMISSURA, τερχωσθῆς. A sort of Articulation. See **TROCHOIDES**.

AXEDO, a Spell, in *Marcellus Empiricus, Cap. 33*, to render a Person impotent.

AXICULUS, a Roller or Cylinder. *Rulandus*.

AXILLA, μαχαλή, μαχαλίς. The Cavity under the Arm, called the *Armhole*, or *Armpit*.

AXILLARIS VENA, ἡ διὰ τῆς μαχαλῆς περνούσα φλέβη, the Vein that passes through the Armpit. *Galen*. The Axillary Vein. See **VENA**.

AXIOLOGOS, αξιόλογος, from αξίος, worthy, and λόγος, a Word. Worthy of Notice. *Hippocrates*, in his *Coac. Praenotiones*, applies this to ἀπόστημα, Apofistematation, where it imports, considerable, sufficient for a Crisis.

AXIOMA, αξίωμα, an Axiom. This signifies a Proposition which neither requires, nor admits of, Demonstration. But the Art of Physic has the Misfortune to have a great many Propositions laid down as Axioms relative to it, which greatly require, but, however, do not admit of, Demonstration.

AXIOPISTIA, αξιοπιστία, from αξίος, worthy, and πίστις, Faith, Confidence. It imports Authority.

AXIRNACH, superfluous Fat, which sometimes grows in the Tunics of the upper Eye-lids; this frequently is found in Children. *Castellus* from *Albucasis*.

AXIS, ἄξων, a Name given to a Tooth-like Eminence in the second Vertebra of the Neck. See **VERTEBRÆ**.

AXUNGIA, ἄξυνσις, ἄξυνσις, ὀξύσις, signifies strictly old Hogs Lard, or, in general, old Lard, or Suet of any other Animal. See **ADEPS**.

AXUNGIA DE MUMIA, is Marrow.

AXUNGIA

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AXUNGIA VITRI, is Sandiver, or Salt of Glafs. A kind of Salt which separates from the Metal of Glafs whilst in Fusion. It is of an acrimonious and biting Taste. The Farriers use it for clearing the Eyes of Horses. It is also used for cleaning the Teeth; and is sometimes applied to running Ulcers, a Herpes, or the Itch, by way of Dedicative.

AXYRIS, the same as **AUXYRIS**, which see.

AYBORZAT, Galbanum. *Johnson.*

AYCOPHOS, burnt Brass. *Rulandus.*

AZAA. *Rulandus* explains this by *Magra, Terra rubea*. I suppose he means *Marga*, Marl. Red Marl.

AZAGOR, Verdigrise. *Rulandus.*

AZAMAR, Vermilion, or Native Cinnabar. *Ruland.*

AZAMO. *Rulandus* explains this by *Color Indus*, but I cannot tell what he means, unless black; or a Mixture of Blue and Purple, which is the *Indicum* of *Pliny*.

AZANEC. The same Author explains this by

ARMONIACUS. I suppose he means the Salt.

AZANITÆ ACOPON, the Name of an Acopon or Ointment in *Paulus Ægineta*.

AZANITÆ CERATUM, the Name of a Cerate in *Oribasius*.

AZARNET, Auripigmentum. *Rulandus.*

AZAROLUS. A Name for the *Mespilus Aronia*. *Neapolitan Medlar.*

AZCI, Ink. *Rulandus.*

AZEC, green Ink. *Ibidem.*

AZEDARACH, *Pseudosycamoros*, Offic. Mont. Ind. 37. *Azedarach*, Tourn. Inst. 616. Elem. Bot. 489. Boerh. Ind. A. 2. 236. *Azedarach Avicennæ*, Park. Theat. 1442. *Azedarach arbor Fraxini folio, flore cæruleo*, Raii Hist. 2. 1546. *Azedaracheni arbor*, J. B. 1. 554. Chab. 44. *Arbor Fraxini folio, flore cæruleo*, C. B. Pin. 415. *Zizipha candida*, Ger. 1307. Emac. 1491. **THE BEAD-TREE.**

The Flowers of this Tree are said, by some, to be aperient and deobstruent; but others say they are poisonous.

AZEDEGRIN, the Lapis Hæmatites. *Rulandus.*

AZEFF, Scissile Alum. *Ibidem.*

AZEG, Vitriol. *Ibidem.*

AZEGI, the same as **ASAGI**.

AZEM, or **AZOM**. *Rulandus* explains this by *Butyrum coctum*.

AZEMASOR, Native Cinnabar. *Ibidem.*

AZENSALI, a sort of black Stone found amongst Gold. It signifies also a sort of Moss which grows on Rocks.

AZERNEC, the same as **ALFATIDA**, which see.

AZIMAR, Flos Æris, or Æs Ustum. See Æs.

AZIUS LAPIS. See **ASSIUS LAPIS**.

AZOB. *Rulandus* explains this by *Alumen Saccharinum*.

AZOCK, **AZOTH**. Barbarous Names given by *Paracelsus* to the *Mercurius Philosophorum*, that is, Quick-silver extracted from any metalline Body, which is the proper

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corporeal Mercury. In another Sense, *Azoth*, in *Paracelsus*, signifies the universal Remedy prepared of Mercury, the Sun, and Moon, void of all specific Differences; and endued with a most intense Efficacy, and a most general kind of central Virtue, including all other Remedies in itself, in the same manner as the *Substantia Prima*, or first Substance, includes all the rest, excluding Accidents. This *Paracelsus* was reported to have carried about with him in the Pomel of his Sword. *Rulandus.*

AZOTH is also taken for the Liquor of sublimed Mercury, (or Quicksilver mixed with Vitriol and Salt, and so sublimed) which is also called *Aqua Permanens*, *Crystallus Philosophorum*, *Luna Physica*, or by whatever other mystical Name they please to give it. *Libavius.*

AZOTH is also the same as *Laton*, that is, Copper tinctur'd with a Gold Colour by its Mixture with Lapis Calaminaris, which is the same as Aurichalcum or Brass. *Johnson.*

AZRAGAR, Verdigrise. *Rulandus.*

AZUB, Alum. *Ibidem.*

AZUBO. *Rulandus* explains this by *Vas Chymicum*: But I do not know whether he means some particular Chymical Vessel, or a Chymical Vessel in general.

AZUR, Red Coral. *Rulandus.*

AZURIUM, the Name of a Chymical Preparation described by *Albertus Magnus*. It consists of two Parts of Mercury, one third of Sulphur, and one fourth of Sal Ammoniac; these are to be mixed together in a Mortar, and put into a Glafs Vessel, which is to be set over the Fire till a bluish Smoke arises; then it is to be taken from the Fire, the Glafs is to be broken, and the Contents are to be powdered, which is the *Azurium*.

AZYGES, ἀζυγες. A Name for the *Os Sphenoides*.

AZYGOS, ἀζυγος, from a Negative, and ζυγος, a Pair. A Vein situated within the Thorax on the Right Side, having no Fellow on the Left; whence it is denominated *Azygos*, or *Vena sine Pari*. See **VENÆ**.

AZYMAR, Native Cinnabar. Vermilion.

AZYMOS, ἀζυμος, from a Negative, and ζυμος, Ferment. It generally signifies unfermented Bread, such as *Sea Biscuit*, which, *Galen* very justly observes, is extremely unwholesome. Every one is sensible, that, by mixing Water with Flour, a viscid and tenacious Paste is form'd; and *Sea-biscuit*, when moisten'd in the Stomach, is very likely to form the same kind of viscid Substance, unless the digestive Powers are excessively strong. But Fermentation destroys this Viscidity, and renders farinaceous Vegetables more easily digestible; but at the same time inclines the Substances fermented to Acidity. For this Reason unfermented Bread can only be proper, when the Stomach abounds with Acidities.

This Account of unfermented Bread I thought the more necessary; because *Sea-biscuit*, a very unwholesome Food, has of late been much in Use; and I find is, by some, very erroneously esteem'd preferable to Bread which has been fermented with Leaven.

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B in the Chymical Alphabet, signifies Mercury, according to *Raymond Lully*.

BABUZICARIUS, βαβυζικαριος, from βαβυζω, to speak inarticulately. The Incubus, or Night-mare.

BACANON, βακανον. This Word is used by *Trallian*, and *Paulus Ægineta*; and signifies the Seeds of Cabbage. There is in *Myrepsus*, C. 150. an Antidote which takes its Name from *Bacanon*; and is said to be a good Hepatic Medicine.

BACAR. *Castellus*, from *Rulandus*, says, this is the same as *Pondus*, a Weight.

BACCA, that is, a Berry, is a round Fruit, for the most part soft, and covered with a thin Skin, containing Seeds in a pulpy Substance; but if it be harder, and cover'd with a thicker Skin, it is call'd *Pomum*, that is, an Apple.

BACCÆ are small roundish Fruits, that grow scattering upon Trees and Shrubs, and in that are distinguish'd from *Acini*, which are Berries hanging in Clusters.

Baccæ, in a more strict Sense, are used for a smaller thin-skinn'd Fruit, of a soft Pulp and Flesh, including moist Seeds in a thinner Membrane. Hence,

BACCIFEROUS, (*Baccifer*, Lat. of *Bacca*, a Berry, and *fero*, I bear) is an Epithet added to the Names of any Trees, Shrubs, or Plants, that bear Berries, as *Bryony*, Dwarf Honey-

B A C

suckle, Lily of the Valley, Asparagus, Butchers-broom, Nightshade, Solomon's-seal, and many others. *Miller's Dictionary.*

BACCÆ BERMUDENSES, *Pilula Saponariae Anglorum*.

This Fruit, when fresh, is of a black Colour, inclining to Red, and something transparent. As it grows old, it turns still blacker. It contains a yellowish Kernel; the Taste of which is disagreeable. This Kernel, steep'd in Water, raises a Froth like Soap; and this Infusion is used in *Ghloroses*, and in Obstructions of the Liver. *Geoffroy.*

They are the Fruit of the **ARBOR SAPONARIA**.

BACCHARIS, Offic. *Monspeliensium*, Ger. 647. Emac. 792. Raii Synop. 83. Parkinson, 114. Dill. Cat. 149. *Conyza major*, Schw. 55. *Conyza major vulgaris*, C. B. 265. Raii Hist. 1. 292. Tourn. Inst. 454. Boerh. Ind. A. 116. Buxb. 81. *Conyza major Matthioli*, *Baccharis quibusdam*, J. B. 2. 1051. *Conyza majoris genus*, *Baccharis quibusdam*, Chab. 327. *Eupatorium montanum Verbasci folio, vulgaris Baccharis dictum*, Hist. Oxon. 3. 99. **PLOWMAN'S SPIKENARD.**

Some call it *Baccar*.

Baccharis is a sweet-scented shrubby Plant, of which they use to make Garlands. The Leaves are rough, and of a Size between those of the Violet and Mullein. The Stalk is bent into

into Angles, and rises to the Height of a Cubit, is somewhat rough, and not without Suckers. The Flowers are of a purple Colour, inclining to White, and have a fragrant Smell; and the Roots are like those of black Hellebore, and smell like Cinnamon. It delights in a rough dry Soil.

The Root, boil'd in Water, is effectual in Convulsions, Ruptures, Falls, Difficulty of Breathing, old Coughs; and a Difficulty of Urine; it provokes the Menfes, and, given in Wine, is good against the Bites of venomous Creatures. One of the tender Roots, used as a Pessary, brings away the Birth; and the Decoction thereof is of Service, by way of Inseffion, for Women in Child-bed. It is a very proper Ingredient in a *Diapasm*, on account of its extraordinary Fragrancy. The Leaves, which have an Astringency, make a proper Cataplasim for Pains of the Head, an Inflammation of the Eyes, a beginning *Egileps*, an Inflammation of the Breasts after Delivery, and an *Erysipelas*: The very Smell of it provokes Sleep. *Dioscorides*, Lib. 3. Cap. 51.

From a branch'd woody Root, shooting forth many Fibres, this Plant sends out several round, softish, hairy Stalks, three or four Foot high; the lower Leaves grow on long Foot-stalks, being about three or four Inches long, and about half as broad, hairy, indented about the Edges, and blunt-pointed; the Leaves which grow on the Stalks are narrower. The Stalks are pretty much divided toward the Top, bearing a great Number of naked yellowish Flowers in scaly Calices, which pass away in Down; the Seed is long and slender; the Leaves and Flowers have a strong pleasant Smell. It grows in hilly chalky Places, and flowers in July.

Tho' this Plant is but rarely used, yet some account it a good Vulnerary, and useful in Bruises, Contusions, Ruptures, and inward Wounds, Pains in the Side, and Difficulty of Breathing. *Miller's Bot. Off.*

We learn from *Aristophanes*, *Pliny*, and *Athenæus*, that a precious Ointment, much esteem'd amongst the Antients, was call'd *βάρχαα*, probably from this Herb being a principal Ingredient in it. *Hesychius* says it was also call'd *Myrtle Ointment*, and *Lydian Ointment*; and *Galen* explains it a *Sort of Lydian Ointment*.

Hippocrates, in his Treatise *De Natura Muliebri*, describes a Case, which seems to be an Abscess in the Uterus, and is much like the Case related by *La Motte*, *Observation 429*, wherein, as related by *Hippocrates*, a Hardness is perceived in the *Ilia*, and a Pain in the Bottom of the Belly. When this happens, he advises the Patient to lie on the Side least affected, and to apply this Ointment (*βάρχαα*) to the same Side, or what he calls the *White Oil*. He also takes Notice of the same Ointment in other Places of his Treatises on the Disorders of Women.

BACCHICA. The same as *Hedera*, the Ivy. *Blancard*.

BACCHUS, Wine. It also signifies a sort of Fish, the same as *Mugil*, the Mullet. *Castellus*.

BACCINIA, the same as *VACCINIA*, which see. *Blanc*.

BACHARIS, the same as *Baccharis*.

BACILLUM, a small Stick, or any thing in the Shape of one. Thus a sort of Troche, made of pectoral Ingredients, round and long, that is, in the Form of a small Stick, are call'd *Bacilla*, or improperly *Bacilli*. Many Iron Instruments of the same Form, which are used in Chymistry, are also thus call'd.

The *Aves Cypria*, or perfum'd Candles, are from their Shape also call'd thus.

BACULUS. The same as *Bacillum*, and is more generally used to express the same thing.

BADISIS, *πάδιον*. The Action of Walking.

BADITIS. A Name for the Nymphæa, or *Clava Herculis*, in *Marcellus Empiricus*; who says the Root of this, bruised, and eaten with Vinegar, for ten Days, by a Boy, makes him an Eunuch, without Excision.

BADUKKA. The proper Name for the *Capparis arboreseens Indica*, *Flore tetrapetala*.

The Juice of the Leaves, mix'd with the Fat of wild Boars, makes a Liniment for the Gout. A Decoction of the Leaves and Flowers affords a Liqueur, which, drank, purges the Belly; and the Steam thereof, received into the Mouth, deterges Ulcers therein. The Fruit, taken in Milk, causes Impotence. *Raii Hist. Plant.*

BÆOS, *βαῖος*, in *Hippocrates*, signifies few. *Baidy* is an Epithet for a Malagma, in *Paulus Ægineta*, Lib. 7. C. 18.

BAGEDIA, a Pound of twelve Ounces. *Johnson*.

BAHEI COYOLLI. This, in the Opinion of *Ray*, is the same as the *Arica*, or *Fausel*.

BAHEL SCHULLI. An Indian Tree, call'd also *Genista spinosa Indica verticillata, flore purpureo-ceruleo*.

It is a thorny Shrub, that grows in watry Places; but there is another Species of it, which grows in sandy Ground, with Stalks and Leaves of a bright Green, and white Flowers, inclining somewhat to a Sky-blue.

The Decoction of the Root provokes Urine, and frees the Patient labouring under a Suppression of the same; whence it

cures the Dropsy, especially if it be boil'd with the Oil of the *Ficus infernalis*. The Leaves, boil'd, and pickled in Vinegar, have the same Effects. They make a Powder of the Leaves, which, drank with the Oil express'd from the Flowers of the *Ficus infernalis*, helps to discuss a Tumor in the Pudenda of the Male Sex. *Ray. Hist. Plant.*

BAIAC, *Cerufs. Rulandus*.

BALA, a Name for the *Musa*, or *Musa Arbor*. *Raii Hist.*

BALÆNA, *Offic. Recch. Hist. Mex. 568. Balæna vulgaris*, *Aldrov. de Pisc. 688. Jonf. de Pisc. 152. Charlt. Pisc. 46. Balæna vulgaris edentula, dorso non pinnato*, *Raii Synop. Pisc. 6. Balæna major, laminas in superiore maxilla habens; bipennis, fistula carens*, *Sib. Phal. 27. Balæna vulgo dicta sive Musculus*, *Rondel de Pisc. 1. 475. Balæna vulgo dicta sive Mystecetus Aristotelis, Musculus Plinii*, *Gefn. de Aquat. 114. Cetus*, *Schrod. THE WHALE*.

The Fat of a Whale is said, by *Schroder*, to be a good Topic for the Itch. The Oil is more used in Mechanics than Medicine. It is call'd *Train-oil*. *Pomet* gives the following Account of the Whale.

The Whale is the largest of all Fish, and is to be found in the Northern and North-west Seas. The Skeleton of one was shewn at *Paris* in 1658, whose Skull was between sixteen and seventeen Foot long, weighing four thousand six hundred Pounds; the Jaws ten Foot wide, and fourteen Foot long, weighing eleven hundred Pounds each; the Fins, which look like Hands, weighing each six hundred Pounds; the Joints of the Back, from the Head to the End of the Tail, forty-five Foot long; the first Joints weighing fifty Pounds, and the others less, according as they came nearer the End. I shall not trouble myself to give an Account of all that relates to that Animal, or the Manner of taking him, because several Authors have treated of it; but I shall only say, that there are two sorts of Whales; the one is call'd *Cachalot*, which differs from that which is call'd the *Whale*, in that the Mouth of the *Cachalot* is furnish'd with little flat Teeth, without a Beard or Whiskers; which is contrary to that which bears the Name of the *Whale*, which has nothing but Whiskers. 'Tis from the Fat or Lard of these Animals, that they draw *Whale-oil*, which is a very great Commodity, especially in Times of Peace, by reason of the great Use they have for it in *France*, as well for burning as several other Uses, wherein it is very necessary, particularly for refining Sulphur; and preparing some sorts of Skins for Leather. We have two sorts of *Whale-oil* come to *Paris*, the best of which is, that which we call *Huile de Grande Bale*, which is, by the *French*, made of the Fat immediately after it is taken from the *Whale*; whence the *French* Oils do not smell so ill as those made in *Holland*; because the *Dutch* do not make their Oils from the Fat so soon as it is drawn from the *Whale*, but bring it into *Holland* to be melted: Wherefore we ought to prefer the *French* Oils to those of *Holland*, which are easily known, because the *Dutch* are red and stinking, and yet are clear. The great Quantities we have of *Whale-oil* come from the Northern Sea, especially *Greenland*, from whence the *Hollanders* are supplied. *Pomet*.

The *Sperma Ceti* is, on all hands, agreed to be the Product of another sort of Whale, which is call'd

Cetus, *Offic. Cete admirabile aliud*, *Clus. Exot. 131. Balæna*, *Mer. Pin. 190. Balæna macrocephala, quæ binas tantum pinnas laterales habet*, *Sib. Phal. 12. Balæna major, inferiore tantum maxilla dentata, macrocephala bipennis*, *Raii Synop. Pisc. 15. Balæna*, *Ejusd. Ichth. Tab. A. f. 3. Cete*, *41. Cete*, *Jonf. Tab. 42. Trompa*, *Park. Theat. 1607. Sperma Ceti falso dicta*, *THE PARMASITTY WHALE. Dale*.

It has been long disputed what the *Sperma Ceti* is; but *Pomet's* Account of it is the most satisfactory I have met with, as to its Preparation, as he has seen it made, and done it himself.

The *Sperma Ceti* is the Brain of a sort of *Whale* call'd *Byaris*, and, by the People of *St. John de Luz*, *Cachalot*. This Animal is named; by some, the *Male Whale*, and, in *Latin*, *Orca*. It is about twenty-five Foot long, and twelve Foot high; each of the Teeth weighing one Pound, which are very useful for several sorts of Works. These Creatures are very common at *Cape Finistre*, on the Coast of *Galicia*, and in *Norway*. In the Year 1688, there was one taken by a *Spanish* Ship that carried it to *St. Sebastian's*, from the Head of which were taken twenty-four Barrels of Brain, and from the Body ninety-six Barrels of Fat. They ought then to be undeceived, who believe, that *Sperma Ceti* is any thing else but the Brain of the *Cachalot*; and I can affirm this with Certainty, not having only seen this prepar'd, but having prepar'd it myself.

This *Sperma Ceti* is usually prepar'd at *Bayonne*, and *St. John de Luz*; and this Work is so rare in *France*, that there are not above two Persons at the latter Place who know how to prepare it. Those who prepare, take the Brain as aforesaid; and melt it over a gentle Fire; then they cast it into Moulds, like those wherein they refine Sugar; and after it is cool'd, and drain'd from the Oil, they take and melt it again, and proceed after the

same manner, till such time as it be well purified, and very white; then with a Knife, made for the Purpose, they cut it into Scales or Flakes, just so as it appears when brought to us. As this Commodity is of some Consequence, by reason of its Price, I must observe, that we ought to chuse such as is in fine white Flakes or Scales, that are clear and transparent, of a fishy Smell; and take care, that it be not augmented with white Wax, as it happens but too often, which is easy to distinguish, as well from the Smell of the Wax, as because it is very thin, and of a more unpolish'd White; for we have no Commodity which is so sensible of the Air as this, which is the Reason why it ought to be carefully kept in Glasses, or in Barrels, close stopp'd from the Entrance of any Air, lest it turn yellow. *Pomet.*

Pomet may possibly be right, as to the Process generally used for making *Sperma Ceti*; but I have seen *Sperma Ceti* which has undergone no Treatment at all, except being put into Paper Bags, so that the Oil which adheres to it, may be absorb'd. The true *Sperma Ceti* is very white, and in very small Flakes, not much larger than the Crystals of Tartar: It dissolves by rubbing upon the Hand into a sort of Oil; and does not adhere to the Palate when chew'd, as the common Sort will; which makes me suspect, that it is mix'd with some other Substance, perhaps Wax, by those who make it for Sale: I can affirm with Certainty, that *Sperma Ceti* is neither the Oil, Brain, nor Sperm of the Whale, but a particular Substance found principally in the Head of the Fish; and flakes like boil'd Salmon, or Cod, when taken out. It is also found in other Parts of the Fish, but not in so large Quantities, or so good, as in the Head.

It is a noble Medicine in many Cases, tho' principally used in Bruises, inward Hurts, and after Delivery. It is an excellent Balsamic in many Distempers of the Breast; and gently deterges and heals. In Coughs, from sharp Rheums, Erosions, and Ulcerations, it is very safe, pleasant, and effectual; as also in Pleurifies, and inward Impostumations. Where the Mucus of the Bowels has been abraded by Acrimony and Cholera, as in Diarrhoeas, and Dysenteries, this is a very good Healer. In Ulcerations of the Kidneys, and bloody Urine, it is likewise a very suitable Medicine; and, by softening and relaxing the Fibres, it contributes frequently to the Expulsion of Gravel, by enlarging the Passages. It is most conveniently made up into the Forms of Electuaries and Boles, with proper Conserves, and Things of the like Kind: And in such Forms, if it be skilfully mix'd, it gives them an agreeable Smoothness, and is not discoverable by the Patient. It is also very properly dissolv'd in a Draught, by the Help of the Yolk of an Egg; or it is made into an Emulsion by the same Management. The usual Dose is about half a Dram.

It is emollient and healing, outwardly used; but its greatest Use that way is in the Small-pox, melted with Oil of Almonds: With this the Pustules are just kept moist, when they begin to harden; and it wonderfully prevents those Scars they are apt to leave, by softening, and healing them up smooth. Altho' this is but a modern Practice in this Distemper, yet *Schroder* takes Notice of its Use in his Time, in smoothing and filling up the Fissures, or Cavities, made by Blotches and Scabs.

It is sometimes used as a Cosmetic, both in Paints, and in Pastes, to wash the Hands with.

BALAM PULLI. A Name for the Tamarind-tree. *Raii Hist. Plant.*

BALANDA, and **VALANIDA**, are Names for the *Æsculus*, or Beech. *Blancard.*

BALANDINA, a fictitious Stone mention'd by *Raymond Lully*. As I do not understand the Original, it would be somewhat difficult to translate it. I shall therefore give it, as he has done, in *Latin*, in hopes, that those whom it may concern may understand it better than myself.

BALANDINA componitur ex argento vivo ferri. & est coloris rubei valde, & resplendet ratione sulphuris decocta & conversa in naturam aquæ aeræ ignitæ respiciens naturam argenti vivi; & quia sua natura est ex aere, ideo restringit sanguinem. Recipe ergo de aqua acerea ferri, & imple mollem ceream post virtutem restrictivam acceptam, & indura illam in aqua terrestri restrictiva ferri, & prosequere per informationes supradictas.

BALANI, or **GLANDES**. A sort of Shell-fish, so call'd from their Shape, which is like that of an Acorn: They are also call'd *Pollicipedes*. Of these there are many Sorts, which are found adhering to the Rocks on the Coasts of *Spain*, *Brittany*, and *Normandy*.

As a Food, they are esteem'd aperitive.

BALANOCASTANUM. The same as **BULBOCASTANUM**, which see.

BALANOS, βάλανος, properly signifies an Acorn; but *Hippocrates*, in his Treatise *De Affectionibus*, uses it to express an Oak. It is also made use of sometimes, as in *Theophrastus*, to signify any glandiferous Tree.

Hence, from the Similitude of Form, *Balanos* (βάλανος) is frequently used to express Suppositories and Pessaries.

Balanos also signifies the *Glans Penis*.

VOL. I.

BALANUS MYREPSICA.

Ben, Balanus myrepsica, Offic. *Balanus myrepsica*, Ind. Med. 17. *Balanus myrepsica*, *Glans unguentaria*, *Nux Ben*, Mont. Exot. 9. Commel. Plant. Ufu. 83. *Balanus myrepsica*, sive *Glans unguentaria*. The OILY ACORN. Ger. 1214. Emac. 1400. *Glans unguentaria*, C. B. Pin. 402. *Raii Hist.* 2. 1738. *Jonsl. Dendr.* 130. *Nux unguentaria*, J. B. 1. 317. *Chab.* 24. *Nux Ben*, sive *Glans unguentaria*, Park. Theat. 238. *Balanus myrepsica*, siliqua triangulari, semine minore alato, Breyne. Prod. 2. 22. Commel. Flo. Mal. 50. *Nux Ben Zeylanica*, siliqua triangulari, seminibus alatis, Herm. Parad. Bat. Prod. 357. Cat. Hort. Lugd. Bat. 692. *Arbor exotica*, *Lentisci folio*, C. B. Pin. 399. *Moringa*, Ferr. Flor. Cult. 385. Park. Theat. 1650. *Moringa Lentisci folio*, fructu magno anguloso, in quo semine, &c. J. B. 1. 435. *Raii Hist.* 2. 1745. Pluk. Almag. 253. *Katumurungba*, Herm. Mus. Zeyl. 62. *Moringon*, Hort. Mal. 6. 19. Tab. 9. *Coastis*, quam alii *Tlapalex-palli*, &c. vocant, Jonsl. Dendr. 291. Herm. 119. *Lignum nephriticum*, Rech. in not. ib. *Coastis*, alius *Tlapalex-palli*, Laet. Ind. Occid. 227. *Lignum nephriticum*, Park. Theat. 1664. Ind. Med. 68. Mont. Exot. 8. *Raii Hist.* 2. 1804. *Lignum nephriticum cœrulea & flavo tingens*, J. B. 1. 492. *Chab.* 37. *Lignum peregrinum aquam cœruleam reddens*, C. B. Pin. 416. The BEN-NUT, NEPHRITIC WOOD.

According to *Dale*, the *Lignum nephriticum* is the Wood, and the *Balanus myrepsica* the Fruit of this Tree. See NEPHRITICUM LIGNUM.

Dioscorides gives the following Account of the Virtues of the *Balanus Myrepsica*.

A Dram of the Powder, drank in Oxycras, consumes the Spleen. It is apply'd to the same Part by way of Cataplasm, being mixed with Meal of Darnel; and with Hydromel it makes a Cataplasm for the Gout. Boil'd in Vinegar, it deterges the Psoa and Lepra; with Nitre, it cleanses the Alphi, and black Ulcers; and in Urine, it clears the Face of Freckles, Spots, Sun-burns, and Pimples. Drank in Hydromel, it excites Vomiting; and loosens the Belly, but is very bad for the Stomach. The expressed Oil thereof, drank, works by Stool, but its Shell (σκαίδας αὐτῆς) is more astringent. The Dregs that remain after Contusion and Expression, enter the Composition of Smegmas adapted for the Detersion of Asperities and Itchings. *Dioscorides*, Lib. 4. Cap. 160.

The *Ben*, or *Balanus Myrepsica*, is a triangular Fruit of different Colours, of the Size of a Hazel-nut, being white or greyish, in which is found a white Almond, of a sweet Taste, disagreeable enough.

Chuse such Kernels as are white, fresh, and the heaviest you can get. They are of no other Use, that I know of, but to make Oil of, which has a great many good Qualities. The first is, that it has neither Taste nor Smell, and never grows rancid, which makes it of great Use to the Perfumers and others, for preserving the Scents of Flowers, as Jessamin, Oranges, Tuberose, and the like. With this Oil they make all their sweet Essences, adding to the Flowers afore-named, as they fancy, Ambergrise, Musk, Civet, Benjamin, Storax, or Balsam of Peru. They grow in *Spain*, *Arabia*, *Ethiopia*, and *India*, where they come to Perfection, which they scarcely ever do in Europe.

The whole Nut is of a purging Quality, and the dry Pressing, or Powder, after the Oil is taken out, of a cleansing and drying Nature; the Shells or Husks bind extremely; the Kernels bruised, and drank with a little Ale, purge the Body from gross and thin Phlegm; the Oil, which is drawn out of the Nut, does the same, provokes Vomiting, and cleanses the Stomach of much foul Matter gather'd therein; but the Nut itself, in its gross Body, does much more trouble the Stomach, unless it be roasted at the Fire: for then they lose much of their emetic Quality, and only purge downwards; and they are given in Clysters, with very good Effect, to cleanse the Bowels, and cure the Colic. The Kernels, taken in Posset-drink to a Dram, mollify the Hardness of the Liver and Spleen. The Oil, besides its excellent Use to the Perfumers, is employ'd by the Glovers and Skinners, to preserve their Leather from Spots or Stains, or from ever growing mouldy, as those perfumed with Oil of Almonds do. It more easily extracts, and longer retains, the Perfume of any thing infus'd in it, than any other Oil whatsoever. Being dropt into the Ears, it helps the Noise in them, and Deafness also. The Kernel, used with Vinegar and Nitre, is good against the Itch, Leprosy, running Sores, Scabs, Pimples, and other Defections of the Skin. Mix'd with Meal of Orobus, and apply'd Plaisterwise to the Side, it helps the Spleen, and eases the Gout, and Nerves which are pain'd with Cramps, Spasms, Colds, and Bruises. Mix'd with Honey, it dissolves Nodes, Tophes, Knots, and hard Tumors. *Pomet.*

The Oil of the *Balanus Myrepsica*, is sometimes called *Oleum Balaninum*.

This Fruit was termed *Glans Unguentaria*, because it yields an Oil by Expression, used by Perfumers in perfuming other Oils.

Oils, and never turns rancid. It is thought proper in the Itch, and some other cutaneous Diseases, as being a good Detergent; and is sometimes mixed with Bismuth and white Precipitate. Some say, that this Oil, mixed with a Hazel-nut, or Filbert, and taken in this manner, will purge upward and downward; and it is certain, that the Fruit itself, made into an Emulsion, is purgative. *Geoffrey*.

There is another Species of *Ben*, which is much larger than the preceding. It is call'd by *Monardus*, in his History of Drugs, *Ben magnum, seu Avellana purgatrix*, the great *Ben*, or purging *Filbert*. It grows in *America*, and is brought sometimes from *St. Domingo*, but is very scarce.

It purges upwards and downwards. The *Indians* use it for the Wind-colic. The Dose from half a Dram to a Dram. They weaken its Force by roasting it. *Lemery de Drogues*.

BALASIUS. A Gem of a purple or rosy Colour. It is a sort of Carbuncle. *Rulandus* relates some wonderful Effects of this precious Stone, which are not worth farther Notice, because utterly fabulous.

BALATRO, according to *Blancard*, is the same as **BAMBALIO**, which see.

BALAUSTIA, *Balaustines*. These are the Flowers of the *Balaustia*, *Offic. Ger. 1262. Emac. 1450. Balaustia Hispanica*, J. B. 1. 82. Chab. 3. *Balaustia flore pleno majore*, C. B. Pin. 438. *Balaustium*, Mont. Ind. 37. *Aldrov. Dendr. 579. Malus Punica sylvestris major, seu Balaustium majus*, Park. Theat. 1511. Raii Hist. 2. 1463. *Balaustium majus seu Malus Punica sylvestris major*, Park. Parad. 430. *Punica flore pleno majore*, Tourn. Inst. 636. Boerh. Ind. A. 2. 450. *Malus Punica pleniflora*, Jons. Dendr. 29. The **BALAU-STINE-TREE**.

The *Balaustine* is the Flower of the wild Pomgranate, of which there are several Kinds; for you meet with the white, the red, and the Rose-colour'd. It is like the *Cytinum* (Flower) of the Garden Pomgranate, and the Juice thereof is extracted in the same manner as *Hypocistis*.

It is of an astringent Quality, and effectual to the same Purposes as the *Hypocistis* and the *Cytinum*. *Dioscorides, Lib. 1. Cap. 154.*

There are two Sorts of *Balaustines* sold, the fine and the common: By the fine are meant the Husks, together with their Flowers; by the common, those which have nothing but the Husk. *Pomet.*

The *Balaustines*, as well as the *Cytines*, are of an earthy Nature, very astringent, inspissating, refrigerating, and drying; whence they are very often used for all Kinds of Fluxes, as the *Diarrhoea*, *Dysentery*, the *Uterine Flux*, and others; and for stopping of *Hæmorrhages* from Wounds. *Dale from Schroder.*

BALBIS, *βάλβις*, is explained by *Galen* in his *Exegesis*, an oblong Cavity; hence *βαλβιτῆδες*, in *Hippocrates*, in his *Treatise de Articulis*, is spoken of the Cavity at the Extremity of the *Humerus*, to which the *Ulna* is articulated.

BALBUTIES. A Defect in the Speech. Properly that Sort of Stammering, where a Person sometimes hesitates, and immediately after speaks precipitately.

BALISTÆ OS. The *ASTRAGALUS*, which see.

BALITISTERA. *Rulandus* explains this by *Terra Rubra*.

BALLERUS. A small River-fish taken Notice of by *Aldrovandus* and *Lemery*, which is used in Food, but has no Medicinal Virtues attributed to it.

BALLOTE.

Marrubium nigrum Ballote, *Offic. Marrubium nigrum, STINKING HOREHOUND*, *Ger. 566. Emac. 701. Raii Hist. 1. 571. Mer. Pin. 75. Marrubium nigrum, seu Ballote*, J. B. 3. 318. Chab. 436. *Marrubium nigrum fætidum Ballote dictum*, Park. Theat. 1230. *Marrubium nigrum fætidum, Ballote Dioscoridis*, C. B. Pin. 230. Hist. Oxon. 3. 377. *Marrubiastrum*, Rivin. Irr. Mon. *Ballote*, Tourn. Inst. 185. Elem. Bot. 153. Raii Synop. 3. 244. Boerh. Ind. A. 175. Rupp. Flor. Jen. 183. Dill. Cat. Giff. 135. Buxb. 35. *Ballote, Marrubium nigrum fætidum*, Merc. Bot. 1. 23. Phyt. Brit. 14. **BLACK HOREHOUND**.

Ballote, or black Horehound, shoots up from one Root in numerous, black, square, and somewhat hairy Stalks. The Leaves are like those of the common Horehound, but larger and rounder, black, and hairy, and set at Distances about the Stalk like those of the *Melissophyllum*, for which Reason some give it that Name. The Flowers are white, and grow about the Stalk in Whorles.

A Cataplasm of the Leaves, with Salt, is of Efficacy against the Bite of a Dog, and, dry'd over hot Cinders till they are wither'd, are good to repress a *Condyloma*; and used with Honey, deterge foul Ulcers. *Dioscorides, Lib. 3. Cap. 117.*

The black Horehound grows better, and more branched than the white, having square, hairy Stalks, and larger, darker Leaves, which more resemble those of dead Nettle, but are somewhat softer in handling, of a strong earthy Smell. The

Flowers grow among the Leaves, in two Clusters, on each Side of the Stalk, towards the Fore-part of it; each Cluster on a common Foot-stalk, and every Flower in a wide-mouth'd, five-corner'd, large Calyx, of a red Colour, being galeated and labiated, appearing but little above the Calyx, in the Bottom of which grow four small oblong Seeds. The Root is long, stringy, and spreading much. It grows by Path-ways, and in Hedges, and flowers in July.

The Leaves and Tops are used, tho' but seldom. Dr. *Powle* commends it as a singular Remedy against hysterical and hypochondriac Affections. *Miller's Bot. Off. p. 285.*

It contains a great deal of Oil half exalted, and essential and volatile Salt. *Lemery des Drogues.*

Its Leaves are bitter, stinking, and give no Tincture of Red to the blue Paper, which makes us conjecture, that the natural Salt of the Earth is involved in it by a great deal of fetid Oil. Mr. *Ray* recommends a strong Decoction of it in hysterical and hypochondriac Cases. Make a Tea of equal Parts of white Horehound, stinking Horehound, and Betony-leaves, and drink every Day three or four Cups of it, in order to prevent the Gout, or render its Attacks the less violent. *Martyn's Tournefort.*

BALNEABILIS. An Epithet for such Waters as are proper for Bathing.

BALNEA, Baths.

These have in all Ages been used with a View to Cleanliness and Decency. Hence, probably their Medicinal Virtues were first discover'd. And it is remarkable, that frequent Ab-lutions have been injoin'd as a Duty, by most Religions which have been established in the East. At this Day the Orientals reproach the *Europeans* with Beastliness, on account of their neglecting to bathe; and, it must be confessed, with too much Reason.

Medea is said to be the first who employ'd warm Baths with a View to Health, and this gave Rise to the Fable, that she boil'd People alive.

Pelias, an old King of *Theffaly*, having an Inclination to try what Effects this new Medicine would have upon him, dy'd under the Experiment, which might add Credit to the Fable.

Melampus bath'd the Daughters of *Prætus*, in order to cure them of Madnefs.

The *Lacedæmonians* immers'd their Children in Wine, as soon as ever they were born, tho' they were sensible, that it would make them die of *Epileptic Fits*, in case they were of a weak Constitution.

Those Robbers in foreign Parts, which are called *Bohemians*, a sort of *Banditti*, not unlike our *Gypsies*, wash their Children, as soon as born, in the next Fountain, to try their Strength.

Virgil says the same of the antient *Latins*.

Durum a stirpe genus, natos ad flumina primum, Deferimus, sævoque gelu duramus & undis.

Asclepiades recommended cold Baths. *Dion Cassius, Lib. 53.* informs us, that *Augustus* being extremely ill; and not able to take Medicines, having an Aversion to them, *Antonius Musa* advis'd him to use cold Bathing, and to drink cold Water. This cur'd the Emperor; and besides other great Rewards from *Augustus* and the Senate, *Musa* for this was allow'd to wear a Gold Ring, a Privilege none before, enjoy'd by nefs Men of the first Quality in *Rome*.

The same Privilege was also granted to all those of his Profession; and they were farther granted an Immunity from all Taxes for ever.

But afterwards *Musa* treating *Marcellus* in the same manner, it cost that young Prince his Life. And upon this Account *Musa* was censur'd, as if *Livia* had bribed him to advise cold Bathing to this Prince improperly.

Those who consider what good Effects cold Baths may have upon People in Years, or such whose Fibres are relaxed; and, on the contrary, of what ill Consequence they may be, in young People, whose Fibres are in full Elasticity, will easily account for the different Effects of the cold Bath upon *Augustus* and his Nephew.

Suetonius in Augusto, Cap. 59. and 81. tells us, that the Senate decreed *Antonius Musa* a Statue of Brass, and set it next to that of *Æsculapius*.

He says also, that *Augustus*, at his Return from his Expedition to *Biscay*, having a Disorder in the Liver, consequent to a long Fluxion; *Antonius Musa* propos'd a hazardous Remedy, and quite contrary to those that had been try'd, which was to change his warm Fomentations for cold ones.

Pliny says, that before the Time of *Musa*, none but warm Baths were made use of; and that *Antonius Musa* brought cold ones into Credit.

Horace informs us, that he was forbid going to *Baie*, by *Antonius Musa*, and order'd to wash in cold Water, tho' in the

the Middle of Winter; and that the People of *Baia* complain'd of the Sick, who left them, and expos'd their Heads and Stomachs to the cold Fountains at *Clusium* and *Gabii*.

Antonius Musa had a Brother, whose Name was *Euphorbus*, who was Physician to the second *Juba*, according to *Pliny*, and shared with the former the Credit of the Invention of cold Baths. *Pliny*, however, is mistaken when he tel's us, that *Antonius Musa* and *Euphorbus* were the Inventors of cold Baths, because they were recommended by *Asclepiades*, who liv'd before them.

Pliny, *Lib. 29. Cap. 1.* gives an Account of a Physician of *Marsillus*, whose Name was *Charmis*. He came to fix at *Rome*, in the Reign of *Nero*, and made a great Fortune. He recommended much cold Baths in the Middle of Winter.

Plutarch in his *Symposiacks*, *Lib. 8. Quæst. 9.* gives us a very disadvantageous Idea of the *Roman* warm Baths. He says, that nothing contributes so much to change the Body, and produce new Diseases, as the Variety of Baths that were in his Time made use of; by which the Body is first soften'd like Iron by Heat, and then again harden'd by dipping into cold Water, like Steel. Any one, says he, who had liv'd a few Years before us, if he was to look into our Baths, would say,

Ἐντα ῥῶς ἐν Ἀχέρεια Περσέλειδαν τε βίον.

He adds, that their Ancestors used mild Baths, inasmuch that *Alexander* the Great, when he had a Fever, slept in one; and the Women amongst the *Galatæ* eat with their Children whilst they bath'd: But that in his Days, the Air that they respir'd in Breathing, was a Mixture of Moisture and Fire; which suffer'd not one Particle of the Body to be at Rest, but mov'd all out of their proper Situations, till they extinguish'd themselves, as it were flaming from the Bath.

Baths are properly enough distinguished into *hot* and *cold*; and both these differ extremely, according to the different Degrees of Heat and Coldness, and according to the various Contents of the Waters made use of.

Baths again are universal, that is, such as the whole Body is immers'd in; or particular, that is, such as are apply'd to some Parts, as *Semicupia*, *Pediluvia*, and some Sorts of Fomentations.

It is well known in natural Philosophy, that Heat relaxes; and that Cold, on the contrary, contracts and braces the Bodies it is apply'd to. This must necessarily render warm Baths very different from those which are cold in their Effects.

We find a great deal in *Hippocrates*, with respect to the Use of Baths, both warm and cold; and both as Preservatives against, and Remedies for Distempers. But in his Treatise on *Regimen in acute Diseases*, he informs us, that *Conveniences for Bathing were to be met with in very few Houses*. Whence *Galen* infers, that Bathing was not so universal in the Time of *Hippocrates*, as afterwards.

The Uses of Bathing in particular Distempers, according to *Hippocrates*, are specify'd under their respective Articles; meantime, his general Rules are, that the Patient who uses this Remedy should remain without moving from his Place, that he should not speak, but allow those who either bathe him, or pour Water on his Head, or rub him, to perform their several Offices: That Sponges should be used in rubbing him, and not the Instrument called *Strigil*: That the Patient should with great Precaution guard against Cold: That the Bath should not be used immediately after eating or drinking; and that both these were also to be abstained from immediately after coming out of the Bath: That it ought to be considered, whether the Patient used the Bath when in Health; and if he did, whether he reaped Advantage, or sustained any Injury by it: And, lastly, that the Bath should not be used by People who are either too soluble, or too costive, in their Bellies, nor by Persons who have not made a previous Discharge of their Excrements, nor by those who are too weak, who have an Inclination to vomit, a Nausea, or a Bleeding at the Nose.

According to *Hippocrates*, the Use of the Bath is to refresh and moisten, to remove Weariness, to soften the Skin and Joints, to provoke Urine, to dispel Heaviness of the Head, and to render the Nostrils and other open Ducts of the Body moist. He allows two Baths a Day for such Patients as have been accustomed to bathing during their Health.

Celsus gives the following Directions with respect to Bathing.

Bathing is useful on two Accounts; for sometimes, after the Fever is gone, it makes way for Health, by enabling the Patient to use a more plentiful Diet, and richer Wines; sometimes it takes off the Fever itself. It is commonly advis'd, when the outer Skin wants to be relaxed, the corrupt Humours to be attracted from the inward Parts, and the Habit of the Body to be changed.

The Antients were pretty cautious in the Use of Bathing, *Asclepiades* more free; nor indeed is it a thing to be dreaded, provided it be seasonable, otherwise it is pernicious. If a Person get rid of a Fever, so as to be free for a whole Day, he may on the next, after the usual Time of the Fit, safely venture to bathe. But if the Fever be periodical, so as to return the third or fourth Day, whenever it fails to make its usual Visit, Bathing may be safely used. While a Fever continues, if it be but gentle, and the Patient labour under an inveterate Disorder of the Spleen, the Bath is a wholesome Medicine, with this Caution, however, that there be no Hardness or Swelling about the Præcordia, no Roughness of the Tongue, no Pain in the Head, or middle Parts of the Body, and that the Fever does riot at the same time increase.

In periodical Fevers there are two Seasons for Bathing; one before the Shivering, the other after the Fever is gone; but for those who have been long molested with slow Intermittents, the proper Time is, when the Access is entirely over, or, if that does not happen, at least when it is mitigated, and the Body in as good a State as can be expected in that kind of Illness.

A weak Person, who is to go into the Bath, must be careful, that he takes no Cold before his Entrance. When he is there, let him stop a while, and examine whether he perceives any Stricture about his Temples, and whether any Sweat arises. If the former happens, and the other does not follow, Bathing that Day will be of no Service; but the Patient is to be gently anointed all over, and so carry'd back, and Cold is by all means to be avoided, and Abstinence is to be used. If there be no Alteration at the Temples, but a Sweat breaks out, first in those Parts, and afterwards in other Places, the Mouth is to be fomented with hot Water, and he is then to sit in the *Solium*. There he is also to mind whether his outer Skin shivers at the first Contact of the hot Water, which, though it can scarce happen where all things previous are right, is a certain Sign that Bathing will prove of no Effect.

A Person may know whether Uction ought to be perform'd before or after he goes into the hot Water, by considering his State of Health. But generally (except in particular Instances) after raising a Sweat, the Body is first to be gently and thoroughly anointed, and afterwards to be put into the hot Water. And here Regard also is to be had to the Strength; for the Patient must not be suffered to fall into a fainting Fit through Excess of Heat; but the same is to be seasonably moderated, and the Body to be carefully covered with Cloaths, for its Defence against cold Blasts; and there also the Patient is to sweat before he takes any thing. *Celsus*, *Lib. 2. Cap. 17.*

The preceding Directions relate only to warm Baths.

Hoffman has collected several Particulars relative to the Uses of Bathing, which are of too much Importance to be omitted.

The salutary Effects produced by the external Application of Water are no less conspicuous, than the Advantages arising from its internal Use. As a Proof of this, we need only direct our Views to Baths, the principal Basis and most material Ingredient of which is simple Water; a Fluid, which, when pure, light, and without any adventitious Mixture, is possessed of highly medicinal and salutary Qualities. In all Ages, the more sagacious and skilful Physicians seem to have been sensible of this. Accordingly *Hippocrates*, *Galen*, *Cælius Aurelianus*, *Arætaus*, *Celsus*, and *Trallian*, inform us, that in their respective Times Baths of sweet and pure Water were much used in the most violent internal Distempers, especially in the most formidable Disorders of the Head, such as racking Pains and Madness, whether accompany'd with Melancholy and Dejectedness, or with Rage and Fury. The Antients used these Baths with uncommon Success. And *Alexander Trallianus* [*Lib. 1.*] affirms, "That a Bath of pure and sweet Water is of all other things the best calculated for the Relief of the Melancholy; but 'tis necessary they should remain in it for a considerable time, even in the Summer."

Arætaus approves of this Practice, and orders melancholy Patients to go often into Waters that are naturally hot, and remain in them for a considerable time, subjoining this as a Reason, that in those labouring under Melancholy the Muscles are dry and tense; and that a more proper Step cannot be taken to remove their Disorder, than to render them lax and soft by Bathing.

Cælius Aurelianus also warmly recommends the Use of natural Waters in maniacal Cases.

And *Prosper Alpinus* [*de Medicina Ægyptiorum*] informs us, that many melancholy Patients were perfectly cured by the Use of moderately warm Baths.

In case of violent Pains arising from a Stone in the Kidneys, *Alexander Trallianus* and *Arætaus* highly recommend sitting up to the Navel in warm Baths.

I myself also, from repeated Experience, can affirm, that in violent Disorders of the Head, such as Madness, Melancholy, preternatural Stupidity and Torpor of Mind, disturbed Sleep, attended with frightful Dreams, Hemisrania, Vertigos, Dimness of Sight, violent Tooth-achs, racking Pains of the nervous Parts,

Parts, Cardialgias, Iliac Passions, Colics, and Pains arising from the Stone in the Kidneys, Baths of the *Toplitz Waters*, as also sitting in pure Water moderately warm, have afforded instantaneous Relief, even during the Paroxysm itself, and under the immediate Attack of the Symptoms; for so surprising is the Efficacy of Baths in alleviating Pain, and relaxing spasmodic Strictures, that so long as the Patients remain in them, their Complaints cease, and their racking Spasms are not felt; but make a fresh Attack when they quit them. The Antients also, according to *Celsus*, and the *Egyptians*, according to *Alpinus*, used Baths no less frequently and successfully in all Fevers, except pestilential, whether of the continued or intermitting Kind, though they did not approve of them in the first Stages, and greatest Vigour, but only in the Declension of the Disease. And I myself have more than once successfully ordered emollient and nervous Baths to be used by old People labouring under Quartan Fevers, on their Days of Respite.

But Baths of pure and sweet Water not only soften and relax the Fibres when rigid, tense, and constricted with Spasms, and derive the Blood and Humours from the Head, and superior Parts, to others that are less noble and delicate, but also wonderfully assist the Circulation of the Blood and Juices, and promote cutaneous Secretion; for by their Humidity they relax the Fibres and Pores of the Skin; and by their Warmth they expand the Blood, and augment the Dilatation, and consequently the Contraction of the Heart and Arteries. Hence the Pulse is rendered fuller and quicker, and the Circulation of the Juices accelerated, by which means the Blood becoming more thin and fluid, is quickly conveyed to the most remote Tubes of the Body, and to all the Parts of its Surface; and the Elimination of the most subtle and noxious Sordes is promoted; which End will be still more effectually answered, if the Patient betake himself to Bed immediately after the Use of the Bath; because the Matter to be eliminated by the Pores of the Skin is restrained and pent up by the Gravitation and Pressure of the circumambient Water, so long as the Patient remains in the Bath. But when this Gravitation and Pressure are removed, that is, when the Patient comes out of the Bath, has his Body dry'd, and goes to Bed, so great a Quantity of Serum is discharged from the opened and expanded Tubuli, that the whole Surface of the Body is sometimes covered with a plentiful, but kindly Sweat.

Besides, Baths and *Semicupiums* (Half-baths) have a peculiar Efficacy in augmenting the Virtues, and assisting the Operations, of the more generous Medicines, as they are call'd, in the Cure of the most terrible Disorders; for 'tis sufficiently known, that the drinking acidulated or other wholesome Waters for the Cure of stubborn and chronic Disorders is attended with much happier Consequences, when Baths are used in Conjunction with them, than when they are drank without such Assistance. Thus the Efficacy of the *Caroline Waters*, and those of *Egra*, especially in curing spasmodic and hypochondriac Disorders, and Persons whose nervous Systems are weakened and impaired, appears more conspicuous and surprising, if after drinking them the Patients go into the warm Baths of *Toplitz*, and use them in a due manner, and for a proper time; for these Waters are very light, subtle, and pure, as appears both from statical Experiments, and from Evaporation, by which scarcely any thing of a solid Nature is left; so that by reason of their Subtlety and Purity, they wonderfully penetrate into the smallest Interstices of the solid Parts and Fibres, which are tense and contracted; and by their relaxing and emollient Nature, reduce them to their natural State.

Baths are of singular Efficacy in the Cure of a virulent *Lues Venerea*, attended with its most formidable Symptoms, provided the Patients go almost daily into them, and from thence to Bed with a View to Sweat; but the Body must first be prepared by Venesection, Laxatives, and such Medicines as sweeten the Blood, and proper Preparations of Mercury duly exhibited, whether with a View to promote Sweat, or excite a Flux of the Saliva. Decoctions also of the Roots and Woods recommended for purifying the Blood in cutaneous Disorders, Pains, Exulcerations, and such Distempers as draw their Origin from an excessive Acrimony of the Juices, produce much more speedy and happy Effects, if Baths are used along with them. And indeed 'tis scarce credible what a large Quantity of thick Fat, and fetid Sordes, is extracted from the most minute Tubuli of the Skin by Baths, and left swimming in the Water. If we have a Mind to prescribe the stronger Purgatives, or Substances of an acrid Nature, for exciting a Discharge of the Urine, these things are more safely exhibited after a previous Use of Baths. Though 'tis plain, that the Antients performed very wonderful Cures in obstinate Disorders, by means of white Hellebore; yet we find they never used that Remedy, 'till after the Patient had used the Bath; for by this means the Juices are not only rendered more fluid and moveable, and the excretory Ducts opened, that the peccant Matter may be eliminated with the greater Ease, but the Fibres also of the solid Parts are relaxed, and by that means the violent Spasms, the Strictures, and all

the other bad Effects produced by such a drastic and herculean Medicine are prevented. The Bath is also used in taking Vomits, which, according to *Alpinus*, [*de Medicin. Meth.*] the *Egyptians* used every Month as a Preservative, but not except in a Bath.

When Diseases arising from Affections of the Uterus, and from a Relaxation or Stricture of its Vessels, are to be cured, such as the Fluor Albus, when Abortion is to be prevented; when fleshy Concretions, resembling a Polypus, or Moles, the frequent Causes of Abortions, are to be expell'd; or when the Menstrues, flowing irregularly, are to be reduced to their natural and stated Periods, I always prescribe, and that with the desired Success, the frequent Use of Baths, in Conjunction with proper internal uterine Medicines, Emmenagogues, Balsamics, and Purgatives. Preparations of Steel, especially in a liquid Form, as also Infusions of the Peruvian Bark, or Decoctions of it in Wine, by their mild and balsamic Astringency, produce very remarkable and happy Effects by corroborating and strengthening the Tone of the Parts in Cachexies, in inveterate intermitting Fevers, and in that Species of the hypochondriac Affection, which draws its Origin from a Weakness of the peristaltic Motion of the Intestines. But still these Medicines will operate with more Safety and Success, if during the Time they are used the Body is duly exercised, or frequently softened and relaxed by Bathing. The Facts I now mention are sufficiently confirmed by long Experience.

But for Baths of this Kind we are not to use Spring-waters, nor such as are hard, heavy, or impregnated with a calcarious Earth; but must make Choice of those that are light and subtle, of which Kind is Rain-water and River-water, especially immediately after a Fall of Rain. Those Waters are also to be esteem'd most proper for Bathing; which, in Washing, soonest take Stains out of Linen Cloths; which, in the Preparation of Victuals, easily and thoroughly soften Roots and Pot-herbs; which, upon Evaporation, leave little or no Matter behind; and which, when pour'd hot upon Tea, or any other Substance of a like Nature, quickly enter their Pores, and extract their Virtues. But if such cannot be had, those we can come at must be corrected, and render'd soft by Art; which is most conveniently and effectually done by adding to them some Lixivium, or Venice Soap, or by pouring into them a sufficient Quantity of Milk, or by mixing with them a Decoction of wheaten Bran, of the Flowers or Leaves of Chamomile, or of the Flowers and Roots of white Lilies. The Antients, as appears from *Caelius Aurelianus*, added Oils, and used Baths thus prepared, for alleviating Pains, and curing those Suppressions of Urine which proceed from spasmodic Strictures of the Sphincter Muscles placed at the Orifice of the Bladder. And emollient Baths made up in this manner are of singular Service for facilitating Delivery, especially in Women with their first Child, or such as are a little advanced in Years, or of a dry Constitution, if used in the last Months of Gestation. In the *Tabes Dorsalis* of Children, as also in the Rickets, these Baths are likewise of unspeakable Service; for they open the obstructed and constricted Ducts, and, by rendering the nutritious Juices more fluid, occasion by that means a freer and more equable Distribution of them to the several Parts of the Body.

Quite different are the Effects of those natural Baths, which, by reason of the chalybeate Principle they contain, are so far from softening and relaxing, that they rather brace up and harden the Pores of the Body. Chalybeate Waters, of this Kind, are now discover'd in a great many Parts of Germany; but those of the greatest Note are, the Waters of *Freyenwald*, in the Marquisate of *Brandenburg*; those of *Bebrun* in *Turingen*; those of *Radeberg*; those of *Lauchstade* in *Meissne*, discover'd by myself; and those of *Eppag* and *Weissenburg* in *Franconia*. Tho' all these Fountains yield a light and subtle Water, yet by reason of that most fine and sulphureous Crocus of Mars, which they deposit after standing some time, and by which they tinge, with a yellow Colour, Linen or Eggs thrown into the Bath, are of a somewhat astringent Taste; and may by a skilful Physician be prescrib'd internally with Success, in those Cases where chalybeate Preparations are proper. But their external Use in Bathing is much more highly extoll'd, as being of singular Service to those who have phlegmatic Constitutions, a spongy State of the Fibres, and small full Vessels. They are also of Service in Cases where, by reason of a too slow Circulation of the Blood, the Juices are inspissated, become foul, and contract a scorbutic Impurity, whence arise Langours, rheumatic Pains, Gouts, oedematous Tumors, Contractions, and also in Weaknesses, and Refrigerations of the Joints; in all which Cases these corroborating Baths are highly serviceable, by means of their subtle sulphureous and chalybeate Principle, by which they impart Strength and Elasticity to the languid Parts, and brace up the relax'd and weaken'd Fibres.

And tho' such is the Nature and Genius of these astringent chalybeate Baths, that they ought only to be used when tepid and moderately warm, since, when too hot, they prove very hurtful to the Body, throw the Blood into preternatural Com-

motions, excite Head-achs, and induce Languors of the Parts; yet when the Patient, immediately after a tepid Bath of this Kind, in which the superior Part of the Water is rather cold than hot, is laid in Bed, he becomes warm, his Pulse beats strong, and often a plentiful Sweat is discharged from all the Parts of his Body, by which his Strength is considerably increased, and the external Parts are corroborated.

There are also artificial Baths of a more gently corroborating Nature, which are made of cephalic and nervous Powders, boil'd in light and pure Water, and are of very singular Efficacy. For preparing Baths of this Kind we principally make use of Bay-leaves, the Herb Baum, Southernwood, Marjoram, Origanum, wild Thyme, Thyme, Rosemary, Hyssop, Clary, dry'd Mint, Catmint, Pennyroyal, Feverfew, and Flowers of common Chamomile and Rosemary; all which put into a Bag, with the Addition of some Handfuls of common Salt and Potash, are to be gently boil'd in the Water. Washing the Body with medicated Waters of this Kind, in a Bathing-tub, produces very happy and salutary Effects in Paralytic Disorders, Imbecillity, and Weakness of the Joints; and proves very serviceable to weak, cachectic, and cold Constitutions; and to old Men, who, by the Violence of Distempers, have their Strength impair'd, their Nerves weaken'd, and the Tone of the Ligaments of their Joints in some measure destroy'd. They are no less remarkably beneficial in all Disorders of the Uterus, occasion'd by Abortion, difficult Births, or even Labours of any Kind: As also in Cases where the Compages of the Uterus is drench'd with two luxuriant Humidity; or where a white viscid Humour, discharged from the Pudenda, occasions Sterility. They also wonderfully promote the obstructed Menfes; and the Hæmorrhoids in Men, when stopp'd.

There are also Baths of another Kind, call'd Vapour-Baths, or *Lætic* Baths. In these the Vapours, whether hot and dry, such as these exhaling from kindled Spirits of Wine; or hot and moist, such as these arising from Herbs boil'd in Wine or Water, have immediate Access, either to the whole Body; or only to some particular Parts of it. These warm Exhalations are of singular Efficacy in promoting Sweat, opening the subcutaneous Ducts, softening the harden'd Parts, relaxing such as are tense and rigid, and dissolving viscid and tenacious Humours; and that the Horns and hardest Bones of Animals may be soften'd, and render'd pliable, by means of the warm Steams of Water alone, is a Fact known even to Cooks and Druggists. For this Reason, Vapour-Baths are of singular Service in cold Distempers, Anasarca, cedematous Tumors, Cases where the Limbs are become paralytic, the Lues Venerea, and Swellings of the Testicles: They are likewise very beneficial in repressing a Prolapsus either of the Uterus or Anus, and may be prepar'd of different Materials, according to the Nature and Genius of the Distemper they are intended to relieve. In that terrible Species of Tenesmus, which generally accompanies a Dysentery, the Steams of Milk, in which Elder-flowers have been boil'd, afford instantaneous Relief. Vapour-Baths of this Kind are also useful in provoking the Hæmorrhoidal Discharge, and even necessary, in this Case, before the Application of Leeches; and, because they are excellently calculated for clearing the Mouths of the Uterine Veins, when block'd up with a preternatural Mucus, they are used with Success in Cases where the Menfes are either entirely obstructed, or discharged in too small a Quantity.

But as the most valuable and powerful Remedies produce the most dismal and fatal Effects, when used unskilfully, and without Circumspection; so the rash and unwary Use of Baths is more injurious than advantageous to the Patient. For this very Reason *Galen* lays down three Rules to be observed, with regard to Bathing: First, That those who are subject to Shivering, should by no means use Baths. Secondly, That those who have any of their Viscera weak, or unsound, should also avoid it. And thirdly, That such as have their *Primæ Viæ* clogg'd and encumber'd with Humours, should carefully avoid it. But the following Rules, with regard to the Use of the Bath, are better and more explicit: In case, then, of a *Plethora*, it is to be removed, and the Belly is to be render'd lax, before the warm Bath be used; lest, by the Heat, Congestions of the Blood and Humours should be produced in the Head and Breast, and those Parts sustain an irreparable Injury upon that Account.

In the next Place, we are to be very careful, lest, by the too great Heat of the Bath, our Bodies be so overheated, and as it were boil'd, as to discharge the Sweat too profusely, and in too large a Quantity; for this unwary Practice generally brings on Faintings, a Head-ach, Weariness of the whole Body, Torpor of Mind, Dryness of the Mouth, and Thirst, which if any one attempts to remove by Draughts of any cold Liquor, he may very readily draw upon himself a Disorder of a still more terrible Nature.

The most proper Time for using the hot Bath is the Morning, after the Body is refresh'd with Sleep, the Concoctions finish'd, and the Stomach empty; especially if proper Purgatives have been previously used. It is also expedient, not to plunge the Body all at once into the Bath, but to immerse it gradually,

by first introducing the Legs, then the Thighs, then the Abdomen, as far as the *Scrobiculum Cordis*, augmenting at the same time, by little and little, the Heat of the Water. Nor are we to remain too long in hot Baths, especially of the chalybeate Kind, lest by that means our Strength should be impair'd. After using the Bath, the Patient is to be laid in Bed, with a View to sweat; which Design may also be assisted by proper Broths, Decoctions, or Infusions. But in natural warm Baths, such as those of *Wolkenstein* and *Wisenbad* in *Meissne*; the Patient must often remain for some Hours, especially when the Disease is of a violent and obstinate Nature, arising from spasmodic Constrictions of the nervous Parts, when the Mind suffers by means of Hypochondriacal or Hysterical Disorders; or when the Parts are constricted, in consequence of an excessive Rigidity of the Ligaments and Nerves.

Those who have tender Heads, who are afflicted with Catarrhs and Coryzas, who are subject to Asthmias and Faintings, or who languish under slow Hectic Disorders, ought to abstain from all Baths; much more from Vapour-Baths, especially when consisting of kindled Spirits of Wine; for these throw the Blood into strong Commotions, and prove very hurtful to those of plethoric and cacochymic Habits; and, as Experience teaches us, by being imprudently used, bring on Disorders of the Head, Drowiness, Apoplexies, Epilepsies, Dimness of Sight, and Gutta Serenas. In like manner Baths are prejudicial to People after a sharp Fit of Anger; and I myself remember some Cases of this Nature, where the Use of Baths has brought on Hectic Fevers, incurable Pains of the Parts, and even Palsies. And as the Colic often arises from the Blood stagnating within the Coats of the Intestines, whilst it is endeavouring to find a Passage thro' the Veins of the Anus, and as a Plethora often attends the racking Pains excited by the Stone, we are therefore, in these Cases, to beware of prescribing such warm Baths as these, which are not to be used till the Plethora; or too great Fulness of the Vessels, is removed. *Hoffman*.

Warm Bathing is a very powerful Remedy in that terrible Disease the *Hydrophobia*, arising from the Bite of a mad Dog, and creating at once an insatiable Thirst, and an unaccountable Dread of Water. The only known Remedy, in this Case, is *Bathing*, which was used by the Antients with this very Intention. Thus *Celsus* informs us; "That with some, immediately after receiving the Bite, it was customary to plunge the Patient into a Bath, and sweat him as long as his Strength would permit; taking care at the same time to open the Wound, that the Poison might be the more freely discharg'd from it. Then they bathe the Part affected with a large Quantity of pure and unmix'd Wine, which is esteem'd an Antidote against all Poisons whatsoever."

A Physician of *Duderstad*, some time ago, inform'd me, that a mad Wolf, sallying out of the Woods, bit several Persons, who died of the Bites they received: But at last, by the Advice and Persuasion of a common Countryman; some others, who had been bit, were prevail'd on to use a moderately warm Bath; after taking a Dose of *Venice Treacle*, and the Fungus of the Dog-rose, by the daily Repetition of which they were freed from Danger; for, in this Case, *warm Bathing* becomes serviceable, by drawing the subtle Poison to the Surface of the Body, and procuring it a free and uninterrupted Exit, when 'tis brought thither. On this Occasion a very considerable Difficulty may be started, which is, that with the same Intention the Antients used *cold Baths*, which, by bracing up the Pores, seem not only to prevent the Elimination of the Poison, but to repel it to the internal Parts. As for my own Share, I am of Opinion, that the *cold Bath* is not, in this Case, to be absolutely condemn'd; tho', at the same time, I look upon it as precarious, and not to be depended upon: However, if the Use of the cold Bath is succeeded by an intense Heat of the internal Parts, accompany'd with a quick Pulse, and profuse Sweats, which is often the Case, a considerable Benefit must be produced by it: But if, instead of these Consequences, the Nerves should be diffident, and render'd rigid by the Cold, 'tis attended with imminent Danger. *Hoffman*.

There is a very singular Case related in *Misc. Nat. Cur. Dec. 2. Ann. 6. Obs. 239*.

A Woman frequently afflicted with an insupportable Pain of her Loins, having in vain used a great Variety of Remedies for its Removal, at last found, that nothing was so effectual for procuring Ease as the *warm Bath*; which having used for some time, she began gradually to recover; and every time she came out of the Bath, a thick unctuous Substance was found swimming in the Water, and might have been separated from it by means of a Spoon.

There is also another very remarkable Case to be found in the above-quoted Work:

A certain Man, terribly afflicted with Hypochondriac Disorders, having for some time used a Sweet-water Bath, the Water at last began to assume a strong and fetid Smell; and a thick blackish Matter was observed to swim in it. In short, the putrid Matter floating in the Bath, and the nauseous Smell, and acrid Quality of the Water, increasing gradually to such a Degree,

as to vellicate the Hands of the *Waiter*, there was a Necessity for a daily Supply of fresh Herbs, till the Patient was thoroughly recover'd. By the same means the learned *Volckhamer* cured a Widow Woman, whose Body every Day deposited in the Water more than three Handfuls of a like fetid Substance. *Hoffman*.

Tho' in hot Countries the frequent Use of Baths is exceedingly proper, yet they ought to be less frequently, and more sparingly, used in Climates where the Air is cold and moist. *Hoffman*.

Mr. *Lemery*, finding one of his Patients to have all the Symptoms of the Small-pox, and perceiving at the same time, that they made no Eruption, put him into a Bath of warm Water, which made them come out in great Abundance. His Intention was to remove the Dryness and Hardness of the Skin: There is something very remarkable in this uncommon and bold Piece of Practice. *Hist. A. 1711*.

Mr. *Homburg* advances what, to some, may appear a Paradox, That the Rheumatism may be cured by a Bath of cold Water, more effectually than by the warm Bath, or by Sweating: In order to prove his Assertion, he reasons in the following manner.

The Rheumatism is produced by an *acid Serum*, become so subtle as to make its Way thro' the Coats of the Veins, from which conveying itself into the Muscles, it stimulates their Fibres, and incommodes their Action.

In Consequence of the great Subtlety of this Serum, it diffuses itself very far, and cannot be again absorb'd by the Veins from which it was discharged.

The Disorder it occasions may be carried off either by procuring its total Discharge from the Body, or by forcing its Return into the Vessels from which it originally came.

A sufficient Heat will carry it quite out of the Body by Transpiration. A sufficient Degree of Cold will, on the other hand, condense it, and dispose it for entering again into the Veins. It is in this Case, perhaps, sufficient, that the Cold prevent a fresh Discharge of Serum, since the former will necessarily be attenuated and dissipated; whereas Heat, tho' it carry off the peccant Matter, yet disposes the Veins to a fresh Discharge of the offending Serum. *Hist. A. 1710*.

Sir *John Floyer* recommends cold Baths in the following Distempers:

Abortion,
Agues,
Apoplexy,
Appetite lost,
Asthma,
Barrenness,
Biting of mad Dogs,
Bleeding at Nose, or,
Bruises,
Cancers,
Catarrhs,
Corns,
Consumptions in the Beginning,
Convulsions,
Costiveness,
Diabetes,
Dimness of Sight,
Deafness,
Weak Digestion,
Dropries,
Erysipelas, or Wild-fire,
All Fluxes by Sweat, Spitting,
Fluor Albus,
To prevent Gangrenes,
Gonorrhoea,
Green-sickness,
Gravel,
Gout,
Giddiness,
Head-ach,
Heart-burning,
Hectic Fevers,
Hickup,
Hoarseness,
Jaundice,
Itch,
Inflammations,
Incontinence of Urine,
King's-evil,
Kidneys stop'd, or inflamed.
Lethargy,
Leprosy,

Madness,
Melancholy,
Morphew,
Sore Mouth,
Fits of the Mother,
Nodes, or scirrhus Tumors,
Noise in the Ears,
Numbness in the Limbs,
Obesity, or being over-fat,
Obstructions of Urine, Stools and Menes,
Ophthalmy, or sore Eyes,
Palsy of the Tongue, Lip, or any Member,
Pains, Hysterical or Rheumatic, or hot windy running Pains,
Palpitation of the Heart,
Against all Infections of the Plague,
Small-pox,
Piles,
Priapism,
Quartans,
Quinsies,
Redness of the Face,
Rickets,
Rheumatisms,
Ruptures,
Sciatica,
Scald Head,
Scurvy,
Stone,
Stitches,
Strangury,
Swell'd Veins in the Leg,
Stiffness in the Limbs,
Tetters,
Tooth-ach,
Thirst,
Thrush,
Tympany,
Windiness in any Part.

1. To bleed and purge, and use such proper Diet and Medicines, both before and after Bathing, which a rational Phy-

lician knows to be suitable to the Disease, and the Constitution of the Patient.

2. Not to bathe when hot and sweating, but cool; not to stay in the Bath above two or three Minutes, as the Patient can easily bear it; and to go in and out immediately, as on the first Bathing; after an Immersion of the whole Body.
3. To use the cold Bath before Dinner, fasting; or else in the Afternoon, towards Four or Five o'Clock: 'Tis dangerous to go in after plentiful Drinking and Eating.
4. Continue to bathe nine or ten times, at least two or three times in a Week.
5. To use Sweating, with cold Bathing, in Palsies and Rickets, and several Diseases affecting the Nerves, with Obstructions.
6. In Windiness; or Sickness of the Humours, or their Flatulency, no Sweating is necessary; nor where Bathing is used for Preservation of Health, or the invigorating of the Animal Spirits.

That we may conceive a right Notion of the mechanical Action of Baths on the Body, I shall give Dr. *Wainwright's* Dissertation on this Subject, as it is very distinct, and has the Appearance of Truth to recommend it.

Sanctorius tells us, That Swimming in cold Water hinders Perspiration: And,

That the Flux of the Belly is cured by promoting Perspiration, that is, by warm Bathing:

That Hypochondriacal Persons are much eased, if their Bodies be render'd perspirable by frequent Bathing: And,

That Washing with cold Water heats robust Bodies, and refrigerates weak ones: And,

Warm Bathing, unless Crudities withstand, helps Perspiration, and refrigerates the internal Bowels.

Bathing hath been often used with Success in the Scab, the Leprosy, Elephantiasis, and most Defections of the Skin. In Variety of Pains, as Chronical Rheumatisms, Gout, Sciatica, Lameness, from either too great Contraction or Relaxation of the Tendons.

I sent a Gentlewoman to St. *Mongath's* Well, who was cured of an oedematous Tumor in her Ankle by Bathing, which would not yield to any Method that had been used, as Plaisters, discussive Fomentations, with Sal Ammoniac dissolv'd in them, Tinctures of Myrrh and Camphire, Oil of Tartar per Deliquium, laced Stockings, &c. She bathed her whole Body once a Day, to give a general Contraction and Tensity to all the Vessels, and promote a Dissolution and better Circulation to all the Humours; but bathed her swell'd Leg several times every Day, and kept it not too long in the Water at a time, for fear of chilling it; so that the Vibrations of the Fibres being made stronger and quicker so often in a Day, the obstructing Matter was removed, and the Vessels enabled to resist the distending Power of fresh Humours.

I am persuaded, that a prudent Management of the cold Bath would be very powerful in the Relief of Cachectic and Hydropic People, provided the Distempers be not too far advanced; and some dangerous Symptoms in a Consumption, if the Lungs be sound, would better be removed this way than any other: But this is not to be attempted, without the Advice of some judicious Physician. 'Tis a Specific in the Rickets. Hemorrhages, whether from the Nose, Guts, or Uterus, are not only stopp'd by cold Bathing, but the Return prevented. Nothing more certainly gives Ease, and effectually promotes the passing of Stones in a Nephritic Fit, than warm Bathing. And *Baglivi* tells us, that *Dolor Colicus fere semper mitescit in Semicupio*, Colic Pains are almost always relieved in a Semicupium.

Bathing will always act the Part of a Diuretic. And plunging over the Head in cold Water, especially in Sea-water, will do more in the Cure of Melancholy, Madness, and particularly of that occasioned by the Bite of a mad Dog, than any other Medicine. There is nothing more adapted to the Cure of Frigidity, when owing to a former Excess of Venery, than the cold Bath.

It will also contribute its Share to the Cure both of a simple Gonorrhoea, and Fluor Albus. 'Tis often successful in a Palsy; and they who use it much are very little affected with the Change of Weather: And yet the Abuse of Bathing is very prejudicial; for Bath-guides are generally of a pale and ghastly Countenance, of a bloated Habit of Body, with ulcerated and swell'd Legs, which often end in a Dropsy.

Tho' Bathing hath been used with Advantage in all the Cases I have mention'd, yet there is scarce any of them all, but, in some Circumstances, it would be prejudicial: So that, to reap the best Advantage we can by reading the History of Cures perform'd by it, it is fit we should inquire, what Alterations are made by it in a human Body, that so we may know in what Conditions to order it, and what not.

Our Bodies are press'd upon by a Weight of Air, when the Mercury stands highest in the Barometer, equal to 30900 Pounds Troy. Now, if this Weight be either considerably increased or lessen'd, as 'tis often upon the Change of Weather, and

and the Influence of the Planets, it will certainly make a great Alteration in the Fluids of our Bodies. But this Pressure is never so much augmented as when we bathe ourselves: For Water, being above 800 times heavier than Air, must necessarily greatly increase the Pressure: And a Body, sunk 35 Feet in Water, sustains double the Weight it does in the Air; and tho', when we are near the Top, the Pressure upon our Bodies is mightily lessen'd, yet 'tis much greater than in the open Air; so that all the Consequents of a greater Pressure will happen upon Bathing.

The tender Fibrillæ, of which the Skin is compos'd, being unequal in Strength and Tensity, some of them will more resist the Pressure of the Water than others; from whence proceeds that Rugosity of the Skin upon Bathing. 'Tis certain, that the Surface of the Body, and those Parts adjoining to it, will be the most and first compress'd, and those at the Centre the least and latest; so that the Blood will be forced, in great Plenty, upon the Viscera, where there is the least Resistance. For this Reason, it is never safe for those to bathe who have weak or ulcerated Bowels; nor can they, without Danger of Life, or Swooning at least, who have a very weak Pulse, enter into a cold Bath. The fourth Aphorism is only accounted for this way, that is, *That cold Bathing heats robust Bodies; and refrigerates weak ones*: For the Contraction of the Heart, in robust Bodies, being strong, makes the greater Conflict with the Resistance it meets with, in promoting the Circulation of the Blood, in such as enter the cold Bath; whereby the Blood is more broken, and the hot Particles set at Liberty. On the contrary, in those who are weak, the Contraction of the Heart is but just able to continue the Blood in its Circulation, which will, by reason of the Resistance it meets with, be slower than before; and therefore they will have a Sense of Cold, or be refrigerated.

One that goes into a cold Bath, if he plunge not himself over Head, is subject to the Head-ach: The Reason of this is plain from what I have observed before; for there being the least Resistance to the circulating Blood in the Head, which is press'd upon only by the Weight of the Air, it will run in such Plenty thither, as to distend the Vessels beyond their usual Tone, and thereby occasion a Sense of Pain. And why People are so chearful, brisk, and lively after Bathing, is not only because the perspirable Matter is thrown off more plentifully, (according to *Sanctorius's* Observations, that is, *Melancholy is overcome by a free Perspiration*; and *Chearfulness, without an evident Cause, proceeds from Perspiration succeeding well*) but also from a Sense of less Weight upon the Body. A Person two Feet under Water (as they often are who use Bathing) sustains a Weight of Water, added to that of Air, (supposing still the Area of his Skin to be equal to 15 square Feet) equal to 2280 Pounds; for, 2, the Number of cubical Feet of Water, pressing upon a Foot square of the Skin $\times 76$, the Number of Pounds in a cubical Foot of Water is $= 152$, $\times 15$, the supposed Number of square Feet on the Surface of the Body is $= 2280$ Pounds Troy.

So that the first and most obvious Consequence of Bathing is, by a greater Pressure upon our Bodies, to straiten the Vessels, and thereby dissolve the Humours, and make them fitter to pass the Glands to be evacuated; as also to squeeze out any viscid obstructing Matter, that sticks to the Sides of the Vessels, and render the Motion of the Fluids of our Bodies more free and easy. In the next Place, they who enter into the Bath have the Quantity of their Blood mightily increased in the Brain and Viscera, being forced thither, where there is the least Resistance; and the Quantity of separated Matter in any Gland being as the Quantity of Blood multiply'd into its Celerity, at the respective Glands, the Quantity of Animal Spirits, of Urine, of Gali, Succus Pancreatis, &c. will be mightily increased, and any Impediment to the Secretion of these Fluids, will probably be removed, these Liquors flowing with a greater Celerity. So that,

1. If we would have the Blood dissolved;
2. Or any viscid Matter, adhering to the Sides of the Vessels, removed;
3. Or the Glands scour'd;
4. Or a greater Quantity of Spirits generated, and moved with greater Celerity thro' the Nerves;
5. Or would force the Urine;
6. Or remove Obstructions in the Liver, Spleen, Pancreas, and Mesentery, if they be not grown too obstinate (in which Case 'tis dangerous); we ought to order Bathing.

It is for the first, second, and third Reason, that it cures the Itch, Leprosy, and Elephantiasis: It is for the fourth Reason, together with the former, that it cures the Palsy, Melancholy, Madness, and the Bite of a mad Dog: It is for the fifth, that it helps the Passage of Gravel: For the sixth, join'd with the other, that it helps Cachectic, Icteric, and Hydropic People, before the Distempers be too far advanced.

These Ends, which are compass'd by a greater Pressure, are more effectually obtained by whatever increases the Weight of the Water, or contracts the Fibres of our Bodies; it is the

Salt in the Sea Water whereby its Weight is increased, that makes it more useful in the Cure of those who are bit by a mad Dog; and the deeper you plunge them, the more effectual it will be, for a Reason that I have given before.

We know by Experience, that Cold contracts; and the more suddenly it is applied to our Bodies, the more violently it operates; but how much it contributes to the obtaining of the forementioned Ends, we cannot certainly know, having no Rule by which we may measure the Contraction caused by it.

But, that it is very considerable, we need not doubt, having so many Experiments to prove it. The Contraction of the Fibres is propagated throughout the whole Body, upon which score all the Humours in the Body must be propelled with greater Force through the Vessels in which they circulate; besides that the Tensity of the Fibres being greater, their Vibration will both be quicker and stronger, and that in proportion to their increased Tensity; so that the Blood and Spirits will not only move more swiftly through the Canals, but also be extremely ground and broken; from whence all the Effects of more fluid Blood and Spirits, moving with greater Velocity, will necessarily ensue upon using the cold Bath. These things which I have said, compared with the Constitution of the Patient; to whom Bathing is prescribed, will give you the Time he ought to stay in it; the Number of Times (with the Intervals between them) he ought to use it, the necessary Preparations for it, and what is to be done after it.

It is upon the Account of the contracting Power of the cold Bath principally, that it stops Hæmorrhages, Gonorrhœas, and the Fluor Albus, as also that it cures Venereal Impotency.

Where the peccant Matter hath been made more fluxil, either by Medicines, Diet, or a regular Use of the warm or temperate Bath, in chronical Rheumatisms, Gout, Sciatica, Lameness, &c. the violent contracting Power of the cold Bath will often perfect the Cure. A nervous Atrophy, which *Baglivi* probably conjectures to be owing to an universal Relaxation of the Nerves, which terminate in the Skin, is as likely to yield to the cold Bath as any other Method, provided the Pores, by Contraction, were not shut up too suddenly; for it would then throw the detained Matter upon some other Glands, whereby an Evacuation more dangerous might succeed.

The next Property of the Bath, distinct from its Weight and Coldness, depends upon its being moist; and by this Quality of the Water, it softens, relaxes, and makes pliable all the Parts of our Body, as sufficiently appears by steeping any Part of an animal Body in Water; even the Horns and Hoofs of Beasts will become soft and flexible, by a long Immersion in Water, especially if warm.

And that Water, as moist, hath a Property of relaxing, as 'tis proved by Experiment, so 'tis no way inconsistent with what I have said of the Pressure of Water in general, nor the contracting Force of the cold Bath in particular. The Pressure of the Water is consistent enough with relaxing and softening of Bodies that are immersed in it; for the Weight of the Water will enable it to insinuate itself into the Pores of the immersed Body, whereby it will become more soft and flexible; and yet, before it hath done this, will force together the Sides of any yielding Vessel, such as those of a human Body are, and thereby press out their Contents with a Velocity proportionable to the Weight incumbent on them; so that, after the Humours have been put in violent Motion by the Pressure of Bath Water, if the Person stay any considerable time in, he will have the solid Parts of his Body softened, relaxed, and made flexible. This Hint is of great Use to determine the Time our Patients ought to stay in the Bath in some Distempers more than others.

Now I shall inquire how the contracting Power of Cold, and the relaxing Power of Moisture, can agree in the same Subject. That they cannot act intensely at the same time, but their Actions will destroy the Effect one of another, is evident to any who consider, that contrary Qualities are inconsistent in the same Subject at the same time; but, as I observed in the last Section, Moisture acts very slowly, and must be a long time in performing its Work, whereas Cold acts quickly, and on a sudden, as we know by a Multitude of Experiments: Wherefore, though the cold Bath may contract at first, yet by staying too long in it, it would relax; but there are none who are able to bear the Cold so long as to produce the latter Effect. The principal Reason why Cold so violently contracts the Membranes of our Bodies, is by making an ungrateful Sensation; for such is the Frame and Constitution of the Animal Economy, that the Soul has a Power of contracting, or relaxing, the Membranes and Vessels of the Body, so as best to serve the Purposes of Life; and though we know not how the Soul operates upon the Body, yet would it be the greatest Folly to deny that which we daily experience to be true. We every Day observe, by the Command of our Wills, that the Members of our Bodies are moved a thousand different ways; and 'tis as easy to imagine the Soul acts immediately upon the Nerves, and other solid Parts of the Body, as upon the Animal Spirits, being that Spirit can act as easily upon solid Matter, as that which is fluid,

the Mode of its operating being altogether unknown to us. In a relaxed State the Body is weak, feeble and unactive, and in this Condition it is, in all the Passions which are attended with Pleasure: On the contrary, whatever Passions of the Mind are attended with Pain, Grief, or any kind of Uneasiness, as Malice, Revenge, Fear, a Fright, or Surprise, put the whole Body into a contracted State, as appears by the Shrinking of the Veins, Sparkling of the Eyes, Contraction of the Pupil, Paleness of the Face, and especially of the Lips; and this is none of the meanest Displays of infinite Wisdom and Goodness, for the Preservation of Man: For by this means he is strongest when he has the most Occasion for it, either in resisting Force when he thinks he can overcome it, or else in flying from it; in doing of which upon a Fright, some have exerted such Agility of Body as is almost past Credit, were it not the common Observation of Mankind, how vigorous and active we are in such Circumstances. The Reason of this excessive Strength, when the Vessels of the Body are contracted, is evident from Dr. Cheyne's Proposition about the Strength of Animals, that is, "That 'tis in a triplicate Proportion to the Quantity of Blood running in the Vessels." Now the Quantity of Blood is mightily increased, in the Proportion it bears to its Vessels, when they are contracted, to what it is when relaxed; for 'tis the same thing to all Intents and Purposes, whether the Vessels continue of the same Wideness, and the Quantity of Blood be increased, or the Quantity of Blood continue the same, and the Vessels in which it runs be straitened or contracted; so that we may expect the same Strength in an Animal whose Vessels are contracted to half their Wideness; as we may from an Animal whose Vessels are in their former Condition, and the Quantity of his Blood doubled; so that besides the Advantages common to all Sorts of Bathing, there is this peculiar in the cold Bath, that it gives a violent and universal Contraction to all the Membranes and Vessels of the Body, and there is nothing so surprising in the sudden Cures it performs, but what is accountable for from this Cause.

But Water hath certainly a softening, relaxing Property, when applied to our Bodies; and by means of this 'tis able to bring about great Alterations; and as the Pressure of the Water is made more effectual by Cold, so is its relaxing Power by a moderate Warmth: For a gentle Heat always relaxes the Fibres of our Body, by being pleasing and agreeable to the Sense of Feeling: So that when we would have the Benefit of an universal Relaxation, we ought to go into the temperate Bath, such as *Buxton*, being the most temperate of any that I know of in *England*. The first Advantage that many receive from the Use of this Bath, is an entire Refreshment after Weariness with a Journey. 'Tis a common Custom for Persons wearied with Riding, as soon as they alight, to go into the Bath for a little time, by which means they become as lively and brisk as they were in the Morning; for Weariness being nothing but an overstretching, or too great a Tensity, of the Fibres, occasioned by using them too long, or too violently, must, upon their being relaxed, go off again: 'Tis for the same Reason that Sleep takes off Weariness.

This universal Relaxation caused by Bathing will so widen the Pores, that a vast Quantity of perspirable Matter will be carried off, more than at another time. 'Tis for this Reason, that some corpulent People have, in a Fortnight's time, lost above two Stone Weight by using of this Bath; and all the Advantages of a free Perspiration may be gained this way; tho' it be true, we are more obnoxious to catch Cold afterwards: Yet I think a cautious Use of the cold Bath after the hot, might not only prevent that Inconveniency, but, in many Cases, render it much more beneficial. I have known that Bath I am speaking of, to remove violent Pains in the Head, Back, and Joints. A Gentleman of my Acquaintance had a fixed Pain in his Breast for almost two Years, and was relieved by four or five times Bathing in this Bath. It helps a chronical Rheumatism, Gout, and the Colic, Lameness, Contraction of the Tendons, &c. and how all these are performed, is easily known by the foregoing Theory. But, all the Effects of warm Bathing are better brought about by the Water insinuating itself into the Body through the Skin; for being mixed with the Blood, it dilutes and dissolves the acid Salts in the Serum, by which they are better carried off through the proper Glands designed for their Evacuation: So that 'tis useful in all Distempers where too much Salt abounds, as the Scurvy, and most cutaneous Diseases.

Though it be a generally received Notion, that Bath Water enters into the Body, and so mixes itself with the Blood, yet most believe it upon very indifferent Grounds, or having never examined the Reason of the Thing, nor considered the Objections against it. That Water hath a wonderful Power of insinuating itself into any contiguous Body, appears from several Experiments. We see how Deal Boards will swell against rainy Weather; the watery Particles floating in the Air, by the Pressure of the Air upon them, are forced into the slender Tubes of the Wood, where they meet with no Resistance, the Particles of Air being too large to enter the same. It is certain,

however true the contrary may appear to be, that the compounding Particles of Water are less than those of Air, because the former will pass through several Bodies that the other will not. It will force itself through the Skins of Animals, even after they are dried; and converted into Leather. *Bellini* tried the Experiment upon the Skin of a Man's Head, which, after it was moderately dried; he suspended with a Stone in it, to sink it in the Water, and in a few Hours time the Water had forced its Passage through it. But nothing shews more the Force of Water to enter into contiguous Bodies than the following Experiment.

Fasten a Piece of Whip-cord, or a strong Rope, of what Length you please, (but the longer, the more visible will the Experiment be) to a Hook or Staple, and at the Bottom of the Cord hang any Weight, short of what will break it, though never so great; you will find, that the Weight will rise in moist Weather, and sink lower in the dry: You may also raise the Weight by moistening the Sides of the Cord by a wet Sponge; by this means a few Particles of Water may overcome any finite Resistance, if the Cord would bear it. Now, since there is but a little Quantity of Water, and that driven into the Sides of the Cord, with a Force no greater than the Weight of a Cylinder of Air incumbent upon the Water; therefore must the Water act by some Property whereby its Force is greatly augmented, and that can be no other than that of the *Cuneus*; and the Forces of Wedges are to one another reciprocally proportional to the Angles their Edges make; but in Spheres the greater or lesser Degree of Curvity is to be considered as their Angles; when Spheres are considered as Wedges, and the Degrees of Curvity in Spheres are reciprocally as their Radii. Now the Particles of Water, being so infinitely small, less by much than those of Air, must, when acting as Wedges, have their Powers infinitely increased, so as to overcome any finite Resistance: Now let the Resistance the Water meets with, in entering into our Bodies, be what it will, yet 'tis hard to believe it is greater than what I have mentioned; which yet a little Quantity of Water will overcome. The Experiments I have taken Notice of were made upon the Skins of dead Men, or Beasts, which would have put the Matter beyond Dispute, had they been made upon such as were alive. The only Difference then being, that, in the Living, Steams or Vapours are constantly raised into the Air, through the Pores of the Skin, in insensible Perspiration, which is not so in those that are Dead, these Vapours, though raised with a considerable Force, are yet unable to withstand the Impetus, with which Water endeavours to insinuate itself into contiguous Bodies, being so great as I have explained. And though the Quantity of perspirable Matter is very great in twenty-four Hours, being five Eighths of the Meat and Drink a Man takes in a Day; yet, if we compute the Quantity that perspires from any Part of the Skin, in a given Time, we shall find it too little by far to hinder the Entrance of Water into the Body, when we go into a Bath. For Dr. *Pitcairn* hath demonstrated, that the Matter of insensible Perspiration in a Minute, is the 1200 Part of the Place it comes from, that is, one Scruple of the Skin perspires $\frac{1}{200}$ Part of a Scruple in a Minute, and consequently one Dram of the Skin perspires $\frac{1}{200}$ Part of a Dram in a Minute. Now, suppose a square Inch of the Skin weigh one Dram, then a square Inch perspires $\frac{1}{200}$ Part of a Dram in a Minute; but a square Inch of the Skin is pressed upon by a Weight when we bathe, more than in the open Air, equal to ninety-six Drams. For we may conclude, that our Bodies, taking one Part with another, are two Feet under Water when we bathe ourselves; so that every square Inch of our Skin must bear the Weight of twenty-four cubical Inches of Water equal to ninety-six Drams; for a cubical Inch of Water being four Drams $\frac{1}{4}$, throwing away the Fraction, twenty-four cubical Inches must be ninety-six Drams. Now since only the $\frac{1}{200}$ Part of a Dram of Matter is perspired through a square Inch of the Skin in a Minute, therefore is the Elevation of the perspirable Matter resisted by a Weight 115200 times greater than itself; for $1200 \times 96 = 115200$. How great then must be the Celerity with which the perspirable Matter moves, if we imagine it able to raise a Body 115200 times heavier than itself? Thus would it be, if the whole Quantity of perspirable Matter, evacuated in a Minute, was to exert its Force at once upon the incumbent Weight of Water; but it is so far from doing that, that if the Exhalation of the Steams be not continual, as the Pressure of the Water is, yet the Intervals betwixt the Times they are propell'd from the Body are very short; suppose sixty of them in a Minute, being about the Number of Pulses that a healthful Man's Artery beats in the same time; then will the Quantity of Vapour, which exerts its Force at once against the incumbent Water, be sixty times less than what I first assigned; which being multiplied by 1200 = 72000, the Number of Parts into which a Dram of perspirable Matter is divided, one Part only of which exerts its Force against ninety-six Drams of Water in a Second; so that the perspirable Matter that rises, every Second must raise a Weight 6912000 times greater than itself, if it resist the Entrance of the incumbent

bent Water; for thirty, the Number of Drams of Water; incumbent upon an Inch square on the Skin, multiplied by 72000, the Number of Parts into which a Dram of perspirable Matter is divided, is = 6912000, the Difference between the Quantity of Matter perspired in a Second, and the Quantity of Water by which its Motion is resisted.

I think by this time it sufficiently appears, that the Bath Water will mix itself with the Humours of the Body; so that there is nothing so wonderful in Bathing, but what may be accounted for from some of these Properties of Water I have mentioned, without having recourse to the Salts with which Bath Waters are impregnated, which yet may contribute their Share in the Cure of some Distempers. What I have said about Bathing, as 'tis mostly new, so are my Reasons founded upon known Experiments; and how just my Inferences from them are, I leave to the Judgment of my Reader (supposing him to have the necessary Qualifications, and a moderate Attention) to determine. *Wainwright.*

Dr. *Wainwright* has left me very little to say on the Subject of Bathing. I shall only farther remark, with respect to cold Bathing, that as Cold contracts the Vessels of the Body, the Solids act with more Vigour upon the Fluids, which contributes to the Attenuation of the latter; the Attrition betwixt the Solids and Fluids is also increased, and thence a Person feels himself warm, when he comes out of a cold Bath. In Consequence also of an increased Action of the Solids upon the Fluids, the Circulation is accelerated, and for this Reason all the Secretions are increased, amongst which are Sweat, Perspiration, and Urine.

But in order to the Production of these salutary Effects, we must suppose a certain Degree of Elasticity, or Power of Contraction in the Animal Fibres; otherwise, the cold Water will refrigerate, and consequently coagulate in some Degree the Juices, without adding any new Force to the Solids, in order to promote their Attenuation. Hence, in Cases attended with a certain Degree of Relaxation and Debility, a cold Bath should seem to be certain Death.

I believe all Physicians, who attend any considerable Number of Patients, frequently hear some of them complain of erratic Pains about the Breast, which reside in the Muscles, though I have sometimes known them mistaken so far as to be esteemed internal, and consider'd as proceeding from the Lungs; and it is possible, that a Sensation of Weight on the Breast, and a certain Difficulty of Breathing, tho' in a small Degree, may have laid the Foundation for this Error. I take the Liberty of recommending, in these Cases, from my own Experience, the cold Bath, as the most effectual Remedy I am acquainted with. It should be used about every other Day, for a few Weeks; and the Patient should only just immerse himself under Water, and immediately come out again, and repeat this two or three times. When the Disorder is removed, the Remedy should be laid aside. And indeed, in all Cases, great Care should be taken not to make the cold Bath so habitual, as to render its continual Use absolutely necessary. This Caution is of equal Force with respect to all Remedies of Importance, especially Opium, and the Bark, by the incautious and unnecessarily continued Use of which, many Constitutions have been utterly destroyed.

Lastly, it has been remarked, that in Disorders of the Lungs, where there is a Tendency to a Consumption, cold Bathing is noxious, as it accelerates the Inflammation of the Tubercles formed in the Lungs, and the consequent Suppuration.

Willis, in his Treatise on a Phrenitis, gives a very remarkable Case of a Girl who was cur'd of this Distemper by Immersion into cold Water, which deserves to be taken Notice of.

Some time ago, says he, I was called to the Relief of a robust and vigorous Servant Maid, who being seized with a Fever, became so furious and mad, that there was a Necessity for keeping her continually bound in Bed. I took a large Quantity of Blood from her at two different times, rendered her Body soluble by repeated Clysters, and prescribed her such other Remedies as are usually exhibited in Cases of a like Nature. I also ordered, that she should have Juleps, Emulsions, and hypnotic Draughts. But all these were of little or no Service to her; for she remain'd without Sleep, and very furious, for the Space of seven or eight Days, crying and roaring incessantly for some cold Liquor to drink; for which Reason she was allowed as much Water as she pleased; but was neither rendered more calm, nor less thirsty, by that means. As it was the Summer-time, I ordered her to be taken up in the Middle of the Night by Women, and carried to a Boat, where her Cloaths being taken off, and the Cords, with which she was bound, untied, she was plunged in a deep River, having previously tied a Rope about the Trunk of her Body, lest she should happen to be drowned. But there was no Occasion for this Expedient; for the Girl naturally swam with so much Dexterity, that a Man who is very expert in that Exercise, could have scarce acted his Part better. About twenty or fifteen Minutes after, she was taken out of the Water, sober and in her Senses. Upon which, being laid in Bed, she slept, fell in-

to a plentiful Sweat, and was thoroughly recovered without the Use of any other Remedy whatever. This Cure succeeded so happily, and so suddenly, because the Excesses of the vital and animal Heat, which were both highly increased at one and the same time, were removed by a Remedy proper for intense and burning Heats, that is, Humectation and Refrigeration by Water. *Willis de Delirio & Phrenitide.*

In Confirmation of the Truth of this History, I must relate one which was told me by the late Sir *John Floyer*, and a Lady of Honour and Veracity, who was a more immediate Witness of the Fact than Sir *John*, though he attended the Woman, whose Case is the Subject of this History.

Sir *John* was called to a Farmer's Wife at a Village about four Miles from *Lichfield*, who was ill of a Fever, attended with a Delirium, and an utter Privation of Sleep. It happened one Night, that the Patient lay for a little time pretty still, and the Nurse took that Opportunity of going softly out of the Room for a few Minutes, upon some necessary Occasion. When she return'd, she found all still and quiet, and sat down by the Bed-side for at least a quarter of an Hour; but observing, that she did not hear the Woman breathe, she put back the Curtains, suspecting she was dead; but was much surprised to find she was not in Bed. After searching the Room to no Purpose, she alarmed the People in the House, who, after some time, found the Woman in the Yard up to the Chin in Water, in the Well, which was, as is usual in that Country, not much above five Feet deep, and near full of Water. The Woman was instantly taken out, and put to Bed, and immediately fell asleep. Soon after, a profuse Sweat broke out, which continued for many Hours. She awaked without any Delirium, and recovered without any farther Trouble.

The Chymists have applied the Word *BALNEUM* to several things relative to their Art. Thus the old Chymists mention a *BALNEUM ARENÆ*, or Sand Heat, for the Purification of Mercury.

BALNEUM MARIS, or *MARIS*, as it is sometimes written, imports the Heat of boiling Water. In this Encheiridion, the Vessel containing the Ingredients to be distilled, digested, or acted upon, is put into a Vessel of Water, which is made to boil; so that no greater a Heat than that of boiling Water, can be communicated to the Substance to be treated.

It is customary with the Chymists to give grand and sounding Names to all the Instruments used, and Phenomena occurring, in their Art. Thus *Explosion*, with the Vulgar, is, with them, *Fulmination*; and the Heat of boiling Water, is *The Bath of the Blessed Virgin Mary*.

BALNEUM SICCU, or a dry Bath, is, when Sand, Ashes, or Filings of Steel, are heated, and the Vessel, containing the Substances to be acted upon, is placed therein.

BALNEUM VAPORIS, a Vapour Bath, imports the Heat of the Vapour, or Steam of Water.

As some Account of the *Bath Waters* may be expected from me under this Article, I shall give it in the Words of Dr. *Cheyne*, because it is much the most distinct I have met with.

Of BATH WATERS.

The Learned have been divided, and much perplexed, about the Heat of *Bath Waters*. I have always endeavour'd to account to myself for it, from the common Experiment of mixing Filings of Steel, and Powder of Sulphur, working them into a Paste with Water, and putting them into a Cellar, under a Cock, dropping Water slowly and regularly; the Paste will ferment to such a Degree, that the Water running from it shall be of the same Heat and Virtue with the *Bath Waters*, though not so pleasant, nor so well fitted to human Bodies. This is a common Experiment, and these are the only natural Bodies known, which, meeting together, will produce Heat in Water, without artificial Fires. *Tournesfort* says, " 'Tis certain, that Filings of Iron, steep'd in common Water, will grow considerably warm, and much more so in Sea Water; And if you mingle therewith some Sulphur powdered, you will see this Mixture really burn." Sir *Isaac Newton*, in his last Edition of his *Optics*, p. 354. says, " That even the gross Body of Sulphur powdered, and with an equal Weight of Iron Filings, and a little Water made into a Paste, acts upon the Iron; and in five or six Hours grows too hot to be touched, and emits a Flame." That the Heat of the *Bath Waters* is owing to a Principle within themselves, is evident, from their retaining it longer than any other Water, heated to the same Degree, will. Wherefore there can be no Necessity of having recourse to Vulcanos, or subterraneous Fires, to account for this Appearance. There are no burning Mountains known in this our Northern Climate; and 'tis pretty hard to conceive, how Fires should have burned so long under Ground without a Vent, or any other remarkable Sign. The Sulphur in the *Bath Waters* is evident to the Senses, swimming in large Clusters on the Tops of the Baths mixed with Earth, and some mineral Substances, where with the Guides commonly gild Silver; and is found an excellent Remedy in Scurvies, Leprosies, Ringworms, and other Foulness of the Skin. The Steel is manifested

by the bluish Tincture given to the Water from the Pump, by an Infusion of Nut-gall. It is true, this Tincture is neither so deep, nor is it to be had from the Water, in any short time after it comes hot from the Pump, thereby to manifest any great Quantity of Steel in the Composition, such as can have the full Proportion to the Experiment now mentioned. But, to set this in a clearer Light, let us put together these Considerations: First, that upon Distillation of *Bath Water*, there remains little in the Bottom of the Glass but the common Calx, or Sea Salt, that is found in the Distillation of Spring Water, if we except some Sand or Earth, that is forced up by the Violence of the Pump; wherefore the *Bath Waters* not being impregnated with any Quantity of a saline Mixture, can retain nothing in their own proper Substance but the lightest Parts of the Steel and Sulphur. Secondly, that this Water is as fully impregnated with Sulphur, as it can bear. And that there must be a greater Proportion of Steel in *Bath Water* than is manifested to the Senses, or discovered by any Experiment hitherto made, is evident from its healing Effects, which no known Medicine but Steel can bring about, or account for. None but those who have seen it, can believe the wonderful Efficacy it has, in most chronical Cases. What but Steel, in a few Weeks, can make the Blood, from a white bluish, or tallow Hue, resisting the Knife, like Glew, swimming in its Serum, like an Island amidst the Ocean, look all of a Piece, of a scarlet Colour, and a due Proportion between its nourishing and its watery Parts? Nothing but Steel can make a pale ash-coloured Countenance, hollow and deep Eyes, no Appetite, little Strength, and less Sleep, eat and drink, and sleep, look gay and sleek, like the best Health. Thousands of such Instances may be seen every Season at these healthful Springs. Thirdly, the Effect of Sulphur in bridling the sensible Appearances and Operations of most active Medicines, is very well known. Instances of which, in natural Bodies, are Antimony, and Native Cinnabar; in artificial ones, *Æthiops Mineral*, and Cinnabar of Antimony; in all which the Mercury is so bridled up by the Sulphur, that none of their sensible Operations and Appearances are felt, while they produce the most wonderful Changes on Animal Bodies.

Since the *Bath Waters* derive their Heat from a Principle within themselves; since no natural Body, but Sulphur and Iron, can produce such a Degree of Heat, as is in them; since nothing but Steel can produce those wonderful Cures on human Bodies, which *Bath Waters* do; since Sulphur will lock up and bridle the sensible Appearances and Effects of the most active Bodies, and yet not destroy their healthful and medicinal Virtues; it is plain, that *Bath Waters* must owe their Heat to a Mixture of steely and sulphureous Particles, and their healthful Effects to a greater Proportion of Steel, than is sensible, or easily discoverable by any Experiment hitherto made, join'd to a light Sulphur, whose Virtues and Efficacy in all chronical Cases we have already shewn. The Mountains which surround the Place, which every body now knows to be but the Nefts of Minerals, and the Receptacles of the Waters, which feed the Springs, (which Mountains are continued even to the Sea) confirm this Opinion.

All hot Waters seem chiefly to consist of these two Principles, and to differ only as the Sulphur or Steel predominates in them. Where the Sulphur predominates, they are hotter, more nauseous, and more purgative. Of the three hot *European Waters* of Note, the *Aix la Chapelle*, *Bourbon*, and *Bath*, the first abounds more eminently in Sulphur, which makes its Heat, Nauseousness, and purgative Faculty, so great, that few weak Stomachs can bear its Heat and Nauseousness, and fewer weak Constitutions the Violence of its Purgings. The *Bourbon* are of a middle Nature between the *Aix la Chapelle* and the *Bath Waters*, and are less hot, nauseous, and purgative, than the *Aix la Chapelle*, but more than the *Bath Waters*. The *Bath* partake less of the Sulphur, and more of the Steel, than either of these two, and are by far the most pleasant, of a milky Taste, never purge, except they be drank either too fast, or in too great Quantities, and always mend the Appetite, and raise the Spirits. The weakest hot Waters are but of little Use, except in the lowest Cases, and hectic or consumptive Constitutions; but, for Medicinal Uses, the weaker hot Waters may be made pretty near equal to the stronger by Evaporation, as to the sulphureous Principle; as the stronger may be brought down to the weaker by Dilution, as I have experienced, tho' Nature be always the wisest and most perfect Operator. But neither the same Proportion of Steel, nor Sulphur, nor Heat, indifferently fit all Constitutions. Generally the Strength (that is, the Quantity of Steel and Sulphur) of the same hot Waters, is in proportion to their Heat; and therefore, to fit the same Waters to weaker Constitutions, they need only be drank proportionably cooler.

The *Bath Waters* having such an Origin, and such Qualities, must needs be an excellent Remedy in the Gout, and other chronical Cases, for those Reasons: (1.) Because of their Warmth, just suited to the Wants of Nature, and a little above the Heat of human Bodies, sufficient to introduce a foreign

Warmth and Motion to cold and decayed Bowels and Fluids; whereby the natural Warmth, and slow Circulation, is increased and enlivened. (2.) This, with its agreeable Taste, and milky Softness, makes it fit so easily on the Stomach, and become so excellent a Vehicle, to wash into the Blood other proper and specific Medicines without that Nauseousness, and Fret on the Spirits, which all other hot Waters, hitherto known, or that Chilliness and Damp, which all cold Mineral Waters give, whereby they are rendered useless or hurtful in some low and nervous Cases. To these add, (3.) Their chalybeate Principle, so peculiarly locked up in Sulphur, that the Patient reaps all the Benefit, and healthful Effects, of the best Preparations of this Medicine, (and what are not two such powerful Medicines, combined, able to effect?) without the nauseous Taste, and frequent Disorders upon the Stomach, that every other way of giving Steel produces. (4.) The Sulphur, united with the Steel, makes it a natural kind of Soap, for cleansing the Insides of Vessels from the Foulness that cleaves to them, and for opening the Obstructions of the small Vessels. But, (5.) That which, together with the others, makes it specific in the Gout, is, its relaxing Quality, whereby it softens and supple the rigid and stiff Fibres, so as the gouty Humours may pass freely by Perspiration. Much more might be said of this wonderful Remedy provided by the Hand of Nature, to relieve the Miseries of human Life; but this the innumerable Crouds of Cripples of all Sorts, and those other Persons made miserable by chronical Distempers, sent thence every Year, cured or relieved, do witness more convincingly, than either Philosophy or Rhetoric can.

It is capable of Demonstration, that the Force, Pressure, and Weight of the *Bath Waters* in Bathing, are sufficient to counteract the Force of the Perspiration some Millions of times; and consequently, that these Waters, relaxing the Fibres of all the Vessels, and soaking through the Scarf-skin, and even thro' the Coats of the small Vessels, are introduced into the smallest Glands, and convey'd by the returning Veins into the Mass of the Blood, and, by the Force of the Circulation, assist in opening Obstructions through the whole Habit; and this accounts for the wonderful Efficacy of Bathing in white Swellings, Palsies, scorbutic Drynesses of the Skin, scrophulous Sores and Tumors, nervous Wastings of the Limbs, sciatic Pains of the Joints, cold Rheumatisms, and Weaknesses after the Gout. And this still will be more evident, if the Doctrine of the Attraction of Animal Bodies on the incumbent Atmosphere, lately so much improv'd by Dr. James Keil, be supposed true. It is many Years since I was informed by a Gentleman of great Ingenuity, that having a good deal of Money on a Horse, which was to run for the Plate at *New-market*, and the Rider dying not many Days before the Time appointed for the Course, he had undertaken to ride himself, and was obliged by Fasting, Watching, and Exercise, to bring down his Body to Horseman's Weight; that after the Match was over, and he exactly weighed at the Post, he had rode immediately home; and having drank up a Pint of Chicken Broth only, which might weigh about a Pound, got to Bed, and slept twelve Hours; and weighing again under the same Circumstances as before, found he had got in the Whole about three Pounds, if I remember right; whereby he concluded, that his exhausted Body had drawn in about two Pounds of the circumambient Air. This more manifestly shews, how the *Bath Waters*, being hot, and consequently more active, may be drawn in, and get thro' the Pores of the Skin into the Blood-vessels, and there concur with what is drank down towards those kindly Effects Bathing commonly produces. And 'tis impossible to account for those copious and profuse Sweats Persons (if they lie long in Bed after Bathing) run into, but that their Bodies are filled with these Waters, like a soaked Sponge. But the Weak and Low-spirited are never to be suffered to run into those; which are prevented, by either not going into, or by being only a short time in Bed.

It is somewhat uncommon, that Bathing, which for many hundred Years has wrought such Cures, as we have on Record, and singly maintain'd so long the Credit and Reputation of *Bath*, should for this last Century (in which only drinking the Water has been in Use) have fallen into such Disgrace, that it is very far from being now the chief thing People come to *Bath* for. Before drinking the *Bath Water* came to be so much used, fixed or wandering Pain, Stiffness, or Contractions on the Tendons, Lameness, or wasted Limbs, Palsies, or Rheumatisms, were the chief Distempers People came to *Bath* for. But now, since all other chronical Distempers whatsoever are relieved either by bathing or drinking, if People will bathe indifferently, without Advice, without duly preparing their Bodies, and cleansing the alimentary Passages, without any distinct Knowledge of their Case, their Strength, the proper Season of Bathing, or the Time they ought to stay in at once; there must necessarily happen (as there have happen'd) unlucky Accidents, which tend to discourage and disgrace Bathing in general. On the other hand, if those who attend on Bathing will undertake more than they can manage, or duly

tend,

send; at one time; some must necessarily be kept in longer than their Strength will suffer, or their Case requires. These have been the Sources of the late Neglect and Contempt of Bathing. But I am well satisfy'd, was Bathing managed prudently and discreetly, there are but few chronical Cases, in which it might not be useful, and in which it might not contribute with Drinking, and other proper Remedies, towards a Cure, or a Relief. If, on the one Side, we do but consider of what Use and Reputation hot Bathing was amongst the antient *Romans*, and to what extravagant Expences they ran to make their Baths convenient, or beautiful: If we consider, that most chronical Distempers are attended with want of due Perspiration, and are therefore generally of the cold and phlegmatic Kind, and are always produced by Obstructions from fizy Juices: On the other hand, if we reflect on what was hinted above, that the hot Water, in Bathing, was sucked in, and attracted through the Skin, into the returning Veins, and was thereby put in a Capacity to assist with what is drank down, to wash off Obstructions of the small Vessels, to thin and dilute the Blood, and glandular Juices, to warm, enliven, actuate, and nourish, the wasted and decayed Parts: We shall readily conclude, that Bathing, prudently managed, may be extremely beneficial in most chronical Distempers. That Bathing therefore may be performed in the best manner possible, we must first distinguish those Distempers which might suffer by it, from those which will be benefited by it. And those are chiefly of three Kinds: (1.) Those Distempers which impair the rational Faculties, or affect the Head with Pain or Giddiness. Because hot Bathing might send Fumes or Vapours upwards, and so increase these Distempers; such are hysteric Disorders, Convulsions, Epilepsies, and the like. While the Fit lasts, a Vertigo, or Head-ach, from a foul Stomach. (2.) Those which any ways affect the Lungs, because hot Bathing, increasing the Velocity of the Blood, may occasion a Pleurisy, or Peripneumonia, or a Spitting of Blood in such Cases. (3.) Those which are attended with Inflammations, moveable Tumors, or with sitting Pains, such as the Gout, or an inflammatory Rheumatism; because hot Bathing may increase the first, or translate the latter. These excepted, I know no chronical Case (but when in their last Extremities) which might not be benefited by moderate and discreet Bathing, which might scour the foul Tubes, open the obstructed ones, increase the natural Heat, and encourage a due Perspiration. I shall conclude with subjoining a general Rule, whereby to know, if, on Trial, Bathing agrees, and has not been continu'd too long in the Whole, or each single Time; that is, if it neither sink the Spirits, waste the Strength, nor weaken the Appetite, then it is certainly beneficial; for hot Bathing being of the Class of Evacuants, if it carry nothing off but faulty Humours, it can produce none of the mentioned Effects; and if it evacuate these, it must needs be beneficial; and, on the contrary, if it spend the nourishing Juices, and carry off more than the Party can well spare, it must be hurtful.

It is observable, from *Guidot's* Experiments on *Bath Waters*, That the Water, either exposed to the common and open Air, or cork'd up and seal'd in a Bottle, did, for a much longer time, retain its Virtue of tincturing a purplish Blue with Nut-gall in clear frosty Weather, than in heavy moist Weather; that is, it retain'd its chalybeate Principle much longer in frosty and clear Weather, than in warm and moist Weather. The Truth is, nobody could have been long at *Bath* but must have observed, that the Water succeeded better, quicken'd the Appetite more, made the Digestions stronger, and raised the Spirits higher, in a clear, quick, dry Season, than in moist, warm, heavy Weather; and, in Fact, in such a Season as this first is, they surpass all the Methods of producing such an Effect I have ever seen. To which two Causes concur, the greater Quantity of a subtle, active, chalybeate Principle preserved in the Water, and the greater Tightness and Firmness produced in the Fibres by the cold, clean, dry Weather: But what I would chiefly observe from the mention'd Experiments is, that the chalybeate Principle is so fine, subtle, and active, that, in a few Hours, nay Minutes, it will evaporate thro' a Cork, and seal'd Glass-bottle; and may retain, by the mere Action of the circumambient Air, its Nitre, and different Gravity, for some considerable Time: Which shews, how this so subtle and volatile a chalybeate Medicine may be convey'd from the Stomach, even to the great and complicated Distance of the most minute Nerve, the most readily and quickly; which the elementary Water, thus actuated, reaches much sooner than any artificial Preparation of Steel possibly can; and thereby becomes so admirable a Medicine in relax'd Nerves, and nervous Distempers; to which the *Bath Waters*, actuated by this subtle, penetrating, and powerful chalybeate Principle, concur inwardly in drinking them, and outwardly in Bathing, by their being drawn in thro' the Skin, into the small Vessels, as may be seen in the preceding Articles about Bathing. As to the small Quantity of Steel thus introduced, it seems generally sufficient for the real Wants of Nature; but, in chronical Diseases, may be easily supply'd by larger Doses of artificial Steel, when the other has prepared

the way: And certainly, in giving both Steel and Bitters, 'tis safest, and most prudent, to begin low, and with smaller Doses; and to rise as the Pulse and Strength rises, and as Usage has made smaller Doses less effectual. I remember to have observ'd in some of the great and sagacious Dr. *Radcliff's* Bills, four or five Drops of *Mynsicht's* Tincture of Steel, with a few Drops of Elixir Proprietatis, in a simple Water, prescribed as a chalybeate Bitter, even to grown Persons. This I freely own, in the Novitiate of my Observations, I thought very simple: I have had good Reason to condemn my rash Judgment since; and to acknowledge it prudent and judicious to begin, in some low Cases, with such small Doses.

The other Difficulty is, how the same hot Water should relax contracted Fibres, as in the Gout and Rheumatism, and yet contract and brace relax'd Fibres, as in the Palsy and wasted Limbs. That the Matter of Fact is so, is past all doubt, in these and many other Cases of Contraction and Relaxation: But to clear up this, we need only to consider what Contraction and Relaxation are. Since all the Fluids of the Body are contain'd in Vessels, Contraction can arise from nothing but from the Blood, and other Fluids, (or whatever is the Cause of muscular Motion) their being retain'd and obstructed by their Sickness; or from some external Injury in the Substance of the Muscle itself, whereby it becomes fuller and firmer, and so acts as upon its Office of Contraction. Relaxation, on the other hand, is an Obstruction of the Nerves or Vessels of the Fluids, before they arrive at the Muscles, as is seen in Palsies, and the nervous Atrophy of the Limbs; so that, in both Cases, Obstructions are the Cause both of Contraction and Relaxation. Wherefore, whatever Medicine can dissolve the Sickness of the Fluids, open the Obstructions of the small Vessels, make the Perspiration full and free, and brace the Fibres, will both contract Relaxations, and relax Contractions; and that these are some of the Effects of *Bath Waters*, has, I think, been made sufficiently appear.

If it be inquired into, what other Cases, besides the Gout, *Bath Waters* may be useful in, the Answer will be obvious from the Account now laid down; that is, That they must be beneficial in all Cases, where Steel or Sulphur is; that is, in almost all chronical Cases whatsoever. In acute and inflammatory Cases, in all Cases attended with a strong quick Pulse, no mineral Water, nor chalybeate Medicine, can be proper; but in all other Cases (excepting those only attended with a Bleeding or Hemorrhage) they are not only safe, but exceedingly beneficial: More particularly, their wonderful Efficacy has been often experienced in Cachexies, Scurvies; in the Stone, Rheumatism, and Jaundice; in Hypochondriacal and Hysterial Affections; in Vapours and Melancholy; in Palsies, Epilepsies, and other Cephalic and Nervous Distempers; in Disorders of the Stomach and Bowels; Obstructions of the Liver and Gall-bladder; in Green and Breeding Sickness; in Barrenness, and Weakness after Child-birth; in Obstructions of the monthly Purgations, and all other peculiar Diseases of the Sex. And truly, if a Person afflicted with a low, broken, or tender Constitution, suffering under the tedious Pains and Inquietudes of any of the lingering Distempers now mention'd, where the Viscera or Bowels are yet sound, would know the fittest Place in *Britain* to spend their Life-time with the greatest Ease and Pleasure; take all the Advantages of the Place together, the Agreeableness of the Waters to the Stomach, the Certainty of their procuring a good Appetite, when it fails; and the no less certain Consequence thereupon, Freedom and Cheerfulness of Spirits; the regular Way of Living; the Excellency of the Provisions; the Warmness, Cleanness, and Neatness of the Housing; the Conveniency of the free, fresh, and open Air of the neighbouring Downs for Exercise; the Easiness of the Amusements; and the Advantage of what Conversation one desires; I say, taking all these Advantages together, I can affirm, from near twenty Years Experience, without Suspicion of Flattery, or Fear of Contradiction, that *Bath* is the Place.

Some wise and frugal People think the mere Drinking of these Waters, for some Time, without taking any Medicine, either before or with them, may be sufficient to remove any of the chronical Ails they are good for; but those, if they are really ill in any other manner, except mere Loss of Appetite, are generally convinced, upon Trial, at their own Expence, that they neither ought to begin a Course of the *Bath Waters*, without a previous Cleansing of the Stomach and Bowels, lest they wash into the Blood thro' the Lacteals, by the perpetual Dilution of the *Bath Waters*, those Impurities which constantly cleave to them; nor that they ought to expect a perfect Cure of a long-breeding and lingering Distemper, without the Assistance of those other Medicines which are reckon'd specific in the Case, and to which the *Bath Waters* are so pleasant and so assistant a Vehicle: For it is but Prudence to bring all the Forces one can raise, against so potent and so formidable an Enemy as a chronical Distemper.

It is not possible to lay down a general Rule, about the Quantity of *Bath Waters* which it is convenient to drink daily, that being to be varied according to some Circumstances of the Patient,

Patient, and the Nature of the Distemper. Strong, full, and large Bodies, bear more Water than tender, thin, and lesser ones; the Younger more than the Elder; those of strong and firm, than those of weak and relax'd Nerves; those who labour under the Gravel and Rheumatism, than those who are disorder'd in the Alimentary Passages, or are subject to scorbutic or nervous Weaknesses, and the like. But, in general, it were to be wish'd, that People, who come to *Bath* for their Healths, drank less daily than they commonly do, and allow'd more Time for a chronical Distemper. I think it may be safely advanced, that any Quantity greater than an *English* Quart in a Morning, drank in two Hours time, half a Pint every half Hour, is more than what is reasonable: For, drinking in this Proportion all the rest of the Day, at Meals, that is, in the Afternoon, and going to Bed, they must take down no less than five Pounds in about sixteen Hours, viz. two Pounds in the Morning, a Pint and an half with Wine at Dinner, half a Pound in the Afternoon, and as much at Supper, and at going to Bed. This, every body must see, is fully sufficient to answer all the Intentions of drinking mineral Waters. A greater Quantity than this will serve only to distend and relax the Alimentary Passages, to force its Way thro' the largest and most patent Tubes, and to propagate the Circulation through the Branches and Inosculation of the larger Arteries and Veins, where the least Foulness, and fewest Obstructions, can happen; so that it will scarce ever reach the finest Capillary Vessels, in which alone the Danger lies. And the late ingenious and learned Dr. *James Keil* has made it evident, that the most expeditious way of altering the whole Mass of the Blood, by mineral Waters, is by small and frequent Draughts. In most Cases a Pint in a Morning is sufficient; and in low Constitutions, and Disorders in the Alimentary Passages, tending to Vomiting and Purging, half a Pint is enough; and whatever Quantity is to be drank, 'tis always best to take it in small Quantities; and at good Distances, provided it come within the Compass of the Morning. What is drank at Meals, tho' cold, yet being fresh, and not altogether drain'd of its Principles and Virtues, contributes near as much to the Cure, as that which is taken in the Morning. The Afternoon and Evening's Draughts are more arbitrary, and must depend upon the Observation of the Patient, as he finds them agreeable to his Stomach, and sit easily or not: Where too great Quantities have not been swallow'd down in a Morning, they are very proper, provided they be in proportion to the Morning's Quantity, and never taken under four or five Hours after Dinner; and that at Night, not under two or three Hours after Supper; these times being the most proper to assist the Digestion, and carry off the Remains of the Food. But the Truth is, as nothing is more necessary in a Course of these Waters than setting out right at first; so nothing requires more the Experience and Judgment of a Physician, than the accommodating the previous Preparations, the Quantities to be drank, and the Medicines to be taken with them, to the Distemper, and the Constitution of the Patient; for, these once settled, the rest generally goes on successfully.

It is equally impossible to determine the most proper Season for drinking *Bath* Waters, as it is to determine the most probable Season for falling ill of a chronical Distemper: Generally speaking, most chronical Diseases rage Spring and Fall, and Custom has made these Months Seasons for the *Bath*; but the Waters are ever the same, no real Alteration having ever been observed in them from Times or Seasons; tho' there may be some little Variation of their sensible Qualities, from the Variation of the Air and Weather. In the hottest Weather they are given off for a Month sometimes, by those that have drank them a long time before; but a great many, especially those of the tender Sort, and of cold Constitutions, feel the best Effects from them in that very Month: And with some they are best in the coldest Weather, supplying then the Inclemency of the Air by their kindly Warmth; and passing best, when the Fibres are wound up and shorten'd by the outward Cold, whereby the Circulation becomes brisker and stronger. So that Custom and Conveniency, arising from outward Circumstances, have made Seasons for the *Bath*, more than the Nature of the Waters themselves; or their Fitness to produce their benign Effects. The Length of Time People ought to drink the Waters is as little to be determin'd as the most proper Season, or as the Duration of a chronical Distemper: If they are of the Nature of an alterative Medicine, (as they most certainly are) they are to be continued till they either disagree, or the chronical Distemper ceases: And this last generally requires a Time in Proportion to the Inveteracy and Obstinacy of the Disease: Hereditary Sharpnesses require more Time than acquired ones; slighter Degrees of the same Case, less than more inveterate ones; nervous Distempers more than those confin'd to the Blood. A Lady of a low, hysteric, and weak Constitution, having ask'd the famous Dr. *Sydenham*, (as she told me) How long she might safely take Steel; his Answer was, That she might safely take it for thirty Years, and then begin again, if she continued ill. The Question might be as proper, if it

had been ask'd, How long time one might continue to eat and drink; for, in Lowness and Disorder, if Remedies be necessary, Nature will as safely admit them, as Hunger will safely admit of Food. I very well know, that Remedies, in chronical Distempers, must be changed, when they become familiar, and have no Effect; as the same kind of Food ought to be chang'd, when it becomes nauseous and disgustful. But then, this belongs not to the Question proposed, which supposes the Waters have not abated of their first Benefit and Relief, but rather increase in them, and do better; and, on this Supposition, there can be no doubt, that they may be safely continued till a perfect Cure is obtain'd, or they fail in their Relief. Some have drank them several Years with Advantage; and many cannot live, and be well, without them, as is evident from the constant Residing of several Families here for their Use. Whilst the original Disorder lasts in any Degree, and the Waters continue to relieve it, they may be used; but in all Cases, and Events, it is safest and best to let *Well* alone.

It has been alleged, that the *Bath* Waters, drank too long, dispose People to Fevers, and inflammatory Distempers, by over-enriching, heating, and exalting the Blood: But this Objection lies equally against all generous Foods, and enlivening Medicines. And, indeed, Temperance and Moderation, in every thing necessary for the Support of Life, is best and safest: And, as I just now said, it is best always to let *Well* alone; but as long as a chronical Distemper is yet unconquer'd, and unremedied, there can be no Hazard of over-enriching the Blood, the very Case supposing the quite contrary, viz. that there are remaining Sickness and Sharpness in the Blood and Juices: So that, while the original Distemper continues, this Effect is not to be fear'd; and, when it is conquer'd, the Patient is very indiscreet, that, out of mere Wantonness, would play with any Medicine whatever. But this is the Case of a very few, and, if ever I have met with any such, I have always religiously advis'd them to abstain from Waters, and every thing else, that can be call'd Medicinal; for this Reason, amongst many others, that it made a very useful Remedy become less effectual, when wanted, by being made more familiar. But the Truth is, most of the chronical Distempers, for the Cure of which *Bath* Waters are recommended, are of the colder Kind, where the Blood is sly, poor, and dispirited; and, whilst any Remains of the Distemper last, over-enriching or exalting is little to be fear'd; and when they happen, are easily remedied by Bleeding, low Diet, and a few cooling Purges. *Cheyne's Account of the Nature and Quality of Bath Waters.*

BALOIOS, *Βαλῖος*, as *Galen* writes it; or *Balæos*, as it occurs in the seventh Book of the Epidemics of *Hippocrates*, where it either signifies a *Man of Valæa*, a City of *Macedonia*, or is the Name of the Person whose Case is there related.

BALSAMATIO, Embalming.

BALSAMELÆON. The same as the *Balsamum e Mecha*. See BALSAMUM.

BALSAMELLA, according to *Blancard*, is the same as *Balsamina*.

BALSAMICA, Balsamics; that is, Balsamic Medicines, of which *Hoffman* gives the ensuing Account:

Balsamic Medicines are of a Nature somewhat hot and acrid. Under this Denomination come what we commonly call cephalic, nervous, apoplectic, and antiparalytic Medicines; as also spirituous Cordials, and other Substances of similar Natures and Qualities: But, of all the Medicines belonging to the *Balsamic* Class, these are the most noted and efficacious, Aloeswood, together with its Resin and Essence; yellow Sanders, with its Essence, reduced to a liquid Balsam; Ambergriſe; Liquid Amber; Balm of Gilead; Amber; Benzoin; Storax, with its Resin; the Ladaniferous Shrub, with its Resin; the Balsams of *Peru* and *Tolu*; Balsam of Capiui; and that call'd the red *American* Balsam; the true *Peruvian* Bark; the bitter Costus; *Indian* Bark; Cinnamon; Cloves; Cardamoms; Cubebs; Mace; Nutmegs; Savory; Thyme; Rue; Mother of Thyme; Lavender; our *Origanum*, and that of *Crete*; *Margoram*; our own and *Turkish* Baum; *Roman* Chamomile; *Syrian* Herb Mastich; Basil; Southernwood; Spikenard; Camel's-hay; Bay and Myrtle-leaves; together with the genuine, fragrant, and unadulterated Oils distill'd from them. The compound Balsamics are, the Apoplectic Balsam of *Crollius*; the Balsamum Cellense; that of *Scherzerus*; and the liquid Balsam of Life; Spirit of *Peruvian* Balsam, prepar'd in my manner; Spirit of Amber and Mastich; the Apoplectic Water of *Sennertus*; the *Aqua Anhaltina*; the true Essence of Amber; and volatile oily Spirits, impregnated with Oil of Cinnamon, Mace, and Cedar.

These Simples, and the Medicines prepared of them, by means of their fine, ethereal, subtil, and volatile Oil, which is grateful and agreeable to the Constitution, act upon the Fluids as well as the Solids of the human Body; diffuse their Virtues thro' all its Parts, supply the Blood and Humours, with a seasonable Reinforcement of sulphureous, warm, and ethereal Parts, increase their intestine Motions, and convey a genial Vigour to the vital Juices. They also abound in a subtil,

tile, acrid, balsamic Salt, by means of which they augment the Force and Elasticity of the Heart, Arteries, and muscular Fibres, in consequence of which, the Circulation of the Blood and Humours is promoted; the thick and viscid Juices attenuated, Obstructions are removed, and Perspiration is preserved entire, a Circumstance of the last Importance in curing Diseases.

In all Diseases therefore of the Head, Nerves, Spinal Marrow, Stomach, and Heart, which, according to the Antients, proceeded from a cold Cause, or, in other Words, from inspissated and condensed Juices, or from the Tone of the nervous and muscular Parts being destroy'd; such as Apoplexies, Palsies, Numbness, and Torpor of the Senses, Weakness of Memory, Difficulty of Hearing, Faintings, and excessive Weakness, these Medicines may be used both internally and externally with due Success.

They are also of singular Service in those Disorders of the Stomach and Intestines, which proceed from their Tone being too much weaken'd, an Excess of acid and viscid Crudities, or a deprav'd Digestion, such as Inflammations, Diarrheas, flatulent Colics, and Vomiting. Besides, they have this peculiar Advantage, that they are exquisitely suited and adapted to the Old and Infirm, to such as have the Misfortune of lax Habits, or phlegmatic Constitutions.

They are also of singular Service, especially as a Preservative, when, in consequence of a cold and moist Constitution of the Year, especially in the Autumn and Winter Seasons, and in the more Northerly Climates; moist Coughs, Diarrheas, pituitous Asthmas, oedematous Tumors, Coryzas, Rheumatisms, intermittent Fevers; and Disorders arising from a scorbutic Impurity, either actually rage, or are apprehended.

But they are to be used cautiously, and in moderate Doses, by young People, and Patients of choleric and delicate Constitutions, as also in Cases where the Body abounds with Blood and Humours.

I myself, for more than twenty Years, have used a liquid Balsamic, commonly called the *Balsam of Life*, prepared of the most efficacious of the above-mentioned Ingredients, especially the Oils genuine and unadulterated, which is a Medicine of so uncommon Efficacy, that the Person who knows how to use it right, both internally and externally, may rest satisfy'd without any other Corroboratives or Balsamics whatever. And, indeed, this delicious and efficacious Medicine is now universally celebrated; on account of its corroborating and restorative Qualities; but this, like all other valuable Medicines, has been counterfeited and sold to the Credulous and Unwary for my genuine *Balsam of Life*; but the supposititious is never able either to answer the Intention, or support the Character, of that Medicine. *Hoffman.*

See BALSAMUM.

See VITÆ BALSAMUM.

BALSAMINA.

There are two Plants which are called by this Name; the first of which is thus distinguished:

Momordica Balsamina, Offic. *Momordica*, Schrod. 4. 105. *Momordica Officinaria*, Volck. Flor. Nor. 293. *Momordica vulgo*, Hort. Lugd. Bat. 429. *Momordica vulgaris*, Tourn. Inst. 103. Elem. Bot. 87. Boerh. Ind. A. 2. 76. Rupp. Flor. Jen. 41. *Momordica*, *Balsamina*, *Cucumeraria*, *Pomum mirabile*, Chab. 135. *Momordica Balsamina mas*, Ger. 290. Emac. 362. Park. Theat. 714. *Momordica*, *Balsamina rotundifolia repens seu mas*, C. B. Pin. 306. Raii Hist. 1. 647. *Balsamina Cucumerina Indica*, folio integro, fructu variegato, Chom. in Not. Hort. Mal. 8. 22. Flor. Mal. 52. *Balsamina Cucumeraria*, J. B. 2. 251. *Cucumis puniceus Cordii*, Hist. Oxon. 2. 33. *Piperitis*, Tourn. Mat. Med. 357. *Balia-mucca-Piri*, Hort. Mal. 8. 21. Tab. 2. *Cucumerina Indica*, folio integro, fructu variegato, Chom. in Not. MALE BALSAM-APPLE.

It is cultivated in Gardens, and flowers in August.

The Fruit, which is the Part in Use, is of a refrigerating and somewhat drying Quality, a Vulnerary, and mitigates Pains, especially of the Hæmorrhoids. Outwardly, it is good for Wounds of the Nerves, Herniæ, and Combustion.

The Balsam which has been made for a long Time of the Fruit of this Plant dipt in Oil, and dry'd in the Sun, is of excellent Virtue in Wounds, Ulcers, especially the Hæmorrhoids, Ulcers of the Matrix, and Ruptures.

The other *Balsamina* is thus distinguished:

Periscaria siliquosa, CODDED ARSMART. Offic. Ger. 361. Emac. 446. Raii Hist. 2. 1328. Merc. Bot. 2. 28. Phyt. Brit. 90. Mer. Pin. 92. *Balsamina lutea*, seu *Noli me tangere*, C. B. Pin. 306. Tourn. Inst. 419. Elem. Bot. 332. Boerh. Ind. A. 320. Raii Synop. 3. 316. *Balsamina*, *Herba impatiens*, seu *Noli me tangere*, Floris petalo luteo, Hist. Oxon. 2. 282. *Noli me tangere*, J. B. 2. 908. Chab. 287. *Mercurialis sylvestris*, *Noli me tangere dicta*, seu *Periscaria siliquosa*, Park. Theat. 296. QUICK IN HAND, TOUCH ME NOT.

Vol. I.

It is cultivated in Gardens, and the Herb is in Use, which is so forcible a Diuretic as to induce a Diabetes, and is thought to be of a pernicious and deleterious Quality.

BALSAMITA MAS, *Costus hortorum*, Offic. *Balsamita mas*, Ger. 523. Emac. 648. *Balsamita mas*, seu *Costus hortorum major*, Park. Parad. 482. *Balsamita major*, Boerh. Ind. A. 125. Hist. Oxon. 3. 3. Act. Reg. Par. An. 1719. 280. *Costus hortorum major*, Park. 78. *Mentha hortenensis corymbifera*, C. B. 226. *Mentha corymbifera*, seu *Costus hortensis*, J. B. 3. 144. Raii Hist. 1. 363. *Mentha corymbifera Græca*, *Romana*, *Sarracenica*, seu *Costus hortensis*, Chab. 368. *Tanacetum foliis & odore Menthae*, Herm. Cat. 697. Tourn. Inst. 461. *Tanacetum hortense*, *Lepidii foliis serratis*, *Ageratum intense redolens*, Pluk. Almag. 361. *Tanacetum hortense*, foliis & odore *Menthae*, Hort. Lugd. Bat. 697. *Ageratum latifolium serratum*, Hort. Monsp. 7. *Mentha Sarracenica*, Offic. Ger. COSTMARY.

The Roots of Costmary are hard, long, and stringy; creeping in the Ground; the lower Leaves are about as big as Garden Mint, of a palish or yellow-green Colour, standing on long Foot-stalks, very neatly serrated about the Edges. The Stalks rise to be more than a Foot high, having several the like; but smaller Leaves growing on them, they are divided into Branches toward the Top, each of which is terminated by a thin Corymbus or Umbel of naked, deep, yellow Flowers, having no Petala surrounding them, but set in scaly Calyces, being lesser than the Flowers of Tansy. The whole Plant has a soft, pleasant Smell. It is planted in Gardens, and flowers in July.

The Leaves are chiefly used, being warm and drying, of Use to heat and strengthen the Stomach, and to ease the Head-ach, arising from the Disorders thereof, to expel Wind, and prevent sour Belchings. It likewise opens Obstructions of the Liver and Spleen, and is good for the Dropsy and Jaundice. Outwardly it is used in heating and warming Fomentations and Bathings, being good to comfort and strengthen the Limbs. *Miller's Bot. Off.*

BALSAMUM, Balsam. Of this there are many Sorts, both natural and artificial.

Under the Distillation of Turpentine, *Boerhaave* gives an Analysis of all the natural Balsams, as follows:

The VINEGAR, SPIRIT, two Kinds of OIL, ROSIN, and COLOPHONY, from TURPENTINE, distilled by the Retort.

1. Take a clean, new Glass Retort with a wide Neck, and cut it off short, so that the Mouth may remain large and capacious, which is a principal Requisite in this Operation; then heat pure native Turpentine in an earthen Vessel, having a Lip to pour out at, by putting the Vessel into scalding hot Water, till the Turpentine grows fluid like Water; then pour this melted Turpentine hot, in at the wide Mouth of the Retort, which is first to be strongly heated to prevent its cracking as the Turpentine is poured in. Let two Thirds of the Retort be thus filled, and leave the other Third empty; then hold the Retort, so filled, with its Neck erect, till the Turpentine shall have run quite down the Neck into the Belly, if any of it happen to stick to the Neck in pouring; otherwise this gross Turpentine would run down into the Receiver in the Distillation, and foul the Liquor that first comes over: Now place the Retort in a Sand Furnace, and lute on a clean Receiver.
2. Make a Fire that may heat the Sand to about one hundred Degrees, and carefully keep it at this Height, so long as it drives over any Liquor; by which means a thin, limpid Fluid, resembling Water, will come over, and fall to the Bottom of the Receiver, whilst another limpid, thin, and oily Liquor floats upon it. When nothing more rises with this Degree of Fire, change the Receiver; the under Liquor will be found gratefully acid, saline, aqueous, miscible with Water, refreshing to the Stomach, spirituous, and excellently diuretic. It will make an Effervescence with Chalk, deposit its Acidity therein, and afterwards distil from it in form of a pure Water: Whence we perceive, that the acid Salt and Water first come over in this Distillation. The other Liquor, which floats upon this, is a light, pure, thin, almost spirituous and inflammable Oil, thence called the *Ethereal Oil of Turpentine*, which is so penetrating as to vanish when rubbed upon the Body, pass into the Blood, and soon communicate a violet Smell to the Urine; which is an evident Sign of the Power it has to pass thro' all the Pores.
3. Let a proper Receiver be now applied, and a Heat, equal to that of boiling Water, be raised; this is done by pouring Water upon the Sand, and heating it with the Fire underneath, to two hundred and twelve Degrees, where it is to be kept, continually adding as much boiling Water as exhales away. The Matter remaining in

the Retort, after the first Operation, is left so thick as to appear consistent in the Cold; but now melts again, crackles between whiles, and again affords an acid Water, like the former, that falls to the Bottom, and an Oil also, like the former, floating at the Top, but somewhat thicker, and a little yellowish: Both of them have nearly the same Virtues as mentioned above.

4. The Receiver being again changed, and the Fire gradually increased up to a strong Degree of a Sand-heat, tho' with Caution in the raising it, there will come over an acid, ponderous, red Water, that runs separate into the Bottom of the Receiver, and a thick, red, penetrating, tho' somewhat viscous Oil floating on its Top; and it is remarkable, that this acid Water always continues to rise with the Oil, and not the Water first by itself, and the Oil afterwards. What now remains in the Bottom, after this last Distillation, proves, when cold, exceedingly red, hard, and brittle.
5. I have urged this remaining Matter with Caution, and by slow Degrees, up to the strongest Heat that Sand, and a Fire of Suppression, would afford; and have thus obtained red Oil, so thick and viscous, as to resemble Turpentine itself; but it was of a red Colour, and some red, acid, ponderous Water still continued to rise with it, leaving scarce any thing behind at the Bottom of the Retort.
6. There is the greatest Caution required in this Distillation, to prevent the Glasses bursting or cracking, whereby a dense, oily Fume would immediately escape, which readily takes Fire, and can scarce be extinguished; whilst the Fire is impetuously hurried into the Retort with a Flame that bursts the Vessels to Pieces in a dangerous manner. Turpentine is otherwise commonly distilled into an acid Water, an ethereal Oil, or Spirit of Turpentine, after this manner: Fill one third of an Alembic with pure Rain-water, and add thereto half its Weight of good Turpentine; then fix on the Head, and use the Worm and Refrigeratory. Thus distilling with Care, and a Fire that makes the Matter gently boil, there comes over an acid Water, and a pure light Oil. If the Distillation be continued so long as this Oil continues to run, there remains behind a kind of Colophony in the Still: And if the Flowers of Lavender, Roses, or other odoriferous Plants, be here put into the Still, the Oil will come over fragrant by this Operation. Therefore Turpentine is resolvable into Water, a saline, acid Spirit, a volatile Oil, and a more fixed Colophony. It is here chiefly remarkable, that the Remainder proves so much the thicker, redder, harder, and more brittle, the more Water, Acid, or volatile Oil comes over; and that even this last fixed Matter itself at length liquifies, and becomes volatile with the utmost Violence of the Fire: And this acid Water, being well separated and rectify'd from all its Oil, perhaps affords the best vegetable Acid hitherto known.

R E M A R K S.

1. Hence we learn under what Form native Oils reside in Plants; for, first, the nutrimental Juice, drawn from the Earth, seems to be a somewhat tart and aqueous Liquor, which, when received, gradually deposits its more unctuous Matter in certain Parts of the Plant; and this unctuous Matter afterwards uniting more of the same to itself, by Heat, Maturation, and the Assistance of the whole Powers of the Plant, it then appears in the Form of a fat Oil, which being driven outwards, and undergoing the same Changes in a greater Degree, at length constitutes a *Balsam*, containing a Water, a saline Acid, and unctuous Spirit, and different Kinds of Oil, all mixed together, yet separable; and after the Separation of any particular Part, the *Balsam* constantly changes to a different Form. Hence appears the great Difference of native *Balsams* in Chirurgical and other Medicinal Uses; whilst they act in their own Substance, and so by means of all their Principles together, or only by means of certain, particular, separated Parts. When used entire, and mixed with the Yolk of an Egg, Turpentine becomes somewhat more soluble, and an admirable Remedy for external Chirurgical Uses; and, internally, it proves excellent in many Distempers, where it gives Signs of its extraordinary Virtue, by its penetrating Nature, and the violet Smell it communicates to the Urine. We have many *Balsams* of this Kind, not differing so much in Virtue, as in Price and Place of Growth; as the *Asiatic*, *Egyptian*, *Hierichuntan*, *Judaic*, *Memphitic* *Balsams*, and *Balm of Gilead*; for these several Names at this Day denote the same thing; or a *white Balsam* in the Form of a liquid Turpentine, and of a citron Smell. The *American Balsams* are various, and proceed from different Trees; as the *Balsam of Capiivi*, which is of extraordinary Virtues; the *Balsam of Peru*, *Tolu*, and liquid Amber.

The true Turpentine proceeds from the Turpentine-tree of *Chio*, the Fir, the Larch, and the Pine; but all these Kinds generally resolve into the same Principles by Heat and Distillation, change alike with Time, and produce the same Effects.

2. We know, likewise, that all the Kinds we are hitherto acquainted with, contain an acid Water, or Spirit, which is volatile, preservative, esurine, and penetrating, of great Medicinal Virtue and Fragrance: This Spirit easily exhales, and leaves the *Balsam* deprived thereof, and therefore less excellent; whence these *Balsams* are not the better for keeping.
3. The Oils which first come over are light, limpid, totally inflammable, extremely penetrating, bitter, and of great Use in Surgery, as being highly anodyne, resolving, and healing, when apply'd warm to the Membranes, Nerves, or Tendons, that are lacerated, pricked or cut, and an immediate and safe Styptic, apply'd to the wounded Veins or Arteries in large Hemorrhages, as at once defending the Nerves, stopping Putrefaction, and incarning. In these Cases it should be apply'd very hot to the Part; and kept thereon by a proper Pledget and Bandage. Its *balsamic* or embalming Virtue is extraordinary; for if the Bodies or Parts of any Animals be for some time steeped in this Liquor, then taken out, and awhile suspended in the Air, and afterwards dipped afresh, they at length acquire a Case, under which they may be long preserved from Putrefaction: But the Bodies plunged into this Oil, whilst contained in Glasses, are preserved perfectly uncorrupted. It has, however, this Inconvenience, that it gradually grows opaque and thick. The Oil, being used hot externally, discusses cold, viscid, and mucous Tumors, defends the Parts against Cold, relaxes and softens them. When used internally, it also proves aperitive, heating, sudorific, and diuretic, communicating a quick Smell of Violets to the Urine: Whence it proves serviceable in the cold Fits of intermitting Fevers, and being rubbed along the Back-bone, before the cold Fit is expected, it will even cure Quartans. It must, however, be used with Caution, because, if taken too largely, it affects the Head, occasioning Heat and Pain therein, and also proves violently diuretic, and occasions an Effusion of the Liquor of the *Prostate Glands*, and the *Semen*; and therefore, if used with Moderation, it excites Venery. Hence it came to be recommended in the Cure of a Venereal Running, where it often proves mischievous, as being subject, when freely used, to inflame the Parts, and increase this Disorder.
4. The thicker Oils that come over in this Distillation are more *balsamic*, incarnative, and anodyne, more penetrating and emollient; and are therefore used as Styptics, instead of the former thinner *Balsam*, in hotter and more inflammatory Constitutions; in other respects they agree with the former. But the last thick and viscous Oil is an admirable Incarnative, that heals almost without Suppuration, and a most extraordinary Anodyne. This Oil also makes such an Effervescence with *Glauber's* strong Spirit of Nitre, as often to take Flame.
5. What remains behind upon the Distillation of pure Turpentine with Water, or after the first Oil and Spirit are drawn over, proves hard, brittle, transparent, and red in the Cold. If this be gently melted, and any Insect be dipped therein, and carefully taken out again, it will be surrounded with a transparent Case like Amber, thro' which the Subject may be commodiously view'd; and the Whole may be thus kept for a long time beautiful and unalter'd, provided the Polish be not obscured, as it easily is, on account of the great Brittleness of this resinous Crust. But the Colophony, remaining after the second Distillation, is harder and redder, and easily reducible to a fine Powder, which has little Smell or Taste. This is that extremely useful Powder, which is so advantageously apply'd to the bare Bones, Periosteum, Tendons, or Muscles, in case they are either burnt, corroded, bruised, cut, pricked, or lacerated; and affords an excellent Remedy in serous Fluxes of the Joints, and admirably procures a Cicatrix: In the same manner it takes down the fungous Excrescences of the Ulcers; whence it appears, that Turpentine serves for many Chirurgical Purposes. But nothing is here more extraordinary than the successive spontaneous Inspissation of the first exceeding thin Oil, so as to recover the Thickness of Turpentine again, and afterwards the Consistence of a thicker *Balsam*, and at length of a Rosin; tho' there is less Acid in these regenerated Rosins, than in the native.
6. Possibly, therefore, the native, acid, volatile Salt contained in this fat unctuous Substance, and in the Water, is the same Spirit, which, in other essential Oils, constitutes the aromatic Spirit; for it is so lodged in the native Fat, as, together with the Water, to lie concealed under the Form of one mixed Body: Whence natural *Balsams* are changed

changed into Oils, upon losing their Water, and their Rosin. Again, *Balsams* are changed into Rosins upon losing their Water, Acid, and Oil; whence this happens spontaneously with Time in the open Air, whilst the Action of the Sun, by dissipating the Acid, the Water, and the thin Oil; at length, through various Degrees, brings it to a Rosin. Whence Oils in the Spring are Rosins in the Winter, and in Autumn afford a proper Covering to Trees, so as to defend them from Cold, Dryness, and Frost.

7. This Experiment clearly shews, (1.) That the utmost Heat of the Sun, long continued, may gradually inspissate and change liquid Oils, through various Degrees of Thickness, up to that of Rosin or Colophony. (2.) That the Heat of boiling Water has this Effect sooner; and, by discharging the Oil, leaves a Colophony behind in four or five Hours time, whilst the exhaling Fume proves an acid Water, and a Spirit mixed among a large Quantity of Oil; the Colophony remaining hard behind. (3.) That this Colophony, being urged by an Heat of two hundred and eighty Degrees, is again resolved into an acid Water, and a red, viscous, ponderous Oil, leaving an extremely hard, transparent Colophony behind, of a Colour compounded of Red and Black, and capable of enduring unaltered for Ages. But when this itself comes again to be urged with the utmost Violence of a Fire of Suppression, so as almost to melt the Glass, its whole Quantity is, by the sole Force of the Fire, turned into an oily liquid Substance, though somewhat viscous, without leaving any hard Colophony behind. (4.) Whence we learn both the changeable Nature of vegetable Oils, and the surprising Variety of the Action of the Fire upon them, which, with a certain Degree of Heat, inspissates thin Oils, and brings them to an hard consistent Mass, that would always remain the same; though a greater Degree of Fire again reduces it to a liquid Oil, which likewise would long continue in this State; but, by a repeated Distillation with a strong Fire, it becomes totally liquid, and considerably thin; whence it is certain, that many Bodies owe their Hardness, and others their Fluidity, to the Fire. *Boerhaave's Chymistry.*

The very Word *Balsam* seems, in all Ages, to have had an Idea of Excellence and Efficacy affixed to it, above any other Branch of the *Materia Medica*; for the antient Physicians, by this Word, meant any Species of Medicine, which powerfully recommended itself by a grateful and delicious Fragrance, and whose Use, both internal and external, was of singular Efficacy in preventing Putrefaction, and resisting Corruption. *Balsams*, 'tis true, were originally used for embalming and preserving the dead Bodies of those, who, during their Lives, had signalized themselves by great and heroic Deeds, or endeared themselves to Mankind by the Practice of the several Virtues. And when the thinking and sagacious Part of Mankind observ'd, that the Bodies of the Dead, were, by means of *Balsams*, enabled to defy the Attacks of Corruption, for an immense Series of Years, they began to imagine, that their Virtues might extend to the Living, protract Life, and corroborate what they called the *Calidum Innatum* fluctuating in the Blood. But however unintelligibly they may have talked upon this Point, yet 'tis certain, the Notion itself was just and well-founded, since we are taught by Experience, that amongst the vast Variety and infinite Store of Medicines, with which the Mineral, Animal, and Vegetable Kingdoms supply Mankind, none are more powerful, none more efficacious, than those which come under the Denomination of *Balsams* and *Balsamics*. But as all *Balsams* are not alike efficacious, nor equally adapted to Medicinal Uses, I shall only consider those *Balsamics* which seem best calculated to answer the Intentions of Medicine, whether Preservative or Curative; and that I may execute the Design with the greater Accuracy, and afford the inquisitive Mind the higher Satisfaction, I shall specify the Principles by which they operate, enumerate their several Virtues, and give Directions with regard to their Uses. But, for the sake of Perspicuity, it will not be improper to inquire into the Origin of the Word *Balsam*, and ascertain the precise and determinate Idea, which I myself affix to it.

Since then the Inhabitants of *Palestine*, and the Coasts of *Phoenicia*, and perhaps their Neighbours the *Arabians* and *Egyptians*, were, according to the Accounts we have, the first who used *Balsams*, common Sense directs us to the Genius of the Oriental Languages for the Origin of the Name. Whether then it is a simple Word, which is most probable, and most consonant with the Genius of the Eastern Language, deriv'd from *בשם* *Bosem*, a Word peculiar to the *Hebrews*, for expressing the most fragrant and delicious Substances, in which other Nations have probably inserted an additional Letter, as in many other Instances they did; or whether with others we maintain, that it is compounded of *בשם* *Baal Schemen*, which signifies the Chief or Prince of Oils and Spices; yet still it amounts to the same, since by the Import of the Word, in both Cases, 'tis plain, that only

the best Spices, Oils, and Resins, and such as excell'd all others in their Virtues, the Fragrancy of their Smell, and the Sweetness of their Taste, were called *Balsams*. Neither shall I, in the Course of this Dissertation, affix any other Idea to the Word *Balsam* or *Balsamic*, than that of a Medicine possessed of a sulphureous, resinous, and oily Principle, which at the same time must be fragrant and friendly to Nature, and by means of which it operates: Two things must therefore concur to characterize and constitute a *Balsam*: The first is, that the greater Part of the Substance ought to be inflammable, that is, either of an oleous, or resinous Nature. The second Circumstance necessary to constitute a *Balsam*, is, that the Substance be of a grateful Smell, and pungent Taste, that it may give Proof of its Efficacy, and of the Smallness and Minuteness of its Parts: So that, according to this Hypothesis, all Sulphurs, and resinous Substances, as also all inflammable Oils, though of the Consistence of a *Balsam*, are yet to be excluded from the Class of genuine *Balsamics*, if they want that Fragrancy of Scent, and Deliciousness of Taste, which are requisite to constitute a *Balsam*. Thus Naphtha, or Rock Oil, *Jews Pitch*, Pitch, Resin of the Pine, the Oils of Turpentine and Fir, ought by no means to be ranked among the Class of *Balsamics*, though they are inflammable penetrating Substances, excellent for the Purposes of embalming, and promise very salutary Effects, both when used internally and externally. Yet because they abound in a too strong, acrid, and penetrating Sulphur, which is not altogether friendly and agreeable to Nature, they are therefore less fit for restoring lost Vigour, and recruiting impair'd Strength. Nor are Substances whose sole Property is Fragrance of Smell, such as Civet, Musk, and the fragrant Flowers of Jessamin, Oranges, or the Hyacinthus Tuberosus, to be properly esteemed *Balsamics*, because Fragrancy alone, which is owing to a fine and easily exhald Sulphur, is not sufficient to constitute a *Balsam*; but 'tis necessary, that this fragrant Principle be blended and incorporated with a subtile acrid Oil, and an inflammable Resin.

BALSAM of MECCHA.

'Tis therefore justly to be doubted, whether a true and genuine *Balsam* is to be found in the Animal Kingdom. Mean time the Vegetable Kingdom is richly stored with Medicines of this Class, of which the most antient, and that which first bore the Name of *Balsam*, is the *Opobalsam*, both *Arabic* and *Egyptian*. This was produced by a small Tree growing in *Judea*, *Egypt*, and *Arabia*, the Whole of which was of a fragrant Smell; and when an Incision was made into its Bark, it yielded a resinous Juice of a most grateful Odour, and of uncommon Virtues. The Antients called the Wood of this Tree *Xylobalsamum*, and its Fruit *Carpobalsamum*; but the Name *Opobalsamum* was appropriated to its Juice or Tears. Of this Tree, *Strabo* the Prince of antient Geographers gives us the following Account, *Lib. 16.* "There is a Field near *Fericho* in *Palestine*, in which there is a Nursery of *Balsam-trees*. "This Tree is a certain small, odorous, aromatic, and fruticose Tree, not unlike the *Cytifus*, or Turpentine-tree. "When an Incision is made into its Bark, it yields a Juice resembling viscid and tenacious Milk, which, when received in Shells, coagulates. It wonderfully cures Head-achs, recent Inflammations of the Eyes, and Heavinesses; and what contributes much to the Value of this Medicine is, that it is found no-where else but here." *Prosper Alpinus*, the most accurate Describer of the *Egyptian* Plants, agrees with this Account, and in *Tract. de Plant. Egypt.* writes thus: "The *Xylobalsam* is a small Tree, which grows to the Height of the *Cytifus*, bearing few Leaves, which resemble those of Rue, or those of the Mastich-tree, but which are always green. Its Branches are odorous, and so gummy, as to stick to the Fingers when handled. It bears small white Flowers resembling those of the *Egyptian* Thorn, but very fragrant, from which arise yellow Seeds, contained in Husks of a blackish red Colour, very fragrant, and containing within them a yellow Juice, which bears a near Resemblance to Honey; and which affects the Tongue with a bitter, and somewhat acrid Taste, and smells like *Opobalsamum*. Its Fruit, in Figure and Bulk, resembles that of the Turpentine-tree." 'Tis to be observ'd, that several Authors assert, that this Tree does not grow naturally in *Judea*, but was brought into it when a great many other Plants were transplanted from *Meccha*, a Town of *Arabia Felix*, into *Palestine*, whence they were convey'd into *Egypt* in the Days of *Mark Antony* and *Cleopatra*. Many are of Opinion, that there is now no such thing as the true *Opobalsam*, and that the genuine Species, of old produced in *Egypt*, is not to be met with in any Part of the World; for that which is sold for *Opobalsamum* in small Boxes made of the Shells of Nuts, is, in their Opinion, composed of *Peruvian Balsam*, *Benzoin*, and *Storax*, as *Pomet*, in his History of Drugs, informs us. But it seems pretty probable, that there is at this very Day such a thing as true *Opobal-*

Opobalsamum; for that brought from *Meccha*, which is called the *Balsam of Meccha*, and is described by a great many Authors, is of equal Efficacy with the *Opobalsamum*. It is a Liquor of an oleous Nature, as thick as Turpentine, of a penetrating and grateful Taste and Smell. It is sold at a very high Price, since half an Ounce of it cannot be purchased under two Imperials (about one Pound five Shillings). *Clisius*, in *Exoticis*, is of the same Opinion with regard to the *Opobalsamum* being still in the World; for in *Lib. 10. Sect. 9. de Balsamis*, he has these Words: "*Arabia Felix*, the Country which has in all Ages, and now does produce balsamic Plants, affords true and genuine *Opobalsamum*."

This *Balsam* was always had in so great Esteem by the Antients, that they made it an Ingredient in their most noble Antidotes, which were sold for double their Weight of Silver, according to *Theophrastus*, *Pliny*, and *Dioscorides*. This is easily accounted for, since the *Balsam-tree* being very small, and not able to afford a great Quantity of the *Opobalsamum*, its Price must of course have run high. This also was the Reason why the *Opobalsamum* of the Antients, according to *Lobelius* in *Animadversionibus*, was often vitiated with Cyprus Turpentine, or Oil of the Mastich-tree. Since then the *Balsam of Meccha*, of all others the finest, is, without Doubt, the true *Opobalsamum* of the Egyptians, and exactly resembles it in all its Qualities, its Use in Physic is for this very Reason to be highly commended; for of this, dissolved and prepared with a spirituous Menstruum, in which Amber is intimately mixed, very efficacious and elegant Medicines may be prepared for internal Use. *Hoffman*.

This precious Balsam-tree is thus distinguish'd:

BALSAMUM JUDAICUM, GILEADENSE, & MECHAVERUM, & *Opobalsamum*, seu Oleum Balsami, sive Balsamelæon, Offic. *Balsamum Judaicum*, Ind. Med. 18. *Balsamum de Meccha Judaicum*, Gileadense, *Opobalsamum*, Commel. Plant. Ufu. 85. *Balsamum de Meccha*, *Balsamum verum*, Mont. Exot. 16. *Balsamum verum*, J. B. 1. 298. Chab. 24. Raii Hist. 2. 1755. *Balsamum genuinum antiquorum*, Park. Theat. 1528. *Balsamum ab Egyptiis Balesan*, Alp. Egypt. 60. *Balsamum*, Velling. Obf. 17. *Balsamum Alpini*, Ger. 1343. Emac. 1528. *Balsamum Syriacum*, *Ruta folio*, C. B. Pin. 400. THE TRUE BALSAM-TREE.

This is the thin or liquid Rosin of a small Tree or Shrub, that grows about *Meccha* in *Arabia*, bearing ever-green pinnated Leaves, in Shape like those of the *Lentiscus* or Mastich-tree, with an odd one at the End of the Stalk. It bears small fix-leaved whitish Flowers on the Top of the Stalk, which are followed by little roundish rugged Fruit, pointed at the End. This Fruit, which is the *Carpobalsamum*, and the Wood, which is the *Xylobalsamum*, are prescribed in some old Compositions; but by reason they are not to be had in the Shops, other things are substituted in their Places.

This is a resinous Liquor, which at first is of the Consistence of sweet Almonds, but by Age becomes like Turpentine, loses much of its Smell, and grows sometimes blackish. When fresh, it is of a very agreeable aromatic Smell, and of a Taste like Citron-peel. The Plant, from which it flows, is called *Balsamum Syriacum*, folio *Ruta*, C. B. P. M. Lippi, sent by Lewis the XIVth Ambassador to the Emperor of the *Abyssines*, being in *Egypt*, was at great Pains to discover this Plant, and the ways of procuring the *Balsam* from it. The Substance of what he could find out is, that there are three ways of collecting it, and that there is some Difference in the Liquors collected each way. The first runs of itself from the Tree, the second by Incisions, and the third is got by boiling the Tops of the Trees. The *Balsam*, that rises first after a gentle Decoction, is very good, and much esteemed; but what is got afterwards, is the coarsest Sort, and of least Value. The first kind of *Balsam* is sent entirely to the Seraglio of the Grand Signior; the other Sorts are suffered to be exported. This *Balsam* is not now to be found in *Judea*, which was its ancient native Soil, and where it was very common before the Destruction of *Jerusalem*; but soon after that, the *Jews* destroyed all their Trees, lest the *Romans* should make Advantage of them. At present, it is found near *Meccha*, and *Grand Cairo* in *Egypt*, from whence it is carried to *Constantinople*, where it is in great Esteem. In *Asia* it is given in the Quantity of two Scruples, as a Diaphoretic in malignant Fevers; and it is undoubtedly an excellent Medicine for deterring Ulcers in the Lungs, Kidneys, and Bladder, and even for dissolving pulmonary Concretions. But the Use of it ought to be avoided in inflammatory Dispositions of these Parts, even tho' ulcerated. It ought likewise never to be given when there is an Erysipelas in any Part of the Body whatever. It is used with good Success in Gonorrhæas and the Fluor Albus, being given from ten to twelve Drops early in the Morning fasting, the Patient's Body having been well prepared, and the Running having continued some time. It is used externally in Wounds without Contusion, as a Detergent.

The Ladies in *Asia* use it as a Cosmetic, and especially in the Seraglio of the Grand Signior. In *France* the Ladies for-

merly prepared a kind of *Lac Virginalis* with the yellow *Balsam of Meccha*, dissolved in Spirit of Wine; but they were soon tired of this Method, because it leaves a Crust on the Face. The true Manner of preparing this Cosmetic, is as follows:

Take *Balsam of Meccha*, and Oil of sweet Almonds, of each equal Parts; mix them well together into a kind of *Nutritum*. On three Drams of this *Nutritum* in a Matrafs, pour six or seven Ounces of Spirit of Wine, and leave them in Digestion, till a sufficient Tincture is extracted. Then separate this Tincture from the Oil, and pour about an Ounce of it into eight Ounces of Bean-flower Water, or any other Water of the same kind.

This Mixture is a *Lac Virginalis*, which will answer all the Intentions of a Cosmetic, without any Inconvenience. The *Balsam of Meccha* is an Ingredient in the *Theriaca* and *Mithridate*. *Geoffroy*.

Though the *Balsam of Meccha* is by most Authors agreed to be the same as the *Opobalsamum*, yet *Pomet* seems to think them somewhat different. This Author, speaking of the *Balsam of Judea*, says, That the *Turks* have transplanted the Trees which produce this *Balsam*, from *Judea*, to Gardens in *Grand Cairo*, where they are guarded by several *Janisaries* during the Time the *Balsam* flows. A Friend of mine, who has been at *Grand Cairo*, assured me, it was impossible to get a Sight of these Shrubs, except over the Walls that inclose them, the Entrance being prohibited to the *Christians*. And as to the *Balsam*, it is almost impossible to get any upon the Place, unless it is by means of some Ambassador at the *Porte*, to whom the Grand Signior has made a Present of it, or by the *Janisaries*, who watch this precious *Balsam*; by which we may understand, that what several Cheats pretend to sell for true *Balsam*, is nothing but white *Balsam of Peru*, which they prepare with Spirit of Wine rectified, or with some Oils distilled.

But as it is met with sometimes amongst the Curiosities of People of Distinction, so in 1687. there happened to be a Quantity amongst those of *Madame de Villefavin*, amounting to about fourteen Ounces in two leaden Bottles, as it came from *Grand Cairo*, which was sold to a Person who let me see it. We found it to be very hard, of a golden-yellow Colour, and a Smell like that of a Lemon. But, since that, a Friend of mine gave me one Ounce, which he brought himself from *Grand Cairo*, and was of a solid Consistence, like that of Turpentine of *Chio*, and of the Smell abovesaid, which is the true Sign of its Goodness. *Pomet*.

I don't know, that I ever saw the true *Balsam of Judea* more than once. It answers exactly the above-mentioned Characteristics, and was brought from the East, on purpose for the Use of the late Prince George of Denmark.

Every Druggist in *London* will sell what is pretended to be *Opobalsamum*; but by what has been said it appears, how cruelly both Physician and Patient are frustrated in their Expectations, when instead of this precious *Balsam*, one of a very different Kind is substituted in its Room.

Pomet, speaking of the *Balsam of Meccha*, says, The *Turks*, who go a Pilgrimage every Year to *Meccha*, bring from thence a certain dry white *Balsam*, in Figure resembling white Copperas calcined, especially when it is stale. The Person who made me a Present of about half an Ounce, assured me, that he brought the same from *Meccha* liquid; and that, as a Cosmetic, it is equal to the *Balsam of Judea*. *Pomet*.

I cannot think this a sufficient Reason for supposing the *Balsam of Meccha* different from that of *Judea*, contrary to the Opinion of most Authors.

Dioscorides gives the following Account of the true *Balsam*.

The *Balsam-tree* grows to the Bigness of the *Lycoium*, (*Ly-cium*, according to some) or *Pyracantha*, and has Leaves like Rue, but much whiter, and far more an Evergreen. It grows in a certain Valley of *Judea* only, and in *Egypt*, differing in respect of Roughness, Tallness, and Slenderness. The fine and capillaceous Part of the Shrub is called *The Gatherings* [*θῆσεις*], perhaps, because its Slenderness renders it easy to be gathered. What they call the *Opobalsamum*, is taken in the Heat of the Dog-days, from Incisions made in the Tree by Iron Instruments, of the Figure of human Nails; but so little distils, that they collect no more than six or seven Choæ [see *CHOA*, or *CHUS*] yearly, which is sold upon the Spot, for double its Weight in Silver.

The Juice of *Balsam* which is good, is new, smells powerfully, is pure, not inclining to Sourness, is easily diluted, smooth, astringent, and moderately biting upon the Tongue. It is adulterated several ways; some mix with it Ointments, as those of Turpentine, the Cyprinum, Lentiscinum, the Sufinum, Balaninum, and Metopium, (See these in their proper Places) Honey, and Cerate of Myrtle, or very liquid Cyprian. The Fraud is easily discovered in the following manner.

The pure *Balm*, if dropped upon a woollen Garment, may be washed off without leaving the least Stain or Mark; but the adulterated

adulterated sticks to the Place. The pure also, dropp'd into Milk, coagulates it, which the adulterated will not do. Again, the pure, if pour'd into Milk or Water, is instantly mix'd with it, and turns milky; but the adulterated swims on the Top; like Oil, contracting itself into a Roundness, or diffused abroad in the Figure of a Star. Moreover, the pure *Balm* grows thick with Age, and loses its Virtue. They are mistaken who imagine, that pure *Balm*, when dropp'd into Water, first sinks to the Bottom, and afterwards rises to the Top, and freely diffuses itself.

The Wood call'd *Xylobalsamum* is known to be good by its Newness, its being in slender Branches, its red Colour, and Fragrancy, diffusing its Odours in some measure like the *Opobalsamum*. Chuse such Seed (since this also is necessary to be used) as is of a yellow Colour, plump, large, ponderous, of a hot biting Taste, and smelling, in some moderate Degree, like *Opobalsamum*. The Seed is brought from *Petra*, and resembles that of *Hypericum*, with which it is also adulterated; but you may know the *Hypericum*-seed by its Excess in Bigness, its Vacuity, Want of Virtue, and a Taste like Pepper.

The Juice is of extraordinary Virtue, as being of a very heating Quality, by which it deterges whatever darkens the Pupil of the Eye; and, used as a Pessary, with Cerate of Roses, cures Refrigerations of the Uterus, provokes the Menfes, and expels the Birth and Secundines. In Shiverings, being used as an Ointment; it causes a Solution thereof; and deterges the Filth of Ulcers. Drank inwardly, it helps Digestion, and provokes Urine; and is good for such as are troubled with a Difficulty of Breathing. Taken in Milk, it helps those who have swallow'd *Aconitum*, or been bitten by Vipers. It is an Ingredient in *Acopa*, *Malagmas*, and *Antidotes*. Universally speaking, the Juice of the *Balsam-tree* has the greatest Efficacy; next to this the Seed, and the Wood least of all. The Seed, drank, is good for the Pleurisy, Peripneumony, Coughs, Sciatica, Epilepsy, Vertigo, Orthopnea, Gripes, Difficulty of Urine, and the Bites of Vipers, and other venomous Beasts. It is also well accommodated for Suffumigations, in Disorders incident to the Female Sex; and the Decoction, used in Infections, opens the Uterus, and exhausts its Humidities. The Wood has the same Virtues as the Fruit, only in a lower Degree. Boil'd in Water, and drank, it helps Indigestion, the Gripes, the Bites of venomous Creatures, and Convulsions. It also provokes Urine, and, with dry'd Iris, is proper for Wounds of the Head, and promotes the Exfoliation of Bones. It is also mix'd with Ointments for their Inspissation. *Dioscorides*, Lib. I. Cap. 18.

BALSAM of TOLU.

The *Balsam of Tolu* justly deserves our next Consideration; since, in our own Days, 'tis by many used as a Succedaneum to the *Opobalsamum*. It is brought from the Town of *Hiobi* or *Tolu*, in a Province of *New Spain*, situated between *Carthage* and *Nombre de Dios*, and is yielded by a Tree resembling the Pine, according to *Ray* in his History of Plants. It is of the Colour of Gold, and smells like a Lemon, especially if it is rubb'd between the Palms of the Hands. It is dry, solid, and pellucid. This *Balsam*, dissolved in tartariz'd and highly rectified Spirit of Wine, affords an Essence, which is both grateful and efficacious in several internal and external Disorders.

The Tree which produces this *Balsam*, is thus distinguish'd.
BALSAMUM TOLUTANUM, Offic. *Balsamum Tolutanum*, foliis *Ceratiae similibus*, quod candidum, C. B. Pin. 401. Chom. 626. *Balsamum Tolutanum*, Mont. Ind. Exot. 12. Ind. Med. 18. *Balsamum de Tolu*, Park. Theat. 1570. J. B. 1. 296. Raii Hist. 2. 1758. De Laet. Ind. Occid. 367. *Balsamum Provinciae Tolu*, *Balsamifera*, 4. Hern. 53. *Arbor Balsamifera Tolutana*, Jonst. Dendr. 308. THE BALSAM-TREE OF TOLU.

Balsam of Tolu is brought to us in small *Callibashes* from *Tolu*, a Province in the *West-Indies*. It is of a tough resinous Consistence, growing dry and friable by Age, of a yellow-brown Colour, of a most fragrant Smell, and an aromatic Taste. It is not certain from what Tree this is produced, some saying it is a small Pine-tree, others a Tree resembling the Carob-tree.

This is an excellent pectoral *Balsam*, of great Service in Affections of the Lungs, as Coughs, Asthmas, Consumptions; and what makes it more valuable is, that it has no nauseous oleaginous Taste, as most other *Balsams* have. It makes an agreeable Emulsion, with Sugar and the Yolk of an Egg. It is very restorative, and good to strengthen the *Vesiculae seminales*, and to stop old Gleet and Strains in either Sex.

The only official Preparation of this *Balsam* is the *Syrupus Balsamicus*. *Miller's Bot. Off.*

It is good to deterge and consolidate Wounds; it resists a Gangrene, strengthens the Nerves; is good for a Rheumatism, or a Sciatica, being externally apply'd.

The Dose is from one Drop to four Drops. *Lemery des Drogues*.

Geoffroy adds, Being held in the Mouth, it has no Acrimony, in which it differs from all the rest; and for that Reason it is

prefer'd for internal Use; being given from fix to eight Grains. *Geoffroy*.

The *Balsamic Syrup* is thus made:

Take of *Balsam of Tolu*, two Ounces; and twelve Ounces of Spring-water, or any of the Pectoral Waters: Boil them together in a circulatory Vessel, well luted, in a Sand-heat, for two or three Hours. When the strain'd Liquor is cold, dissolve in it twenty Ounces of fine Sugar, so as to make it into a Syrup, without any Heat.

This hath not been received by the College till the last Emendation of their Dispensatory, but is added by *Shipton* to their former, amongst his *Addimenta*. The Manner of Boiling is very justly contrived to prevent any Loss of the finer Parts by Exhalation, which it would suffer in an open Heat: *Quincy's Dispensatory*.

BALSAMUM PERUVIANUM.

The next I shall consider, is that which is brought from *America*, and *New Spain* in *Mexico*, and is call'd *Peruvian* and *Indian Balsam*; the various Species and Differences of which are enumerated by *Pomet*, in his History of Drugs. It is, however, commonly distinguish'd into two Sorts, the White, and the Black. The former is accounted the best, and is, by way of Eminence, call'd the *Balsam of Incision*; because, according to *Monardus*, it flows spontaneously from a Tree of a large Size, upon making a slight Incision in it. It is limpid, of the Consistence of Turpentine, of a fragrant Smell, and much scarcer and dearer than the black Sort; but we are to take care, that it is not adulterated with *Venice Turpentine*, and sold for the genuine *Balsam*. The black Sort, of which great Quantities are imported to us, is, according to *Clusius* in his *Comment. in Monardum*, prepar'd and extracted by boiling the Branches, Bark, and Leaves of the Tree. The genuine Sort is of a brownish Colour, of a penetrating and fragrant Taste and Smell: It is also fluid, and the Whole of it is quickly dissolved in highly rectified Spirit of Wine. But it is to be lamented, that this very *Balsam* is, in our own Days, so commonly adulterated, in all Probability with liquid Storax, or perhaps with the Feces which remain after the Preparation of *Peruvian Balsam*, that it is scarce to be found genuine any more in the Shops. That which is adulterated, may be easily distinguish'd from the true and genuine Sort; for the former is thick and coagulated, wants the penetrating Smell and Taste, and is with the greatest Difficulty dissolv'd in Spirit of Wine, but remains like a thick and oleous Magma. But of the true Sort very elegant Medicines are compos'd; for when it is dissolved in highly rectified Spirit of Roses, it affords an Essence of excellent Qualities. When one Part of this *Balsam* is intimately mix'd, in a Mortar, with an equal Weight of Salt of Tartar, and highly rectify'd Spirit of Roses is pour'd upon it, upon being subjected to Distillation in a Sand-heat, it affords a fragrant and delicate Spirit, which is a Medicine of singular Efficacy, especially if exhibited in a Solution of Amber or Musk. This Medicine, used internally, restores lost and impair'd Strength; and, being very friendly to the nervous System, it powerfully contributes to remove those Disorders which arise from its Weakness. An extemporaneous *balsamic Syrup*, of many and great Uses, may be made, by mixing an Ounce of it with one Pound of Julap of Roses. This Syrup is conveniently mix'd with stomachic and cephalic vinous Spirits: It also gives a grateful and agreeable Taste to Potions and Mixtures. If *Peruvian Balsam* is distill'd with the Worm and Refrigeratory, it not only gives the Water a grateful Smell, like that of the *Balsam itself*, but also renders it nervous and diuretic. This Water, liberally drank, is of excellent Service in chronical Disorders, arising from the Scurvy, and a Weakness of the Nerves. 'Tis curious to observe, that on the Top of this Water swims an ethereal and very sweet Oil, which quickly incorporates with highly rectified Spirit of Wine.

The white *Peruvian Balsam* is thus distinguish'd.
Balsamum Peruvianum album, seu *Syrax alba*, Ind. Med. 18. *Huacoxet vel Balsamifera*, 11. Hern. 52. *Balsamum album*, Park. Theat. 1570. *Balsamum Peruvianum album*, Geoff. Tract. 349. WHITE PERUVIAN BALSAM.

The black *Balsam* is thus distinguish'd.
Balsamum Peruvianum, Offic. Ind. Med. 17. Mont. Exot. 12. *Balsamum Peruvianum nigrum*, Park. Theat. 1570. *Balsamum ex Peru*, J. B. 1. 294. *Hoitziloxitl seu Arbor Balsami Indici*, seu *Balsamifera*, Hern. 1. 51. *Hoitziloxitl Mexicanorum*, Jonst. Dendr. 309. *Balsamum Hutzochitl*, Laet. Ind. Occid. 224. *Caburiiba*, Marcg. 137. *Cabureiba Pisen*, (Ed. 1648.) 57. *Cabureiba seu Balsamum Peruvianum*, Ejusd. (Ed. 1657.) 119. THE NATURAL BALSAM-TREE.

This black *Balsam of Peru* is of a warming, strengthening Nature, comforting the Brain, and nervous System; is useful in Asthmas, the Colic, and Pains in the Stomach and Bowels.

Outwardly

Outwardly used, it strengthens the Nerves, helps the Cramp, and all kinds of Convulsions, and Contractions of the Sinews, old Aches and Pains; and is very serviceable in Cuts, and green Wounds. *Miller's Bot. Off.*

Pomet informs us, that the *Portuguese* make an artificial *Balsam of Peru*, which they sell to the *Dutch*.

Hoffman gives the following Processes on the *Peruvian Balsam*.

That the *Balsam* imported from *Peru* in *America* is possess'd of very singular and efficacious Qualities, is sufficiently obvious from its fragrant Smell, and aromatic Taste. It was at first only used as an external Medicine; but, in Process of Time, some Physicians and Chymists began to use it internally, sometimes mixing it with Pills, at other times dissolving it in highly rectified Spirit of Wine; and on other Occasions incorporating it with Sugar, or any other Ingredients they thought most likely to answer their Intention.

But, as far more powerful and efficacious Remedies than these may be obtain'd from it, by the Assistance of Chymistry, I shall here give an Account of the Processes I subjected it to.

First, by distilling it with common Water, with the Worm, I obtain'd a highly fragrant Oil, of a reddish Colour, and entirely free from all Empyreuma; but 'tis to be observed, that half a Pound of the *Balsam* scarce afforded half an Ounce of this Oil, which dissolves in highly rectified Spirit of Wine, of which it requires a large Quantity to procure its Solution. When dissolved in highly rectified Spirit of Roses, it is very properly mix'd with the Essences of Amber, Ambergris, and Aloeswood, since by its means their balsamic and corroborative Virtues, in Diseases arising from a Weakness of the nervous System, are considerably increased and improved.

Secondly, from *Peruvian Balsam* I prepar'd a most pure and delicate Spirit, in the following manner: I intimately mix'd two Parts of the *Balsam* with one Part of Salt of Tartar, by means of Trituration and Levigation, adding a sufficient Quantity of the best Spirit of Roses. Then I subjected the Whole to a regular Distillation from an Alembic, which was placed in moist Sand: Thus, by carefully keeping up the due Degrees of Fire, I drew off the Whole of the Liquor to Dryness. By this Process I obtain'd a Spirit of a fragrant Smell, and grateful Taste, but which was still more valuable on account of its analeptic and corroborating Qualities. I also observed, that this Spirit was very efficacious in promoting a Discharge of Urine, a Circumstance which renders it highly proper for preventing fabulous and stony Concretions in the small Tubes of the Kidneys. One Dram of this Spirit, mix'd with three Ounces of the Julap of Roses, is immediately converted into a balsamic Syrup of singular Efficacy, and which is to be justly prefer'd to all other Syrups, on account of the delicate and grateful Taste it communicates to Medicines.

Thirdly, I have, for several Years past, made very frequent Use of a volatile balsamic Spirit, prepar'd by an Affusion of highly rectified Spirit of Wine, upon a Mixture of equal Parts of the volatile Salt of Ivory, Salt of Tartar, and *Peruvian Balsam*. This Spirit, on account of its discutient and diaphoretic Virtues, and its Efficacy in restoring Strength, and a due Tone, to the Parts, is used with uncommon Success, in those Disorders incident to cold Constitutions, where 'tis proper to excite a brisker Motion in the Mass of Blood and Humours, and augment Transpiration; and I do, with good Reason, affirm, that it is far preferable either to the Spirit of *Bussius*, as 'tis call'd, or to the balsamic Spirit. *Hoffmanni Observ. Physico-chym.*

The Manner of making artificial BALSAM of PERU.

Take fine Turpentine, white Frankincense, of each one Pound; Oil of Ben, Olibanum, Labdanum, Gum Elemi, of each six Ounces; Lavender-flowers and Nutmegs, of each four Ounces; Spikenard, Wood of Aloes, and Dragon's-blood, of each one Ounce and a half; the small Valerian, Orrice, long Birthwort, Acorus verus, Gale, Benjamin, Storax, of each one Ounce; Zedoary, Malingals, Cloves, Cinnamon, Castor, and Mastich, of each six Drams: Powder all the Drugs grossly; then melt the Turpentine, Frankincense, Gum Elemi, and Oil of Ben, over the Fire; and, when they are dissolved, incorporate the Powders; and when they are made into a Paste, put them into a Glass Retort, whereof one Part is empty; and, after it is well luted and dried, set it upon a Sand-furnace; and, when the Matter begins to heat, there will flow a clear Water, then an Oil of the Colour of Gold, at last a black Balsam, tending to Red, which some would have to be what we sell by the Name of *Black Balsam of Peru*. The Water is proper to be taken inwardly, by those who have the Falling-sickness, Convulsions, Weakness of the Stomach, and to correct Wind. The Oil is good for the Palsy, Nerves that are wounded, Pains in the Joints, rubbing them with it hot. As to the *Balsam*, the same Virtues with that of *Peru* are attributed to it. *Pomet*.

Foreigners, who read the Advertisements in our News-papers, may reasonably be surpris'd at our Bills of Mortality; for there is scarcely a Distemper incident to human Nature, but, according to the Proprietors of advertised secret Remedies, may be cured easily and effectually by some or other of their Medicines, which are always taken from some Medicinal Writer. There are at least ten different People in Town, who get a very handsome Subsistence by selling a secret *Balsam*; which is the same as, in many Families, goes by the Name of the *Jesuit's Drops*, or *Frier's Balsam*. It is much celebrated in foreign Countries, by the Name of *Baume de Commandeur de Berne*; and is really an admirable Medicine.

Pomet gives the following Receipt for its Preparation, which is said to be the best known.

BALSAMUM COMMENDATORIS, or The BALSAM of the Commander of BERNE.

Take dry *Balsam of Peru*, one Ounce; Storax in Tears, two Ounces; Benjamin in Tears, three Ounces; Aloes Succotrine, the best Myrrh, Olibanum in Tears, Roots of *Bohemian Angelica*, Flowers of St. John's-wort, of each half an Ounce; Spirit of Wine, one Quart: Bear all together, and put them into a Bottle well stopp'd, which hang in the Sun during the Dog-days; at the End of which Time the Whole must be pass'd thro' a Linen Cloth, and used for the Purposes under specified:

First, all Gun-shot Wounds, and such as are made with sharp Instruments, if they are not mortal, are cured in the Space of eight Days, by the Application of this *Balsam*, either with a Feather, Cotton, or by way of Injection, provided the Wound has been first of all dress'd with it, and no other Medicines have been used; for when the Wound is at first dress'd with it, no Pus will afterwards be form'd; whereas the Generation of Pus is always the Effect of Dressing with the ordinary Medicines. There is no Occasion either for Tents or Plaisters when this *Balsam* is apply'd, especially at the first Dressings. Upon its first Application to the Wound, it creates an intolerable Pain; but that soon goes off, and is no more felt. This *Balsam* is so admirable a Remedy for the Colic, that if four or five Drops of it are intimately mix'd with a Glass of Wine, and drank, the Patient's Indisposition is soon after removed. It is also a sovereign Remedy for the Gout, when apply'd to the Part affected with a Feather or Cotton. In a Tooth-ach it is of singular Service, when Cotton, soak'd in it, is apply'd to the Tooth affected. All sorts of Ulcers, as also Cancers and Chancres, are cured by it. It is effectual against the Bites of venomous Animals, those of mad Dogs not excepted. It prevents Pitting by the Small-pox, if the Pustules are anointed with it as soon as they appear on the Face; for it dries them before Pus is form'd in them, upon which Circumstance the Pitting depends. It proves an excellent Remedy for the Hemorrhoids, if they are rubb'd with it when the Patient goes to Bed. It is excellent for Defluxions and Bruises, if the Parts affected are anointed with it. Five or six Drops of it, exhibited internally, in four or five Spoonfuls of Broth, prove an excellent Remedy for the Purple Fever. It is also good for sore Eyes, when put into them with a Feather. It is also excellent for Pains of the Stomach; in which Case, if the Patient is feverish, he must take it in Broth; and if not, in Wine. It cleanses the Stomach, and procures an Appetite. It must never be warm'd, but always be apply'd cold, and it becomes dry as soon as it is apply'd to the Part affected. Five or six Drops of it, taken in Wine or Broth, are very proper for provoking the Menfes, when defective; and giving a Check to them, when too luxuriant. When we pour out any Quantity of this *Balsam*, we must stop the Phial immediately after, to prevent its Evaporation. If any Wound has been previously dress'd with other Medicines, it must be wash'd with warm Wine before the Application of this *Balsam*, which will cure it effectually, tho' not so speedily as if the *Balsam* had been used at first. It cures Fistulas, however old, and in whatever Parts of the Body. Five or six Drops of it, exhibited in white Wine, or in three or four Spoonfuls of Broth, are an excellent Remedy for Fluxes and Hemorrhages. It is good for the Pricking of Horses, when shoed: By pouring a Drop or two into the Hole from which the Nail is drawn, it is cured immediately.

BALSAM OF CAPIVI.

I now come to take a View of the *Balsam of Capivi*, or *Copaiba*, which has universally acquired so uncommon a Reputation. It is produced in *Brazil*, and brought to us in Earthen Vessels by the Way of *Portugal* from *Rio de Janeiro*, *Fernambouc*, and *St. Vincent*. It is of a whitish-yellow Colour, and of a fluid, resinous, and balsamic Consistence, like *Venice Turpentine*. It is of an acrid and somewhat bitter Taste, and flows from a Tree of a moderate Size, upon making an Incision into its Bark. Ray calls this Tree the *Arbor balsamifera Brasiliensis fructu monospermo*. Two Sorts of this *Balsam* are brought to us, one of which is a limpid Liquor, which flows from certain Trees in a Province of *America*, called *Copaiba*, when they are perforated

perforated or pierced to the Pith; and this Sort is of a fragrant and very grateful Smell, and of a Taste somewhat acrid. The other Species is thicker, and of the Consistence of Turpentine. But this Difference depends on the different Times of gathering it; for that which flows out immediately after the Incision made in the Tree, is very clear, white, and of a resinous Smell. But that which follows it is of a Colour approaching nearer to that of Gold, and of a thicker Consistence; for which Reason it was first called a *Balsam*: And this last-mentioned Sort is what I said was brought to us in great Plenty from *Portugal* in Earthen Vessels, but the other Species is thinner and scarcer.

The Limpid is most highly esteemed, and thought best, both for internal and external Uses. When dissolved with Tincture of Tartar, it is successfully exhibited internally for a Fluor Albus, Gonorrhoea, and Disorders of the Kidneys and Bladder. Externally it is a fine Liniment, and much used for consolidating Wounds and Ulcers, and corroborating the nervous Parts, which have been weakened by the Shock of some Disease. Its Virtues principally depend upon the large Quantity of Oil it contains, as is obvious from the following Experiment:

I took one Pound of the best Sort of the *Balsam of Capivi*, and pouring four Measures of Water upon it in a Still with a Worm, and with a proper Degree of Fire, drew off six Ounces of an Oil of a pretty penetrating Taste, and pleasant Smell, of a greenish Colour, and a pretty good Consistence. As I never knew an Instance of this *Balsam's* being subjected to Distillation before, I could not help being surpris'd at the large Quantity of subtile and ethereal Oil it contained, especially since from the black Sort of the *Peruvian Balsam* a very small Quantity of Oil was obtained, when it was subjected to Distillation by the Worm; which is a pretty palpable Proof, that this *Balsam of Capivi* is of a very warming Nature. After the Distillation was at an End, there was a resinous thick Mass left in the Bottom of the Still, which, when put upon live Coals, diffused a pretty grateful Odour; and I am of Opinion, that it would be a very proper Ingredient in such Plaisters as are designed for corroborating the nervous Parts. Though the *Balsam* itself is possessed of very signal Virtues, yet I discovered still more exalted and efficacious Qualities in this distilled Oil: I mixed some of it with a double Quantity of human Fat, which, when apply'd by way of Liniment, wonderfully strengthen'd paralytic Parts, and such as were deprived of their Tone, Sensibility, and Motion.

Nor is it less beneficial and serviceable, when apply'd to Parts which are weakened, and become unfit for Motion, in Consequence of gouty Pains. From it also excellent vulnerary and pectoral *Balsams* may be prepared for internal Use, by mixing it with well-prepared Oil of St. John's-wort, Sperma Ceti, and Oil of the Yolks of Eggs, adding a few Drops of the Oil of Sassafras-wood, Mace, and Fennel. When the *Balsam* is thus prepared, it is to be exhibited either in an Emulsion, or in Asles or Goats Milk. I don't in the least doubt, but if this *Balsam* was judiciously used, Patients who labour under Impotumations of the Lungs, and Ulcerations of the Kidneys, Bladder, and Prostate, might receive very sensible Relief from it.

This Oil is very speedily dissolved in pure Spirit of Wine, but four Parts of it are required to one of the Oil, that the Solution may be the more thoroughly made. If instead of the Spirit of Wine Tincture of Tartar or acrid Antimony is used, and Spiritus Nitri dulcis added, a Medicine is produced which strongly provokes Urine, and is of singular Efficacy in Rheumatic Disorders and Cachexies. An Elæosaccharum of a balsamic Nature, and a more grateful Taste, may be prepared from it, which, when taken in Spanish or Hungarian Wine, is an excellent Remedy in Cases where the Stomach has lost its Tone, in Coughs which rend the Breast, and when the Intestines are too much relaxed or distended with Flatulencies; it is also of singular Service in paralytic Disorders.

I must not on this Occasion forget another Use of this *Balsam*. As I found that it abounded so much with a fragrant Oil, I made the following Experiment with it:

I poured half a Pound of it upon Lavender-flowers, as also upon Rosemary, by which means I obtained a large Quantity of Oil, which in Flavour and Taste differed very little from the purest Oils extracted from these Substances.

Hence 'tis sufficiently plain, that this *Balsam* may be more commodiously used than Turpentine, for increasing the Quantity of ethereal Oils in Distillation: Yet I do not advance this with a View to persuade any one to follow this Practice. *Hoffman's Observ. Chym.*

The Tree producing the *Balsam of Capivi* is thus distinguished:

Capivus, Offic. Pharmacopol. *Balsamum Copaiba*, Ind. Med. 18. *Balsamum de Copaiba*, Mont. Exot. 12. *Copaiba*, Pison. (Ed. 1648.) 56. (Ed. 1658.) 118. *Jonf. Dendr.* 309.

Rail Hist. 2. 1759. *Arbor Balsamifera Brasiliensis, fructu monospermo*, Ejuid. *Copaiba Brasiliensis*, Marcg. 130. *Balsamum album*, Park. Theat. 1570. *Balsamum certarum quarundam plantarum, quas Copaibas vocant*, J. B. 1. 306. *Balsamum Copaiba*, Geoff. Tract. 348. THE WHITE AMERICAN BALSAM-TREE. Dale:

When this *Balsam* is new; it is of the same Colour and Consistence with Oil of sweet Almonds, and smells like the *Calambour* Wood, but the Taste is a little acrid and bitter.

Fuller says, That when given in the Quantity of two Drams, it purges very well, and gives a very bitter Taste to the Urine. A Liniment may be made with two Parts of Spirit of Wine, and one Part of this *Balsam*, very proper to be used in Rheumatisms and Palsies. *Geoffroy*.

Pomet gives the following Account of Baume Nouveau, NEW BALSAM.

The *New Balsam* in Colour and Shape is very like that of *Tolu*, but of a much less agreeable Smell. This *Balsam* is made after the same manner as the Oil of Bays, from a little red Fruit, that grows in Clusters upon a kind of Tree, the Leaves whereof are very large and broad, green above, and greenish underneath, which grows in the *West-Indies*, especially in the Island of *St. Domingo*. This *Balsam* is so very scarce in *France*, that there is very rarely any of it to be seen. *Pomet*.

Among the several Simples of the balsamic Kind, we may justly reckon liquid Amber. It drops from a Tree of *Mexico*, called the *Arbor Styracifera*, upon an Incision being made into its Bark. It is an oleus, resinous, and pinguous Liquor, of the Consistence of *Venice* Turpentine, of a reddish-yellow Colour, of an acrid, aromatic, and oleous Taste, approaching pretty much to that of *Storax Calamita*. Its Essence, extracted with Tincture of Tartar, or tartarated Spirit of Wine, strengthens the Head, and nervous System. There is also distilled from it with Water, by the Worm, a thin and fragrant Oil, which is of singular Efficacy both for internal and external Uses. See AMBRA.

Having taken a View of the liquid *Balsams*, with which Nature has bountifully supply'd us, I come in the next Place to consider those which are of a more dry and solid Nature, such as the resinous fragrant Gums, impregnated with an agreeable Oil: Of these the principal are Benzoin, pure Storax Calamita, Ladanum, Myrrh, and Mastich. These are produced by making an Incision in the Bark of *Balsam-bearing* Trees, which are always green, at the hottest Season. From these Trees a tenacious Liquor drops, which becomes gradually more solid, as its humid Parts are exhaled by the Heat of the Sun; for which Reason these resinous Gums are justly called dry *Balsams*, because in all Points they agree with *Balsams*; for their whole Substance is inflammable, they have a fragrant Smell, they are of a penetrating Taste, they are dissolved, though not totally, in highly rectified Spirit of Wine, and yield an Oil, when subjected to Distillation.

And, first, as to the Benzoin, it is produced by a Tree of *Sumatra*, called the *Arbor Benzoifera*. The purest Sort of it is white, and in highly rectify'd Spirit of Wine is dissolved into an Essence, which, when poured into Rose-water, makes a very elegant cosmetic Milk. This Gum, by an easy Sublimation in a Pot, is raised in Flowers. If it is boiled in Water, and the Decoction inspissated, beautiful shining Flowers fall to the Bottom, which are not only of great Service internally for promoting Expectoration in *Asthmas*, and removing Obstructions of the Lungs by their subtile acrid Quality, but also by stimulating the Nostriils they excite Sneezing. Besides, Benzoin is the principal and most important Ingredient in the best and most efficacious Fumigations; and when duly mixed with an Extract of Benzoin, with the Addition of some odoriferous Oils, and a little Civet, it makes that Spanish Mass which is so much esteemed for the Delicacy and Fineness of its Smoke. See BENZOINUM.

Styrax, or, as 'tis more frequently written in *Latin*, *Storax*, is of the same Nature and Qualities with Benzoin. It is found in *India*, and, according to *Lobelius*, in some Parts of *France*. It flows from a Tree which has Leaves like those of the Quince-tree, and a Trunk like that of the Birch, in the Form of Icicles, from which Circumstance *Lobelius* thinks that it received the Name of *Styrax*, though his Opinion does not seem to be sufficiently authorized. The purest Resin is called the Tears of the *Styrax*. It is very odorous, and divided into Grains and Lumps. It is also called *Calamita*, the Reason of which Name *Strabo* gives in his twelfth Book, which is, because it flow'd from a Tree excavated and hollow'd like a Reed. The impure Sort is a Magma of a reddish Colour, in which there is often an Intermixture of Straws and Leaves; and this Sort of it seems to be obtained, by boiling the several Parts of the Tree, especially its Branches, Bark, and Roots. We use to obtain the Resin from this *Storax* two ways, either by Expression, after having macerated it sufficiently with a little Wine; or by means of highly rectified Spirit of Wine. See STORAX.

Mastic is a Resin of a pale-yellow Colour, pellucid, of a resinous aromatic Taste, and of a highly fragrant Smell. It flows from an Incision made in the Bark of the Berry-bearing Mastic-tree, of which there is great Plenty in the Island of *Chios*. That produced in *Chios* is the best; for that with which *France* supplies us is coarser and less pure. We have prepar'd a Spirit of singular Efficacy, by distilling rectified Spirit of Wine from two Parts of Mastic intimately mixed with one Part of Salt of Tartar. By this Process a most fragrant Spirit is obtained, which is of great Service in corroborating the Stomach and nervous System, and in exciting a Discharge of the Urine; for the Salt of Tartar proves an excellent Key, if I may so speak, to resinous Substances; since by its means their subtle volatile Oils are separated and disentangled from their viscid earthy Particles, and left at full Liberty to exert their Qualities. See MASTICHE.

Ladanum is also a resinous balsamic Concretion, wrapt up in a spiral Form, of a somewhat bitter Taste, and of a grateful fragrant Smell, especially when 'tis set on Fire. In *Spain* and *Crete* the Inhabitants gather this Gum from the Leaves of the true Ladaniferous Shrub. There are many small Grains of Sand mixed with it, because the Trees producing it grow in sandy Soils. With Spirit of Wine a most pure Resin is extracted from it, which either in a liquid or solid Form is of singular Efficacy in strengthening the Nerves; and I myself have often had Experience of its Virtues in severe and obstinate Head-achs. See LADANUM.

Gum Elemi comes next under our Consideration, which is resinous, lucid, of a whitish-yellow Colour, ductile like Wax, of an aromatic Taste, and fragrant Smell. It flows from Incisions made in the Bark of the Myrobalan-tree, produced in the Island of *Ceylon*, the Inhabitants of which Place kindle it in their Lamps, and use it by way of Lanthorn. From this Gum, with Water by the Worm, a very penetrating Oil, which is of singular Service, both internally and externally used, in Gonorrhœas, Wounds, and Ulcers, is distill'd. See ELEMI.

To the dry Balsams belongs also *Myrrh*, especially the purer Sort, which is intermixed with pale Spots, and is of an acrid aromatic Taste, and of a fragrant Smell. It drops from a Berry-bearing Tree called *Pala*, which grows in the Deserts of *Arabia*. This is best and most properly given in Substance, mix'd with Sugar-candy, for removing all Putrefaction, especially of the Lungs. It is also an Ingredient in the most valuable Compositions, such as the Elixir Proprietatis, the Pilulæ Ruffi, the Pilulæ Avicennæ, all the pompous Antidotes of the Antients, and in short in Pills almost of every Kind. It is better to use it in Substance internally, than by way of Essence; because these are of a hot Nature, and generally put the Blood into too violent Commotions; but it is more temperate in Substance, by reason of some mucilaginous and gummy Parts mixed with it. Its Essence externally used is of considerable Service in the Cure of putrid Ulcers. See MYRRHA.

Having taken a View of the balsamic Gums and Resins, it now remains, that I direct my View to those Woods which are impregnated with a balsamic Principle. Among these, the first Place has universally been assigned to Aloes-wood, otherwise called Xylaloes, the Whole of which is resinous, of an aromatic and bitter Taste, and of a fragrant grateful Smell, especially when reduced to Powder. It is the interior Substance of an Indian Tree, called *Calambach*. Its Resin is extracted with highly rectified Spirit of Wine, and formed either into cephalic Pills or Powders. And its resinous Essence, which is of the same Efficacy, when mixed with Tincture of Mars, constitutes a balsamic Tincture of Mars, whose Efficacy in removing Weakness of the Viscera in hypochondriac Disorders is highly esteemed. Besides, I formerly have prepared, by Distillation with the Worm, a Water of the Shavings of Aloes-wood, upon which a fragrant Oil floated, which, by being exposed to the Cold, was converted into a white Coagulum like Camphire. This Coagulum, dissolved in highly rectify'd Spirit of Wine, afforded an Essence of singular Virtues in strengthening the Brain, and repairing the Weakness of the Nerves. See AGALLOCHUM.

The *Lignum Rhodium* deserves to be next considered. Its Root is resinous, and of an aromatic Taste, and a fragrant rosy Smell. It grows in the *Canary-Islands*, and, when subjected to Distillation, yields a very fragrant Oil, the Use of which is highly extolled among the scented Balsams. Nor is it to be deny'd, that the Essence of the Root of the *Lignum Rhodium*, as also a Decoction of it in Water, are, by reason of their balsamic Resin, of singular Efficacy in Disorders of the Lymph, and Diseases arising from them, in a Lues Venerea itself, and a remote and deep-seated Corruption of the Humours. See RHODIUM and ASPALATHUS.

The next in Order is the yellow Sanders, which abounds with a fragrant Resin: This is plain, from the Spirit of Wine drawn off this Wood, which smells almost like Amber. And if the Extract is made with rectified Spirit of Wine, and the Essence drawn off by a gentle Heat, a most fragrant oily Liquor remains, of the Consistence of *Peruvian Balsam*. A Decoction of this

Wood is highly to be valued on account of its penetrating Resin. See SANTALUM.

Of the balsamic Barks, the principal are the Bark of the Saffras-wood, *Peruvian-bark*, *Winter's-bark*, that of *Cascarilla*, and the true *Costus*. They are endow'd with a resinous, balsamic, and subastringent Principle, which is not only discover'd from their penetrating Taste and Smell, but also from the highly penetrating Oil which these Barks yield upon being distilled with Water.

In the Northern Countries the Juniper-tree is truly of the balsamic Kind; for not only its Wood and Leaves, but especially its Berries, abound with a subtle penetrating Oil, which they yield in great Quantities, when subjected to Distillation by the Worm; and this Oil, when pure and unadulterated, is an excellent Strengtheners of the Nerves, and powerfully promotes a Discharge of the Urine, as most other Balsams do. There is also a Decoction prepared of the Wood itself, which is of singular Use in the Cure of the Scurvy. But besides the Simples already mentioned of a fragrant Smell, and penetrating Taste, with which Nature has bountifully furnished us, Oils also of the same Qualities ought to be ranked among Balsams, or Balsams: For what else are subtle ethereal Oils, than liquid Resins, or liquid Balsams? For the principal Element, which is the Source of the fragrant Smell, the penetrating Taste, and healing Quality, by which all Balsams, whether liquid or solid, act, is no other than a subtle volatile Oil, which being taken away, the Substances in which it was lodg'd become effete and useless.

For this Reason it may be asserted for Truth, that all those Aromatics which in Distillation yield a fragrant and penetrating Oil, such as Cinnamon, Cloves, Nutmegs, Mace, Cardamoms, Cubebs, Lemon and Orange-peels, are justly to be ranked among the principal of the Balsamics; for this very Reason *Valerius Cordus*, in his Dispensatory, orders Oil of Cloves to be used as a Succedaneum to the *Opobalsamum*, in all the Antidotes in which it is ordered for an Ingredient. "There are not," says he, "in our Days, *Opobalsamum*, *Carpobalsamum*, and *Xylobalsamum*, to be found, which come up to the true Descriptions given us of them. But as we are taught by Experience, that the Oil of Cinnamon and Cloves distill'd in our manner, of which the Antients were ignorant, are equal in their Virtues to the true Balsam; for this Reason we have, in our *Theriaca*, substituted the Oil of Cloves instead of the *Opobalsamum*. It would not be improper to substitute, instead of *Carpobalsamum*, Cubebs or Cloves, or Cardamoms, and Aloes-wood, instead of the *Xylobalsamum*."

These aromatic Oils, then, are subtle spirituous Balsams, of so uncommon Virtues and Efficacy, that the other oriental Balsams can scarce be expected to come up to them; for these produce their Effects only by a subtle Oil: Neither is it difficult to reduce these very penetrating and liquid Oils, either to the Consistence of a Balsam, or to the Form of a Resin, provided a concentrated acid Spirit, such as Oil of Vitriol, be duly mixed with them.

In our own Country there are also spirituous Balsams of this Kind, which, both on account of their Virtues and Fragrancy, render it a dubious Point, whether they are not of equal Value with the oriental Balsams, and aromatic Oils. And these Balsams produced in our own Country are Oils distill'd from aromatic Herbs, of a fragrant Smell, and penetrating Taste. The principal Herbs of this Kind are Rosemary, Lavender, common Spike, Marjoram, common and *Turkish* Bawm, Basil, Mother of Thyme, *Roman* Chamomile, and all the Species of Mint, Water-mint, Costmary, Field and Mountain Calamint, curl'd Mint, that *Origanum* commonly call'd the wild Marjoram. These Herbs, when duly distill'd, yield very fragrant and efficacious Oils. But as these Oils are rarely to be met with pure in the Shops, but are adulterated in their Distillation with Turpentine, it happens, that they do not discover that Efficacy of which the genuine Sort are possessed, in corroborating the Tone of the Nerves, and of the other solid Parts. They are most conveniently used when dissolved and reduced to Essences; and *Quercetan*, in the End of his *Pharmacopœia Restituta*, has these remarkable Words concerning them: "In Germany an Expedient is lately found for reducing the penetrating Oils into pure and grateful Essences, which preserve the Colours, Smells, and Tastes, of the particular Oils, without any other Mixture than the celestial Manna well purified, which extracts the Virtues of these Oils, and by its Admixture proves an excellent Corrector to them." There is no Doubt but the Menstruum, so highly commended by this Author, is highly rectify'd Spirit of Wine, prepared according to Art, for a thorough Dissolution of these Oils.

From what has been said, I think it plainly appears, that the Vegetable Kingdom supplies us with the noblest and most efficacious Balsams, which, when skilfully used, are of singular Service in curing Diseases, and preserving Life and Health. Neither is it, in the last Place, to be forgot, that the balsamic Plants and Trees, produced by the bountiful Parent of the human Race, for their Comfort and Preservation, are distinguished,

guished, as it were, by an external Mark or Characteristic, expressive of their latent and inherent Efficacy against Corruption, and consequently of their balsamic Nature; and this Characteristic is, that almost all of them flourish perpetually; and are what we call Ever-greens. We are also on this Occasion to inquire, whether Heaven, who in all her Measures consults the Interest of Mankind, has not hid Balsams for the Preservation of the human Species under the Earth, and in the Bottom of the Sea. If then we diligently inquire into the Natures of the Bodies lodged there, we shall find two dry Balsams hid under the Earth, and diffus'd thro' the Seas; which seem to vie with the other Balsams procur'd from the Vegetable Kingdom. These are *Ambergrise*, which in the Eastern Countries is very fine, and had in great Esteem; and the *Amber* produced in Northern Climates. Both of them furnish us with balsamic Medicines, which produce very instantaneous and speedy Effects. As for *Ambergrise*, it is a most fragrant, resinous Substance, the Whole of which is dissolved in a particular Menstruum, and reduced to a valuable Essence, which is free from all Precipitation or Coagulation of the *Ambergrise*. It powerfully restores lost Strength, is of a refreshing Nature, and by its grateful Exhalations mitigates Pains, and procures sound and uninterrupted Sleep. It is also wonderfully agreeable when mixed with spirituous Waters, or Waters impregnated with Sugar. But the *Amber*, which abounds with a subtle, fragrant Oil, closely sheath'd up in its viscid earthy Parts, with Difficulty yields its Oil, when distill'd with Water; but requires a strong Fire immediately apply'd to it, to which it at last yields, and affords a large Quantity of an empyreumatic Oil, which, when rectify'd, and sufficiently depurated, may nevertheless be used with great Success in Physic. But I know a Method of extracting from *Amber* a fragrant Oil, without destroying the Texture of the *Amber*. This Oil is procur'd by beating it with well-calcin'd Salt of Tartar, adding highly rectify'd Spirit of Wine, and subjecting the Whole to Distillation: Thus a very fragrant Spirit is obtain'd, which is of great Service in Weakness of the Nerves. If we again pour this Spirit upon pure *Amber*, mixed with Salt of Tartar, an Essence much more fragrant, and more penetrating, than the common Essence, rises on the Top.

These then are the natural Balsams known to us, which are certainly fine Preservatives of Life and Health; and from which a skilful Physician may, by a judicious Mixture of other Substances prepare the best and most efficacious Medicines. For this very Reason we find the best of the *Greek* and *Arabian* Physicians, mixed their most valuable Antidotes with these Oils, as we see in the Dispensatory of *Valerius Cordus*, the *Pharmacopœa Augustana*, the *Pharmacopœa Schræderi*, and in several other Books of a like Nature; and generally almost all the above-mentioned balsamic Species are made Ingredients in the *Theriaca Andromachi*, and the *Mithridate*. *Mesue* also, and *Nicolaus*, made much Use of these Species, especially as Cordials, as appears from *Mesue's* Description of Cloves. See in the Dispensary of *Val. Cordus*, the *Species Diambrae*; the *Species Cinnamomi* of *Mesue*, the *Species Diaryloaloes*; the *Aurea Alexandrina* of *Nicolaus*, and the *Species Diacastorei*, of the same Author.

Besides, these balsamic Species were with Success join'd by the Antients to laxative and purgative Medicines; for they thought, that the violent Strength of Purgatives was unfriendly to Nature, and stood in need of a Corrector, which might strengthen and corroborate her. For which Reason the *Eleaguery* of *Mesue*, (see *Cordus*) the *Diasena* of *Nicolaus*, his *Hiera Picra*, the *Hiera Simplex* of *Galen*, the *Pil. de Hiera Composita* of *Nicolaus*; the *Pil. Hiera Picrae Rhafis*; the *Pil. Aleophranginae* of *Cordus*, and the *Pil. Lucis majores*, have in their Composition a very considerable Quantity of the aromatic, balsamic Species. And, not to dissemble, these laxative and purgative Compositions of the Antients, provided they had a smaller Quantity of the purgative Ingredients, which I lay down as a general Caution, but especially of the *Aloes*, are far superior to ours in point of Efficacy. And some of the most noted Pills invented by later Authors, such as the *Pil. de Succino Cratonis*, the *Pil. Catholicae Poterii*, and the *Pil. Becherianæ*, which are now so much esteemed and corrected in various manners, would never have gain'd that Reputation they now have, unless in them a moderate Dose of the purgative Ingredients, especially of the *Aloes*, was incorporated with balsamic Gums, and Extracts of Vegetables.

The balsamic Species are also excellent Correctors to Medicines of a stupifying and narcotic Quality. For this Reason we find, that the Antients always mixed them with Opiates; because they imagined, that by their means the cold Qualities of Opium, and other Narcotics, were destroy'd; and the Spirits, when laid asleep by them, roused and render'd active; and undoubtedly the *Pil. de Cynoglossa* could not be so safely used, unless the Root of the Hounds-tongue, the Seeds of the white Henbane, and the Extract of Opium, were mixed with Myrrh, Olibanum, and Resin of Storax. Nor would the *Pil. de Syrace* be so effectual in dislodging acrid Humours in

Coughs and Catarrhs, unless they had at the same time in their Composition Olibanum, Resin of Storax, Myrrh, and Amber. The *Pil. Wildegansii* are by having in their Composition a Mixture of the Oil of Cloves, Myrrh, and Aloes; esteemed far more safe than any other Preparations of Opium. The *Ladanum* of *Sydenham*, which is much used; not only in *England*, but in other Countries of *Europe*, is not a little corrected by the Addition of these aromatic Substances, Cinnamon, Nutmegs, Cloves, and Spanish Wine. The *Elixir Propriatiss*, invented by *Paracelsus*, and the *Pil. Ruffi*, and *Pil. Avicennæ*, prepared of the same Species, have retained their Reputation for a great while; because by the Addition of Myrrh, which is of a balsamic Nature, and Saffron, the cathartic Violence of the *Aloes* is much corrected and subdued. In the mean time it were to be wished, that all these Preparations of the Antients, in which *Aloes* is an Ingredient, contained a smaller Quantity of it; since by their sulphureous and volatile Acrimony, they put the Mass of Blood and Humours into too strong Commotions; and in hot Constitutions often do more Hurt than Good. Besides, the *Womens Waters*, and *Elixirs of Life*, as they are called, the *Balsama Embryonum*, the spirituous apopleptic Waters, the apopleptic Spirits and Balsams, and the hot cephalic Waters, which are made up of the best Balsamics, Aromatics, and cephalic Herbs, which abound with a subtle, balsamic Oil, do from thence principally derive their Virtue in restoring Strength; and corroborating the Tone of the Viscera and Stomach. But, since the Antients Compositions of Medicines, on account of their Ignorance of a just Physical Theory, are, for the most part, improper and trifling, because they were not only unacquainted with the true Causes of Diseases; but also with the Manners in which Medicines operate; hence it is undoubtedly certain, that Medicine being in our Days placed in a fairer and more rational Light, better and more proper Forms of Medicines may be composed. Since then balsamic Medicines are, as it were, universal Strengtheners of Nature, and since in every Disease there is a Necessity for comforting Medicines, it will be both profitable and entertaining, on this Occasion, to give some Examples of the Use of Balsamics.

First, then, Balsamics are very properly mixed with evacuating Medicines, not only in order to correct their drastic Qualities, but that the Force of Nature may be assisted in performing the several Excretions, and that Strength, which Evacuants generally impair, may be preserved. For this Reason they are very properly mixed with Emetics. Thus I use a balsamic Emetic *Aqua Vitæ*, which Patients not only take with Pleasure, but which produces the desired Effect; for it operates quickly and easily, without doing the least Injury to the Appetite and Stomach. But the following may be used as a Succedaneum to it, which consists of spirituous Mint-water, and Cinnamon-water distill'd with Wine, of each half an Ounce; to which two Grains of emetic Tartar, and one Dram of the balsamic Syrup, are to be added. This makes a very agreeable Portion to be taken at one Dose.

If any one intends to use evacuating Pills, which shall at the same time be possessed of a corroborating and balsamic Quality, he may use the following Form.

Take of the Extracts of roasted Aloes, *Carduus Benedictus*, and Wormwood, each one Dram; of the Extracts of Rhubarb, Ladanum, and Aloes Wood; and of the Powders of Benzoin, of the best Myrrh, and of the Bark of Cascarilla; and of *Peruvian Balsam* and Nitre, each half a Dram. Let these be mixed up into a Mass for Pills, of which one Scruple is sufficient for a Dose.

If they are required more acrid; let an Addition be made; either of the *Extractum Panchymagogum* of *Crollius*, or of the Resin of Jalup, intimately mix'd with *Mercurius Dulcis*. When the Nature of the Disease calls for a purgative Infusion join'd to Balsamics, the following is a proper Form.

Take of the fibrous Roots of black Hellebore, of the best Rhubarb, and of Zedoary-root, each half an Ounce; of the Troches of Agaric, Cinnamon, Cloves, of the Barks of Sassafras and Cascarilla, of Lemon and Orange-peel, each two Drams. To these add two Ounces of Currants, and of crude Tartar, and Salt of Tartar, each three Drams. When all these are sufficiently mix'd, and beat small, let one Dram of the Spirit of Sal Ammoniac be sprinkled upon them. Then let three Pounds of Wine be poured upon the Whole.

If the Patient labours under hypochondriacal Disorders, Filings of Steel may, with great Advantage, be added in this Formula. Balsamics may also be very properly mixed with Sudorifics. For this Reason the depurated volatile Salt of Hartshorn, distill'd with such an Essence of Amber as I have above described, is of excellent Service in promoting Perspiration, and provoking Sweat; for hence a most penetrating Spirit is produced, which is still meliorated by an Addition of *Peruvian Balsam*. This is so valuable a Medicine, that scarce any Sudorific

Sudorific is equal to it: Fifty Drops may be given for a Dose; but we may venture to go farther, if Circumstances require it.

If any one intends to boil the *balsamic* resinous Woods, and procure their Virtues in a liquid Form, let him use the following Method.

Take of the Shavings of the Woods of Sanders, Rose-wood, Juniper, Sassafras, and Lignum Vitæ, and of the Root of Saraparilla, each one Ounce; of the Roots of Burnet and Angelica, of Cinnamon, Cloves, and Shavings of Aloes Wood, each two Drams; Mix these sufficiently together, and boil them in a close-stopp'd Vessel.

Many chronical Diseases require a plentiful Discharge of Urine; for answering which Intention, the following Medicine is of all others most proper.

Mix equal Quantities of the Spirit of Mastich, the Spirit of *Peruvian Balsam*, acrid Tincture of Antimony, and Spiritus Nitri Dulcis. Of this Mixture, half a Dram may be exhibited with singular Advantage.

In Disorders of the Head and Nerves, it is sometimes proper to irritate the Nostrils, in order to extract the Mucus, and excite Sneezing. This Intention is excellently answer'd by the following Form.

Take of the Powder of Marjoram, and Basil, each one Dram; of true Marum, and Shavings of Aloes Wood, each half a Dram; Flowers of Benzoin, twelve Grains; Effence of Amber, ten Drops; Oil of Cloves, four Drops. Mix all together.

It sometimes happens, that in the Cure of Diseases we are to have a regard to the Patient's Strength; because nothing is more dangerous, or inconsistent with Health, than that the Strength should be too much impair'd. For this Purpose Analeptics are to be used, of which the best may be prepared in the following manner.

Mix in equal Quantities the Spirit of *Peruvian Balsam*, and the Essences of Amber and Musk, prepared with the strongest Spirit of Roses, adding a small Quantity of the Oils of Cinnamon, of Cedar, Bergamot, Turkish Baum, or other Oils of a like Nature.

The Reputation of the *volatile oleous Salts* is very great; and their Efficacy, when judiciously used, very singular. If you desire to communicate a *balsamic* Quality to them, it may be done in the following manner.

Mix of the Tincture of Tartar, and of the vinous Spirit of Sal Ammoniac, each an Ounce; add of the Oils of Cedar, Mint, Mace, and Cloves, each ten Drops.

This Medicine is of singular Efficacy in strengthening the Stomach, and restoring the Tone of the Intestines. The stomachic Elixir, which that skilful Practitioner *Michaelis* at *Leipfic* so frequently used, was entirely composed of *balsamic* Ingredients: For the same Reason *Balsamics* enter the Composition of my *balsamic Elixir*, a Description of which is to be found in p. 186. and 882. of my Annotations on *Potterius*; since the Publication of which Book it has been received into several of the Shops of *Germany*. See ELIXIR, and VITÆ BALSAMUM.

It is sufficiently known how effectual *balsamic* Medicines are in curing the Disorders of the Glands, and removing those Disorders which arise from their too great Laxity, a Defluxion of Humours upon them, or too copious a Discharge of their Contents; for which Reason the following Medicines are of singular Service in a Gonorrhea and Fluor albus.

Take of the acrid Tincture of Antimony, of the Essences of the *Balsams* of *Meccha*, *Capivi*, *Peru*, and of the Woods, each half an Ounce. Mix all together, and add one Grain of Camphire,

But I must here give a Caution, that neither this Elixir, nor any other Medicines of a like Nature, are to be used till the Body has been sufficiently prepared by necessary Evacuations. If a Medicine is desired in a more solid Form, let Pills be prepared in the following Manner.

Take of the *Balsams* of *Capivi* and *Tolu*, of Amber, Mastich, Olibanum, Japan Earth, Terra Sigillata, Diaphoretic Antimony, and prepared Coral, each one Dram; Oil of Sassafras, ten Drops.

When these are duly mixed, let them be made into Pills with the *balsamic* Syrup. These Pills are surprisingly efficacious in Gonorrheas.

Balsamics are also excellent Pectorals, because they remove Obstructions of the Lungs, promote Expectoration, and wonderfully strengthen the pulmonary Vesicles. For answering this Intention, the following Formula may be prescribed.

Take of Benzoin, Myrrh, *Peruvian Balsam*, Saffron, Nutmegs, Tincture of Tartar, Gum Ammoniac, each two Drams; Oils of Anise, Mace, and Fennel, each ten Drops; Spirit of Sal Ammoniac may also be added at pleasure.

Nor is it improper to make up *Balsamics* in the Form of Pills, with other Ingredients, against an Asthma, for the Use of such as labour under that Disease. Let the following Formula be an Example of this Kind.

Take of Gum Ammoniac, the best Myrrh, Benzoin, Saffron, *Peruvian Balsam*, and Extract of Elecampane, each half a Dram: Add of Powder of Millepedes, and depurated Nitre, each one Scruple.

If any one intends to relieve the Pains arising from the Stone in the Kidneys or Bladder, he may expect considerable Success from *Balsamics*; and for that Purpose may exhibit one Dram of the following Powder either in Almond-milk, or in Broth.

Take of the Flower of Club-moss, and Seeds of Gromwell, of Peach-kernels, of Liquorice-powder, Crabs-eyes, Amber, and Mastich, each one Dram. Let them be sprinkled with a few Drops of the Oils of Sassafras, Mace, and Juniper.

When the Menfes are disorderly, either in point of Defect or Excess; or when frequent Abortions, or Sterility, cut off the Prospect of a hopeful Progeny, the relaxed Tone of the Uterus must in these Cases be corroborated, that Nature may be render'd sufficient for overcoming and eliminating whatever is noxious, and providing a proper Receptacle for cherishing and bringing to Perfection the Fœtus. This Intention will, in my Opinion, be excellently answer'd by the following Formula.

Take of the Herbs Baum, Costmary, Paul's Betony, Penny-royal, Yarrow, Rosemary-flowers, Lavender, and Sage, each an Handful; add of Lemon and Orange-peel, of the best Myrrh and Juniper-berries, each two Drams. Let all these be macerated in a proper Quantity of Water, or rather Wine, which seems to answer the Intention better.

The Physician is to judge whether the Patient's Case calls for the Addition of a Laxative, of which Class Rhubarb, and the Leaves of Sena, are the most proper.

It now remains, that I say something concerning the vulnerary *Balsams*, since these are of incomparable and extensive Use in Wounds of the Intestines, and when any of the external Parts are corrupted or destroy'd. But I shall communicate to my Reader one, which is of all others the most efficacious both for internal and external Purposes, and which I prefer to the celebrated English *Balsam*, which takes its Name from *Locatellus*. It is prepared thus:

Take of the Essences of Myrrh, Amber, Gum Elemi, red Sanders, *Balsam* of *Peru* and *Tolu*, each one Ounce; of the Oils of St. John's-wort, Yarrow-tops, and *Balsamina* Mas. From these intimately mix'd, we draw off the Spirit with a gentle Fire, and what remains we use for the Purposes, and in the Manner, above specified.

We also prepare a vulnerary Essence to be used externally in cleansing and incarning Wounds. It is made

Of equal Quantities of the Essences of Yarrow, St. John's-wort, Myrrh, Amber, Mastich, Gum Elemi, *Peruvian Balsam*, and Flowers of Roses, mix'd together; we sometimes also add Honey, which proves an Ingredient of considerable Efficacy.

In how great Esteem compound *Balsams* were antiently had, both for internal and external Uses, appears plainly from *Conradus Gesner's Thesaurus de Remediis Secretis*, which proposes many excellent *balsamic* Compositions, prepar'd of Aromatics, Refins, and Gums, of a fragrant Smell, which were highly esteem'd by the Antients. From that Book it plainly appears, that the Time when Chymistry began to flourish, and be diligently cultivated, those *Balsams* were principally in Use, which were procur'd by Distillation from the noblest Ingredients with which rectify'd Spirit of Wine and Turpentine were mixed. I shall only give one Example of this Kind from *Lully*; and tho' the Composition wants the Turpentine, yet the rest of the Ingredients are incomparably excellent. It is as follow-

Take

Take of Cloves, Nutmegs, Ginger, Zedoary, Galangals, Pepper, Juniper-berries, Lemon-peel, Sage, Basil, Rosemary, Marjoram, round-leaved Mint, Bay-berries, Pennyroyal, Gentian, Calamint, Elder and Rose-flowers, Bishops-weed, Spikenard, Aloes-wood, Cubebs, Cardamoms, Cinnamon, Sweet-flag, Stoechas, Germaner, Bawm, Mastich, Hepatic Aloes, Seeds and Flowers of Dill, and Seeds of Mugwort, each an Ounce; all these are to be put into three times their Weight of five or six times distill'd Spirit of Wine, and to be distill'd by a slow Heat, upon which they yield a pure and precious Water, some of the surprizing Effects of which are said to be these following.

If it is pour'd into a recent Wound, there is no Occasion for any other Medicine, since it will heal it in the Space of a natural Day and an half, at farthest, provided it is not mortal. Malignant, cold, putrid, and fungous Ulcers, if wash'd with this Water, are heal'd in a few Days. If the Eye is inflam'd, or has a Speck on it, these Disorders are cured in a few Days by dropping a little of it into the Eye affected. In Pains, without an Ulcer, arising from Blows or Falls, let the Part affected be fomented with a small Quantity of it, and the Pain will be removed in the Space of three Hours. Its internal Use was so highly esteem'd, that the following surprizing Accounts are given of it: It restores Youth to old Men; it recovers Patients when at the Point of Death; and given over by the Physicians: If a few Drops of it are drank every Day for a Year, with Borage Flower-water, the Patient shall at the Year's-end seem to have his Flesh, Blood, and, in a Word, his whole Body, renew'd. In the above-mentioned Book there are many *Balsams* excellently composed, but we are to observe, that almost all of them have Turpentine for an Ingredient, which affords an Oil somewhat ungrateful to Nature, because by its too great Heat it agitates the Blood, and puts it into preternatural Commotions; for which Reason I am of Opinion, that the Turpentine is to be left out of all the *Balsams* and spirituous Waters of the Antients.

I shall here briefly make mention of my own liquid spirituous *Balsam of Life*, which, on account of its surprizing and efficacious Qualities, has in many Places acquired an uncommon Reputation. The Efficacy of this Composition consists in a Solution of the purest Oils, and unadulterated *Balsams*, mixed in a due Proportion; and this Purity of the Ingredients is the Reason why this *Balsam* is possess'd of such uncommon Efficacy, as is scarcely to be met with in any other Medicine whatever. See VITÆ BALSAMUM.

I now come, in the last Place, to deliver my Sentiments concerning the Virtues and Efficacy of what we call *balsamic* Medicines. I affirm, then, that these are truly universal, and of extensive Use in Physic; and that their Virtues are as great as those of any other Class of Medicines whatever, since they are suited to all Constitutions, easily incorporated with all other Remedies, and exquisitely calculated for subduing and removing almost all Diseases. *Balsamics* have this peculiar to themselves, beyond other Medicines, that they are friendly to the human Constitution, and conspire, as it were, and contract an Affinity, with it. Of this we may easily be convinced, by observing, how speedily Strength, impair'd by chronical Disorders, old Age, or any other Accident, is restor'd by the timely and seasonable Use of *Balsamics*. For this Reason no Medicines are so effectual in Faintings, from whatever Cause, as *Balsamics*; and, in a Word, they wonderfully recruit, restore, and preserve that which is the original Source of Life, and imparts Strength, Pulsation, and Tone, to the Heart, Arteries, and Nerves, whether we call it Principle, Spirit, Soul, or Nature; for they seem to be transform'd into the Nature and Genius of that noble and wonderful Substance, which is the Director and Source of Motion to all our Members; for, in a Syncope, they so suddenly restore Motion to the oppress'd Heart, purely by their Smell, that we cannot enough admire their Efficacy; for such is the Nature of all Substances which abound with a penetrating and fragrant Oil, that, when used either internally or externally, they singularly cherish and preserve the Strength of our Constitutions. On the contrary, every thing that is putrid, fetid, and the Reverse of fragrant, is highly prejudicial to Strength, and the vital Motions, which it soon oppresses and destroys; for every Degree of Putrefaction is highly prejudicial to Life, and when it either begins, or is increased, in a human Body, the Strength and vital Motions forthwith fail, and are destroy'd, as we evidently see in Plagues, malignant Fevers, and Mortifications of the internal Parts. For this Reason, Remedies prepar'd of *Balsamics* are justly styl'd the *Balsams*, the Waters, and the Spirits of Life, since they have such a direct and immediate Influence upon it.

Since then *Balsamics* convey Motion, Strength, and Tone, to all the Parts of the Body, we may easily see, that these Medicines must be singularly efficacious in those Disorders and Indispositions, where the Strength and vital Motions are impair'd, or where the Viscera and other Parts are too much

relax'd and deprived of their due and proper Tone. For this Reason, they will never frustrate the Expectation of the Physician, who prudently exhibits them in Weaknesses of the Brain and Nerves, Imbecility of the Memory and Senses, a Palsy of the Members, a Privation of Voice, a Hemiplexy, Inappetencies, Loathings of the Food, Vomitings, Diarrhoeas, and Gripings of the Belly; in Cases where Flatulencies prove uneasy, in Languors of the whole Body, in Faintings, and in all cold catarrhus Defluxions; in Coughs that are too moist; a Coryza, a Fluor Albus, a Gonorrhoea, a moist Asthma; and, in a Word, in all Cases where the Parts are to be strengthen'd. Then again, as the best and most valuable *Balsamics* convey Strength and Energy to the solid Parts of our Bodies, especially to the Heart and muscular Fibres, which move and impel our Fluids; hence it follows, that they are the surest and most efficacious Preservatives against all Kinds of Diseases, as will sufficiently appear from the following Considerations. As long as the Blood and Humours are quickly and uninterruptedly carried thro' the Ducts and Vessels of the whole Body, and what is superfluous and recrementitious carried off thro' proper Strainers and Emunctories, so long the whole Body, and each particular Part of it, are in a State of Health, and duly perform their respective Functions: But as soon as this Motion is either disturb'd or interrupted, in the whole Body, or any of its Parts; or when the necessary Secretions are not duly made, a sure Foundation is, by these very Means, laid for Diseases. Now nothing is of more Efficacy for preserving the vital Circulation of the Humours, and carrying on the necessary Business of Perspiration, than those Substances which strengthen and corroborate the Heart, that principal Part of the Body, with their *balsamic* Qualities. But our noble *Balsamics* are particularly and singularly useful, as Preservatives against putrid Diseases, and such as are justly formidable, on account of their contagious and malignant Natures. For this Reason they are used, as Preservatives, with uncommon Success, when epidemical Disorders rage. They are also very properly join'd with Alexipharmics in the above-mention'd Disorders, because they resist Putrefaction, recruit the Strength, and promote a due Circulation of the Humours: And since they so powerfully guard against Putrefaction, which is so prejudicial to Life, they are, for this Reason, very properly and successfully used in the Venereal Disease, which is truly of a putrid Kind; and in those Scourvies which are the Result of an impure Air, and unwholesome Aliments; for the Decoctions, Elixirs, and Essences of the Woods, derive their Virtues and Efficacy from the *balsamic* Qualities of the Ingredients: Besides, *Balsamics*, especially of the fragrant Kind, have this singular Advantage attending them, that they becalm the exorbitant Motions of our Fluids, and allay Pain. For this Reason, in violent Head-achs, Tooth-achs, and Pains of the Ears, they often afford great Relief, even when only externally apply'd. Neither is it to be forgotten, that *Balsamics* prove excellent Correctors to all the more violent and drastic Medicines, especially Evacuants and Anodynes; for they remarkably qualify their Virtues by their corroborating Qualities. For this Reason, *Balsamics* are very happily join'd with almost all evacuant and anodyne Medicines. From all these Considerations it appears, how proper and efficacious *Balsamics* are, for the Cure of a large Number of Diseases.

But as nothing is, in every respect, perfect and complete, as there is no Medicine, however valuable in itself, but what produces bad Consequences, when imprudently exhibited, there is no doubt to be made, but this is also the Case with *Balsamics*; for when there is in the Body too large a Quantity of hot and seruid Blood, when its Motion is too much accelerated, and the Pulse quick and vehement, Nature has, in these Cases, more need of a Check than a Stimulus; for which Reason we must neither attempt to excite nor augment the Motions of the Fluids. Besides, fragrant Substances have this Disadvantage attending them, that when the Brain, in consequence of some Weakness, with Difficulty transmits the Blood, and the Vessels of the Head are become turgid with Humours, they occasion a greater Derivation of Humours to it; and sometimes increase the Pains, Torpors, Vertigoes, and Oppressions of the Senses. I must here add, that Physicians have not as yet sufficiently discover'd the Virtues and Efficacy of *Balsamics* in the Practice of Medicine; since they are far more powerful and efficacious than is commonly believed. The spirituous *Balsams*, which are commonly sold, and which ought to be made of the purest ethereal aromatic and cephalic Oils, are, for the most part, sophisticated and adulterated; so that Physicians have no Reason to be surpris'd, if they do not produce the Effects they would do, if they were pure and genuine. I must, in the last place, observe, that Physicians are very faulty in drowning, as it were, *Balsamics* in spirituous Liquors; since they almost always either mix them with Spirit of Wine, or join them with it by Distillation; by which means the Virtues of the *Balsamic* are infringed, and it assumes a violently hot Nature. The more, then, their genuine Natures are retain'd, the more efficacious and useful they are. *Hoffman*.

Besides

Besides the Balsams already mention'd, some others, which are very scarce, and rarely to be met with, are mention'd by Writers on the *Materia Medica*. Amongst these, is the

BALSAMUM IPECUEBÆ, which is drawn from the *Becuibæ Nux*; and, in *Brasil*, is much esteem'd in rheumatic and paralytic Cases. *Geoffroy*.

The *Index Medicamentorum* also takes Notice of a Balsam call'd BALSAMUM THOMÆUM; and of another call'd BALSAMUM VIRIDE, or OLEUM MARIÆ.

There has, of late, been imported from *New England* an excellent liquid Balsam, which, by its Fragrance, and whole Appearance, should not be inferior to many of those above described. I don't know, that it has yet obtain'd any particular Name. This has been frequently sold to the Apothecaries for the true *Opsbalsamum*.

A Mineral BALSAM in ALSATIA.

In the Valley call'd *Liberthal*, near *Geesbach*, (an ancient Mine-work in *Alsatia*) there runs out of a Cavern a foul, pinguous, oily Liquor, which affords an excellent Balsam, by taking a Quantity of it, and putting it in an Earthen Pot well luted, that no Steam may exhale; and then with a gentle Fire at first, but a stronger afterwards, boiling it for three Hours together, in which Space it will boil in a fourth Part, and an Earthen Matter, like Pitch, will settle itself at the Bottom; but on the Top thereof, when cold, there will swim a pinguous Substance, like Linseed-oil, limpid and somewhat yellowish, which is to be decanted from the thick Sediment, and then gently distill'd in an Alembic in a Sand-heat; by which means there will come over two differing Liquors, one phlegmatic, the other oily, which latter, swimming on the Phlegm, is to be sever'd from it. The Phlegm is used as an excellent Refister and Curer of all the Putrefactions of the Lungs and Liver; and it heals all foul Wounds and Ulcers. The oily Part, being diluted with double its Quantity of distill'd Vinegar, and brought three times over the Helm, yields a rare Balsam against all inward and outward Corruptions, stinking Ulcers, hereditary Scurs and Scabs. 'Tis also much used against Apoplexies, Palsies, Consumptions, Giddinesses, and Head-achs. Inwardly they take it, with Succory-water, against all Corruptions of the Lungs. It is a kind of *Petroleum*, and contains no other mineral Juice but that of Sulphur, which seems to be thus distill'd by Nature under Ground; the Distillation of an Oil out of Sulphur, by Art, not being so easy to perform. *Philosophical Transactions*.

A Mineral BALSAM in ITALY.

In the Territory of *Pergamo*, *Sig. M. Ant. Castagna*, upon the Confines of his Jurisdiction, lighted accidentally upon a not ordinary sweet balsamic Scent; which directed him to a rocky Hill; where he found the Stones harbour'd that Fragrance, which was so strong, and, by Trials, found so friendly to the Uterus, that, being applied, they did, in a very short time, cure it of any Evil 'tis subject to. Encouraged hereby, he made his Workmen dig into the very Bowels of the Hill, where he discover'd Holes in some Stones, as if excavated by Art, of a greenish Colour, in which he found, as distill'd by Nature, and kept in Vessels, that Liquor and Balsam which proved the Source of that Scent, which was limpid, and of a white Colour, like the White of an Egg, but somewhat oleaginous, floating upon all sorts of Liquors like Oil. Besides, he met in the same Cavities some small Grains concreted of the same Liquor, resembling that which they call white Amber, which, being chymically distill'd, had the same Odour with the Balsam. *Phil. Transf.*

BALSAMUM DE CHILI.

I have more than once, in this Work, mention'd the Balsam of *Chili*, particularly in Quotations from *Musgrave* and *Hoffman*. The Importance of these Authors renders it necessary to inquire what this Balsam is, or rather whether there is any such thing. Upon the best Information I can get, then, it appears, that there is no such thing known either in *England* or *Spain*; from whence we may reasonably conclude, that all the other Parts of *Europe* are Strangers to it. The only Author I have met with, who affirms its Existence, is *Salmon*, who, in his *Polygraphice*, recommends it as a sort of universal Panacea.

There is, says he, lately brought from *Chili*, a Province in *America*, a most excellent natural Balsam, differing (but not much) from those of *Peru* and *Toku*, but no ways inferior in Virtues and Excellency, as the several Experiments lately made of it, by several learned Physicians, in the curing of Diseases, have given evident Demonstration.

It is a Remedy that no Man under the Sun can compose, being a natural Balsam, distilling from a Tree in *Chili*, bearing a Leaf something differing from an Olive-leaf. It is, without doubt, the most precious of all natural Balsams, by reason of its great Virtues, and admirable Odour, excelling all others, even the most fragrant.

The Merchant that has brought it over, has only entrusted it to be sold with Mr. *Thomas Passenger*, at the *Three Bibles* on *London-bridge*, where it may always be had in any Quantity, ready put up in Glasses, seal'd with the Balsam-tree, Price twenty-four Shillings the Pound, or eighteen Pence the Ounce. *Salmon*.

Upon the strictest Inquiry, I have the strongest Reasons to believe all this to be utterly false; for I am well inform'd, that this Balsam is factitious, and that it was made in the Person's House who sold it, by his Cook-maid. *Salmon* therefore was deceived; or else, for particular Reasons relative to his own Interest, imposed this Falshood on the World; a thing not unusual in these Days, wherein the noble Art of Medicine is prostituted to the meanest Ends.

When we design to extract a large Quantity of Balsam of any Kind, we, for that Purpose, make Choice of the small Branches of such Trees as yield it, when they are most fill'd with Sap; for at that time they yield more than at others. Then we soak and boil them in Water, to occasion a Separation of the most fluid of the resinous Parts, which we gather off the Surface of the Water. This is the Method of preparing some liquid Balsams: And this same Course might also be taken for extracting the Resin from our Firs and Pines, if Incision was not sufficient for that Purpose. *Geoffroy, Mem. A. 1721.*

BALSAMUM ALBUM.

What the Chymists call by this Name is equal Parts of Vinegar of Lead, evaporated to the Consistence of Honey, and of Oil of Roses. This is in some Reputation, amongst the Surgeons, as a Drier.

BALSAMUM ANODYNUM BATÆI: Bates's Anodyne Balsam.

Take of Castile Soap, an Ounce; of Opium, half an Ounce; of Camphire, six Drams; of Saffron, a Dram; and of rectified Spirit of Wine, eighteen Ounces: Digest them together for ten Days; then strain off the Balsam.

This is much like a Prescription of *Horstius*, which he gives by the Name of *Balsamum Antipodagricum*. It is a most excellent Medicine, not only for procuring Ease in the most racking Extremities of Pains, but for assisting likewise in the Discharge of such Humours as occasion those Pains. In nervous Colics it is of great Service; and it cleanses all the Viscera, and glandular Parts. It is good even in the Jaundice, and such Distempers of the Urinary Passages as proceed from Obstruction of Gravel, or slimy Humours. But its greatest Excellence is in allaying the Tortures of the Gout, promoting the Transpiration of the peccant irritating Matter, and carrying off the Fit, insomuch that, with a few proper Helps, this Distemper is hardly so obstinate in any Person whatsoever, but he may meet with great Relief, if not a thorough Riddance from it. Inwardly it may be given from twenty Drops to fifty at a Dose; and being outwardly applied to the pain'd Part, it does mighty Service, a Rag being dipp'd in it, and laid thereon. *Quincy's Dispensatory*.

Bateman's Pectoral Drops are imitated from this. I take the only Difference to be, that *Bateman's Drops* have a less Proportion of the Spirit, and consequently, being not so strong, may be given in larger Doses; and that they have an Addition made to them of Aniseeds.

BALSAMUM ANODYNUM, VULGO GUIDONIS: Anodyne Balsam, commonly call'd Guido's Balsam.

Take of Hepatic Aloes, Gum Ammoniac, Bdellium, Caran-na, Castor, Galbanum, Labdanum, Myrrh, Balsam of Peru, Olibanum, Amber, Tacamahac, and solid Storax, each half an Ounce: Reduce the Ingredients, capable of it, to Powder; then add the full Weight of them all of Venice Turpentine: Put the Whole into a Retort, whereof they may fill but two Thirds, and distil it according to the Rules of Art; observing dexterously to separate the red Oil, or Balsam, from the Liquor that floats above it.

If the Distillation be perform'd in an Alembic, with the Addition of four times the whole Quantity of Spring-water, the Balsam will be obtain'd free from any empyreumatical Impression. *Edinburgh Dispensatory*.

BALSAMUM SIVE SPIRITUS EMBRYONUM.

Take three Capons without the Fat, beat and cut them small; add of Dates, one Pound; Raisins of the Sun, one Pound and an half; Baum, four Handfuls; Angelica, Marjoram, and Chervil, each three Handfuls; Basil-seeds, half an Ounce; Fennel, Angelica, and Lemon-peel, each three Ounces; Citron-peel, Piony-root, and Borrage, each four Ounces; Angelica, one Ounce and an half; Saffron, five Drams; Conserve of the Flowers of Borrage, Clove-gilly-flowers, and Marjoram, each four Ounces; Spanish Wine, thirty-two Pounds: Distil to Dryness. With this Water, together with one Pound of the

the Spirit of Clary, Black-cherry and Baum-water, each three Pounds; Borrage-water, four Pounds; blanch'd Almonds, one Pound and a half; make an Emulsion: To which add, of the Conserve of Piony-flowers, six Ounces; of Borrage, and Clove-gilly-flowers, each four Ounces; Flowers of Violets, Cowslips, *single Clove-gilly-flowers*; red Rose-flowers, and Marygold-flowers, each four Handfuls; Aloes-wood, three Drams; yellow Saunders, two Drams and an half; Cinnamon, eight Ounces; Aromaticum Rosatum, one Ounce: Distil according to Art.

This Medicine is given with great Success to Women who have suffer'd frequent Abortions; as also to Women big with Child, when they languish in consequence of a sudden Fright, or from any external Cause. In these it also cures Lipothymies, Faintings, and Inflations of the Belly; strengthens the Foetus, when weakly; corroborates the Ligaments of the Uterus; prevents the Epilepsy; and assists Sanguification. The Dose two, three, or more Spoonfuls, as the Circumstances of the Case requires. *Pharmacopœa Bateana.*

BALSAMUM GENEVIEVE, or Genevieve's internal and external Balsam.

Take three Pounds of Oil of Olives; of Rose-water, one Gallon; of new Wax, half a Pound; of *Venice Turpentine*, one Pound; and of the Powder of red Saunders, two Ounces. Boil the Whole in a new Earthen Vessel, with three Gallons of red Wine. After it has boil'd for half an Hour take the Vessel off the Fire, and allow it to cool; then separate the Balsam from the Wine, and the Powders which remain at the Bottom of the Vessel.

This Balsam is used for Wounds of all Kinds, whether they penetrate into the Cavities of the Body or not; for gangrenous Ulcers, Rheumatisms, all Pains, even those which are internal; such as the Pleurisy, the Colic, and Head-ach. The Patient is to anoint the Part affected with some of it warmed, and take two Drams of it internally. It is also used against all Kinds of malignant Fevers, and the Bites of poisonous Animals.

When Wounds happen to penetrate into the Cavities of the Body, some of this Ointment must be syringed into them; and some of it must be exhibited internally in Veal, Capon, or any other Broth; or even in vulnerary Waters or Pisans.

But what effectually proves the Efficacy of this Balsam, and what, probably, first procured it that uncommon Esteem in which it is now universally held, is a Cure related by Mr. *Duverney* the younger, in the Memoirs of the Royal Academy of Sciences in *Paris* for 1702. which, on account of the uncommon Circumstances attending it, we shall here insert.

On *St. Thomas's Eve*, in the Year 1701. a Man of forty or forty-two Years of Age, and of a good Constitution, happened to receive a Wound with a Sword in the inferior and internal Part of the Middle of his Right Arm. The Wound ran obliquely upwards into the Muscles for about four or five Fingers Breadth. The Blood flowed from the Orifice with uncommon Impetuosity, which soon brought the Patient to a very weak and feeble State. In this Condition he was carried to the first Surgeon that could possibly be found; the Artery, in the mean time, being secured with a Compress, and pretty tight Ligature, apply'd above his Elbow. But the Patient, recovering his Strength a little, was conveyed to his own House, where the Orifice of the Wound being opened, Lint drenched in astringent Liquors was conveyed to its very Bottom; then the Orifice was carefully covered up, and the Dressings secured by proper Bandage. The Patient had some Blood taken from him, and was reduced to weak Broths and Pisan. The Wound was not dressed till forty-eight Hours after, when all the Dressings were removed to the very Pledget, with a View to moisten them, and the Bandages, which were again applied with the same Care they had been in the first Dressing. This Method was, almost without any Variation, persisted in till the Eve of *Saint Genevieve*; at which time the Blood flowed in great Plenty from the Wound. For this Reason, a small Incision was made afresh, and the Wound dressed almost in the same manner as at first; though at the same time the Patient perceived, that the fore Part of his Arm had changed its Colour, but yet without any concomitant Pain; his Fever was of the continued and burning Kind; and his Inquietude and Want of Rest, very great. At last, on *Saint Genevieve's Day*, we found that not only the fore Part of the Arm was gangrened, but that the Putrefaction had spread itself to the internal Part of his Arm. The Patient, and those who were present, being struck with Terror at this Discovery, demanded a Consultation; and for that Purpose made Choice of three Surgeons, much accustomed to inspect Cases of a dangerous Nature. Upon examining the Patient, and taking a careful View of his Disorder, they found not only the fore Part of the Arm entirely cadaverous, but also its internal Part in the same Condition as far as the Arm-pit. The Bone, in the mean time, was laid

bare by the Putrefaction for about three or four Fingers Breadth from the Arm-pit. The Progress of the Mortification, the Fever accompanied with Oppression, the livid Colour of the Patient's Complexion, his small and tremulous Pulse, were Circumstances, which determined us to wait till we should see in which manner Nature herself would operate; and, in the mean time, to use both internally and externally such Medicines as could either support his Strength, or procure his Ease.

The same Day, however, a Woman of the Name of *Genevieve* presented herself, and offered to cure the Patient; upon which, the two Surgeons, who were treating him, committed him to her Care. Accordingly, *Genevieve* began her Cure by rubbing the whole Arm, and particularly the fore Arm, whether cadaverous or not, with the above-mentioned Balsam. Then she wrapt the Whole up in Cloths, which she secured with Pins till Night, when she dressed the Patient again in the same manner. In the mean time she ordered him nourishing Food, and rich Wine. Twenty-four Hours after these Measures were taken, a Suppuration began to appear. *Genevieve*, in the mean time, continued to dress the Patient in the same manner; the Wound assumed a more and more beautiful Appearance after each Dressing, and the mortified Flesh separated easily, and adhered to the Cloths, or soft coarse Paper, which she often used for Dressings. It was proposed to *Genevieve* to have the mortified Part of the fore Arm separated at the Joint, not only because of its strong and disagreeable Smell, but because it was already almost separated by the Mortification; but she refused to comply with the Proposal, and said, It was not necessary to take any Measures at all with regard to it, since her Remedy would sufficiently answer all the Intentions they could possibly propose by such a Step.

At last all the fore Part of the Arm was entirely separated at the Joint from the Arm itself, six Weeks after *Genevieve* undertook the Cure; after which, she continued to apply her Ointment to the uncovered Bone, and all the rest of the Arm, without having any manner of regard to the Filth which came from between the Bone and the Flesh, or to any other Circumstance whatever. The Consequences however of her Conduct were sufficiently happy; for about a Month after the Separation of the fore Part of the Arm, the Part of the Bone which had by that means been laid bare, exfoliated, and was entirely separated from the Remainder of the sound Bone. Before this Separation happened, we were at a Loss to conjecture what would be the Fate of this large Portion of Bone, and of the Shreds of Flesh and Skin remaining on the back Part of the Arm; we also dreaded an Hemorrhage: However, none of these Suspicions disconcerted *Genevieve* in her Measures; she continued her ordinary Dressings, the Consequence of which was, that the remaining Fibres poured forth a nourishing Juice, and lengthened themselves so as to cover the Extremity of the Bone, and form a very natural and beautiful Stump.

All this was transacted, and the Cure completed, in the Space of four Months, without the Patient's being so much as once attacked with a Fever, or any other Disorder. He was twice purged during the Course of the Cure, and at present enjoys a perfect State of Health.

REFLECTIONS.

We have Reason to believe, that the Mortification was occasioned by the manner of Dressing the Patient at first; for, besides the too tight Ligature on the Wound itself, there was also a Compress strongly applied, all along the Artery as far as the Arm-pit; so that the nutritive Juice was intercepted from the fore Arm, and the Parts were compressed by the Bandage. This Inconveniency may be shunned by tying the wounded Vessel, when 'tis possible; by using the Bandage for the Aneurysm, which is a sort of Truss, or by applying to the Orifice of the Vessel a Piece of a particular Species of Match used in *Germany*, and made of Hemp, or that Species of Mushroom called *Lycoperdon*, either boiled or not boiled; but when the two last-mentioned Remedies are used, we must take care to secure them till they adhere to the wounded Vessel, and then dress with unripp'd Match, or absorbent and balsamic Powders, remembering in both Cases to preserve the Circulation in the Part affected. The great Hemorrhage, four liberal Venesections, and a very strict Regimen, had not only exhausted, but impoverished the Mass of the Patient's Blood; so that being destitute of its unctuous and chylous Parts, it could neither recruit itself, nor supply a proper Matter for invigorating the wounded Part. These Circumstances contributed, at once, to bring on the Fever, and augment the Mortification; since the Indisposition remain'd unallay'd and uncorrected by proper Means. Accordingly, as soon as the Patient began to live upon nourishing Aliments, his State of Health became better, the Progress of the Mortification stopped, and the unmortified State of the Parts began to discover itself by a Discharge of Matter, which separated between the sound and mortified Parts. We have Reason to suspect, that the Vessels had been in a manner cauterized, and blocked up by

corrosive Juices, just as they would have been by the Application of common Caustics, or Ligatures; since the Artery did not discharge its Contents in the time of the Suppuration, though no Applications were used to prevent it; though it was so near its Trunk, and though the Patient lived upon nourishing Aliments, and rich Wine. The agreeable and insensible Manner in which the Suppuration, and consequent Separation of the mortified from the sound Parts was carried on, afforded Time for the Artery to repair and fortify itself; from which we may learn, that 'tis always improper to hasten the Separation of an Eschar, or too soon remove Ligatures from the Vessels to which they have been applied. On the contrary, we ought to use such Medicines as are capable of absorbing the Humidity of the Parts, that thus the Ligature or Eschar may remain the longer, and by that means afford an Opportunity to the Flesh and Vessels to sprout out, to unite themselves, and make a joint Resistance to the Impulse of the Blood.

We are by this Case also taught, that most of the Measures ordinarily taken to bring on the Exfoliation of Bones, either in Whole or in Part, are often useless, if not hurtful; since that is properly the Work of Nature. The great Secret in this Case consists in preserving the natural Heat of the Part, and in augmenting it when it is too faint and languid; both of which are often done with little Trouble, and in a short time, as appears by the foregoing Case, where both were easily effected notwithstanding the bad State of the Arm, and the small Quantity of Flesh, that remained on it. On this Occasion, for Instance, the Ruginé, the Trepan, and the Application of Caustics, had been entirely useless; and even though the Bone had been sawed off upon the Separation of the mortified Flesh, the Patient would not have been the sooner cured by that Step; on the contrary, the Exfoliation would have been evidently retarded, and the Elongation and Sprouting out of the Fibres entirely prevented. I have seen some Surgeons wait in vain for the Exfoliation of some Part of a Bone, for seven or eight Months, and even for a whole Year, notwithstanding the Use of dry Lint, Spirits of Wine, Caustics, and the Ruginé; whilst others, who followed a different Course, happily produced the desired Effect in a much shorter Time.

BALSAMUM LUCATELLI: *Lucatellus's Balsam.*

Take of the best yellow Wax, one Pound; melt it over a moderate Heat, in a like Quantity of *Canary*: Then add of the best Oil of Olives, and *Venice Turpentine*, wash'd to a Whiteness in Rose-water, each one Pound and a half. Boil them by a gentle Fire, till the Wine is evaporated; then removing it off, sift in of red Saunders in fine Powder, two Ounces; stirring the Whole about continually, till it is quite cold, that it may become a *Balsam*.

This is but a modern Prescription, so that the College had it not at first. It is used however very much in the present Practice, both for internal and external Uses. *Quincy's London Dispensat.*

This was very unskillfully directed; for the melting the Wax in *Canary* can answer no End, unless to such whose Opinions of a Medicine are in proportion to the Trouble of making it; nor does the Washing the Turpentine with Rose-water avail any thing. If therefore the Materials are all good in their Kind, as soon as the Wax and Turpentine are melted, let the Saunders be stirred in without any boiling at all. But even this way, which the Shops are obliged to comply with, because the Physician would not else know what he prescribes, the Saunders is a very injudicious Ingredient; for it cannot answer any End as a *Balsamic*, neither in internal nor external Use; and if it be put in for the Colour-sake only, this might much better be done by boiling Dragon's-blood for some time in the Oil, with a sufficient Quantity of Water to keep it from burning; for with that it might be brought up to any Degree of Colour, and to a much more elegant Red than the Saunders will give. And when the Oil is tinged, strain it off, mix the Wax and Turpentine with it, and all is finished; and this way it is made in some of our Hospitals. By this means the Medicine is not clogged with Dust to give it a Colour, and is therefore much better for all the Purposes it seems originally designed for. This Composition stands recommended for an internal Vulnerary, and is prescribed in such Coughs as give Suspicion of Tubercles and Ulcerations in the Lungs; and also in all internal Decays from the like Causes, whether the Seat be in the Breast, or any other Part. It is given likewise upon accidental Bruises, and inward Bleeding. Externally it is used to deterge and incarnate green Wounds and Ulcers, that are not of too long Standing; but in the latter Intentions, the Saunders is a vast Prejudice to it, and helps to foul a Wound more than to cleanse and heal it. Inwardly it is given from one Dram to two Drams at a time, either mixed with a little Sugar, or pleasant Conserve. *Quincy's Dispensat.*

The Edinburgh Dispensatory gives this Preparation different from that of the College.

Take of the best Oil of Olives, a Pint and an half; of *Canary Wine*, a Pint; of Dragon's-blood reduced to Powder, an Ounce; boil them together over a gentle Fire, till the Wine is consumed; then add of yellow Wax, 2 Pound; of *Venice Turpentine*, a Pound and an half; and of Balsam of *Peru*, two Ounces: Mix them together, by boiling them a little; but add not the Balsam of *Peru* before the Vessel is removed from the Fire.

The substituting Dragon's-blood for red Saunders alters this Medicine considerably for the better, as it improves its Colour, and adds to its *balsamic* Virtues; both which Ends are very indifferently answered by the Saunders. But if the Colour were to be primarily regarded, nothing gives a more beautiful Red to Oil than Alkanet-roots, infused warm therein.

BALSAMUM POLYCHRESTUM: *A Balsam of many Virtues.*

Take two Pints and an half of Spirit of Wine, infuse in it with a gentle Heat, and after stirring it, twelve Ounces of Gum Guaiacum; and lastly, add one Spoonful of *Peruvian Balsam*; so that the Whole may mix together into a Balsam.

This is but a very modern Prescription, and lately receiv'd by the College; but here it differs from their former Edition, in rejecting the Sarsaparilla, and increasing the Gum Guaiacum; which is certainly much to the Advantage of the Medicine, because its Virtue wholly consists in the two Ingredients here retained, the Sarsaparilla affording nothing to the main Intention, which is greatly to warm the Nerves, and refresh the Spirits.

This is an efficacious Remedy for many good Purposes; but particularly to warm and defend the Nerves from those Defluxions which prejudice their Motions; and when they prove of a saline tartarous kind, make the Gout in the Joints. To preserve against this last-named Distemper, there is not a better Medicine, considering the Conveniences of making and taking it. It will likewise answer all the Ends that are aimed at by the Wood Diet-drinks; it dries up, or dissipates by insensible Transpiration, all superfluous Moistures, is good in all Venereal and scrophulous Cases, and very certainly wears off an old Gleet, where the Virulence has been previously removed. It will change an aqueous Vehicle milky, but may conveniently enough be given in any Liquor, and it is usually taken from ten to thirty Drops, two or three times a Day. It is somewhat strange, that this Medicine is almost neglected in a regular Practice, and yet made a great deal of, both as to Profit and Reputation, by Empirics, with some of whom it has been pretended a Family Secret, as the *Elixir Salutis*, that is, *Daffy's Elixir*, and some others, which are first stolen from some Physical Writers. *Quincy's Dispensat.*

BALSAMUM CONTRA RHEUMATISMUM: Or, *Balsam against the Rheumatism.*

Take of Rosin, and of *Burgundy Pitch*, each half a Pound; Shoe-makers Wax, two Ounces; yellow Wax, four Ounces; *Venice Turpentine*, two Ounces; new Hogs Lard without Salt, and fresh Butter, each a Pound; Essence of Rosemary, three or four Spoonfuls: Mix, and make a Balsam according to Art.

This Balsam was communicated to Mr. *Duverney* the younger, as a great Secret, under the Title of *A Balsam for Rheumatisms, Gun-shot Wounds, Ulcers with Caries*, and others.

Before using it, the Wound, or Ulcer, must be washed with warm Wine; then the Balsam must be warmed in a Plate, and some of it must be poured into the Wound or Ulcer as hot as the Patient can bear it; then put coarse soft Paper over it, and wrap it up with a linen Cloth. *Memoire de l'Academie, 1702.*

BALSAMUM SAMARITANUM: *The Samaritan Balsam.*

Take equal Parts of Wine and Oil, and boil them till the Wine is consumed. This takes its Name from the good Samaritan of the Scriptures, and is esteemed for cleaning and healing Wounds.

BALSAMUM SULPHURIS ANISATUM: *Balsam of Sulphur with Oil of Aniseed.*

This is prepared in the same manner, with Oil of Aniseed, as the Balsamum Sulphuris Terebinthinatum is with Oil of Turpentine.

BAL

BALSAMUM SULPHURIS CRASSUM: *Thick Balsam of Sulphur.*

Take of Linseed Oil, or Oil of Olives, a Pound; of Flowers of Sulphur, four Ounces; and boil them together over a soft Fire to the Consistence of a Balsam; keeping the Matter continually stirring. *Edinburgh Dispensatory.*

BALSAMUM TEREBINTHINÆ: *Balsam of Turpentine.*

Take of the best Refin, and Sand, each equal Quantities; mix them together, so that they may be distilled in a slow Sand-heat; first the Phlegm, then the Oil, and lastly, upon raising the Fire, and changing the Receiver, the Balsam will come over.

The Sand is of no other Effect than to divide the Refin, and facilitate its Rising in the Retort. *Quincy's London Dispensatory.*

BALSAMUM VIRIDE: *The Green Balsam.*

Take of Linseed Oil, half a Pint; of Gum Elemi, two Ounces; of Verdegrise in Powder, two Drams; mix and boil them together over a gentle Heat, so as to make them into an Ointment, *S. A.*

This is a very modern Contrivance, and is much used by our Surgeons in some particular Dressings. *Quincy's London Dispensatory.*

The *Edinburgh Dispensatory* directs this somewhat different, as follows:

Take of Linseed Oil, and Oil of Turpentine, each a Pound; Of Verdegrise reduced to Powder, three Drams; and boil them together, keeping the Mixture stirring, so as to dissolve the Verdegrise.

BALSAMUM VIRIDE DETERSIVUM: *The Green detergent Balsam.*

Take of Linseed Oil, and Oil of Turpentine, each one Pound; of Gum Elemi, Oil of Bays, and the best Turpentine, each four Ounces; Powder of Verdegrise, one Ounce; mix and melt all together over a gentle Heat, continually stirring all the while, so as to make them into a Balsam, *S. A.*

This is said to be greatly valued in the present Practice amongst our Surgeons as a Detergent. *Quincy's London Disp.*

BALSAMUM VIRIDE METENSIVM: *SEU DOMINÆ FOEUILLET.*

Take of the expressed Oils of Linseed, and Olives of each one Pound; Oil of Bays, one Ounce; of *Venice* Turpentine, two Ounces; melt them upon a very gentle Fire, and when they are cold, mix with them distilled Oil of Juniper-berries, half an Ounce; Verdegrise, three Drams; Succotrine Aloes, two Drams; white Vitriol, a Dram and an half; Oil of Cloves, one Dram; make a Balsam, *S. A.*

REMARKS.

The Vitriol, the Aloes, and Verdegrise, must be powder'd separately very fine; and the Turpentine, Oil of Olives, of Linseed, and Bays, must be mix'd together over a gentle Fire; when the Mixture is half cold, incorporate exactly the Powders, stirring the Matter some time with a Spatula; afterwards add the distilled Oils of Juniper-berries and Cloves, making them all into a Balsam, which must be kept in a Vessel well stopp'd.

It is proper to cleanse Wounds and Ulcers, to incarn and cicatrize them; for the Bites of venomous Animals, they heat it, and put it into Wounds with the Feather of a Quill, or a Pledget of Lint, and apply upon it the *Styptic Plaster of Crollius*.

This Balsam was first invented by Monsieur *Duclos*, a Physician at *Metz*; Madame *Fœuillet* used it at *Paris*, and had it called by her Name. *Lemery's Phar. Univers.*

BALSAMUM VIRIDE VULNERARIUM: *The Green Vulnerary Balsam.*

Take of Linseed Oil, one Pound and an half; Turpentine, twelve Ounces; of the Leaves of Adders-tongue, gathered in the Month of *May*, six Handfuls; mix, and infuse these warm together; then boil them till the Leaves are crisp. Press out the Oil, and add to it of Gum Elemi, four Ounces; of Oil of Bays newly extracted, two Ounces; of the best Turpentine, one Ounce; of the Flowers of Verdegrise, two Drams. Let them all melt over a gentle Fire, continually stirring them about to facilitate their Mixture; then strain again, and let the Whole cool into a Balsam. *Quincy's London Dispensat.*

BAL

There are many Sorts of artificial Balsams of Sulphur, which have acquired great Reputation in Medicine. The Methods of preparing them are as follows:

BALSAM of SULPHUR with expressed OILS.

To a Quantity of any expressed vegetable Oil, contained in a glazed Vessel, set over the Fire, add a fourth Part of the Flowers of Sulphur, as soon as the Oil is sufficiently hot to dissolve the Sulphur, which will now fall to the Bottom of the Oil, like a highly red shining Liquor, and they will remain with this Degree of Heat, for a long time, unmixed; but the Fire being gradually increased, though with Care, to prevent the Matter from taking Flame, at length, when the Oil begins to fume; it will intimately mix with the Sulphur, and the Whole become opaque, and form a new and entire Body of the two. If more Sulphur be added, this also may be easily dissolved, by bringing the Oil to fume; and almost to boil; and thus, at length, a considerable Quantity of Sulphur may be dissolved in a small Proportion of Oil, so as perfectly to lose its former Nature of Sulphur.

REMARKS.

This is the famous Balsam of Sulphur of *Helmont*, *Rulandus*, and *Boyle*, who very highly commend it for heating, mollifying, and resolving, when used externally; and internally against Putrefactions, and Suppurations of the Kidneys and Lungs especially, declaring they have thus found a secret; but effectual Remedy for Consumptions of the Lungs; but I judge, that by its acrimonious, indigestible, and hot unctuous Part, it offends the weak Lungs, the Stomach and Viscera, of languid Persons, spoils the Appetite, increases Thirst, and parches the Body, already too much dried by the Distemper. And this I speak not rashly, but upon Experience and Consideration; and therefore advise it to be sparingly and cautiously used, with a careful Observance of the Effect: Certainly it is not without a burning Rancidness, as being found, when externally used, successfully to cure pale, cold, watery, mucous, sanious, running Ulcers. Perhaps it was hence somewhat too hastily concluded to have the same Effects when used internally; for thus it raises and continues a Fever. The Chymical Use of the Experiment shews, that Sulphur, which remains untouched in *Alcohol*, the most subtle of Oils, expeditiously, and almost totally, dissolves in a very thick and sluggish Oil, strongly heated by the Fire; which evidently shews, with regard to the History of Menstruums, that an extreme Degree of Subtlety and Penetrability does not here perform what may speedily be effected by a sluggish and viscous Matter. But this is not all: Chymists often wonder that many Fossils, which remain untouched by the sharpest acid Liquors, should yet be successfully resolved by a mild and indolent Oil. Sulphur does not yield to any acid Menstruum; for there is no known Acid stronger than that already contained in the Sulphur, whence others cannot act upon it; but Sulphur is dissolved by Oil: As often, therefore, as a fossil Glebe, when boiled in Oil, affords such a sulphureous Balsam, the Oil must act upon the sulphureous Part of the Matter, unless we except Lead, whose metallic Part dissolves into a Balsam with Oil.

BALSAM of SULPHUR with TURPENTINE.

Put an Ounce of the Flowers of Sulphur into a tall Bolt-head; pour thereon six times the Weight of the ethereal Oil of Turpentine; let them boil for an Hour; the Sulphur will first melt at the Bottom, and part of it will be dissolved in the Oil that floats above it, with a crackling Noise, till at length the whole Sulphur will appear dissolved in the Oil. Let all cool, and a large Proportion of the Sulphur will appear concreted into yellow Spiculæ at the Bottom, the Balsam remaining at the Top; so that the Sulphur seems precipitated by a true Crystallization in this Balsam. Pour off the clear Liquor entirely, from the golden sulphureous Crystals, into a clean Vessel apart; add fresh Oil of Turpentine to the Remainder; boil as before, and all the Sulphur will be dissolved into a Balsam; but when suffered to cool, it again shoots into sulphureous Crystals. Again, pour on more Oil, and continue thus, till all the Sulphur is perfectly dissolved; whereby it will appear, that one Part of Sulphur requires about sixteen of this Oil to dissolve it entirely. Keep all the Balsams, thus prepared, under the Title of Balsam of Sulphur with Turpentine. This Operation requires the utmost Care, as being attended with Danger; for if the Mouth of the Vessel was stopp'd, the boiling Matter would burst the Glass with greater Violence than has been hitherto observed in any other Experiment.

R E.

R E M A R K S.

Hence we see, that a thin, penetrating, sharp, distil'd Oil, cannot easily dissolve the Sulphur, though a mild, gross, and indolent Oil so easily does it, as we saw in the preceding Process; whence it should seem, that the more subtle the Oils are, the more unfit to dissolve Sulphur, as appears remarkably in *Alcohol*. It appears also, that Sulphur dissolves in distil'd Oils, as Salt dissolves in Water, till the Water is saturated; but afterwards is thrown off into Crystals. The explosive Force of this *Balsam* of Sulphur is the most violent of any that is known. This *Balsam* consists of the Oil of Sulphur, the Oil of Turpentine, the perfect Acid of Sulphur, like that made by the Bell, and a fixed Earth. This *Balsam* is an extemporaneous anodyne Remedy in Pains of the Nerves, and an excellent Medicine in sanious, sinuous, weeping, watery, and fistulous Ulcers. Internally taken, it is heating, diuretic, and sudorific. It is recommended for cleansing and healing internal Ulcers; it is hence too highly commended for a Consumption, Ulcers of the Kidneys, and for expelling and dissolving the Stone; but the cautious Physician will recommend only the gentle Medicines, and be afraid of those that operate violently. It is certain, that the Urine is soon impregnated with a violet Smell, upon taking a little of this *Balsam*; and hence also the Tinctures of Fossils, extracted by Art, with distil'd Oils, are safely received for the Tinctures of Metals. This is call'd the *terebinthinated Balsam* of Sulphur; and as other distil'd Oils may be thus mixed with Sulphur, the *Balsams*, so prepared, receive their Names from the distil'd Oil employed, which gives them their prevailing Odour. Hence the *Balsamum Sulphuris anisatum, succinatum, and juniperinum*.

The Balsam of Sulphur with Turpentine is generally directed to be made with common Oil of Turpentine, and not with the æthereal Oil, in the manner following:

Take Flowers of Sulphur, four Ounces; and Oil of Turpentine, one Pound: Place the Mixture in a Sand-furnace; stop the Matrafs loosely with another Glas; apply a small Fire for one Hour; then increase it till the Oil boils gently, in which Degree keep it three or four Hours; then let it cool, and pour off the impregnated Oil from that which is not dissolved.

This is an excellent Medicine for all Diseases of the Breast, and likewise for Ulcerations and Obstructions of the Urinary Passages; but 'tis nauseous to take at first, because of an Emphysema, which wears off with long keeping. Its Dose is from six to fifteen or twenty Drops, upon fine powder'd Sugar, which is the best way to take it, because it will not well mix with any Liquor. After the same manner is a Balsam made with any other Oils, as Aniseeds, which is much used in the same Dose, or any other the Physician may direct; but Care must always be taken, lest it boil over, because it immediately takes and burns so fiercely, as to endanger a House. The Vessel ought therefore to be large enough to be two Thirds at least empty, to give it room to rise without running over. *Quincy's Dispensatory*.

The following extraordinary Case, related by *Hoffman*, may serve as a Caution to those who make Balsam of Sulphur with Turpentine.

Considering how universally Chymistry is cultivated, few I believe are ignorant of the surprising Effects produced by Gunpowder, and the *Pulvis fulminans*; as it is call'd, which is made up of three Parts of Nitre, two Parts of the Salt of Tartar, and one Part of common Sulphur; and also by the *Aurum fulminans*. But it may possibly appear somewhat strange and uncommon, that a distil'd Oil, especially Oil of Turpentine, and in which common Sulphur has been dissolv'd, should, when shut up in a Glas, and exposed to a strong Fire, exert itself with a Degree of Explosion, at least equal, if not superior, to that of Gunpowder. However, in Confirmation of the Truth of this, I shall here give an Account of a memorable Accident which happened on the 7th of November 1698. at *Zellerfeldt* in *Germany*, to the great Surprise and Astonishment of the Inhabitants.

A certain Apothecary putting some *Balsam* of Sulphur, with Oil of Turpentine, into a pretty strong Glas Retort, committed it to a Sand-heat; and the Mouth of the Receiver being strongly shut up, he apply'd a very brisk and intense Fire. Soon after such a violent Noise was heard, as made the People who were in the House imagine, that a Hurricane had arisen of so boisterous and dangerous a Nature, as to threaten the immediate Ruin and Downfall of the House. A certain Apothecary's Apprentice standing by the Mortar in the Area not far from the Laboratory, was suddenly dash'd against the Wall; and another, who was standing within the Gate of the Area, being, as it were, thunderstruck, dropp'd down upon the Ground. But, upon his Recovery, he perceiv'd a very fetid and strongly

sulphureous Smell; and suspecting from this Circumstance, that the Havock and Confusion produced was owing to an incautious and injudicious Management of Sulphur, he ran with all the Haste he could, along with a Neighbour who came to discover the Cause of so uncommon a Noise, into the Laboratory, where they found one half of the Retort remaining in the Sand, and the other half, together with the Neck, forcibly driven a great Way into the Area, through the Kitchen-windows, which it had broken and shatter'd very terribly.

Nor were these the only Effects produced by this impetuous Explosion; for it broke the Door of a Cellar, and forcibly drove it, and some Pots and Dishes, out of the Kitchen into the Area. It also broke another Door which communicated between the above-mentioned Cellar and the Laboratory, and tore a very strong Lock off it; and as from the same Cellar there was an Ascent by a winding Stair-case, built in a manner resembling a spiral Shell, to another Apartment, it also broke open the Door of that, and threw a Chest of Drawers, in which there were some *Dutch* Vessels for holding Confections, upon the Floor. In the same Apartment it also lifted some Vessels of the same Kind from amidst others, and dash'd them on the Floor, and drove both the Windows into the Area. Besides, it shattered the Windows by the Door which opened to the Street; and in a smaller Apartment it broke the Flooring, and threw down the Door, together with the Door-case, Lock, and Hinges; the Windows of this Apartment were also shatter'd. It also threw open the Door of the Apartment where the distil'd Waters were kept; and another Door which communicated with the Laboratory, with great Force and Violence. In the Laboratory itself it only broke the Glasses of the Windows, and loosen'd their Cases, without carrying them along with it.

The People in the Neighbourhood affirm'd, that at the very Instant the Noise was heard, a large Quantity of thick Smoak ascended from the Chimney; that the Noise was equal to that produced by the Discharge of Cannons; and that the explosive Force reach'd all the several Quarters of the Town, and shaked almost every House in the same manner an Earthquake used to do.

This surprising Accident, the incredible Effects of which I saw with my own Eyes, clearly discovers the Genius, Nature, and irresistible Force of Lightning and Thunder; and convinces us, that their piercing and violently concussive Force depends upon the strong Percussion of the Air, whilst it is impetuously agitated and thrust from its Place by means of an igneous, expansive, and highly elastic Principle; so that a whole Column of Air of a considerable Weight produces various and wonderful Effects on Objects that are exposed to it, especially if they are of a hard and resisting Nature, by bruising, breaking, and agitating them; for in reality the surprising explosive Force of Gunpowder, when kindled, is not to be ascribed to Nitre or Sulphur, as the material Cause, but rather to the Column of Air impetuously driven from its Place by the violent rarefactive and expansive Motion of the Air: Hence we see, that Effects of the same Kind with those produced by Thunder and Lightning may, without the Concurrence of Nitre, be produced by a sulphureous Substance close shut up and inflam'd.

Nor is it to be doubted, but the tremulous and concussive Motions of the Earth, commonly called *Earthquakes*, frequently draw their Origins from such a sulphureous Substance being resolved and kindled in subterranean Caverns, where 'tis sometimes found in great Plenty; for 'tis most certain, that no nitrous Salt, which is produced only by the Air, can be ingender'd and form'd in the Bowels of the Earth.

Besides, this Experiment furnishes us with some very useful Cautions; and in a particular manner teaches us, that all inflammable Substances, Oils and Spirits not excepted, especially when close shut up in Vessels, ought to be managed cautiously, and with a due Degree of Fire, lest by the Violence of their explosive Force they should destroy People, or throw down Houses; for we know, that a few Years ago some Chymists in *Leipsic* were convinc'd of this to their Loss, whilst in distilling rectified Spirit of Wine, in a Copper Still, by the Application of too strong a Fire, the Vessels were burst, and the Spirit broke out in a Flame.

For the Illustration of this Experiment we may also bring a memorable Observation publish'd by *Mauchardus* in the *German Ephemerides*. A Cooper put some Measures of dephlegmated Spirit of Wine into a Cask, which held thirteen Firkins, in order to take away the Taste of the new Wood; and, burning Sulphur upon it, he ignorantly shut up all the Holes of the Vessel; upon which such an Explosion was made, that the People of the Neighbourhood imagined an Earthquake had happen'd. By means of this Explosion the whole posterior End of the Cask, though three Inches thick, was not only broken in two Parts, in the transverse Direction of the Boards, but also driven to a Wall at the Distance of four Feet from it with such Violence, that its Fragments were bruised and dash'd in Pieces,

but its exterior End remained entire in the Groove; and at the same time the Bar which was designed to render it the firmer, was driven away with such Violence, that the Iron Nails which fixed it were driven as forcibly into some Boards lying near it, as if a large Hammer had been used for that Purpose. *Hoffmanni Observ. Physico-chymic.*

BALSAMUM SULPHURIS MARTIS, or Balsam of Sulphur with Iron.

Take clean Filings of Iron, or broken Needles, one Pound: Put them into a Cucurbit, with five Pounds of Spirit of Salt. Let it stand in a digestive Heat five or six Days, in which time the Iron will be almost dissolved. Filtre, and remove it into a Glass Retort. Place it in the Furnace, with a great deal of Sand about it. Apply Fire of the first Degree for one Hour, augment it to the second, which continue till no more Drops fall; then change the Receiver, and increase the Fire to the third Degree for one Hour, and so pass on to the Extremity of the fourth, and there keep it four or five Hours, in which Time red Flowers will ascend into the Neck of the Retort, and some yellow Spirit come into the Receiver. Let all cool, and remove the Vessel. In the Receiver there will be about four Ounces of a yellow Spirit; and if the Process be regular, about the same Quantity of foliated red Flowers in the Neck of the Retort. Take of the Flowers, three Ounces; of the yellow Spirit, one Ounce: Put them into a Matrafs, and pour eight Ounces of Oil of Turpentine upon them. Let them digest upon warm Sand for twenty-four Hours; then augment the Fire, so as to make the Matter simmer for two Hours. Let all cool, and separate it carefully from the Fæces, for Use.

This Medicine is by some affirmed to be one of the best Vulneraries in the World, both internally and externally. It is good in all Distempers of the Breast and Lungs, against Gravel, and Ulcers of the Reins. It also cicatrizes and heals Ulcers, outwardly apply'd; but the Shops are too great Strangers to this Remedy, and it is hardly ever prescribed, but very well deserves a Place in Practice. Its Dose is from ten to fifty or sixty Drops. *Quincy's Dispensatory.*

ODORIFEROUS BALSAMS artificially prepared from distilled Oils, Wax, and Pomatum.

Take an Ounce of perfectly pure Pomatum; melt it in a China-vessel over a gentle Fire; then gradually add a Dram of white Wax, fine shaved; and after the two are well mixed, remove the Vessel; and when they begin to thicken, drop in a Dram of essential Oil, keeping the Whole constantly stirring; that it may perfectly mix; after which set the containing Vessel in cold Water, where growing immediately cold, it may keep in the Oil and Spirit. When the Balsam is thoroughly cold, directly put it up into Boxes of Lead or Pewter; which being close stopp'd, it may thus be preserved perfect for Years. Instead of Pomatum and Wax, the express'd Oil of Nutmeg may be here used, after it has been wash'd so long in Water as to become white, tasteless, inodorous, and pure; for this is the common way of preparing these Balsams. If they are desired of a grateful Colour, this may be easily given them by the Addition of a little Pigment. Thus, for Instance, a Scruple of Cochineal, reduced to fine Powder, will tinge an Ounce of the Balsam of an agreeable Purple; or the same Quantity of the inspissated Juice of Buckthorn of a Green; a little native Cinnabar, ground fine, will turn it of a Scarlet; fine Turmeric, of a Yellow; or a little Smalt, of a Blue. Any of these Pigments, therefore, may be used at Pleasure; provided they have no ungrateful Odour, or pernicious Property.

R E M A R K S.

As these Balsams are prepared in the way of rich Perfumes, and in order to raise the languid Spirits, the noblest Oils, either separate, or artificially mix'd, should be used therein; and the principal of this Kind, are those of Baum, Calamus Aromaticus, Cinnamon, Cedar, Citron, Cloves, Jessamin, Lavender, white Lilies, Marjoram, Mace, Nutmegs, Origanum, Oranges, both those of *China* and *Seville*, Roses, Rhodium, yellow Saunders: To which we add Balsam of Peru, and Balm of Gilead, these two being spontaneously fragrant, without Distillation. *Boerhaave's Chymistry.*

BALSAMUM PHILOSOPHORUM is the *Aurum Potabile* of the Chymists.

It would be almost endless to specify all the artificial Balsams which have been contrived by Dispensatory Writers. *Lemery*, in his *Pharmacopée Universelle*, has seventy-three different Sorts, some of these above-specified included; besides

VOL. I.

many others in foreign Dispensatories. *Lemery's* are as follows:

Balsamum Album, Leon. Fioraventi. This is very different from the *Balsamum Album* taken Notice of above.
Balsamum Absinthiacum, seu Stomachicum, Mynsichti.
Balsamum ad Nervorum puncturas, de La Framboisiere.
Balsamum Angelicæ, Sennerti.
Balsamum Angelicæ reformatum.
Balsamum Anodynum vel Podagricum, Batei.
Balsamum Antipodagricum, Philip. Mulleri.
Balsamum Apoplecticum.
Balsamum Apoplecticum reformatum.
Balsamum Apoplecticum, Etmulleri.
Balsamum Arcæi.
Balsamum Aromaticum, Mynsichti.
Balsamum aut Unguentum Sympatheticum, Batei.
Balsamum Balsaminæ.
Balsamum Bezoardicum.
Balsamum Cephalicum, Angeli Salæ.
Balsamum Cephalicum Italicum.
Balsamum Christi Paracelsi.
Balsamum Christi Paracelsi reformatum.
Balsamum Cordiale, Angeli Salæ.
Balsamum Cordiale, Sennerti.
Balsamum Dolorem levans.
Balsamum Equitis Sancti Victoris.
Balsamum Galbanetum, uterinum, Sennerti.
Balsamum Guidonis.
Balsamum Heurnii.
Balsamum Hispanicum.
Balsamum Hollerii.
Balsamum Hypnoticum, Mynsichti.
Balsamum Hystericum, Lud. Penicher.
Balsamum Jacomo de Pinto.
Balsamum Italicum.
Balsamum Josephi Balsame, Equitis Sanctæ Crucis.
Balsamum Loimicum Hemisfanum.
Balsamum Lucatelli.
Balsamum Magistrale, Batei.
Balsamum Medicorum Florentiæ.
Balsamum Mirabile, Fulleri.
Balsamum Mirabile, Renodei.
Balsamum Mumie, Laz. Riverii.
Balsamum Nephriticum, Fulleri.
Balsamum Nervale.
Balsamum Palmeum.
Balsamum Paralyticum, Mynsichti.
Balsamum Paralyticum, Batei.
Balsamum Polychrestum.
Balsamum Polychrestum, Jacobi Le Mort.
Balsamum Puerorum Dentientium.
Balsamum Samaritanum.
Balsamum Sanguinem sistens.
Balsamum Sarcoticum.
Balsamum Saturni.
Balsamum seu Oleum Benedictum, Apparitii.
Balsamum seu Oleum tranquillum, Abbatis Rousseau.
Balsamum Solimani.
Balsamum Spasmodicum, Mynsichti.
Balsamum Spinale, Batei.
Balsamum Stypticum, Mynsichti.
Balsamum Sulphuris Anisatum.
Balsamum Sulphuris Antimonii.
Balsamum Sulphuris Compositum.
Balsamum Sulphuris Rulandi.
Balsamum Sulphuris Rulandi, reformatum.
Balsamum Sulphuris simplex seu terebinthinatum.
Balsamum vel Butyrum succini, Batei.
Balsamum Venereum, Mynsichti.
Balsamum Uterinum aliud.
Balsamum Vulgare.
Balsamum Vulnerarium, Fallopii.
Balsamum Vulnerarium, Mindereri.
Balsamum Zibethæ, Mynsichti.

BALUX. A Name for the Sand of some Rivers, which is mix'd with Gold.

BAMBALIO. A Man that stammers, or lisps.

BAMBAX, or BOMBAX. Cotton.

BAMBU. The ARUNDO TABAXIFERA, which see.

BAMIA. The same as ALCEA INDICA, which see.

BAMMA. The same as Embamma.

BAN. The Name of an Egyptian Plant, call'd also CALAF, which see.

BANANA, Offic. Raii Hist. 2. 1375. *Musa caudice maculato, fructu recto rotundo breviori odorato, Cat. Jam. 192. Sloan. Hist. 2. 147. Ficoides, seu ficus Indica, longissimo latissimoque folio, caule maculato, fructu minore, H. Beaum. 21. Boerh. Ind. A. 2. 171. Musa fructu cucumerino breviori, Plum. Nov. Gen. 24. Senoria, Jons. D. 143. Pacoira, Pif. (Ed. 1658.) 154.*

Pacoba, Ejusd. (Ed. 1648.) 76. *Pacoeira Lusitanis*, Marcg. 137. THE BANANA-TREE.

The Virtues ascribed to the Fruit of this Tree, are, to nourish much, to excite Urine, and provoke to Venery. It grows in America.

BANANIERA. A Name for the *Ficus Indica*.

BANAUSIA, *Βαναυσία*. An illiberal or mechanical Art. *Hippocrates*, in his Treatise *περὶ διαγνῶσεως*, uses this Word, where it seems to mean dishonourable Artifice, or low Craft, inconsistent with the Character of a Physician, or a Gentleman; and only practised by Quacks and Pretenders, with a View of concealing their Ignorance.

BANDURA *Congalensium Gentianæ Indica species*, P. Amman. *Planta mirabilis destillatoria*, Grimmii.

It is like Gentian in Seeds and Seed-vessels; but is, besides, remarkably conspicuous for a foliaceous Sheath, or Follicle, representing a Penis, which is sometimes much above a Foot in Length, and much thicker than a Man's Arm: It hangs by a Leaf, and is half full of a sweet potable Liquor.

To this Description *Grimmii* adds, in the *German Ephemerides*, that the Root attracts the Moisture of the Earth, which, by the Benefit of the Sun's Rays ascending into the Plant, flows down, by the Stalks and Fibres of the Leaves, into this natural Vessel, as into a Reservoir, till it is exhausted for Man's necessary Use. These Receptacles, till they come to full Maturity, are closed up at the Top with a fine Cover, which sometimes falls abroad at the Pressure of the Fingers, and yields the Possession of this sweet, limpid, lovely, cool, and comfortable Liquor; and about six or eight of these Receptacles are sufficient to quench a Man's Thirst, with all the Pleasure imaginable.

The Medicinal Virtues are as follows: The Root is of an astringent Quality; the Herb is cooling and moistening; and the express'd Juice may be of Service, with some proper distill'd Liquor, internally, in burning Fevers; and externally in Inflammations, Erysipelas, and the like.

It grows not far from Columbo, in moist and shady Woods. *Raii Hist. Plant.*

BANGUE, Offic. Park. 1624. Garz. ab Hort. 233. C. à Costa, 290. *Raii Hist.* 1. 159. *Bangue Cannabi simile*, J. B. 3. 440. *Cannabis Indica trifoliata*, frve *Bangue Indorum*, Pluk. Almag. 80. Phytog. 273. *Cannabis peregrina*, gemmis fructuum longioribus, *Bangue dicta*, Hist. Oxon. 3. 433. *Cannabi similis exotica*, C. B. 330. Com. Flor. Mal. 68. *Althæa alia species, foliis Cannabinis*, à *Garzia ab Horto Bangue dicta*, Herm. Hort. L. Bat. 26. *Kalengi Cansjava*, H. M. Tom. 10. 119. Tab. 60. *Tjjeru-Cansjava*, Ejusd. 121. Tab. 61. BANGUE. *Dale*.

Acosta, who has describ'd it, says, it is almost like Hemp, has a square Stalk five Palms high, of a watry green Colour, hard to break, but not so hollow as the hempen Stalk; but the Rind of it is as easy to be drawn into Threads as that of the other. The Leaves are like those of Hemp, green above, and cover'd with a Down underneath, and have an earthy and insipid Taste.

The *Indians*, says *Acosta*, eat the Seed and Leaves, to increase their Vigour in Love-affairs, and to excite an Appetite to their Food. The Nobles, and chief military Officers, when they are disposed to forget their Toil, and to sleep in perfect Ease and Security, take of the Powder of the Seed and Leaves as much as they think sufficient, and thereto add an Areca, or green Indian Hazel-nut, and as much Opium as they think fit, and eat them all together with Sugar. If they desire to be entertain'd with Variety of Scenes, and Images of Things, in their Sleep, they add some of the choicest Camphire, Cloves, Nutmegs, and Mace. If they have a mind to be merry, witty, and to indulge their Amours, they add Ambergris and Musk, and make them all into an Eleatuary with Sugar. It is by many affirm'd, that the Seed and Leaves are very effectual in promoting Lust; whence, says *J. Baubine*, it appears, that this Herb has no Affinity with Hemp, tho' it be very much like it; since Hemp, according to *Dioscorides*, is of an hot and dry Nature, and extinguishes amorous Desires and Motives.

Ray, from whom this Account is taken, says, he learned from Sir *Hans Sloane*, that it is a different Plant from Hemp.

It grows in *Indostan*, and other Parts of the *East-Indies*, where it is principally in Use.

BANILIA. The same as VANILIA, which see.

BANISTERA, *Houft*.

This was so call'd from a famous Botanist, who lost his Life in the Search of Plants in *Virginia*. We have no English Name for this Plant.

The Characters are;

It hath a papilionaceous Flower, which is succeeded by one naked Seed, whose outer Membrane is extended into a winged Leaf, after the manner of the Maple-seed.

Miller mentions five Species of this Plant.

These Plants are all of them Natives in the warmest Parts of America, where they grow in the Woods, and twist themselves round the Trunks of other Trees or Plants which grow near them; some of them grow four or five Feet high, and

others will rise to the Height of ten, twelve, or fourteen Feet; but must be supported by other Plants, for they do not grow erect.

The first, second, and third Sorts grow plentifully in the Woods in *Jamaica*; but the other two Sorts were collected by the late Dr. *William Houstoun* at *Carthage*, in the *Spanish West-Indies*. These Plants were call'd Maples, by Sir *Hans Sloane* and Father *Plumier*, from the Resemblance which their Seeds have to those of the Maple; but the Flower differing so remarkably from that of the Maple, the late Dr. *Houstoun*, with good Reason, separated it from that Genus, and gave the Name of *Banistera* to them. *Miller's Dictionary*, Vol. 2.

BAOBAB, or rather BAHOBAB. An African Fruit, of which *Prosper Alpinus* gives the following Account: *Bahobab*, says he, is a Fruit as large as a Lemon; it resembles a Gourd, and contains black hard Seeds, whose Extremities incline, as it were, to the Form of a Demi-arch. Its Substance also resembles that of the Gourd, which, when newly pull'd, is moist, red, and of a pretty grateful acid Taste. This Fruit, when newly taken from the Tree, is very grateful to the Taste; and in those Parts of *Ethiopia* which are scorched with insupportable Heat, the richer Sort of the Inhabitants correct it acid Taste with Sugar. It is a great Cooler, and a very efficacious Quencher of Thirst. I am also inform'd, that in *Ethiopia* 'tis used against all hot Disorders, and against all putrid Fevers; but more especially those of the pestilential Kind. They have various Ways of using it in these Intentions; for they either eat its Pulp with Sugar, or drink its express'd Juice with Sugar, or take a proper Dose of a Syrup prepar'd from it. At *Grand Cairo* also, where the Fruit cannot be had fresh, they use its Pulp, reduced to a Powder, which is like an Earth of a reddish Colour, and has an astringent acid Taste, not unlike that of *Lemnian Earth*. This Powder is also very much used by many against pestilential Fevers, Spittings of Blood, Lienteries, Dysenteries, and the Hepatic Flux; as also for stopping immoderate Fluxes of the Menfes. Some for these Disorders prescribe a Drain of this Earth, reduced to a fine Powder, and dissolved in Plantain-water. Others exhibit it in Decoctions, and others in Infusions. I myself saw one of the Trees, which bears this Fruit, in a certain Nursery; and it very much resembled an Orange-tree, both with regard to its Leaves, its Bulk and Shape. *Prosper Alpinus de Plantis Egypti*.

There is a sort of Stone also, which, from its Resemblance to this Fruit, is call'd BAOBAB LAPIDEUM.

BAPTISECULA. A Name for the CYANUS MINOR.

BAPTISTERIUM. A Font, or Bath, to wash in.

BAPTUS. A bituminous soft Fossil, of an agreeable Smell, mention'd by *Agricola*.

BARA. *Josephus*, in the third Chapter of his seventh Book concerning the Wars of the Jews with the Romans, gives us a very fabulous and romantic Account of this Plant, in the following Words: "On the North Side, says he, of that Valley which encompasses *Macheron*, at the Place call'd *Bara*, there is a Plant bearing the same Name, which resembles a Flame. Towards the Evening it emits resplendent Rays, and retires when any Attempts are made to lay hold on it. The only Means of preventing its Escape, is, to throw the Urine, or the menstrual Blood, of Women upon it. One cannot touch it without dying, unless he has some of the Root of the same Plant in his Hand. But there is still another Method discover'd of gathering it without Danger: They dig all around it, till only a small Part of its Root remains fix'd in the Earth; to this they tie a Dog, which, upon making an Effort to follow the Person who tied him to it, tears up the Plant, and dies immediately; and thus, by losing his own Life, saves, as it were, that of his Master. After this the Plant may be safely handled; and has a particular Virtue of removing from People all Dread of the Dangers they may be afterwards exposed to in gathering it: For Demons, which are nothing else but the Souls of the Wicked, which enter into living Men, and which would undoubtedly kill them, if proper Remedies were not used, are dispossest and thrown out, as soon as this Plant is applied to the miserable Patients."

BARACH PANIS. *Rulandus* explains this by *Nitrum Salis*.

BARAS. In *M. A. Severinus*, signifies the same as ALPHUS, or LENCE.

BARATHRA, *Βαράθρα*. The Memphitical Caves, or *Charonæan Pits*, as they are call'd by *Strabo*, go by this Name.

BARBA. The Beard, a Part so well known, that it requires no Description.

BARBA HIRCI. See TRAGOPOGON.

BARBA JOVIS.

The *Barba Jovis* of *Caspar Baubine*, the *Jovis Barba pulchre lucens* of *John Baubine*, the *Jovis Barba frutex* of *Parkinson*, is the Silver Bush. *Raii Hist. Plant.*

I don't find any Medicinal Virtues attributed to it.

The *Barba Jovis Plinii forte Gesneri*, is the *Coggygia*, a Species of Sumach. *Parkinson*.

The *Barba Jovis Plinii* some take to be the *Oleaster Germanicus*. *Parkinson*.

The *Sempervivum majus* is also call'd by this Name. *Raii Hist. Plant.*

BARBAREA, Offic. Ger. 188. Emac. 243. *Raii Hist.* 1. 809. J. B. 2. 868. Mer. Pin. 14. *Barbarea*, *Pseudo-bunias*, Merc. Bot. 1. 23. Phyt. Brit. 14. *Barbarea*, *Carperitaria*, Chab. 278. *Barbarea flore simplici*, Park. Theat. 819. *Eruca lutea latifolia*, five *Barbarea*, C. B. Pin. 98. *Raii Synop.* 3. 297. *Eruca latifolia lutea*, seu *Barbarea major & minor*, *Hist. Oxon.* 2. 230. *Nasturtium Hybernium*, Thal. 80. *Sisymbrium Erucae folio*, flore luteo, Elem. Bot. 192. Tourn. Inst. 226. Boerh. Ind. A. 2. 15. Dill. Cat. Giff. 64. Rupp. Flor. Jen. 63. Buxb. 305. WINTER-CRESSES. *Dale*.

It is a Species of *Sisymbrium*, which sends forth many Leaves to the Height of a Foot and a half, spreading, hollow, bearing Leaves less than those of Radish, and having some Resemblance to those of Cresses, of a blackish-green Colour, and shining: The Flowers are little, yellow, each consisting of four Leaves, disposed in the Form of a Cross; they are succeeded by little Pods, which are long, round, and tender, containing reddish Seed: The Root is oblong, moderately large, of a sharp Taste; it grows in the Fields, and is cultivated in the Kitchen-gardens for Sallad. It contains a great deal of essential Salt and Oil.

It is deterfive and vulnerary; it excites Urine; it is very good for the Scurvy, for the Diseases of the Spleen, and for the nephritic Colic. It is used externally and internally. *Lemery des Drogues*.

This Herb grows spontaneously in moist and sandy Places, upon old Walls, in Cross-ways, Meadows, and on the Banks of Rivulets. It has the same Virtues and Qualities with the Cresses. It is good for the Spleen, and cures the Scurvy, and Wounds. It is sometimes used all alone, and sometimes mix'd with other Herbs. Its Leaves, bruised, and infused with Wine and Sugar, are excellent for the Scurvy. The express'd Juice of the Herb cures a Defluxion of fetid and scorbutic Humours in the Mouth, Bleedings and Loosenes of the Teeth, and Excrecences of the Mouth, if the Gums are rubb'd with it. It is of a drying Quality, and cures impure and fetid Wounds, when mix'd with other vulnerary Ointments. The Herb, boil'd in Wine or Milk, cures Sciatic Pains, if Lint is soak'd in it, and apply'd hot to the Part affected. Of it, together with tepid Water of unripe Oranges, an excellent Medicine is prepar'd, against the Gout of the Feet and Knees, or Sciatic Pains. *Chabr.*

The Seed provokes Urine, and expels the Stone; and may also be used in Sinapisms and Veficatories. *Barthol. Zorn, Botanolog.*

BARBARUM. An Epithet for a Plaster for green Wounds, in *Scribonius Largus*.

BARBOTA, the Barbut. A small River-fish, with a very large Head. It is generally about six Inches long, or more.

In the Choice of this Fish, take that which is well-fed, tender, delicious, and agreeable to the Taste. It yields pretty good Nourishment, and is easy enough of Digestion.

This Fish is a little too soft and viscous. The Row, as well as that of the Eel-powt, is not to be eaten; for it will work both upwards and downwards.

It contains much Oil, Phlegm, and volatile Salt.

It agrees, at all times, with young People of a hot and bilious Constitution.

R E M A R K S.

This is a small River-fish, well known to Fishermen, that lives upon Mud and Slime: Several nice Palates there are, who do not much esteem it, because, they allege, it tastes of the Ordure with which 'tis fed.

Its Liver is well-tasted, and very large, in Comparison to the Bigness of the rest of its Body. Some Authors assure us, there is no other but this Part of the Fish, that is good to be eaten. *Lemery on Foods*.

This Fish is very rare in England; but is sometimes found in the River which runs by *Tamworth* in *Warwickshire*.

BARBUS, Offic. Aldrov. de Pisc. 597. Charlt. de Pisc. 37. Schonf. Ichth. 29. Gesn. de Aquat. 123. *Raii Ichth.* 259. Ejsid. Synop. Pisc. 121. Rondel. de Pisc. 2. 194. Salv. de Aquat. 86. *Barba & Barbus*, Mer. Pin. 189. *Barbo*, Schrod. 5. 325. *Myxus fluviatilis*, *Barbus*, Bellon. de Aquat. 301. THE BARBEL. *Dale*.

The small Barbels are to be preferr'd before the large, because they are easier of Digestion. They should be also taken in pure running Waters. There are two Sorts of them, one of which is bearded, and the other not.

This Fish is very nourishing, and even proves solid and durable Food enough. It is also look'd upon to be good for the Colic, Piles, and Stinging of venomous Creatures. They also pretend, that it allays Venereal Inclinations: But I am not certain, that all these Virtues, which are attributed to it, are grounded upon solid Experiments.

This Fish is a little hard, and not easily digested; and a certain Author says, that the Wine wherein it hath been steep'd and boil'd, makes Men and Women barren.

It contains much Phlegm, Oil, and Salt, that is almost all volatile.

It agrees, at all times, with young bilious People, those who have a good Stomach, and are used to much Exercise of Body.

R E M A R K S.

Barbel is a Fish of an oblong Form, and middle-sized, and beset with large and tender Scales. It was antiently consecrated to *Diana*. It breeds three times a Year. It is by some call'd *Trigla*, according to this Verse:

Accipiunt Trigla terno cognomina partu.

This Fish is a little hard to be digested, by reason of some gross Juices contain'd therein: In the mean time, these same Juices make it very nourishing, and good durable Food. It has a good Taste; and the old *Romans* esteem'd it very much, which made them put it amongst those that went at an excessive Price, as several faithful and true Historians have assured us. The Liver is that Part of the Fish that is most esteem'd for the Goodness of its Taste, and the Head next. But *Galen* speaks slightly both of the one and the other, not only upon the account of the Taste, but also Health. *Lemery on Foods*.

The Spawn of the Barbel, at some Seasons of the Year, is a most violent Vomit and Purge.

BARDADIA. A Pound, *Libra*. *Rulandus*.

BARDANA MAJOR, *Lappa*, Offic. *Bardana major*, Ger. 665. Emac. 809. *Raii Hist.* 1. 332. Synop. 88. Schw. 27. *Bardana vulgaris major*, Park. 1222. *Lappa major*, *Arcium Dioscorides*, C. B. 198. *Hist. Oxon.* 3. 146. Tourn. Inst. 450. Boerh. Ind. A. 146. Dill. Cat. 168. Buxb. 179. *Personata five Lappa major aut Bardana*, J. B. 3. 570. *Personata*, *Lappa major*, *Bardana*, Chab. 514. BURDOCK. *Dale*.

The Root of the great Burdock runs down deep into the Earth, pretty large and thick, of a blackish Colour on the Outside, and white within, from which spring many large Leaves cover'd with a hoary Whiteness underneath, and green above; of a roundish Shape, yet pointed at the End, and hollow'd in, next the Foot-stalk, indented about the Edges, and many times so large as to cover the Head and Face from the Sun. The Stalks are large and thick, full of a whitish Pith, somewhat downy, and often of a purplish Colour; they are divided into many Branches, on which grow smaller Leaves, and on their Tops a great Number of scaly Heads or Burs, the End of every Scale terminating in a hooked Point, by which it sticks very tenaciously to Garments: From the Middle of these Heads arise hollow fistular Flowers of a purple Colour, and they are succeeded by oblong, flattish, and angular brown Seed. This Plant grows every-where by the Way-sides; and flowers in June and July. The Roots, Leaves, and Seeds, are used.

The Roots are sudorific and alexipharmic, and good in malignant Fevers, and are therefore put in Quantity into the *Aqua Theriacalis*. They are likewise useful against the Gout, and Pains in the Limbs. The Leaves, boil'd in Milk, and apply'd as a Cataplasm, are good for the same Distemper. They are likewise good for Burns and Inflammations, and are one of the Ingredients of the *Unguentum Populneum*. The common People frequently apply them to the Feet and Wrists in Fevers. The Seed, powder'd, and given in white Wine, is good to provoke Urine, and help Fits of the Stone. *Miller's Bot. Off.*

BARDANA ARCTIUM, Offic. *Lappa major montana*, capitulis tomentosis, seu *Arctium*, C. B. 198. Tourn. Inst. 450. Boerh. Ind. A. 146. Dill. Cat. 162. Buxb. 174. *Hist. Oxon.* 3. 147. *Bardana major altera*, Ger. Emac. 810. *Raii Hist.* 1. 332. *Bardana major*, lanuginosis capitulis, Park. 1222. *Bardana montana*, Schw. 28. *Personata seu Lappa altera*, cum capitulis villosis, Chab. 514. *Personata altera*, cum capitulis villosis, J. B. 3. 571. *Personata montana*, capitulis magis tomentosis, *Raii Synop.* 88. WOOLLY-HEADED BURDOCK.

It grows in ruinous Places, and by the Sides of Paths; and flowers in July.

The Root and Seed are used in Medicine, and agree in Virtues with the former. The Root, with the Seed, boil'd in Wine, mitigates the Tooth-ach, if the Decoction be held in the Mouth; and the same is used to foment Burns and Chilblains. It is drank in Wine for the Sciatica and Strangury. *Dale*.

BARDANA, Offic. *Bardana minor*, Ger. 664. Emac. 809. Schrod. 4. 25. Schw. 28. *Lappa minor*, *Xanthium Dioscoridis*, C. B. 198. *Xanthium*, Elem. Bot. 348. Tourn. Inst. 439. Boerh. Ind. A. 2. 103. *Xanthium*, seu *Lappa minor*, J. B. 3. 572. *Raii Hist.* 165. Synop. 55. Chab.

514. Hist. Oxon. 3. 604. Park. 1223. Buxb. 342. *Marrullumetæ Malab. Aët. Philosoph. Lond. No. 224. p. 318.*
LOUSE-BUR. Dale.

This is a much smaller and lower Plant than the common Burdock, having usually but one Stalk, and that not very much branched, growing somewhat more than a Foot high, a little downy, round, and full of black Specks; having its Leaves growing on long Foot-stalks, which are in Shape like those of Marshmallows, but broader, and not so long, waved about the Edges of a yellow-green Colour, somewhat rough on both Sides. The Flowers grow towards the Top, of a greenish Colour, and staminous. The Seeds do not succeed the Flowers, but come forth among the Leaves; being long and roundish, full of large hooked Spines, divided into two Parts, each holding one long Seed. The Root is small, fibrous, and perishing, after it has ripened the Seed. It grows but in few Places in England; and that only in a rich and fat Soil; particularly, it is found on the small Common near Dulwich, and gives its ripe Seed in September.

It is but very seldom that this Plant is used, tho' some commend it against scrophulous Tumors, the Juice being taken inwardly, and the Leaves apply'd to the Swellings. *Matthiolus* extols it much, as an Herb of great Service against the Leprosy. *Miller Bot. Off.*

BARLERIA.

This Name was given to this Genus of Plants, by Father Plumier, in Honour of *Jacobus Barlier* of Paris, who was a famous Botanist. We have no English Name for it; but the Inhabitants of the Island of Jamaica call it *Snag-dragon*.

The Characters are;

It hath a personated Flower, consisting of one Leaf, whose upper Lip or Crest is erect, but the under is divided into three Parts; from whose Empalement rises the Pointal in the hinder Part of the Flower, which afterwards becomes a quadrangular, oblong, membranaceous Fruit, with one Capsule, in which are lodged flat roundish Seeds.

Miller enumerates two Species of this Plant.

I don't know, that any Medicinal Virtues are attributed to it.

BARNA. *Johnson* explains this by *Vas Vitreatum*. I suppose he means a glaz'd Vessel.

BARNABUS. *Rulandus* explains this, if it may be call'd explaining, by *Barnaas. Sal Petre Urinarium; Urina Salis Petre; Acetum acerrimum.*

BARNACLES. These are Birds very common in the North of England and Scotland, remarkable for being the Subject of an extravagant Fable, gravely related by *Gerard*, which is, that they are produced from the Shell of a Fruit, which, falling into the Sea, opens and lets out the young Barnacle.

The Barnacle is a very rank, and highly alcalescent Food, and esteem'd by some as a great Dainty.

I don't know whether it is the same as the *Vulpanser*, or different. See VULPANSER.

BAROMETRUM, a Barometer. An Instrument for measuring the Gravity of the Air.

BARONES. Small Worms, called also *Nepones* by *Johannes Anglicus*.

BAROS, βαρος. Properly, Gravity. *Hippocrates* frequently uses this Word, to express an uneasy Sensation of Weight or Gravity in any particular Part.

Baros signifies vehement, violent, acute, or heavy, in Medicinal Writers.

BARURAC, Glas. *Rulandus*.

BARYECOA, βαρυκοία, from βαρύς, dull, heavy, and αἶσα, hear. Dulness of Hearing.

BARYOCOCCALON. A Name for the *Stramonium*, Thorn-apple, which see. *Blancard*.

BARYPHONIA, from βαρύς, dull, heavy, and φωνή, the Voice. Difficulty of Speaking. *Blancard*.

BARYPICRON. A Name for the *Absinthium Latifolium*. *Blancard*.

BASAAL. The Name of an Indian Tree, which grows in sandy Places, especially near *Cochin*. It flowers, and produces Fruit, once a Year, from the first Year of its Bearing to the fifteenth.

A Decoction of the tender Leaves in Water, with an Addition of Ginger, is used as a Gargarism in Affections of the Fauces. The Berries fry'd in Butter are made into an Ointment, with which they anoint the Forehead and Temples of those who are affected with a Phrensy, and with very good Effect, as they say. The Kernels of the same kill Worms. *Ray, Hist. Plant. 1570.*

BASALTES. A rough Stone, of the Colour, and almost the Hardness, of Iron, which renders it difficult to be cut.

BASANISMOS, βασανισμός, from βασανίζω, a Touchstone. It signifies the Investigation, Examination, or Trial of a thing.

BASCANON, βασκανον, Fascination.

BASELLA. Climbing Nightshade, from *Malabar*.

The Characters are;

It hath an annual Root: The Stalks are climbing, and of a purple Colour: The Leaves are round, thick, succulent, and of a dark-green Colour. From the Foot-stalk of the Leaves are produced Spikes of Flowers, which are Male and Female; in different Parts of the Spike: The Female Flowers are succeeded by flat Berries, in each of which is contained one hard Seed.

Miller enumerates three Species of this Plant. There is no Medicinal Virtue attributed to this Plant, that I know of.

BASIATIO. The same as AMPLEXATIO, which see.

BASILAREOS. A Name for the *Os Cuneiforme*.

BASILEION; βασίλειον. An Epithet for a Collyrium, described by *Ætius*.

BASILICA VENA. The Basilic Vein in the Arm. See VENA.

BASILICON. An Epithet for an Ointment, or Cerate, described in *Ætius Tetrabiblos, 4. Serm. 3. Cap. 21.* very little different from that of the College. *Quincy* is therefore mistaken, when he attributes the Invention of it to *Mesue*. It is thus prepared as directed by the College:

Take of yellow Wax; fat Refin, and Pitch, of each one Pound and a half; of Oil, nine-Ounces. Mix them together into an Ointment by melting; *S. A.*

It hath been continued the same thro' all the officinal Dispensatories, especially those of our College, and is much used to incarn Wounds; tho' of late our Surgeons begin to substitute, for such Intentions, Dressings that are not so liable to produce Fungosities; one of which is the following.

UNGUENTUM BASILICON FLAVUM; The Yellow Royal Ointment.

Take of yellow Wax, and Refin of the Pine-tree; of each three Pounds; of *Strasburg* Turpentine, twelve Ounces; of Linseed Oil, three Pounds six Ounces. Melt them over a slow Fire, and then put in three Pounds of *Burgundy* Pitch, and let them all melt together into an Ointment, *S. A.*

This was never before in any officinal Dispensatory; and it hath the Reputation of a very eminent Person for its Author. It seems, if any Regard was had in its Contrivance to Example, to have chiefly followed the *Unguentum Aureum* of *Mesue*; but this is a much neater Composition than that; tho' both pretty nearly agree in Intention. *Nicolaus* hath, indeed, a Prescription under the Title of *Unguentum Basilicon Citrinum*, which the *Augustan* Dispensatory hath transcribed; but that is a very injudicious Medley of Ingredients of different Virtues, notwithstanding *Zwelfer* takes a mighty deal of Pains, in his Animadversions, to direct the manner of compounding it. All the *London* Dispensatories, before the last, have likewise retained from *Mesue* an *Unguentum Basilicon majus*; but it is a most perplexed Mixture, and never used, and therefore very justly omitted here. *Quincy's Dispensatory*.

Basilicon is also an Epithet for a great many Compositions, to be found in the antient Medicinal Writers. It signifies Royal.

BASILICUM.

Ocimum Basilicum, Offic. *Ocimum medium citratum*, Ger. 547. Emac. 673. *Ocimum vulgatius*, C. B. Pin. 226. *Rajj Hist. 1. 547.* Tourn. Inst. 204. Boerh. Ind. A. 170. Rupp. Flor. Jen. 178. *Ocimum medium vulgatius & nigrum*, J. B. 3. 247. Chab. 419. *Ocimum vulgare majus*, Park. Theat. 18. *Basilicum, seu Ocimum, medium vulgatius*, Hist. Ox. 3. 406. COMMON BASIL.

The Basilicon of *Hippocrates* is, by most Interpreters, thought to be the *Ammi*, Bishops-weed. But what now goes by this Name, is a different Plant.

This is a tender Plant, growing about a Foot high, branched from the Bottom, having two succulent, roundish-pointed Leaves, set opposite at a Joint on pretty long Foot-stalks, in Shape like those of Pellitory of the Wall, but larger; little or nothing indented about the Edges; the Stalks are four-square, somewhat heavy, not very full of Leaves, having on their Tops thin verticillated Spikes of white galeated and labiated Flowers, having two small, round, green Leaves set under each Whorle of Flowers. The Calyx is large and open, containing four, small, round, black Seeds. The Root is small, fibrous, and perishing with the first Frosts. The Leaves and Tops have a pleasant fragrant Smell, especially when gently rubbed. It is sown in Gardens, and flowers in July and August.

Basil, tho' it has a fragrant, and to most a pleasant Smell, is but little used in Physic. The Antients condemned the inward Use of it, as hurtful to the Sight. *Schroder* says, it cleanses the Lungs of Phlegm, and provokes the Menfes. It is an Ingredient in the *Aqua Bryonia Composita*, or hysteric Water. *Miller's Bot. Off.*

Hoffman says, that the Chymical Oil of Basil is extremely fragrant, and friendly to the Head and Nerves.

BASILIDION. The Name of a Cerate describ'd by *Galen*, and recommended for the Itch.

BASILIS. The Name of a liquid Collyrium mention'd by *Galen*.

BASILISCUS, the Basilisk. A very poisonous Serpent, which is the Subject of many extravagant Fables. A Bird also is fabled to be produced from the Egg of a Cock, which is the most poisonous thing in Nature.

In Chymistry, the Philosophical Sublimate Mercury is call'd *Basiliscus*. And a Stone goes by this Name, which some Chymists have boasted would kill Mercury, and congeal it into Silver, without Fire. The Philosopher's Stone is also called by this Name. *Paracelsus* names the Venereal Disease *Basiliscus*.

BASIOGLOSSUS. One of the Heads of that Muscle of the Tongue call'd *CERATOGLÖSSUS*, which see.

BASIS, *βᾱσις*, from *βαίω*, to go. The Support of any thing, upon which it stands, or rather goes, according to the original Import. Thus *Hippocrates* calls the Sole, or Bottom of the Foot, the *Basis of the Foot*, in his Treatise de Articulis. The superior Part of the Heart is, however, call'd its *Basis*; to distinguish it from the Apex, or small Point.

The *Basis* of a Compound Medicine, is that Ingredient which enters it in the largest Quantity; or sometimes, which is of the greatest Importance.

BASIUM, a Kiss. I don't know, that this Word belongs more properly to Medicine, than to any other Science; but it is sometimes mentioned as a ready way of taking Infection in all contagious Distempers; especially in Venereal Disorders, when an Ulcer resides in or near the Lips, of which there are some Instances.

Figuratively it signifies an extemporaneous Tincture of *Mars* and *Venus*, that, is of Steel and Copper, invented by *Cloffeus Castellus*.

BATEMAN'S PECTORAL DROPS. See *BALSAMUM ANODYNUM*.

BASSI COLICA. The Name of a Medicine in *Scriverius Largus*, compounded of Aromatics and Honey. *Marcellus Empiricus* mentions it. It is taken notice of also by *Aetius* and *Aetnarius*.

BASURA. *Rulandus* explains this by *Seeten*.

BATHMIS, *βάθμις*, a Seat. Basis, or Foundation. It is used by *Hippocrates* and *Galen* to express a Sinus or Cavity of a Bone, which receives the Protuberance of another at the Joints; particularly those at the Articulation of the Humerus and Ulna.

BATHRON, *βάθρον*, or *βάθρων*, as it is written in *Hippocrates's* Treatise de Flatibus. The Seat, or Support. Thus, in the Treatise just quoted, it is said, that the Air is the Support of the Moon.

Bathron also signifies the *Scammum Hippocratis*, an Instrument invented for the Extension of fractur'd Limbs. The Surgeons have laid it aside at present, and make use of more commodious Instruments. The Curious may see a Description of it in *Oribasius de Machinamentis*, Cap. 29. *Scultetus* also describes it.

BATHYPICRON. A Name for the *Absinthium latifolium*. *Blancard*.

BATHYS. A Sort of Cheese which People of Distinction in *Rome* used to eat. *Galen* says it is the best Sort of Cheese; that is, that, of all Sorts of Cheese, it is the best Aliment. *De Aliment. Facultat. Lib. 3. Cap. 17.*

BATIA. A Retort.

BATINON MORON. The Raspberry. *Blancard*.

BATIS, *βατίς*. The *Critimum* is thus called, and also *Baticula*.

Batis is also the *Thornback*. See *RAIA*.

Hippocrates makes mention of this Fish; and directs the Tongue as a Pessary to be used in a Redundance of the Menes.

BATITURA. The same as *BATTIPURA*, which see.

BATOS, *βάτος*, a Bramble, or Briar.

BATRACHIOIDES. This is, according to *Blancard*, a Species of *Geranium*, resembling the *Ranunculus*.

BATRACHITES. A Sort of Stone, which takes its Name from *βάτραχ*, a Frog, as the *Busonites* does from the Toad. It is of no Use, that I know of.

BATRACHIUM. A Name for the *RANUNCULUS*, which see.

BATRACHUS, *βάτραχος*, is an inflammatory Tumor, which rises under the Tongue, especially in Children. *P. Eginet. Lib. 3. Cap. 26.*

It is a Tumor of the Parts under the Tongue, especially of the Veins. *Aetius, Tetrab. 2. Serm. 4. Cap. 37.* See *RANULA*.

BATTATAS HISPANICA.

Batatas, Offic. C. B. Pin. 91. J. B. 2. 790. *Batatas planta peregrina*, *Indica-Camotes*, *Amotes*, & *Alis etiam dicta*.
VOL. I

Clusii, Chab. 259. *Battatas occidentalis India*, Park. Theat. 1383. *Battatas Hispanorum*, Parad. 517. *Convolvulus Indicus Batatas dictus*, Raii Hist. 1. 728. Pluk. Almag. 114. *Convolvulus Indicus, radice tuberosa eduli, cortice rubro, Batatas dictus*, Parad. Bat. Prod. 325. *Indicus Orientalis Inhamæ, seu Batatas, Sifarum Peruvianorum, seu Battata Hispanorum*, Hist. Oxon. 2. 11. *Battata radice tuberosa esculenta, Spinachie folio, flore albo, fundo purpureo, semine post singulos flores singulo*, Cat. Jamaic. 53. Hist. 1. 150. *Sifarum Peruvianum, seu Battatas Hispanorum*, Ger. Emac. 925. *Jetica, vulgo Batata*, Pif. 93. *Jetica Brasiliensibus*, Marca. 16. *Kappa-kelengu*, Hort. Mal. 7. 95. **SPANISH POTATOES.**

They are used either boil'd or roasted under the Ashes. They are of a fine Taste, and by some preferred to our Turneps. If they are taken new, and bruised, and macerated with a little Water, they ferment of their own Accord, and produce a Drink used by the Inhabitants of *Brasil*.

They grow spontaneously in *Newfoundland*, and the neighbouring Islands; whence they were first brought into *Spain*, and thence into other Countries of *Europe*, Raii Hist. Plant.

BATTATA VIRGINIANA, Offic. Park. Theat. 1383. *Battata Virginiana, seu Virginianorum, & Pappus*, Ger. 781. Emac. 927. *Papas Americanum*, J. B. 3. 621. *Papas Americanum Pycnocomum*, *Opanank Insulae Virginiae radix Chumbo*, Chab. 523. *Papas seu Battatas Virginianum*, Park. Parad. 517. *Solanum tuberosum esculentum*, C. B. Pin. 167. Prod. 89. Raii Hist. 1. 675. Synop. 3. 265. Hist. Oxon. 3. 522. Tourn. Inst. 149. Elem. Bot. 124. Boerh. Ind. A. 2. 67. Rupp. Flor. Jen. 37. Buxb. 306. **VIRGINIA, COMMONLY CALLED IRISH POTATOES**, Dale.

In *Virginia* it grows spontaneously, but with us is cultivated in Gardens. It flowers in the Months of *June* and *July*. Its Root is only in Use; and that too in the Kitchen; but never in the Shops. It seems to agree, as to its Qualities, with the *Spanish Potatoes*, but is somewhat narcotic. Dale.

You are to chuse those which are large, plump, tender, reddish without, and white within, and of a good Taste, like that of an Artichoke.

They nourish the Body, moisten much, and allay the sharp Humours of the Breast; but yet produce gross Humours, and cause Wind.

They contain a little Salt, but much Oil and Phlegm.

They agree at all times with young bilious People, and those in general, whose Humours are very sharp, and much agitated.

REMARKS.

Potatoes are by some called *Earth Pears*; because they grow in the Earth to the Branches of the Root that bears them. They were brought originally from the Country of *Tapi-nambour*, in *India*, and they are now much used for Food. They are nourishing enough, and allay the sharp Humours of the Breast by their oily and balsamic Principles, which are apt to unite to those Parts that want recruiting, and to embarras the sharp, Salts that vellicate the Breast. They produce gross Humours, and Wind, because they contain a viscous and thick Juice. *Lemery on Foods*.

Potatoes are extremely emollient, and consequently good to prevent and cure Disorders proceeding from, or attended with, a Rigidity or Stricture of the Fibres. Hence it is a very proper Food for those who use much Exercise.

BATTATA CANADENSIS, Offic. *Battatas de Canada*, Park. 1383. Parad. 516. *Flos solis pyramidalis, parva flore, tuberosa radice, Heliotropium Indicum quorundam*, Ger. Emac. 753. Raii Hist. 1. 335. *Flos solis tuberosus Indicus, seu Adenes Canadensis*, Griseb. Virid. Lusitan. *Corona solis, parva flore, tuberosa radice*, Elem. Bot. 391. Tourn. Inst. 489. Boerh. Ind. A. 102. *Helianthemum Indicum tuberosum*, C. B. 277. *Helianthemum Indicum tuberosum*, H. R. P. 85. *Chrysanthemum Indicum, radice tuberosa*, Herm. Hort. Lugd. Bat. 142. Pluk. Almag. 99. *Chrysanthemum perenne majus, foliis integris, Americanum tuberosum*, Hist. Oxon. 3. 23. *Chrysanthemum Canadense strumosum*, Florent. Schw. Cat. Leyd. 22. *Flos solis Farnesianus, seu Aster Peruanus tuberosus*, Col. Ecyh. 2. 11. *Flos solis tuberosus, seu Flos Farnesianus*, Aldin. 91. **JERUSALEM ARTICHOKE**, Dale.

It is cultivated in Gardens, and only applied to culinary Uses.

BATTITURA. The Squamæ or Scales of Metals, which fly off, whilst under the Hammer.

BATCIA. According to *Blancard*, a Name for the *Pastinaca Sylvestris*.

BAUDA. A Vessel for Distillation. *Rulandus*.

BAUHINIA. Mountain Ebony. *Vulgò*.

This Plant was so named by Father *Plumier*, in Honour of the two famous Botanists, *John* and *Caspar Bauhine*.

The Characters are;

It hath a polypetalous anomalous Flower, consisting of five or more Leaves, which are disposed on one Side; from the Flower-

Flower-cup arises the incurved Pointal, accompanied with several Stamina of the same Form, which afterward becomes a Pod inclosing Kidney-shap'd Seeds.

Miller enumerates seven Species of this Plant.

BAUL, Urine. *Rulandus*.

BAURAC. The Arabic Word for Nitre; or for any Salt. *Rulandus*. Hence Borax took its Name.

BAXANA. An Indian Plant thus distinguish'd.

Baxana Arbor venenata; J. B. *Arbor fructu venenato*, *Radice venenorum antidoto*, C. B.

Near Ormuz in *Queionne*, a desert Island, there is a Tree call'd *Baxana*; the smallest Quantity of whose Fruit suffocates the Person who tastes it. The same Effect is also produced by remaining a Quarter of an Hour under its Shade. But, since the Root, Leaves, and Fruit of this Tree, which is call'd *Rabuxit*, are, in other Countries, Antidotes against all kinds of Poisons, these Circumstances to me appear improbable. *Raii Hist. Plant.*

BDALSIS, βδάλσις, from βδάλω, to suck, or milk. Suction, or Milking.

BDELLA, βδέλλα. A Horse leech. *Hippocrates*, in his second Book of *Prorrhethics*, seems to mention the βδέλλα, as a Cause of Bleeding at the Fauces. As it is not very easy to conceive how this Animal should get to that Part; some have thought that βδέλλα, in this Place, signifies a varicose Vein, as it does in *Dioscorides*. But *Galen* contradicts this, and says it really means a Horse-leech, which may accidentally get thither.

Leeches, when swallow'd, are esteem'd of bad Consequence: Therefore *Celsus* advises to drink, by way of Antidote, Vinegar with Salt, L. 5. C. 27.

We know that a Leech has been swallow'd, when the Mouth of the Stomach has a Sensation of being suck'd and bitten. Sometimes also, when the Leech fixes on the Throat, the Patient, in Spitting, brings up a florid Blood. Brine, the Succus Cyrenicus, the Leaves of Silphium or Beets, with Vinegar, or Snow dissolved in *Posca*, (a Mixture of Water and Vinegar) are proper for dislodging and bringing them away. The Patient must also use Gargarisms of Water and Nitre, or Vinegar and Vitriol. Leeches, which fix on the inner Side of the Throat, may be dislodged by ordering the Patient to sit up to the Neck in warm Water, and hold cold Water in his Mouth; for they will come out forthwith in Quest of a cold Liquor, to which they have been accusom'd. Some prescribe Bugs (*χόρες*) for those who have swallow'd Leeches; but, says *Galen*, I never had Occasion for prescribing them, since I found Garlic effectual in these Cases. *Paul. Aegineta*, L. 5. C. 36.

I don't know, whether *Paulus* means, by *χόρες*, Bugs, Cimices, as *Cornarius* has translated it; or a sort of *Hypericum*, call'd by *Dioscorides rheus*. See *HIRUDO*.

BDELLERUM, according to *Johnson*, also signifies a Horse-leech.

BDELLIUM, Offic. Park.-Theat. 1571. C. B. Pin. 503. J. B. 1. 317. Chab. 73. Mont. Exot. 11. *Bdellium omnium auctorum*, *Raii Hist.* 2. 1844. *Bdellium gummi*, Ind. Med. 18. GUM BDELLIUM. *Dale*.

Bdellium is by some call'd *Madelcon*, by others *Bolchus*. It is the Tear of a *Saracenian* Tree.

The Marks of its Goodness are, a bitter Taste, Transparency, a Resemblance of Bull's-glue, a Fatness of the innermost Parts, and an easiness to be soften'd; its being free from Chips and Dirt; with a Fragrancy in Suffumigations, like the *Unguis odoratus*.

There is another kind of *Bdellium*, which is of a black Colour, and dirty, in large Grains, made up into Masses: This is imported from *India*. There is also a dry, resinous, leaden-colour'd Sort, which comes from *Petra*, and is next to the best in Efficacy.

It is adulterated with a Mixture of Gum; but what is thus vitiated has not that Bitterness of Taste, nor Fragrancy in Suffumigations, which belongs to the pure and genuine.

It is of a heating, mollifying Virtue, dissolves Hardnesses, Tumors about the Throat, and an Hydrocele, if it be diluted with fasting Spittle. Used in a Pessary, or by way of Suffumigation, it relaxes the Vessels of the Uterus, and brings away the Birth, and all manner of Humidities. Being drank, it breaks the Stone, and provokes Urine: It is given with Success in a Cough, and to those who are bitten by venomous Creatures. It is good also in Ruptures, Convulsions, Pleurifies, and erratic Flatulencies; and is an Ingredient in Malagmas that are composed against Hardnesses, and Nodosities of the Nerves. They bruise it, and work it up with Wine, or warm Water. *Dioscorides*, Lib. 1. Cap. 80.

The *Arabians* call *Bdellium Mokel*, not *Molechil*, as the Translator of *Serapion*, whom all follow, reads it. Every one knows, that it is a sweet-scented Gum of an *Arabian* or *Indian* Tree. The *Arabians* had another *Mokel*, which was the Fruit of a kind of Palm-tree. *Serapio* treats of both Sorts in two distinct Chapters. *Avicenna* comprehends them both in one Chapter, tho' they agree in nothing but the Name; but for

Distinction-sake they call'd one the *Mokel of Mecca*, and the other the *Mokel of Judea*.

Brassavolus, whom almost all follow, is mistaken when he writes, that the *Bdellium* of the Antients was divided by *Avicenna* into the *Judean* and *Arabian*; for *Avicenna* distinguishes the *Judean Bdellium*, which is a Gum, from the *Meccan*, which is the Fruit of a Tree; but he makes two Kinds of the *Judean Bdellium*, the *Sclavian* and the *Arabian*; therefore the Epithet of *Judean* was common to both sorts of Gums, in order to distinguish them from the Fruit of that Name. Thus many *Indian* and *Arabian* Simples were, by the Antients, call'd *Syrian*; because they were exported out of *Arabia* and *India* into *Syria*. *Marcellus Empiricus* says, of the exotic and aromatic Simples used in Medicine,

*Addes Aromaticas Species quas mittit Eous,
Vel quae Judaicis fragrant bene condita Capsis.*

“Add aromatic Simples sent from the East, or such as preserve their Fragrancy in *Judean* Boxes:” *Judean*, that is, *Syrian*, for in the Greek Geographers also. *Συρία Παλαιστήν* (*Syria Palaestina*) means *Judea*. The same Species were call'd *Indian*, from the Place where they grow; and *Syrian* or *Judean* from the Markets or Shops where they were sold; so that the *Judean Bdellium* was the same with the *Syrian*, of which there were two Kinds, the *Indian* and *Arabian*. However, *Avicenna* seems to be of Opinion, that the *Judean Bdellium* was different from the *Arabian* and *Sclavian*; for he writes, that there was the *Sclavian Bdellium*; and the *Arabian*, besides the *Judean*. By a like Mistake, *Dioscorides* made the *Syrian Nard*, which is the same with the *Indian*, a different Thing. He seems also to make three Kinds of *Bdellium*, and his Account of them is pretty confused. He says it is the Tear of a *Saracenian* Tree, that is, an *Arabian* Tree, pellucid, and like the Colour of Bull's-glue. He then adds, that there was a dirty and black Kind, made up in Lumps, which was brought from *India*. Lastly, he subjoins, that there was a dry, resinous, blackish [*ὑποπόλιον*] Sort brought from *Petra*. Perhaps, by the *Judean*, *Avicenna* meant the *Petræan*, as *Pliny* sometimes renders *Πετρεῖον* by *Judeum*, and mentions *Petræa Judea*; and *Stephanus* makes *Petra*, which gave Name to *Arabia Petraea*, a City of the *Third Palaestina*, which, it is certain, was *Judea*. *Avicenna*, in another Place, mentions a *Bdellium* of an *Ath-colour*, which may probably be the same with the *Petræan* of *Dioscorides*, which he calls *ὑποπόλιον*, *hypopelium*; for the *Indian* is black, but the *Arabian* of the Colour of a Man's Nail, or like transparent Wax.

All the Greek Authors, since *Dioscorides*, knew no more than two Kinds of *Bdellium*, which are, as they call them, the *Σκυθικὸν* & *Ἀραβικόν*; “the *Scythian* and *Arabian*”; so says *Galen*; *Aetius*, *P. Aegineta*, and others. As to the *Scythian*, they give the very same Account of it, which *Dioscorides* does of the *Indian*; so that it is plain, that their *Σκυθικόν* was the same with *Dioscorides*' *Ἰνδικόν*. By *Σκυθικόν*, must be understood what is brought out of *Indo-scythia*, or *Southern Scythia*, at the Mouth of the *Indus*. The Author of the *Periplus* writes, that *Bdellium* is brought from those Parts.

Since *Avicenna* and *Serapio* make a Difference between the *Bdellium Judaicum* (of which one Sort is the *Arabian*) and the *Bdellium Meccense*, which they will have to be the Fruit of a Tree; and as every one knows, that *Mecca* is in *Arabia*; it appears, that there are two Kinds of *Arabian Bdellium*; one a Gum, and the other the Fruit of a Tree. And *Avicenna* himself, in the same Chapter, takes Notice also of a *Bdellium Meccense*, which was the same with the *Judaicum*, and was not the Fruit of a Tree; and this probably was the same as that which *Dioscorides* says was brought from *Petra*; for it is the general Opinion, that the modern *Mecca* was the *Petra* of the Antients. It was formerly a very noted Emporium for *Indian* and *Arabian* Commodities, which were brought thither from *Albus-Vicus*, a Port of the *Arabian* Gulph. And perhaps the *Indian Bdellium* was the same as that which *Dioscorides* says came from *Petra*; at least, it is certain, that the *Greeks*, who follow'd *Dioscorides*, understood him in that Sense, making only two Kinds of *Bdellium*, the *Arabian*, and the *Indian*; which they call the *Scythian*. The first, then, in Goodness, was the *Arabian*; and of an inferior Sort was the *Indian*, which was brought from *Petra*, an Emporium of *Arabia*. However, I cannot deny but the Words of *Dioscorides* may be understood of three Kinds of *Bdellium*. *Pliny* reckons more, as the *Babylonian*, the *Median*, and the *Bactrian*.

As to the Word βδέλλον, *Bdellium*, it comes from the Hebrew בְּדֹלַח *Bedolach*; for βδέλλον is the Diminutive, but βδέλλα the Primitive. *Damocrates*, in the Author of the *Periplus*, calls it βδέλλον. *Marcellus Empiricus*,

— Crocon atque Bedellam.

I am not ignorant, that most of the Jewish Interpreters expound the *Arabian Bedolach* by a Pearl; but some of the Antients understood by it a Spice, and the Matter itself plainly speaks it. For of this *Bedolach* the *Greeks* coin'd their *μυδαλλός*, or *μαδαλλός*, to signify *Bdellium*; for *μ* and *β* are often chang'd for one another.

another. Nor is it to be wonder'd, that two Words of different Sounds, but signifying the same Thing, should have the same Original, as that *βδέλλα* and *μεδαλχος* should both come from *Bedelach*. For, after the same manner, out of one Hebrew Word *אבולח* *Ahaloth*, some made *ἀγέλλαχον* (*Agalochum*); others from the same Word, contracted into *Aloth*, made *ἄλον* (*Aloe*). The Country of *Havilah* *חבילה*, or *Chavila*, *Genesis* 2. 11. where the *Bedelach* grows, may as well be taken for *India* as *Arabia*. All the Characters there given belong also to *India*; for *India* too exports Gold and the Onyx-stone. There is frequent Mention made of the *ὄνυχιν λίθια* in the Author of the *Periplus*, which Stone is brought out of *India*. The *Ευιλαῖοι* (*Eulæi*), a People of *India*, are not far distant from this Country of *Havila*; they are so call'd by *Epiphanius*. The ancient *Periegesis*, or *Itinerary*, of the World, takes Notice of *Ευιλίται* (*Eulitæ*). *India* then produces *Bdellium*; that is, *Bedelach*. But the Characters belong to *Arabia* in a more eminent Degree; there are the People *Χαυλοῖται* (*Chaulotæ*), or the *Χαυλοῖται* (*Chaulotæ*), of *Eratosthenes*; there is also the purest Gold. The finest *Bdellium* is that of *Arabia*, which is transparent, and of the Colour of Wax. "Bedella" is a Tree in *India* and *Arabia*, the Tear of which is best in *Arabia*; being light, fat, and like Wax throughout; but the *Indian* is dirty, black, and in bigger Lumps." *Isidorus*. *Avicenna* says the *Arabian Bdellium* is red, of which the Antients say nothing; but perhaps he only means a Wax-colour. *Βδέλλιον τὸ Ἀραβικὸν διαγύρεται καὶ εἰς χυλόν* "The Arabian *Bdellium* is transparent and yellow." *Aetius*, Lib. 3.

From what has been said, it appears, that the *Bdellium* of the Antients was that sort of Gum which the *Portuguese* now call *Gum Anime*. It is the Tear of a Tree, whitish, resinous, transparent, inclining to the Colour of Frankincense, which, broken, appears of a Wax-colour, in Grains like Frankincense, but bigger: The Oriental, or *Indian*, is *ἡδερβόλον* (*Haderbolum*) in great Lumps. *Salmasius de Homonym. Hyl. Iatric. Cap. 109.*

This is a Gum of a reddish-brown Colour, deeper than Myrrh, and of a tougher and more tenacious Consistence; and is difficultly dissolved in any Liquor, coming nearest to Myrrh in Scent, but not so pleasant; of a bitterish hot Taste. What comes from *Turkey* and *India*, is by much the best. There is another Sort, which comes from *Guiney*, that is whiter, in large round Drops, of little Scent; but this is less esteem'd. We are quite Strangers to the Tree which produces this Gum. The best Accounts which we have, is, that it is a thorny Tree, with Leaves like those of the Oak.

This Gum is of an heating and drying Nature, helpful against Coughs and Impostumations of the Lungs, provokes Urine and the Catamenia, expels the Birth and After-birth. Outwardly it is used in dissolving and discussing Plaisters. *Miller's Bot. Off.*

Geoffroy says, that both Sorts undoubtedly come from *Abyssinia*.

Some esteem the *Bdellium* of the Antients to be the *Gum Anime* of the Moderns.

Pliny, *H. N. L. 12. c. 9.* says, that this Tree is prickly, black, and as high as the Olive-tree; and that it bears Leaves which are evergreen, and very like those of the Oak. The best Sort of this Gum is pure, yellowish, of a bitter Taste, and very agreeable Smell; it is transparent when broken. It is fat, combustible; soon catches Fire, and is easily melted. That which is black and impure is good for nothing. See *Joh. Jac. Wecker. Antid. Spec. L. 1. Sect. 17.* *Galen* gives it the Epithets *Arabian* and *Scythian*; *Pliny* that of *Bactrian*, *L. 6. C. 16. & L. C. Celsus* also, *L. 7. C. 4.* gives it the Epithet *Bactrian*, either from the Country of *Bactria*, or from the River *Bactrium*, not far from *Judea*. Some are of Opinion, that *Bdellium* and *Myrrh* are produced by one and the same Tree, and that there is no Difference between these two Drugs. *Monardes* is of Opinion, that it is the true *Anime*. See *Matthioli Comment. in L. 1. Dioscor. C. 70. Ruel. L. 1. C. 57. Ol. Worm. Museum, L. 2. C. 15. & 23. Joh. Dan. Mylii Antidotar. Med. Chymic. reform. L. 2. C. 9. Georg. à Turre de Hist. Plant. L. 1. C. 81. Paul. Amman. Manuduct. ad Mater. Med. p. 128.* *Bdellium* is of a hot, comforting, sweetening, abstergent, discussing, and opening Nature. When used internally, it cleanses the Breast of acrid Matter, allays Coughs, purges the Kidneys, and cleanses Ulcers of the Lungs, provokes Urine, and expels the Stone and Gravel, *Galen. S. 6. de Simpl. Med. fac.* stops the immoderate Flux of the Menes and the Hemorrhoids, tho' tis very rarely used internally. Externally, it softens, discusses, and maturates all Kinds of Swellings and Apostems, cures recent Wounds, and injured Arteries. In the Shops it is made an Ingredient in many softening and discussing Plaisters and Ointments: It is also in the *Mithridate*, the *Emplast. de Melilot. Mes. Empl. Apostolicon, Nicol. Alexandrin. Emplast. Cera-neum, Nicol. Empl. Stictic Croll. Emplast. Diaphoret. Myns. the Ceratum Ammoniacum Forest. the Ceratum Matricale, or De Galbano August. the Unguent. Apostolorum Avicenn. Barthol. Zorn Botanolog.*

BDELLOS, *βέλλος*. The Smell of a Lamp just extinguish'd. It signifies also a Discharge of Wind by the Anus. Hence,

BDELYGMIA, *βδελυγμία*, or *βδελυγμία*, or *βδελυγμία*. A horrid, disagreeable, and fetid Smell, sufficient to induce a Nausea; or, as it is usually express'd, to turn the Stomach; such as that of some Ulcers, or Excrement.

BECABUNGA. A Name for the *ANAGALLIS AQUATICA*, Brook-lime, which see.

BECHICA, *βήχικα*, from *βήξ*, a Cough. All Medicines which are design'd to relieve Coughs, are call'd by this Name. It is particularly appropriated to several sorts of Troches, to be found in the Compilers of Dispensatories, and signifies the same as *Pectoral*.

TROCHISCI BECHICI ALBI: The white Pectoral Lozenges.

From the College.

Take of fine Sugar, one Pound; of white Sugar-candy, half a Pound; of *Florentine* Orrice-root, half an Ounce; of *Liquorice*-root, six Drams; of Starch, one Ounce and an half; and make them into small Lozenges, with a sufficient Quantity of the Mucilage of Gum Tragacanth, made in Rose-water. On Occasion may be added Ambergriſe and Musk, four Grains of the first, and three of the latter.

These are in all the old *Dispensatories* in the same manner, without Alteration. They are pretty much used for Coughs, and Defluxions of Rheum. Some add to them Ambergriſe and Musk, which makes them serviceable to sweeten the Breath. But they are of no great Efficacy to any Purpose, and may be taken at Pleasure.

This is directed very little different in the *Edinburgh Dispensatory*.

White PECTORAL LOZENGES.

From Quincy.

Take of the Four greater cold Seeds, husk'd, of each one Ounce and an half; white Poppy-seeds, and Pine-nuts, of each one Dram; Orrice and Starch, in fine Powder, of each three Ounces; fine Sugar, seventeen Ounces: Beat the Seeds into a Paste; then put to it the Powders, and make all into a due Consistence, with a Mucilage of Gum Tragacanth and Rose-water, to cut out into Lozenges.

This is a much better Composition than that under the same Name in the *College Dispensatory*; and if sweet Almonds were in the room of the Pine-nuts, it would be yet more grateful. This is from the *Pharmacopœa Regia* of *Zwelfer*, who likewise makes a red Lozenge, by adding to this two Ounces of Bole; which, with the Whole, is very good against the Heart-burn, and is the same, if not a better Remedy, in that Case, than some which are frequently advertised in public Places with great Encomiums.

TROCHISCI BECHICI NIGRI: The black Pectoral Lozenges.

From the College.

Take of the Juice of *Liquorice*, and of white Sugar, of each ten Drams; of Gum Tragacanth, and sweet Almonds, blanch'd, of each six Drams; and make them into Lozenges, with a sufficient Quantity of the Mucilage of Quince-seeds, made with Rose-water, *S. A.*

In the *Augustan Dispensatory* this is clogg'd with many other Ingredients; but the first of the College hath it exactly as here, and there ascribes it to *Rhazes* for its Author. The *Augustan Collection* hath also many other Compositions of the same Form and Intention; but they have not Reputation enough to continue them down to the present Practice. These are much more effectual than the former, to stop Coughs from tickling Rheums, but not quite so grateful to take. Some powder the Tragacanth, but that is very tiresome, and will not make up so smooth, as if it be gradually open'd with Rose-water, enough to beat up with the Almonds into a Paste, and afterwards with the other Ingredients.

The *Edinburgh Dispensatory* directs this different from the preceding.

Take of the Juice of *Liquorice*, two Ounces; Balsam of *Tolu*, and Storax Calamita, each a Dram; white Sugar, half a Pound; Mucilage of Gum Dragon, made with Hyssop-water, such a Proportion as will, with the requisite Art, make the Whole into Lozenges.

Quincy directs a Troche with the same Title, the Preparation of which is as follows:

Take of the Four greater cold Seeds, husk'd, of each two Ounces; white Poppy-seeds, one Ounce; pour upon these, in

in a Marble Mortar, a sufficient Quantity of Juice of Liquorice, diluted to the Consistence of a Syrup with Rose-water; to make them into a soft Pulp; which drive thro' a Sieve with more Pulp of Liquorice, four or five Ounces; and to them put strain'd Storax, one Ounce; Powder of Orrice, three Ounces; of Anise and Fennel-seeds, of each one Ounce; fine Loaf-sugar; two Pounds and an half; and make all into a Paste.

This is likewise from *Zwelfer*, and greatly exceeds that of our College. It is an excellent good Pectoral Lozenge, and useful in all Coughs whatsoever, to be taken at Discretion.

BECHION, a Name for the *Tussilago*, Coltsfoot; because it has the Reputation of being good for Coughs.

BECIOIS, βηκίσις, or βηκισίς, is explain'd by *Galen* πρεβηλίου, Sheep.

BECUIBA NUX.

This Nut is as large as a Nutmeg, and of a brown Colour. It consists of an oily Kernel, inclosed in a woody brittle Husk. A Balsam is drawn from it, very much esteemed in Rheumatic and Paralytic Cases. It is brought from *Brasil*. *Geoffroy*.

BEDEGUA. Amongst the *Arabians*, this was the Name for a Species of Thistle. *Raii Hist. Plant.* *Blancard* says it was the *SPINA ALBA*.

BEDEGUAR. The spongy Excrecences of the *Rosa Sylvestris* are thus called by some Writers on the *Materia Medica*. The Ashes of these, burnt, are said to be effectual in the Gravel and Dysury; and to incline the Person, who lies upon them, to sleep. *Raii Hist. Plant. Dale*.

BEENEL, an evergreen Shrub, which grows in *Malabar*.

A Liniment is prepared of the Root of this, boiled in Oil of *Sesamum*, which is said to be good for Head-achs, and effectual in removing inveterate Pains in the Limbs.

BEESHA, a Species of the *Bambu*, which grows in *Malabar*. A Decoction of this is used in Obstructions of the Menfes; as also in Erosions of the Gums, and Tooth-ach, by way of Gargarism.

BEGMA, βήγμα, from βῆξ, a Cough, in *Hippocrates* signifies both a Cough, and the Spit brought up by it.

BEGUILL, a Fruit about the Size of an Apple, with a rough and knotty Rind, inclosing a Pulp like the Strawberry. *Raii Hist. Plant.*

BEHEM.

The Root *Behem*, as it is delivered to us by the *Arabians*, has been the Occasion of no small Mistake on account of its Homonymy, or passing under the same Appellation with the *Hermodactyl*. *Been* and *Ben* are erroneously made to be homonymous with the *Balanus Myrsifca*. The Name of this Root in *Arabic* is *Behem*, and *Albehem*. The *Greeks* pronounce it βήχημ (*Bechem*), because they express the *Arabic*, *he*, by χή, as *ταμαρχήνδ* for *Tamarhend*. Hence, in *Charito*, and other Physicians of later Ages, we read of the βήχημ λευκόν and ἐρυθρόν, "the white and the red *Bechem*," which must be understood of this *Arabian Behem*, which is of two Kinds, white and red. Therefore *Avicenna*, where he treats of them, expresses the Name, in the Title, in the Dual Number, *Behemen*, and comprises them both under the following Description; that they are ligneous Pieces of dry'd Roots, shrunk and shrivell'd up, and are of two Kinds, the white and the red. The later *Greeks* make also two Kinds of *Hermodactyls*, the white and the red; and, for the most part, they use the Term *Hermodactyl* for the *Arabian Behem*, tho' what the *Arabians* call *Hermodactyl* be quite another Thing. *Myrsifus*, in his *Antidote* δὲ μαργαρίτης *Galen*, has it thus in the *Greek Copy*, as *Fuchs* assures us: Μπερὶ ἀλβὲ βήχημ τὰ ἐπικλεόμενα βήμα *Hermodactylus* μαργ. In the King's Manuscript we found written, on that Place, Ἀρμόδ' αὐτὸν λευκὸν καὶ ἐρυθρόν. That antient Copy always reads Ἀρμόδ' αὐτὸν for Ἑρμόδ' αὐτὸν. In an antient *Græco-Arabic* Lexicon, we read Μπερὶ αὐτὸν καὶ μαργὰ τὸ Ἑρμόδ' αὐτὸν, where μπερὶ αὐτὸν is written for βουαίδαν, which is the *Arabic Buzidan*, or *Buzaidan*; and, as we are inform'd by *Avicenna*, a ligneous *Indian* Drug, endued with the same Virtues as both the Kinds of the *Behem*. This Wood, he says, uses to be adulterated with another Kind call'd *Alhaha Barbarie*. This is a Root brought out of *Africa*, which Country was call'd by the *Arabians* *Barbaria*, and is so named at this Day. *Avicenna*, in the Chapter where he treats particularly of this *Chabe Alberberi*, that is, the *Barbarian* or *African Chabe*, says, it was something which was like *Hermodactyl*, brought from *Africa*, and by which *Hermodactyls* are adulterated. So that the *Buzidan* and the *Hermodactyls* were both adulterated by this *African* Root *Chabe*, and the *Buzidan* had the same Virtues as the *Behem*. There was no great Difference, then, between the *Hermodactyl* and the Roots of *Behem*, since one and the same Thing adulterates *Hermodactyl* and *Buzidan*, which is like *Behem*. It is no Wonder then, that the later *Greeks* used the Name of *Hermodactyl*, instead of *Behem*.

The *Arabic* Word for *Hermodactyls* is *Alsurengian*, the Meaning of which we are to inquire into. *Surengian* is not properly the same as the *Greek* Ἑρμόδ' αὐτὸν but this latter is the

Flower of that Plant which the *Arabians* call *Surengian*. For this we have the Authority of *Avicenna*, who calls it *Asaba Hermes*, that is, the Fingers of *Mercury*, which plainly answers to the *Greek* Word Ἑρμόδ' αὐτὸν. He says it is the Flower of the *Surengian*, and has the same Virtues; therefore the *Hermodactyl* is the Flower, and the *Surengian* the Plant. The same Author says, that the *Surengian* is the Root of a Plant, which bears white and citron-colour'd Flowers.

P. Aegineta is the first of the *Greeks*, as far as I know, who mentions Ἑρμόδ' αὐτὸν, and only says of it, that it was of peculiar Efficacy in Pains of the Joints, while the Humour is afloat. By Ἑρμόδ' αὐτὸν, he means that Kind of *Ephemerum* which is not poisonous, of which *Dioscorides* also writes, that it dissolves Swellings; and the *Arabians* say, that it mitigates the Pains of the Gout, if the Parts be anointed with it. This is their white *Hermodactyl*, which they also call *Surengian*; but they bestow'd this Name on two Plants; and were deceived by the Homonymy. One of them was a deadly Herb of *Colchis*, of the bulbous Kind; call'd by the *Greeks* ἐφμερόν, because it was so quickly mortal as to kill within a Day's Space. But there was another Herb of that Name, which was also call'd the *Iris Sylvestris*, which was not at all hurtful: This, perhaps, is what the *Greeks* also call'd Ἑρμόδ' αὐτὸν, for it had one long Root of the Thickness of a Finger; for which Reason they seem to have call'd it Ἑρμὸς δ' αὐτὸν, "the Finger of *Mercury*," which Name agrees better with the Root than the Flower. So *Asaba Safra*, another Root, from its Colour and Shape resembling a Finger, is by the *Arabians* call'd *Yellow Fingers*. It is certain, that the same Effects are ascrib'd by *Paulus* to the *Hermodactyl*; as are attributed by *Avicenna* to the *Surengian* which is not poisonous, which are; that it is useful in Pains of the Joints, when the Humour is afloat.

The *Greeks* then knew but one Kind of *Hermodactyl*, which was the harmless *Ephemerum*, call'd *Iris alycia*, "the wild Iris;" and had a long Root of the Thickness and Likeness of a Finger, and on that Account deserved its Name; but the other round and bulbous-rooted *Ephemerum* had nothing to merit that Appellation; yet the *Arabians* call'd both these *Ephemera* by the Name of *Surengian*. An antient *Arabian* Herbalist renders the τὸ Κορχήν of *Dioscorides*, which is the deadly *Ephemerum*, by *Surengian*: The other *Ephemerum*, which immediately follows in *Dioscorides*, he makes to be another Species of *Surengian*. So they divided this Kind into two Species, the white and the red; the red was the *Colchian*, or noxious *Ephemerum*, which had the Bark of its Root of a red Colour. *Avicenna* calls it the black and red *Surengian*, and says it was poisonous; he so calls it, because its Fruit was black, inclining to red. *Dioscorides*, speaking of the *Colchian*, μαργὰν ἐχούσα πυρρὴν ἐν τῷ μέλει, ἔχουσα φλοὶν ἐχούσαν ἐρυθρόν, "having its Fruit black, inclining to red, and the Bark of its Root of a red Colour." Thus it is read in a very good and antient Copy; and it is further confirm'd by *Neophytus*. In the common Editions these Epithets are apply'd to the Root, not the Fruit; φλοὶν ἐχούσαν ἐρυθρόν ἐν τῷ μέλει, "having a black Bark, inclining to red." Wherefore this is not properly the red *Hermodactyl*; for that Name only belongs to the *Ephemerum* with a long Root of the Thickness of a Finger. This is commonly call'd the white *Hermodactyl*, and is the only Plant on which *P. Aegineta* bestows the Name of *Hermodactyl*. *Avicenna*, who says that the *Digitus Mercurii* was the Flower of the *Surengian*, is to be understood of both Species; and hence the Inhabitants of *Barbary* or *Africa* call'd the Root of both *Ephemera* *Hermodactyl*. There is another Error in *Avicenna*, in making the *Surengian* the Root of a Plant, that bears a white and citron-colour'd Flower; for both *Ephemera* have a white Flower. He misunderstood the Words of *Dioscorides*, where, speaking of the *Colchian* Species, he says, ἀνίστην ἀνθος λευκόν, ὁμοίον ῥόδου ἀνθεῖ, "it produces a white Flower, resembling that of Saffron." He took them in a Sense as if they had run thus, ἀνθος λευκόν, καὶ ὁμοίον ῥόδου ἀνθεῖ, "a white Flower, and like that of Saffron," or of a Saffron-colour; but the Author intends it of a Likeness in Shape, not in Colour. The Flower of the *Colchian Ephemerum* is shap'd like that of Saffron, but white. *Pliny* makes the Flower of the other *Ephemerum* to be blue instead of white; nor must you think, that he had any Authority for what he says. The good Man was imposed upon by his own Ears, which represented to him ὑάκινθον ἀνθος for χιτρών, "blue Flower," for "Snow-white," as he hearken'd to his *Amanuensis*, who usually read to him. He has been mistaken in Hundreds of other Places from the like Occasion.

The Herb *Pentaptyllum* was also call'd Ἑρμόδ' αὐτὸν. The Author of the Synonyma of *Dioscorides*, Περὶ ἰσχυρῶν ὀνύχων, αἱ δὲ ἄλσεν ἰσχυρῶν, αἱ δὲ Ἑρμόδ' αὐτὸν, "the Prophets call it the Claw of the Ibis, others the Wing of the Ibis, others the *Hermodactyl*." The spurious *Apuleius*, in his Herbal, under the Chapter of *Pentaptyllum*, has the same Expressions in Latin; *Propheeta*, &c. They also call'd it ἀνθος χιτρών, "Man's-hand," and Ἑρμὸς βέλων, "the Herb of *Mercury*," as I found it in the Lexicon of *Harpocration*. This also is good for Pains in the Joints, and for the *Sciatica*. And perhaps *Paulus* is to be understood

stood as speaking of this Hermodactyl: That he did not mean the *Ephemeron* is probable, because he reckons it separately, and also the *Colchian* Species. *Serapion*, however, takes the *ἑρμωδάκτυλον* of *Paulus* for the other *Ephemeron*, which is not the deadly Sort. To this they attribute a Virtue of curing Pains in the Joints, which must be understood of the harmless *Ephemeron*, not of the poisonous. For *Abix*, in this Author, gives his Opinion, that the best of the two Hermodactyls was that which had the Outside, as well as Inside, of its Root of a white Colour; for the black and red were pernicious. He means the *Colchian*, of which he seems to make two Sorts, the black and the red, tho' there be but one, which is of a black inclining to red. *Abix*, in *Serapion*, adds, that they are mistaken who think the *Lagias agrestis* is brought from *Africa*; so the Translator renders it; but for *Lagia* we are certainly to read *Labia*, which is the *Caaba* or *Chabe* of *Avicenna*; which, he says, is like the Hermodactyl, and is used to adulterate it. The *Arabian* Interpreters observe, that this *Chabe* is like a small Radish, and is by some placed among the Species of Hermodactyls, and is also call'd by the *Arabians* *Buzeidan*. But these Plants differ only as to their native Soil; this latter is from *India*, the other from *Barbaria*, that is, *Africa*. The *Arabian* *Labia*, and the Hermodactyl, or black *Ephemeron*, are so near akin in Shape and Effects, that some have taken them for the same Plant; some also adulterated one Species with the other, that is, the Hermodactyl with the *Labia*.

The *Arabians* attribute to this *Caaba* a Virtue of augmenting the Body in Bulk; and the Women use it for that Purpose, and to give themselves a portly Figure. The *Behem* has the same Property, as *Avicenna* assures us: This is call'd by the later *Greeks* *ἑρμωδάκτυλον*. Whenever we meet with Hermodactyl in these Authors simply mention'd, we are to understand it of the *Pentaphyllum*, or of one of the two Species of *Ephemeron*; but whenever we find in *Myrepsus* and others *ἑρμωδάκτυλον λευκὸν καὶ ῥυθρὸν*, "the white and red Hermodactyl," we are to take them for the white and red *Behem*. *Myrepsus* commonly mixes them with *Cardiacs*, for comforting the Heart, and strengthening a weak Body, and for curing the Palpitation of the Heart; for which Purpose both Sorts of the *Ben* are endued with a singular Virtue, according to *Avicenna*, and other *Arabian* Authors.

Since the red and white Hermodactyls are both Ingredients in the same compound Medicine, that they cannot be the same with the red and white Hermodactyl of the *Arabians*, may very well be inferred from these last being accounted of different Properties, so as to be unqualify'd for entering the same Composition; and the red Hermodactyl, which is the *Κολχικόν*, is accounted rank Poison both by *Greeks* and *Latins*, and has no Place in Medicine, except it be in the way of killing; upon which Account therefore it can have no Place at all in Medicine, which rather provides a Remedy against noxious things, than uses them as a Remedy. It is said, that a Decoction of the Leaves of Hermodactyls in Water, being drank, mitigates Pains in the Joints, which must be understood of the white Hermodactyl or *Ephemeron*, which has no deleterious Quality. In *Myrepsus* there is an *ἁγία δόσις δι' ἑρμωδάκτυλου* for the Gout in the Feet and Joints, which can be understood of no other than of the Hermodactyl with the long Root. Therefore *Brassavolus* is in an Error, when, following *Mesue*, he says, that the round Hermodactyl is of more Efficacy towards these Intentions, for which he would have them understood to be effectual, that is, for Affections of the Joints; for the round Hermodactyl, which is the *Colchian*, does not agree with the Joints, and cannot be taken inwardly for the Joints, without being pernicious. By the round Hermodactyl we are certainly to understand the *Colchian* with the round and bulbous Root; for the other with the long Root may be called the *ἑρμωδάκτυλον μακρὸν*, "the long Hermodactyl."

Upon the Whole, the Hermodactyls of the *Greeks* are different from those of the *Arabians*. These call the Flower of the Herb *Surengian*, the Fingers of Mercury, by which Name they call both Species of *Ephemeron*. And the *Greeks* bestow the Name of *ἑρμωδάκτυλον λευκὸν καὶ ῥυθρὸν*, "the white and red Hermodactyl," on what the *Arabians* call the white and red *Behem*. They also call the *Buzidan* of the *Arabians*, which is like the white *Behem*, by the Name of Hermodactyl. They will have it to be a Species of *Satyrium*, and so *Serapion* expounds it. The vulgar Appellation for it is *Satyrium Basilicum*, but the Shops call it *Palma Christi*. Very learned Physicians maintain, that the *Buzidan* of the *Arabians* is the same as *Avicenna's* Citron-fingers. *Brassavolus*, who is followed by *Puchsius*, says, that *Avicenna* treated of the *Buzidan*, which he corruptly call'd *Bucheidan*, under the Title of Citron-fingers. But there are two Chapters in *Avicenna* of the *Buzidan*, and the Citron-fingers, and they are quite different things. This Author indeed uses to give the different Appellation of the same thing in distinct Chapters, but then he always gives Notice of it. The Citron-fingers, or *Asaba safra*, are shaped, as he says himself, like the Palm of the Hand. He calls it *alcas*, which is the same as the Hebrew *קץ*, *Chaph*, and properly signifies the Palm, or hollow

Part of the Hand, from the Verb *קצץ*, which is to bend or incurvate. Hence *Cochleare* also comes to signify both a concave Instrument, and the Sole of the Foot. An old *Latino-Arabie* Lexicon interprets it by *Pugillum*, and *Alapa*, because it is given with the flat Hand; whence comes *depalmare*, *καταπίπτειν*, "to strike with the flat Hand." This Root is commonly called *Palma Christi*, from the same Likeness. *Avicenna* speaks of the Citron-finger as a common Root; but the *Buzidan*, he says, is brought from *India*. The Citron-fingers shew this Colour by their Name; but the *Buzidan* is white. *Serapion* says it is like the white *Behem*, that it was also white itself, and an *Indian* Drug. Therefore the *Buzidan* can never seem to be the same with the Citron-fingers. Nor is *Julius Scaliger* nearer the Truth in saying, that it is the same with what the *French* Painters call *Terramenta*, which is the *Cureuma* (*Turmeric*) of the Shops, and therefore different from the Citron-fingers. *Salmas. de Homonym. Hyl. Iatrices, Cap. 116.*

The Sorts of *Behen* commonly known are the following:

Behen album, Geoff. Tractat. 286. *Behen album Rauwolfii*, J. B. 3. 37. *Behen album Rauwolfii, folio lapathi, flore luteo, & radice longa flexili*, Chab. 448. *Behmen aliud*, Park. Theat. 1572. *Jacea Syriaca spinosa, folio laciniato, flore luteo*, Rauwolf. Itin. Ed. Angl. 231. *Jacea Orientalis patula, carthami facie, flore luteo magno*, Tourn. Cor. 32. Raii Hist. 3. App. 104. *Serratula affinis capitulo squamoso luteo, ut & flore*, C. B. Pin. 235. *Raphanticoides lutea, foliis inferioribus dissectis, cæteris carthami*, Vaill. Mem. Acad. Scienc. Anno 1718. 1. 229. WHITE BEAN OF THE ANTIENTS.

Authors distinguish two Sorts of *Been*, white and red, but both are different from the *Arabian* *Ben*, which is the *Glans Unguentaria*, Offic.

White *Been* is a Root, which *Rauwolfius* found at the Foot of Mount *Libanus*, and which *Tournefort* brought from the *Lesser Asia*. The Plant to which it belongs is named *Jacea Orientalis, carthami facie*, J. R. H. according to *Vaillant*. It is cordial, antispasmodic, and good to kill Worms. Geoff.

Behen album, Offic. Ger. 550. Emac. 679. Mer. Pin. 14. *Behen album Monspelianum & Officinatum*, Merc. Bot. 1. 23. Phyt. Brit. 14. *Behen album Officinatum*, J. B. 3. 356. *Lychnis sylvestris, quæ Behen album vulgo*, C. B. Pin. 205. Raii Hist. 2. 998. Synop. 3. 337. Tourn. Inst. 335. Elem. Bot. 281. Buxb. 201. Dill. Cat. Giff. 110. Boerh. Ind. A. 211. *Lychnis sylvestris perennis, quæ Behen album vulgo*, Hist. Oxon. 2. 535. *Papaver spumeum vulg.* Herm. Cat. Hort. Lugd. Bat. 387. *Papaver spumeum, sive Ben album vulgo*, Park. Theat. 263. *Muscipula pratensis vesicaria*, P. pp. Flor. Jen. 100. SPATLING-POPPY, or WHITE BEN.

This Plant has a long, thick, whitish, woody Root, not much branched, from which spring several smooth, weak Stalks, about two Feet high, with pretty large Joints, at each of which grow two Leaves opposite to each other, without Foot-stalks, two or three Inches long, and about an Inch broad, sharp-pointed at the End, of a glaucous or bluish-green Colour, smooth, and without any Indentures about the Edges. The Flowers grow on the Tops of long Foot-stalks, several together, of five small white Leaves apiece, standing in a loose, swell'd, round Husk or Bladder, of a greenish-white Colour, with several fine darker Veins: This incloses the roundish Calyx, in which are contained small brown Seeds. This is an Herb, which is frequently to be met with in Meadows and Corn-fields, and flowers in Summer.

The Roots only are used; and, as to their Qualities, they are accounted Cordial, Cephalic, Alexipharmic, and a Provocative to Venery. It is but seldom used. *Miller's Bot. Off.*

Behen rubrum limonium & Behen rubrum, Offic. *Limonium*, Ger. 332. Emac. 411. Raii Hist. 1. 395. Synop. 3. 201. Chab. 508. *Limonium majus vulgatius*, Park. 1234. *Limonium maritimum majus*, C. B. 192. Hist. Oxon. 3. 600. Boerh. Ind. A. 76. Tourn. Inst. 342. *Limonium majus multis, aliis Behen rubrum*, J. B. 3. 876. SEA-LAVENDER, Dale.

Red *Been* is imported in round Slices. Some believe it belongs to a Species of *Limonium*, or Sea-lavender; but its Origin is not certainly known. It is supposed to have the same Virtues as the white *Been* of the Antients, and moreover to be astringent. Geoff.

The Root of the red *Behen*, or Sea-lavender, is pretty thick and long, and runs deep into the Earth, mostly single, with several Fibres at the End, of a brownish Colour on the Outside, and reddish within, from which arise many large, firm, thick, green Leaves, growing on long, broadish Foot-stalks, roundish at the End, and something resembling the Leaves of the Lemon-tree, whence it takes its Name. The Stalks arise to be about a Foot high, bare of Leaves, divided towards the Top into several Branches, on which grow long Spikes of small, purplish, red Flowers, of five Leaves each, growing somewhat like *Lavender*, in greenish Husks, each including one long Seed.

It grows every-where in the Salt-marshes, as below *Greenbith*, and about *Gravesend*, in great Plenty; and flowers in July and August.

B E L

The Root and Seed is refringent, binding, and of Service in a Diarrhoea, Dysentery, against the too great Abundance of the Menfes, and the Fluor Albus.

Though neither this nor the Spatling Poppy can be certainly proved to be the true Behens of the *Arabians*, the Descriptions they give of them being so lame and imperfect; yet they are allowed by the best Authors to come near them in Virtue, and to be proper Succedanea for them. What the Druggists sell for the white *Behen* are whitish slender Roots, less than those of wild Parsnip. What they call the Red, are round transverse Slices of a Root of a reddish-brown Colour, in Shape like Jalap; but what either of them are, is hard to determine. They are of very little Use now-a-days, being not put into any Composition of the Dispensatory. *Miller's Bot. Off.*

BEID-EL-OSSAR, or BEID-EL-SSAR, an Egyptian Plant described by *Prosper Alpinus* and *Veslingius*, which grows near *Alexandria* at a Place called *Mattharia*, upon a Branch of the Nile called *Calig*. This Plant abounds with a milky Juice, which flows from the Leaves when cut, and is used in preparing Skins for Leather, in order to make the Hair strip off; for which Purpose the Skins are macerated in it. If taken internally, this Milk causes a violent, and sometimes fatal Dysentery; it is, however, used externally with very good Effect in the Itch, and cutaneous Foulnesses. The Leaves bruised, both raw, or boiled in Water, are apply'd successfully to cold Tumors, and Parts in Pain.

The Fruit is inclosed in a Down or sort of Cotton, softer than Silk, which is used for making Beds, or Cushions; and for Tinder.

Bees delight much in this Plant, and get from it excellent Honey.

BELEMNITES, *Lapis Lyncis*. *Belemnites*, Offic. Geoff. *Prælect.* 70. *Lapis Lyncis*, Schrod. 353. *Gefn. de Lap.* 92. *Belemnites*, Worm. 70. *Charlt. Foss.* 29. *Mer. Pin.* 211. *Aldrov. Mus. Metall.* 618. *Schw.* 369. *Belemnites Lapis, seu Daitylus Idæus*, Boet. 476. *De Laet.* 150. *Belemnites parvus*, Kentm. 34. THUNDER-BOLTS.

It is sometimes written Belenites.

The *Belemnites* is a round oblong Stone, ending in an obtuse Point, sometimes of a white, sometimes of a gold, and sometimes of a dark Colour. Some of these Stones are solid, others hollow, and it is distinguished by Lines drawn from the Axis to the Circumference. It is commonly about an Inch in Length and Thickness, though some have been found as large as a Man's Arm, and in every one of them there is a Fissure or Slit running through its whole Length. The Name *Belemnites* comes from a Greek Word, which signifies the Point of an Arrow; *Daitylus Idæus*, from its resembling a Finger in Shape, and its being found in Mount *Ida*, in the Island of *Crete*; but it is dug up likewise in the *Alps*, and many other Places of *France* and *Germany*. It is without Ground taken for the *Lapis Lyncuricus* of the Antients, since it is evident, that by that Word *Dioscorides* understood Amber, which he tells us was by some taken to be the concreted and indurated Urine of the *Lynx*. The *Germans* say, that this Stone is good against the Night-mare, and the Stone in the Kidneys. It is given in Powder, from half a Dram to a Dram, in any convenient Liquor. *Geoffroy*.

BELEMNOIDES, BELENOIDES, or BELOIDES PROCESSUS. A Name for the Processus Styloides. The Process also, at the lower Part of the Ulna, from which some Ligaments arise, which connect this Bone to the Wrist, is called by these Names.

BELESON. Balsam. *Rulandus*.

BELI *seu Serifole Bengalenfium*. The Name by which *J. Baubine* calls the COVALAM, which see. It is a tall Fruit-tree not unlike the Quince.

BELILLA, *five Frutex Indicus baccifer, fructu oblongo polyspermo*. An Indian Berry-bearing Shrub. A Decoction of the Root is successfully given for refrigerating the Liver, and purging off pituitous Humours. The same bruised with Water, make a good Embrocation for Pains in any Part of the Body; and apply'd to the Eyes, remove Redness and Inflammations. The Root also digested and boil'd in Oil is successfully drank by Children for Pustules in their Mouths; and a Decoction of the Bark in Oil serves for the same good Purpose. The Vapour of the Decoction of the Leaves eases external Pains. The Juices of the Leaves and Fruit put together into the Eyes, remove Specks and Films. *Raii Hist. Plant.*

BELLADONNA. A Plant thus distinguished.

Solanum lethale, Offic. Ger. 269. *Emac.* 340. *Raii Hist.* 1. 679. *Park. Theat.* 346. *Mer. Pin.* 114. *Solanum melanocephalus*, C. B. Bin. 166. *Solanum maniacum*, Chab. 523. *Solanum maniacum multitis, seu Belladonna*, J. B. 3. 611. *Solanum furiosum, luride purpureo flore calathoides, Melanocerasus*, Pluk. *Almag.* 352. *Solanum somniferum*, Merc. Bot. 1. 70. *Phyt. Brit.* 115. *Solano congener flore campanulato vulgatus, latioribus foliis*, Hist. Oxon. 3. 532. *Belladonna*, Clus. Pan. 504. *Elem. Bot.* 68. *Raii Synop.* 3. 265. *Dill.*

B E L

Cat. Giff. 143. *Belladonna majoribus foliis & floribus*, Tourn. Inst. 77. Boerh. Ind. A. 2. 69. Rupp. Flor. Jen. 204. DEADLY NIGHTSHADE. Dale.

This is the largest of all the Nightshades, having many thick, long, spreading Roots, that shoot forth many tall, angular Stalks, to a Man's Height, or more, beset with dull green Leaves, in Shape like common Nightshade, but much larger. The Flowers are set on among the Leaves, growing singly on long Foot-stalks, and are large, hollow, and Bell-fashion'd, divided into six Segments at the Ends, of a dusky-brown greenish Colour on the Outside, and purplish within, which are succeeded by large, round, shining, black Berries as big as Cherries, set on a brownish Calyx, and containing a purplish juicy Pulp of a nauseous sweet Taste, full of small flat Seeds. It grows in several Parts of *England*, but not very frequently.

It is to be found in a Ditch at the End of *Goswell-street*, in the Road to *Islington*; in *Cuckstone*, near *Rocheſter* in *Kent*, all the Yards and Backsides are over-run with it. *Miller's Bot. Off.*

The Fruits of this Plant taken internally are very dangerous, as appears by several Histories which occur among Botanic Writers. The Painters in Miniature macerate it, and obtain a fine Green from it. The Leaves of *Belladonna* are great Sweeteners and Resolvents; they are applied to the Piles and Cancers. Some boil them with Whey, or make use of their Juice. Mr. Ray confirms these Uses of it, especially in carcinomatous Ulcers and Indurations of the Breasts. *Mariyn's Tournesfort*.

In the Month of *August* some Children of *Grandvaux*, a Village four Leagues from *Paris*, having got into an uncultivated Garden, they eat of the Fruit of deadly Nightshade, or *Melanocerasus*. Some time after they had a violent Fever, with Convulsions, and terrible Palpitations at the Heart, they knew nobody about them, and intirely lost their Understanding. A little Boy of four Years of Age died the Day after. They found three Wounds in his Stomach, with the Berries of the Nightshade bruised, and the Seeds sticking in the Wounds; the Heart livid, and no Water in the Pericardium. Mr. *Boulduc* communicated this to the Academy. *Hist. de l'Acad. Roy. de Scienc. A.* 1703.

Our own Country will furnish us with many Instances of the same Kind from eating by Mistake the Berries or Leaves of this Plant. I know a Gentleman, who had a Tenant, and his Wife, his Father-in-law, and Children, driven out of their Senses for some time, by eating Herbs boiled with Bacon in the Spring, amongst which were the young Shoots of the *Belladonna*. A Hound also who eat the Broth had the same Fate, but they all recovered in a few Days.

The Plant takes the Name of *Belladonna* from the Use which the Italian Ladies apply it to; for of the Juice, or distill'd Water, they make a sort of Cosmetic, with which they wash their Faces, in order to take away a too florid Colour.

Notwithstanding the deleterious Effects of this Plant, some have ventured to give an Infusion of it in Wine, as a Remedy for a Dysentery. And others have given a very small Quantity of the Juice boiled up with Sugar to a Syrup, as a Narcotic. But this Practice is rather empirical than rational, and, at best, very hazardous.

As to the Cure of Disorder from taking this Plant, *Gerard* relates a Story of three Children at *Wibich*, in the Isle of *Ely*, who eat of the Berries; two of these dy'd, and the third was vomited plentifully, by drinking copiously of Honey and Water, and recovered.

Ray, from *Hæchstetterus*, relates a History of a Mendicant Friar at *Rome*, who drank an Infusion of this Nightshade in Wine; the Consequence of which was, that he lost his Senses, but was brought to himself by drinking a Glass of Vinegar.

BELLARIA. Sweet Cakes, Tarts, or any sort of Confectionary Ware used for Desserts.

BELLERICÆ. An Epithet for a particular Species of Myrobalani. See MYROBALANI.

BELVEDERE. The Italian Name for the *Scoparia*, Bushy, or Besom-toadflax.

BELLICULUS, or BELLIRICUS MARINUS. A Species of Shell-fish like the Periwinkle.

BELLIS MAJOR, Offic. J. B. 3. 114. Chab. 362. Ger. 509. *Emac.* 634. *Schw.* 28. *Raii Hist.* 1. 350. *Synop.* 91. *Bellis major vulgaris seu sylvestris*, Park. 528. *Bellis sylvestris caule folioso major*, C. B. 261. *Bellis polyclonos sylvestris major, caule folioso*, Hist. Oxon. 3. 28. *Leucanthemum vulgare*, Elem. Bot. 393. Tourn. Inst. 492. Boerh. Ind. A. 107. *Dill.* Cat. 82. *Bellidioides vulgaris*, A& Reg. Par. An. 1720. 281. OX-EYE DAISY. Dale.

The Leaves of this Daisy are long and round at the End, serrated about the Edges, growing narrower towards the Root, and ending in long broad Foot-stalks: The Stalks use to be a Foot or more in Height, striated and clothed with smaller and narrower Leaves, having large Flowers growing on their Top, composed of several broad white Petals, set about a broad yellow Thrum, made up of a Number of hollow Flowers thrust close together. The Root is small, slender, and creeping. It grows

grows in Pasture-grounds, and in the Borders of Fields; and flowers in June.

The Flowers of this Daisy are chiefly used, and commonly go under the Name of Ox-eye; they are of a balsamic Nature, and are accounted good for all Disorders of the Breast and Lungs, as Coughs, Shortness of Breath, Pleurisy, Consumption, and Wasting of the Flesh. They are helpful against inward Bruises, and Wounds, and Ruptures, and are often put in Apozems and Decoctions for the aforesaid Purposes. *Miller's Bot. Off.*

BELLIS MINOR, *Symphytum minimum*, *Consolida minima*, *Offic.* *Bellis sylvestris minor*, C. B. 261. A& Reg. Par. An. 1720. 278. *Raii Hist. 1.* 349. *Synop. 91.* *Tourn. Inst. 491.* *Elem. Bot. 392.* *Dill. Cat. 46.* *Boerh. Ind. A. 108.* *Bellis minor sylvestris simplex*, Park 531. *Bellis minor sylvestris*, Ger. 510. *Emac. 636.* *Bellis minor sylvestris spontanea*, J. B. 3. 111. *Chab. 361.* *Bellis minor pratensis seu vulgaris*, *Hist. Oxon. 3. 31.* **COMMON DAISY.** *Dale.*

The Root of the common Daisy is a thick Bunch of Fibres; the Leaves grow in a Circle close to the Ground, being thick and fleshy, and are long and narrow at the Bottom, ending broad and round, not much bigger than a Silver Penny, with very few Indentings about the Edges: The Flowers spring immediately from the Roots, upon slender Stalks three or four Inches high, bearing one small single Flower at the End, made of a Border of white Petals, or Leaves, set about a yellow Thrum; sometimes the Border is edged with a reddish Colour, and red underneath. The Seed is whitish, slender, and flat. Daisies grow every-where in the Fields and Meadows, and flower in April and May.

The Leaves, and sometimes the Roots, are used, and are reckoned among the traumatic and vulnerary Plants, being used in Wound-drinks, and are accounted good to dissolve congealed and coagulated Blood, to help the Pleurisy and Peripneumony. In the King's-evil, the Decoction given inwardly, and a Cataplasm of the Leaves applied outwardly, are esteemed by some extraordinary Remedies. *Miller's Bot. Off.*

Its Leaves are acrid, glutinous, and give hardly any Tincture of red to the blue Paper, which shews that its Salt is not very different from that which is natural in the Earth; that is, composed of Sal Ammoniac, Nitre, and marine Salt, involved in a great deal of Sulphur and Earth, which thicken the Sap of the Daisies, and render it viscous. This Plant, taken in a Puffan or Extract, dissolves the Blood which is thickened by too cold an Air, as it often happens in Inflammations of the Lungs; it takes away Obstructions, facilitates the Circulation of the Blood, and restores the Fibres to their natural Elasticity; for which Reason it is thought to be very vulnerary. *Ruellius* affirms, that a Cataplasm, made with Daisies and Mugwort, dissolves scrophulous Tumors, and those wherein there is an Inflammation, and gives Ease to those who are troubled with the Gout or Palsy. *Martyn's Tournesort.*

There are several other Plants which go by the Name of *Bellis*. Thus the *Aphyllantes Anguillareæ*, or *Globularia*, is called *Bellis cærulea Monspelica*. See **GLOBULARIA**.

BELLOCULUS. A Sort of precious Stone resembling an Eye, and from hence superstitiously said to be good in Disorders thereof.

BELLON. A Distemper very common in *Derbyshire*, and other Countries where they smelt Lead-ore, to which Beasts, and even Poultry, as well as Men, are subject; and, for this Reason, a certain Space round the Smelting-houses is called *Bellon-ground*, where it is dangerous for any Animal to feed.

This Disorder is attended with Languors, Weakness, intolerable Pains, and Sensation of Gripings in the Belly, and generally Costiveness; and very frequently proves fatal.

The Method of Cure which has been found most successful on this Distemper, is, to give Cremor, or Crystals of Tartar, in small Doses, and to repeat them frequently, for Example, two or three times a Day.

I must not omit remarking, that I have twice met with Disorders much resembling this, from the taking *Saccharum Saturni*, as a Remedy for the Fluor Albus; for which Reason I look upon it as a very dangerous Medicine. See **PLUMBUM**.

BELLONIA. This Plant was so named by Father *Plumier*, in Honour of the famous *Petrus Bellonius*, who has left many valuable Tracts on Natural History.

The Characters are;

It hath a wheel-shap'd Flower, consisting of one Leaf, and divided at the Top into several Parts; from whose Cup arises the Pointal, fix'd in the Middle of the Flower like a Nail: The Flower-cup afterward becomes a hard oval pointed Fruit, in which are contained many small Seeds.

We have but one Species of this Plant; that is, the *Bellonia frutescens, folio melissæ aspero*. *Plum. Nov. Gen.* **SHRUBBY BELLONIA, WITH A ROUGH BALM-LEAF.**

There is no Medicinal Virtue attributed to this Plant, that I know of. *Miller's Dictionary.*

BELMUSCUS. See **ABELMUSCUS**.

BELONE, *Βελώνη*. A Needle. See **ACUS**.

BELONOIDES. See **BELEMNOIDES**.

BELOERE. An Indian evergreen Plant. The Leaves powder'd purge with too much Violence. The Seeds bruised, and taken warm, purge more moderately. *Raii Hist. Plant.*

BELOS. *Βέλος*. An Arrow, or Dart. This Word only belongs to Medicine, as it is a Cause of Wounds.

BELULCUM. From *Βέλος*, an Arrow, and *ελκεω*, to draw. An Instrument for the Extraction of Darts of Arrows, of which many are describ'd by chirurgical Writers.

BELUTTA TSJAMPACAM. The Name of a very large Tree, which grows in *Malabar*.

The Root bruised with fresh Ginger, and taken internally, powerfully excites Sweat. The Bark also taken, or powder'd, and sprinkled on a Wound made by the Bite of a Serpent, cures it. Cataplasms are made of the Leaves, boil'd in new Milk, with an Addition of Palm-oil, which, applied to the Top of the Head, are said to discuss viscid and pituitous Humours collected in the Brain, to attenuate them, and to discharge them by the Nose. A Decoction of the Leaves, drank, attenuates viscid Phlegm, and, by this means, cures a Cough. The Fruit, when fresh, boil'd in Honey, loosen the Belly; but, when dry, are astringent. From these also an Oil is express'd, which agreeably removes Pains of the Limbs, if they are anointed with it. *Raii Hist. Plant.*

BELZOINUM, the same as **BENZOINUM**, which see.

BEN. The *BALANUS MYREPSICA*, which see. See also **BEHEM**.

BENATH. The Arabic Name for small Pustules, which rise in the Night after sweating.

BENEDICTUS, Blessed. A pompous Epithet given to some Plants; as the *Carduus Benedictus*, and the *Herba Benedicta*, which is the same as the *Caryophyllata*, *Avens*.

It is also given to many Compositions. Thus the emetic Infusion of *Crocus Metallorum* is call'd sometimes *Aqua Benedicta*; and, amongst the Alchymists, the Philosophers-stone goes by the same Name, as well as by that of *Lapis Benedictus*. But *Mynsicht* gives the Name of *Aqua Benedicta* to a Water distilled from the *Serpyllum*. *Bates* gives two Waters, each under the Name of *Aqua Benedicta*, the first of which only differs from the *Aqua Calcis*, in the Proportion of the Water to the Lime. As thus:

AQUA BENEDICTA BATEI.

Take Quick-lime, one Pound; and pour upon it eight Pounds of boiling Water; after some time settling, pour it off by Inclination, and filtre for Use.

This stands commended for an extraordinary Medicine in many Cases of Obstinacy; and, if it be drank, three or four Ounces, three or four times a Day, is said to cure red pimpled Faces, Struams, Dysenteries, the Fluor Albus, rheumatic Pains, and the Diabetes. It is certainly a powerful Drier, and very proper to use in Decoctions of the Woods, and all Ingredients of that Intention; but tho' the making of it is easy enough, yet, here in *London*, it may be had at any time from the Sugar-baker's, by the Name of Lime-water, as it happens to be wanted, because they use it much in refining their Sugars. This is also much prais'd for cleansing and drying up old foul Ulcers, both by its internal Use, and washing them frequently with it.

AQUA BENEDICTA COMPOSITA BATEI.

Take of fresh Liquorice, an Ounce; Sassafras-bark, half an Ounce; stoned Raisins, six Ounces; Nutmegs, six Drams; of the preceding *Aqua Benedicta*, six Pints. Infuse cold for two Days, and strain off the Liquor.

The Virtues are the same as those of the *Aqua Benedicta* preceding, but of more Efficacy in some Cases.

BENEDICTA LAXATIVA: The Blessed Laxative, from the College.

Take of choice Turpeth, ten Drams; of Diagrydium, the Bark of Spurge-root prepar'd, and Hermodactyls, of each five Drams; the Seeds of Anise and Fennel, of each half an Ounce; of Sal Gem, one Ounce; of clarify'd Honey, three times the Quantity of the rest, so as to make into an Electuary.

This is originally taken from *Nicolaus*, both by the College, into their first Dispensatory, and by the Augustan, with very little Variation; and it hath so continu'd down to the present Reformation of our College, who have now rejected many needless Spices and Carminatives, which were crowded into it under the Notion of Correctors, here being a Sufficiency retain'd for such Purposes. *Zwelfer* says, that some have order'd double the Quantity of the Spurge-root; but thinks, that, as it stands here, it is enough; and that even that requires a due Preparation, which is, by infusing it three Days in very sharp Vine-

B E N

gar, and then drying it. It is, however, so wholly neglected by the present Practice, that it is never made in the Shops.

Quincy's Dispensatory.

BENEOLENTIA. Sweets, or sweet-smelling Medicines.

BENGI-EIRI. A Species of evergreen Indian Ricinus is thus call'd, which grows in Malabar.

The Leaves powder'd, and sprinkled upon Ulcers, destroy luxuriant and fungous Flesh; of the Leaves also, bruised, and mix'd with Cows Dung, and sew'd together in a Bag, a very good Topic is made for any Parts affected with Convulsions. *Raii Hist. Plant.*

BENIGNUS. Mild, gentle. It is apply'd to Diseases which are not virulent, and to Medicines which operate gently.

BENINGANIO. A Fruit which grows in the Bay of St. Augustine, of the Size of a Lemon, red without, and which is very grateful to the Stomach. *Raii Hist. Plant.*

BENZOINUM.

Benzoin, Benzoinum, Offic. Benzoin, Comm. Plant. Usual. 87. Park. Theat. 1572. Boerh. Ind. A. 2. 259. *Benzoin, Asa dulcis, Mont. Exot. II. Benzoinum Officinatum, Jonsl. Dendr. 355. C. B. Pin. 503. Raii Hist. 2. 1845. Benjoinum, Chab. 74. Benjoinum, cujus arbor folio citri, J. B. I. 328. Arbor Benzoini Grimm, Ephem. Germ. A. II. 376. f. 31. Arbor Benzoinifera, Breyn. Prod. 2. 16. Arbor Virginiana pisaminis folio baccata, Benzoinum redolens, Pluk. Almag. 42. Phytog. Tab. 139. f. 3. & 4. Arbor Virginiana, citria vel limonia folio, Benzoinum fundens, Hortus Amstel. I. 187. f. 97. Benjui Garzia, Clus. Exot. 155. THE BENJAMIN-TREE. Dale.*

This is called *Asa dulcis, Asa odorata, Belzoë, Benzoë, Gummi Benzoë, Benzoinum, and Benzoinum*. It is a Gum of an agreeable and fragrant Smell, produced in the East Indies by a large and high Tree, which bears long Leaves, like those of the Citron and Lemon-tree, though somewhat smaller, and not so green; they are also whitish on one Side. This Tree is called by *Herm. Nic. Grim. in Ephem. N. C. Dec. 2. An. 1. Obs. 152. Arbor Benzoini*. By *Jac. Breynio in Prodrom. Benzoinifera*. By *Garzia, Benivifera*; and by *Chabreus, Benivi Arbor*. Some take it for the *Cyrenaic Laserpitium*, or ferulaceous Juice, formerly found very good in the Country of the Cyrenians; hence 'tis called *Liquor Sirenaicus, or Cyrenaicus*. *Jac. Bontius* says, it is produced in great Plenty in *Zeilon, Sumatra, Siam, Cambodia, Java, and Malacca*; but the best Sort comes from *Boninas and Bairos*. It is imported to us quite dry. Some write, that it is composed of several Pieces of different Colours. The best is hard, solid, shining and transparent, has white Spots in it, and is of an agreeable Flavour. It is by some called *Amygdaloides*, on account of its white Spots, which resemble a blanch'd Almond. See *Ol. Worm. Mus. C. 34. Job. Dan. Horst. Pharmac. Part. I. L. 6. C. 260. Erasmi. Franciscus*. The Brown and Black, though of an agreeable Smell, are yet far from being so good as the other Sort, on account of some Impurities, with which they are mixed. It is of a warming, drying, dissolving, and purifying Nature; resists Putrefaction, is good against Disorders of the Breast and Lungs, and cures Oppression of the Thorax. It is very rarely used internally; but yet the Flowers, the Magistery and Tincture prepared from it in the Apothecaries Shops, are of singular Service in Coughs, Oppressions of the Breast, Ulcers of the Lungs. In Obstructions of the Menfes, the Flowers taken in a poach'd Egg are of singular Service. *Amarus Lusitanus*, with these Flowers, and Flowers of Sulphur, happily cured an inveterate Cough, *Cent. 6. Cur. 90. Jo. Beguinus*, in his *Tyrocin. Chym. L. 2. C. 28*, asserts, that they are good for Asthmas, and all Disorders of the Lungs. The Commentator on the same Chapter commends them in inveterate Phthyses and Asthmas. *Fabr. Bartolet. L. 5. de Dyspn. C. 1*, says a great deal concerning it in Disorders of the Breast, and Defects in Respiration, and calls it the Balsam of the Lungs. But *Marcus Banzer* endeavours to demonstrate the contrary, *Controvers. Medico-miscellan. Dec. 4. Thes. 7*, and asserts, that its Flowers are hurtful in a Phthisis, and other Disorders of the Lungs. The Flowers have a more disagreeable Taste than the Gum itself. Externally it is used in all fragrant Compositions; for it proves cordial by its agreeable Smell, fortifies the Senses; by its Steam, dries up the cold Humours of the Cerebellum, dissipates Defluxions, and cures Tooth-achs. However, in burning the Benzoin, we ought to take particular Care not to swallow a great deal of the Smoke, because it not only affects very quickly the Cerebellum, but also acts with such Force upon the Breast and Lungs, that 'tis ready to destroy Respiration. There is also a Cosmetic Tincture made of Benzoin, in this manner:

Take of Benzoin, and Storax Calamita, each an Ounce: After reducing them to a Powder, and putting them into a Phial, pour upon them four or six Ounces of rectified Spirit of Wine; put it in a warm Place, and let it remain in it, shaking it now-and-then till the Tincture is extracted; then filtrate it through Paper; put some of it into Rose-

B E N

water, Water of the Flowers of Beans, or any such Water

It suddenly turns the Water into which it is put to a milky Colour; for which Reason 'tis called *Lac Virginis*, or Virgin-milk. With this the Face is to be washed. It carries off all Spots, and renders the Skin white, clear and pure. It carries off Blotches contracted by the *Lues Venerea*, *P. Amman. Manuduct. ad Mater. Med. p. 122*. It also removes Tooth-achs, if applied on a little Cotton. See also *Collect. Chym. Leydens. C. 94. and 95. and Chem. Rational. P. T. C. 1. Artic. 10*. As also the *Dispensat. Brandenburg. p. 170*. Its odoriferous Oil also purifies and heals the Skin, if diluted in Spirit of Wine, or the White of an Egg. *Barth. Zorn Botanolog.*

Benzoin is a resinous, inflammable Substance, sometimes of a reddish, sometimes of a pale Colour, and generally very foul. When it is cover'd with white Spots, it is call'd *Benzoinum Amygdaloides*. It is of an agreeable Taste, a little acrid, and is much used in Perfumes. It is not certain, that this Juice was known to the Antients. It is brought from the *Philippine Islands*, from *Siam* and *Sumatra*. *M. Grimm* has describ'd the Tree which produces it, and the Manner of preparing it, in the *Ephemerides Naturæ Curiosorum, An. i. Dec. 2*. It is very proper in Asthmas, to attenuate the Phlegm which oppresses the Lungs, and in Ulcers of that Part; but the Flowers of Benjamin are prefer'd for internal Use. *Geoffroy*.

It is the resinous Gum of a Tree which grows in the East-Indies; the best in *Siam*, taken from young Trees of five or six Years Growth, whose Bark they cut right down in several Places in the upper Part of the Tree, from whence this Gum flows out; which, at first, is soft and glutinous, hardening in time. The Tree bears large Citron-like Leaves, but of a paler Green, and whitish underneath: The Fruit is about the Bigness of a Nutmeg, somewhat flattish, cover'd with a Bark like the outer Shell of a Walnut, but somewhat downy on the Outside. *Miller's Bot. Off.*

The Druggists generally keep two Kinds of Benzoin, that in Tears, as 'tis call'd, and another Sort. The true Benzoin, which was imported into France by the People in the Embassy of *Siam's* Retinue, was, externally, of a yellowish-gold Colour; but white internally, with small, clear, white and red Veins distributed thro' it: It was friable, and without any Taste, but of a very agreeable and highly aromatic Smell. It differ'd very much from that Benzoin in Tears which is commonly sold, which is a clear and transparent Mass, of a reddish Colour, and mix'd with whitish Tears, resembling Almonds, for which Reason 'tis call'd *Amygdaloide Benzoin*.

This last-mention'd Species ought to be chosen with Qualities as much approaching to the former as possible; and it ought, above all things, to be pure, and free from Dregs, a Property with which 'tis very rarely to be found.

The other Sort of Benzoin is the most common of all, and very often counterfeited by a Fusion of several Gums together. The best of this Kind is pure, of an agreeable Smell, very resinous, and intermix'd with a great many whitish Tears: That which is black, and without any Smell, is absolutely to be rejected. *Savary*.

Preparations of BENZOIN, or BENJAMIN.

TINCTURE of BENJAMIN.

Let Benjamin, which spontaneously flows from its Tree in Plenty, be ground to Powder, and boil'd in a Glass Vessel, with Spirit of Wine once rectified, without any farther Preparation; and thus it resolves into a red and sweet-scented Liquor, which, being decanted clear, and more Spirit pour'd to the Remainder, and boil'd therewith, nearly the whole Body of the Benjamin is thus dissolved, except a little shaggy Matter. But if the Alcohol were perfect, and boil'd in this manner with the Benjamin, the Tincture becomes the richer. They are both of them odoriferous, and of a warm, bitterish, and balsamic Taste.

R E M A R K S.

Hence it appears, that an unctuous Resin may be perfectly and totally dissolved in Alcohol, so as therewith to appear in the Form of a considerably homogeneous and thin Liquor; a little whereof being pour'd to a large Proportion of Oil, the Mixture immediately turns white, opaque, and milky, thence call'd *Virgin's Milk*; because, if the Face be wash'd therewith, it becomes rosy and soft, and cover'd with a thin shining Skin, if suffer'd to dry spontaneously. This Mixture, therefore, is esteem'd an innocent Cosmetic; and, when mix'd with Wash-balls, renders them of an agreeable Odour. This Resin of Benjamin is wonderfully volatile, with a small Degree of Heat, and spontaneously dissolves in Alcohol without Alkali. *Boerhaave's Chymistry*.

This is somewhat different from that quoted from *Zorn*.

TINCTURA

TINCTURE of BENJAMIN. *From Quincy.*

Powder four Ounces of select Benjamin; put it into a Matrafs, and add to it tartariz'd Spirit of Wine, one Pound. Fit the Matrafs to a Cucurbit; lute the Joint, and set it in a warm Sand for three or four Days, now-and-then shaking it about. In that time there will be made a fine Tincture, which decant, and keep for Use.

This is good in Asthmas, and other Distempers of the Lungs, given from twenty to sixty or seventy Drops, in any convenient Vehicle. But it is most used externally, to smooth the Skin, and take Spots off the Face: One Dram of it, put into four Ounces of clean Water, turns it white, and is call'd *Virgin's Milk*. To this Tincture may be added, of Storax, one Ounce; and Balsam of Peru, one Dram; which will render not only the Scent more grateful, and make a deeper Tinge in the Spirit, but be also better for inward Use.

These three Tinctures only differ as to the Ingredients added to the Spirit, with the Benjamin.

FLORES BENZOINI: *Flowers of Benjamin.*

Put into a subliming Pot two or three Ounces of Benjamin, in gross Powder; set on its Cover, without luting; keep it in the second Degree of Fire in Sand, or immediately over a small Fire of Charcoal. The Flowers will presently begin to rise into the Cover, which, once in an Hour, or an Hour and an half, must be taken off, and wiped out, upon a clean Sheet of Paper, with a Feather. There ought to be two Covers to one Bottom in Readiness, that one may be clapp'd on as soon as the other is off. When the Flowers begin to rise yellow, take the melted Benjamin out of the Pot with a Spoon, and put into it more powder'd Benjamin, as at the first; and so proceed until there are as many Flowers as desired.

In this Operation Care must be taken, that the Fire be not too strong, because it will throw up some Oil, and discolour the Flowers. These are a wonderful Pectoral, and particularly in Asthmas; for they greatly attenuate, and open viscous Obstructions, and cleanse the Bronchia. They are convenient almost in any Form, and give a very grateful Scent to any Composition. Their Dose is from three to ten or twelve Grains.

OLEUM & SPIRITUS BENZOINI: *Oil and Spirit of Benjamin.*

Take of the black melted Benjamin, which remains after the Sublimation of the Flowers, one Pound; put it into a Retort, which place in a Sand-furnace; cover it well with Sand, lute on its Receiver, and make a Fire of the first Degree for one Hour; then increase to the second, and there will come over some Oil and Spirit, with some discolour'd Flowers: Augment the Fire to the third Degree, and at last to the fourth, till no Fumes appear, and there will be a blackish Oil, with an acid Spirit; and the Neck of the Retort will be fill'd with the discolour'd Flowers, which may be taken out, and put upon a clean brown Paper, to suck up the Oil.

These Flowers, tho' not so beautiful, are as good for Use as the former; and tho' the Oil, Spirit, and Flowers, acquire for the present an empyreumatical Scent, in six or eight Months that will wear off, and they become very fragrant.

After the same manner may be made the Oil, Spirit, and Flowers, or volatile Salt, of any Balsams; as that of *Tolu*, *Peru*, and the like. The Spirit is diuretic, but not very pleasant, by reason of its Empyreuma. The Oil is accounted a good Vulnerary, both in external and internal Application; and for inward Use, if two or three Ounces of it be put into a Cucurbit, which is capable of holding a Gallon of Liquor, and to it five or six Pounds of Water are added, and the Whole is set in a Sand-furnace, luting on its Head and Receiver, with a gradual Fire, till the Water is ready to boil, the spirituous Part of the Oil will come over with the Water, of a fine Amber-colour, and a fragrant Scent; which is an admirable internal Medicine, a powerful Diuretic, and by some reckon'd a Specific against the Stone and Gravel in the Kidneys and Bladder. Its Dose is from five to fifteen Drops, in a little refin'd Sugar. *Quincy's Dispensatory.*

BER. The Name of a Tree which grows in many Parts of the *East-Indies*. It bears a Fruit like the *Jujeb*.

BERBELICE. A Name in *Nicolaus Myrepsus* for the *Tussilago*, Coltsfoot.

BERBERI, *βερβερι*, according to *Athenæus*, the Name of the Shell in which Pearls are found.

BERBERIS, *Oxyacantha* *Galen*. Offic. *Barbaris*, Park. *Theat.* 561. *Mer.* Pin. 15. *Chab.* 50. *Berberis*, vel *Oxyacantha*, *Ind. Med.* 20. *Berberis Crespinus*, *Mont.* *Ind.* 38. *Berberis*, *Vol. I.*

beris dumetorum, C. P. Pin. 454. *Raii Hist.* 2. 1605. *Synop.* 3. 465. *Tourn.* *Inst.* 614. *Elem. Bot.* 487. *Boerh. Ind.* A. 2. 233. *Jenf. Dendr.* 219. *Dill. Cat. Giff.* 66. *Buxb.* 36. *Berberis vulgo*, quæ & *Oxyacantha putata*, J. B. 1. 52. *Spina acida*, sive *Oxyacantha*, *Ger.* 1144. *Emac.* 1325. *Oxyacantha Galeni*, *Merc. Bot.* 1. 56. *Phyt. Brit.* 86. THE BAR-BERRY, or PIPPERIDGE-BUSH.

The Barberry Tree, or rather Bush, for it never grows to any great Bigness, has the outward Bark of a whitish or ash Colour, and under that another of a deep Yellow. The Branches are long and brittle, full of sharp Thorns at the Setting-on of the Leaves, which are of a roundish or oval Form, neatly denticulated or notched about the Edges, of a fourish Taste. The Flowers grow among the Leaves, in long Bunches of six Leaves apiece, of a yellow Colour, which are follow'd by round cylindrical Berries of a red Colour, and full of a four Pulp, each having two long hard Seeds included. They grow wild in several Places, and are frequently planted in Gardens. They flower in April and May, and the Berries are ripe in September. The inner Bark and the Berries, with the Seed, are used.

The inner Bark is opening and attenuating, and is accounted a Specific against the Yellow-jaundice, taken either in an Infusion or Decoction. The Fruit is very cooling and restraining, and good to moisten the Mouth, and quench Thirst, in burning Fevers. The Conserve is serviceable against all kind of Looseness and Fluxes, and likewise of Use in the Jaundice.

The Seed is likewise binding and restraining, tho' it is but seldom used.

The only Official Preparation from this Tree is the Conserve of the Fruit. *Miller's Bot. Off.*

Its Root is yellow, very bitter, and gives but a faint red Colour to the blue Paper: The Juice gives it as lively a Red as Alum. This Plant, being analysed, yields a great deal of acid Liquor, a little urinous Spirit, and a good deal of Oil and Earth. The Fruit is chiefly in Use; it allwages too great a Fermentation of the Humours, especially when caused by Bile. *Tragus* affirms, that a Wine made of the Juice of its Berries will stop a Diarrhoea, Dysentery, and the Whites. The Infusion of them is given to drink. There is a Confection, a Syrup, a Jelly, and a Rob, made of them, which are used in cooling Julaps; *Simon Paulli* shews the Manner of making the essential Salt, which he calls the *Tartar of Barberries*:

Take, says he, two Pounds of the Juice of *Barberries*, and two Ounces of Lemon-juice; evaporate them very gently over the Fire, strain them, and set them to crystallize in a Cellar: These Crystals are very cooling.

In the Heat of Urine, and internal Inflammations, they dissolve Nitre in the Juice of *Barberries*, to make it crystallize. The Bark of the Root is astringent and deterfive. *Martyn's Tournefort.*

BERDIRAMON. A Name in *Nicolaus Myrepsus* for the *Jarus*, *Dracontium majus*, *Bistorta major*, or *Serpentaria major*, which are all the same Plant.

BEREAS. *Rulandus* explains this by *Rotundum*.

BEREDRIAS. The Name of an Ointment described by *Aetius*, *Tetrabib.* 4. *Serm.* 4. C. 113.

BERENI SECUM, signifies *Artemisia*, Mugwort. *Castellus*.

BERENICIUM. A Species of Nitre in *Galen* and *Actuarius*.

BERETINUS FRUCTUS. A Fruit found in the *Malacca Islands* by the Sailors, in *Sir Francis Drake's Expedition* round the World.

BERGAMOTE. A certain fragrant and cordial Essence is call'd by this Name, as also *Essentia de Cedra*. It is extracted from a kind of Lemon in *Italy*, call'd *Bergamote*; which, they say, owes its Original to an *Italian*, who took a Fancy to graft a Branch of a Lemon-tree upon the Stock of a *Bergamote* Pear-tree, whence the Lemons produced from this Union participate of both the Nature of the Citron-tree and the Pear-tree. The Inventor kept this Discovery secret for a long time, and enrich'd himself by it.

To extract the *Essentia de Cedra*, they cut the yellow or external Rind of the Lemon into small Bits, and immediately break them, one after another, by squeezing them into a Glass Vessel, in the same manner as you squeeze Orange-peel, when you have a mind to perfume a Glass of Wine: But this Vessel must have a narrow Mouth, so as not to admit more than the Ends of the two Fingers which squeeze the Rind; and even this Opening must be closed, as much as possible, after the Ends of the Fingers are enter'd within it, with some wet Parchment, in order to prevent what we labour to obtain from evaporating. It is proper, that the Vessel should be belly'd, and that its Capacity below should be far more extensive than its Neck, that the essential Part of the Rind, which was express'd by the Fingers, may have Space enough to disperse itself, and to circulate as it comes off, and to resolve itself into a Liquor. This Liquor is an ethereal Oil, very subtil, and of a charming Smell; but there

there must be a vast Number of these little Bits of *Bergamote* Lemon-peel cut up, in order to obtain a small Quantity of Essence.

The *Essentia de Cedra*, being prepar'd without the Help of Fire, in manner aforesaid, has a much more agreeable Smell, and participates of the Quality in a much greater Degree, than the Essence which might be extracted from the Rind of the *Bergamote* Lemon by a Separation, after the manner of other Essences.

It is a Cardiac, Stomachic, Cephalic, and is qualify'd to resist the Malignity of the Humours. The Dose is from one Drop to six. *Lemery des Drogues*.

BERIBERII. A kind of Palsy, common in some Parts of the *East-Indies*. The Name, in the Language of the Country, signifies a Sheep, and was given by the Natives to this Distemper, as *Bontius* thinks, because the Patients, in throwing out their Knees, and lifting up their Legs, seem to imitate Sheep in their Walk. It is, says he, a kind of Palsy, or rather Trembling, in which there is a Depravation of the Motion and Sensation of the Hands, Feet, and sometimes of the Body, accompanied with a Trembling.

The principal Cause of this Disorder is a gross and viscous pituitous Humour, which, in the Night-season, especially in rainy Weather, which holds without Intermission from the Beginning of *November* to the Beginning of *May*, falls upon the Nerves; while Persons, being fatigued with the Heat of the Day, throw aside their Cloaths, and lie without any Covering; by which means the phlegmatic Humour, which was before generated principally in the Brain, very easily seizes upon the Nerves; for the Nights in these Countries, compar'd with the hot Days, may be said to be cold. In this Case, the Joints are lengthen'd, the pituitous Matter insinuating itself between the Junctures, so as to relax the Nerves and Ligaments. Tho' this Disease, for the most part, comes on gradually, and by slow Advances; yet sometimes it seizes a Person on a sudden; as when, after being fatigued with Heat, he immediately takes a very plentiful Draught of the Liquor of the *Indian Palm-tree*. Thus we have sometimes seen, in our own Country, in the Season of the Dog-days, when Persons have been heated with Running, or any other vehement Motion, that a Draught of Beer, or Whey and Curds, greedily swallow'd, has thrown them into the utmost Danger of their Lives, and even proved fatal.

To proceed, the Symptoms of this Disorder are manifest to Sight; for there is a spontaneous Lassitude of the whole Body; the Motion and Sensation, especially of the Hands and Feet, are depraved; and the same Kind of throbbing Trillation is felt in them, as is felt in the Fingers and Toes in a cold Country, and in the Winter-season, only the Pain is not so great. Sometimes the Voice is so obstructed, that the Sick can hardly speak articulately. This happen'd to myself under this Disorder; for my Voice was so low for a whole Month, that those who sat close to me could scarcely understand what I said. Besides these Symptoms, there sometimes happen many others, all which, however, seem to owe their Rise to a cold and tenacious Humour; but let it suffice, that I have mention'd the principal.

Let us now betake ourselves to the Cure, which is usually very tedious, because the cold and viscid Humour is not easily and quickly dissolved: However, it is not mortal in its own Nature, except it falls upon the Muscles of the Breast and Thorax, and so stops the Passage of the Breath and Voice. Above all things, you must avoid, if by any Means possible, Confinement to your Bed; but bestir yourself, as much as Strength will allow, either in Walking or Riding, or any other Kind of vigorous Exercise: Running, indeed, is more than you can perform. Strong and smarting Frictions are also highly necessary, at which your *Bengal* Men-servants, and *Malacca* Women, are very dexterous; for our *European* Servants are as much unaccustomed to this Exercise as to Bathing, which is frequently used here. They prepare Fomentations and Infusions of a noble Herb called *Lagundi*, which has a Leaf like the *Periscaria*, and is of a sweet and aromatic Smell. This Plant, I am well assured, not only does the Service of Chamomile and Melilot, but excels them, at least, in my Opinion, in its dissolutive and resolving Virtues. The Hands and Feet are also to be anointed with the Oils of Cloves and Mace, but mix'd with Oil of Roses; for they are too caustic, and very easily corrode the Skin, if used alone. Besides these Medicines, we have a noble kind of *Naphtha*, brought from *Sumatra*, which lies over-against the Kingdom of *Java*, and in Sight of the same. This Drug the *Indians* call *Minjac Tannab*, which signifies the Oil of the Earth; because it breaks out of the Earth in the same manner as the *Naphtha*, which we know, and call *Petroleum*; or bursts out of the Rock, and runs into the adjacent Rivers. This Oil is so highly valued by the Barbarians, that the King of *Achin*, who is the most powerful of Death; so that the Inhabitants bring it off by Stealth from the Land, in the Dead of the Night, to ours, and the *English*

Ships that happen to be near their Shores. This Oil, rubbed on the Parts affected, relieves the Patient in a miraculous manner. It is also of a strong, but not a nauseous Smell.

But since this Disease belongs to the chronic Kind, no Medicines are so effectual against it as Decoctions of the Root of *China*, *Sarsaparilla*, and *Lignum Guaiacum*, which, by their gentle and friendly Heat, discuss those cold and thick Humours, and evacuate them by Sweat and Urine. We must, however, now-and-then interpose some gentle Cathartic. The best of this Kind is what we here prepare of an Extract of Aloes, and what is commonly called *Gutta Cambodia*, corruptly named by us *Gutta Gamba*.

Phlebotomy, is not allowed in this Case; for it is not a Plethora, but a *Kachochymia*, that is in Fault; and who is so ignorant as not to know, that the Blood is the Fountain of Heat, and the Treasure of Life?

The Reliques of this Disease are conveniently discussed by Venice Treacle, Mithridate, &c. and by Sudorifics, Diuretics, and such Medicines as strengthen the Nerves. Seasonable Exercise will assist Nature to overcome the other troublesome Attendants on this Disorder: *Bontius de Medicina Indorum*.

BERILLISTICA. A kind of pretended Magic Art, employed in observing preternatural Visions in Glass Mirrors, which are called *BERILLI*. *Rulandus*.

BERMUDIANA. This Plant takes its Name from the *Bermudas* Islands; from whence the Seeds of the first Species were brought.

The Characters are;

It hath lily Flowers, composed of six Petals, whose Em-palement becomes a triangular Fruit, which opens in three Parts, and is divided into three Cells, which are filled with round Seeds.

There are two Species of this Plant. *Miller's Dict.*

BERNA, or **BIRMINA**. These *Rulandus* explains by *Vac Vitreum*, a glazed Vessel.

BERNARDIA. This was so named by the late Dr. *William Houstoun*, in Honour of Dr. *Bernard de Jussieu*, Demonstrator of Plants in the Royal Garden at *Paris*.

The Characters are;

It is Male and Female in different Plants; the Male Plants produce small Karkins, which, when ripe, fall off; the Female Plants have a coccous petalous Flowers, which are succeeded by trilocous Fruits, resembling those of the *Ricinus*.

There are four Species of this Plant.

I know of no medicinal Virtues attributed to this Plant. *Miller's Dictionary*.

BERRIONIS. Colophony, Gum Juniper, or Vernice. *Rulandus*.

BERS. A sort of Electuary which the *Egyptians* make use of out of Gaiety, in order to raise a temporary Delirium; in which they probably take the same monstrous Satisfaction as the *Europeans* do in getting drunk. The Composition is thus:

Take of white Pepper, and of the Seeds of white Henbane, each twenty Drams; Opium, ten Drams; Indian Nard, Euphorbium, and Pellitory of Spain, each one Dram; and Saffron, five Drams. Reduce all these Ingredients to a fine Powder in a Marble Mortar, and make into an Electuary, with three Parts of pure Honey.

This Electuary is not to be used till it has stood six Months. It seems to differ very little from the *Philonium Romanum*, of which *Avicenna* has given us the Receipt; and the *Egyptians* find it from Experience to be possessed of the same Virtues and Efficacy, *Prosop. Alpin*.

BERULA, Offic. Chom. 539. *Sium*, Rivin. Irr. Pent. Dill. Cat. Giff. 142. *Sium erectum umbellatum, fructu Pastinaca aquatica*, Raii Hist. 1. 444. Merc. Bot. 1. 69. Rhyt. Brit. 114. *Sium fructu Apium palustre, foliis oblongis*, C. B. Pin. 154. Raii Synop. 3. 211. Rupp. Flor. Jen. 230. Tourn. Inst. 308. Elem. Bot. 258. Boerh. Ind. A. 55. Buxb. 305. *Sium fructu Apium palustre, foliis oblongis*, Bot. Monsp. 243. *Sium umbelliferum*, J. B. 3. 172. Chab. 173. *Sium medium*, Ejusd. 174. & J. B. 173. *Sium minus alterum*, Park. Theat. 1241. *Sium majus angustifolium*, Ger. Emac. 256. *Sium erectum, foliis serratis*, D. Doody. *Nasturtium aquaticum*, Ger. Icon. 200. UPRIGHT WATER PARSNIP.

It grows for the most part in moist and wet Places, and flowers in the Month of *June*. Its Leaves are only now in Use. It is esteemed an Antiscorbutic, and like the *Sium*, or Water-Parsnip, dissolves and evacuates the Stone, provokes Urine, and the Menstrues, expels the Foetus, and, if mixed with Food, is of Service in the Cure of Dysenteries. *Dale*.

BERYLLUS, Offic. Boet. 214. Calc. Mus. 221. Mont. Exot. 14. De Laet. 44. Aldrov. Mus. Metal. 952. Kenm. 47. *Berillus fructu Beryllus*, Charlt. Foss. 40. THE BERYLL. *Dale*.

This is a precious shining and transparent Stone, the Colour of which is commonly a Sea-green; but there are some of the Colour of Oil, or of Garlick, or Pale, or Yellow, or of the Colour

four of Gold: They call this last *Chrysoberillus*; that is to say, gilded Beryl. This Stone is found in the Mines in the Indies, in the Island of Zeylon.

It is good to stop Fluxes and Hemorrhages, being bruised and given inwardly; but it is seldom used in Medicine. *Lemery des Drogues*.

BERYTION, *Βερυτιον*. The Name of a Collyrium described by *Galen*, and recommended by him for Inflammations of the Eyes. It is also the Name of a Paffil, taken Notice of by the same Author, as good in Dysenteries.

BES. A Weight. It is Two Thirds of an Integer; generally of a Pound. Eight Ounces.

BESACHAR. A Fungus, or Sponge. *Rulandus*.

BESASA. *Βεσασα*. The *Ruta Sylvestris*, wild Rue.

BESLERIA. This Plant was named after *Basilus Besler*, an Apothecary at *Nuremberg*, who was the Author of a Book, intitled, *Hortus Eystetensis*.

The Characters are;

It hath a flower consisting of one Leaf, which is tubulous, and of an anomalous or perforated Figure, having two Lips; from whose Cup arises the Pointal, which is fixed like a Nail in the hinder Part of the Flower, which afterward becomes a soft, fleshy, oval-shap'd Fruit, in which are many small Seeds.

There are four Species of this Plant.

I know of no medicinal Virtues attributed to this Plant. *Miller's Dictionary*.

BESONNA. *Rulandus* explains this by *Muscarum Fungus*, I suppose he means a Sponge, which is the Nidus of some Sort of Flies.

BESSANEM. This, in *Avicenna*, signifies a Redness of the external Parts, resembling that which precedes the Leprosy. It occupies the Face and Extremities. This should seem to be what we call Chilblains.

BESTIA. Any sort of Beast.

BESTO. A Name, in *Oribasius*, for the *Saxifraga*, *Saxifraga*.

BETA. Beet. A well-known Plant.

There are two Species of Beets, of which the black Beet, and especially its Root, boiled with Lentils, is a powerful Binder; but the white Sort keeps the Belly in a right Temper; but both of them are of bad Juice, on account of their Nitrosity; by which Quality, however, their Juice, with Honey, infused into the Nostrils, purges the Head, and helps Pains in the Ears. The Decoction of the Roots and Leaves detergeth Scurf and Nits, and mitigates Chilblains, which are fomented therewith. The crude Leaves are applied by way of Cataplasm to the Alphi, which ought first to be rubb'd with Nitre; they also serve as a Cataplasm for an Alopecia, after the Place has been scrap'd, and for spreading Ulcers. Being boil'd, they cure Eruptions of Pimples, (*εξανθήματα*) Burns, and Erysipelas. *Dioscorides*, Lib. 2. Cap. 149.

There is another Sort of Beet call'd *Beta Sylvestris*, or the wild Beet; of which *Dioscorides* treats under the Appellation of *Limonium*.

BETA ALBA, Offic. Ger. Emac. 318. Raii Hist. 1. 204. *Beta*, Chab. 302. *Beta alba vel pallefcens, quæ Sicula & Cicla Officinarum*, Hist. Oxon. 2. 596. Boerh. Ind. A. 2. 94. *Beta communis alba*, Park. Parad. 489. Ger. 251. *Beta candida*, J. B. 2. 961. *Beta alba vel pallefcens, quæ Cicla Officinarum*, C. B. 118. Tourn. Inst. 502. **WHITE BEET**. Dale.

The Root of this Plant is large and thick, growing deep in the Ground, shooting out pretty large Leaves standing on long Foot-stalks, pretty broad, and roundish pointed, and somewhat crumpled, of a fleshy and insipid Taste. The Stalks are pretty thick and angular, growing to be two Foot high or more, branch'd and beset with the like Leaves, but smaller. The Flowers grow in Clusters, of a green Colour, small and chaffy. The Seed is hard and prickly. This is usually planted in Gardens; though we have a Species of Beet which grows wild in several Places by the Sea-side.

Beets are more used as a Pot-herb, and to eat with Salt-meat, than phyically. They loosen the Belly, and temperate hot cholerick Humours. The Juice of the Roots is sometimes used as an Errhine, being snuff'd up the Nose to clear the Head of Phlegm and mucous Humours, and by that means to help old Head-achs.

The Beet is one of the Five emollient Herbs. *Miller's Bot. Off.*

BETA RUBRA, Offic. Ger. 251. Emac. 318. Raii Hist. 1. 204. Chab. 302. J. B. 2. 961. *Beta rubra vulgaris*, C. B. 118. Hist. Oxon. 2. 596. Tourn. Inst. 502. *Beta communis rubra*, Park. Parad. 489. **RED BEET**. Dale.

This grows in all respects like the former, except that it is somewhat less, and the Leaves strait; and the whole Plant, Stalk, Leaves, and especially the Root, is of a deep-red or purple Colour. It grows with the former. Its Virtues and Uses the same.

The Root is more frequently employ'd to garnish Dishes, than to any medicinal Uses. *Miller's Bot. Off.*

BETLE, Offic. *Beile frue Betre*, Ger. 1357. Emac. 1541. *Betre*, *Beile*, *Betele*, *frue Bethle*, Park. Theat. 1615. *Betre frue Tembul*, C. B. Pin. 410. Jonst. Dendr. 172. C. Com. Flo. Mal. 60. *Beile frue Betelle*, J. B. 1. 437. Chab. 33. *Betele*, Bont. 91. *Beetla*, Codi, Hort. Mal. 7. 29. Tab. 15. *Piper longum, foliorum nervis decurrentibus tenuioribus & mollioribus*, *Beile dictum*, Hist. Oxon. 3. 603. *Bulatwala*, Herm. Mus. Zeyl. 34. **BETLE**.

This is a Plant of the scandent Kind, much celebrated in the *East-Indies*. The Leaves are principally in Use, which are esteemed best when fully ripe, and of a yellowish Colour; they are spoiled by being much handled when they are newly pulled from the Plant.

In the *Malacca* Islands, the *Beile* bears a kind of Fruit wreathed in the Form of a Lizard's Tail, which the Inhabitants of these Islands eat on account of its agreeable and grateful Taste. *Bontius* informs us, that it bears a Fruit resembling the white oblong Pepper, or rather the Tail of a Dormouse. This Fruit is, by the Inhabitants of the *Malacca* Islands, called *Sirii Boa*, and is had in much higher Esteem than the Leaves of the *Beile*. It is planted like Vines, and Props and Supports are erected for it to creep along. Some, for the sake of greater Profit, make it cling to the Trees which bear the Arcea, or *Indian Nut*, and thus form a beautiful Shade. It grows in all the Provinces of the *Indies* on the Sea Coasts, but not in midland Places, or such as lie remote from the Sea, unless it has been transplanted to them.

Most of the ancient Botanists confound the *Beile* with the *Malabathrum*, or *Indian Leaf*; but they are quite different Plants, since, according to *Garcias*, the latter is a strait Tree, whereas the former is of the scandent Kind, and stands in need of Supporters.

In the Morning, the Afternoon, the Evening, and the Night-time, the *Indians* chew the *Beile*, and carry it continually about in their Hands; but they do not use it alone upon account of its Bitterness, but wrap up the *Indian Nut*, and a little Lime, in the Leaf of the *Beile*, which they affirm to be a Mixture of a very grateful Taste. Others mix *Lycium* with the *Beile*. The Rich and Opulent use it with Camphire of *Borneo*, and some others with Aloes-wood, Musk, and Ambergrise. When thus prepar'd, it has so agreeable a Taste, and renders the Breath so sweet and fragrant, that the more wealthy of the Inhabitants chew it almost continually; and also others according to their Circumstances; tho' some chew the Arcea with Cinnamon or Cloves. These are the Circumstances, of which *Garcias* gives us an Account; but other Authors, who have travell'd themselves thro' the *Indies*, inform us, that both the rich and poor *Indians* constantly chew the Arcea alone, broken and wrapp'd up, with a little Lime, in the Leaves of the *Beile*, which sends forth so fragrant a Smell, as to fill the whole Room. Upon spitting out the first Juice, which some retain, it appears bloody, which Colour it receives from the Arcea, and not from the *Beile*. Then they take successively more Leaves, prepar'd in the same manner. Unless the *Indians* us'd this Practice, their Breaths would have a disagreeable Smell. *Bontius* asserts, that the Leaves of the *Beile*, us'd without the above-mentioned Substances, which is frequently done, corrode the Teeth, and sometimes make them drop out. In the *Indies* I myself have known young Men, not exceeding twenty-five Years of Age, entirely deprived of their Teeth, by a frequent Use of the Leaves of the *Beile*.

When they take their Leave of any one, 'tis customary to make him a Present of a filken Purse full of those Leaves thus prepar'd; and no one allows his Friend to part from him without a *Beile*, which, with them, is the Sign of taking Leave.

When they make their Addresses to the Great and Opulent, they use to chew the *Beile*, in order to give them an agreeable Breath; for, with them, not to have a perfum'd Breath, is an unpardonable Transgression of the Laws of Decorum and good Manners; and when People of a low Condition are oblig'd to converse with the Great and Opulent, they put their Hands on their Mouths, lest, perhaps, a Gust of their disagreeable Breath should prove offensive to the Nostrils of their Betters. When their Women have Business of a certain kind to transact with Men, they chew the *Beile* previously, imagining that it is an Incitement to Wantonness: Hence, when they pay their Visits, and mutual Compliments, they always have the *Beile* in their Hands; and it is every-where presented with the greatest Demonstrations of Benevolence, along with Arcea and Lime, in a wooden Vessel kept on purpose. They chew it principally after Dinner, in order to prevent Uneasiness at their Stomachs.

They sometimes use to abstain from it, when performing the funeral Rites of their near Relations, and on certain Days set apart for fasting.

It strengthens the Gums, corroborates the Heart and Stomach, dissolves Flatulences, and purges the Stomach and Brain; if chew'd in the Morning, immediately after Breakfast, it renders the Breath agreeable, but blackens the Teeth, and, according to *Bontius*, not only corrodes, but makes them fall out.

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The Portuguese Women imitate the Indians in this Particular, and are so excessively fond of chewing the *Betle*, that they think they cannot live without it. *Raii Histor. Plantar.*

BETONICA. Offic. Ger. 557. Emac. 714. Raii Hist. 1. 550. Synop. 3. 238. Mer. Pin. 15. Rivin. Irr. Mon. Dill. Cat. Giff. 126. *Betonica vulgaris*, Merc. Bot. 1. 23. Phyt. Brit. 15. *Betonica purpurea*, C. B. Pin. 235. Tourn. Inst. 202. Elem. Bot. 172. Boerh. Ind. A. 154. Rupp. Flor. Jen. 136. Buxb. 37. *Betonica vulgaris purpurea*, J. B. 3. 301. *Betonica vulgarior, flore purpureo*, Park. Theat. 614. *Betonica sive Vetonica*, Chab. 431. **WOOD BETONY.** Dale.

The Root of *Betony* is pretty thick at the Head; whence it sends out a great Number of small Fibres, of an unpleasant nauseous Taste. The Leaves grow on pretty long Foot-stalks, somewhat wrinkled, rough and hairy; full of Veins; broader at Bottom than at the End, which is blunt-pointed; they are roundly indented about the Edges. The Stalk is four-square; about a Foot or more high, with very few Joints; at each of which stand two Leaves, one opposite to the other, on short Foot-stalks. The Flowers grow in Spikes on the Tops of the Stalks, *verticillatim*, or whorle-fashion, two small Leaves being placed under each Whorle: they are of a red purplish Colour, of one single Flower, having a round Galea, and a *Labella* divided into three Parts, each growing in a rough five-pointed Calyx, in which, after the Flowers are past, grow four small Seeds.

Betony grows in Woods and Thickets, and by Hedge-sides, and flowers in May and June. The Leaves and Flowers are used.

Betony is a good cephalic, hepatic, and vulnerary Plant, of so great Esteem among the Antients, that *Antonius Musa*, Physician to *Augustus Caesar*, wrote a whole Treatise concerning it. It is very good in Pains of the Head, Convulsions, and nervine Affections. The dried Leaves, cut and mix'd with Tobacco, are frequently smok'd for the Head-ach, Vertigo, and sore Eyes. Mix'd with Wood-sage and Ground-pine, it makes a good Diet-drink for the Gout and rheumatic Pains. The fresh Leaves, bruise'd, are good for green Wounds, and to draw out Splinters.

The only official Preparation from this Herb is the *Emplastrum de Betonica*. *Miller's Bot. Off.*

The Leaves of this Plant have an herby Taste, are a little saltish and aromatic, and give no Tincture of red to the blue Paper. The Flowers and Roots, which are very bitter, stain it very little. The *Betony* is full of Sulphur, mix'd with a little oily, volatile Salt and Earth.

By the chymical Analysis it affords a great deal of Oil, a little Earth, and fix'd Salt; no concreted volatile Salt, but a little urinous Spirit.

The *Betony* is vulnerary, aperitive, diuretic, sweetening, good for the Diseases of the Brain and lower Belly; a Tea of the Leaves is good for the Vapours, Sciatica, Gout, Pains in the Head, Jaundice, and Palsy: The Tisane of its Leaves, a cold Infusion of them in Water, the Conserve of its Flowers, the Syrup of the Flowers and Leaves, and the Juice and Extract of these Parts, have the same Virtues: They promote Expectoration, and bring away purulent Matter; they consolidate internal Ulcers, and remove Obstructions in the Bowels: A Sneezing Powder is made of the Leaves, and a vulnerary and cephalic Plaster is prepar'd with the Juice: The Roots have not the same Effect, but they purge both upwards and downwards. *Martyn's-Tournefort.*

A Decoction of *Herniaria* and *Betony* is commended for the Stone in the Kidneys and Bladder. Others advise a Decoction of *Betony* to stop a Flux of the Lochia after the Birth. The Surgeons mix it in their cephalic Cataplasms. They make a Plaster of the Leaves for Wounds, especially those of the Head. *Boerhaave.*

In the old Dispensatory of the College, a Conserve of the Flowers of *Betony* was directed, which is omitted in the present. Some Authors, however, have a very great Opinion of it.

EMPLASTRUM DE BETONICA: *Betony Plaster.*

Take of green *Betony*, Pimpinell, Agrimony, Sage, Pennyroyal, Yarrow, the lesser Centaury, and Clary, each six Ounces; of Frankincense and Mastich, each two Drains; of Orrice and round Birthwort, each six Drains; of Wax and Turpentine, each eight Ounces; of Resin of the Pine-tree, six Ounces; of Gum-elemi, and Oil of Firr, each two Ounces; of White-wine, three Pounds. Let the Herbs be well bruise'd in a Mortar, and stand in Maceration for a Week with the White-wine, and then stirred about and boil'd: When the Wine is press'd out, strain'd, and boil'd to the Consumption of a third Part, put to it the Oil of Firr, then the melted Wax, afterwards the Resin and Gums, and last of all the Turpentine. When these have had a gentle Boil, and been taken from the Fire, and near cooled, sift in it the Orrice and Birthwort in fine

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Powder, and stir them briskly together, so as to make into a Plaster, *S. A.*

This hath pass'd thro' all the Revises of our College with little or no Alteration, but is not in any other official Dispensatory that I have met with. It requires a good deal of Care and Trouble in the Composition; yet, as it is sometimes met with in Prescription, most of the Shops are at the Pains to keep it by them.

BETONICA AQUATICA. See SCROPHULARIA.

BETONICA PAULI. See VERONICA MAS.

Betula, Offic. C. B. Pin. 427. J. B. 1. 148. Raii Hist. 2. 1410. Synop. 3. 443. Chab. 60. Ger. 1205. Emac. 1478. Park. Theat. 1408. Tourn. Inst. 588. Elem. Bot. 460. Boerh. Ind. A. 2. 182. Dill. Cat. Giff. 42. Rupp. Flor. Jen. 265. Buxb. 38. Merc. Bot. 1. 23. Phyt. Brit. 15. Mer. Pin. 15. Jonsf. Dendr. 33. **THE BIRCH-TREE.** Dale.

BETULA.

This Tree grows to be tall and large, cover'd on the Outside with a whitish Bark, which it sheds yearly. It has a great Number of slender, tough, red Twigs, or small Branches, clothed with small, roundish, green Leaves, indented about the Edges; these are preceded by little scaly round Cones, which contain the Seed. It grows in Woods in divers Parts of the Land.

The Leaves of the Birch-tree are accounted good for the Dropsy, as also for the Itch, used both inwardly and outwardly. The Liquor that flows out of this Tree, bored with an Augre in the Spring, is accounted to be very good for the Stone and Gravel, and against bloody Urine, and the Strangury. The Wood makes good Fire-wood, and; next to Juniper, is prefer'd to burn in Times of Pestilence, and contagious Distempers. *Miller's Bot. Off.*

The Bark of the Birch-tree is very fine. *Tragus* says, that he has seen, in a Library at *Coire in Switzerland*, Verses written upon it; they use it to this Day to make Ropes for Wells: They affirm, that the Liquor which comes out of the Trunk of this Tree, after it has been pierced with an Augre in the Spring, is very aperitive, deterfive, and cosmetic; they ascribe the same Virtues to its depurated Juice, and distill'd Water. *Martyn's-Tournefort.*

BETULUS. A Tree; call'd also *OSTREYS*, which see.

BEX. B \acute{e} x, a Cough, is nothing else but a vehement Effluvia, in which a great Quantity of Breath, being hurry'd forth with vast Swiftnefs, attracts and pushes forward, by its Impetuosity, whatever obstructs its Passage; and, if it be too weak to expel the offensive Matter at the first Discharge, it fails not to renew its Effort even once and again. For the most part, it obtains its End; that is, whenever the Breath passes with a strong Current, and the obstructing Matter is dispos'd for Expulsion, as when it is neither of a watery nor viscous Substance. *Galen De Symp. Causis, Lib. 2. Cap. 4.*

The End of a Cough is to cleanse the Passage of the Breath. *Idem, in 6. Hipp. de Morb. vulg. Com. 5.* See TUSSES.

BEXUGO. This is the Root of the *Clematis Peruviana* of *Casp. Baubine*. It is purgative, taken in the Quantity of a Dram. The Indians prefer it to *Mecboacan*.

BEYA, in the alchymistical Jargon, is the *Aqua Mercurialis*, Mercurial Water, which is Wife to the *Gabriel*, or *Sulphur Philosophorum*, Sulphur of the Philosophers.

BEZOAR. *Avenzoar* is the first who mentions *Bezoar* as us'd by way of Medicine, or gives its History. He says, that is best which is found in the East, near the Eyes of Stags. But that which has gone under that Name in these latter Centuries, is, according to the best Accounts, always found in the Stomach, or rather Omasum, of the Cervicapra.

This is originally a *Persian* Word, namely, *Badzcher*, or *Bazcher*, which, in that Language, signifies no more than any Substance intended to prevent the fatal Effects of Poison; and the *Persians* us'd the Word in the same Sense in which the *Greeks* us'd the Word *Antidote*; whether that Antidote was a simple or a compound Medicine. But the Word came afterwards to be peculiarly appropriated to that Species of Stone, which, by a Corruption of the *Persian* Word, we now call *Bezoar*. Some *Arabian* Authors have asserted, that this Stone was only to be found in Mines; and others, that it was to be met with in the Heads of certain Serpents: But the most judicious Authors of that Nation have given an Account, which has since been confirm'd by the Relations of several Travellers, which is, that this Stone is found in the Corners of the Eyes of such Stags as have eat Serpents; where, growing gradually bigger, by the Formation of one Crust above another, it at last acquires such a Weight, as to drop off of its own accord, and is found in the sandy Grounds of *China* and *Tibet*. If applied to Wounds, occasion'd by the Bites of venomous Animals, it extracts the Poison lodg'd in them; for, as soon as it comes into Contact with a Wound of this kind, it adheres to it of its own accord; and, after having absorb'd as much of the Poison as it can contain, it discharges its venomous Contents in the Water in which it is immersed. After which it is to be apply'd

apply'd afresh to the Wound, to which it adheres 'till it has produc'd its design'd Effect, and brought about a thorough Cure. *Herbelot Bibliothéque Orientale.*

Mr. *Herbelot* seems to give too much Credit to this Oriental Account of the Production and Virtues of *Bezoar*, which is fabulous.

Bezoar is nothing else but a Stone form'd by the Gall of several Species of Animals, found in the *East* and *West-Indies*, such as Goats, Hogs, Apes, &c. The Virtues of the *Bezoar* consist in the volatile alkaline Salts of which 'tis compos'd, since 'tis, in reality, nothing but the Bile of these Animals. 'Tis by means of these volatile alkaline Salts that it destroys Acids, and promotes Transpiration. We have no Occasion to go far in quest of *Bezoar* Stones, since all Stones, form'd by the Gall of any Animal whatever, are such, tho' their Activity and Virtues differ according to the different Animals from which they are taken, and the different Climates in which these Animals live. The *Bezoar* Stone is also sometimes found in other Parts of these Animals besides the Gall-bladder. *Hist. de l'Acad. A. 1703.*

There are several Medicines us'd in the Practice of Physic, with regard to the Origin and true Account of which, we *Europeans* are still pretty much in the Dark: They sometimes pass thro' so many different Hands before they arrive at ours, that 'tis no easy Task to form a true Judgment of their Natures and Compositions.

Merchants, who deal in Commodities of this kind, very often know no more than the Name of the Medicines, and are more intent upon making Profit by their Sale, than enriching their Minds with a Knowledge of their Origin and Qualities. Travellers, on the other hand, have not always an Opportunity of procuring the Evidence of their Senses, in Cases of this Nature; they often rely on the Relations of others, with regard to Things they themselves have not seen. In Matters therefore of this kind, an accurate and minute Examination of any Substance is sometimes of more Use and Importance, than a great many Accounts and Relations concerning it. This Consideration induc'd me to undertake a very careful Examination of the several Substances call'd *Bezoar*, a Name given to a particular Species of Stones found in the Bodies of certain Animals. Some affirm, that the Name *Bezoar* comes originally from the *Persian* Word *Bazar* or *Pazan*, which signifies Dung or Dirt; others maintain, that it is deriv'd from the *Hebrew* or *Chaldean* Word *Belu-zaar*, which means a Medicine against Poisons.

The first Stones known under the Name of *Bezoar* were imported from the Eastern Nations; but, since the Discovery of *America*, we have had some brought to us, which resembling the former both in the Conformation of their Parts, and their medicinal Virtues, have been also call'd *Bezoars*, only with this Difference, that what comes from the *Levant* is call'd *Oriental Bezoar*, and what is imported from *America* receives the Name of *Occidental Bezoar*. There are also other stony Concretions taken from Animals, which are dispos'd in *Strata*, and have been call'd *Bezoars*; but these have been distinguish'd by the Names of the particular Animals from which they happen to be taken; such, for Instance, are the *Bezoar* of the Ape, and that of the *Cayman*. Some, taking the Word *Bezoar* for a general Name, signifying any Medicine against Poison, have applied it, without Distinction, to every Substance of that Nature: So that the Name *Bezoar* has been affix'd to chymical Preparations, such as the *Mineral* and *Jovial Bezoars*: With others, a Powder of the Heart and Liver of Vipers has been styl'd *Bezoar*. The Name *Bezoar*, or rather the Epithet *Bezoardic*, has also been bestowed upon some Powders, or artificial Stones, in which the *Bezoar* is an Ingredient; such as the *Countess of Kent's Powder*, and the *Goa Stone*.

Some People, observing that *Bezoar* was dispos'd in *Strata*, have given the same Name, and ascrib'd the same medicinal Qualities, to a Stone resembling it in the Conformation of its Parts, and which is found in several Parts of the Earth in *America*. *Bezoars* of this kind are to be found in *Italy*, in *Sicily*, and even in several Parts of *France*, but especially in *Languedoc*.

These are, in general, the several Substances known under the Name of *Bezoar*; but, strictly speaking, *Bezoar* is a Substance of a stony Nature, extracted from some Animal, compos'd of several *Strata* or Layers, like those of Onions, and which possesses a certain Quality, by means of which it resists Poisons. The two principal Species of this Medicine are, as we have already said, the *Oriental* and the *Occidental Bezoars*. We have not, as yet, arriv'd at an absolute Certainty what particular Animals produce these two different Species, because, 'tis possible, People may have said concerning both, what was only true of one of the Species: Only this much we know in general, that this Stone is form'd in the Stomach of a certain wild Goat, which brouses upon aromatic Plants. If we may give Credit to *Tavernier*, there are several of these Stones to be found in one and the same Animal, the Truth of which, he says, we discover by the Touch. These Stones are of different Shapes and Sizes: Some of them are of the Form of a Kidney, or *French Bean*; others are round, oblong, and of an irregular

Vol. I.

Figure. Each Stone of this kind is compos'd of several Laminæ, form'd of a greenish or olive-colour'd Substance, diversify'd with white Streaks, which run thro' the whole Body of the Stone. These Laminæ adhere so closely to one another, that, upon breaking the Stone, we may observe several Layers of different Thicknesses, and even sometimes of different Colours. There are also found Laminæ, which, upon breaking these Stones, disengage, and separate themselves very regularly from each other; which they also do when a considerable Degree of Heat is apply'd to them. The Substance which possesses the Middle or Centre of these *Bezoars*, is usually hard, gravelly, and pretty smooth. The *Bezoardic* Layers, which cover this Substance, are easily broken between the Teeth, to which they adhere like a gently glutinous Substance, and tinge the Saliva a little.

Upon burning some of these Layers, I found that they were easily inflammable, and contain'd a volatile Salt and an Oil. The Matter which remain'd after their being burn'd, resembled the *Caput Mortuum* which remains in the Retort after the Distillation of animal Substances. These Stones are smooth on their Surfaces, but sometimes, on certain Parts, are rough and unpolish'd, like Shagreen. They are pretty tender, and, if apply'd with a considerable Degree of Force to Paper, rubb'd over with Chalk, White-lead, or Lime, they wear away, and tinge the Paper, thus prepared, with a yellow, greenish, or olive Colour, leaving some Part of their Substance upon the Chalk, White-lead, or Lime. I steep'd two of these Stones in cold Liquor, the one in Water, the other in Spirit of Wine, for twelve Hours, without any apparent Change or Alteration being produced in them. I left the same Stone in the Water for some Days, during which Time there was so very small a Quantity of Matter separated from it, as only render'd the Water gently turbid; the Water and Spirit of Wine had nevertheless penetrated both the Stones.

Among the great Number of *Bezoar* Stones I have broken for the sake of Examination, I have found many, in the Middles of which, agreeably to the Accounts of some Authors, there were Straws, Hairs, Marcassites, Flints, and gravelly Concretions, as much compacted, and as hard, as the Stones themselves. In some of them I have also found Talc, Wood, Stones almost resembling those of Cherries, Stones of Myrabalan, and Fragments of the Stones of other Fruits. In some I have also found a Sort of Cassia-nuts and Kidney-beans, included in a Coat or Membrane, the external Surface of which was indurated by the Matter of which the *Bezoar* is form'd, and in which the proper Membrane was shrivell'd up, and become dry. In others I have found the first Covering waisted; and the entire Stones, upon being struck, founded like Eagle-stones. I have endeavour'd to prick one of these Stones with a red-hot Needle, in order to discover whether it was genuine or not; but the Needle did not prick them, and only left a brownish Mark where it touch'd them; which Method some Authors have proposed as the most effectual for distinguishing the good from the counterfeit, assuring us at the same time, that those in which the Kidney-beans were found, are counterfeited by the Inhabitants of the several Countries from which this Commodity is imported.

These Authors, therefore, advise us to make Choice of the *Bezoar* Stones which are of a moderate Bulk, of a brownish Colour, and which communicate a yellow Colour to Quicklime, a greenish one to Chalk, and which cannot be dissolv'd in Water. If prick'd with a hot Iron, no Bubbles ought to arise round the Iron, which is a Proof, that it is not adulterated with any Rosins. The Laminæ also must be fine, and dispos'd in *Strata*. The best Species of these Stones are taken from Animals that feed on large Mountains, such as those of *Persia*. After all, it appears to me a hard Task to counterfeit *Bezoar*; and any one who has been in the least conversant in this Commodity, may by his Sight only, as well as by the other Marks I have laid down, discover the Imposture; for, if it was counterfeited with Plaster, or any other Substance of a similar Nature, it would neither undergo a Change by means of Fire nor Water, nor convey its Colour to Lime; nor, in a word, would it be able to stand all the several Methods of Proof for distinguishing the genuine from the counterfeit.

Nor is it credible, that, in order to counterfeit it, People should be at the Pains to seek for all those different Materials, which serve as a Ground-work for the Laminæ; or Beds of which 'tis compos'd; since, without so much Ceremony, they have only Occasion to begin it upon a small Ball of the same Matter, which, in all Probability, is not very scarce.

I am of Opinion, that the Substances included in the *Bezoar* Stones discover to us the precise Manner in which they are form'd, as *Tavernier* observes, who says, that these Stones are form'd around the small Buds or Tops of the Branches of a certain Plant. Those Buds of *Tavernier* may possibly be the same with the Kidney-beans mention'd by *Morand*, and which I myself have observed. These solid and indigestible Bodies, remaining in the Stomachs of these Animals, irritate their Glands; and the thick Lymph which these Glands discharge, together

with the Menstruum of the Stomach, which is impregnated with the Juice of the aromatic Plants, upon which they feed, form those regular, smooth, and beautiful Layers, which Art would in vain attempt to imitate; and I have even observ'd, that whatever Substance was lodg'd in the Centre of these Stones, the Strata were so fine, and so well dispos'd, that the external Figures of the Stones bear a Resemblance to that of the Substance lodged within them.

If, for Example, a Piece of Straw be the Ground-work, the Stone form'd upon it will be long; if it is a Piece of Flint, the Stone will preserve the same Figure; and, if a Kidney-bean, we may observe externally the Radicle, and the Line which separates the two Lobes of the Bean. In short, from the Form and Weight of these Stones, we are enabled to judge effectually of the particular Substances on which they are form'd. Thus, as in a Commodity so precious as *Bezoar*, we are not allowed to break each Stone, we must therefore trust to the Touch and Sight, after having try'd our Experiments upon some of the most suspicious ones. By the Sight we are enabled at once to form a Judgment of the Colour, which ought to be neither too pale nor too deep. Secondly, we are to judge of it from the Fineness of the Grain, and the Texture being so smooth and close, that the several Laminæ are not easily separated from each other. We must also take care to choose those which are of a regular Figure; that, for Instance, of a Kidney, a Bird's-egg, or some other similar Form. By the Touch we may also judge of the Substance included in the *Bezoar*, since the Weight or Lightness will determine that Point very well. If, for Instance, the Stone is heavy, the Ground-work, or Substance on which it is form'd, will be a Portion of Flint, possessing the greater Part of the Stone. If, on the other hand, the Stone is light, it will either be hollow internally, or include only some light Substance, such as a Collection of Hairs, or some of the vegetable Substances I have already mentioned. The Stones which found upon being struck, probably have, for their Groundwork, some Fruit, which, either becoming dry, shrinks up into a smaller Bulk than it at first had, or else is putrefied, and reduc'd to a Powder which some Authors esteem very much.

I have observ'd also, that when the *Bezoar* Stones are of the Shape and Form of a Kidney, feel light, and yield a Sound, a Kidney-bean is ordinarily the Substance on which they are form'd. There are others of these Stones which are also light, of a round and somewhat flat Figure. These, upon Trial, I found contain'd a round and flat Fruit, almost of the Figure of a Cassia-nut. Besides, tho' these *Bezoars* should include hard Stones of Fruit, (Instances of which have been met with) or even Portions of Wood, yet still their Lightness renders them preferable, provided the *Bezoardic* Matter bears the other Proofs, to those form'd upon Flints, and which are much more heavy.

For answering its common Intentions in Physic, the Method of preparing *Bezoar* is, to reduce it to a fine Powder, whether with a View to be taken in Substance, or to serve as an Ingredient in some other Compositions; provided we remember to pulverize only the *Bezoardic* Part, and to separate all adventitious Substances, especially Flints, and other Things which have none of the Qualities of *Bezoar*, and which are lodg'd in them.

The Sentiments of People are strangely divided with regard to the Animals which produce the *Oriental* and *Occidental Bezoars*: But it appears, that the *Oriental Bezoar*, which is brought to us from *Egypt* and *Persia*, the *East-Indies* and *China*, is produc'd by a Species of wild Goat, which the *Persians* call *Pazan*, and which is larger than ordinary, swift as a Deer, and has Horns reclining on its Back; for which Reason *Clusius* calls it *Capricerva*, and which is thus distinguish'd:

Capra sive Gazella Bezoardica Orientalis, Offic. *Gazella Indica*, cornibus rectis, longissimis nigris, prope Caput tantum annulatis, Raii Synop. A. 79. *Capricerva Orientalis*, à qua *Lapis Bezoar Orientalis*, Schrod. 5. 277. *Capra sive Hircus Bezoarticus*, Aldrov. de Quad. Bisul. 755. *Capra sive Hircus Bezoarticus vel potius Pazaharticus*, Jons. de Quad. 56. *Hircus Bezoarticus*, Charlt. Exer. 11. THE BEZOAR GOAT.

That Species of *Bezoar* which is imported from *America*, is produc'd by a Goat, which differs little or none at all from the former, except with regard to its Horns. It is thus distinguish'd:

Cervus minor Americanus Bezoarticus, Offic. *Capricerva Occidentalis*, Schrod. 5. 278. *Maxama seu Cervus*, Hern. 324. *Caguacu-ete*, Marcg. 235. *Caguacu-apara*, Ejsid. *Sive mas & femina*, Raii Synop. A. 90. Pis. (edit 1658) 98, THE LESSER AMERICAN DEER.

Pomet describes the *Oriental Bezoar* Goat thus, from *M. du Renou*: It is a very active Animal, says he, that skips from Rock to Rock, at his Ease, and is very fierce, so that when he is closely pursued, he sometimes kills the *Indian* Hunters. The Hoof, or Claws of his Feet, are divided neither more or less than the Goat's; the Legs are pretty thick, the Tail short and turn'd up; the Body hairy, as that of the He-goat, but shorter, and of an Ash-colour, inclining to Red, or rather of

the Colour of the Hind's Belly; the Head is shap'd like the Goat, and arm'd with two black Horns, jagged at the lower Part, and turn'd backwards.

The great Variety of Opinions advanc'd by different Authors, with regard to the Name and Shape of this Animal, induce me to believe, that there are several Species of Animals in which these Stones are found, and that each Author has describ'd the particular Species which he has had an Opportunity of seeing. This Reason may also account for the different Colours of *Bezoar*.

The *Occidental Bezoar* is easily known from its being of a paler Colour: It is sometimes of a Greyish-white, and is form'd on Substances of the same kind with the *Oriental*. Its Laminæ are also sometimes thicker and striated according to their Thickness.

The fossil *Bezoars* are Species of Stones, form'd by Strata or Beds, and in Figure resemble the animal *Bezoar*. They are ordinarily of a grey-whitish Colour: Their Strata are pretty minute; they have no Smell; and are used in the same Disorders for which the other *Bezoars* are thought proper. *America* supplies us with large Quantities of these *Bezoars*, and they are also to be found in *Italy*, and several Parts of *France*. Mineral *Bezoar* is thus distinguish'd:

BEZOAR MINERALE, Terra Sicula; *Bezoardicum Minerale*, Mont. Ind. Exot. 14. *Bezoar Minerale*, Aldrov. Mus. Metall. 805. *Lapis Bezoar Minerale Siculus*, Bocc. Obs. Ed. Ital. 379. *Lapis Bezoar Siculus albus*, *Orientali fragilior*, Cup. Hort. Cath. Supp. 1. 246. *Lapis Bezoar fossilis*, Geoff. Prælect. 69. De Laet. de Lap. 114. *Belzuar Mineralis Siciliana*, Bocc. Mus. di Fisica 55. MINERAL BEZOAR, or SICILIAN EARTH.

There are some other Substances, which, from the Manner of their Production, are called *Bezoar*. Thus there are the BEZOAR GERMANICUM. German *Bezoar*. See EGAGROPILA.

BEZOAR HYSTRICINUM. See HYSTRIX.

BEZOAR MICROCOSMI, is the human Calculus.

BEZOAR SIMIÆ. See SIMIA.

Those who have written upon *Bezoars*, and amongst others *Caspar Bauhin*, have comprehended under that Name a great many Substances which have not the least Affinity to *Bezoar*, which must undoubtedly introduce Disorder and Confusion into natural History. If then we were to range into a proper Order all the Substances which can come properly under the Denomination of *Bezoar*, I think we might very properly reduce them to five Classes.

The first of which should contain the true *Bezoars*, which are the *Oriental* and *Occidental*.

The second should comprehend all Stones extracted from Animals, which approach to the *Bezoar* in the Conformation of their Parts, or their Qualities; such as the *Bezoar* of the *Apé*, that of the *Cayman*, and even the various Species of Pearls and Crabs-eyes.

In the third Class should be ranked the several Species of fossil *Bezoars*.

In the fourth should be placed those Substances which are shaped like *Bezoar*, without having its Virtues; such as the Stones found in the human Bladder, Kidneys, and Gall-bladder; as also those that are found in the Gall-bladders of Oxen, or other Animals.

In the fifth and last Class should be ranged the *Egagropila*, which are a Species of Balls of different Figures, and very light, formed by a Collection of Hairs and Fibres of Plants, which the Animals, in whose Stomachs they were lodg'd could not digest. These Fibres and Hairs are at last so interwoven with one another, as to form one Body, which resembles a Ball of Felt like that employed in making coarse Hats. Some of these are found covered with a very fine Crust of *Bezoar*. They are ordinarily found in the first Ventricle of all ruminating Animals, or in the Stomach of such as do not ruminate; such are the Stones found in the wild Porcupine, and other Balls of Hair found in Goats, Oxen, Cows, and other Animals. *Mem. de l'Acad. R.* 1710.

In a subsequent Memoir Mr. *Gouffroy*, continuing the Subject of *Bezoar*, proceeds thus:

I have already observ'd, that there was almost always some kind of Substance, round which the *bezoardic* Strata are form'd and dispos'd; and this Circumstance has to me appear'd a Mark, that these Stones were not counterfeit'd, since any one that would attempt to counterfeit them, would not, in all Probability, be at the Pains of collecting so great a Variety of Materials as are generally found in these Substances, which are the Bases or Ground-works of different *Bezoar*-stones.

The fossil *Bezoar* is also form'd in the same manner. *Boccone* has in them observ'd Fruit stones of various Sorts; Flints, Gravel-stones, Wood, Metal, Coal, and other Substances. I examined some of these commonly called *Priapalites*, which are found in *Languedoc*; and I had one of this Kind given me by Mr. *Ben*, in the Heart of which there was a Piece of Rock-crystal.

Among

Among the several Substances found in the animal Bezoar-stones, I have observed one, which, to me, appeared very like the Cassia-nut, or a Tamarind-stone, though smaller. However, I have since found, that it might possibly be the Seed of a certain Pod, which I had not then seen, and which resembles the Seed of the Pod produced by the true *Egyptian Acacia*, which grows in *Egypt*, in *Arabia*, and in several other Places. This Pod is imported to us from *Senegal*, and is three Inches or three Inches and an half long, and nine or ten Lines in Circumference. It is composed of two Membranes, one external, and another internal. The external Membrane is very tender, of a brownish Colour, and adheres to the internal one, which is cartilaginous, and very slender. The Substance which unites them is of a gummy Nature, of a yellowish transparent Colour, melts in the Mouth, and is of a very bitter Taste. In the longest of these Pods I have found eight Seeds, separated from each other by a sort of Coat, which unites the two Sides of the internal Membrane. Every Cavity of these Pods contains a flat Seed, resembling that of a Lupin, sometimes exactly circular, and sometimes a little compressed by the Coats joining the two Membranes of the Pods, which are more contracted in the Middle than towards the Extremities; so that the Seeds in the Middle of the Pod are a little compressed; and those at its Extremities perfectly round.

What made me suspect, that these Seeds were the same I had observed in the Hearts of the Bezoar, which are round, and a little flat, is, that in both I have found the same Marks, and among others a whitish circular Line drawn on every Surface of each Seed, resembling that found on the Substance included in the Bezoar. I put some of these Seeds into Water, where they swell'd almost in the same manner they were found to do in the Stomach of the Animal, when they were beginning to have the bezoardic Matter form'd upon them. The Tincture I extracted from these Seeds was of a red Colour, a very bitter Taste, and, upon the Addition of a little Vitriol, became black. In the Countries where these Pods and Seeds are produced, the Inhabitants use them for tanning Leather. From a Decoction of them in Water, there is a Juice extracted, which, when inspissated, is imported to us under the Name of the Juice of *Acacia*. Some also assert, that what we call the Gum Arabic, or Gum *Senegal*, flows from this Tree. Is there then any Probability, that the Persons who are said to counterfeit the Bezoar, should be at the Pains, among other things, to seek for the Fruit of the *Acacia* as the Stamina or Ground-works of their Compositions? Or is it not more probable, that this Fruit, and some others used for the Pasturage of Cattle, by their astringent Qualities, produce an Inspissation of the Juices in the Stomachs of those Animals, which feed most commonly on them, and that in Consequence of this Inspissation the Bezoar-stones are form'd?

This then is the Manner in which these Stones are form'd in the Stomachs of the several Animals which produce them. Several of them may be found in the Stomach of one and the same Animal; and *Tavernier* tells us expressly, that six of these Goats, which he received as a Present, had among them all seventeen Bezoars, which might have been felt and number'd by touching their Stomachs externally; and that this Circumstance augmented the Price of the Animals, in proportion to the Number of Stones discover'd. This Account agrees entirely with that given by *Clusius* of the Animal which produces the Occidental Bezoar. He says, that a Friend of his at *Peru*, who first discover'd the Occidental Bezoar, having a Mind to know how these Stones were formed in the Bodies of those Animals, dissected one of them, in whose Stomach he found a kind of Cyflis, in which these Stones were ranged and disposed in the same manner with the Buttons of a Coat.

This Account given by these two Authors is directly opposite to that given by *Pomet*, who asserts, that there is only one Bezoar found in the Stomach of each Animal. He assures us, at the same time, that he would not dare to contradict the Authors who have written on this Subject, if he had not had in his Custody a Piece sufficient to justify his Opinion. It will not be improper to inquire a little more minutely into this Fact, since nobody, so far as I know, has as yet animadverted publicly on this Error of *Pomet's*, with regard to his pretended Coat of the animal Bezoar, which he asserts to be one of the greatest Curiosities the Virtuosi of *France* have seen for a long time.

In that Part of his Treatise of Drugs, which relates to Animals, he gives the following Account of it.

"This Coat," says he, "is as large as a Goose's Egg, covered over externally with a rough, short, and yellowish-coloured Hair. Upon cutting it, the first thing that occurs, is a thin brown Shell, which serves as a Cover to another white one, as hard as a Bone, in which the Stone called Bezoar is contained."

Now this extraordinary Coat in which the Bezoar is wrapt up, and which he pretends to have discover'd, is by no means any Part of the Animal which produces the Bezoar, but an exotic Fruit, in which either *Pomet* himself, or some wanton Impostor, by whom he has allowed himself to be deceiv'd, has dexterously fitted the Bezoar. 'Tis only a Year since I detected

this Piece of Fraud; for when I was examining this Curiosity of the late Mr. *Pomet's*, along with Mr. *Vaillant*, and Mr. *De Jussieu*, we perceived that this pretended Coat could not possibly be a Part of any Animal, but rather some little known Fruit; which Conjecture was afterwards confirmed by Mr. *Vaillant*, who, happening to have some Fruit of the same Kind, found no Difficulty to make of their Coats Bezoars exactly like that so much valued by *Pomet*. This Fruit is produced by a sort of Palm-tree, described by *John Baubine* under the Name of *Palma Cuciofera*. This Fruit is also described by *Theophrastus*, and the Tree itself grows in *Egypt*, *Nubia*, and *Ethiopia*. *Cordus* calls it the *Nux Indica minor*, and has given the same Description of it which *Pomet* has given of the Coat of the Bezoar. *Pomet* has omitted only one Particularity of this Description, which is the Skin which covers the Whole of the Fruit, and is of a yellow tawny Colour. The Fruit itself has a Pedicle divided into six Parts; three of which are large, and three small. These Circumstances were sufficient to deceive Mr. *Pomet*, and others with him; but a careful Detection of Frauds of this Kind must contribute considerably to the Perfection of natural History. *Memoires de l'Acad. Royale de Sciences*, A. 1712.

Mr. *Geoffroy* the younger exhibited to the Academy a Bezoar of a very singular Kind. It is a Stone irregularly round, three Inches and three Lines in its greatest Length, and two Inches and an half where it is shortest. It weighs only five Ounces, and is of a greenish-yellow Colour. It was found in the Gall-bladder of a Land-tortoise in the Island of *Bourbon*. Mr. *De Jussieu* has one of the same Sort, but more flat, an Inch thick, and as large as the Palm of a Person's Hand. They are both disposed in Strata like all other Bezoars. From this we see, that stony Concretions may be formed in all the Cavities of the Bodies of every Species of Animals. *Hist. de l'Acad. Roy. de Scienc.*

Schroder says, that Bezoars are alexipharmic, and Promoters of Sweat; that they are good in Epilepsies, Palpitations of the Heart, Jaundice, Dysenteries, Stone, and Obstructions of the Menes; as also that they cure Melancholy, and forward Delivery; and in these important Intentions he assigns the Dose from three Grains to twelve. But we have no Instances from Experience to support any such Practice. They have neither Smell nor Taste; and upon taking into the Stomach, give no Sensation, nor produce the least perceivable Effect, which is Ground enough to suspect them good for nothing; although our Physicians prescribe them in much larger Doses than what *Schroder* mentions; and others have ventur'd half a Dram or a Dram at a time. The Shops use it only in the *Pulvis à Chelis compositus*, commonly called Gascoign's Powder, which, tho' it is a dear Medicine, seems to be of no Virtue as an Alexipharmic; yet as it has often been join'd in Prescription with some Alexipharmics of Efficacy, it has the Credit, amongst the Ignorant, of doing what it never had any Share in. *Quincy*.

Many Circumstances contribute to render the medicinal Virtues of Bezoar precarious, and not easy to be determin'd; as the Uncertainty of procuring that which is genuine, it being much adulterated; as is said, even in the *Indies*, not to mention the large Quantities that are made in *Europe* in Imitation of the true. Again, the excessive Price it generally bears, makes it inconvenient to exhibit it in a great Number of Cases, and that in sufficient Quantities, and those long enough continu'd, to determine, whether the Virtues attributed to it are real or imaginary; and, without this Test, it is not possible to reason accurately and conclusively with respect to the Efficacy of any one Simple, tho' the Manner of its Production, and the Analysis, are both taken into Consideration; neither does the Taste give us any surer Information, notwithstanding the above-quoted Remark of *Quincy*.

As to my own private Opinion, it is of no great Importance in the Case before us, because I have very seldom directed it, and consequently am not a Judge of its real Effects: But I am informed, from Physicians who have industriously attempted to make the proper Experiments, that it has no sort of medicinal Virtues, that they could perceive, which might give it the Preference to the Testaceous Powders. I cannot, however, forbear thinking, that if we had the genuine Bezoar Stone, we should find it endow'd with greater medicinal Virtues, than at present we have any Reason to believe it possessed of.

That Species of Bezoar call'd by the *Dutch Pedro de Porco*, and by the *Portuguese*, who first imported it into *Europe*, *Pedro de Vassar*, is found in the Gall-bladders of certain wild Boars in the *Indies*. It is not much larger than a Filbert of a moderate Size, which it resembles pretty much in Shape, tho' 'tis more irregular. It is not always of one and the same Colour, tho' generally it approaches to that of *Toulon Soap*, which is a Greenish-white. Its Surface is as it were polish'd, and smooth to the Touch.

When any of these Bezoars are imported to *Amsterdam*, (the Number of which brought home in the richest loaded *East-India Ships* rarely exceeds five or six) they are purchased at three or four hundred *Livres* each, and sometimes more; not by the Merchants, with a View to profit, but by the more opulent

Burgbers,

B E Z

Burghers, either for Presents to Persons of Distinction, or in order to be preserv'd as a Treasure in their Families, and handed down by way of an Entail to their Posterity.

'Tis incredible what surprising Virtues the *Indians* ascribe to this *Bezoar*, which is by them called *Mastica de Soho*. The Inhabitants of the Kingdom of *Malaca*, where 'tis most commonly found, also esteem it more than the Oriental *Bezoar*, not so much because they believe it the best Preservative in the World against all sorts of Poisons, as because it is a sovereign Cure for the *Mordoxi*, a Species of Disease to which they are subject, and which in that Part of *Asia* is no less dangerous and fatal than the Plague is in *Egypt*.

The *Indians* also affirm, that this Species of *Bezoar* is an excellent Remedy in all malignant Fevers, the Small-pox, and most Disorders under which Women not with Child may happen to labour. Experience has also convinc'd them, that it causes Abortion when used by Women with Child.

The Method of using this *Bezoar* is to infuse it in a Glass of Water or Wine, till it has communicated a slight, though not a disagreeable Bitterness to the Liquor, which is to be drank in a Morning fasting, and on all other Occasions, when pressing Circumstances call for it.

In order to facilitate the Infusion, and preserve so precious a Stone, most People who have it, set it in a round Box of Gold perforated in several Parts, to which a small Chain of the same Metal is fix'd, in order to suspend it in the Liquor when they use it.

The *Bezoars* taken from the Porcupines and Apes do not differ from those taken from the wild Boar, except in this Circumstance, that they come from different Animals; unless with Mr. *Tavernier* we assert, that these two Stones, which he calls *Malaca Stones*, are not found in the Gall-bladder of the Porcupine and Ape, but in the Heads of both these Animals; and that they are *Bezoars* so much esteemed by the Inhabitants of *Malaca*, that they never allow any of them to be carried out of their Territories, except such as they intend for Presents to Ambassadors, or some of the more potent *Indian Kings*.

Some assure us, that the *Bezoar of Siam*, so much esteemed for its excellent Qualities, is a Stone taken from the Ape; and that it is found in *Siam* as well as in *Malaca*, in which last Country alone Travellers affirm'd it to be found, till Mr. *Chau-mont* went to *Siam* in 1686. in Quality of Ambassador from the Court of *France*.

There are several compound Substances, which are call'd *Bezoars*, or *Bezoartics*, the principal of which are the following.

BEZOAR ANIMALE is thus prepared.

Take of Harthorn calcin'd to its greatest Whiteness, and reduced to Powder, four Ounces: Levigate it on a Marble till it become very fine, pouring to it, Drop by Drop, a Quantity of the Spirit of Vitriol, sufficient to form a Paste, out of which form small Balls, which are to be dry'd immediately.

The Liver and Heart of Vipers pulveris'd is called also ANIMAL BEZOAR.

This Medicine is an Alexipharmic, a Sudorific, and a Destroyer of Worms. It stops Fluxes, quenches Thirst, and is an excellent Medicine for Children.

BEZOARTICUM JOVIALE is thus prepared.

Take of the Regulus of Antimony fus'd in a Crucible, three Ounces; to which add two Ounces of *English Tin* fus'd in the same manner, that a Regulus may again be produced; then levigate the Whole, and mix with it six Ounces of sublimate Mercury, and distil with a Retort. Fix the Butter distil'd from it, with Spirit of Nitre, by three Distillations. Then calcine; and when ignited, extinguish it in Spirit of Wine, and dry it. Thus a greyish Powder is produced.

This Medicine is a strong Diaphoretic, and is of singular Efficacy in Disorders of the Womb, and a great many other Distempers incident to Women; as also in Fevers, the Plague, and Scurvy. Its Dose is from three to five Grains.

BEZOARTICUM LUNARE

Is prepared of Silver dissolved in Spirit of Nitre, and Butter of Antimony, by proceeding in the same manner as in the Preparation of the *Bezoar Joviale*.

This Medicine is a Specific in Epilepsies, Convulsions, Mergims, and Apoplexies. It is Anodyne, Sudorific, and of singular Efficacy in curing the Erysipelas. Its Dose is from six to twelve Grains.

BEZOARTICUM MARTIALE

Is prepared of the Crocus of *Mars* dissolved with Butter of Antimony, fixing it as above directed in the *Bezoar Joviale*: Or,

B E Z

It is made by dissolving one Ounce of the Filings of Steel in a sufficient Quantity of *Aqua Regia*, pouring to it, by little and little, eight Ounces of Butter of Antimony, and proceeding with Spirit of Nitre.

This Medicine powerfully stops hepatic and other Fluxes, and strengthens the Viscera. Its Dose is half a Scruple.

BEZOARTICUM MINERALE: *Bezoar Mineral.*

Take of the Butter of Antimony, three Ounces; drop upon it slowly as much Spirit of Nitre; draw that off again in a Sand-heat; which pour back again, with the Addition of another Ounce of the same; which draw again, and repeat that Operation three or four times. Let the remaining Matter be powdered, and calcined for an Hour in a Crucible; then edulcorate by washing, and burn upon it three or four times Spirit of Wine.

This seems to have been originally the Contrivance of *Crolius*; tho' *Quercetan*, *Sennertus*, *Hartman*, and many other practical Writers, give several Processes for its Preparation; as doth also *Schröder* give one not much different from this. It hath been much controverted by some, whether this is a mercurial or an antimonial Medicine; but it is not of Consequence enough to require any Notice of the several Opinions thereupon. This Medicine is however of Efficacy and Use enough to tempte some Chymists, and such-like Artificers, who keep Medicine Warehouses, to sophisticate it; for to make it genuine will cost double (besides the Trouble and Danger of noxious Steams) of what those Impostors frequently sell it for. Their common Adulteration is with half or two Thirds of the *Flores Salis Ammoniaci*.

The Fumes of the first mixing are very noxious, and therefore to be carefully avoided. Its Operation is by Sweat, though it will also sometimes purge. It is much more efficacious than the Antimonium Diaphoreticum, and it will eradicate even Leprosies, and the most obstinate Cases of that Kind, if rightly managed. Some account it a Resister of Poisons, and commend it in pestilential Distempers. Its Dose is from ten Grains to half a Dram. Some calcine it in a Crucible, after it is taken out of the Retort. Others think it better to let that Part of the Spirit of Nitre it holds, remain with it; but its Operation is certainly milder for such Management.

Lute not on the Receiver, till the Violence of the Fumes are over, lest when the Fire augments its Motion, it break the Retort and Receiver. Do not exceed the third Degree of Fire, nor let it stand long after the Spirit of Nitre is drawn off, to prevent discolouring the Medicine. The Spirit of Nitre being now impregnated with common Salt which was in the Butyrum, is become an *Aqua Regia*, and will dissolve Gold, and is called *Spiritus Nitri Bezoarticus*. *Quincy*.

BEZOARTICUM MERCURIALE.

This is made by extracting a Tincture from the Glass made with *Mercurius Vita*, with Butter of Antimony, and fixing it with Spirit of Nitre.

It is said to be an excellent Medicine in Venereal Disorders.

BEZOARTICUM SATURNI.

This is prepared by extracting a Tincture from the Glass of Lead, (which may be obtained from Red-lead and Flints) with unrectify'd Butter of Antimony, and fixing it according to Art with Spirit of Nitre.

This Medicine is Anti-hysteric, and of great Service in Disorders of the Spleen. Its Dose is six Grains.

BEZOARTICUM SOLARE

Is prepar'd of Plates of Gold dissolv'd in *Spiritus Nitri Bezoarticus*, by pouring this Solution by little and little upon Butter of Antimony, and proceeding as above.

This Medicine is an excellent Sudorific; and of Use in the *Lues Venerea*, the Plague, the Gout, the Dropsy, Fevers, and Obstructions of the Spleen. Its Dose is from three to eight Grains.

BEZOARTICUM VENERIS

Is prepar'd, by extracting the Tincture from the Filings of Copper, with rectified Butter of Antimony, and fixing it according to Art, with Spirit of Nitre.

This Medicine is, by some, exhibited in Leprosies and Diseases of the Head and Brain. Its Dose is six Grains. Externally it is of Use in old Ulcers, Fistulas, and Impetigos, if mix'd with some proper Ointment. *Pharmacop. Batan.*

SPIRI-

SPIRITUS NITRI BEZOARTICUS is made by distilling Spirit of Nitre and Butter of Antimony together, in a Retort. See **BEZOARDICUM MINERALE**.

BEZOARTICUM. Bezoartic, that is, possessed of the Virtues of Bezoar. *Alexipharmic*.

BHACTA. *Johnson* explains this, *Terra Rubra*.

BIA, bia. Force, Violence. Hence *biae*, violently, forcibly. *μὲν βίαι* sometimes imports, scarcely; not without Difficulty. *Galen*.

BIARGHETNUSIM. *Cerufs. Rulandus*.

BIBINELLA, or **BIPENULLA**. The same as *Pimpernella*, which see. *Blancard*. *Ray* says, it is the *Plantago angustifolia serrata* of *Clusius* and *Parkinson*.

BIBITORIUS MUSCULUS. The Adductor Oculi is sometimes called by this Name.

BICAUDALIS MUSCULUS. The *Triceps Atris* has sometimes been thus called; and also *Tricaudalis*, and *Intricatus Castellus*.

BICEPS. The Name of several Muscles, one of which is called,

Biceps internus Humeri, to distinguish it from the *Biceps externus*, otherwise called *Gemellus*. See **GEMELLUS**. It is more frequently called simply *Biceps Humeri*, without the Epithet of *internus*.

The *Biceps Humeri* hath two Heads or Beginnings: The first or outmost arises with a long round Tendon, from the upper Part of the Brink of the Acetabulum Scapulæ, and runs under the Ligament of the Articulation, in a Sulcus or Channel, on the Head of the Shoulder Bone, wherein it is inclosed by a proper Ligament. In its Descent it begins to grow fleshy, as it marches under the Termination of the Pectoral Muscle, where dilating itself into a large fleshy Body, it joins with its other Head or Beginning. The latter arises with a somewhat broad, flat, and long Tendon, at the Extremity of the Processus Caracoides Scapulæ; in its Descent it strictly adheres to the Coracobrachialis (wherefore some Authors, not rightly describing that Muscle amongst those of the Arm, have mistaken it for a fleshy Beginning of this). But then parting from it, both these Heads compose a large fleshy Belly, which becoming tendinous, near the Cubit, is commonly said to be inserted by a strong, round Tendon, to the Tubercle at the upper Head of the Radius. But we have observed this Tendon to be double, the external of which, being thin, passes obliquely over the *Musculus Pronator Radii Teres*, and, Membrane-like, expanding itself, joins with the *Membrana Communis Musculorum*, which embraces all the external Muscles of the Carpus and Fingers.

When this Muscle acts, the Cubit is bended.

The double tendinous Termination of this Muscle (tho' not taken Notice of by any Author that we know) is very evident, and was observed first by us, some few Years since, in dissecting these Muscles, in Company with our very good Friend, that most indefatigable and curious Botanist Mr. Samuel Doody. It appears immediately under the Skin, and *Membrana Adiposa* of the Cubit.

As for the Use of this external Tendon, which we call *Fascia Tendinosa*, it seems designed, not only for the more advantageous Elevation, or Bending of the Cubit, which it more easily moves, by how much the more it recedes from the Centre of its Motion or Fulcrum, at the lower Part of the Arm-bone, and approaching to its other Extreme; but likewise strictly including all the external Muscles, whether belonging to the Radius, Carpus, or Fingers, it thereby corroborates them in performing those strenuous Actions they are necessarily employed in. This latter use was first suggested to us, by observing those artificial Bandages made of Leather, which some laborious Mechanics make use of, by adapting them to the belly'd Part of the Muscles of the Cubit, amongst which Turners, and especially those that use the Rasp in making Frames for Cane Chairs, (as they are commonly called) like a double Screw, are frequently obliged to this Artifice.

In Phlebotomy, the Ductus of these external tendinous Fibres ought to be respected, by directing the Lancet according to their Length, to avoid too great a Division of them, which is frequently the Occasion of those ill Symptoms that remain after that so commonly practised Operation by bold Blood-letters.

An extraordinary Case relating to this Muscle once happen'd in our Practice. A Woman, three Days before she consulted us, had (as she suspected) dislocated her Shoulder Bone, by wringing of Linen Cloths after Washing, (which is commonly done to express the Water) adding, that in straining her Arm in the Action, she sensibly felt something (as she thought) slip out of its Place on her Shoulder. After examining the Part, we were well satisfied, that there was no Dislocation: But observing a Depressure on the external Part of the *Deltoide* Muscle, and finding the two inferior Tendons of this Biceps rigid, and the Cubit thereby denied its due Extension, we suspected that the external tendinous Beginning (before taken Notice of) was split out of its Channel in the

Os Humeri; but finding the Part at that time somewhat inflamed, she having not long before made use of it, we advised her to an emollient Application, and to give it Rest till the next Morning; at which time we found our Conjecture true, and, by turning the whole Arm to and fro, it readily slipped into its Place, she recovering the Use of the Part immediately.

BICEPS FEMORIS.

The *Biceps Femoris* has two Heads, the superior and the longest of which arises with a round Tendon from the Protuberance of the Ischium, in its Descent becomes large and fleshy, and, in above half its Progress, lessens itself again, where it is joined with its other Head, having a broad, partly tendinous, and partly fleshy Beginning from the *Linea Aspera* of the *Os Femoris*, immediately below the Termination of the *Gluteus Maximus*; it being thus united, grows tendinous, as it marches in a Channel on the external Appendix of the *Os Femoris*, becoming perfectly tendinous at its Implantation into the superior Epiphysis of the Fibula.

Besides the Office commonly assigned to this Muscle in bending the Tibia, together with the *Sartorius* and *Membranosus*, it is likewise employed in turning the Leg together with the Foot and Toes outwards, when we sit with the Knees bended. *Cowper's Myotomia Reformata*.

BICHICHLÆ. An Epithet of certain Pectoral, or rather Troches, describ'd by *Rhazes*, consisting of the Juice of Liquorice, Sugar, Starch, Gum Tragacanth, and blanch'd Almonds. *Castellus*.

BICONGIUS. Two Gallons. It contains twelve *Sextarii*. *Castellus*.

BICORNE OS. A Name for the *Os Hyoides*. See **HYOIDES**.

BICORNIS MUSCULUS. A Name for the *Extensor Carpi Radialis*.

BICUCULLATA *Canadense radice tuberosa squamata*. This is a Name given by Mr. *Marchant* to the *Fumaria tuberosa insipida Cornuti*, of which *Marchant* makes a new Genus of Plants, because it differs from the other *Fumaria*; principally with respect to the Structure of the Flower. *Mém. de l'Acad. Roy.* 1733.

BIDENS, *Offic.* *Bidens*; *Verbascina*, *Mont.* 38. *Bidens, foliis tripartito divisis*, *Tourn. Inst.* 462. *Elem. Bot.* 367. *Herb. Par.* 60. *Boerh. Ind. A.* 122. *Buxb.* 39. *Verbescina*, *Dill.* Cat. 166. *Verbescina sive Cannabina aquatica, flore minus pulchro, elatior ac magis frequens*, *J. B.* 2. 1073. *Cannabina aquatica, folio tripartito diviso*, *C. B.* 321. *Eupatorium aquaticum fœmina*, *Ger. Emac.* 711. *Raii Hist.* 1. 360. *Synop.* 93. *Eupatorium aquaticum alterum*, *Park.* 596. *Chrysanthemum Cannabinum Bidens, folio quinquepartito, sive vulgare*, *Hist. Oxon.* 3. 17. *Chrysanthemum aquaticum, folio tripartito diviso*, *Herm. Flor.* 2. 47. *Ceratocephalus vulgaris tripteris & pentapteris folio*, *Act. Reg. Par. A.* 1720. p. 327. **WATERHEMP**.

AGRIMONY. It grows in watery Places, and flowers in August. The Herb is in Use. It is hepatic and vulnerary. *Dale*.

BIFIDUS. Forked. *Spina Bifida* is a Name apply'd in the *Acta Eruditorum*, to certain Tumors at the Spinal Processes of the Vertebrae of the Back, in new-born Children. *Castellus*.

BIFOLIUM, *Offic.* *Bifolium sylvestre vulgare*. **ORDINARY WOOD BIFOIL**, or **TWAYBLADE**. *Park.* *Theat.* 504. *Bifolium majus vulgare*, *Hist. Oxon.* 3. 489. *Bifolium majus, seu Ophris major quibusdam*, *J. B.* 3. 533. *Raii Hist.* 2. 1232. *Synop.* 3. 385. *Bifolium vulgare sylvestre, sive Ophris*, *Met. Pin.* 15. *Ophris*, *Chab.* 506. *Merc. Bot.* 1. 54. *Phyt. Brit.* 82. *Ophris bifolia*, *C. B. Pin.* 87. *Tourn. Inst.* 437. *Elem. Bot.* 346. *Boerh. Ind. A.* 2. 153. *Ger.* 326. *Emac.* 403. *Buxb.* 239. *Dill. Cat.* Giff. 75. *Ophris sive Ophris*, *Rupp.* *Flor. Jen.* 238. *Orchis bifolia, herbaceo flore, major*, *Herm. Cat. Hort. Lugd. Bat.* 461. **TWAYBLADE**.

This Herb has a slender Root, with many Fibres; from which springs a round Stalk a Foot high, or somewhat more, single, and not branched; about the middle of which grow two large oval Leaves, full of Nerves, somewhat pointed, and in Shape like the broad Plantain, on very short Foot-stalks. The Flowers grow in Spikes at the Top, like an Orchis, of a dull-green Colour, having no Spurs or Heels, and of a roundish Figure. It grows in Woods and Thickets, and in moist Meadows, particularly in *Battersea Meadow*, near the *Thames*, and flowers in June.

Twayblade is astringent and agglutinating, good to consolidate Ruptures, and heal Wounds, tho' it is but seldom used. *Miller's Bot. Offic.*

BIFURCATUS. The same as *Bifidus*, forked.

BIGNONIA.

Mr. *Tournefort* called this Plant *Bignonia*, in Memory of the Abbé *Bignon*, Librarian to *Lewis XIV.* King of France, he being a great Encourager of Learning. *The Trumpet Flower*, or *Scarlet Jessamine*.

The Characters are;

It hath a tubulous Flower, consisting of one Leaf, which opens at the Top like two Lips: These Flowers are succeeded by Pods, which are divided into two Cells, and contain several wing'd Seeds.

There are eleven Species of this Plant.

I don't know of any Medicinal Virtues attributed to it. *Miller's Dictionary.*

BIHAL.

This is the *American* Name of a Plant.

The Characters are;

It hath a tubulous Flower, consisting of one Leaf, shaped almost like a Lily, and cut into two Parts; the Pointal and Stamina are included in two Leaves. The Pointal afterwards becomes a fleshy three corner'd Fruit, containing three hard rough Seeds. To these Notes should be added, many Flowers contained in a common Covering.

There are two Species of this Plant.

I don't know of any Medicinal Virtues attributed to it. *Miller's Dictionary.*

BILADEN. Steel, or rather Iron; for Steel in Medicine signifies Iron. *Rulandus.*

BILIMBI. The Name of a small Tree about eight or ten Foot high, call'd by *Bontius* *Billing-bing*, and by *European* Botanists *Malus Indica*, *fructu pentagono*.

It is commonly cultivated in Gardens in *Malabar*, and bears Flowers and Fruit all the Year round, being fruitful from the first Year of its planting to the fifteenth, and longer.

The Juice of the Root, drank, allays a feverish Heat. A Cataplasm is made of the bruised Leaves, with an Infusion of Rice, which powerfully mollifies and resolves all Sorts of Tumors. The Leaves, boiled or macerated in an Infusion of Rice, make an excellent vulnerary Decoction. The Juice expressed from the Fruit cures Itchings, Impetigo, Pfora, and other like cutaneous Affections, if Linen Cloths be wetted therein, and now-and-then applied. The same drank with burnt Arrack cures the Gripes, and stops a Diarrhoea. Of the bruised Leaves, with the Juice of the Flowers of the Palm-tree, is prepared a Cataplasm, which cures all Kinds of Inflammations. Of the dry'd Fruits, and the bruised Leaves of Betel, they make a Powder, which drank in burnt Arrack promotes Delivery, and expels the dead Fœtus and Secundines.

The ripe Fruits are eaten for their Deliciousness, but the unripe are preserved with Sugar, or in Pickle and Vinegar.

Bontius also tells us, that he used to make a Syrup of the Juice thereof, which he prescrib'd in a hot Distemperature of the Liver, and an inflammatory State of the Blood: We make use of the same, he says, in a Decoction with Rice undecorticated, which we call *Pada*, as an excellent Medicine in burning and continual Fevers; for it very much contributes to the quenching of Thirst, and checks the Effervescence of the Bile.

There is another Species of this Tree, which is called *Nebipouli*, or *Bilimbi altera minor*, H. M.

Of this there are two Kinds, or rather Sexes, one of which, tho' it flowers, never bears any Fruit, and is called by the peculiar Name of *Ala-pouli*.

It grows every-where in *Malabar*, and in many other Parts.

The Root of this Tree bruised with the Seeds of Mustard and Cumin, and taken, excites Vomiting, and loosens the Belly; but if it be used with the Fruit *Tomara-tonga*, it restrains an immoderate Flux of the Belly, and cures a Dyspnoea. A Decoction of the Leaves in common Water excites Sweat, and expels the Small-pox. The same with *Malabar*ian Saffron, which the Natives call *Manja Cava*, makes a Bath, which is of great Efficacy in all Pains of the Limbs. The Fruit is highly refrigerant, and therefore extremely proper to allay a violent Thirst in a continual Fever. *Raii Hist. Plant.*

BILIS. The Bile or Gall.

Few Subjects have been more copiously treated of than the Bile, both by the Antient and Modern Writers in Medicine; and it must be confessed, that very few so much deserve it, or are of equal Importance. I shall therefore endeavour to give a general Idea of the Notions entertain'd by the Antients, concerning the different Species of Bile; more with a View of rendering their Writings easily intelligible, than of explaining the true Nature of this Fluid, the Generation and Uses of which must be learned from the Moderns, who have with greater Accuracy, and more intelligibly, treated this Subject.

Bilis, *χολή*, in *Hippocrates*, when put absolutely, and without an Epithet, signifies pale or yellow Bile, as *Galen* in many Places assures us; as in his *Com. 3.* on the Book *De Rat. Viâ. in Morb. acut.* *ἐπιβαίνει γὰρ τοῖς ἰατρῶν χολὴν μὲν ἀπλῶς ὀνομάζει τὴν ὀφθαλμὸν τε καὶ ξανθὴν, τὴν μέλαιναν δὲ χολὴν ὅλον τὸ λεγὲν ἢ ἀπλῶς χολὴν.* "Physicians usually call pale or yellow Bile, simply Bile; but black Bile they express in so many Words, not simply, or by the Name of Bile only." And *Com. 4.* *ἐν δὲ ὅλῳ, &c.* "We said before, that Bile sim-

ply said, signifies *bitter Bile*." And in his Comment on the thirty-second Aphorism of the Seventh Book, *τὸ δὲ χολῶδες, &c.* "Bile is always the Cause of acute Diseases; for, as we said, by this Name the antient Physicians usually called a bitter bilious Humour, and they never express the melancholy Humour without an Epithet, not calling it simply Bile, as they do yellow Bile, but black Bile." Again in his first Comment on the Book *de Natura Humana*, *καὶ μέλαιναν χολήν, &c.* "It is customary not only for Physicians, but with all the Greeks, to say Bile, without any Addition, when they intend to signify pale, or yellow Bile, for both these Epithets are apply'd to one kind of Humour, differing in respect of Moisture and Dryness; but all the other Biles are expressed with some Addition, as by *ærginous*, *black*, *red*, *porraceous*." And in another Passage of the same Comment, he says, it was usual for the Greeks to call yellow Bile, simply Bile, but never intended black Bile without mentioning its Epithet. The same Author, in his Book of preternatural Tumors, says, "A Custom has obtained, I know not how, among us Physicians, when we say Bile simply, or the bilious Humour, we are understood to mean the pale or bitter Bile, not the acid and black Sort, which we never mention without an Addition, connecting it with its Colour." Once more; and very fully, in his fifth Comment on the sixth of the Epidemics, where he enumerates the various Species of Bile, *χολῶδες δὲν γὰρ ὅτι ἐκ γενέσεως, &c.* "He (*Hippocrates*) says *pale Tongues*, according to the vulgar Way of speaking, as when we say, that we saw some look pale, whose Colour has been alter'd to a more bilious Hue, or to that of pale Bile. For this we express simply by the Term Bile, not as we do the other Kinds, with an Addition of Epithets, as *black*, *ærginous*, *red*, *yellow*, or *vitelline*. Now the yellow Bile is next to the pale, and almost of the same Kind; and the pale Bile we commonly express without its Epithet, as when we say, the Man vomited Bile; but the yellow Bile is but seldom expressed absolutely, for we immediately subjoin its Epithet, saying, the Man vomited yellow Bile, or pure Bile. But neither Physician, nor any of the Vulgar, did ever express ærginous or black Bile without an Addition; nor yet the glaffine, (bluish) porraceous, or vitelline. These Names are given by some Physicians to the different sorts of Bile, and are taken from their Colours; so also they call by the Name of red Bile, the Serum of the Blood; but the vitelline is the yellow Bile incrassated, as the pale Bile is the same diluted with a watry Substance." This pale Bile, *Hippocrates* in the Place above refer'd to, which is *Aph. 13. Sect. 5. lib. 6. Epid.* says, "Is generated of Fat," *τὸ δὲ χολῶδες ἐκ πύου.*

The Terms *χολῶδες*, and *χολῶδη* also, in *Hippocrates*, simply used imply pale or yellow Bile, as *Galen* writes in his fourth Comment on the sixth Book of the Epidemics, *λέγουσιν δ' ἡδὴ πολλὰν, &c.* "We have often observed, that when he (*Hippocrates*) says simply *bilious* (*χολῶδη*), he intends pale or yellow Bile, since to other kinds of Bile he attributes their several Colours; thus we find in him, that ærginous, and reddish, and black, and dark-colour'd Bile are vomited." Again, *Com. 2. in lib. 3. Epid.* "Tis probable, says he, that she voided pure bilious Matter (*χολῶδη*), that is, either yellow or red; for it is usual with him, as well as other Physicians, to express the black and ærginous, with an Addition of their proper Colour. We also commonly say, such a one voided bilious Matter, meaning yellow Bile; for we do not call ærginous, or black Excrements, or those of any other Colour simply *bilious*, but with an Addition of their proper Colour. And this Custom has universally prevailed, because pale and yellow Bile are every Day voided both by Stool and Vomit, not only by sick Persons, but by those in Health, but seldom any other sorts of Bile, and never but by such as labour under some morbus Affections." So also *χολὴ ξανθὴ* is called by *Hippocrates*, *Lib. περὶ ἀρχ. καὶ πύου πύου*, that is, Bitterness, or a bitter sort of Humour; and all Fevers are said to arise from Bile, *Lib. 4. de Morb.* and *Lib. 2. de Nat. Humana*, and in *Aph. 42. lib. 7.* in which he comprehends all putrid Fevers.

Χολή is also pretty often simply used by *Hippocrates*, to signify a Flux of Bile; and, in *Lib. de Loc. in Hom.* for any Defluxion in general, which arises from a thin Humour lodged in any Part, and by its Nature easily disturb'd, and put in Motion; and he often uses the Word in this Sense throughout the Book, as, for Instance: *ὅς τὰ πολλὰ ἐμπύου γίνονται ὅταν βούμα ἐς τὸ αὐτὸ ὅσπερ ἐν τῇ χολῇ γίνονται, ἀλλὰ τῇ μὲν χολῇ πολὺ ἀπορρέει.* "An Empyema, for the most part, happens when a Rheum falls upon the Part, as is the Case in bilious Defluxions, which carry with them Plenty of Matter."

BILIS ATRA, *χολὴ μέλαινα*. Black Bile, or Melancholy, is almost constantly mention'd with its Epithet, and has a two-fold Origin; one from the thicker, and, as it were, muddy Part of the Blood, and this is properly call'd the melancholy Humour; Its other Origin is from yellow Bile, too much con-

cocted

cocted and heated. This appears to be *Galen's* Opinion, in many Places of his Works; as in his sixth Comment on the sixth Book of the *Epidemics*, and on *Aphorism* the twenty-first of the third Book; and his Comment on the Book *de Rat. Vict. in Merb. acut.* And in his Comment on the fifty-third *Aphorism* of the sixth Book, he says, *μεμυδιασθαι καὶ πρὸς τοῖς μέλαις καὶ τοῖς λευκοῖς διακρίσθαι, &c.* "The Reader ought to call to mind my Definitions concerning black Bile in other Places of my Works, how that one Sort proceeds from yellow Bile, too much torrefy'd [*ὑπερπυρρῶς*]; and this is the worst of all. Another Sort arises from the Mud, if I may so say, and Dregs of the Blood: This, indeed, is of a thicker Substance than the former, but is far less malignant in Quality. We told you also, that the Bile, which is a sort of Lees of the Blood, ought not, as yet, in Accuracy of Speech, to be call'd black Bile, but a melancholy Humour; but, by an Abuse of Names, we sometimes call it black Bile, because, if it be not evacuated in a little time, it will be really such." *Boerhaave*.

Χολὴ μέλαινα, black Bile, in the common Acceptation, signifies any thick and black Humour, whether it be the muddy Part of the Blood, or Blood adust, or Bile torrefy'd beyond measure, or however generated. But this Appellation properly belongs to a Humour render'd, by Adustion, preternaturally mordacious, acid, harsh, splendid, corroding, and malignant, which, pour'd on the Ground, bubbles up, and raises the Earth, after the manner of Ferment or Vinegar; is the Cause of incurable Ulcers; and is so nauseous, that neither Fly, nor Mouse, nor any other Animal, will taste it. It is generated two Ways; first, and principally, from a black and feculent Humour, which is beyond measure putrid and adust; the other Kind is from yellow Bile, vehemently adust, and is by far the more malignant Sort, as yellow Bile itself is more malignant than the melancholy Humour or Dregs of the Blood. Sometimes it proceeds, by Adustion, from vitelline Bile: Such an Alteration in the Bile is produced by a preternatural Heat and Putrefaction, by which it acquires an Acrimony, and is render'd like Ashes; just as the Lees of Wine, which are cold and dry, before they are burnt, but afterwards become so hot as to burn the Flesh, and produce a Colliquation and Putrefaction therein. *Galen* has told us, that he never observed an Excretion of this kind of Bile without pernicious Consequences. Such *μέλαινα χολή*, strictly speaking, is manifestly distinct, *ἀπὸ τῆς μέλας χολῆς καὶ τοῦ χυμοῦ τῆς μέλανος*, "from the melancholy or black Humour." For this latter is reckon'd among the Elements of the Body, and contributes, together with the Blood with which it is mix'd, to the Generation and Nutrition of the Animal, having nothing of an acrimonious or corroding Quality; but being, as I may say, the Mud or Sediment of the Blood, answers to the Lees of thick Wines. This Humour the Spleen attracts to itself, purging it from the Liver and Blood, and appropriates it, when alter'd, to its own Nourishment, expelling the Reliques, with other excrementitious Juices, into the Stomach, in order for Evacuation. The Excretion of this black Humour, whether by Stool or Vomit, is often healthful, signifying, that the Body is in a right Temperament, and that vigorous Nature, being oppress'd with too great a Plenty, finds a Way to ease itself of its Burden: But if it be retain'd too long in the Body, without being evacuated by some sensible or occult Passage, it oppresses and debilitates the Liver, undergoes Alteration and Putrefaction, is render'd adust by some febrile Inflammation, and perfectly becomes that black Bile before spoken of.

Χολὴ μέλαινα also, in *Athenæus*, passes under the Appellation of *χυμὸς ξυστικός*, "the corroding Humour;" so it is call'd there by one *Trapezobothor*; and *Galen* assures us, that some gave it that Name, where, speaking of black Bile, he says, *νομα δὲ τὸν ἰδίον τῷ τοῦτο χυμῷ, πλὴν ἔτι τι τινὲς ἢ ξυστικὸν ἢ ὀξωδὸν κεκληκασιν αὐτὸν* "This kind of Humour has no peculiar Name, except that there are some who have call'd it the corroding or vinegar-like Humour."

Χολή also signifies τὸ *χοληδόχον ἄγγειον*, "the Vessel containing the Bile," *Pollux*, Lib. 2. and is sometimes used for the black Liquor of the Cuttle-fish.

Bilis, *Fel*, *χολή*, is that Humour in the human Body, which is distinguished by its Heat and Dryness. This is two-fold; one natural, which is call'd simply *Bile*, *χολή*, the other transgressing the Bounds of Nature. The natural Bile, which is mix'd with the Blood, contributes towards nourishing the Body: It is of a yellow or palish Colour, of a bitter Taste, thin Consistence, like the Flower of Wine, and of a heating and drying Virtue. The Substance of this Humour is contain'd, at first, in the Meat and Drink; which being concocted, the well-disposed Part of the Bile is converted, together with the Blood, into Nourishment for the Body; but what is excrementitious finds a Receptacle in the Gall-bladder. For as from new Wine, while under Fermentation and Changing, two Kinds of excrementitious Substances are separated by virtue of its Heat during that Alteration, one lighter and more airy, which they call the Flower; the other heavier, and of a more earthy Quality,

which they call the Lees; so from the Food are produced yellow Bile, of a thin Consistence; and black Bile, which is of a more dense and gross Contexture. But all the natural Bile, that is in us, does not proceed from the Aliments; for the Heat of the Liver and Veins, if a little exalted above the common Standard, sometimes converts the thinner Part of the pure Blood into yellow Bile. For as Choler proceeds from a weak Heat, Blood from a moderate Heat, so, from an immoderate Degree of the same, is Bile generated, which is endued with the Qualities above-mention'd, and so familiar to our Nature, as to be accounted among the Elements of our Body. But the Bile, which is above or below the natural Standard, is no longer call'd simply Bile, but has an Epithet denoting its bad Quality; and there are a Multitude of these vicious Biles, as the Excess of Heat, and other Qualities, will admit of a great Latitude; but almost all the Differences, taken Notice of by Physicians, borrow their Name from their Colour or Consistence. Thus,

Ερυθρά, the Red. This is either an acrimonious and mordacious Serum of the Blood, or comes very near, in Consistence, to a thin Blood; but because it does not concrete, like Blood, after Effusion, it is call'd *Bile*.

Ισάδης, the Glaſtine; or what, by its Colour, resembles that of *Glaſtum*, *Wood*; but is indeed darker, and nearest the Colour of Cabbage. This Bile is extremely acrimonious, hot, and pungent, and next to black Bile in Consistence, Colour, and Efficacy. It is the most malignant among all the kinds of Bile, and is generated in the Stomach, or adjacent Parts, by a very vehement and burning Heat.

Ιώδης, the Æruginous, or what is of the Colour of Verde-grise, that is, green. It is acrimonious, hot, and pungent to a great Degree, and next to the *Ισάδης*, but not yet arrived to that Height of Malignity. It is generated in the Stomach, or in the Liver affected with a Phlegmen.

Κυανὴ ἢ κυανίσα, the Azure or Sky-colour'd. This seems to be the same with the *Ισάδης*; for the *Ισάδης*, or *Glaſtum*, is of this Colour.

Λευκώδης, the Vitelline; that is, in Colour and Consistence, resembling the Yolk of a raw Egg. This Kind is of a gross Substance, and of a high yellow Colour. It comes of yellow Bile, too much concocted, and dried by an immoderate Heat, and, for that Reason, afterwards condensing. It nearly holds the middle Place between the natural Bile, and what is arrived at the highest Degree of Malignity. It is generated in the Vessels, as *Galen* writes in his Book *de atra Bile*, tho' it is often voided both by Stool and Vomit.

Ξανθή, the Yellow. This comes nearest to the natural Bile, which ought to be a Medium between the pale Bile and the yellow.

Ορεώδης, the Dark, or Obscure. This Epithet is used by *Galen*, in his fourth Comment on the sixth Book of the *Epidemics*. He seems to mean by it τὴν *κυανὴν* καὶ τὴν *ισάδην*.

Πορρεώδης ἢ πορρώδης, the Porraceous. This is often generated in the Stomach, from indigested Food; and sometimes from a Disease, or preternatural Heat, in the Veins, whence it is convey'd into the Stomach and Intestines. But it is not produced by a vehement Heat, like the *Ιώδης*; for tho' both Sorts are green, the *Ιώδης*, on account of a more vehement Heat, is more acrimonious, mordacious, and of a thicker Consistence; which Qualities belong to the *πορρώδης*, but in a much inferior Degree. *Galen*, in his third Book *de Aliment. Facult.* writes, that, in severe Distempers, all sorts of Bile are voided, except the porraceous; but that the yellow, and the pale, and the porraceous also, are often voided, both upward and downward, by Persons in Health; which is a Proof, that the porraceous differs from the æruginous, as to Excess of Heat.

Πυρρὰ, which proceeds from a less intense Degree of Heat than the yellow. This Colour is a Medium between a pale and a yellow; therefore this and the yellow Bile have their Names often confounded, on account of the Nearness of their Colours, as *Galen* tells us, *Lib. 1. de Crisibus*, C. 12.

Υγρὰ, the Liquid; that is, diluted with Serum, or some other Humour.

Τδαλώδης, the Watery. This is the same as the *Υγρὰ*.

Τριεσθής, Reddish, consisting of the Serum of Blood, or the thinner Part of it, mix'd with another Substance of a different Colour from Blood.

Φαύα, Brown. The same with the *ορεώδης* and *κυανή*.

Χλωρὰ, Green or Pale; for τὸ *χλωρὸν* signifies both, as *Galen*, in many Places, has observed; but what is properly green, has a Tincture of the Pale and Yellow.

Ὀχρὰ, the Pale. This is the most moderate of all the Kinds, and least hot. It is bitter and pungent, and generated within the Veins of a Body in its natural State. It is of a humid Quality, and but little inclining to the Yellow, because it is mix'd with some thin pituitous or aqueous excrementitious Humour. This Sort is more frequently understood by the simple Name of Bile, than the Yellow, as implying a less Excess of Heat, which is always contrary to Nature. *Gorraeus*.

The natural Heat is diffused thro' all Parts of the Body for the sake of Concoction; and there is, in all Parts, a Generation and Separation of Humours, but by different Ways, and such

such as are proper to each-Part. Thus the Flesh creates and separates Sweat; the Eye, Tears; the Joints and Nostrils, Mucus; the Ears, Ear-wax. Therefore, if the natural Heat be incapacitated to perform its several Functions, it becomes acrimonious and fiery, and all the Humidities are changed into Bile; for Things become bitter, and infected with Bile, by means of the Heat. If this Indigestion happens in the Blood, it turns bilious, and disperses the Infection, with its Nutrient, into all Parts; for which Reason its Effects are universal, and Bile is every-where visible.

One Species of Bile is of a yellow Colour, subtle, transparent, and of a finer Sort than what inclines to livid or black: What is of a deeper Colour, like that of Saffron, or the Yolk of an Egg, is accounted of the same Kind.

A second Species of Bile is of a darker Colour, resembling that of a Leek or Woad, black.

Between these are an infinite Variety of Colours, which depend upon the Heat and Humours. The Viscera also are a Cause of this Diversity, as the Liver, if the Bile be yellow; the Spleen, if it be livid. *Arctaus, πει δὲ ὁ ὀνυ. χερ. παθ. Lib. 1. Cap. 15.*

If an Inflammation proceeds from an Influx of Bile, the Intention is commonly directed to the Evacuation of the peccant Matter, both by Vomit and Stool. For this End, some Cholagogues are to be prescribed which work both Ways, such as the Thlaspi; for an Acetabulum of this Plant, which is the greatest Dose, evacuates Bile both upwards and downwards. Also Medicines prepared with Scammony work upon and purge yellow Bile. We must, therefore, not make the least Scruple to administer a Purge, and repeat the same, if need be; for the Disease immediately submits to Evacuants. If the Patient, for some Reason or other, be either unwilling or unable to take a Purge, it will be proper to apply such Things to the Navel as will work upon and evacuate the Belly; or, to produce the same Effect by means of Suppositories, let a Clyster also be given, and Cataplasms apply'd, consisting of the Meal of Barley and Beans, with recent and unsalted Swine's Fat, and the fine Flour of Chamomile, and Water. But these Things are to be applied last of all; for, in the Beginning to the Height of the Distemper, we are to make use of Remedies composed of Houseleek, fresh Roses, Perdicium, Alkanet, Sanguinaria, Pellitory of the Wall, Siderius, Purslain, sharp-pointed Dock, Attriplex, Nighthade, Plantain, Henbane, Water-lentils, and Seagreen; Blites, Lettuce, Succory, Garden-mallow, Raspings of Gourds, Navelwort, Violets, and Rinds of Pomgranates. Every one of these, applied with Bread of the Meal of Polenta, removes the Pain; but especially the Seed of Fleawort, macerated in boiling-hot Water, and, after it is reduced to a Mucilage, applied by way of Cataplasma. An Ointment of Litharge is also very proper to repress the Influx of Blood; so also are Apples, applied with Crums of Bread, and such-like Things. Cerates composed of Wax, Chamomile, and Oil of Roses, with the Juice of one or other of the before-mention'd Refrigerants, and the White of an Egg, and Water, with a little Vinegar, are of Service. Cerate of Oil of Roses, with a sufficient Quantity of the Juice of Beet, is an excellent Medicine. I have seen a Person labouring under this Disorder, who found wonderful Relief by putting his Feet into cold Water, and keeping them there awhile. Another I have seen, who made use of the Flesh of Oysters, with Litharge, Leaves of Henbane, and old Oil, carefully pounded together; and by Anointings, and Applications, made of the same, was very well restor'd. In want of Oysters, we may use River Shell-fish. These Remedies are sufficient, if the Inflammation and Heat are but moderate; but if they are excessive, we must manage the Cure as for an Erysipelas; that is, with the Leaves of Hemlock, Poppy, Mandrake, and Henbane, and Narcotics composed of Opium, and such-like Things. But, in the Use of these Medicines, our Intention is only to allay the immoderate Heat, which is often accomplish'd in an Hour; after which the stupefactive Medicine must be removed, and a Cataplasma of Bean-meal, Fat, and Water, be applied. For if those vehement Refrigerants continue longer on the Part, they induce a Stupor, and a Deadness or Dulness of Sensation: Wherefore when we are obliged, under acute Pains, to have recourse to Narcotics, we take care afterwards to revive and cherish the Parts by heating Medicines. *Actius, Tetrab. 3. Serm. 4. Cap. 28.*

The Bile is the hottest of all the Humours of an Animal, but differs in Degrees of Heat, according to its Colour; for the yellow Bile is hotter than the pale, and the æruginous than the yellow. It varies also in different Animals; so the Bile, or Gall, of a Swine is the weakest of all, and even cures Ulcers in the Ears, without shewing any pungent Quality. The Bile of a Sheep is more acrimonious than the Swine's; and the Goat's, than that of the Sheep. The Bile of a Bull is stronger than the foregoing, but weaker than that of the Hyena, which is yet surpass'd by those of the Callionymus and Scorpion Fish, which help Cataracts, Dimness of Sight, and an Albugo. The same Virtue belongs to the Bile of the Sea-tortoise; and the Bile of the wild Goat is said to be good in a Nyctalops.

The Bile of volatile Animals is more acrimonious and drying than that of Quadrupeds; and among them the Bile of Cocks and Partridges is accounted the best: Those of the Hawk and Eagle have more of a kind of Acrimony, and are corrosive; their Colour is æruginous, and sometimes black. *P. Ægineta, Lib. 7. Cap. 3.*

Yellow Bile is a bitter and yellow Excrement; porraceous Bile is acrimonious and greenish; æruginous, or rather violet-colour'd (*isidus*) Bile is highly pure and unmix'd; black Bile is the thick Sediment of Blood: Some call black Blood by the Appellation of black Bile. *Ruffus Ephesus, Lib. 1. Cap. 36.*

I now proceed to the modern Accounts of the Bile.

It is a just Observation made by Hippocrates, *That we are disorder'd and render'd sick, by means of those very Things which are immediately necessary to Life and Health.* What we call the Non-naturals, afford a palpable, but melancholy Proof of the Truth of this Assertion; for as Air, Meat and Drink, Motion, Sleep and Rest, are absolutely necessary for the Purposes of Life, so 'tis no less certain, that any Fault or Imperfection in these Things produce Disorders in themselves the most terrible, and to the human Constitution the most fatal. This holds true, not only with regard to Things extraneous to the Constitution, but also with respect to those internal Substances which are immediately conducive to the Support of Life, and the Preservation of Health, such as the Blood, the Lymph, and the Animal Spirits; for, as the Perfection of the vital Functions depends upon the due State and Temperament, the just Commixture, and Degree of Motion of these Substances; so the more immediate and direct Causes of Diseases must be derived from the Defects they labour under, and their several Degrees of Recess from a natural State. There are also other Fluids in the Body, which, tho' not so immediately, are yet so absolutely necessary to Health, that their becoming faulty or peccant must considerably destroy it, and lay an unavoidable Foundation for Diseases. Instead of all other Instances of this Kind, I shall, at present, confine myself to the Bile; the Usefulness and Necessity of which Liquor, for the Preservation of Life and Health, are sufficiently known to every one who is acquainted with the rational and solid Principles of Physic. Its being found in every the most minute Animal is a sufficient Proof of this; for there is not a Possibility of finding, in the whole Extent of Nature, a single Insect destitute of a bilious Humour. And, indeed, when we come to explain our Sentiments on this Subject, we must acknowledge, that the Bile lodged in the Bodies of Animals is a real and genuine Medicine, wisely elaborated by unerring Nature, for preventing Diseases, destroying their Causes, and correcting the Faults and Disorders of the Constitution; and that, by means of its incomparable Virtue and Energy, Animals are kept alive, and preserved in an easy and comfortable State of Health, as I shall, in the Sequel, shew more fully. Since, then, the Bile is so highly useful and efficacious in maintaining a State of Health in the Body, by proving, as it were, a natural and universal Medicine, it must of course follow, that when this Liquor is either faulty, with regard to its Quantity, or depraved by a Recess from its due Temperament and Crasis, a sure and unavoidable Foundation for Diseases must be laid: Since then many, and these, too, formidable Disorders draw their Origins from some Fault of the Bile, the principal Virtue and Energy of the Medicines, employ'd in curing them, ought to consist in correcting this Liquor when peccant in Quality, generating it when defective, or evacuating it when too abundant in Quantity; for as the Bile, when in its due State, is justly to be accounted a true and genuine Medicine to the Body, so we must readily grant, that the most important of all other Medicines are such as are calculated for reducing this Liquor to a natural and temperate State; and that the principal Business of a Physician consists in inventing and applying such Remedies with Judgment. I shall therefore make it my Business, at present, to consider the Bile, not only in its natural State as an universal Medicine to the Body, but also in its preternatural and depraved State, as the Cause and Origin of many Disorders.

'Tis well known to Anatomists and Physicians, that the principal, if not the only, Office of the Liver is, by the Laws of a certain beautiful Mechanism, to filtrate and strain that active, saline, and sulphureous Humour, call'd the Bile, from the Blood, thro' the Trunk of the *Vena Porta*, the Hepatic Artery, and its glandulous Kernels.

It must be own'd, Anatomists are not agreed among themselves whence the Gall-bladder, adhering to the Liver, is supply'd with the Bile it receives; for some of them are of Opinion, that the *Tunica Glandulosa* separates it from the Blood convey'd thither by the Cystic Arteries; others again maintain, that there are some very minute Ducts inserted in the Bottom of the Gall-bladder, by means of which the Bile is convey'd to it; and another Class of Anatomists venture to affirm, that there are certain Cysti-hepatic Ducts, by means of which the Bile is immediately convey'd to this Receptacle. But, what Judgment we ought to form concerning these different Opinions, we may learn

learn from the following Experiment, made by *Bohnius* and some others. Upon opening a Dog, the whole Bile was express'd from the Gall-bladder, and the Cystic Duct tied; but the Subject remaining alive for some time after, they expected to find some more Bile in the Gall-bladder, notwithstanding the Ligation on the Cystic Duct, and tho' all Communication was cut off between the Gall-bladder and the *Porus Hepaticus*. But they were disappointed; for, instead of Bile, they found only a little grumous Blood. Hence the more accurate Anatomists justly maintain, that the Bile lodged in the Gall-bladder is convey'd to it from the common Hepatic Duct itself: For the Communication between these Ducts is highly obvious, since, by blowing into the *Ductus Cholodochus*, both the Gall-bladder and *Ductus Hepaticus* are inflated. On the other hand, by introducing a Pipe, and blowing into the Hepatic Biliary Duct, the Hepatic Duct itself, the Cystis, and the *Ductus Cholodochus*, are distended. In Man also, and in other Animals, the Hepatic and Cystic Ducts, uniting, form together one common Canal. Now if we consider the Situation of the Gall-bladder, its Bottom is placed in a low declining Part; but its Neck, and the Biliary Ducts, are situated higher: Hence 'tis probable, that when the Bile descends slowly thro' the *Porus Cholodochus*, by reason of its oblique Insertion among the Coats of the *Duodenum*, especially if that Intestine happens to be empty, it falls back into the Gall-bladder, which is placed below, especially if it is not very full; where it remains, till, either by the Compression of the Intestines, or the proper Contraction of the Gall-bladder itself, it is again express'd. In an Ox this appears very plainly, since the Hepatic Duct so opens into the Neck of the Gall-bladder, which is pretty tendinous and nervous, that the Bile can as easily descend into the Gall-bladder, as it can be sent off to the *Duodenum*, thro' the common Duct. In the same Subject a pretty surprising Circumstance occurs; for a certain small Papilla is observable, almost in the Middle of the interior Membrane of the Gall-bladder, and is prominent almost in the same manner as the Extremity of the *Ductus Communis* appears to be in the *Intestinum Duodenum*. This small Papilla seems to be the Orifice of the Duct, which passes between the Membranes of the Gall-bladder; and the Protuberance performs the Office of a Valve, by preventing the discharged Bile from returning the same Way it went out.

But the Bile in the Gall-bladder differs very considerably from that in the Liver; for the former is thicker, more acrid, more bitter, and of a deeper Colour, than the latter, which is more fluid, more diluted, and less bitter. But by what Means, and for what Purposes, the Bile contain'd in the Gall-bladder undergoes such a Change, seems to be a Matter of such Importance, as to deserve an accurate and careful Disquisition; and that our Inquiry into this Particular may be the more distinct, I shall premise a few Things concerning the Structure of the Gall-bladder. We observe, then, that the Gall-bladder is made up of several Membranes, the innermost of which, almost in every respect, resembles the *Tunica Villosa* of the *Duodenum*: In this Membrane there are also various Furrows and Ducts, with Valves appropriated to them; but no Glands are to be discover'd. The Membrane which lies next to this is of a spongy vascular Contexture, made up, as it were, of various Pellicules, in which small Bubbles of Air are lodged. 'Tis not to be doubted, but this Membrane affords an Origin to a large Number of Lymphatic Vessels; tho', at the same time, very many of those, found in the Cystis, are distributed in it immediately from the Liver. The third Coat is muscular or fibrous; but we neither observe a nervous nor a tendinous Coat, either at the Bottom of the Gall-bladder, or in its Cavity; however, not only its Neck, but also the Hepatic and Cystic Ducts, are made up of a pretty strong tendinous and nervous Coat. The external Coat is furnish'd from the *Peritonæum*; and between this and the muscular Coat, arterial and venous Ducts are seen distributed. The Neck of the Bladder is very narrow; and this Circumstance is very conspicuous in the Gall-bladder of an Ox, but no Valve can be observed in it; however, *Bauhine* and *Spigelius* have, in human Subjects, discover'd a semilunar Valve, extended in the Form of a spiral Shell, and render'd rough with many Furrows. I must own, I could never find such a Valve in human Bodies; but I have evidently discover'd the Narrowness of the Passage, which is not rectilinear, but runs along in so oblique and winding a manner, as to resist a Probe, when introduced into it: And this Narrowness seems to be of no other Use, than to prevent the Return of the thicker Bile, when once discharged from it into the Gall-bladder; but the thinner and more diluted Hepatic Bile finds a commodious Passage thro' it.

The interior Coat of the Bladder being villous, like that of the *Duodenum*, performs the Office of a Strainer, by fecerning the thin and watery Part of the Bile, and pouring it into the Lymphatic Vessels; for it is not to be deny'd, that the Vessels not only in the Gall-bladder itself, but also those distributed around it, contain a Lymph of a bitterish Taste. Besides, 'tis confirm'd by many Observations, that, in a preternatural State, a large Quantity of thin Bile has cused thro' the Pores of the

Coats of the Gall-bladder: But because this interior Coat separates the thinner Part of the Bile, what remains of course acquires a thicker Consistence, and a more bitter Taste. Besides, the Bladder, by reason of its carnosie Tunicle, and considerable Nerves, is possess'd both of a Power of Sensation and Motion; but more especially its Biliary Ducts, which are furnish'd with a pretty strong and nervous Coat; for which Reason very terrible Pains and Spasms may sometimes happen in them. As *Vieussens* has justly observed, from the semilunar Hepatic Plexus of the Right Intercostal Nerve, there arise six Fibres; the three inferior and smaller of which are distributed to the *Vasa Cholodocha* of the Gall-bladder, to the *Pylorus*, the *Duodenum*, and the *Pancreas*; in order to give them a due Tone and Constriction. Hence also the great Consent between these Parts is to be accounted for; and it is not to be doubted, but that the Bile descends into the Intestines by means of its Weight, and is also assist'd in so doing by the proper Motion of the Ducts. Besides, we ought carefully to advert to the Insertion of the *Ductus Cholodochus*, which creeps along, almost for an Inch, between the exterior and interior Coats of the *Duodenum*, and at last opens with a round Orifice into its Cavity.

But before I treat of the remarkable Use, and absolute Necessity, of the Bile, or consider the several Faults and Imperfections to which it is subject, I judge it highly expedient to premise such Things concerning its Nature and Qualities, as we learn from Experiments made upon it, that we may be the better able to form a Judgment of the various Phenomena and Disorders produced by it. First of all, then, let us have recourse to the Evidence of our Senses; since, from the Taste and Smell of any Substance, we are in some measure enabled to judge concerning the Nature of those Principles, of which it is made up and compos'd. It holds, then, universally true, that the Bile of every Animal is so intensely bitter, that a very small Drop of it communicates its Bitterness to half an Ounce of Water, when put into it. Now 'tis universally acknowledged, by the more knowing and skilful Part of the Chymists, that Bitterness of Taste proceeds from an intimate Commixture of a somewhat earthy Sulphur with a Salt; but what the Nature and Genius of this Salt may be, I shall now inquire. According to our Conceptions, and indeed according to the Result of Experiments, an Acid, intimately joined with an earthy, alkaline, and sulphureous Substance, forms a bitter Mixture. Thus the sulphureous and acid Spirit of Vitriol, coagulated with Salt of Tartar, or fix'd Nitre, produces a neutral Salt of a bitterish Taste, as in vitriolated Tartar, and the Arcanum Duplicatum; tho' very sulphureous Wine-vinegar, pour'd upon prepar'd Coral and Crabs-eyes, afford a neutral Salt, which is still somewhat more bitter. Besides, 'tis confirm'd by Chymical Experiments, that the bitterest Substances, such as Aloes, bitter Gourd, and Wormwood, lose much of their Pungency of Taste by an Admixture of alkaline Salts; which is no weak Proof, that an Acid contributes not a little to the Production of that Bitterness of Taste which is found in the Bile of Animals; since, when that Acid is destroy'd, the Bile becomes insipid and tasteless. It is also confirm'd by Experience, that bitter Vegetables, by Incineration, yield a larger Quantity of Salt than any others; but 'tis certain, that a fix'd alkaline Salt is generated or produced by an intimate Combination of an acid Sulphur with Earth.

Besides, the penetrating and permanent Taste of the Bile, when applied to the Tongue, is a Circumstance which sufficiently proves its remarkably active Nature; for every Substance which penetrates, and diffuses itself upon, the Organs of Taste, is of a subtile Quality. Among other Circumstances, which prove its highly penetrating Force, it is none of the least considerable, that when a few Drops of it are pour'd upon the Coat of the Stomach, or any of the Intestines, a deep-yellow Colour, not to be obliterated or wash'd off by any Art, is forthwith induced on the Part to which it is applied. Its penetrating Qualities are sufficiently known to Hatters, who, in order to give a deeper and more lasting Colour to their Hats, mix it with Substances of a black and inky Colour. Its Saffron-colour may also be easily accounted for, from the highly subtile and active Sulphur it contains, if the Chymical Axiom is right, that real yellow or red Colours are produced by Sulphur. But Chymical Distillations, and Mixtures of Bile with other Substances, discover its Elements, or component Parts, far more effectually than any thing else. Thus twelve Ounces of the Gall of an Ox yield eleven Ounces of Phlegm, intirely void of all Taste: From the remaining Ounce there was afterwards drawn a Spirit of an ungrateful and empyreumatic Smell, which speedily produced an Effervescence with Spirit of Nitre, and tinged Syrup of Violets green, as a Proof of its alkaline Nature: It also yielded something like an Oil, partaking of the Nature and Effects of the above-mention'd Spirit. The earthy *Caput Mortuum*, which remain'd in the Retort, and weigh'd two Drams and an half, by Incineration, yielded one Dram of a manifestly fix'd alkaline Salt: From this Experiment 'tis obvious, that there is a very great Quantity of Water in the Bile; which is also plain from this, that it may be reduced to an Extract; for two Ounces of

Ox's Gall, inspissated in a gentle Heat, yield not more than one Dram of thick Extract. Besides, by the Assistance of a proper statical Instrument, four Ounces of *Bile* are found to weigh scarce two Drams more than an equal Quantity of pure distill'd Water. If the Extract of Ox's *Bile* is mix'd with an equal Portion of Salt of Tartar, and again distill'd in a Glass Retort by means of a Sand-heat, then an urinous and manifestly alkaline Spirit is yielded, which raises a violent Ebullition, with any Acid; it also turns the Solution of Sublimate to a milky, and the Syrup of Clove-gillyflowers to a greenish Colour, which all volatile urinous Salts generally do. But the Reason why an Addition of the Salt of Tartar produces a more alkaline, volatile, and urinous Spirit, seems to be this: Calcin'd alkaline Salts make a very close and strong Attack on the Texture of oleous Substances, and, by destroying their acid Parts, volatilize and alcalize their Sulphur more highly. Something of a like Nature is observed to happen in distilling Soot, Amber, and Tartar, which, when distill'd alone, yield an oleous acid Spirit; but if, before Distillation, they are mix'd with a fixed Salt, the Spirit obtain'd is highly urinous and oily.

I now come to consider the Mixtures of *Bile* with other Substances, the Use of which, in discovering the Virtues and component Parts of Bodies, is very great. It is, therefore, confirm'd by Experience and Observation, that *Bile* produces an Effervescence with no Acid, except our fuming Spirit of Nitre. This Phenomenon seems to run counter to common Experience; since the *Bile* is thought to be of an alkaline Nature: Nor does the Gall of an Ox produce an Ebullition, with highly concentrated Oil of Vitriol, nor immediately assume a greenish Colour, as many imagine; but Perturbation, Coagulation, and Precipitation, are rather the Results of their being mix'd. But it is remarkable, that Spirit of Salt renders *Bile* thicker than Spirit of Nitre and Vitriol; and that it is not at all coagulated by Spirit of Nitre. When concentrated Spirit of Sal Ammoniac, prepar'd with quick Lime, is mix'd with *Bile*, its Colour is exalted, it becomes more saturated, and the Mixture remains diaphanous. The same Phenomena are produced, when the Experiment is made with Oil of Tartar per Deliquium. But we must here observe, that an Admixture of Alcalis very much impairs and diminishes the Bitterness of its Taste. When *Bile* is mix'd with the Syrup of Clove-gillyflowers or Violets, the Mixture does not become green, but assumes such a Colour as is usually produced by a Mixture of a yellow and a red Substance. Highly rectified Spirit of Wine also renders *Bile* turbid, and it loses its Transparency when mix'd with it; but a very small Quantity of the *Bile* is precipitated in it, and the Spirit becomes highly bitter. On the contrary, a very small Quantity of *Saccharum Saturni*, sprinkled in *Bile*, produces a very thick Coagulum in it. But inspissated *Bile*, upon pouring Oil of Vitriol into it, did not produce an Effervescence, but lost its blackish Colour, and became gradually livid; the Mixture, in the mean time, was of a highly disagreeable Smell. Our fuming Spirit of Nitre, mix'd with Extract of *Bile*, produced a very strong Effervescence, accompanied with a great deal of Froth, Heat, and a reddish Smoke; but the Extract was dissolved into a Mucus, which, by means of Oil of Vitriol, was reduced to a Coagulum of a more pitchy Colour: Almost the whole Extract was dissolved in Spirit of Wine; as also in Water. The Extract of *Bile* dried, and exposed to a Flame, melted; nor did it immediately take Fire, for it did not burn till its humid Parts were evaporated: It diffused the Smell of a fetid volatile Salt; and the Ashes left were impregnated with a large Quantity of alkaline Salt, as was obvious from their Taste.

To the Experiments already mention'd, I shall add the following Observations. The *Bile* newly taken from the Gall-bladder of an Ox, is diaphanous, and pretty fluid; but when it is exposed to the open Air for some Hours, its Transparency is diminish'd, it becomes thicker, changes its Smell, and in Process of Time grows fetid; for 'tis scarce credible how easily, and how soon, the *Bile* contracts an abominable Fætor, even much sooner than the Blood itself; which is a Proof, that as all the other Fluids of Animals, so the *Bile* consists of Parts, whose Union and Commixture the Heat of the Air alone is sufficient to disjoin and separate. It must also be observed, that the Serum of Blood or Lymph, held over a gentle Heat in a Spoon, is converted to a gelatinous Mass; which Experiment is in vain tried upon *Bile*, which is less coagulated by Heat, because the nutritive Lymph is none of its component Parts. As for the Uses made of *Bile* by Trades-people, it is most generally employ'd by Scourers, for taking greasy Stains out of Cloaths; and by Painters, for heightening their Colours, and cleaning Pictures; for which last Purpose it is very good. Besides, Ox's Gall proves an excellent stimulating Ingredient in a Clyster; and, by some, the Galls of other Animals are prescrib'd with Success, in Epilepsies, Quartan Fevers, hard Labours, and Hysteric Fits.

These, then, are the Experiments which I made with the *Bile* of an Ox. However, I do not deny but the *Biles* of other Animals are, in some measure, different from it; and that even

the *Bile* of one and the same Animal is not, at all times, of the same Nature and Qualities. I could not subject any considerable Quantity of human *Bile* to Distillation, because I had it not; but I am of Opinion, that its Difference from the *Bile* of an Ox consists in this, that it is somewhat thicker; by which means it happens, that by pouring Aqua-fortis into it, or Spirit of Vitriol, and applying a brisk Heat, an Effervescence is produced, and the Mixture becomes green: Hence also it happens, that it is quickly coagulated by rectified Spirit of Wine. Hence it is not to be doubted, but that the human *Bile* is of a far more active Nature, and more richly saturated with a saline and sulphureous Principle, than the *Bile* of other Animals: I must here observe in general, that the hotter Animals are, their *Bile* is proportionably of a more active Nature, and *vice versa*.

The above-enumerated Experiments sufficiently prove to us, that the *Bile* is not of a pure alkaline Nature; hence it does not produce an Effervescence, but with the strongest Acids: Now every pure Alkali, whether earthy or saline, speedily causes an Ebullition with every the most weak and gentle Acid. Hence we learn, that the *Bile* is of an oleous and sulphureous Nature, for which Reason it burns; but it is not purely sulphureous, otherwise, when mix'd with Spirit of Nitre, or our fuming Spirit of Nitre, it would excite a tumultuous Effervescence; for such is the Nature of subtle Oils, that, when mix'd with these Spirits, they produce an Ebullition; so that the *Bile* seems rather to be a very temperate Liquor, made up of oleous, earthy, aqueous, saline, and volatile Particles. And, to explain myself in a few Words, the bitter *bilious* Juice in all Animals; in its Commixture and Crasis, almost resembles the Juices of bitter Herbs, especially that of the lesser Centaury, the Extract of which is not much different from inspissated *Bile*; for the Juices of all these bitter Plants are made up of Sulphur, and an earthy alkaline Salt. As to these Plants, we ought also to consider, that their Juices, when depurated, and distill'd in the same manner with the *Bile*, when mix'd with acid, alkaline, and spirituous Menstruums, cause Phenomena so much like those produced by the *Bile*, that we have all the Reason in the World to believe, that the constituent Parts of these Simples, as to their Mixture, Crasis, and Virtues, are the same with those of the *Bile*: Hence the Reason is obvious, why the Extracts and Essences of bitter Plants are so singularly and surprisngly efficacious in augmenting the Quantity of the *Bile*, when it is defective; and in correcting it, when its Quality is depraved; two Circumstances which contribute not a little both to the Prevention and Cure of Diseases.

Having thus taken a View of the Nature and Qualities of the *Bile*, it now remains, that we inquire into the particular Manner in which it is generated and elaborated in the Body. First of all, then, I must observe, that the *Bile* does not exist in the Blood, under the same Form, and in the same State, in which it appears in its Receptacles, which are the *Porus Hepaticus* and *Gall-bladder*; for neither the Blood nor Serum are bitter, nor, in a natural State, are they yellow; but the Serum becomes so by an Admixture of *Bile*. For which Reason it is plain, that the Materials, of which it is composed, are only lodged in the Blood; which does not at all appear improbable, when we consider, that large Quantities of Sulphur, Earth, Salt, Phlegm, and Mucus, of all which the *Bile* is composed, are found in the Blood. Now 'tis known from Chymico-mechanical Experiments, that the Qualities, Properties, Tastes, and Smells of Bodies, depend entirely upon the Mixture, Union, Position, Crasis, and Texture of their various Parts; which when chang'd or destroy'd, a proportionable Change is induced on the Taste, Smell, Consistence, and Virtues of the Body. For this Reason a peculiar Mixture of the pinguious, saline, earthy, and aqueous Parts of the Blood, separated from the Blood and Serum by means of their intestine Motion, constitutes and makes up the *Bile*. But to me it seems somewhat improbable, that the *Bile* should consist immediately of the chylous Parts of the Blood, or those which are most slightly united with it; but I am of Opinion, that all these Parts being resolv'd and separated from the Blood, by means of its intestine Motion are afterwards united, and form the *Bile*. Hence we plainly see, that a large Quantity of *Bile* must necessarily be generated in People whose Blood is agitated with a strong and violent intestine Motion: Hence it happens, that young Men of choleric Habits, who enure themselves to Exercise, and live upon hot Foods, abound with *Bile*; whereas old Men, Children, the Phlegmatic, the Idle, and the Lazy, have an aqueous, thin, and unactive *Bile*. Burnings, continued, and tertian Fevers, afford us a signal Proof of this; since, in them, too great a Quantity of *Bile* is produced by the violent intestine Motion, which dissolves the Contexture of the Blood; for it is surprisng to observe, what large Quantities of *Bile* are daily discharged, in the above-mentioned Fevers, by Urine, Stool, and Vomit; for which Reason the Antients imagin'd, that the *Bile* thus discharged was the productive Cause of the Fever, whereas it is rather its Effect. For Instance, we observe, that the more violent and lasting a tertian Fever is, the Excrements are proportionably more bilious: Nor does Nature cease to generate new *Bile*, even during the

the Paroxysm of the Fever; but this Fever is removed, or rather stopp'd and suppress'd for a while, by the Use of that celebrated Medicine the *Peruvian Bark*; for by using it a short time the fiery Colour of the Urine is removed, it becomes thin and aqueous, and the Excrements assume their natural Colour; but, as soon as the Fever returns, all these Symptoms return with it. From what has been said it is sufficiently plain, that the Blood itself may, by a too hot intestine Motion, be resolv'd into *Bile*, and other excrementitious Liquors. The Truth of this is also confirm'd to us by hectic and latent Fevers, where the Blood itself is, by a continual and excessively violent intestine Motion, at last consumed, and converted into *Bile* and Excrements. Among the few who have adverted to this Circumstance, none have been more explicit than *Hildanus*, who (in *Select. Medic.*) has these Words:

“Tis something wonderful and surprising, that, on some Occasions, large Quantities of *Bile* should be evacuated, and yet the Gall-bladder not be found empty after the Death of the Patients; 'tis not, in consequence of this, to be doubted; but that the Blood is, by an inflammatory Heat, parch'd and converted into *Bile*.” We farther observe, that the more we abstain from Food, and the more Exercise we use, a proportionably larger Quantity of *Bile* is generated; whereas an inactive Life, and high Feeding, prevent and hinder its Generation.

Having taken a View of the Origin of the *Bile*, and its generating Cause, I shall now inquire in what manner the Particles, forcibly separated from the Blood by its intestine Motion, are united into *Bile*; which Phenomenon I deduce from the slow and languid Progress of the Blood thro' the Liver: But, for the better Illustration of this Point, I shall assume the following mechanical Axioms.

1st. Substances capable of being mix'd, the more they are agitated, and the more quickly they are moved, the more their Particles are divided and broken.

2d. The more minute the Parts are render'd by Motion, the more closely are they united; and the more difficultly are they separated from the rest; because large Bodies, by being divided, have the Sum of their Surfaces increas'd, and, in proportion to the Smallness of the Parts into which they are resolv'd, that Force, with which one Fluid endeavours to recede from another, is diminish'd. Hence it follows, that the homogeneous Particles must unite, come together, and more easily separate themselves from a Mixture of heterogeneous Parts, when their Motion is diminish'd, or destroy'd, as we evidently see in extravasated Blood, in which, upon a Cessation of its Motion, the Serum is separated from the Crassamentum. Since, then, we know from Anatomical Observations, that the Circulation of the Blood is slowest in the Liver, because it is convey'd to it by the Vena Portæ, which has no Pulsation, and is introduc'd into the smallest Ramifications dispers'd thro' the Parenchyma of the Liver, in which it does the Office of Arteries; and since an Impetus of Motion is wanting, the Blood must move slowly not only in this Organ, but also proportionably so in all the Viscera, which have Vessels distributed to them from the Vena Portæ. Hence the Reason is obvious, why the Liver, the Spleen, the Pancreas, the Mesentery, and Intestines, are, for the most part, the Seats of the most violent chronical Disorders; since, in these Parts, Obstructions, Indurations, Stagnations of Blood, Inflammations, and Corruptions, may very readily happen. For which Reason, since in this Vein the Blood is deprived of its sweet and chylous Parts; its gross, sulphureous, and saline Particles, as it were, parched with Heat, together with its mucilaginous and lymphatic Parts, moving slowly, unite, are collected and secreted; by which new Union and Mixture, a new State, Crasis, Taste, and Colour, result. But 'tis not to be doubted, but that the new-generated *Bile* is successively more assimilated to that in the Cystis and Biliary Ducts, that it may prove a kind of Ferment; for as the Blood, by its intestine Motion, helps the Transmutation of the new Chyle into Blood; and as Vinegar converts Wine pour'd to it into Vinegar, so the *Bile*, upon the Approach of the like Juice from the Blood, easily communicates its own Form and Texture to it.

Having thus consider'd the Nature of the *Bile*, and inquir'd into the particular Manner in which it is generated, I now come to shew, that the *Bile* is a noble and useful Medicine to every Species of Animals. This I shall endeavour to prove by the following Arguments. First, then, there is not in Nature an Animal destitute of this Liquor; for 'tis found not only in Quadrupeds and Birds, but also in the most inconsiderable and diminutive Insects; and tho' some Animals want a Gall-bladder, yet they by no means want a Liver and Ducts conveying the *Bile* from it, either to the Stomach or Intestines. Secondly, the Necessity of the *Bile* in Animals appears from this, that wise and unerring Nature has appointed so large an Organ, and which takes up so considerable a Space in the Abdomen, for no other End but to secrete and distribute it; now 'tis certain, that no Animal whatever wants this Organ. Thirdly, among other Things of an Anatomical Nature, 'tis worth while to observe, that, in most of the more noble Animals, the *Bile* is

convey'd by a double Way, or Duct, from the Liver to the Duodenum; for, besides the Hepatic Duct, which conveys the *Bile* immediately from the Liver, there is also a *Cystic Duct*; and these, for the most part, join, and coalesce into one common Duct, which is call'd the *Ductus Choleochus*. If we reflect rightly upon this surprising Contrivance, we must have our Minds fill'd with the most noble and elevated Ideas of its Author; for, since this Liquor is absolutely necessary to the Life of every Animal, if one of these Ducts should happen to be obstructed, so long as the other remains pervious, this balsamic Liquor may be carried to its destin'd Parts; or if, on any Occasion, it should be elaborated in too great a Quantity, it is, by this means, stor'd up for future Use, as it were, in a Repository. Fourthly, the Use of the *Bile* appears from this, that, in all Animals, it enters the first Intestine or Duodenum, very near the Stomach, and is there pour'd upon the Mass of Aliments. If then it had been an excrementitious Liquor, or hurtful to the Constitution, the all-wise Author of our Nature would have rather thrust it directly into the Intestinum Colon, or Rectum, that it might not, by its Sordes, contaminate and corrupt the Chyle, which is the Food and Nourishment of the Blood, and of the whole Body. In the last Place, its singular Use, and absolute Necessity, are sufficiently demonstrated, by its being generated in such a large Quantity; since, according to some, and especially *Borelli*, there is a Pound of this Liquor produc'd every Day in the larger and more bulky Animals.

Tho' the above-mention'd Arguments are founded only upon probable Conjectures; they are, nevertheless, sufficient for proving the Usefulness of the *Bile*. But that I may be a little more clear and explicit upon this Point, I lay it down as a Maxim not to be contested, that Life, and much more Health, depends upon a constant and uninterrupted, a due and equable Circulation of the Blood and Humours thro' the whole Body. This Motion of the Blood is justly dignify'd with the Epithet *Vital*; for it preserves the Body from Putrefaction, renders it found and durable, and nourishes or repairs that latent and inconceivable Principle, by means of which the Union and Correspondence between the Soul and Body are maintain'd. So long then as this Circulation of the Humours is free and uninterrupted, we are said to enjoy Life and Health; but as soon as it begins to be impair'd, various Indispositions, Pains, Depravations of the Actions of the Body, Putrefaction, and, at last, Death, happen. Now, in order to maintain and keep up this Circulation, 'tis absolutely necessary, that the Blood should be in such a State of Fluidity, as to be able to move freely thro' the smallest and most minute Ducts of the Body. 'Tis also requisite, that the component heterogeneous Particles of the Blood should be intimately mix'd and united, since this very Circumstance constitutes its Crasis and Texture. Now, 'tis confirm'd by Experience, that nothing is more prejudicial and injurious to the Texture of the Blood, than tenacious, viscid, and acid Substances; for these are destructive of Fluidity, are not easily put into an intestine Motion, and cannot be intimately mix'd with other Fluids. Now 'tis obvious, that we eat various Substances which abound with an acid, a viscid, and tenacious Principle, from which a thick, viscid, and immiscible Blood and Chyle must be produc'd. Besides, 'tis necessary for Life, not only that the Blood should be in a State fit for Circulation, but also that proper Motion should be us'd; for Motion is essential to Life and Health. 'Tis plain that those Fibres of our Bodies, which are destin'd for the Purposes of Motion and Contraction, perform their respective Offices better and sooner, when extraneous Bodies in Motion act upon them by their penetrating and active Qualities; for we observe, that only the penetrating Smell of Wine, spirituous Liquors, and volatile Salts, soon raise the faint and languid Motions of the whole Body. Nature has also need of such a natural Mover, to give due Motion and Impulse to the solid Parts, without which the Circulation could not be carried on, nor Life and Health preserv'd.

I now come to consider, by what means the *Bile* is the natural and universal Medicine of our Bodies; and how it comes to pass, that it affords all the Supplies necessary to the Fluidity and Motion of the Blood, by which Diseases and Death are prevented. I have already shew'd, that the *Bile* is a Liquor of a very active and penetrating Quality, since it is compos'd of sulphureous oily Parts, mix'd with volatile and fix'd Salts; and, at the same time, of a very temperate Nature, by reason of the Admixture of aqueous and earthy Parts. This Liquor, partly by its penetrating Quality, and partly by its Texture, incides, temperates, and corrects the viscid, thick, and acid Matter, which comes from the Stomach; and, which is a Circumstance of the greatest Importance, it contributes very much to render the Chyle, and consequently the Blood, volatile, mild, and spirituous. Now 'tis not to be doubted, but that, not only in the Stomach, but also in the small Intestines, the Aliments undergo an intimate Solution and Fermentation, whereby their Adhesion and Texture are intimately dissolv'd and destroy'd, as the Change induc'd upon their Taste, Smell, and Consistence, sufficiently proves. Now 'tis known, that spirituous and active

Liquors,

Liquors, added to Substances during their Fermentation, intimately dissolve these Substances by an intestine Motion, and add an excellent spirituous Quality to them. The same happens, when the *Bile* is pour'd upon the Aliments when under Fermentation; for, by this means, the acid and viscid Principles are not only corrected and subdued, but the chylous Mass itself is render'd gently spirituous, subtle, temperate, and of a sweetish Taste. But that the *Bile* undergoes a Fermentation in the Intestines, we may gather from its entirely laying aside its Bitterness; for the fermentative intestine Motion intimately dissolves, and fully inverts the Union, Crasis, and Texture of the Parts on which its Taste and Quality depend. Thus the *Bile* prepares the Chyle in the *Primæ Viæ*, and renders it fit and disposed for performing the vital Circulation, and conveying Nourishment to the whole Body; and without this Humour, the Chyle remains thick, crude, unsubdu'd, and unfit for progressive Motion; and when 'tis convey'd, in such a Condition, into the Mass of Blood, it must lay an effectual and sure Foundation for Disorders and Indispositions. *I have been obliged to preserve the Word FERMENTATION, in order to give the Meaning of Hoffman; but must confess, that it conveys to me no satisfactory Idea, and gives me no Information.*

A Chyle thus season'd with a spirituous Balsam, when it reaches the Blood, is intimately mix'd with it; for the more subtle and fine the Parts of Fluids are, the more easily they admit of an intimate Mixture; and, on the contrary, the thicker Fluids are, the more easily they recede from the other heterogeneous Particles. The Chyle, also, being impregnated with a certain stimulating Salt, proves an excellent Quickener of the Tone and Impulse of the moving Fibres of the whole Body; by this means the Circulation of the Humours, which remains active so long as the Fibres are in a due State of Vigour, becomes quicker and more free. For this Reason the *Bile* was by the Antients, and still is by the Moderns, justly styl'd the Balsam of the Body; not because by its balsamic Quality it prevented a Disposition to Putrefaction, but because it contributed much to a free and quick Circulation of the Blood; for this Circulation is, if I may so speak, the best Balsam to the Body, in which there can be no Corruption so long as it remains entire; for the perpetual progressive Motion of the Body, together with its Fluidity and spirituous Nature, resists the Tendency to Putrefaction; besides, by means of this circular Motion, many recrementitious and superfluous Parts, which are strongly inclin'd to Corruption, are evacuated, and carried off by the proper Emundatories.

There is still another very considerable and important Use of the *Bile* in the *Primæ Viæ*; for it proves a due and proper Stimulus to the Intestines, by means of which they are excited to their due peristaltic Motion, which is highly necessary both for pressing the Chyle into the lacteal Vessels, and continuing the Propulsion of the Feces. 'Tis certain that a due Tone of the Intestines, which consists in their proper *Systole* and *Diastole*, contributes very much to the Secretion and Expulsion of what is useless and recrementitious; for if the Excrements are not duly and regularly discharg'd, the Blood and Lymph must, by that means, not only be render'd highly impure, but also a strong Disposition to spasmodic Disorders is brought on. The *Bile* then, in its due and natural State, when pour'd into the Mass of Chyle, promotes the Discharge of the Excrements, partly by its irritating Acrimony, and partly by the elastic spirituous Quality it bestows on the Chyle.

Tho' I have already sufficiently prov'd, that the *Bile* is an excellent and useful Medicine, which preserves the Body from Disorders, and happily prevents the Tendencies and Dispositions to them; yet the uncommon Efficacy, and singular Virtue, of bitter Medicines, both in guarding against, and removing many Distempers, is a strong additional Proof of the Assertion. I have already observ'd, how great an Harmony and Affinity, in point of Mixture and Crasis, there is between the *Bile*, and the Extracts and Juices of bitter Herbs, especially of the lesser Centaury: Now daily Experience convinces us, that no Medicines are more safe and efficacious, either for preservative or curative Intentions, than those which come under the Denomination of *Bitters*. Elixir Proprietatis, and Aloes itself, reduc'd to a proper Form, with bitterish Extracts, and an Addition of the balsamic Gums, as also the Essences and Extracts of Wormwood, the lesser Centaury, Fumitory, and Gentian, are Medicines so safe and universal, both for guarding against, and curing, almost all chronical Disorders, that Medicine would be very imperfect and defective without them. Many Remedies might be discarded from Physic, without its sustaining any considerable Loss; but Bitters are absolutely necessary to its Perfection; for by these more happy Effects are in reality produc'd, than by volatile, spirituous, oleous, fix'd and earthy Salts; since they are more agreeable to the Constitution, more temperate in their Qualities, and correct and amend what is peccant in a more gentle and gradual manner; provided the Use of them is persisted in for a considerable Time. In short, Bitters must, in the very Nature of the Thing, be excellent and efficacious Remedies, since they perform the same friendly Offices with

the *Bile*, which they generate and augment, when deficient in Quantity, and correct, when deprav'd and vitiated in Quality. Nor, indeed, can we be deceiv'd with regard to the Propriety of Bitters, since provident and unerring Nature elaborates and prepares a bitter Liquor in the Body, which proves a mighty Preservative to it.

I now come to resolve this Question, *Whether the Bile circulates?* The first who advanc'd this Opinion was *Borelli*, in his Book *de Motu Animalium*; where he supposes, that the *Bile* being a highly useful Humour to our Bodies, some Ounces of it are every Hour convey'd from the *Biliary Ducts* to the Intestines; that such a Store of it could not be generated from the Blood; that the greatest Part of it was thence again pour'd into the Blood; by means of the meseraic Veins, which, like so many Leeches, sucking out the bilious Humour, convey it back again to the Liver; thro' the *Vena Portæ*; and that many of the active Particles of the *Bile*, being mix'd with the Chyle, were thence convey'd into the Blood, where they furnished new Matter for the *Bile*. This Opinion was some time ago broach'd at *Lejden*, in a formal Dissertation on the Circulation of the *Bile*. The Author of this Dissertation thinks, that, in the Space of twenty-four Hours, at least six Ounces of *Bile* were pour'd into the Duodenum, which he proves by an Experiment made on a Dog; and he is of Opinion, that such a large Quantity of *Bile* can by no means be generated in the Liver, unless we suppose a Circulation of it. But in Man, he supposes that a whole Pound of *Bile* is secreted every Day. In Confirmation of this, he draws an Argument from the meseraic Veins, which are so large, that they are not only destin'd for conveying the Blood, but another Humour also. He afterwards endeavours to prove the same Fact from the Feces of an Embryo; which he takes to be *Bile* stagnated in the Intestines. But, because this does not answer the Quantity of *Bile* which daily flows into the Intestine, he is of Opinion, that it again enters the Pores of the meseraic Veins: These he thinks most proper for this Purpose, because, by blowing thro' a Pipe introduc'd into the meseraic Veins, the Air enters the Intestines; and that, in feather'd Animals, which are destitute of lacteal Vessels, the Chyle is carry'd thro' the Veins of the *Mesentery*.

But several Circumstances hinder us from believing these Assertions; for, in the first Place, it is not as yet proved by any conclusive and satisfactory Argument, that so large a Quantity of *Bile* is secreted in Man: But tho' we should grant, that there really was, yet I am of Opinion, that the large Quantity of Serum produc'd by so much Aliment, is sufficient to generate it; for, since an uninterrupted Heat and Motion act upon the Aliments, they must necessarily be resolv'd into saline and excrementitious Parts, of various kinds. For, tho' our Aliments should be swallow'd down insipid, and without Salt, there will be, nevertheless, daily a large Accumulation of sulphureous Salts, conspicuous in the *Bile* and Urine; and the Quantity of these Salts is owing to the intestine Commotion of the Blood alone. Since, then, the Urine contains so large a Quantity of Salt, Sulphur, Fat, and Mucus, as we daily see excrend, and since it is furnish'd from the Blood, and not immediately from the Aliments, I see no Reason why the *Bile* should not, in like manner, receive a sufficient Supply from the Blood; so that there is no Necessity for its circulatory Motion: Nor, in Embryos, is the *Bile* generated in so large a Quantity, because the intestine Motion of their Fluids is very temperate, and already freed, as it were, from the bilious Sordes in the Viscera of their Mothers. Nor does the Largeness of the meseraic Veins add any Force to this Opinion; for the Veins of the whole Body are always larger than the Arteries; and when the Blood, carry'd thro' the Branches of the Liver, does not pass so expeditiously thro' the Ramifications of the *Vena Portæ*, it must be accumulated too largely there, and distend the Vessels. Besides, it can be proved by no Experiment, that, in Man, the meseraic Veins receive any humid Substance from the Intestines; and I cannot perceive why the *Bile* should not, in like manner, enter the Pores of the lacteal Vessels, as being more patent: much less can it be suppos'd, that the *Bile*, being mix'd with the chylous Juice, should afterwards be specifically separated by the meseraic Veins, without an Admixture of the Chyle. Besides, the *Bile* itself, mix'd in the Intestines, is in the small ones, by its Fermentation, and intimate Solution, evidently chang'd, its Crasis dissolv'd, its Bitterness laid aside, and, in short, it ceases to be real *Bile*. 'Tis not, however, to be deny'd, that the sulphureous and spirituous Parts of the *Bile*, being resolv'd by Fermentation, again pass into the Blood, but not under the Form of *Bile*. Nor do I deny, that when too much *Bile* is pour'd into the Duodenum, when the Stomach and Intestines are empty, as it sometimes happens in preternatural Cases, a Part of it may be actually received into the lacteal Veins. If it be granted, that this may happen upon taking too large a Quantity of bitter Medicines, I see no Reason why it should not happen, when too much *Bile* is accumulated.

Since I have already shewn the Necessity, and great Usefulness, of the *Bile*, and prov'd that it is an universal and natural Medicine to the Constitution, it evidently appears, that, when this

this Liquor is faulty either in Quantity, Quality, or an undue Degree of Motion, our Bodies must sustain very considerable Inconveniences, not only by having the Dispositions and Tendencies to Disorders, but the Disorders themselves, actually brought upon us. I must first then consider, whether too large a Quantity of *Bile* of a good Quality; and due Temperament, can prove disadvantageous and hurtful to the Body? To this I answer, that in Countries like ours, where the Air is dense, where the Inhabitants drink Malt Liquor, and where the Waters are not thin and subtil, a too large Quantity of good and laudable *Bile* cannot readily be generated. Yet I do not deny, but when People in the Vigour of their Youth indulge themselves wantonly in the Use of Wine, Aromatics, and sweet Aliments in the Summer Season, too large a Quantity of *Bile* descending to the Intestines, and again mixing with the Blood, may do very considerable Injuries; especially if solid Aliments are sparingly used: For 'tis sufficiently known, that the best active Medicines do Harm, if taken in too large a Quantity, which also holds with respect to Bitters: Thus also too large a Quantity of *Bile* gives too hot an Intemperies to the Blood, and disposes to Hemorrhages, disorderly and exorbitant Passions, Inflammations, Vomitings, Diarrheas, and Consumptions. But it is more frequently faulty with regard to its Deficiency, or the Smallness of its Quantity, to which old Age, Childhood, a serous and phlegmatic Constitution; too liberal an Use of Opiates and refrigerating Medicines, frequent Venesection, reiterated Purgations, and Loss of Strength by the Shocks of some long Disease, contribute not a little. A Defect of the *Bile*, as *Helmont* has well observ'd, disposes to Cachexies, Dropsies, hypochondriacal Disorders, and very terrible chronical Distempers. *Fernelius in Pathol.* very judiciously observes, "That many have died, in whom, when laid open, no other Cause of Death could be discover'd, except that the Gall-bladder was entirely destitute of *Bile*." And *Moebius* in his *Fundament. Physiol.* informs us, that in the Bodies of three Children, who died of Consumptions, there were not the least Remains of *Bile* to be observ'd. In the 224th Observation of Dec. 2. of the *Miscellanea Naturæ Cur.* 'tis shewn, that the Person who by frequent Vomitings of *Bile* drains his Body of that Fluid, must necessarily die.

A due Supply of *Bile* is greatly wanting in the Intestines, when the Orifice of the *Ductus Choleochus* is either block'd up by a Stone, or contracted by Spasms. This Disorder lays a Foundation for several very terrible Symptoms, and generally ends in a Jaundice; for when the *Bile* is not allow'd a Passage to the Intestines, and its Generation in the Liver is still carried on, it must of Necessity flow impetuously, not only to the Gall-bladder, which it wonderfully distends, but also to the biliary Ducts, and Glands of the Liver, where, by the too great Distension and Aperture of the Pores, it passes thro' the lymphatic Vessels into the Blood, and tinges the whole Mass of Serum with that yellow and disagreeable Colour, which appears all over the Surface of the Body. But that, in this Case, a large Quantity of *Bile* flows from the Liver into the Blood, we may conclude from this, that the Urine discharg'd is thick, resembles *Bile* in its Colour, and tinges Linen with a saffron Colour. Costiveness is also a Concomitant of the Jaundice, and white Feces are discharg'd with Gripes and Flatulencies; there is a heavy Pain in the right Hypochondrium, and sometimes a very acute and violent one, a Vomiting, Nausea, Loss of Appetite, and Cardialgia; especially if a Stone be lodged in the Ducts, or if the *Bile* be extravasated; for I have already observ'd, that the biliary Ducts are very sensible and nervous. If then these Ducts should be too much distended or vellicated, either by a Stone, or stagnating *Bile*; the Stomach, the Oesophagus, and the Duodenum, are at the same time drawn into Consent with them. More Circumstances concur to prove, that the biliary Duct, and its Aperture into the Duodenum, may be contracted; and that by this very means a Jaundice, which however is easily carried off, is generated. In hypochondriac and hysteric Patients, as also in those who labour under a violent Colic, or a severe Fit of Anger, we often find a yellow Colour dispersed over all the Body, accompanied with a heavy Pain in the Pit of the Stomach, towards the right Hypochondrium, and where the Duodenum, the Pylorus, and these Ducts, lie; for the Orifice being either clos'd up by Flatulencies, or contracted by Spasms, the *Bile* regurgitates to the Blood. Antispasmodic Carminative Medicines, and such as correct the Acrimony of the Humours, are of all others best calculated for the Removal of this Disorder. Hence, according to the Experiments of *Sylvius*, Saffron, Opiates, Milk, and Emulsions of Hempseed, are of singular Service in this Case; but hot Sudorifics, as also stimulating and operient Medicines, are less proper. Burning bilious Fevers, and tertian Fevers, whether of the continued or intermitting Kind, are also frequently accompanied with a Jaundice, which draws its Origin from no other Source, than either a Constriction or Obstruction of the biliary Ducts, which lead to the Duodenum. In burning Fevers an Inflammation of the Duodenum, and of that Part of the

VOL. I.

Pancreas which adheres to it, as also of the Pylorus, often happens, especially when the Fever is brought on by the Suppression of violent Grief, or the drinking of cold Liquors. Hence it is not to be doubted, but the Ducts being compressed by means of the Inflammation, Tumor, Pain, and Spasms of this Part, prevent the Afflux of the *Bile* to the Duodenum. Besides, 'tis known from Experience, that Poisons swallow'd, and the Bites of Vipers, or of mad Dogs, are frequently follow'd by the Jaundice; the Reason of which Phenomenon seems to be no other than the violent Spasms and Inflammation in the Stomach, and small Intestines, which at the same time shut up the Passages of the *Bile* to the Intestines.

When there is a violent Obstruction of the biliary Ducts, the Gall-bladder is on that Occasion surprisingly distended by too large an Influx of the *Bile*. Then, by reason of the Stagnation and Rest, the more thick and mucous Parts of the *Bile* are separated, collected, and lay a Foundation for a bilious Concretion. Besides, the thinner and more acrid Parts of the *Bile* issue thro' the dilated Pores of the Gall-bladder, and excite Gripes, Cardialgias, Vomitings, violent Constrictions of the Stomach and Intestines, and Convulsions: Instances of this may be read in the forty-seventh Observation of the first Century of Stalpart Vander Wiel. That the *Bile* may issue from the Gall-bladder, is confirm'd by *Tulpius*, where he brings an Instance of a pregnant Woman, in whose Body when laid open, besides an Abscess of the Mesentery broken during Labour, the Colon was found to float so freely in yellow *Bile*, that it might have been taken out by Spoonfuls. Something of a like Nature, *D. Melch. Fribe Ephem. Nat. Curios. German. Dec. an. 3. Obs. 100.* relates concerning a Coachman who died of a continual burning Fever, in whose Body, when laid open, he says he observed, that from the Gall-bladder as yet entire, and larger than a Pigeon's Egg, the thinner Part of the *Bile* had issued, and so drench'd and corroded the Parts below, above, and on every Side of it, tinging them of a saffron Colour, for two or three Inches all around, that it was plain the Parts bedew'd and ting'd with it had become manifestly putrid; and that, besides the Substance of the Liver, it had corroded and render'd putrid a great Part of the Hypochondrium, the Gall-bladder remaining, at the same time, evidently sound and unaffected.

Besides, the *Bile* is highly disturbed in its Motion, either when the Gall-bladder is filled with a Mucus, or when a Stone is lodg'd in its Neck; for in these Cases it cannot receive the hepatic *Bile*, which, of course, must flow into the Duodenum in a larger Quantity than it ought; and is by no means necessary, if the Stomach is empty: And if it is full, this *Bile* is by no means sufficient; but a Supply of thicker and better saturated *Bile* from the Gall-bladder is necessary for the Purposes of Chylification, and for exalting the Chyle. And such a Defect of *Bile*, at the Time of Meals, generates many acid and viscid Crudities, which dispose to Gripes, Constrictions of the Belly, Cachexies, and Dropsies. I remember there was some time ago a Sword-cutter laid open at *Fena*, who, for twenty Years before his Death, had been afflicted with violent Gripes, a Cardialgia, and Sense of Heat about the Pit of his Stomach. His Gall-bladder was of an uncommon Structure, and so large and long, that three thousand six hundred and forty-six Grains of *Bile* coagulated partly in the Form of Peas, and partly in that of Shot, were found in it. Cases of this Nature are very frequently accompanied with Pains of the right Hypochondrium, Vomitings, Jaundice, Colics, Hysteric and Spasmodic Disorders. And that a Dropsy frequently ensues such a Repletion of the Gall-bladder with a Stone, is confirm'd by *Cnoefelius, M. N. C. Dec. 1. an. 3. Obs. 260.* *Georgius Francus* also, Dec. 2. an. 6. *Obs. 194.* from the Observation of another Physician, gives the Case of a certain Soldier, who died of a Dropsy in his Breast, in whose Gall-bladder, upon opening him, there was a Stone found, which weigh'd half an Ounce and half a Dram. The Patient, during his Indisposition, complain'd of so violent a Pain in the Region of his Liver, that he could neither stand upright, nor walk, but was oblig'd till his Death to sit in his Bed in a crooked or bending Posture.

It sometimes also happens, that the *Bile* is irregularly, preternaturally, and in too large a Quantity, thrown out of the Ducts of the Liver into the Intestine; upon which Occasion, especially if it offends in Quality at the same time, it creates many Disorders, and produces very terrible Symptoms. This Case principally happens after a severe Fit of Anger; for then the muscular Fibres of the Gall-bladder, and biliary Ducts, being violently convulsed, not only a Bitterness in the Mouth, Nausea, and Loss of Appetite, and Cardialgias, but also Vomitings or Gripes, and a bilious Diarrhea, are excited. On this Occasion we are to observe, that where the *Bile* is immediately discharg'd, the Case is void of Danger. But if the Anger has been suppressed and restrained, it often happens, that the agitated *Bile*, remaining in the Cavities of the Intestines, is not discharg'd, but reaches the Mass of Blood, and generally excites

cites Fevers, violent Convulsions, Spasms and Pains. But, in this Case, the greatest Injury is done to the Constitution, when hot Sudorifics, or volatile spirituous Substances, are used, since by this means the impure *Bile* is plentifully convey'd to the Mass of Blood, and nervous Parts, and excites the most dangerous Symptoms. Concerning this, *Hippocrates* has left us a beautiful Passage in his Book *De Veteri Medicina*. "When," says he, a certain bitter Liquor, which we call yellow *Bile*, is diffused, what Anxieties, fervent Heats, and Weaknesses, forthwith seize the Patient! But when we are freed or purg'd of the Excess of this Liquor in due Time, either spontaneously, or by means of proper Medicines, then both the Pain, and intense Heat, are manifestly remov'd. But when by Length of Time, this Liquor is become crude, intemperate, and elevated above its natural State, neither the Fever nor Pains can be allayed by all the Suggestions of Art: And indeed what Madness, what Despair, what Gnawings of the Viscera and Breast, are those afflicted with, who abound too much with a stimulating, acrid and æruginous *Bile*!" *Hippocrates* very justly observes, that these Effects are only produced by an intemperate *Bile*; for if a temperate *Bile* is by a Fit of Anger thrown into the Intestine in too large a Quantity, it does not prove so hurtful, but rather a Remedy in cold Constitutions, as *Hippocrates* in a great many Passages observes.

I shall now inquire what Disorders may possibly arise from a tainted and perverted *Bile* convey'd into the Mass of Blood. Among these we may justly and principally reckon those Fevers called bilious, and continual double Tertian Fevers. And tho' Fevers themselves generate *Bile*, yet it is not to be doubted, but they may also arise, or be produced, from a bad and peccant *Bile*. *Hippocrates* concurs with me in this Opinion, who, in his Book *De Natura Hominis*, informs us, that most Fevers, especially a continual Quotidian, Tertian and Quartan, arise from the *Bile*. For, first, 'tis not to be doubted, and indeed we have the Sense of Antiquity full on our Side, that the proper Seat and Origin of most Fevers, especially those of the intermittent and burning Kinds, and such as are called *choleric*, is in the first Region of the Body, that is, about the *Præcordia*, the small Intestines, the Cavities of the Liver, the Spleen, the Pancreas, and the Omentum; for, as in these Organs the Circulation is generally slow, Impurities are generated, and corrupt acrid Humours flow from the Pancreas into the Intestines, and generally excite not only the spasmodic and feverish Symptoms which accompany hypochondriacal Disorders, but also the above-mentioned Fevers. For the Symptoms, which generally attend these Fevers, for the most part, make their first Appearance in the first Region of the Body, as evidently appears from the Inflation of the Stomach and Abdomen; the Pain of the Back, the Nausea, the Vomiting, and the Constipation of the Belly. And because, when any highly sensible Part of the Body is affected with Spasms, all the other Parts are readily drawn into Consent with it, hence the Horror, the Rigor on the Surface of the Body, the Coldness, the convulsive Pains of the external Parts, and Pandiculations, draw their Origin from the Irritation of the *Primæ Viæ*. Besides, the Diarrheas, the bilious Vomiting, the reddish high-colour'd Urine, the insatiable Thirst, the intense Heat, the violent Coughs, the Erosion of the Fauces, as also the Relief afforded by Refrigerants, gentle Evacuants, and such Preparations of Nitre as correct and allay the Acrimony of the *Bile*, and, on the contrary, the Mischiefs produc'd by volatile, hot, oily, and acrid Medicines, are Circumstances which manifestly declare, that a corrupted *Bile* is lodged in the *Primæ Viæ*, and Mass of Blood; and consequently fully prove my Assertion. Besides, we may observe, that young People, who have bilious Constitutions, and are prone to Anger, are easily thrown into Fevers; and that such as have formerly labour'd under critical bilious Diarrheas, if these do not return the following Year, are in their stead seized with tertian Fevers, accompanied with a pungent Pain, and Gnawing of the Stomach, which cease when plentiful Discharges of a yellow bilious Matter by Vomit and Stool come on.

Among many others, there is a beautiful Passage of *Hippocrates* in Confirmation of my Opinion, in his Book *de Affectionibus*. "Where," says he, there is a Fever, the Patient has "an insatiable Thirst, a rough and black Tongue, and a bilious Colour; his Spit is bilious; he is cold externally, but pretty hot internally. Refrigerants are proper in this Case, and the Disorder proceeds from agitated *Bile* pent up in the Body."

Fevers of this kind generally terminate on the seventh Day; nor does the Method, in which these Fevers terminate, less confirm my Opinion; for they generally terminate on the seventh Day, by a critical Jaundice, without any Sense of Heaviness, Tension, or Pain, in the Right Hypochondrium, especially in Patients labouring under continual tertian Fevers. *Hippocrates*, in his Book *de Morbis*, justly observes, that it conduces very much to the Relief and Safety of feverish Patients, and

such as abound with *Bile*, to have the *Bile* evacuated in due Time.

The Antients, and particularly *Hippocrates*, as also, among the latter Physicians, *Fernelius*, assign the Putrefaction of the *Bile* as the Reason why Fevers are augmented. Accordingly, the last-mention'd Author, in his *Patholog. de Febris*, has these Words: "In Fevers the *Bile*, becoming putrid, acquires "a malignant Quality; and that in the Beginning of the Access, it rushes violently, and in large Quantities, into the Membranes of the Duodenum, is sufficiently proved from "the dry Cough, the Oscitation, the Suffocation, the Anxiety, the Distension of the *Præcordia*, the Pain, the Nausea, the Vomiting, and the white thin Urine."

And indeed 'tis certain, that the *Bile*, when in a State of Rest and Stagnation, very easily becomes putrid. Now nothing is more injurious to the human Constitution, nothing more impairs its Strength and Vigour, nothing more disturbs and perverts its natural Motions, than corrupt and putrid Substances. For which Reason, we justly deduce the Origin of violent Fevers in cachectic and phlegmatic Patients, from a large Quantity of corrupted *Bile* in the *Primæ Viæ*. Besides, if putrid *Bile* is lodged in the *Primæ Viæ*, it easily admits, multiplies, and renders active, the Contagion of the Plague, malignant and petechial Fevers, Small-pox, Measles, Dysenteries, and other contagious Diseases. Hence those Medicines which either by Vomit or Stool discharge the Sordes from the *Primæ Viæ*, such as the *Acidula*, purging Flax, Nitre, Spirit of Vitriol, Spiritus Vitrioli dulcis, and Elixir Proprietatis prepared with a proper Acid, prove excellent Preservatives against Contagion, and malignant Distempers. Nay farther, an impure *Bile*, generated afresh in a considerable Quantity, lays a new Foundation for the Paroxysms of intermittent Fevers. Hence the Reason is obvious, why Evacuants, which operate without inducing Spasms, and do not injure the Tone of the Intestines, such as the *Pilulæ amaræ*, neutral Salts exhibited in large Doses, Mercurius dulcis, as also those Medicines which correct the too great Acrimony of the *Bile*, such as Preparations of Nitre, and those which prevent its Corruption, such as bitter earthy Substances, and *Peruvian Bark*, and such as strengthen the Tone of the nervous Parts, in order to prevent spasmodic Contractions in them, are of all others best calculated for removing the Cause and Origin of intermittent Fevers.

I now come to consider a Phenomenon of the highest Importance in the Practice of Physic, which is, that, in all feverish Disorders, the *Bile* is not only plentifully generated, but also vicious and peccant, by reason of the Dyscrasy of the Humours, and the disorderly Circulation of the Blood. Now this *Bile* necessarily flows into the Intestines, and, if it is not evacuated, lodges in them, and passes into the lacteal Vessels, and the Blood itself, by which means the most terrible Disorders are produced. For which Reason in all Fevers a soluble Belly, whether 'tis so naturally, or made so by Medicines, is a highly lucky and salutary Circumstance (a most excellent Remark!) Hence when Fevers of this kind are accompanied with Costiveness, we generally observe, that purple Fevers, Aphthæ, Inflammations of the Mouth and Fauces, and exanthematous Eruptions of various kinds, appear; the Reason of which is no other than this, that the corrupt and bilious Humours generated during the preternatural and febrile Commotion of the Blood, coming into the Blood itself, are thrown out to the Surface of the Body. I must on this Occasion observe, that the Purples, which appear principally in the Summer, and generally seize People whose Fluids are impure, as those of pregnant Women, and scorbutic Constitutions, for the most part are, and which often appear on the seventh or ninth Day of many acute Fevers, arise principally from bilious Humours fluctuating in the *Primæ Viæ*. For this Reason all Medicines which correct Acrimony, and evacuate gently, not only guard against, but also remove the Purples, especially if gentle Diaphoretics, in Conjunction with proper Acids, are now-and-then duly interposed. Women in Child-bed are frequently seized with a purple Fever, which arises from the Lochia not being discharg'd, and the *Primæ Viæ* evacuated; and this Species of the Disorder, if not judiciously treated, proves mortal.

I now come to consider some other Distempers, whose Origin is properly deduced from a Fault in the *Bile*; and the first I shall mention is the Erysipelas, especially if the Patient is costive, and Transpiration is obstructed; for nothing more corrupts the *Bile*, or more effectually stores it with impure and caustic Salts, than an Obstruction and Suppression of the usual cutaneous Evacuations. When, then, a *Bile* of this caustic Quality is lodged in the *Primæ Viæ*, it excites Horrors, Anxieties, and Vomiting; and being afterwards received into the Blood, is generally thrown off the third Day by the febrile Motion. Arthritic Pains, which, according to the Antients, draw their Origin from a hot Cause, are in like manner principally produced by a Fault in the *Primæ Viæ*, arising from a vitiated

vitiated *Bile*, which being convey'd into the Blood, proves the Cause of all these Pains, whilst the caustic Salts with which the *Bile* is impregnated, are fix'd upon the Membranes of the Joints. And this is the Reason why Fits of the Gout are for the most part usher'd in by Pains of the Stomach, Anxieties, Nauseas, and Loss of Appetite. Hence the Person who knows how, on these Occasions, to evacuate the *Primæ Viæ* without raising tumultuous Commotions in the animal Oeconomy, and at the same time to correct the Acrimony of the Humours, is the likeliest to succeed in removing, or at least mitigating, arthritic Pains.

It also deserves our greatest Attention, that Hæmorrhages, which either happen at stated Periods, or such as are critical and symptomatic in Diseases, have their chief Cause and Origin in the *Primæ Viæ*: For in these, Flatulences, Coarctations, and Constrictions, are perceiv'd; a heavy depressing Pain is felt in the Hypochondria and Back, the Patient is costive, the extreme Parts are cold, and the Impetus of the Blood is afterwards directed to some particular Part of the Body, whether the Head or Lungs, the Anus or the Uterus. But the Medicines which are best calculated for allaying and restraining the Violence of the Flux, are those which are gently purgative, but which, at the same time, preserve the Tone of the Intestines, and render the *Bile* temperate and balsamic; such as Preparations of Rhubarb, the *Pilulæ Becherianæ*, the *Pilulæ Macrocotinæ*, my balsamic bitter Elixir corrected, and volatile oily Salts frequently exhibited; but in small Doses; but for correcting the Acrimony and Volatility of the caustic and corrosive *Bile*, Preparations of Nitre, and the precipitating Powders, as they are sometimes call'd, are of all others the most effectual.

Can it now be doubted, whether from these Circumstances we may not justly conclude, that a vitiated *Bile*, accumulated in the *Primæ Viæ*, proves an Occasion and Stimulus to Hæmorrhages, in Constitutions disposed to them, by the preceding Spasms of the *Primæ Viæ*? And on this Occasion it must be observed, that periodical and stated Evacuations of Blood, as also arthritic and catarrhus Disorders, appear for the most part in the Autumn or Spring; or about the Months of *October* and *March*; for which no other Reason can be assign'd, than that the equable Tone of the Fibres is at these Seasons lost; in Consequence of the Inequalities in the State of the Atmosphere and Weather; and thus the Equilibrium of the Fluids and Solids, in which Health consists, is destroy'd; and that at these Times the active excrementitious Salts, which ought to be carried off by Transpiration, pass principally into the *Bile*, where, with their united Force, they descend to the Intestines, and produce numberless Disorders.

But 'tis particularly to be adverted to, that by the Corruption, Acrimony, and corrosive Quality of the *Bile*, in Consequence of an Admixture of many stimulating heterogeneous and corrosive Parts, violent Defluxions are excited in the Intestines themselves; for hence arise Diarrheas, Choleras, violent Vomitings, Gripes, and Dysenteries. The Antients, as well as the Moderns, ascribe these Disorders to an æruginous, porraceous *Bile*, which preternatural Colour sufficiently manifests, that its due Crasis and natural State are destroy'd by an Admixture of some corrosive Acid; for 'tis certain, that the *Bile* acquires a greenish Colour by the Addition of an Acid; and green Fæces in Children are manifest Proofs, that there is a large Quantity of Acid generated from the Milk they suck; for by Acids the natural Colour is destroy'd, and a Disease is brought on. *Hippocrates*, in his Book *de Natura Hominis*, has long ago condemn'd a greenish-colour'd *Bile*, in the following Words: "Green *Bile* stagnating near the Liver, where 'tis always in an Ebullition, is the Cause of Corruption, and a troublesome Inmate." Besides, practical and anatomical Observations sufficiently confirm, that a green *Bile* is the Cause of the above-mentioned Disorders: Thus *Diemerbroeck* affirms, that upon opening the Body of a Patient who died of a violent bilious Diarrhea, in which the Excrements were green, he found the Gall-bladder filled with a deep-green *Bile*, and distended to the Bulk of a Hen's Egg. The same Author informs us, that, in the Hospital in which he was concern'd, the *Bile* lodg'd in the Gall-bladders of some of the Patients, was, upon their being dissected, found highly green, æruginous, and of a somewhat blackish Cast; nay, in a young Daughter of Mr. *Ulyches*, who died of a Flux, in which the Excrements were æruginous, and who was laid open by myself in the Presence of several Physicians, I found the Gall-bladder distended to the Bulk of a Hen's Egg, and fill'd with æruginous *Bile*; which Circumstance I have also observed in other Children who have died of a like Diarrhea, and in some to whose Lives the Cholera Morbus has put a Period. *Pechlinus*, in his *Exercitatio de Purgantibus*, affirms, that he has often found the hepatic *Bile* black and livid, or of a leaden Colour. In a young Student of Distinction, and of a melancholic Habit, I observed the *Bile* in the Gall-bladder thick and black, like that of a Fish; which Circumstance I also remember to have seen in a *Maniac*, who after his Death was laid open. By *Bontius de Medicina Indorum* we are inform'd, that in an asthmatic Boy, who died

of a Dysentery, the Gall-bladder was found stuffed with a blackish Humour; and this black Colour is to be ascribed to no other Cause than the large Quantity of an Acid, which, by inducing a Stagnation of the *Bile*, renders it in Process of Time black. The Reason is therefore obvious, why in the above-mentioned Diseases, and in their Beginnings especially, gentle Emetics, Rhubarb; as also the precipitating nitrous Powders, Milk, Whey, Oil of sweet Almonds, anodyne and emollient Clysters, and the Cremor of Pisan, of all other Medicines prove the most effectual; for the *Bile*, when rendered highly acrid and caustic, excites Symptoms like those produced by Poison. *Borrichius in Art. Med. Haffn. Tom. 3. Obs. 36.* gives us the Case of a Youth afflicted with the same Symptoms which are generally produced by Poison, for an Erosion of his Stomach by an highly acrid *Bile* ensued. The same Author writes, that not only the *Bile*, but other Humours affect the Body and Stomach in such a manner, that one would be induc'd to think the Patient had taken a Dose of Poison, in which Case they undoubtedly acquire a malignant Quality, by which they corrode and vellicate the Membranes, and other sensible Parts, in the most violent manner, and excite the most intolerable and rack-ing Pains. For a Proof that the *Bile* may become so corrosive as to raise an Ebullition like *Aqua-fortis*, when thrown upon the Earth, see *Borelli, Observat. 1. Cent. 2.*

From what has been said, I think it plainly appears, that the *Bile*, when in its natural State, both as to Quantity and Quality, is a Medicine, and an Humour of the highest Use and Importance to the Body, and a Poison when vitiated; and that consequently the Health of Man may either be preserved or destroyed by the *Bile*; and that for this very Reason, both in accounting for the Symptoms of Diseases, taking our Indications, and prescribing the Means of Relief, we are in a particular manner to advert to the State and Condition of this Humour; and carefully observe whether it is faulty, either with regard to its Quantity, its Quality, and the Degree of its Motion; for certainly many Medicines, which are very efficacious in the Cure of Diseases, operate no otherwise than by increasing the Quantity of *Bile* when deficient, evacuating it when redundant and superfluous, correcting it when vitiated, and preserving its Motion to the Intestines in its due and proper State; for few Medicines act directly and immediately upon the Blood and Humours, but most of them exert their Virtues and Efficacy upon the *Primæ Viæ*, where, in a secondary manner, they correct the vitious Humours, of which the *Bile* is the principal, which are the direct and formal Causes of Diseases. This Observation holds good in a particular manner with regard to Emetics, Laxatives, Absorbents, Acids, Preparations of Nitre, tempering Medicines, Emollients, Bitters, fix'd Salts, Chalybeates, Corroboratives, and others of a like Nature. *Hoffman.*

The above-quoted Author, in another Part of his Works, makes the ensuing Remarks relative to the *Bile* and its Organs.

The Blood is conveyed to the Liver by the *Vena Portæ*, which being a venous Vessel, the Motion of the Blood through it must of course be slow. The *Vena Cava* carries back the Blood to the Heart. The hepatic Artery conveys Nourishment to the Parts of which the Liver is composed; and the biliary Ducts carry the secreted *Bile* partly through the *Ductus Cholochochus* to the Duodenum, and partly through the *Cystic Duct* to the Gall-bladder; for indeed the only Use and Design of the Liver is to separate the sulphureous, torrefied, and lixivial Parts of the Blood and Serum convey'd to it through the *Vena Portæ*; so that the Antients were mistaken when they believ'd, that the Liver was the principal Laboratory of Sanguification.

The *Bile*, which is a thick Humour, and heavier than the Blood itself, requires a mechanical Apparatus of a particular Kind, for its Secretion.

For the Secretion of a thick Humour, 'tis necessary that the Blood flowing into the secretory Organ should be thick, that a fine Liquid may not pass in too large a Quantity through its capacious Ducts.

As the Separation of thick Humours requires pretty large Canals and Ducts; and as a thin Liquid passes through these with ease, and even greater Ease, than a thick one; hence, lest too thin a Lymph should be secreted, it was necessary that the Blood should in a great measure be previously deprived of its thin lymphatic Part, which is done in the Kidneys, the Stomach, the whole intestinal Tube, the Omentum, and Pancreas, through all which Parts the Blood must necessarily pass before it reaches the Liver.

That the *Bile* may be secreted in the Liver, 'tis requisite that its Motion and Progress through that Organ should be slow.

For in general all the Secretions and Excretions are more advantageously carried on by a slow than an accelerated and rapid Motion; because, during the former, the fluid Parts are more easily separated from those which are more thick and solid, and the fine aqueous Parts are carried into the lymphatic Vessels, of which there is a great Number in the Liver; and those that are thicker are convey'd through the biliary Ducts.

In order to form a clear Idea of the Separation of the thick bilious Humour, we must carefully attend to the singular Structure of the Vena Cava, and its Connexion with the Vena Portæ, since in these there is a peculiar Kind of Mechanism, not to be observed in any other Parts of the Body.

For though in other Parts the Extremities of the Arteries are joined to those of the Veins, and form one continued Canal; yet this does not happen in the Liver; for the minute Ramifications of the Vena Cava are inserted into the Sides of the Vena Portæ in such a manner, as to form right Angles with them; for no other Reason, than that the Blood, which is thinner than the Bile, may be forced into the Orifices of the Vena Cava, just as the Chyle is into the Intestines, after it has left the thick Bile, which is then convey'd into the *biliary Ducts*, adjacent to the Vena Portæ, and thence forced through the Ductus Cholodochus, and Communis, to the Duodenum, and through the Ductus Cysticus to the Gall-bladder.

Though the Bile, in Consequence of the Ingredients of which it is composed, is an Humour disagreeable both to the solid and fluid Parts of the human Body, and in this Sense excrementitious, yet, with regard to the Elaboration of the Chyle, 'tis highly useful and necessary, and consequently ought not to be discharged from the Body, till it has exerted itself to that Purpose.

The Expansion of the Stomach by means of the Aliments, and the Fermentation they undergo in it, very much assist the Conveyance of the Bile from the Gall-bladder to the Duodenum.

The Situation of the human Gall-bladder is very remarkable, since its Neck is higher than its Bottom; for which Reason the Ascent of the Bile is very difficult, especially since it must flow from a wide to a narrower Place. Then again, because the Ductus Cholodochus passes a long Way between the second and third Coats of the Duodenum, and at last opens with a round Orifice into its Cavity, the Bile cannot at all times be discharged into the Duodenum, but only when the Intestines are relaxed, and the Gall-bladder compress'd by the right Side of the Stomach, when rendered turgid by the Quantity and Fermentation of the Aliments.

The larger the Quantity of Aliments taken into the Stomach is, the more it must be expanded, and consequently the greater the Compression of the adjacent Gall-bladder must necessarily be; for which Reason the Bile must on these Occasions flow plentifully to the Intestines.

It is a Circumstance deserving our Attention, that in Animals whose Stomachs are become flaccid by long Fasting, the Gall-bladder is turgid and distended, whereas, after they have taken a large Quantity of Aliments, it is observed to be only half-full. It is also remarkable, that in human Fetuses the Gall-bladder is found distended with Bile, because in them the Stomach is collapsed, and free from Expansion. *Hoffman*.

There are some farther Circumstances relative to the Bile, of too much Importance to be omitted.

The Bile, when out of the Body, is highly bitter, and the most acrid of all the animal Fluids; it is neither of an alkaline, nor an acid Quality. It resists Acefence, and conveys the same Quality to other Substances with which it is mixed. It tends very much to Putrefaction, which it promotes, when added to other Substances disposed to it. It very soon mixes with Water; and when inspissated over a gentle Fire, it dissolves, if exposed to the Air. It does not burn in the Fire, unless it be previously dry'd. It renders Oils, and oleaginous Substances, miscible with Water. If it is rubb'd with any tenacious Substances, such as Resins and Gums, it resolves and attenuates them. It is coagulated by Fire, Alcohol of Wine, acid Spirits, and Extract of Galls: See *Boerhaave Chym. Vol. I. P. 343, 732, 736, 842.* and his *Institut. Med. Sect. 99.* I shall now take a brief Survey of the several Experiments which the Curious have made on the Bile of various Animals. When the Bile, then, of an Ox was put into different Vessels, and mixed with various Liquors, in order to discover what Changes they produced, either in its Consistence or Colour, it was found to hold universally, that Spirit of Sal-Ammoniac produced no Coagulation in it, tartarated Spirit of Wine a very small one, pure Spirit of Wine a somewhat greater in some Parts of the Bile, and Oil of Tartar per Deliquium none at all. Spirit of Vinegar, and Vinegar itself, produced large and fibrous Concretions in it. Spirit of Verdegrise and Sulphur, Oil of Vitriol, Spirit of the Butter of Antimony, Spirit of Honey, and Extract of Galls prepared with common Water, produced a very firm Coagulum in the Bile; but Spirit of Nitre a very small one, and Aqua-fortis but a moderate one. The express'd Juices of Monkshood or Hemlock produced no Coagulum in it; and a Mixture of the Juices of Deadly Nightshade, Onion, Horseradish, and Vipers-grass, produced a very small Coagulum with it. No Condensation or Change at all was produced in it by the Juices of Tansey, Sage, Mint, Masterwort, Angelica, Lavender, and Baum; but a small Condensation and Change were produc'd in it by the Juices of Succory, Smallage, Bistort, Mugwort, and Pilewort. When all these Liquors were mix'd with the Bile, and kept till the next Day, whatever Concre-

tions were produc'd were fibrous and light; for they floated in the Liquor, and contained nothing solid: But the Parts not condens'd were serous like Whey, or the Serum of the Blood. Besides these coagulated and serous Parts, some pinguious Portions adher'd to the Sides of the Vessels. The Concretions produced by Spirit of Nitre, or Aqua-fortis, were alone not fibrous, but divided into Grumes and Froth. The Coagulum produced by the Extract of Galls seemed to be the firmest of all, and almost free from all Serosity, which being condens'd separately, assum'd the Consistence of a Jelly. *Du Hamel Hist.*

Ox's Gall mixed with Powder of Alum, by shaking them gently together, excited a perceptible Effervescence. The Mixture became turbid, but the Colour of the Bile remain'd the same it was before, and a Precipitation was insensibly made. If this Mixture is exposed to the Rays of the Sun, the Liquor becomes clear, and assumes a reddish Colour. If five or six Days after this the floating Sordes and the Sediment are separated, and the clear Liquor again exposed to the Heat of the Sun for three or four Months in a close-stopp'd Phial, it deposits still another Sediment, and gradually exhibits on its Surface a white, hard, and sebaceous Fat; but the Liquor itself assumes a yellow citron Colour, and a Smell resembling that of boiled Crabs. To one Pound of the Bile there was half an Ounce of Alum added, and the Quantity of the Matter precipitated exceeded that of the Alum; which is an evident Proof, that some Part of the Bile, that is, its earthy Portion, had been carried to the Bottom of the Vessel along with the Alum; but we may reasonably conclude, that the Fat floating on the Top was separated from the Bile. *Homburg* has described this Experiment, and at the same time taught us a Method of preparing a Medicine from it, when it is freed from its earthy and pinguious Parts, by being exposed to the Heat of the Sun for at least two or three Months. The Design of the Medicine is to remove those Blemishes in the Face, especially the Nose, which arise from a thick and unctuous Matter collected and treasured up in the cutaneous Ducts; and which, when express'd, are of the Form of a Worm, and become black in the Air. The Method of preparing this Medicine is as follows:

Mix half a Dram of Bile prepared as above, with an equal Quantity of Oil of Tartar per Deliquium; then adding an Ounce of River-water, keep it for Use in a close-stopp'd Phial.

The Method of applying it is to dip the Point of the Finger in it, and anoint the Part affected seven or eight times a Day. *Mem. Ac. R. Sc. A. 1709.*

I shall now mention some of the Experiments try'd on the Bile of an Ox by *Bagliu*.

Ox-gall then, upon the Admixture of Oil of Tartar per Deliquium, was concreted into a kind of fibrous Coagulum with a Froth, but its Colour remain'd unchang'd. The Bile of an Ox, upon an Admixture of Mercury sublimatè, was forthwith coagulated, and assumed an obscure greenish Colour, which daily increased. Ox-gall, mixed with Spirit of Vitriol, first produced a great Froth, and then coagulated into a greenish Mass, the Acidity and Greenness remaining unchanged. Twenty-four Hours after there was a green thick Sediment found in the Bottom of the Vessel, but the Taste of the Liquor remained the same. The Bile of a Calf newly kill'd immediately quitted its yellow Colour, and became green by the Admixture of Oil of Vitriol, and retained that Colour for three Days: It was render'd less green by Spirit of Nitre. With Oil of Tartar the same Bile was in a great measure coagulated into white Clots, which floated up-and-down in the rest of the Liquor. *Bagliu*.

Six Pounds of Ox-gall upon Distillation, yielded almost eighty Ounces of Liquor, three Ounces and two Drams of Oil, twenty-four Drams of volatile Salt, and five Drams of fixed Salt. *Hist. Ac. R. Sc.*

Hartman made the Analysis of Ox-gall in two different manners: And, first, for Distillation from a Retort, he took nine Ounces and five Drams of Bile, and having mixed them with Sand, he put the Whole into a Retort; and first of all seven Ounces of a watery-coloured Phlegm were yielded; after this there succeeded another Phlegm of a milky Colour, mixed with an Oil, which, taken together, amounted to two Ounces and three Drams. This Oil was of two Kinds; for one Part of it floated on the milky Phlegm, and another subsided to the Bottom of the Vessel: But after some Weeks the greater Part of that which floated on the Top fell to the Bottom, at which time it was observed to assume a Lentor, not unlike that of Pitch. The Form of a volatile Salt was not to be discovered, tho' the Smell of it struck the Nostrils. From the Caput Mortuum calcin'd, seven Grains of a fixed Salt were procured. A dusky, black, and almost insipid Matter, without the least Degree of Tenacity, adher'd to the Neck of the Retort. The Distillation of Ox-gall by the Alembic, he managed in this manner: First he took one Pound three Ounces and two Drams of the Gall.

The Phlegm yielded by this was all of one Colour, that is, an aqueous one; and it diffused a sulphureous saline Smell, resembling that of the milky Phlegm yielded by the Retort.

Nor was the Phlegm of any other Smell which was distilled afterwards with the Oil, and which was not of a milky Colour, but rather resembling that of Fire, when the rest of the Mass appear'd thick and black in the Alembic.

The Weight of this Oil and Phlegm together amounted to an Ounce and an half: But 'tis something remarkable, that the Oil yielded by this Distillation was not like that yielded by the Retort of two Kinds; for it constantly floated on the Surface of the Phlegm, and retain'd the Form of a fluid Oil.

There was no refinous Colophony, but a dusky black Caput Mortuum remain'd.

Volatile Salt, which would have adher'd to the Alembic, in its proper Form, and shewn its pure saline Spicula, did not at all appear.

One Dram and thirteen Grains of fix'd Salt were procured from the Caput Mortuum. *Burgrav. Lex.*

Baglioli makes the following Experiments on Sheeps Gall. I divided, says he, Sheeps Gall into several Cups one Morning, when the Weather was rainy. Its ungrateful, and; as it were, urinous and putrid Smell irritated my Throat, and created a small Pain in my Head. The Bile itself was transparent, and of a Colour resembling that of Tobacco. The Fingers which were employ'd in handling it were clean and white, and the Skin somewhat corrugated, just as when we wash our Hands with Soap.

I. The Bile, mixed with rectified Spirit of Wine, produced no Fermentation whilst the Substances were mixing. Twenty-four Hours after, it was of a brownish Colour. In the transparent brownish Liquor, white small Filaments floated confusedly; and at the Bottom of the Vessel there was a farinaceous Sediment. The Bitterness was the same, or rather somewhat increased. On the third Day it was the same. By the Addition of common Water the brownish Colour became somewhat more clear. On the twelfth Day the Smell was grateful, the Liquor transparent, but its Colour brownish; and in the Bottom of the Vessel there was a Sediment.

II. Oil of Tartar, added to the Bile, produced no new Phenomenon upon their being mix'd. Twenty-four Hours after, it assumed an obscure-brownish Colour, but the Liquor was entirely limpid and transparent; and in the Bottom of the Vessel there was a small Quantity of a white Sediment. Its Smell resembled that of over-roasted Eggs. The Bitterness was the same, but rather more intense. On the third Day it was still the same; and the Addition of common Water produced no new Phenomenon. On the twelfth Day the Smell resembled that of Lime. There was a small Sediment at the Bottom; the Liquor above it was transparent, and its Colour somewhat greenish.

III. Salt of Wormwood, reduced to Powder, and added to the Bile, at first produced no Change in it. Twenty-four Hours after, the Salt lay entirely undissolved at the Bottom. The Liquor itself was somewhat transparent, and its Colour was darkish, resembling that of Tobacco. It had the same urinous and putrid Smell, the same Bitterness; but soon after, becoming more acrid, and its Bitterness being much increased, a small Quantity of it, which I tasted, excited a violent Vomiting. By adding common Water its Colour was changed into a Dark-yellow. On the third Day after the Addition of the Water it became somewhat fetid, but its Colour remained the same. The Salt was not as yet dissolved in the Bottom of the Vessel, but remained without any Alteration for fifteen Days.

IV. Crude Alum, reduced to Powder, produced no remarkable Change in it, when first mix'd with it. The second Day, however, the Liquor was highly turbid; its Colour obscure, but transparent, and greenish towards the Surface. Towards the Bottom of the Vessel it was viscid, dense, and a cineritious Portion settled at the Bottom. Its Smell resembled that of salted Fish. Its Bitterness was somewhat diminish'd. On the third Day it was the same in every respect. Upon an Admixture of common Water it immediately acquired a Colour resembling that of Butter. On the twelfth Day the Liquor was transparent, but its Colour remain'd the same; and in the Bottom of the Vessel there was a brownish Sediment.

V. Twenty-four Hours after an Admixture of Cinnamon-water, there was a white cineritious Sediment in the Bottom of the Vessel; but the Liquor above it was transparent, and of a brownish, but not very dark Colour. The Smell was the same with that of the Cinnamon-water, which had proved more than a Balance for the urinous putrid Smell of the Sheeps Gall. The Bitterness was grateful enough to the Taste, and not very pungent, but resembling that which I observed produced by the Salt of Wormwood. The third Day after, it was the same in all respects. Upon an Addition of common Water, there was no Change produced in its Colour; but the Smell became highly grateful: On the twelfth Day the Liquor became turbid, and its Smell disagreeable.

VOL. I.

VI. Tincture of Cantharides extracted upon hot Athes, with common Water, and added to the Bile, produced no Change when first mix'd. The second Day after, there was a small Quantity of a thin farinaceous Sediment found at the Bottom; but the Liquor about it was transparent, and of the Colour of Tobacco. Its Smell was ungrateful, like that of the Leaves of Dwarf-elder bruised. Its Bitterness was not very ungrateful; and on the third Day its State was the same. Upon an Addition of common Water nothing new happen'd. On the twelfth Day all the Parts of the Liquor were turbid; it assum'd a feculent reddish Colour, and an ungrateful Smell.

VII. Upon an Addition of common acid Spirit of Salt, there was a Fermentation, and a Change of the Colour, into an Obscure-yellow, produced. On the second Day the Colour was highly green, and in the Bottom of the Vessel there was a gross white Meal. The Smell was ungrateful, and resembled that of salted Fish. Its Bitterness was ungrateful, and a small Quantity of it, being tasted, excited a kind of Inclination to vomit. On the third Day it was the same in every respect. Upon an Admixture of common Water, the Liquor became more transparent, and somewhat whitish. On the fifteenth Day the Smell was the same, but somewhat less intense. In the Bottom there was a greenish Sediment, and the Liquor above it was green and transparent.

VIII. Spirit of Hartshorn, added to the Bile, immediately changed its Colour into a beautiful, but somewhat obscure Yellow; and there was no Sediment to be seen at the Bottom. The Smell of the Spirit proved more than a Balance to that of the Bile. Its Bitterness was grateful, almost like that produced by the Cinnamon-water. On the third Day the Colour of the Bile, its Transparency, and Smell, remain'd the same till the eighth, when, upon an Addition of common Water, all its Parts became clearer. On the twenty-fifth Day, by adding warm Water, the Liquor became turbid and foul, and assum'd an ungrateful Smell, and a Colour resembling that of the Yolks of Eggs.

IX. Eighteen Hours after an Admixture of Spirit of Sal Ammoniac, it assum'd an universally transparent beautiful Colour, like that of a Ruby. The Smell of the Sal Ammoniac was stronger than that of the Bile. The Taste was gratefully bitter, like that produced by the Cinnamon-water and the Spirit of Hartshorn. On the third Day it was in the same State; but its Colour was a little more obscure, and continued so till the tenth Day; when, by an Addition of common Water, it assumed a beautiful transparent Colour, like that of pure White-wine. After which, by reason of the Admixture of the Water, it became turbid, foul, and assumed an ungrateful Smell.

X. Upon an Addition of Spirit of Nitre, it was immediately changed to a Colour resembling that of the Yolks of Eggs, and a gentle Fermentation was produced. On the second Day its Colour was intensely green, and rather more so than when mix'd with Spirit of Vitriol. Its Smell was acid and ungrateful, and in the Bottom of the Vessel there was a thick white Mass. The superior Part of the Liquor was green, and somewhat transparent and limpid; but its Taste was acid and bitter. On the third Day it was the same in all respects; but upon the Addition of common Water, its intense Greenness was somewhat abated. On the twelfth Day there was a large Quantity of Sediment at the Bottom, and the Liquor above it was transparent, but of a high-green Colour, which remained the same.

XI. Upon an Addition of Spirit of Vitriol, it was changed from its natural brownish Colour to one resembling that of the Yolks of Eggs, and a small Ebullition was produced. On the second Day all the Parts of the Liquor were become turbid, and gross Filaments floated confusedly in it. Its Colour was everywhere greenish, and somewhat inclined to an azure Blue. Its Smell was like that of salted Fish, and its Taste entirely acid. On the third Day its State was the same in every respect: Its acid Smell strongly affected the Nostils.

XII. When the Bile was mix'd with Aqua-fortis, Bubbles were immediately produced, which forthwith became green, and a kind of azure-colour'd Scum floated on the Top of the Liquor. Twenty-four Hours after, its Smell was highly penetrating and acid; and the Liquor itself being highly turbid, a gross farinaceous Sediment was observed at the Bottom of the Vessel. In the Middle the Liquor was somewhat transparent; on the Surface there floated a gross kind of Mucilage, of a white cineritious Colour; and a Froth and Bubbles appear'd about the Sides of the Vessel. On the third Day the Appearances were the same, except that the Smell resembled that of acid and corrupted Milk. On the twelfth Day its State was the same.

XIII. By an Addition of Vinegar the Colour of the Bile was immediately changed into that of the Yolks of Eggs, and render'd entirely thick. On the second Day there was a gross farinaceous Sediment deposited at the Bottom of the Vessel: The Liquor above this Sediment was of a greenish Colour, but turbid. Its Smell was urinous and putrid, like that of salted Fish; and its Bitterness was somewhat abated. On the third

Day it was in the same State, and remain'd so till the thirteenth.

XIV. Common Water, added to the *Bile*, changed its Colour immediately from a dark-brown to a yellow; but it was not so pellucid as before. The sharp Smell of the *Bile* was the same, but rather more intense. Twenty-four Hours after, it had the same urinous putrid Smell, and its Colour became a little greenish. Upon an Addition of a small Quantity of fresh Water the same greenish Colour remain'd, but the Bitterness was abated. On the third Day the Liquor was turbid; and on its Surface there was a Pellicle, like that which usually floats on corrupted Liquors: It was also highly fetid.

XV. This *Bile*, when mix'd with moderately sweet White-wine, became immediately turbid, and its Colour was changed into that of a foul Yellow. The Acrimony of the *Bile*, which before acted so forcibly on the Nostrils, was immediately abated. Twenty-four Hours after, its ungrateful Smell ceased altogether. In the Bottom there was a Substance like a white Meal deposited; and the Liquor above it was yellow, transparent, and intensely bitter. On the third Day it was in the same State, but without any fetid Smell. On the twelfth Day all the Parts of the Liquor became fetid and turbid. *Bagliv.*

Five Pounds of Hogs Gall, newly taken from the Animals, upon Distillation, yielded almost seventy-one Ounces of various, and those sulphureous Liquors; and five Ounces and an half of Oil: Among all which there was an Ounce and an half of a thick and compact Matter, like Colophony or Bitumen; and two Drams of a fix'd Salt. These Liquors remain'd without a Sediment, neither did they become fetid, nor undergo any Change. When digested together, by a gentle Heat, for thirty-one Days, they lost four Ounces of their Weight: And the four Pounds and eleven Ounces which remain'd, left between four and five Ounces of a thick Sediment in the Bottom of the Vessel; and the Liquor above this Sediment was pellucid, and of a greenish-brown Colour. *Du Hamel Hist. Ac. R. S.*

The *Bile* of a human Body, subjected to Distillation with a gentle Fire, immediately yields a Phlegm, and a thick and quickly inflammable Resin remains at the Bottom of the Vessel. By increasing the Fire there ascends a moderate Quantity of a volatile acrid Salt, which leaves behind it, in the inferior Part of the Vessel, a large Quantity of a fix'd, acrid, and lixivial Salt, in form of a dark-colour'd Mass, of a highly acrid Taste, and penetrating Smell. Human *Bile*, when mix'd with Acids, especially those furnish'd by the Mineral Kingdom, produces a gentle Effervescence, and is very sensibly changed as to its Colour. Upon an Admixture of Spirit of Vitriol, or that of Sulphur, there is a gentle Ebullition, produced in it, and it becomes more or less green; letting fall at the same time an acrid Sediment to the Bottom, and losing somewhat of its Bitterness. On the contrary, volatile alkaline Substances not only render it more thin and transparent, but also increase its yellow Lemon-colour. *Bagliv.*

From the above-enumerated Experiments it plainly appears, that the *Bile* is an Humour composed of an Oil, a Salt, and Water. It may therefore be consider'd as a liquid Animal Soap, so that it is of an abstergent and resolvent Quality. That it is so, the Practice of some Tradesmen is a sufficient Proof; for Dyers of Cloth, in order to take out the Grease which sticks to the Wool, and hinders the Adhesion of the Colour, use Soap, or putrid Urine, after it has assumed an alkaline Nature, or a Lixivium of some fix'd Alkali. But they may, with equal Success, use Ox-gall for the same Intention. Painters also use the *Bile* of Animals for mixing and diluting their Paints. It discovers its Efficacy to be the same in Medicine, where a saponaceous Quality is requir'd, or where the Intention is to absterge, where the sluggish Vessels are to be stimulated, where a tenacious Substance is to be resolved, or a viscid one attenuated (*See Boerh. Aph. 75. 5.*). Besides, as *Bile* has for an Ingredient a Salt, which, tho' not an Alkali, yet inclines, and, as it were, approaches to it, like other animal Salts, it must of course prove an efficacious Medicine, in those Disorders, where an Acid is to be resisted and corrected: So that it must be beneficial to Bodies which are prone to generate Acids, to such as abound with mucous and pituitous Humours, and to those who lead a sedentary Life, or labour under Loss of Appetite. It is also added to purgative Medicines, with a View to lubricate, stimulate, and resolve. The Method of using it is to dry it a little, and make it up into small Pills: Three or four Grains may be given for a Dose to Adults; but, for Infants, one Grain of it is sufficient for a Dose. It seems to be owing to this saponaceous resolvent Quality, that a few Drops of the *Bile* extracted from a living Dog, and mix'd with the *Aqua Epileptica* of *Langius*, produce the desired Effect in the Cure of the Epilepsy. *See Astr. Hassl. Vol. 3. Obs. 20.* From these Circumstances we are enabled to discover the Reason, why *Boerhaave* recommended the Use of *Bile*, not only against a spontaneous Gluten, or viscid Humours in general; but more especially prescrib'd it against those Coagulums form'd in the *Primæ Viæ* of Children.

For this Intention he recommends the Galls of Quadrupeds

and Fish, especially those of the Pike and Eel. His Method of prescribing is as follows:

Take of the Galls of a Bull and of a Pike, each four Drams; let them evaporate slowly, on a gentle Fire, till they have acquired the Consistence of Honey; then add a sufficient Quantity of the Powder of fresh *Arum-root*. Make into Pills, weighing three Grains each, to be cover'd with Leaf-gold. Let the Patient take one of these in the Morning, at Noon, and at Night, an Hour before his Meals.

To this Class belongs also the Stone call'd, by the *Spaniards*, *Pedra del Porco*; an Infusion of which, in distill'd Water of *Carduus Benedictus*, or *Rhenish Wine*, may be drank, taking two or three Ounces for a Dose.

To this Class also belongs *Helmont's Medicine*, prepar'd of the Liver and Gall of an Eel, reduced to a Powder by a gentle Fire; one Dram of which is to be given, with three Ounces of *Rhenish Wine*, for a Vehicle. *Boerh. Mater. Med.*

In Page 228. of the same Work, he prescribes a Clyster in the following manner, which he recommends against Disorders of Children, arising from a caseous Coagulation of the Milk they feed on:

Take of Ox's Gall, half a Dram; of the Honey of Mercury, half an Ounce; of distill'd Mint-water, an Ounce and an half: Mix up for a Clyster.

Bile may also be used in deterging glutinous fordid Ulcers. It may also be successfully used in Disorders of the Eyes, where Deterging is indicated as proper: For which Reason *Pliny*, *L. 28. C. 1.* informs us, that Suffusions are cured by the Gall of a Man. *See Dioscor. L. 2. C. 17.* *Etmuller* informs us; that the Gall of Fish, especially that of the Sea-lamprey and Pike, the distill'd Water of it, and its Essence, are proper for curing the *Pannus Oculi*, or that Disorder of the Eyes which is caused by an Inflammation in the small Vessels of the *Adnata* (*see PANNUS*); and that the Secret of *Burrhus*, for this Disorder, was human *Bile*, distill'd from a low Glass Cucurbit, by means of a Brass or Copper Alembic. From what has been said it appears, that the Gall of Animals may be reckon'd among those Medicines which are of a detergent, anti-acid, and resolvent Nature. Hence it is also plain, that the stimulating and anti-acid Virtues of those Stones which are found in the Gall-bladders of Animals, are owing to the *Bile*, which is, in a particular manner, proved by the Stone call'd *Pedra del Porco*. But as the *Bile* soon becomes putrid, and consequently acrid, it is obvious, that it is safer to use it as recent as possible, rather than when old: But it appears that *Bile*, administer'd internally, in hot Constitutions, and such Patients as are choleric, must always do Harm rather than Good, by what has already been said. If, then, the Gall of Animals is unseasonably used, or exhibited in too large Doses, it is then supposed to exert an acrimonious Quality prejudicial to Health; for which Reason every kind of Gall is by some rank'd among Poisons, because it excites bilious Vomitings and Syncopes. *See Forest. Obs. Med. L. 30. Obs. 7. Schol.* But whether the Notion of Poisons is not render'd more intricate than it otherwise might be, by thus ranking among them whatever produces fatal Effects, by being imprudently used, I leave to others to judge. As for the other Properties of Gall, *Pliny*, *L. 18. 9.* seems to be well enough acquainted with them. "Among all the other Substances, says he, common to Animals, the Gall produces the most important and salutary Effects; for it is possess'd of a heating, pungent, incising, extracting, and discutient Quality. The Gall of the smaller Animals is thought to be of a more subtle Nature than that of the larger, and consequently better adapted to the Disorders of the Eyes. It is probable there is some Difference between the Biles of different Animals; for, first, the *Bile* of Fish is more acrid than that of Land-animals. Secondly, among Land as well as Water-animals, those which have the smallest Bodies, are most habituated to Motion, and feed upon other Animals, have a more acrid *Bile* than such as are larger, and feed otherwise. Among Fish, the Preference is given to that of the Pike and Eel; among Land-animals, to the Hawk and Serpent." *Dioscorides*, *L. 2. C. 17.* has observed, that the Biles of some Animals are preferable to those of others in point of Acrimony. But *Paulus Aegineta* is so explicit and distinct upon this Subject, that his Words deserve our Attention. See the Quotation before from this Author. With regard to keeping *Bile* in the Shops for medicinal Purposes, we find the following Directions: The Gall is to be taken from Animals of a middle Age, which have neither suffer'd Hunger nor Thirst, and which have neither been fatigued by too violent Exercise, nor been too much provoked. Having first tied the Vessels which give Ingress and Egress to the *Bile*, it is to be taken immediately from the Liver itself, and put for some time into boiling Water; after which it is to be taken out of the Water, dried in a proper Place, and close kept for Use. It is also sometimes hung up in a Chimney,

in order to dry, without being put into boiling Water. Bile is sometimes used recent and newly taken from Animals, especially from Cocks, Partridges, Fish, and other Animals that may easily be obtain'd, and purchased at a cheap Rate. The Gall of Animals is, by the *Chinese*, applied to the worst and most detestable of Purposes, since they secretly mix it up with other Ingredients, in order to protract the Cure of Wounds, and increase the Misery of their Patients. That the Gall of Bulls produces a golden Colour, when applied to Objects, has been long ago observed by *Pliny*, L. ix. C. 37. There remains another medicinal Preparation of Ox-gall, to be met with in *Le-mery's Pharmacop. Univers.*

Ox-gall, says he, contains a volatile Salt, which renders it deterfive, and proper to cleanse the Skin; but as it is very viscid, and will not keep without corrupting, a Preparation may be made of it in the following manner:

Take of Sugar-candy, two Ounces; of Roch-alum, half an Ounce; of Borax, and Sandiver, or Salt of Glas, each three Drams. After having reduced all these Ingredients to a Powder, and put them into a Glas Vessel, add to them four Pounds of Ox's Gall, distil'd by a Sand-heat from a Glas or Earthen Cucurbit: Stop the Vessel well, and expose it to the Heat of the Sun, or the Smoke of a Fire, for the Space of fifteen Days, shaking it now-and-then; after which filtrate the Liquor, and preserve it for Use.

This Medicine renders the Skin delicate, smooth, and soft, and is esteem'd singularly efficacious in removing Freckles and Sun-burning. It is to be applied to the Face at Night, going to Bed; and is to be wash'd off next Morning with the Water of Lilies, or that of the Water-lily. This Medicine may also be laid on the Face in the Morning when one goes into the Fields, and continue till Night, that the Face may be the better guarded against the scorching Heat.

The Design of distilling the Ox-gall is, that it may preserve itself the better from Corruption, and be the more agreeable to the Ladies Faces. Camphire is generally added to this Preparation; but it is of little or no Use, since it not only remains undissolved, but also gives it a disagreeable Smell. I have also retrench'd the plumous Alum, and the corrosive Sublimate, by some used in this Medicine, because I judged them unsafe.

The Salts which enter this Preparation of Ox's Gall, serve to render it more deterfive and penetrating, that it may the more effectually remove the Blemishes of the Face.

The Vessel into which this Preparation is put must not be entirely full, that the Liquor may be the more commodiously shaken at proper Intervals.

A Preparation of Bile, for cosmetic Purposes, is more easily obtain'd, by dissolving inspissated Bile with tartarated Spirit of Wine, and precipitating it with Water of Frogs-spawn, according to *Hoffman* in his Notes to *Poteries*.

BINARIUS.

Tho' the Word *Binarius*, among the antient *Romans*, implied no more than the Number Two; yet the *Spagiric* Philosophers affix'd an Idea to it, which I cannot convey by any Words. I shall therefore represent their Sentiments in their own Terms. The *Binarius* then, according to them, was either *Naturalis*, or *contra Naturam*. The *Naturalis Binarius* was that which was produc'd by God, in consequence of the Division made between superior and inferior Objects, and which, when wrapt up, as it were, and included under the Bond of Unity, constitutes the *Ternarius*, when it is fit for returning into Unity. The *Binarius contra Naturam* is that very Thing, which, being highly inimical not only to Nature, but more especially to God, of old endeavour'd to destroy all created Objects. This, according to them, is the Source of all Diseases, and of Death; since it is not confin'd under any Bonds, but is rather the first Divorce, strongly endeavouring to break the Bond of Peace and Concord, not only among the supernatural, but also the natural Creatures of the omnipotent God, who form'd all things. *Theat. Chym. Vol. i.*

By these he should mean the same which the *Persians* understand by their *Ormuzd* and *Arimanius*.

BINSICA, A Rabbinical Term, according to *Helmont*, denoting mental Sickness, and particularly a distemper'd Imagination; or, as *Helmont*, in his mystical Way, terms it, an Atrophy of the Organ of the Phantasy, such as, he says, is excited by the Bite of a Tarantula, or a mad Dog, the Consequence of which is what he calls *Mors Binsica*, "a Binsical Death."

BINTAMBARU *Zeylanensis*. *Convolvulus maritimus Zeylanicus*, *Folio crasso cordiformi*. *Pes Capræ (à Folii Similitudine) Lusitanis*. *Herman. Catal. Hort. Leyd.*

It grows in *Malabar*, the Island of *Ceylon*, and other Parts of the *East-Indies*. *M. Herman* supposes this *Convolvulus*, as well as others of that Species, to abound with a purgative Salt, which he infers both from the Acrimony of its milky Juice, which strikes the Tongue and Fauces, and from repeated Experiments; for a Dram of the Resin of the Root, given in the

Yolk of an Egg, or any other convenient Emulsion, gently purged Water from Hydropical Patients: An Extract of the Root, prepar'd with Spirit of Wine, had the same Effect. Hence he believes, that the Opinion which the *Portuguese* and some *Indians* have conceiv'd of its diaphoretic Virtues, (which, perhaps, they entertain'd from its external Resemblance to *Sarsaparilla*) is merely imaginary. Tho' the Root be in the List of Cathartics, its Leaves are the common Food of Rabbits, Deer, and wild and tame Goats. *Raii Hist. Plant.*

BIOLYCHNIUM, *βιολύχνιον*, from *bios*, Life, and *λυχνιον*, a Candle, or Lamp. The Lamp of Life; a Term much us'd by some late Writers, and signifies the same as the *vital Flame*, or the *natural Heat*: It signifies also a sort of Secret prepared of human Blood, mention'd by *Beguinus Castellus*.

BIOS, *βίος*, *βιός*, *βίση*; generally signifies Life, and its Course; but sometimes means no more than *Vitus*, *Victuals*, or Food necessary for Life. *Castellus*.

BIOTE, *βίση*, Life, in an affected Sense, signifies the Time of Continuance of Aliment in the Body, according to *Galen*, *Aph. 20. Lib. 6. Epid. Sect. 5. τὰ ἀδυνάιστα οὐκ ἔλγυρον βίον ἔχει*, "weak Food has a short Life annexed;" that is, weak Aliment makes Persons short-liv'd; or, in the Sense before, is but of short Continuance in the Body.

BIOTHANATI, *βιοθάνατος*, from *bios*, Life, and *θάνατος*, Death. A Term applied to those who die a violent Death. *Castellus*.

BIPINELLA, an Herb, the same as *PIMPINELLA*, which see.

BIPULA, a sort of Worm in *Aristot. Hist. Animal.* as *Gaza* interprets him. *Castellus*.

BIRA. Beer. The same as *CEREVISIA*, which see. *Castellus*.

BIRSEN, an *Arabian* or *Persian* Word, signifying an Inflammation or Impostume of the Breast; for *Bir* signifies a Breast, according to *Avicenna* and others. *Castellus*.

BISCOCTUS, *βισκοκτος*, twice dress'd, or that has twice felt the Fire; chiefly applied to Bread twice bak'd, or that is much bak'd. *Biscuit*.

BISEMATUM. The lightest, palest, and basest Lead. *Rulandus*.

BISERMAS. A Species of *Horminum*. See *HORMINUM*.

BISLINGUA, *Hippoglossum*, *Uvularia*, *Offic. Hippoglossum sive Bislingua*, *Park. Theat. 702. Hippoglossum mas & femina*, *Ger. 761. Emac. 908. Bonifacia sive Bislingua*, *J. B. 1. 575. Hippoglossum, Bislingua, Bonifacia*, *Chab. 45. Laurus Alexandrina, fructu pediculo insidente*, *C. B. Pin. 305. Rufus angustifolius, fructu folio imascente*, *Tourn. Inst. 79. Elem. Bot. 70. Boerh. Ind. A. 2. 63. DOUBLE-TONGUE*.

This Plant is commonly cultivated in the Gardens of Botanists, and is said to be of a vulnerary Quality. *Dale Pharmacologia*.

BISMALVA. The same as *ALTHÆA*, which see.

BISMUTHUM, *Offic. Charlt. Foss. 49. Aldrov. Mus. Metal. 161. Bismutum plumbum cinereum*, *Worm. 125. Marcasita sive Bismutum*, *Schrod. 456. Marcasita argentea*, *Cæsalp. Galena inanis, Germanis Blende*, *Woodw. Att. Tom. 1. 182. Bismuthum*, *Idem, Tom. 2. P. 1. p. 28. MARCASITE OF SILVER, or TIN-GLASS. Dale*.

Bismuth is a Species of Tin, or a white and brittle metallic Substance, dispos'd in small Laminæ, shining like Glas; for which Reason it is call'd Tin-glass. It seems to be compos'd of a mineral Salt, a gross Sulphur, Mercury, a small Quantity of Arsenic, and a great deal of Earth. *Mr. Poli*, having pound-ed separately one Part of Bismuth, and two of corrosive Sublimate, and mix'd them in a Retort, to which a Receiver was adapted, extracted from them, by Distillation, a sort of Gum or Butter, which partly adhered to the Neck of the Retort, and partly fell into the Receiver. This Butter he distill'd a second time, and, besides another Butter yielded like the former, there remain'd in the Bottom of the Retort a very fine Powder, of the Colour of oriental Pearls, soft to the Touch, and somewhat glutinous. A third Process yielded him a Powder still more fine and beautiful. In short, he repeated the Operation till the Butter was entirely chang'd, partly into running Mercury, and partly into a pearl-colour'd Powder. This Powder may be used either in representing fine Pearls in Painting, or in giving their agreeable Colour to any Objects. *Histoire de l'Académie Royale, 1713.*

Bismuth, or *Tin-glass*, named *Bismuthum*, *Officin. Plumbum cinereum agricolæ, Marcasita argentea*, *Quorund.* is a metallic, fusible, but not ductile Substance; very brittle and heavy, and distinguishable from Lead and Tin by its Colour, which is sometimes shining, like Silver, sometimes of a faint Purple, resembling the *Regulus* of Antimony, but consisting of broader Laminæ, and staining the Fingers. It is prepared by Artists, by being first torrefy'd, and then melted into a *Regulus*. It is often found in Silver Mines; and where-ever the Miners find *Bismuth*,

Bismuth, they conclude they shall find Silver; and hence they call it the Proof of Silver. The Mines of *Bismuth* are in *Bohemia* and *Misnia*. Some pretend that it may be extracted from Cobalt melted into a Regulus, by a particular Process; but this is not certain.

Bismuth seems to have been unknown both to the *Greeks* and *Arabians*; for the *Arabian Marcasite* was the *Lapis Pyrites*. It is very seldom used in Physic, tho' some prepare Flowers from it, which they say are diaphoretic; but most Physicians have been afraid to use it inwardly, because of the arsenical Parts contain'd in it. The Magistery of *Bismuth* is prepared by dissolving the Metal in Spirit of *Nitre*, then precipitating it with a Solution of Sea Salt in Water. This Precipitate, beingedulcorated by frequent Lotions, becomes a very white Powder, much valued by the Ladies as a Cosmetic, and much used by Dealers in Hair, to improve the Colour of it when dark or red. Pewterers mix it with Tin to harden it, and give it a more shining Colour. *Geoffroy*.

PROCESSES upon BISMUTH.

FLORES BISMUTHI: Flowers of Bismuth.

Beat the *Bismuth* into very fine Powder, and to four Ounces of it put half a Pound of *Nitre*, also in fine Powder; put in that Mixture, by half a Spoonful at a time, into an earthen Body, perforated in the Side; when the Body is red-hot, and the Operation is over, take away the Aludels, and wipe off the Flowers with a Feather.

These are very white, and used as an excellent Fucus, mix'd with Pomatum, or Rose-water; but they must not be too busy with it, who try it upon their Complexions; for the saline Parts of the Arsenic may do Mischief many ways. But if the *Nitre*, and the Arsenical Salts, are wash'd away by frequent Solutions in warm Water, it will not only continue to be a good Cosmetic, but also may with Safety be given internally, and by some is reckon'd a good Diaphoretic. Yet, as the Materia Medica is large enough in its Supply for that Intention, there is no Occasion to torture a Poison to make a Medicine of it. Its Dose is from ten Grains to two Scruples or a Dram. *Quincy's Dispensatory, from Wilson's Chymistry.*

Lemery's Method of making these Flowers is somewhat different.

The Flowers of *Bismuth* are nothing but a Portion of Tin-glass, elevated in form of a fine Powder, by means of volatile Salts.

Calcine the *Bismuth* in the manner Lead is commonly calcin'd, then mixing it with an equal Quantity of Sal Ammoniac, put your Mixture into an earthen Cucurbit capable of bearing the Fire; but two Thirds of the Cucurbit must at least be left empty. Adapt a Blind-head to it. Lute the Juncture carefully. Place your Vessel in a small Grate-furnace, with an open Fire, but yet in such a manner, as that the Fire may breathe only thro' the Registers, for which Purpose the Top of the Furnace must be closed up with Bricks and Clay. The Cucurbit must also be sunk a Third, or thereabouts, of its Height in the Furnace. Apply a small Fire at the Beginning; then augment it gradually, till the Bottom of the Vessel becomes red; and then continue it in the same Degree, till nothing ascends any longer, which may be known when the Head is become cold, and then the Sublimation is completed. Then allow the Vessels to cool, and unlute them. By this Process you will obtain Flowers, which may be dissolv'd in Water, and precipitated with Spirit of Sal Ammoniac, or Oil of Tartar.

This Magistery, or Precipitate, may be applied to the same Uses with the following.

MAGISTERY of BISMUTH.

Magistery of *Bismuth* is nothing but *Bismuth* dissolv'd, and precipitated into a very white Powder.

Dissolve in a Matrafs one Ounce of the gross Powder of *Bismuth*, with three Ounces of the Spirit of *Nitre*; pour the Dissolution into a clean earthen Vessel, and add to it five or six Pounds of Spring-water, in which half an Ounce of Sea Salt has been previously dissolv'd; upon which a white Powder will be precipitated to the Bottom. Pour off the Water by Inclination, and wash the Magistery several times; then dry it in a Shade. This is the Cosmetic which the *French* call *Blanc-d'Espagne*, or the celebrated *white Spanish Cosmetic*, which is esteemed so fine a Cleanser and Whitener of the Face. The Method of using it is, either to mix it with Pomatum, or with Oil of Lilies. Wig-makers also use it, in order to beautify their Hair.

REMARKS.

A pretty large Matrafs ought to be employ'd in dissolving this *Bismuth*, in order to give room for a violent Effervescence, which is produc'd as soon as the Spirit of *Nitre* is pour'd upon that Mineral. The Operator must guard, as much as he possibly can, against admitting the Steam either into his Nostrils or Mouth, because it is highly prejudicial to the Breaft.

This quick and violent Effervescence proceeds from this; that the Pores of the *Bismuth* being pretty large, the Acid immediately makes its Way into them, and violently removes every thing that opposes its Motion. On this Occasion it also happens, that the Matrafs is so heated, that one cannot hold a Hand upon it; because the Points of the Dissolvent strike with a great deal of Force upon the solid *Bismuth*, by which a Heat is produc'd, resembling that which results from the Friction of two solid Bodies upon each other for a considerable time. Besides, the Quantity of fiery Particles contain'd in the Spirit of *Nitre*, may contribute very considerably to the Production of this Heat.

If the Solution is turbid, on account of any Impurities contain'd in the *Bismuth*, a double Quantity of Water being mix'd with it, it must be filtrated; for, if an Attempt should be made to filtrate it without Water, it would coagulate in the Form of a Salt, and, consequently, become incapable of passing thro' the Filtre. This Coagulation proceeds from this, that the acid Spirits of the *Nitre*, which are sheath'd up in the Particles of the *Bismuth*, finding too small a Quantity of Liquor to float and disperse themselves in, unite together in the Form of Crystals, when the Solution becomes cold.

The Impurity which generally floats upon the Solution of *Bismuth*, is a pinguious and bituminous Substance, which is not dissolvable by the Spirit of *Nitre*.

This Magistery may be made, by pouring a large Quantity of Spring-water without Salt into the Solution; but it is more quickly done, and the Precipitation more exactly made, by the Addition of the Salt, which agitates and breaks some of those acid Parts, which the Water alone was not powerful enough to subdue and divide. A Difficulty here arises, and that is, why common Water alone precipitates the *Bismuth*, Lead, or Antimony, which an Acid has previously dissolv'd, but can neither precipitate Gold, Silver, nor Mercury, without the Assistance of some Salt, or some other proper Substance. I suppose this Phenomenon is produc'd, because the former Substances having large Pores, the Acids are not so strongly lock'd up in them, but that they may be dislodg'd by Water; whereas Gold, Silver, and Mercury, having Pores comparatively very small and minute, keep the Acid so strongly lock'd up, that it cannot be separated by the too languid Agitation of the Water alone, which, to produce this Effect, requires the Addition of some other Substance, capable of giving stronger and more violent Shocks.

The Augmentation happening to the *Bismuth*, when reduc'd to a Magistery, proceeds from some Part of the Spirit of *Nitre* being retain'd in it, notwithstanding the Precipitation and Lotion. If we incline to have it exceedingly white, 'tis not only necessary, that the Water us'd in washing it should be very pure and transparent, but, after it has been thoroughly dried in a Shade, it must be carefully kept in a Glass-phial, well stopp'd; for the Air renders it of a dark and brownish Colour.

As for the Method of using this Magistery, a Dram of it is ordinarily mix'd with four Ounces of the Lily or Bean-flower Water, or with an Ounce of Pomatum. This Medicine is good for the Itch, because it destroys the Acids, or Salts, which foment and nourish that Disorder: But this Magistery is rarely used in any other Shape than that of a Cosmetic: It is the Paint most generally used by Women who incline to improve their Complexions, because it is more easily laid on, and adheres more firmly, than other Paints. But as the Marcasite, from which it is drawn, is of the metallic Kind, the Heat of the Skin reunites, revivifies, and renders brown, its Particles, which ow'd their Whiteness only to their Division; for which Reason, those who make frequent Use of this Paint, have generally a livid Countenance, and the Skin of it more rough and unpolish'd, than it was before they began to use it.

If, for the sake of Curiosity, we filtrate the Water used in precipitating the Magistery of *Bismuth*, and, with a new Pen, write any thing with it on white Paper, the Letters will not at all appear; but if, after they are thoroughly dry, we rub them gently with a little Cotton, dipt in a Decoction of the Scoriz of Antimony, they become very black. *Lemery Cours de Chymie.*

BISON.

This is a Sort of wild Ox in the *Indies*. His Forehead is large, his Horns crooked, sharp at the Points, black and shining;

ing; his Eyes are large, fierce, terrible, and flaming; his Tongue is so rough, that the Part lick'd with it is excoriated, and Blood is drawn from it. In his Tail there is a large Quantity of Hairs, which smell like Musk. This Animal frequents the Woods, and is of so savage and cruel a Nature, that 'tis dangerous to come in his Way. The Horns of this Animal, when reduced to a Powder, and taken internally, are esteemed sudorific, and proper for resisting Poisons. The Dose of this Powder is from half a Scruple to one Dram.

The Excrements of this Animal are possessed of a highly resolvent Quality. *Lemery des Drogues.*

BISTACIUM, for PISTACIUM, or PISTACIA, which see.

BISTORTA, Offic. *Bistorta Serpentina*, Chab. 507. *Bistorta major*, Ger. 322. Emac. 399. Raii Hist. 1. 186. Synop. 59. *Bistorta major vulgaris*, Park. 391. *Bistorta major, rugosioribus foliis*, J. B. 3. 538. Dill. Cat. 89. *Bistorta radice minus intorta*, C. B. 192. Hist. Oxon. 2. 585. Tourn. Inf. 511. Boerh. Ind. A. 2. 86. Buxb. 39. BISTORT or SNAKE-WEED.

The Roots of the great Bistort are about as thick as the little Finger, brown on the Outside, and reddish within; somewhat curled and twisted, with many small Fibres growing out on every Side. The Leaves resemble somewhat the Leaves of the common Dock, but are of a firmer Substance, of a bluish-green Colour above, and ash-colour'd underneath, much narrower at the End next the Root, having only a narrow Film running on each Side the Stalk. The Flowers grow in Spikes like Ears of Corn, of a pale-red Colour, made up of several small, imperfect, staminate Flowers, in which grow black triangular Seeds; they stand on Stalks a Foot or a Foot and a half high, which have a Leaf or two at the Joints, encompassing them round next the Stalk, and growing narrower, and sharp-pointed at the End.

Bistort grows in several moist Meadows, tho' it is not very common about London. It is to be met with in *Battersea Meadow*, near the *Thames* Side, flowering in May.

The Roots of Bistort, which are the only Part that is used, are drying and binding, of Service in all kind of Fluxes and Hemorrhages, either from the Bowels, or any other Part; they help the Incontinence of Urine, and the making bloody Water. They are also Alexipharmic, and good in pestilential Fevers; they resist Poison, and the Bites and Stings of venomous Creatures. *Miller's Bot. Off.*

The Root is mostly used in the Shops, and is of a healing, astringent Quality, especially in Dysenteries, bloody Fluxes, Dysenteric Exulcerations of the Intestines, and Vomitings of Blood. It cures an excessive Flux of the Menfes and Hemorrhoids, and removes violent Vomitings. It quenches Thirst, for which Reason it is by *Paracelsus* called *Anasakra*, by which he perhaps meant *Anasarca*. The principal way of using it is to mix it with other proper Herbs for the Cure of the Dropsy. *L. Thurneisser, de Aquis Miner. & Metall. L. 6. C. 67.* affirms, that it kills Worms in the Intestines. It is also used in Defluxions, and Pains of the Head, malignant Fevers, Small-pox, Measles, and the Plague. It proves a Check to the too violent Ebullition of the Blood, and prevents the overheating of its more spirituous Parts. It prevents Miscarriages, and cures Wounds and Ruptures. And when any Vessel in the Abdomen is broken, it is often made an Ingredient in vulnerary Drinks, prepar'd as a Remedy. The Root powder'd, and thrown into recent Wounds, stops the Effusion of Blood, and cures them. A Decoction of the Root also, with Wine and Vinegar, stops immediately the most violent Effusions of Blood from Wounds, if washed with it. Some take two Parts of the Root reduc'd to Powder, and one Part of Quick-lime, and mix them with Wine and Vinegar, and, after having evaporated the Humidity, use the Powder which remains in the Vessel for curing the Cancer. The Root mix'd with some Water proper for Disorders of the Mouth cures Tooth-achs, fixes loose Teeth, and hardens the Gums, by preventing a Fluxion of Humours to them. Some distil a Water from the Root, Leaves, and Flowers. Others prepare a Syrup from the Root, which they call *Syrupus Colubrinus*. Both these Medicines are accounted excellent against the Plague, Dysentery, Fluxes, Vomitings of Blood, immoderate Discharges of the Menfes, and Vomitings. The Water cleanses and heals all old Ulcers and Cancers, if they are washed with it, and some of the Powder of the Root is sprinkled upon them. It is confidently affirmed, that it banishes all Insects from a House. *Barthol. Zorn Botanologia.*

BITHNIMALCA and GASTERANAX are Words coined by *Dolæus*, to signify a peculiar active Principle residing in the Stomach, and presiding over the several Functions of Chylification, Distribution, and Secretion.

BITHYNICI *Tensoris Emplastrum*. The *Bithynian Barber's* Plaster for splenetic and hydropical People. It is describ'd by *Aetius, Tetrab. 3. Serm. 2. cap. 22.*

BITHYNOS, *Bithyos*, the Name of a Plaster described by *Galen, L. 9. de comp. Med. Sec. Loc. cap. 31.* also

a Troche in the same Author, *Lib. 5. de comp. Med. per Gen. cap. 12.*

BITI. The Name of a tall and evergreen Tree growing in *Malabar*, and other Parts of the *East-Indies*; all the Use it is known to have in Medicine is, that an Oil is prepared of the Root, which cures an Alopecia. *Ray.*

BITRINATI. Glased. *Rulandus.*

BITTERN. At the Salt-works, where Salt is made from the Sea Water, that Liquor which runs from the common Salt, when taken out and put into proper Vessels, is called Bittern.

Or it is the Liquor which remains after the CrySTALLIZATION of the common Salt. *Phil. Transact.* See SAL CATHARTICUM AMARUM.

BITUMEN, Offic. *Bitumen vulgare Pissasphaltum*, Mont. Exot. 12. Gæbal. 20. *Pissasphaltos nativum*, Schrod. 4. 208. Diosc. *Pissasphaltum*, Worm. Mus. 30. Charlt. Foss. 14. *Bitumen Fossile*, Aldrov. Mus. Metall. 382. COMMON FOS-SILE PITCH.

The *Pissasphaltos* is produced in *Apollonia* near *Epidamnus*; and is carried down the *Ceraunian* Mountains by the Current of a River, and thrown upon the Shores, where it concretes into Masses, and smells like Pitch mixed with Brimstone. *Dioscor. lib. 1. cap. 100.*

The *Pissasphaltum* of *Dioscorides*, and of the Shops, or mineral Pitch, is a black or red kind of *Bitumen*, of a fragrant and not unpleasant bituminous Smell, viscid, or of a middle Consistence between *Petroleum*, and a solid *Bitumen*; not unlike the common Pitch, fusible by Fire, concretescible by Cold, and easily inflammable. It is compounded of two Greek Words, which signify Pitch and *Bitumen*, and the Compound might be rendered a bituminous Pitch, or pitchy *Bitumen*; the Reason of which Name is not, that it consists of an artificial Mixture of these two Substances, but it smells like such a Mixture. It distils from Rocks, or springs from the Earth in several Countries. In *Italy* they use that which is found in the *Campania di Roma*; about sixty Miles from the City, near a little Town called *Catho*. It issues through the Crannies of Rocks in the Summer-time, of the Consistence of Honey, of a black Colour, and penetrating Smell. There is likewise a plentiful Spring of this *Bitumen* in *Auvergne* in *France*, which is soft and black like Pitch, and of a bituminous Smell. If it be kept a great while, it grows hard, retaining still something of its fatty Consistence, and never grows so dry or hard as the solid *Bitumens*.

Fresh *Pissasphaltum* is digestive, maturating, and resolvent. It is used in ripening Buboës, resolving Tumors, discussing sciatic Pains, and to strengthen luxated Parts after they have been reduced. A Mixture of this, and slimy or muddy Clay, is called *Maliba*, and was used as Morter in building the Walls of *Babylon*, according to *Vitruvius*. *Geoffroy.*

The *Asphaltus*, of which an Account is given under the Word, is a Species of *Bitumen*, of which Dr. *Shaw* in his Travels gives the following Relation; this Author speaking of the *Dead Sea*, says thus.

I was informed, that the *Bitumen*, for which the Lake hath been always remarkable, is raised at certain times from the Bottom in large Hemispheres; which, as soon as they touch the Surface, and so are acted upon by the external Air, burst at once with a great Smoak and Noise, like the *Pulvis Fulminans* of the Chymists, and disperse themselves round about in a thousand Pieces. But this happens only near the Shore; for in greater Depths, the Eruptions are supposed to discover themselves only in such Columns of Smoke, as are now-and-then observed to arise from the Lake. And perhaps to such Eruptions as these we may attribute that Variety of Pits and Hollows which are found in the Neighbourhood of this Lake, and compared very justly, by Mr. *Maundrell*, to those Places in *England*, where there have been formerly Lime-kilns. The *Bitumen*, in all Probability, is accompanied from the Bottom with Sulphur, inasmuch as both of them are found promiscuously upon the Wash of the Shore. The latter is exactly the same with common native Sulphur; the former is friable, heavier than Water, yielding upon Friction, or by being set on Fire, a fetid Smell. Neither doth it appear to be, as *Dioscorides* describes his *Asphaltus*, of a purplish Colour; but is as black as Jet, and exactly of the same shining Appearance.

BIVALVA, BIVALVULA. Bivalve. A Term in Botany, apply'd to the Pods or Husks of Plants, which open lengthwise in two Parts, like the Shell of a Muscle. *Miller's Dict.*

BIVENTER, *δυσασπιδος*, double-belly'd. The same as DIGASTRICUS, which see.

BIXA OVIEDI. A Name for the *ACHIOU*, which see. BLABE, *βλαβη*. Hurt, Injury, Prejudice. Hence *βλαβερος*, noxious, injurious.

BLACCIE. A Name in *Rhazes* for the Measles.

BLACHMAL. *Johnson* says, that this imports a Matter consisting of various Metals melted together, and cast into Sulphur.

BLACTARA. Cerufs, white Paint.

BLÆSITAS. Stammering, or Lipping. The same as **BALBUTIES.**

BLÆSUS also signifies a Person whose Legs are distorted and crooked, being bent outwards.

BLANCA. Cerufs, white Paint.

Blanca is also the Name of a compound lenitive purging Medicine, described in the *Antidotarium* of *Nicolaus*.

BLANCNON. A Name for Fern in *Oribasius*, *Med. Coll. lib. 12.*

BLANDUS, εὐς, ἥς. Gentle. An Epithet in Use among the Chymists, and Preparers of Medicines, and commonly applied to Fire or Heat, by way of Opposition to *fortis*, or *vehemens*, strong, or violent. Thus in the Affair of the Philosopher's Stone there is required *blandus Ignis*, a gentle Fire.

BLAPTISECULA. A Græco-latin Name for *Cyanus*, Blue-bottle, from *βλάπτω*, to hurt, and *seca*, because it incommodates the Mowers, by blunting the Edges of their Scythes. *Blancard.*

BLAS. A Term coined by *Helmont*, by which he means, as he says, the Force of Motion, both alterative and local; of this he makes two Kinds, the *Blas Meteoron*, and the *Blas humanum*. The first belongs to the Stars, whose *Blas motivum*, he says, is the pulsive Virtue by which they perform their Courses, and present their Aspects according to their Places; and this is their local *Blas*. The Alterative *Blas* of the Stars consists in the Production of Heat and Cold, especially by the Change of the Winds. Analogous to this *Blas Meteoron* is the *Blas Humanum*, which operates in Men and Brutes; and this is of two Kinds, *natural* and *voluntary*: the former is what every one of the Viscera forms to itself, according to the Model of its Constellation, whence it is called the *astral Blas*; the other is impelled, and put in Motion, by the Will of Animals, and is no way connected with the upper Motion, that is, the *Blas* of the Heavens.

BLASIUS. A Martyr, whose Name *Aetius* represents as effectual in making any thing, which sticks in the Throat, either come up or go down. See the Life of *AETIUS*.

BLASO, or **PLASO,** (for I am not certain which is the right) is the *Indian* Name for a Tree, otherwise called, *Arbor filiquosa trifolia Indica, flore papilionaceo, filiqua grandipilosa, uncam intus fabam continente*. The Fruit reduced to Powder, and taken internally, kills Worms. The Bark also powder'd, and taken with dried Ginger in Powder, is given for the Bite of a Viper. *Raii Hist. Plant.*

BLASTEMA, βλάστημα, from *βλάσσω*, to germinate, signifies properly a Bud, or Off-set, or Shoot of a Plant. But it is used by *Hippocrates* to express a cutaneous Eruption or Pimple. *Foesius* seems to suspect, that it may mean a Bubo, or glandular Tumor; but I see no Reason for this Supposition.

BLATTA BYZANTINA, Offic. *Blatta Byzantia*, Schrod. 5. 325. *Blatta Byzantia sive Unguis odoratus*, Park. Theat. 1573. Ind. Med. 21. *Blatta Byzantina, Unguis odoratus*, Mont. Exot. 6. *Operculum cochlearum marinarum subtundum vulgare*, Lang. Meth. Test. 56. *Blatta Byzantia Arabum*, Aldrov. de Exang. 346. *Operculi Conchylii & Buccini*, Rondel. de Pisc. 2. 86. **THE CONSTANTINOPLE SWEET HOOF.** *Dale.*

When exhibited internally, it renders the Belly soluble, softens the Spleen, and discusses peccant Humours. When used externally by way of Fumigation, it restores epileptic Patients, and Women labouring under a Strangulation of the Uterus. In other Disorders its Effects are the same with those of most other testaceous Substances. *Dale Pharmacologia from Schroder.*

The common Druggists and Apothecaries apply both the Name and Virtues of the *Unguis Odoratus* or *Indicus* of the Antients, the *ὄνυξ Ἰνδικός* of *Dioscorides*, to the *Blatta Byzantia*, and make the same Use of it. *Myrepsus* mentions the *Unguis odoratus* in some Places under the Name of *ὄνυχος Ἰνδικός*, (*Onychus Indicus*) particularly in the Antidote of fifty Ingredients. And in many Places we meet with his *βλάττα Βυζάντια*, which, he informs us, is the Name by which the *Italians* call τὸ ὄνυξ τῆς ῥινός τῆς κορυφῆς, "the Bone of the Nose of the Purple-fish." The Translators of the *Arabian* Authors have rendered the *Arabic* Words *adfar althabib*, which in *Latin* signify *Ungues Odorati*, or *Aromatici*, and literally express the *Greek* Denomination *ὄνυξ ἀρωματιστῶν*, by *Blatta Byzantia*, how truly we shall by-and-by examine; but our first Inquiry shall be concerning the Name.

Blatta, or *Blattea*, was the Name which the ancient *Latins* gave to a Bubble of Clay, as *Paulus* remarks out of *Festus*; afterwards it came to signify a Clot of Blood, as the Author of the old Glosses observes: *Blattea*, θρόμβος αἱματος, "Blattea, a grumous Concretion of Blood;" and Use at last appropriated it to the concreted Blood or Sanies of the Purple-fish, as the forementioned Glosses also take Notice: *Blattea*, θρόμβος αἱματος τῶν κογχυλίων. Hence *Blatteum*, under the Emperors of the middle Ages, signified any thing

dy'd with Purple, and *Blatta infectum*, Purple. The *Byzantine* Purple-fishes are also mentioned by the Antients, which are called *Blattæ Byzantiæ*, and by the *Greeks* of the *Constantinopolitan* Empire *βλάττα Βυζάντια*, whence *Anastasius* the Library-keeper, in his Lives of the Popes, often mentions *Pallia e Blattio Byzantino*. It appears then, that by the *Blattæ Byzantiæ* can be meant nothing but the *Conchyliæ Byzantiæ*, or *Byzantine Purple-fish*. As *κογχύλιον*, (*Conchylium*) as well among the *Greeks* as the *Latins*, is sometimes taken for the Flesh of an Oyster, sometimes for the Shell, so the Name of *Blatta Byzantia* has by Use been appropriated to the flinty Cover of the Purple-fish.

Consider'd therefore in this respect, the *Blattæ Byzantiæ* are a quite different thing from the *Unguis Odoratus* of the Antients, which was gather'd out of the *Indian* Marshes, and for that Reason called by the *Greeks* *ὄνυξ Ἰνδικός*. But *Dioscorides* tells us, that this *Indian Onyx* was like the Cover of the Purple-fish: *ὄνυξ ἐστὶ πῶμα κογχυλίου, ὁμοίον τῷ τῆς κορυφῆς, "The Onyx is the Cover or Lid of a Shell-fish, like that of the Purple-fish."* Let us grant then, that, on account of the Likeness, the Name of the Purple-fish is justly due, and may be given, to that *Indian* Shell-fish. All the Difficulty does not lie here, but in what *Dioscorides* properly calls the *πῶμα κογχυλίου*, "The Cover of the Conchylium, or Shell-fish." All our modern Interpreters take it for the Shell of the Conchylium, because the Conchylium is empty. *Brassavolus* renders it the Crust and Shell of the Conchylium, (*Crustas & Conchas Conchyliorum*) which, I am sure, is far wide of the Truth, and the genuine Signification of the Word *πῶμα*. The *Greeks* call the Shell of any sort of Oyster *ὄστρεον* (*Ostracum*). Thus *Dioscorides* speaking of Lime: *τὸν θαλαττίον κλύζον τὰ ὄστρεα*, "The Shells of Sea-whelks." Besides, that *Dioscorides* did not take the Word *ὄνυξ*, which, he says, is the *πῶμα* Conchylii, for the whole Shell, appears from his own Words towards the End of the Chapter, where he says, that "The Conchylium calcined produced the same Effects as the Purple-fish and Whelk," *ὁμοίον δὲ τὸ κογχύλιον καὶ πῶμα ὄστρεα καὶ ἡ κορυφή*. Therefore the *ὄνυξ*, *Unguis*, is a Part of the Conchylium, not its whole Inclosure or Shell. The *Arabians* took it right. *Avicenna's* Words, *adfar althabib*, by which he expresses the *ὄνυχες ἀρωματιστῶν* of *Dioscorides*, are rendered by *Frusta vel Fragmenta similia Unguibus*, "Bits or Fragments resembling Nails;" for this is the Sense used by him in the plural Number, which in a very antient Glossary is expounded by *Conciso, Inciso, Deciso, Comma, Morsum*, "Concision, Incision, Decision, Fragment, Bit." In the same Glossary *Mukatha* is explained by *decerptum*, "cropt," what is cropt or cut off from an entire Body. So here *ὄνυξ* is to be taken for a Piece cut off from the Conchylium, and for a Part of it, not for the whole Shell; and this is the *πῶμα κογχυλίου* of *Dioscorides*, which now comes to be explained.

In Vessels of a long Neck, and narrow Mouth, that which closes the Summit of the Mouth, by which Liquors are poured in and out, is called in *Latin* *Operculum*; in *Greek* *πῶμα*, "a Cover." *Severus Sulpitius*, from its Figure, calls it *Umbo*, "a Buckler." In every Vessel also which has a wide Mouth, what covers the Opening goes by the Name of *πῶμα*; thus we have *πῶμα χύτρας*, *πῶμα φιάλης*, "the Cover of a Pot, the Cover of a Well." The Purple-fish, Whelk, and other Fish of that kind, which the *Greeks* call *σπομβόδη*, turbinated, or wreathed, may, in some measure, be likened to Vessels with a narrow Mouth; for they have but one Perforation, through which they put forth their Tongue, and take their Food. They have also a sort of a Cover, at the Part where the Neck is situated, under which they thrust out their Tongue to feed, and draw it back as they please. This is called by *Dioscorides* *πῶμα*, by *Aristotle* *ἐπιπάλυμμα* (*Epicalumma*), who thus speaks of the Purple-fish; *ἔχει δὲ καὶ ἀντὶ καὶ τῆς ἐπιπάλυμματος καὶ τὰ ἀντὶ καὶ τὰ ἄλλα τὰ σπομβόδη ἐκ γενεῆς πάντα νέμονται δ' ἐξείρευσαν τὴν καλυμένην γλῶτταν ὑπὸ τῷ κάλυμματι*. "This Fish the Whelk, and all others of the turbinated Species, are furnished with Covers alike situated, under which they thrust out what is called their Tongue, and so feed." Nothing can be expressed plainer. The *Calumma*, κάλυμμα, is the same as the *Poma*, *πῶμα*, which belongs to the Purple-fish, Whelks, and other turbinated Kinds, among which is comprehended the *Indian* sweet-scented Conchylium, which resembles the Purple-fish, and whose Cover is called *ὄνυξ*, *Unguis*, from its resembling in Shape and Whiteness a Man's Nail. In the Purple-fish, this Cover is what we properly call *Blatta Byzantia*, because out of that Part is taken the *Blatta*, that is, the Part which is used in Dying. *Pliny* writes, that it lies in the middle of the Jaws of the Purple-fish. *Aristotle*, *ἀνὰ μέσον τραχήλου καὶ μύκωνος*, "betwixt the Neck and the Excrement." Hence *Blatta* came to be used for the Cover itself, which is the *πῶμα* that the latter *Greeks* called *ὄνυξ τῆς ῥινός τῆς κορυφῆς*, "the Bone of the Nose of the Purple-fish;" and sometimes *ὄνυξ τῆς κορυφῆς*, "the Bone of the Purple-fish;" which must be understood of this Bone, which serves for a Cover to the Shell of the Purple-fish.

Serapion, Cap. 433. treating of the Parts of the Purple-fish, mentions, among the rest, *Adfer*, that is, *Ungues*; and says, they are Covers by which they are closed within their Perforation. The Translator gives this Chapter the Title of *Blatta Byzantia*, in which he is right; for these Covers of the Purple-fish are properly the *Blatta Byzantia*, which were collected at *Byzantium*. *Serapion* has another Chapter on the *Ungues Odorati*, which were the Covers of the *Indian* Shell-fish that resembled the Purple-fish; and are, by the Interpreter, wrongly expounded by the *Blatta Byzantia*; whereas the *Blatta Byzantia* is the *Unguis* of the Purple-fish, and has nothing of an aromatic Smell in it. But the *Unguis Odoratus* was the Cover of the *Indian* Shell-fish, and was commonly used with other sweet-scented Ingredients in Suffumigations. *Myrepsus*, on *Suffumigations*, often mentions them, and calls them *ovras megales* & *ovras*, "the great and small Ungues," because there were two Sorts of them. The larger were brought from *Arabia*, and the smaller from *Babylon*, according to *Dioscorides*: *Myrepsus* sometimes calls them simply *ovras*, *Ungues*; sometimes *ovras Indicus*, which must be understood of these *Ungues*; but when he calls them *ἐκ τῆς ῥινός τῆς πορφυρέας*, "the Bone of the Nose of the Purple-fish," you are to take it for the Cover of that Fish which was call'd *Blatta Byzantia*, by the *Greeks* *βλάττιον πορφυρέον*, and had nothing of a sweet Scent, but rather stunk when it was handled; both Sorts, however, went commonly under the Name of the *Blatta Byzantia*. *Alpagus*, in his Lexicon, writes, that the *Blatta Byzantia* is the Cover of a certain Shell-fish found in the *Red Sea*; and that this Cover was in the very Mouth of these Shell-fishes, and was open'd and shut at the Pleasure of the included Animal; that it was call'd *Blatta Byzantia*; and that he had often seen them adhering to their Shells. Nothing better could be said for the Explication of the *Poma* and *Calumma*, as well in Purple-fish and Whelks, as in the sweet-scented *Indian* Shells.

Ovras was also a Name among the *Greeks* for a kind of Oyster, otherwise call'd *σολὴν* & *αὐλός*, "Solen and Aulus." *Pliny* calls them *Ungues*, *Lib. 9. Cap. 31*. *Isidore*, of Oysters, *Ungues a similitudine humanorum unguium dictæ*, "call'd *Ungues* from their resembling human Nails."

I wonder that *Dioscorides* should tell us, that this *Indian* Conchylum was found in the dried Marshes of *India*, which produce Nard, and that this was the Cause of its Fragrancy, because it was fed with Nard; and yet, in reckoning the Kinds of this Conchylum, should only mention the *Babylonian*, and the *Arabian* which comes from the *Red Sea*. If it be found in the nardiferous Marshes of *India*, why should he make one Kind come from *Babylon*, and another from the *Red Sea*? Nard, indeed, is not produced in *Babylon*, nor in the *Red Sea*, but in *India* about the *Ganges*; whence it is call'd *Γανgeticum* *vāpē*, "Gangetic Nard." But what he says about the nardiferous Marshes, is Matter of Laughter; for what Author among the Antients ever told us, that *Indian* Nard grew in Water and Marshes? *Dioscorides* himself tells us, that it was produced on a Mountain of *India*; he mentions indeed another Sort, which grew "in watery Places," *ἐν ὑδατοῦσιν*. But it is one thing to grow in moist and well-water'd Places, and another thing to spring up in the Middle of Marshes and standing Waters. *Garcias* informs us, that Nard is seldom found in *India* of spontaneous Growth, but that it is always propagated by Culture. *Dioscorides* compiled his Chapter of the *Unguis Odoratus* from two Authors, without considering that they contradicted one another; for it is impossible to reconcile the collecting the *Unguis Odoratus* of the Conchylum from the Marshes of *India*, with the Account of two Kinds of it, one coming from the *Red Sea*, and another from *Babylon*, differing in Colour and Bigness. Nor shall I regard what may possibly be pretended, that the *Indian* Ungues may come in Ships by Way of the *Red Sea*, and to *Babylon* by Land. This will by no means bring him off; for he mentions only one Kind in the Beginning, which was found in *India*, and assigns the Cause of its Fragrancy to its feeding on Nard: Now it is certain, that Nard grows no-where but in *India*; besides, he every-where distinguishes the *Indian* Species from the *Arabian*.

Upon the Whole, it is evident, that the *Unguis Odoratus* of the *Arabians* was the same with the *Ovras Indicus* of the Antients; which, however, was not brought out of *India*, but from *Babylon* and the *Red Sea*; and that what *Dioscorides* tells us about the nardiferous Marshes, and the aromatic Conchylia there collected, is mere Romance. It appears also, that the *Blatta Byzantia* are properly a different Thing from the *Ungues Odorati*, tho' their Names are commonly confounded; for the former are the Covers of the *Byzantine* Conchylum, or Shell-fish, which were formerly used to dye a Purple; but the *Ungues Odorati* belonged to the *Arabian* Conchylum, which was like the Purple-fish. *Salmasius de Homonym. Hyl. Iatr. Cap. 98*.

In the *Philosophical Transactions* I find the following Remarks of Dr. Lister upon the *Blatta Byzantia*, in Answer to a Query of Mr. Dale's.

I take the *Blatta Byzantina* to have succeeded the *Unguis*

Odoratus, and to have been brought into the Shops in its Place.

I conjecture, therefore, that the true *Unguis Odoratus* was something like the half of a *Pectunculus Fluvialis*; so common in the River *Thames*, of the Bigness and Thickness of a Thumb-nail, and that for these Reasons:

1. That the *Unguis Odoratus* seems to have been a fresh-water Bivalve or Muscle, for that they staid till the Lakes on the River *Ganges* were dried up before they gather'd them. Now Bivalves are ever buried in Sand and Mud, and never rise up, and swim about, and float, as the Turbinate Snails do; to which latter only the Operculum belongs, and which therefore were always, and easily, to be caught.

2. *Dioscorides* calls this Snail *Conchylum*, and by that general Name distinguishes it from all the other Sorts, concerning which he treats in several Chapters; which, tho' in general it takes in both Kinds, as well Turbinate as Bivalve, yet it does more particularly denote a Concha or Bivalve.

3. The Onyx is expressly reckon'd by *Pliny* amongst the Bivalves. For (*L. 32. C. 11.*) he makes all these synonymous, *Solen, five Aulos, five Donax, five Onyx, five Daitylus*. And again, more particularly, (*Lib. 2. Cap. 61.*) he says, *Ex Concharum genere sunt Daityli, ab Humanorum Unguium similitudine appellati*; so that, in all Probability, the *Onyx Odoratus*, brought more antiently out of the fresh-water Lakes about *Ganges* in *India*, was not unlike the common Onyx of the *Mediterranean*, which was of the *Solen* Kind.

Whatever the *Blatta Byzantia* of our Shops is, which has certainly nothing of the Characters of the antient Aromatic Unguis; and which, in all Probability, was lost upon the Account of the difficult Passage from *Ganges* into *Europe*; I lament its Loss, which I have Reason to believe was a good Medicine, from its strong aromatic Smell; which is much wanting in our testaceous Powders, of which this was one of the Number, so much used, and that not without good Reason now-a-days, which are all very flat and insipid.

BLATTA, Offic. Aldrov. de Insect. 499. *Blatta foetida*, Mouffet. Insect. 138. Charlt. Exer. 49. Jonst. de Insect. 82. Mer. Pin. 202. *Scarabeus impennis tardipes*, Pet. Gazophylac. Nat. & Art. Tab. 27. Fig. 7. THE SLOW-LEGG'D BEETLE. Dale.

The Inside of the *Blatta*, which is found in Bake-houses, bruised or boiled in Oil, and dropp'd into the Ears, eases the Pains thereof. *Dioscorides*, *Lib. 2. Cap. 38*.

Dale has, by Mistake, attributed the Virtues of the *Blatta* or Beetle found in Bake-houses, which is a very nimble Insect, to the slow-leg'd Beetle.

BLATTARIA, Offic. BLATTARIA LUTEA, J. B. 3. 874. Raii Hist. 2. 1096. Synop. 3. 288. *Blattaria vulgaris lutea*, Chab. 495. *Blattaria lutea, folio longo laciniato*, C. B. Pin. 240. Tourn. Inst. 147. Elem. Bot. 123. Boerh. Ind. A. 147. Buxb. 40. Rupp. Flor. Jen. 195. *Blattaria Plinii*, Ger. 633. Emac. 776. Mer. Pin. 16. *Blattaria major, flore luteo, vel Blattaria Plinii*, Merc. Bot. 24. Phyt. Brit. 16. *Blattaria lutea minor seu vulgaris*, Park. Theat. 64. *Blattaria annua ramosa, floribus luteis, staminibus purpureis*, Hist. Oxon. 2. 489. MOTH-MULLEIN.

Authors have said very little with respect to the Medicinal Virtues of this Plant, but inform us, that it is possess'd of the same as the *Verbascum*.

There is an Herb like Mullein, and often taken for it; but it has more Stalks, a Leaf not so white, and a yellow Flower. When thrown abroad, it gathers Moths (*Blattas*), and therefore at Rome they call it *Blattaria*. *Pliny*.

Ray, besides this, mentions the following Species of *Blattaria*:

Blattaria magno flore, C. B. J. B. *Flore amplo*, Ger.
Blattaria lutea major seu Hispanica, Park.
Blattaria flore caeruleo vel purpureo, J. B. *Flore purpureo*, Ger. Park. *Purpurea*, C. B.
Blattaria perennis, flore gilvo seu obsoleto coloris, Morif.
Blattaria lutea odorata, Park.
Blattaria pilosa Cretica, seu Arctos quorundam, J. B. *Verbascum humile Creticum laciniatum*, C. B. *Verbascum Brassicae folio*, Col.
Blattaria Cretica incana, rotundo laciniato folio, Park. This is the *Arcturus Creticus Belli*.
Ab hac diversam, C. Bauhinus. *Eumq; secutus*, Parkinsonus. *Verbascum suum foliis subrotundis, flore Blattariae, quod in Prodroma sic describit*.
Blattaria Cretica spinosa, Park. *Leucoium Creticum spinosum*, Clus. J. B. *Creticum spinosum incanum luteum*, C. B. *Galastroida Cretensium Belli*. *Leucoium spinosum cruciatum*, Alp. *Spinosum Creticum*, Ger. Emac.
Blattaria incana multifida, Bocconi.

BLECHNON.

Blechnon minus, pinnulis integris. *Filix querna*, C. B. Pin. 358. *Filix ramosa minor*, J. B. 3. 741. *Filix arborea*, Trag. 538. THE LESSER BRANCHED FERN.

It grows in shady Places, but very rarely.

C. Baubine had no Reason to refer *Tabernaemontanus's Filicula petraea foemina*, ii. to this Species; we must rather, with *J. Baubine*, refer it to the *Filicula petraea foemina* iv. of this Author; therefore we ought not to distinguish this from the *Filix ramosa minor*, *pinnulis dentatis*, Pin. *C. Baubine* was mistaken when he said, that the *Pteridion masculum Cordi* was the same with this; for *Cordus* compares it to the unbranch'd Male Fern, and he finds in it no other Difference than that of Bigness. *J. Baubine* knew these Species better than his Brother, who has separated from his *Filix querna* the *Filix pumila saxatilis*, Clus. Those who examine *Clusius's* Figure well, will not distinguish it from that of *Tragus*. Therefore this Plant is thrice repeated in the *Pinax*, under the Names of *Filix querna*, of *Filix ramosa minor*, *pinnulis dentatis*, and of *Filix saxatilis ramosa*, *nigris maculis punctata*. *Pena* and *Lobel* have given a sorry Figure of it. That of *Camerarius* seems to be but a Copy of *Matthioli's* Figure. *Martyn's Tournefort*. See **FILIX**.

BLECHROS, βληχερός. Weak, slight. βληχερός πυρετός, in *Lib. 5. Epid.* is a slight Fever, and opposed to *πνευμαίνης*, a burning (Fever), *Aph. 17. Lib. 6. Sect. 1.* And βληχερός σφυγμός, a weak low Pulse, is opposed to *ξύς*, a smart strong one, *Lib. 1. πεί γυναικ.* βληχερός, in *Galen's Exegesis*, is expounded a kind of Pulse, otherwise written βλήχιον.

BLEMA, βλήμα. See **INTRITUM**.

BLENNA, *Blenna*, βλέννα, μύξα, κορύζα, in *Hippocrates*, is a thick Phlegm and Mucus flowing from the Brain through the Nostrils, and shewing Signs of a beginning Concoction, as *Galen* explains him in several Places of his Works. He says also, that φλέγμα (Phlegm) is by some call'd βλέννα, or βλίνα. It is also read βλαίνα, in *Hippocrates's* second Book of Diseases: "If there be an Eruption of Water or Mucus [βλαίνα] by the Nostrils, there is a Solution of the Disease." It is also written πλέννα, and expounded by μύξα in *Galen's Exegesis*. *Hesychius* explains βλενός by νόθος, and μωρός, a Blockhead, or a Fool, and as it were mucous, from the excessive Humidity of his Brain. *Blennus* also, in *Plautus*, has the same Signification, as *Festus* observes. βλέννα, in *Erotian*, is the Name of a Fish, which he also calls βλαξ or βλαίς.

BLENNUS, βλέννος, βλίνος, βλινός, in *Suidas* βλίον. A Fish found in shallow Waters, of little or no Value, which is denoted by its Name, signifying mucous, as being of a soft, excrementitious, and insipid Flesh. It is described by *Aldrovandus*.

BLEPHARA, βλέφαρον. The Eyelids. See **PALPEBRÆ**.

BLEPHARIDES, βλέφαριδες. The Hairs on the Extremities of the Eyelids, as expounded by *Hesychius* and *Celsus*. In *Hippocrates's Coac.* it is put for the Eyelids, as βλέφαρίδιον καμπύλιον, there signifies a Retortion of the Eyelids. *Caelius Aurelianus*, *Lib. 4. Cap. 3. Tard. Pass.* renders the Greek βλέφαριδα, *Palpebraria* (Collyria).

BLEPHAROXYSTUM, βλέφαροξύστον, from βλέφαρον, an Eyelid, and ξύω, to scrape, shave. A Surgeon's Instrument for scraping or scarifying the Eyelids.

There have been various Forms of Instruments for these Purposes. *Hippocrates* seems to have used a Thistle, or some prickly Herb, such as the *Atractylis*. Others of the ancient Physicians invented an Instrument of Iron or Steel, not unlike a fine Rasp, delineated *Tab. 37. Fig. 5.* and shaped like a Spoon; and with this they used to scrape the Inside of the Eyelids till the Blood flow'd, as we are told by *Celsus* and *Egineta*, the latter of whom calls this Instrument *Blepharoxyston* [Eyelid-scraper]; the other calls it *Asperatum Specillum*, the Rasp-like Probe. Some used that rough Herb which the Botanists call'd *Equisetum majus*; others, among whom was *Celsus*, the Leaves of the Fig-tree; others a Pumice-stone, or the Bone of a Cuttle-fish, or any other Thing that seem'd most convenient for the Purpose. *Heister*.

BLESTRISMUS, βλησεισμός, from βάλλω, to toss, in *Hippocrates*, is a disorderly Jactation, or Tossing, and Restlessness of the Body, by which it is perpetually disturb'd, and thrown out of one Posture into another. It is also call'd βίσησις, which is a Word used in several Places of the *Epidemics*. *Aretæus* uses βλησειζέειν to express the disorderly Tossing and Tumbling of a Person in a Phrensy.

BLETA, *White*, is an Epithet for milky Urine, proceeding from diseased Kidneys; and is reckon'd among the Causes of a Phthisis by *Paracelsus*, *de Tartaro, Tract. 3. Cap. 3. Castellus*.

BLETI, βλήτοι, from βάλλω, to strike. Struck. So the Antients call'd those who were suddenly seiz'd with a Suffocation, Stertor, and Difficulty of Breathing, from an Inflammation of the Pleura, the Side being mark'd with black and blue Spots, as from Blows; for which Reason they were call'd *Bleti*, struck or smitten, and *Syderati*, Planet-struck. *Hippocrates de Rat. Viæ. in Morb. acut. and Coac.* In *Lib. 1. πεί γυναικ.* an Echolium, ἐχόλιον, is describ'd to be τὸ παίδιον βλήτον γυναικὸν ἐκ βάλαντος, "what expels the kill'd or dead Child." *Blasphes*

is expounded in *Hesychius* by ἀποπληξίς, ἡ ὁ ὕπνῳ ἔχειν νεοματών ἀποπληξίως τελευτῆν, "one seiz'd with an Apoplexy, or that dies suddenly of some acute Disease." And βλήσις, in *Varinus*, is *Syderatus*, labouring under an Apoplexy, or Stupor of the Body.

βλήσις, in *Hippoc. Lib. 2. πεί γυναικ.* is an Herb of the Figure of a Tongue. And you meet with βλήτον in *Theophrastus, Hist. Plant. Lib. 7. Cap. 1.* and βλήτιον in *Dioscorid. Lib. 2. Cap. 143.* for βλήτον.

BLICARE. Prepar'd Præfil, as defin'd by *Rulandus*; but I do not know what Præfil is.

BLICHODES, βλιχῶδες, is expounded, by *Epicles* in *Erotian*, by τὸ λελεπασμένον μέλα γλοιώδες ὑγροσίας ἀναβάσει, "turgid with some impure viscous Humour." *Euphorion* explains it by τὸ ἐμπνευσμένον ἢ κατέχευον, "express'd and dried." *Bacchius* and *Lyfimachus*, in the same Author, read βλιχῶδες with a π, and explains it by ἔξεστυγμένον, "smooth'd," as much as to say, full distended, and void of Folds or Wrinkles. *Erotian* adds, that some for βλιχῶδες read γλιχῶδες, glutinous or viscous, which agrees very well with the Exposition of *Epicles*. βλιχῶδες is expounded by *Suidas*, out of *Hippocrates*, and also by *Hesychius*, τὸ λελεπασμένον ἢ καθαρόν, "decorticated and pure."

BLINCTA is explain'd, by *Rulandus*, *Terra rubra*, red Earth.

BLITUM, *Blite*. A sort of Herb.

This Herb is cultivated in Gardens allotted for Pot-herbs, and is used in Food. It affords little Nourishment, and generates a very bad Blood. *Plin. Lib. 20. Cap. 22.* has these Words: "Blitum seems to be without any Virtues, without any Taste or Acrimony; for which Reason the Poet *Menander* makes cold and indifferent Husbands compare their Wives to it, by way of Contempt." It is prejudicial to the Stomach; and raises such a Commotion in the Intestines, as, in some, to excite a *Cholera*. These Verses of *Eoban. Heff. Lib. de Bona Valetudine*, must not, on this Occasion, be forgotten:

*Ignarum sine honore Blitum; sine viribus estur,
Hoc solo: Ventrem quod bene deiciat.*

Galen, Lib. 2. de Alim. fac. c. 45. ranks it among the Pot-herbs without Taste; for which Reason it is so little used in the Kitchen, that it is become a Proverb of Contempt to say, that a Person is more despicable than *Blites*. Hence it also happens, that every thing of no Worth or Value is call'd *Blites*; for the Greeks call it βλίτον, as it were βλητόν, a Thing to be thrown away. *Isidorus, Lib. 17. Orig. C. 10.* is of Opinion, that *Blitum* is so call'd, as it were, from *Vilis Beta*. In *Suidas* we read, that among the Greeks the Whores were call'd βλιταρίδες or βλιταδες, *Bliteæ Uxores*. *Plautus* also speaks of *blitea* & *lutea meretrice*, that is, a most contemptible, wither'd, and insipid Whore. *Catullus* has an Expression to the same Purpose, *Non assis facis, oblitum Lupanar*: "Thou art good for nothing, thou contemptible Whore. The Greeks also, according to *Hesychius*, call'd Fools and Idiots βλίτας and βλίτῶνας, probably from the Greek Word βλαξ, which signifies stupid. See *Joh. Ruell. de Natura Stup. L. 1. C. 20.*

The Seeds of this Herb are good in Dysenteries, and immoderate Fluxes of the Menfes; and, according to *Tabernaemontanus*, the Seeds of it are boil'd like Millet in *Silesia*, and afford the common People a grateful Food. The Juice of the Herb, express'd, cures Corns of the Feet, if applied to them. A Fumigation of the Herb promotes the Menfes, when stopp'd; and expels false Conceptions, and the Secundines. According to *Casp. Schwenkf. in Catal. Stirp.* the Country-people use it as a Remedy against Hemorrhages in their Cattle: And *Tabernaemontanus* informs us, that its Juice, exhibited in Wine, cures the Bites of Scorpions and Spiders. *Barthol. Zorn Botanolog.*

There are many Sorts of *Blites*, the common Sort of which is thus distinguish'd.

BLITUM ALBUM, *Offic. Park. Parad. 488. Blitum album majus*, or the great white *Blite*, *Ger. 252. Emac. 320. C. B. 118. Tourn. Inst. 507. Hist. Oxon. 2. 599. Boerh. Ind. A. 2. 91. Dill. Cat. 164. Buxb. 40. Blitum pulchrum album magnum, J. B. 2. 967. Raii Hist. 1. 200. GREAT WHITE BLITE.*

The common *Blite* grows to be two Foot high, with thick hollow Stalks, cloath'd with a great many Leaves, somewhat like Beet-leaves, but less, growing on long Foot-stalks, and of a thinner Texture. The Flowers consist of long Spikes, of small, mossy, greenish *Flosculi*, in which lie small, round, black Seeds. The Root is pretty thick, but perishes every Year. The whole Plant has a flashy insipid Taste. It is planted in Gardens, and flowers in *July*.

The Leaves, which are only used, and those but seldom, are much of the Nature of *Arrache*, being cooling and emollient; and are sometimes put into Clysters. *Miller's Bot. Off.*

Blites are eaten among other Greens; and are good for the Belly, participating of no purgative Quality. *Dioscorides, Lib. 2. Cap. 143.*

Another Species of this Plant is the
BLITUM RUBRUM, Offic. Park. Parad. 489. *Blitum ru-*
brum majus, or the Great Red Blite, Ger. 252. Emac. 320.
Raii Hist. 1. 200. C. B. Pin. 118. Tourn. Inst. 507. Elem.
Bot. 407. Boerh. Ind. A. 2. 91. Hist. Oxon. 2. 599. *Blit-*
um pulchrum rectum magnum rubrum, J. B. 2. 966. Buxb.
40. *Blitum*, Chab. 304. RED BLITES.

The medicinal Virtues of this are much the same as those of
the preceding.

BLITUM, Cod. Med. 21. *Blitum sylvestre spicatum*, Tourn.
Inst. 507. Herb. Par. 399. Mart. Hist. 106. Vaill. Bot. Par.
21. *Blitum minus album*, C. B. Pin. 118. Hist. Ox. 2. 599.
J. B. 2. 967. Raii Hist. 1. 200. Boerh. Ind. A. 2. 91. Ger.
252. Emac. 321. *Blitum album sylvestre minus*, Park. Theat.
752. SMALL WHITE BLITE.

Camerarius is the only Author who has given a good Figure
of this Plant; it is so like the *Blitum rubrum minus*, that it is
impossible to distinguish them without the Fruits. This Species
is quite loaded with them, but they are not only placed in the
Bosoms of the Leaves, but form also a very considerable Spike at
the Top of the Stalks; and, besides, each Fruit is a sort of
membranous greyish Bladder, reddish, oval, pointed, flat, a
Line long: It does not open transversely, like the *Blitum ru-*
brum minus, but bursts like a Bladder which is press'd, and lets
out a very small, black, smooth, shining Seed, shap'd like a
Lentil.

Tournefort takes Notice of another Species of *Blitum*, which
is the

Blitum rubrum minus, C. B. Pin. 118. J. B. 2. 967. *Blit-*
um rubrum supinum, Lib. Icon. 250. *Amaranthus sylvestris*
& vulgaris, Inst. THE SMALL WILD RED BLITE.
It is often found on Dung-hills.

J. Bauhine and *Lobel* have given good Figures of this Plant.
That of the *Blitum rubrum minus*, Cam. Epit. 235. agrees
better with the *Blitum album minus*, C. B. Pin.

The Root of this Plant is whitish, sometimes purple, about
half a Line long, four or five Lines thick at the Neck, divided
into capillaceous Fibres. The Stalks are procumbent, branch'd,
about a Foot long, chanel'd, two or three Lines thick, red-
dish, full of Juice, adorn'd with alternate Leaves, resembling
those of Pellitory, about two Inches long, taking in the Tail,
which is very slender, and almost as long as the rest of the Leaf.
This Leaf is a bright-green, sometimes having purplish Edges,
seven or eight Lines broad, divided into two equal Parts, by a
Rib which extends itself from one End to the other, and forms
little crooked Veins, which lose themselves in the Edge. Out
of the Bottom of each Leaf sometimes proceed others, which
are much smaller; these Bosoms are fill'd with many Flowers,
growing upon one another in rounded Clusters, three or four
Lines in Diameter. Each Flower usually consists of three very
narrow, pointed, gutter'd Leaves, one Line long, whitish,
with a greenish Back: From the Middle of the Flower arises
an oval-pointed Pointal, encompassed with three very slender
Chives, which are scarce a Line long, and sustain each a yellow-
ish Summit. This Pointal afterwards becomes an oval, flat,
membranous, reddish Capsule, one Line long, terminated by a
little Thread. It is composed of two Pieces, placed one upon
the other, and opening transversely. In each Capsule is one
Seed, almost round, black, smooth, shining, shap'd like a
little Lentil.

We have no good Figure of this Plant; for that of *J. Bau-*
hine has its Leaves too obtuse, and represents the preceding Spe-
cies better; and that of the *Blitum rubrum minus*, Cam. which
agrees better with it in the Leaves, makes a Spike of Flowers,
which we do not see in our Plant. *Lobel's* Figure has the very
same Fault. *Vaill. Martyn's Tournefort.*

BLITYRI. Βαλϋρι. A fictitious Word, with no Significa-
tion annex'd to it, but proverbially used by *Galen*; as is also
another Word, *Scindapsus*, σκινδᾶψος, to ridicule the Vanity
of coining new Terms. *Gal. de Diff. Puls. Lib. 3. Cap. 1.*
& Meth. Med. Lib. 2. Cap. 7.

BLUMATI terreum. A glaz'd Vessel. *Johnson.*

BOA, Jonst.

Is an aquatic Serpent of a prodigious Size, which follows
the Herds of Oxen, from whence it takes its Name; it sucks
the Cows Teats, for it loves Milk very well. It is found some-
times in *Calabria*. One of these was kill'd in the Reign of the
Emperor *Claudius*, in the Belly of which they found a Child,
which it had swallowed whole. The Bite causes an Inflamma-
tion of the Part bit. They say that this Serpent is sometimes
so big, that it can swallow a whole Ox, which is not to be
credited. *Lemery des Drogues.*

BOANTHEMON, βοανθημων, is expounded in *Galen's* Exe-
gesis by τὸ βύβθαλλον, (*Bupththalmum*) which, he says, is also
call'd *χρυσάνθεμον*, *Chrysanthemum*. *Poesius.*

BOAX. See Boops.

BOCCA. The large Mouth or Opening of a Glass-house
Furnace.

BOCCARELLA. A small Hole, or Mouth, one of which
is on each Side the *Bocca* of a Glass Furnace, lying almost hori-
Vol. I.

zontally with it. Out of these the Workmen take colour'd or
finer Metal from the Piling-pot.

BOCCONIA. A Plant so call'd from *P. Boccone* of *Sicily*,
who has publish'd several curious Books of Botany. It has a
Flower, consisting of one Leaf; from the Middle arises the
Pointal, which afterwards becomes an oval-shap'd pointed
Fruit, which is full of Juice, each containing one round Seed.
We have but one Species of this Plant, which is a Native of
Jamaica, and call'd by Sir *Hans Sloane*, in his Nat. Hist.
Chelidonium majus arborescens, foliis quercinis. I find no me-
dicinal Virtues attributed to it.

BOCHETUM. The second Decoction of Lignum San-
ctum, Sarsaparilla, China-root, and other Sudorifics. *Castellus.*

BOCIA. A Glass Vessel, firmly clos'd, and shap'd with a
round Belly, and long Neck, about half a Foot in Diameter.
It is otherwise call'd *Ovum*, *Sublimatorium*, *Urinale*, and *Cu-*
curbita. This must not be touched with the cold Hand in time
of working, for fear of breaking it. *Castellus.*

BOCIUM. The same as BRONCHOCELE, which see.

BODAGI is defin'd by *Rulandus*, Aliud Vas.

BODID. An Egg. *Idem.*

BOE, Bon. See CLAMOR, and ANAPHONESIS.

BOERHAAVE. The Figure this illustrious Physician
made whilst alive, and the Reputation of his Works now he is
no more, demand some Account of his Life and Writings.

Herman Boerhaave was born on the last Day of *December*
1668. about One in the Morning, at *Voorhout*, a Vil age two
Miles distant from *Leyden*: His Father, *James Boerhaave*,
was Minister of *Voorhout*, of whom his Son, in a small Account
of his own Life, has given a very amiable Character, for the
Simplicity and Openness of his Behaviour, for his exact Fruga-
lity in the Management of a narrow Fortune, and the Prudence,
Tenderness, and Diligence, with which he educated a numerous
Family of nine Children. He was eminently skill'd in History
and Genealogy, and well versed in the *Latin*, *Greek*, and *He-*
brew Languages.

His Mother was *Hagar Daelder*, a Tradesman's Daughter
of *Amsterdam*, from whom he might, perhaps, derive an he-
reditary Inclination to the Study of Physic, in which she was
very inquisitive, and had obtained a Knowledge of it not com-
mon in Female Students.

This Knowledge, however, she did not live to communi-
cate to her Son; for she died in 1673, ten Years after her
Marriage.

His Father, finding himself encumber'd with the Care of
seven Children, thought it necessary to take a second Wife, and,
in *July* 1674. was married to *Eve du Bois*, Daughter of a
Minister of *Leyden*, who, by her prudent and impartial Con-
duct, so endear'd herself to her Husband's Children, that they
all regarded her as their own Mother.

Herman Boerhaave was always design'd by his Father for the
Ministry, and with that View instructed by him in Grammatical
Learning, and the first Elements of Languages; in which he
made such a Proficiency, that he was, at the Age of eleven
Years, not only Master of the Rules of Grammar, but capable
of translating with tolerable Accuracy, and not wholly ignorant
of critical Niceties.

At Intervals, to recreate his Mind, and strengthen his Consti-
tution, it was his Father's Custom to send him into the Fields,
and employ him in Agriculture, and such kind of rural Occu-
pations, which he continued thro' all his Life to love and
practise; and, by this Vicissitude of Study and Exercise, pre-
serv'd himself, in a great measure, from those Distempers and
Depressions, which are frequently the Consequences of indiscreet
Diligence, and uninterrupted Application; and from which
Students, not well acquainted with the Constitution of the hu-
man Body, sometimes fly for Relief to Wine instead of Exercise,
and purchase temporary Ease at the Hazard of chronical Dis-
tempers.

The Studies of young *Boerhaave* were, about this Time, in-
terrupted by an Accident, which deserves a particular Mention,
as it first inclin'd him to that Science, to which he was by Na-
ture so well adapted, and which he afterwards carried to so great
Perfection.

In the twelfth Year of his Age, a stubborn, painful, and
malignant Ulcer, broke out upon his Left Thigh; which, for
near five Years, defeated all the Art of the Surgeons and Phy-
sicians, and not only afflicted him with most excruciating
Pains, but expos'd him to such sharp and tormenting Applica-
tions, that the Disease and Remedies were equally insufferable.
Then it was that his own Anguish taught him to compassionate
that of others, and his Experience of the Inefficacy of the Me-
thods then in Use incited him to attempt the Discovery of
others more certain.

He began to practise at least honestly, for he began upon
himself; and his first Essay was a Prelude to his future Success;
for, having laid aside all the Prescriptions of his Physicians, and
all the Applications of his Surgeons, he at last, by fomenting
the Part with Salt and Urine, effected a Cure.

That he might, on this Occasion, obtain the Assistance of Surgeons with less Inconvenience and Expence, he was brought by his Father, at Fourteen, to *Leyden*, and placed in the fourth Class of the public School, after having been examined by the Master: Here his Application and Abilities were equally conspicuous. In six Months, by gaining the first Prize in the fourth Class, he was raised to the fifth; and in six Months more, upon the same Proof of the Superiority of his Genius, rewarded with another Prize, and translated to the sixth; from whence it is usual in six Months more to be removed to the University.

Thus did our young Student advance in Learning and Reputation, when, as he was within View of the University, a sudden and unexpected Blow threaten'd to defeat all his Expectations.

On the 12th of *November* in 1682. his Father died, and left behind him a very slender Provision for his Widow and nine Children, of which the eldest was not yet seventeen Years old.

This was a most afflicting Loss to the young Scholar, whose Fortune was by no means sufficient to bear the Expences of a learned Education; and who therefore now seem'd to be summoned by Necessity to some Way of Life more immediately and certainly lucrative; but with a Resolution equal to his Abilities, and a Spirit not to be depress'd or shaken, he determin'd to break thro' the Obstacles of Poverty, and supply by Diligence the want of Fortune.

He therefore ask'd and obtain'd the Consent of his Guardians to prosecute his Studies as long as his Patrimony would support him, and, continuing his wonted Industry, gained another Prize.

He was now to quit the School for the University, but, on account of the Weakness yet remaining in his Thigh, was, at his own Intreaty, continu'd six Months longer under the Care of his Master, the learn'd *Wynschotan*, where he once more was honour'd with the Prize.

At his Removal to the University, the same Genius and Industry met with the same Encouragement and Applause. The learned *Triglandius*, one of his Father's Friends, made soon after Professor of Divinity at *Leyden*, distinguish'd him in a particular manner, and recommended him to the Friendship of Mr. *Van Apphen*, in whom he found a generous and constant Patron.

He became now a diligent Hearer of the most celebrated Professors, and made great Advances in all the Sciences, still regulating his Studies with a View principally to Divinity, for which he was originally intended by his Father; and for that Reason he exerted his utmost Application to attain an exact Knowledge of the *Hebrew* Tongue.

Being convinc'd of the Necessity of mathematical Learning, he began to study those Sciences in 1687: but without that intense Industry with which the Pleasure he found in that kind of Knowledge induc'd him afterwards to cultivate them.

In 1690. having perform'd the Exercises of the University with uncommon Reputation, he took his Degree in Philosophy; and, on that Occasion, discuss'd the important and arduous Question of the distinct Natures of the Soul and Body, with such Accuracy, Perspicuity, and Subtlety, that he entirely confuted all the Sophistry of *Epicurus*, *Hobbes*, and *Spinoza*, and equally rais'd the Character of his Piety and Erudition.

Divinity was still his great Employment, and the chief Aim of all his Studies. He read the Scriptures in their original Languages, and, when Difficulties occur'd, consulted the Interpretations of the most antient Fathers, whom he read in Order of Time, beginning with *Clemens Romanus*.

In the Perusal of these early Writers, he was struck with the profoundest Veneration for the Simplicity and Purity of their Doctrine, the Holiness of their Lives, and the Sanctity of the Discipline practis'd by them; but, as he descend'd to the lower Ages, he found the Peace of Christianity broken by useless Controversies, and its Doctrines sophisticated by the Subtleties of the Schools. He found the holy Writers interpreted according to the Notions of Philosophers, and the Chimeras of Metaphysicians adopted as Articles of Faith. He found Difficulties rais'd by idle Curiosity, and fomented by Bitterness and Rancour. He saw the Simplicity of the Christian Doctrine corrupted by the private Notions of particular Parties, of which each adhered to its own Philosophy, and Orthodoxy was confined to the Sect in Power.

Having now exhausted his Fortune in the Pursuit of his Studies, he found the Necessity of applying to some Profession, that, without engrossing all his Time, might enable him to support himself; and, having obtain'd a very uncommon Knowledge of the Mathematics, he read Lectures in those Sciences to a select Number of young Gentlemen in the University.

At length, his Propension to the Study of Physic grew too violent to be resisted; and, tho' he still intended to make Divinity the great Employment of his Life, he could not deny himself the Satisfaction of spending some Time upon the medicinal Writers; for the Perusal of which he was so well qualified by his Acquaintance with the Mathematics and Philosophy.

But this Science corresponded so much with his natural Genius, that he could not forbear making that his Business, which

he intended only as his Diversion; and still growing more eager, as he advanced further, he at length determin'd wholly to master that Profession, and to take his Degree in Physic, before he engaged in the Duties of the Ministry.

It is, I believe, a very just Observation, that Mens Ambition is generally proportion'd to their Capacity. Providence seldom sends any into the World with an Inclination to attempt great Things, who have not Abilities likewise to perform them. To have form'd the Design of gaining a competent Knowledge in Medicine by way of Digression from Theological Studies, would have been little less than Madness in most Men, and would have expos'd them to Ridicule and Contempt. But *Boerhaave* was one of those mighty Capacities to whom scarce any thing appears impossible, and who think nothing worthy of their Efforts but what appears insurmountable to common Understandings.

He began this new Course of Study by a diligent Perusal of *Vesalius*, *Bartholine*, and *Fallopian*; and, to acquaint himself more fully with the Structure of Bodies, was a constant Attendant upon *Nuck's* public Dissections in the Theatre, and himself very accurately inspected the Bodies of different Animals.

Having furnish'd himself with this preparatory Knowledge, he began to read the antient Physicians in the Order of Time, pursuing his Inquiries downwards from *Hippocrates*, thro' all the *Greek* and *Latin* Writers.

Finding, as he tells us himself, that *Hippocrates* was the original Source of all medicinal Knowledge, and that all the later Writers were little more than Transcribers from him, he returned to him with more Attention, and spent much Time in making Extracts from him, digesting his Treatises into Method, and fixing them in his Memory.

He then descend'd to the Moderns, among whom none engaged him longer, or improved him more, than *Sydenham*, to whose Merit he has left this Attestation, *that he frequently perused him, and always with greater Eagerness.*

His insatiable Curiosity after Knowledge engaged him now in the Practice of Chymistry, which he prosecuted with all the Ardor of a Philosopher, whose Industry was not to be wearied, and whose Love of Truth was too strong to suffer him to acquiesce in the Reports of others.

Yet did he not suffer one Branch of Science to withdraw his Attention from others: Anatomy did not withhold him from the Prosecution of Chymistry, nor Chymistry, enchanting as it is, from the Study of Botany. He was not only a careful Examiner of all the Plants in the Garden of the University, but made Excursions, for his further Improvement, into the Woods and Fields, and left no Place unvisited where any Increase of Botanical Knowledge could be reasonably hoped for.

In Conjunction with all these Inquiries, he still pursued his Theological Studies, and still, as we are inform'd by himself, *proposed, when he had made himself Master of the whole Art of Physic, and obtain'd the Honour of a Degree in that Science, to petition regularly for a License to preach, and to engage in the Cure of Souls*; and intended, in his Theological Exercises, to discuss this Question, *Why so many were formerly converted to Christianity by illiterate Persons, and so few at present by Men of Learning.*

In pursuance of this Plan he went to *Hardewich*, in order to take the Degree of Doctor in Physic, which he obtain'd in July 1693. having perform'd a public Disputation, *De utilitate explorandorum excrementorum in agris, ut signorum.*

Then returning to *Leyden*, full of his pious Design of undertaking the Ministry, he found, to his Surprise, unexpected Obstacles thrown in his Way, and an Insinuation dispers'd thro' the University, that made him suspected, not of any slight Deviation from received Opinions, not of any pertinacious Adherence to his own Notions in doubtful and disputable Matters, but of no less than *Spinozism*, or, in plainer Terms, of Atheism itself.

How so injurious a Report came to be rais'd, circulated, and credited, will be, doubtless, very eagerly inquir'd; and an exact Relation of the Affair will not only satisfy the Curiosity of Mankind, but shew that no Merit, however exalted, is exempt from being not only attack'd, but wounded, by the most contemptible Whispers. Those who cannot strike with Force, can, however, poison their Weapon, and, weak as they are, give mortal Wounds; and bring a Hero to the Grave: So true is that Observation, that many are able to do Hurt, but few to do Good.

This detestable Calumny owed its Rise to an Incident, from which no Consequence of Importance could be reasonably apprehended. As *Boerhaave* was sitting in a common Boat, there arose a Conversation among the Passengers upon the impious and pernicious Doctrine of *Spinoza*, which, as they all agreed, tends to the utter Overthrow of all Religion. *Boerhaave* sat, and attended silently to this Discourse for some time, till one of the Company, willing to distinguish himself by his Zeal, instead of confuting the Positions of *Spinoza* by Argument, began to give a Loose to contumelious Language, and virulent Invectives; with which *Boerhaave* was so little pleased, that at last

last he could not forbear asking him, whether he had ever read the Author against whom he declaim'd.

The Orator, not being able to make much Answer, was check'd in the Midst of his Invektives, but not without feeling a secret Resentment against him who had at once interrupted his Harangue, and expos'd his Ignorance.

This was observed by a Stranger, who was in the Boat with them; he inquir'd of his Neighbour the Name of the young Man, whose Question had put an End to the Discourse; and, having learn'd it, set it down in his Pocket-book, as it soon appear'd, with a malicious Design; for, in a few Days, it was the common Conversation at *Leyden*, that *Boerhaave* had revolted to *Spinoza*.

It was in vain, that his Advocates and Friends pleaded his learned and unanswerable Confutation of all atheistical Opinions, and particularly of the System of *Spinoza*, in his Discourse of the Distinction between Soul and Body. Such Calumnies are not easily suppress'd, when they are once become general. They are kept alive and supported by the Malice of bad, and sometimes by the Zeal of good Men, who, tho' they do not absolutely believe them, think it yet the surest Method, to keep not only guilty, but suspected Men out of public Employments, upon this Principle, That the Safety of many is to be prefer'd before the Advantage of a few.

Boerhaave, finding this formidable Opposition rais'd against his Pretensions to Ecclesiastical Honours or Preferments, and even against his Design of assuming the Character of a Divine, thought it neither necessary nor prudent to struggle with the Torrent of popular Prejudice, as he was equally qualified for a Profession, not indeed of equal Dignity or Importance, but which must undoubtedly claim the second Place among those which are of the greatest Benefit to Mankind.

He therefore applied himself to his medicinal Studies with fresh Ardor and Alacrity, reviewed all his former Observations and Inquiries, and was continually employed in making new Acquisitions.

Having now qualified himself for the Practice of Physic, he began to visit Patients, but without that Encouragement which others, not equally deserving, have sometimes met with. His Business was, at first, not great, and his Circumstances by no means easy; but still, superior to any Discouragement, he continued his Search after Knowledge, and determin'd that Prosperity, if ever he was to enjoy it, should be the Consequence, not of mean Art, or dissingenuous Solicitations, but of real Merit, and solid Learning.

His steady Adherence to his Resolutions appears yet more plainly from this Circumstance: He was, while he yet remain'd in this unpleasant Situation, invited by one of the first Favourites of King *William III.* to settle at the *Hague* upon very advantageous Conditions, but declined the Offer. For having no Ambition but after Knowledge, he was desirous of living at Liberty, without any Restraint upon his Looks, his Thoughts, or his Tongue, and at the utmost Distance from all Contentions and State-parties. His Time was wholly taken up in visiting the Sick, studying, making chymical Experiments, searching into every Part of Medicine with the utmost Diligence, teaching the Mathematics, and reading the Scriptures, and those Authors who profess to teach a certain Method of loving God.

This was his Method of living to the Year 1701, when he was recommended by Mr. *Van Berg* to the University, as a proper Person to succeed *Drelincourt* in the Office of Lecturer on the Institutes of Physic, and elected without any Solicitation on his part, and almost without his Consent, on the 18th of May.

On this Occasion, having observ'd, with Grief, that *Hippocrates*, whom he regarded not only as the Father, but as the Prince of Physicians, was not sufficiently read or esteem'd by young Students, he pronounced an Oration, *de commendando Studio Hippocratico*; by which he restor'd that great Author to his just and antient Reputation.

He now began to read public Lectures with great Applause, and was prevail'd upon by his Audience to enlarge his original Design, and instruct them in Chymistry.

This he undertook, not only to the great Advantage of his Pupils, but to the great Improvement of the Art itself, which had been hitherto treated only in a confus'd and irregular manner, and was little more than a History of particular Experiments, not reduced to certain Principles, nor connected one with another: This vast Chaos he reduced to Order, and made that clear and easy, which was before to the last degree perplex'd and obscure.

His Reputation began now to bear some Proportion to his Merit, and extended itself to distant Universities; so that in 1703, the Professorship of Physic being vacant at *Groningen*, he was invited thither; but he chose to continue his present Course of Life, and therefore refus'd to quit *Leyden*.

This Invitation and Refusal being related to the Governors of the University of *Leyden*, they had so grateful a Sense of his Regard for them, that they immediately voted an honorary In-

crease of his Salary, and promised him the first Professorship that should be vacant.

On this Occasion he pronounc'd an Oration upon the *Use of Mechanics in the Science of Physic*, in which he endeavour'd to recommend a rational and mathematical Inquiry into the Causes of Diseases, and the Structure of Bodies; and to shew the Folly and Weakness of the Jargon introduc'd by *Paracelsus*, *Helmont*, and other chymical Enthusiasts, who have obtruded idle Dreams upon the World, and, instead of enlightening their Readers with Explications of Nature, have darkened the plainest Appearances, and bewilder'd Mankind in Error and Obscurity.

Boerhaave had now for nine Years read physical Lectures, but without the Title or Dignity of a Professor, when, by the Death of Professor *Hotten*, the Professorship of Physic and Botany fell to him of course.

On this Occasion he asserted the Simplicity and Facility of the Science of Physic, in Opposition to those who think, that Obscurity contributes to the Dignity of Learning, and that, to be admired, it is necessary not to be understood.

His Profession of Botany made it Part of his Duty to superintend the physical Garden, which he improv'd so much by the immense Number of new Plants which he procur'd, that it was enlarg'd to twice its original Extent.

In 1714, he was deservedly advanc'd to the highest Dignities of the University, and in the same Year made Physician of St. *Augustine's* Hospital in *Leyden*, into which the Students are admitted twice a Week to learn the Practice of Physic.

This was of equal Advantage to the Sick and the Students; for the Success of his Practice was the best Demonstration of the Soundness of his Principles.

When he laid down his Office of Governor of the University in 1715, he made an Oration upon the Subject of *attaining to Certainty in Natural Philosophy*; in which he declares himself, in the strongest Terms, a Favourer of experimental Knowledge, and reflects with just Severity upon those arrogant Philosophers, who are too easily disgust'd with the slow Methods of obtaining true Notions by frequent Experiments, and who, possess'd with too high an Opinion of their own Abilities, rather chuse to consult their own Imaginations, than inquire into Nature; and are better pleas'd with the delightful Amusement of forming Hypotheses, than the toilsome Drudgery of amassing Observations.

The Emptiness and Uncertainty of all those Systems, whether venerable for their Antiquity, or agreeable for their Novelty, he has evidently shewn; and not only declar'd, but prov'd, that we are entirely ignorant of the Principles of Things, and that all the Knowledge we have is of such Qualities alone as are discoverable by Experience, or such as may be deduced from them by Mathematical Demonstration.

This Discourse, fill'd as it was with Piety, and a true Sense of the Greatness of the Supreme Being, and the Incomprehensibility of his Works, gave such Offence to a Professor of *Franker*, who, having long entertain'd a high Esteem for *Descartes*, consider'd his Principles as the Bulwark of Orthodoxy, that he appear'd in Vindication of his darling Author, and complain'd of the Injury done him with the greatest Vehemence, declaring little less than that the *Cartesian* System and the Christian must inevitably stand and fall together, and that to say we were ignorant of the Principles of Things, was not only to enlist among the Sceptics, but to sink into Atheism itself.

So far can Prejudice darken the Understanding, as to make it consider precarious and uncertain Systems as the chief Support of sacred and unvariable Truth.

This Treatment of *Boerhaave* was so far resent'd by the Governors of his University, that they procur'd from *Franker* a Recantation of the Invektive, that had been thrown out against him. This was not only comply'd with, but Offers were made him of more ample Satisfaction; to which he return'd an Answer not less to his Honour than the Victory which he gain'd; "That he should think himself sufficiently compensated, if his warn'd Adversary received no farther Molestation on his Account."

So far was this weak and injudicious Attack from shaking a Reputation not casually rais'd by Fashion or Caprice, but founded upon solid Merit, that the same Year his Correspondence was desired upon Botany and Natural Philosophy by the Academy of Sciences at *Paris*, of which he was, upon the Death of Count *Marfigli*, in the Year 1728, elected a Member.

Nor were the *French* the only Nation by which this great Man was courted and distinguished; for, two Years after, he was elected Fellow of our Royal Society.

It cannot be doubted, but, thus caref'd, and honoured with the highest and most public Marks of Esteem by other Nations, he became more celebrated in his own University; for *Boerhaave* was not one of those learned Men, of whom the World has seen too many, that disgrace their Studies by their Vices, and by unaccountable Weaknesses make themselves ridiculous

at Home, while their Writings procure them the Veneration of distant Countries, where their Learning is known, but not their Follies.

Not that his Countrymen can be charged with being insensible of his Excellencies, till other Nations taught them to admire him; for in 1718. he was chosen to succeed *Le Mort* in the Professorship of *Chymistry*; on which Occasion he pronounced an Oration, *De Chymia errores suos expurgante*; in which he treated that Science with an Elegance of Style not often to be found in chymical Writers, who seem generally to have affected not only a barbarous, but unintelligible Phrase, and, like the *Pythagoreans* of old, to have wrapt up their Secrets in Symbols, and enigmatical Expressions, either because they believed, that Mankind would reverence most what they least understood, or because they wrote not from Benevolence, but Vanity, and were desirous to be praised for their Knowledge, though they could not prevail upon themselves to communicate it.

In 1722. his Course both of Lectures and Practice was interrupted by the Gout, which, as he relates it in his Speech after his Recovery; he brought upon himself, by an imprudent Confidence in the Strength of his own Constitution, and by transgressing those Rules which he had a thousand times inculcated to his Pupils and Acquaintance. Rising in the Morning before Day, he went immediately, hot and sweating, from his Bed into the open Air, and exposed himself to the cold Dews.

The History of his Illness can hardly be read without Horror. He was for five Months confined to his Bed, where he lay upon his Back without daring to attempt the least Motion, because any Effort renewed his Torments, which were so exquisite, that he was at length not only deprived of Motion, but of Sense. Here Art was at a stand; nothing could be attempted, because nothing could be proposed with the least Prospect of Success. At length having, in the sixth Month of his Illness, obtained some Remission, he took simple Medicines in large Quantities, and at length wonderfully recovered.

Succos pressos bibit Noster herbarum Cichorea, Endivia, Fumaria, Nasturtii aquatici, Veronica aquatica latifolia, copia ingenti: Simul deglutiens abundantissime gummi ferulacea Asiatice.

His Recovery, so much desired, and so unexpected, was celebrated on January 11. 1723. when he open'd his School again with general Joy, and public Illuminations.

It would be an Injury to the Memory of *Boerhaave*, not to mention what was related by himself to one of his Friends, that when he lay whole Days and Nights without Sleep, he found no Method of diverting his Thoughts so effectual as Meditation upon his Studies, and that he often relieved and mitigated the Sense of his Torments by the Recollection of what he had read, and by reviewing those Stores of Knowledge which he had repositied in his Memory.

This is, perhaps, an Instance of Fortitude, and steady Composure of Mind, which would have been for ever the Boast of the Stoic Schools, and increased the Reputation of *Seneca* or *Cato*. The Patience of *Boerhaave*, as it was more rational, was more lasting than theirs; it was that *Patientia Christiana*, which *Lipsius*, the great Master of the Stoical Philosophy, begged of God in his last Hours; it was founded on Religion, not Vanity; not on vain Reasonings, but on Confidence in God.

In 1727. he was seized with a violent burning Fever, which continued so long, that he was once more given up by his Friends.

From this time he was frequently afflicted with Returns of his Distemper, which yet did not so far subdue him, as to make him lay aside his Studies, or his Lectures, till in 1726. he found himself so worn out, that it was improper for him to continue any longer the Professorships of Botany and Chymistry, which he therefore resigned April 28. and upon his Resignation spoke a *Sermo Academicus*, or Oration, in which he asserts the Power and Wisdom of the Creator, from the wonderful Fabric of the human Body; and confutes all those idle Reasoners who pretend to explain the Formation of Parts, or the animal Operations, to which he proves that Art can produce nothing equal, nor any thing parallel. One Instance I shall mention, which is produced by him, of the Vanity of any Attempt to rival the Works of God. Nothing is more boasted by the Admirers of Chymistry, than that they can, by artificial Heats and Digestion, imitate the Productions of Nature. *Let all these Heroes of Science meet together, says Boerhaave, let them take Bread and Wine, the Food that forms the Blood of Man, and by Assimilation contribute to the Growth of the Body: Let them try all their Arts, they shall not be able from these Materials to produce a single Drop of Blood.* So much is the most common Act of Nature beyond the utmost Efforts of the most extended Science!

From this time *Boerhaave* lived with less public Employment indeed, but not an idle or an useless Life; for, besides his Hours spent in instructing his Scholars, a great Part of his Time was taken up by Patients, who came, when the Distemper would admit it, from all Parts of Europe to consult him, or

did it by Letters, which, in more urgent Cases, were continually sent to inquire his Opinion, and ask his Advice.

Of his Sagacity, and the wonderful Penetration with which he often discovered and described, as the first Sight of a Patient, such Distempers as betray themselves by no Symptoms to common Eyes, such wonderful Relations have been spread over the World, as, though attested beyond Doubt, can scarcely be credited. I mention none of them, because I have no Opportunity of collecting Testimonies, or distinguishing between those Accounts which are well proved, and those which owe their Rise to Fiction and Credulity.

Yet I cannot but implore, with the greatest Earnestness, such as have been conversant with this great Man, that they will not so far neglect the common Interest of Mankind, as to suffer any of these Circumstances to be lost to Posterity. Men are generally idle, and ready to satisfy themselves, and intimidate the Industry of others, by calling that impossible which is only difficult. The Skill to which *Boerhaave* attained, by a long and unwearied Observation of Nature, ought therefore to be transmitted in all its Particulars to future Ages, that his Successors may be ashamed to fall below him, and that none may hereafter excuse his Ignorance, by pleading the Impossibility of clearer Knowledge.

Yet so far was this great Master from presumptuous Confidence in his Abilities, that in his Examinations of the Sick he was remarkably circumstantial and particular. He well knew, that the Originals of Distempers are often at a Distance from their visible Effects; that to acquiesce in Conjecture, where Certainty may be obtained, is either Vanity or Negligence; and that Life is not to be sacrificed, either to an Affectation of quick Discernment, or of crowded Practice; but may be required, if trifled away, at the Hand of the Physician.

About the Middle of the Year 1737. he felt the first Approaches of that fatal Illness that brought him to the Grave, of which we have inserted an Account written by himself Sept. 8. 1738. to a Friend at London; which deserves not only to be preserved as an historical Relation of the Disease which deprived us of so great a Man, but as a Proof of his Piety and Resignation to the Divine Will.

Ætas, labor, corporisque opima pinguetudo, effecerant, ante annum, ut inertibus refertum, grave, hebes, plenitudine turgens corpus, anhelum ad motus minimas, cum sensu suffocationis, pulsu mirifice anomalo, ineptum evaderet ad ullum motum. Urgebat præcipue subsistens prorsus & intercepta respiratio ad prima somni initia: Unde somnus prorsus prohibebatur, cum formidabili strangulationis molestia. Hinc hydrops pedum, crurum, femorum, scroti, præputii, & abdominis. Quæ tamen omnia sublata. Sed dolor manet in abdomine, cum anxietate summa, anhelitu suffocante, & debilitate incredibili: Somno paucio, eoque vago, per somnia turbatissimo: Animus vero rebus agendis impar. Cum bis luctor fessus, nec emergo: Patienter expectans Dei jussa, quibus resigno data, quæ sola amo, & honoro unice.

In this last Illness, which was to the last Degree lingering, painful, and afflictive, his Constancy and Firmness did not forsake him. He neither intermitted the necessary Cares of Life, nor forgot the proper Preparations for Death. Though Dejection and Lowliness of Spirit was, as he himself tells us, Part of his Distemper; yet even this, in some measure, gave way to that Vigour which the Soul receives from a Consciousness of Innocence.

About three Weeks before his Death he received a Visit at his Country-house from the Rev. Mr. *Schultens*, his intimate Friend, who found him sitting without Door, with his Wife, Sister, and Daughter. After the Compliments of Form, the Ladies withdrew, and left them to private Conversation; when *Boerhaave* took Occasion to tell him what had been, during his Illness, the chief Subject of his Thoughts. He had never doubted that he had lately had a kind of experimental Certainty of the Distinction between corporeal and thinking Substances, which mere Reason and Philosophy cannot afford; and Opportunities of contemplating the wonderful and inexplicable Union of Soul and Body, which nothing but long Sickness can give. This he illustrated by a Description of the Effects which the Infirmities of his Body had upon his Faculties; which yet they did not so oppress or vanquish, but his Soul was always Master of itself, and always resigned to the Pleasure of its Maker.

He related, with great Concern, that once his Patience so far gave way to Extremity of Pain, that, after having lain fifteen Hours in exquisite Tortures, he prayed to God, that he might be set free by Death.

Mr. *Schultens*, by way of Consolation, answered, That he thought such Wishes, when forced by continued and excessive Torments, unavoidable in the present State of human Nature; that the best Men, even *Job* himself, were not able to refrain from such Starts of Impatience. This he did not deny, but said, "He that loves God, ought to think nothing desirable, but what is most pleasing to the supreme Goodness."

Such were his Sentiments, and such his Conduct, in this State of Weakness and Pain: As Death approached nearer, he was so far from Terror or Confusion, that he seemed even less sensible of Pain, and more chearful under his Torments, which continued till the 23d Day of September 1738. on which he died, between Four and Five in the Morning, in the 70th Year of his Age.

Thus died *Boerhaave*, a Man formed by Nature for great Designs, and guided by Religion in the Exertion of his Abilities. He was of a robust and athletic Constitution of Body, so hardened by early Severities, and wholesome Fatigue, that he was insensible of any Sharpness of Air, or Inclemency of Weather. He was tall, and remarkable for extraordinary Strength. There was in his Air and Motion something rough and artless, but so majestic and great at the same time, that no Man ever looked upon him without Veneration, and a kind of tacit Submission to the Superiority of his Genius.

The Vigour and Activity of his Mind sparkled visibly in his Eyes, nor was it observed, that any Change of his Fortune, or Alteration in his Affairs, whether happy or unfortunate, affected his Countenance.

He was always chearful, and desirous of promoting Mirth by a facetious and humorous Conversation; he was never soured by Calumny and Detraction, nor ever thought it necessary to confute them; for *they are Sparks*, said he, *which, if you do not blow them, will go out of themselves*.

Yet he took care never to provoke Enemies by Severity of Censure; for he never dwelt on the Faults or Defects of others, and was so far from inflaming the Envy of his Rivals by dwelling on his own Excellencies, that he rarely mentioned himself, or his Writings.

He was not to be overaw'd or depress'd by the Presence, Frowns, or Insolence of great Men, but persisted on all Occasions in the right; with a Resolution always present, and always calm. He was modest, but not timorous; and firm without Rudeness.

He could, with uncommon Readiness and Certainty, make a Conjecture of Mens Inclinations and Capacity by their Aspect.

His Method of Life was to study in the Morning and Evening, and to allot the Middle of the Day to his public Business. He rose at Four in the Summer, and Five in Winter. His usual Exercise was Riding, till, in his latter Years, his Distempers made it more proper for him to walk; when he was weary, he amused himself with playing on the Violin.

His greatest Pleasure was to retire to his House in the Country, where he had a Garden of eight Acres, stored with all the Herbs and Trees which the Climate would bear: Here he used to enjoy his Hours unmolested, and prosecute his Studies without Interruption.

The Diligence with which he pursued his Studies, is sufficiently evident from his Success. Statesmen and Generals may grow great by unexpected Accidents, and a fortunate Concurrence of Circumstances, neither procured nor foreseen by themselves: But Reputation in the learned World must be the Effect of Industry and Capacity. *Boerhaave* lost none of his Hours, but when he had attained one Science, attempted another: He added Physic to Divinity, Chymistry to the Mathematics, and Botany to Anatomy. He examined Systems by Experiments, and formed Experiments into Systems. He neither neglected the Observations of others, nor blindly submitted to celebrated Names. He neither thought so highly of himself, as to imagine he could receive no Light from Books; nor so meanly, as to believe he could discover nothing but what was to be learned from them. He examined the Observations of other Men, but trusted only to his own.

Nor was he unacquainted with the Art of recommending Truth by Elegance, and embellishing Philosophy with polite Literature; he knew that but a small Part of Mankind will sacrifice their Pleasure to their Improvement; and those Authors who would find many Readers, must endeavour to please while they instruct.

He knew the Importance of his own Writings to Mankind; and lest he might by a Roughness and Barbarity of Style, too frequent among Men of great Learning, disappoint his own Intentions, and make his Labours less useful, he did not neglect the Arts of Eloquence and Poetry. Thus was his Learning at once various and exact, profound and agreeable.

He was not only skilled in the learned Languages, and the Tongues in which the Old Testament was written, but was able to converse in many of the modern Languages, and to read others which he could not speak.

But his Knowledge, however uncommon, holds, in his Character, but the second Place; his Virtue was yet much more uncommon than his Learning. He was an admirable Example of Temperance, Fortitude, Humility, and Devotion. His Piety, and a religious Sense of his Dependence on God, was the Basis of all his Virtues, and the Principle of his whole Conduct. He was too sensible of his Weakness to ascribe any thing to himself, or to conceive that he could subdue Passion, or withstand Temptation, by his own natural Power; he attributed every good

Thought, and every laudable Action, to the Father of Goodness. Being once asked by a Friend, who had often admired his Patience under great Provocations, whether he knew what it was to be angry; and by what means he had so entirely suppressed that impetuous and ungovernable Passion; he answer'd; with the utmost Frankness and Sincerity, That he was naturally quick of Resentment, but that he had, by daily Prayer and Meditation, at length attained to this Mastery over himself.

As soon as he rose in the Morning; it was, throughout his whole Life, his daily Practice to retire for an Hour to private Prayer and Meditation; this, he often told his Friends, gave him Spirit and Vigour in the Business of the Day; and this he therefore commended as the best Rule of Life; for nothing, he knew, could support the Soul in all Distresses but a Confidence in the Supreme Being, nor can a steady and rational Magnanimity flow from any other Source than a Consciousness of the Divine Favour.

He asserted on all Occasions the Divine Authority, and sacred Efficacy, of the Holy Scriptures; and maintained that by them alone was taught the Way of Salvation, and that they only could give Peace of Mind. The Excellency of the Christian Religion was the frequent Subject of his Conversation. A strict Obedience to the Doctrine, and a diligent Imitation of the Example, of our blessed Saviour, he often declared to be the Foundation of true Tranquillity. He recommended to his Friends a careful Observation of the Precept of *Moses* concerning the Love of God and Man. He worshipped God as he is in himself, without attempting to inquire into his Nature. He desired only to think of God, what God has reveal'd of himself. There he stopped, lest by indulging his own Ideas he should form a Deity from his own Imagination, and commit Sin by falling down before him. To the Will of God he paid an absolute Submission, without endeavouring to discover the Reason of his Determinations; and this he accounted the first and most inviolable Duty of a Christian. When he heard of a Criminal condemned to die, he used to think, and often to say, Who can tell whether this Man is not better than I? Or, if I am better, it is not to be ascribed to myself, but to the Goodness of God.

So far was this Man from being made impious by Philosophy; or vain by Knowledge, or by Virtue, that he ascribed all his Abilities to the Bounty, and all his Goodness to the Grace of God. May his Example extend its Influence to his Admirers and Followers! May those who study his Writings, imitate his Life; and those who endeavour after his Knowledge, aspire likewise to his Piety!

He married, September 17. 1710. *Mary Drolenveaux*, the only Daughter of a Burgomaster of *Leyden*, by whom he had *Joanna Maria*, who survives her Father, and three other Children, who died in their Infancy.

The genuine Works of *Boerhaave*, according to his own Catalogue of them, are as follows; and he declares, in 1732. that all others under his Name are spurious, unless some few Prefaces to new Editions of Books.

Oratio de commendando Studio Hippocratico, habita & impressa Lugd. Bat. 1701. apud Abrab. Elsevier.

— *de Usu Ratiocinii Mechanici in Medicina, 1703. apud Joann. Verbeffel.*

— *qua repurgata Medicinæ facili affertur Simplicitas, 1709. apud Joann. Vander Linden.*

— *de comparando Certo in Physicis, 1715. apud Petrum Vander Aa.*

— *de Chymia suos errores expurgante, 1718. apud Petrum Vander Aa.*

— *de Vita & Obitu Clarissimi Bernardi Albini, 1721. apud Petrum Vander Aa.*

— *quam habui, quum, honesta missione impetrata, Botanica & Chymicam professionem publice ponerem, 1729. apud Isaacum Severinum.*

— *de Honore Medici, Servitutis, 1731. apud Isaacum Severinum.*

Institutiones Medicæ in Usus annuæ exercitationis domesticæ, 1708. apud Joannem Vander Linden, P. & F.

Qui dein auctior aliquoties recusus in 8vo.

Aphorismi de cognoscendis & curandis Morbis, in usum doctrinæ domesticæ, 1709. apud Joannem Vander Linden.

Qui dein auctior aliquoties recusus in 8vo.

Index plantarum, quæ in Horto Academico Lugduno-Batavo reperiuntur, 1710. apud Cornelium Boutestsein, in 8vo.

Libellus de Materie Medicæ, & Remediorum Formulæ, 1719. apud Isaacum Severinum, in 8vo.

Qui iterum prodit in 8vo.

Index alter plantarum, quæ in Horto Academico Lugduno-Batavo aluntur, 1720. apud Petrum Vander Aa, in 4to.

Atrocis, nec descripti prius, Morbi Historia, secundum Medicæ Artis leges conscripta, 1724. apud Boutestsein, in 8vo.

Atrocis, rarissimique, Morbi Historia altera, 1728. apud Samuelem Luchtmans & Theodorum Haak, in 8vo.

Tractatus Medicus de Lue Aphrodisiaca, præfixis Aphrodisiaco, 1728. apud Job. Arn. Langerak, & Job. & Herm. Verbeek, in Folio.

Besides these, he communicated to the Royal Society, and to the Royal Academy of Sciences, some Observations upon Quicksilver, which are published in the *Philosophical Transactions*.

Having given this Account of the Life and Writings of *Boerhaave*, it remains, that I take some Notice of his capital Works, which are his Institutes, his Aphorisms, and his Chymistry.

His Institutes were designed as little more than a Syllabus to his Lectures. They are written in a very concise and close Style, but abound in Matter containing all the modern Discoveries in Anatomy, Physiology, and whatever relates to the Laws of the Animal Oeconomy, and the Action of Medicines upon the Body, with considerable Improvements of his own, which are specify'd under their proper Articles. This Treatise is very methodical and distinct; but I apprehend it is utterly unintelligible to any one who is not in some Degree previously acquainted with the Subjects of which he treats.

His Aphorisms are, as he tells us himself, collected from the Greek Medicinal Writers, the *Arabians*, and some few of the Moderns; and his Reasonings are founded on the Structure of the Parts, and the Laws of Mechanics. I must here observe, that *Boerhaave*, to his great Honour, seems to have gone counter to most Writers of Institutes, and Compilers of Systems. For they have generally endeavour'd to lead Nature as it were captive, and make her act conformable to their preconceived Notions, however crude and chimerical; imposing Laws upon the Animal Oeconomy, which have no Reality, and establishing with great Pains and Industry, Sources of Action, which exist no-where but in their own Imaginations. *Boerhaave*, on the contrary, was convinced by daily Experience, and a Fund of good Sense, that the Greek Physicians by diligent Observation had determin'd with great Accuracy, how Nature acts in producing the Symptoms of Distempers, and her Methods of relieving her herself, either with or without the Assistance of Art; and that their Experience had furnish'd them with very successful Methods of Cure. The two Points therefore which he seems to have had perpetually in View were, to establish on Mechanical Principles, as much as was possible, the Doctrine of the Antients with respect to the Diagnostics and Prognostics of Diseases, and shew that they could not be otherwise than they have represented them.

But the second View is of more Importance than the first, it being no less than to demonstrate, that the Methods of Cure, pursued by the ancient Physicians, were generally the best that could possibly have been contriv'd with the Materials they were acquainted with, tho' for Reasons to which they were probably Strangers. This appears to me the distinguishing Character of *Boerhaave*. And by this he has done almost as much Service to Physic, as his Predecessors for some Centuries had done Mischief.

It is greatly to be lamented, that our illustrious Author did not think proper to publish his Lectures on his Institutes and Aphorisms, before his Decease. If he had foreseen the fatal Consequences of such an Omission, I believe his Love to Mankind would have prevailed upon him to have done it, and thereby prevented the Mischief his great Name, and the Reputation of his Lectures, may possibly do in the World. That I may explain my Meaning, I must observe, that it is the Misfortune of the *English* to be very little used to converse in *Latin*, tho' perhaps no People in the World understand it better. Add to this, that as we pronounce *Latin* in a different manner from all other Nations, our Ears are not accusom'd to the foreign Accent. Hence Foreigners with Difficulty understand us, and, on the other hand, it is impossible for us to take their Meaning, especially in long Discourses, with that Degree of Exactness, which Subjects of Importance require; and indeed it is no easy Matter to take the entire Sense of long Discourses, tho' deliver'd in the Languages we are best acquainted with. This is the Reason, that many of his Pupils, who have only attended his Lectures for two or three Years, have frequently mistaken his Meaning, and held their own Errors in an equal Degree of Veneration with the genuine Doctrine of their Professor; and have imprudently neglected to set themselves right, by examining the Sources from whence *Boerhaave* himself drew his Treasures; sometimes perhaps, because they imagined the Authority of their Professor render'd it superfluous; and sometimes, because they were Strangers to the Languages in which the best Medicinal Authors wrote; thus either out of Choice or Necessity taking a more easy, tho' less certain Way to Knowledge, than *Boerhaave* either advised, or thought proper to pursue himself.

That this has been really the Case, the spurious Works, attributed to *Boerhaave* by his Scholars, are glaring Evidences; amongst which, his Method of studying Physic, as I think it is called, deserves some Notice, being a crude and injudicious Performance, and in a great many Instances contradictory to the Sentiments of *Boerhaave*, on the Subjects there treated; and, as I remember, it recommends some Authors who never wrote, or even existed. In the same Rank is the *Praxis*

Medica, printed in five Volumes in *Holland*, tho' the Title tells us at *Padua*. In the Preface we are informed, that many of his Auditors took his Lectures in Writing; that these were carefully compar'd, and hence this Work was compiled. Yet, notwithstanding all this Care, there are not many Pages without some enormous Error, nor even Sentences without false *Latin*; so little did they understand either their Professor, or their Subjects.

With respect to his Chymistry, it may be justly said, that his Theory is more philosophical, exact, and full, and his Processes more methodical and regular, than those of any preceding Author on the Subject. It is remarkable, that in this Work he has made many Chymical Operations subservient to the establishing several important Doctrines of the Antients, and to the Confirmation of their Practice. I shall conclude with remarking, that this Work alone would have been sufficient to raise the Character of any other Man; but is, however, that in which *Boerhaave* shines much less than in his Institutes and Aphorisms, the last of which is, perhaps, more useful than any one Book written upon Physic, and has had the Honour of being translated into *Arabic*, as is said, by the *Musli*, and printed at *Constantinople*.

BOETHEMA, *Βοήθημα*. A Remedy.

BOETHEMATICA SEMEIA *Βοήθηματικὰ σημεῖα*, auxiliary Signs in Diseases, are such as give us Notice of a Cure observable in them, (*ἡ δὲ ἐν ὑπομνηστικῇ τῆς ἐν ἀσθενείᾳ τέρψις* *Deegrasias*) *Gal. Def. Med.*

BOF. Quick-lime. *Rulandus*.

BOICININGA, *Johnston*. *Boicinininga*, G. *Pison*. *Dominica Serpentina*, *Nieremb*. In *Portuguese* and *Spanish*, *Cascavel*, or *Tagendor*; in *French*, *Serpent à Sonnettes*; in *English*, the RATTLE-SNAKE.

A Serpent of *Brasil*, four or five Feet long, of the Thickness of a Man's Arm, and of a reddish Colour, inclining to yellow, with small Eyes, a forked Tail, very long and sharp Teeth, and its Tail towards the Extremity furnished with a parallelogramous Substance, two Fingers Breadth or more in Length, and about half a Finger's Breadth in Wideness, consisting, as it were, of small Links combin'd with one another, dry, smooth, shining, and of an Ash-colour inclining to Red. This Substance increases every Year a Link, and makes a Noise like little Rattles, when the Serpent creeps, so as to be heard at a good Distance. It keeps itself in By-paths, and runs after Passengers with such Swiftnefs, that it seems to fly, and is a very violent and dangerous Creature. They say that Travellers, for their Security against it, carry with them a Piece of *Virginian Root* called *Snakeroot*, fasten'd to the End of a Stick; and that when they perceive by the rattling Noise, that the Serpent approaches, they hold forth to it that Root, the Smell of which either kills it, or disables it from advancing any farther.

Its Flesh has the same Virtues as the Viper's in resisting Poison, purifying the Blood, and exciting Sweat. *Lemery des Drogues*.

This seems to be the Rattle-snake now so well known, and so remarkable for its Poison. With respect to this sort of Viper, I find the following Observations in the *Philosophical Transactions*.

The Fat of the Rattle-snake is said to be used by the Physicians of *Mexico* with good Success in the Sciatica, and all Pains of the Limbs, and for dissolving preternatural Tumors.

A present Antidote for this Poison is said to be the Snake-stone, *Pierre de Cobras de Cabelo*, as it is called by the *Portuguese*, and is famous all over the *Indies*; 'tis describ'd by *Garcias ab Horto*, by *Kircher*, and others, particularly by *Redi*, who renders very much suspected the Relations that are commonly had of its great Force and Virtue: but that it does not always fail, some Accounts I have had of Persons relieved by it here in *England* have convinc'd me. One Instance is remarkable, that was told me by an eminent Physician in *London*, of a Person near the Town that was bit by a Viper: His Hand and Arm soon swelled with great Extremity of Pain; but, upon the Application of this Stone for one Night, both were asswaged, and he thought himself well, and took off the Stone, which still firmly adhered. But, not long after, his former Symptoms violently returning, he had recourse to his Antidote, and then suffered it to continue there till it fell off itself, and so was cured. One Trial I formerly made myself in a Patient troubled with the Gout in her Stomach; having removed it thence, it seized her Toe; but she being impatient of the Pain, that I might seem to do something, and to hinder her using abundance of Medicines, which every body was like to advise her to, and might be apt to strike it to her Stomach again, I thought of this: Holding the Stone therefore in my Hand, and without acquainting her, I put it near the Joint where her Pain was most, and, being very near it, I perceived it move out of my Hand, and readily adhere to the Part. Soon after, she acquainted me, that she very sensibly perceived a great Drawing and Tickling all down her Leg and Thigh, and afterwards owned an Abatement of her Pain. In pestilential

peffilential Swellings very probably it may be of Use. Dr. Edward Tyfon.

The Rattle-snake seems to take its Name from the Rattles in its Tail, in which are sometimes twenty of those loose Rings. The more Northerly they travel, these Snakes are less numerous, as well as less venomous; nor, as it is said, are any seen to the North of Merimack River, which is about forty Miles North of Boston. It is constantly affirmed by the Indians, that these Snakes frequently lie coiled at the Bottom of a great Tree, with their Eyes fixed on some Squirrel above in the Tree, which seeming by his Cries, and Leaping about, to be in a Fright, yet at last runs down the Tree, and into the Jaws of the Devourer. The Winter-abode of these Snakes is in the Clefts of inaccessible Rocks, from whence in the Spring they come forth a sunning themselves, at first very feeble, which is their chief Time of destroying them. At this time the Cystis or Gall-bladder in these Snakes is full of an acrid azure-coloured Juice, which they squeeze out into a Glass, but it is so spirituous, that, if the Glass be not immediately stopp'd, it will soon evaporate: This Liquor therefore they mix with a convenient Quantity of powder'd Chalk, or Indian Meal, and use it as a proper Medicine against the venomous Bite of this Snake. Some have named it *Trochisci Connecticutiani*, from the Connecticut Colony. 'Tis observable, when the Summer Heats come on, the Snakes have no longer this azure Liquor in their Gall-bladders, in which there is only found a black thick Sediment of no known Use, at which time they think the forementioned spirituous Juice is carried to, and lodged in their Gums, and so conveyed or thrown by the Hollow of the Teeth into the Wound when they bite, having received another Digestion, and higher Exaltation, by passing through several Strainers and Glands before it arrives at the Gums.

As an Instance of the Virulence of the Liquor, a Traveller, killing one of these Snakes, suffer'd the enraged dying Viper to bite the End of the Switch, with the Lashes of which he had disabled him; and a Fly by chance disturbing one of his Temples as he rode on afterwards, he rubb'd his Temple with the other End of the Switch, which immediately caused his whole Head to swell to a great Excess, the Poison, as he supposes, penetrating the whole Length of the Switch. Another provoking a Rattle-snake to bite the Edge of a broad Ax he had in his Hand, the Colour of the steel'd Part bitten was immediately changed; and at the first Stroke he made with it, in using his Ax, the discolour'd Part broke out, leaving a Gap in his Ax. But to return to the Troches made of the Gall: It is a cordial Sudorific, and so good an Anodyne, that some take three or four Grains of it to compose them to Rest after Travel. 'Tis good in all Fevers, especially the malignant. It is an infallible Remedy for Obstructions incident to Women upon catching Cold in Child-bed. Being taken in a convenient Quantity, twelve Hours before the Fit, it certainly cures a Quartan Ague. The Dose is fourteen Grains, more or less, according to the Circumstances of the Patient, in any Vehicle. Dr. Mather.

The Inhabitants of America have several Remedies for the Sting of a Rattle-snake: Among others, that which is much made use of is a Root they call Blood-root, I suppose so named from the Colour of the Root, and the Juice, which is red like Blood. It grows in great Abundance in the Woods: They bruise the Root, and bind it above the Place that is bit, to prevent the Poison's going further, at the same time scarifying the Place affected. Some of the Root is also boil'd, and the Person poison'd drinks the Water. Paul Dudley, Esq; Phil. Transf. Abr.

The Senekka Rattle-snake Root, taken internally, is said to be a Cure for the Bite of the Snake whose Name it bears. But it is probable, that the common Salad Oil, that is, Oil of Olives, rubb'd well into the Part by a warm Fire, would cure this Bite, as it does that of a Viper.

BOJOBI, *Pison. Jonst.* A Serpent of Brasil, call'd by the Portuguese *Cobre verde*, about an Ell (French) long, and an Inch thick, and of a shining Leek-green Colour; has a wide Mouth, and a black Tongue. It keeps itself among the Stones in Buildings, and does no Harm, unless provoked; but then raises itself on its Tail, and throws itself on the Hand that is next to it. Its Poison is so venomous, that it will hardly yield to the most powerful Remedies. The Medicine chiefly used by the Indian Physicians is the Root of an Herb call'd *Coa-apia*, which is full of Joints, which they bruise well, and cause the Patient to swallow in Water.

The Flesh of this Serpent has much the same Virtues with that of the Viper; and the volatile Salt extracted from it would be more effectual against its Bite, than the *Coa-apia*. Lemery des-Drogués.

BOITIAPO, *Marcg. Jonst.* is a Serpent of Brasil, called by the Portuguese *Cobus de Cipo*. It is seven or eight Feet long, as thick as a Man's Arm, round, and pointed towards the Tail, like a Shoemaker's Awl: It is cover'd with fine, and, as it were, triangular Scales; and is of an olive Colour and yellowish. It lives upon Frogs, and its Bite is dangerous, like that of many other Serpents.

Its Flesh might be used as effectually as that of the Viper for purifying the Blood, and as an Alexipharmac. Lemery des-Drogués.

BOLBIDION, *βολβιδιον*. A small Polypus, a sort of Fish. Hippocrates, *περὶ γυναικ.* Lib. 2. *ἢ δ' ἄρ' ἔστιν βολβιδιον, καὶ βολβιδιον, καὶ σπιδία καὶ σμικρὸν* "If she has a mind to Bread, and Bulbuli, and small Polypuses." Again, in the same Book, for an Inflammation of the Uterus, he advises, in Food, *βολβιδιον καὶ πολυπόδιστον ἐν οἶνῳ καὶ ἐλαίῳ* "Bulbuli and small Polypuses in Wine and Oil." *Poësius*.

BOLBION, *βολβιον*. This, as well as the preceding, is a Diminutive of *βολβος*, and is render'd also *Bulbulus*, a small Bulb. Hippocrates, *Lib. 2. περὶ γυναικ.* advises Bulbuli, with Garlick and Nitre, to be used as a Pessary for a Weakness of the Uterus, not retaining the Semen. He often uses the Bulbulus, or *Bolbion*, in a Pessary for Disorders of that Part, as, in *Lib. 2. περὶ ἐκκυσσεως*, to cleanse the Uterus; and, *Lib. 2. περὶ γυναικ.* the same bruised, with Myrrh and Honey, as an excellent Pessary for the *Flux Uterinus*. Again, *Lib. 2. περὶ γυναικ.* *φύσ.* he advises the Bolbion, bruised in White-wine, and wrapp'd in Wool, to cleanse the Uterus; in order for Conception; and in the same Book, he orders *βόλβιον ἐν ἡσπ. πυρῶν*, "the Bolbion which grows amongst Wheat," to be bruised and macerated in Wine, and, being wrapp'd in Wool, to be applied to a Woman newly brought to Bed. See BULBUS.

BOLBITION, *βολβιτιον*. Galen, in his *Exegesis*, says *Bolbition* is call'd by some *Bombylion*, and is a small Polypus, a sort of Fish. *Poësius*.

BOLBITON, *βολβιτιον*. Cow-dung. It is also call'd *Bolition*, *βόλιον*, as Galen says in his *Exegesis*. Hippocrates, *Lib. 2. περὶ γυναικ.* *φύσ.* for a Dropsy of the Uterus, advises *πυρεῖν ἐν τῷ βολβιτιῳ*, "to foment it with Cow-dung;" and in all his Treatises concerning Women, he frequently prescribes Suffumigations of Cow-dung for Disorders of the Uterus. And Dioscorides, *Lib. 2. Cap. 98.* writes, that the Dung of a Male Bullock represses the Falling-down of the Uterus. It is also called *Bolbitos*, and *Bolitos*, in the Attic Dialect, and by *Hesychius Bolynthon*. *Poësius*.

BOLBONAC. See BULBONAC.

BOLBOS, *βολβος*. Erotian, in Hippocrates, says, *βολβος βόλβανος ὄνομα*, "Bolbos is the Name of an Herb;" but, for *βολβος*, perhaps we should read *βόλβιον*; tho' in *Lib. 7. Epid.* we meet with *βολβὸν χυλὸς*, "the Juice of the Bulbus." See BULBUS.

BOLCHON, *βολχόν*. A Name for Bdellium.

BOLESIS. A Name for Coral. *Rulandus*.

BOLESON. A Balsam. *Johnson*.

BOLETO, Frit. See FRITTA.

BOLETUS. A Mushroom. See AMANITA.

In Dr. Martyn's *Tournefort* I find the following Catalogue of *Boleti*.

Boletus major, pileo fusco, poris albidis. Fungus porofus magnus crassus, ex fusco albicans; J. B. 3. 817. Lib. 40. C. 29.

The Head of this is sometimes ten or eleven Inches in Diameter, *Vaill.*

Boletus major, pileo purpurascens. Fungus porofus magnus crassus purpurascens.

This differs from the former only in Colour.

Boletus major, pileo tuberculis aspero, coloris aurantii, poris albidis. Fungus porofus magnus crassus, tuberculis minimis exasperatus, colore pomi aurantii exiccatis, Vaill. 59.

The Diameter of the Head is from four to six Inches. The Stalk is four or five Inches high, above an Inch thick at the Base, and tapers towards the Top. It is white, and in a manner hairy: This Hair or Down afterwards grows black, and variegates the Stalk.

Boletus major, pileo castanei coloris, poris ex luteo virentibus. Fungus porofus magnus crassus, coloris castanei nunc liquidioris, nunc magis sordidi, Vaill. 59.

The Head is from four to nine Inches in Diameter: Its Substance is white, but it grows red soon after it is cut. It is an Inch thick in its thickest Part. The Top of the Head is a bright chestnut Colour, sometimes of a dirty-white, and sometimes of an amber Colour. The Stalk is white, and sometimes tinged with Yellow. It is five Inches high, and two or three in Diameter towards the Base, especially when the Plant is growing, and tapers towards the Top. It is found about the latter End of August, and Beginning of September. The *Fungus porofus maximus crassus luteus lacer, pediculo longissimo virente*, *Cimel. Reg.* and the *Fungus porofus nostras brachiatus maximus*, *ibid.* are Varieties of this Species, *Vaill.*

I take this to be the same with the *Fungus porofus magnus*, *Raii Hist. 100.* which we often meet with about the latter End of Summer.

Boletus pileo purpurascens, poris flavis. Fungus porofus medius, sordide purpurascens, Vaill. 59.

The Head is about two Inches in Diameter, a little convex. The Stalk is about one Inch and a half high, five Lines thick, and of the same Colour with the Head. Perhaps it is the *Fun-*
gus

gus Italicus, pediculo tumente, pileolo supina parte coloris vini faccum, prona vero luteo, Cimel. Reg. Vaill.

Boletus pileo sordide albo, tuberculis castaneis variegato, poris flavis. Fungus porosus medius, superficie sordide alba, tuberculis castaneis variegata, Vaill. 59.

The Head is hemispherical at first; afterwards it grows flatter. It is two or three Inches high, of a dirty White, near an Inch thick at the Base, and about six Lines at the Top. I take it to be the *Fungus brizzatus madidus*, Raii Supp. 25. Vaill.

Boletus lævis & viscidus, superne coloris fuscis castanei, inferne lutei, Dillen. Cat. Giss. 188. Fungi lutei perniciosi sub pina habitantes, J. B. 3. 816. Lib. 40. C. 24.

The Head of this is from one to three Inches in Diameter: It is a little convex, of the Colour of Ginger-bread, or a reddish Yellow, smooth, and a little shining. This Shining proceeds from a Slime, with which it is usually cover'd, especially whilst it is young. Its Flesh is white. The Pores are of a Lemon or Brimstone-colour; there is a whitish Liquor distils from them, which gathers in Drops. The Stalk is white, an Inch or two long, and a little swell'd something above the Base.

Boletus pileo sordide albo, caule ovali. Fungus porosus, pediculo ovali, pileoli superficie sordidissime alba, Vaill. 60.

The Stalk, Pores, and Head, are all the same Colour; the Flesh of the Head, when broken or cut, is bluish, and stains the Paper of the same Colour. Vaill.

Boletus pileo croceo, caule ovali. Fungus porosus, pediculo ovali, pileoli superficie splendide crocea, Vaill. 60.

The Head is of a dark Saffron-colour, and the Pores of a light one; as is also the upper Part of the Stalk, tho' the lower Part of it is of the same Colour with the Head. The Flesh is of a greenish Yellow, when first cut; but soon changes to a dirty Green. It is the *Fungus Italicus fuscus, pileolo patulo, pediculo tumesciente, & in apice rubro, Cimel. Reg. Vaill.*

Boletus pileo castanei coloris, poris albidis, pediculo ovali. Fungus porosus, pediculo ovali, pileoli superficie castanea. Vaill. 60.

The Stalk is of the same Colour with the Head: The Flesh is white, and does not change Colour when it is cut. Vaill.

Boletus fuscus, pediculo tumesciente. Fungus porosus fuscus, pediculo tumesciente, Vaill. 60.

What is usually understood by the *Boletus*, is the *BOLETUS*, Offic. *Tubera Cervina*, C. B. 376. Park. 1320. Hist. Oxon. 3. 638. *Tubera perniciofa terrestria five cervina*, Sterb. 315. Tab. 32. B. *Tuberum genus quibusdam Cervi Boletus*, J. B. 3. 851. Raii Hist. 1. 111. *Cervi Boletus*, Chab. 591. DEERS-BALLS.

These are digg'd out of the Earth; and the Whole of them are used, which is as large as a Walnut, of an unequal Surface, externally of a cineritious, but internally of a whitish-purple Colour, and of a grateful Taste.

It is rarely used, tho' some recommend it as a powerful *Stimulus* to Veneri, and a Medicine very proper for increasing Milk. Its external Use is recommended in hysteric Disorders, and hard Labours. Dale from Schröder.

BOLISMUS. This Word occurs in *Avicenna*, where it is written, by Mistake, for *BULIMUS*. *Castellus*.

BOLUS. A Bole, or Bolus. The Form of a Medicine.

A *Bolus* is an internal Medicine, soft, coherent, a little thicker than Honey, and whose Quantity is a little Morfel or Mouthful; for which Reason it is by some call'd *Buccella*.

Whatever is fit for internal Use, either by itself, or when mix'd with other Substances, provided it is capable of the above-mention'd Consistence, is a proper Material for the Composition of a *Bolus*, and may be applied to that Purpose: Such are all dry Substances, which operate when exhibited in small Doses, and such as are proper only for forming Powders: These are call'd *Excipienta*, and are not capable alone of forming a *Bolus*.

Soft Substances, more or less thick, Conserves, Electuaries, soft Extracts, Robs, Pulps, soft Confections, thick, native, and factitious Balsams, potable Ointments, and Syrups, are call'd the *Excipientia*; because, when mix'd with the above-named Substances, they constitute the Form of a *Bolus*, which some of the *Excipientia* naturally have of themselves.

Liquid Substances, which are given in smaller Doses, such as liquid Balsams, whether native or factitious, Oils, Spirits, Tinctures, Essences, and Elixirs, being of themselves unfit for the Form of a *Bolus*, are either received into other Ingredients, or receive others into them, before they can become proper for this Purpose.

The Choice of proper Materials for a *Bolus* is regulated by the following Considerations.

A due Cohesion, Softness, and an equable Mixture, are highly commendable, and essential at least to the due Consistence of a *Bolus*.

For this Reason dry Substances, or such as are liquid, are not by themselves proper for this Purpose; but some Ingredients of a soft and glutinous Quality must be interposed, before the due Consistence of a *Bolus* can be produced.

Most soft Substances must also be inspissated by the Addition

of some dry Ingredients, for the Formation of a *Bolus*; yet some of them are of themselves sufficient for this Purpose, such as the thicker Conserves, Electuaries, and Robs. These may therefore be used by way of a simple *Bolus*.

All the Ingredients of a *Bolus* ought to be of such a Nature, as to be capable of being mix'd up, and form'd into an equable Composition.

Acrid Substances, such as are offensive either by their Smell or Taste, and such as are viscid, are more properly exhibited in the Form of a *Bolus*, than in that of Powders; since, in the former Shape, their disagreeable Qualities are much better conceal'd than in the latter; for which Reason the Form of a *Bolus* is the most proper Vehicle for the more strong and drastic Preparations of Mercury.

It is proper to divide pinguious Substances, Balsams, and potable Ointments, by mixing them with Sugar, or some other dry Ingredients, that they may be the more easily swallow'd down, and dissolved in the Stomach.

Alcaline, fix'd, and volatile Salts, and all other Substances which soon become liquid, are very improperly made Ingredients in a *Bolus*, which is intended to be kept for any considerable Time; since, by their Colliquation, the due Consistence of the *Bolus* is lost, and its Virtues destroy'd by their Exhalation.

For this Reason Substances which produce an Effervescence, or easily ferment when mix'd together, are highly improper for the Formation of a *Bolus*, unless the Patient is to use it immediately after it is prepar'd.

The Number of Ingredients in a *Bolus* ought scarce ever to exceed three or four.

The most usual Order observed in prescribing the Ingredients of a *Bolus*, is, first, to specify the Quantity of the *Excipient*; then the Quantity of the *Excipienta*, or dry Ingredients, is to be determin'd; then that of the Liquids; and lastly, if there is any more of the *Excipient* to be added, at the Apothecary's Discretion, that Circumstance is to be mention'd.

The Dose of a *Bolus* may be extended from one Dram to one Dram and an half, or two Drams; but is not rashly to be augmented beyond the last-mention'd Quantity, unless when the Materials of the *Bolus* are of a considerable specific Gravity, or when the Patient can take them without Reluctance or Uneasiness; but the Dose ought scarcely to exceed a Dram, if the Ingredients are light. For this Reason, when the Quantity of the Ingredients must exceed these Bounds, before it prove an effectual Dose, it is better to divide the Mass into several *Boluses*, than to choak and disgust the Patient by one that is unconscionably and extravagantly large; for as Smallness of Bulk is a great Recommendation to a Powder, it is much more so to a *Bolus*; so that, in this respect, we can scarce err, tho' the Quantity of the *Bolus* should scarce exceed a Scruple.

The Number of *Boluses* made at a time, is, for the most part, only one or two, and rarely three or four Doses, unless when they are to be taken at very short Intervals; for, when they are divided by the Apothecary, they readily become too dry, or are melted down, when kept for any considerable time.

The mutual Proportion of the Ingredients is to be determin'd by their Consistence, and their Efficacy; so that the same Proportion is not to be observed promiscuously in the Composition of all *Boluses*.

When soft Substances, each of which is of itself fit to form a *Bolus*, are compounded, the Proportion in which they are to be mix'd must be determin'd by the Quantity of each, which proves an effectual Dose when exhibited by itself, and by the Quantity of the compound *Bolus* which must be a Dose; for, in this Case, the Consistence is not to be consider'd.

When dry Substances are to be incorporated with any *Excipient*, the Dose of them may be half a Dram two Scruples, or at most one Dram; but the Proportion of Excipients must be varied, according as they are of a thicker or thinner Consistence.

The Substances most commonly us'd for *Excipients* are Conserves, Electuaries, Honey, thick Balsams, and potable Ointments; and the Quantity of these to be us'd is from two Scruples to one Dram, or one Dram and an half. When Robs, Pulps, and soft Confections, are us'd as *Excipients*, their Quantity may be from half a Dram to one Dram, or four Scruples.

When Syrups are us'd for this Purpose, as they are more liquid than the above-mention'd *Excipients*, their Quantity may be from one Scruple to half a Dram, or one Dram.

For, when the Quantities of dry Ingredients are the same, the more liquid the *Excipient* is, the less of it is requisite in order to subdue them, or reduce them to the Consistence of a *Bolus*.

Hence 'tis obvious, that, when the Quantity of dry Ingredients is small, 'tis proper to use thick *Excipients*; whereas, when 'tis large, thin *Excipients* must be us'd, lest the Dose of the *Bolus* should be enlarg'd to an unreasonable or improper Bulk.

If to the above-mention'd Ingredients Liquids are to be added, we must not exceed the Quantity of one, two, three, or, at most,

most, four Drops; and, even in this Case, the Quantity of the soft *Excipients* is to be lessen'd in a due Proportion.

On some Occasions, the precise Quantities both of the dry and liquid Ingredients being determin'd and fix'd, the Proportion of the soft *Excipients* is left to the Discretion of the Apothecary, to whom the Physician's Meaning is convey'd by the two significant Letters Q. S. which import a sufficient Quantity. But this Method cannot be us'd, if a small Dose of these Ingredients is capable of considerable Effects: But when the Quantity of dry Ingredients is pretty large, or when the primary *Excipient* is desir'd thick, and in so small a Quantity, that 'tis dubious whether the soft and delicate Consistence of a Bolus can be produc'd by it, there is often a secondary and more liquid *Excipient* added; a sufficient Quantity, for Instance, of some Syrup.

On the contrary, when the too great Softness of the Bolus is dreaded, 'tis customary to add a sufficient Quantity of Sugar, Powder of Liquorice, or some other proper Substance; which Practice is principally us'd in making up pure terebinthinous Ingredients.

The *Subscription* runs thus: *M. F. Bolus*; or *Boli*; No. ij. iij. that is, mix up into a Bolus, or into two or three Boluses. As to the Division of the Doses, when the Ingredients are of a strong and drastic Quality, the Division must be made with the utmost Accuracy and Exactness. Sometimes, for the sake of Ornament, or that the Patient may swallow the Medicine with the less Reluctance, it is added, *Auri Folis aut Nebula obvolvatur*, or *exhibeatur cum Nebula*; that is, Let it be wrapp'd up in Leaf-gold, or a Wafer, or let it be exhibited in a Wafer. The Bolus is generally put into a small Gally-pot, or a Paper; but these are Circumstances too trivial to be mention'd.

The *Signature* must specify the Design of the Bolus, the Dose, the Vehicle, the Time of taking it, and the Regimen to be us'd. Some love a Wafer for a Vehicle, and others choose to have the Bolus previously dissolv'd in some Liquor. It is proper to give some convenient Liquor to be drank after taking the Bolus, if we suspect, that it will be dissolv'd slowly, and with Difficulty, in the Stomach; and this Caution is principally to be observ'd with regard to terebinthinous Substances; and others of a like Nature.

The Use of Boluses is almost universal, either as Evacuants or Alteratives; only we ought carefully to consider, whether the Nature of the Disease, its Seat, its Symptoms, the Constitution of the Patient, Custom, and the Nature of the indicated Relief, do not render such a Formula improper. The Difficulty, or absolute Incapacity, of Deglutition in Quinsies, Ulcers of the Fauces, Apoplexies, Epilepsies, and Syncope, seem to forbid, or, at least, render *Boluses* highly improper. Tho' *Boluses* are design'd for the same Intentions with Powders, yet they are less frequently us'd, because they do not always produce their Effects so soon as could be wish'd. Those who are delighted with Variety, or choose a Bolus rather than Powders, are to be gratify'd with this Form.

For Specimens of *Boluses*, take the following.

An Emetic Bolus, for a full-grown Person.

Take of white Vitriol, twenty-five Grains; Rob of Juniper, a sufficient Quantity: Mix up into a Bolus to be exhibited in a Wafer.

Signature: An Emetic Bolus to be taken in a little Ale, or an Infusion of Green-tea. Let some Draughts of the same Infusion be drank tepid, after every Time of vomiting.

A PURGATIVE BOLUS, to be exhibited in a feverish Restlessness.

Take of the Electuarius Diaprunum of Sybivius, one Dram and an half; and of the Powder of Sena-leaves, one Scruple: Mix up into a Bolus.

An ANTIHYSTERIC BOLUS.

Take of Mithridate, one Dram; of the Troches of Myrrh, half a Scruple; of the distil'd Oil of Amber, two Drops: Mix up into a Bolus, to be wrapt up in Gold-leaf.

Signature: A Sedative Bolus, to be taken in a Glass of Peny-royal Water.

A BALSAMIC BOLUS. See Harris de Morb. Infant. Lib. 2. Observat. 2.

Take of the Turpentine of Chios, two Drams; of Liquorice-powder, a sufficient Quantity: Mix and make two Boluses.

Signature: The Nervous Boluses, one of which is to be taken in the Morning, and the other in the Evening, in the Yolk of a new-laid Egg, drinking after each two Ounces of alexiterial Milk-water.

SALIVATING BOLUSES: See Boerhaave's Mat.

Take of the Conserve of red Roses, half a Dram; of Mercurius Dulcis triturated, nine Grains: Mix up into a Bolus. And two others, exactly the same, but made up separately, are to be deliver'd, put up in different Wafers.

Signature: Aperient Boluses, one of which the Patient is to take every four Hours, having first drank a large Quantity of some proper Pifan.

ASTRINGENT BOLUSES.

Take Rob of the Cornelian-cherry, three Drams; Extract of Tormentil, one Dram; Armenian Bole levigated, two Scruples; Prepar'd Blood-stone, half a Dram; Syrup of Myrtles, a sufficient Quantity: Mix, and make four Boluses.

Signature: The astringent Boluses, one of which is to be taken every three Hours, in a little austere red Wine.

There are many fat Earths us'd in Medicine, which go by the Name of *BOLI*, *Boles*; as the

BOLUS ARMENA, Offic. *Bolus Armena Orientalis*, Mont. Exot. 13. *Bolus Orientalis*, Charlt. Foss. 5. Calc. Mus. 111. *Bolus Armena*, frue *Armeniaca*, Dugd. Ind. 118. *Bolus Orientalis*, quibusdam *Armenia*, Worm: Mus. 11. *Bolus seu Terra Armenia*, Aldrov. Mus. Metall. 269. *Bolus Armenius verus*, Kentm. 7. *Bolus vera quibusdam*. *BOLE-ARMONIA*C.

Dale. It is an earthy Substance, of a pale-yellowish Colour, inclining somewhat to Red. It is ponderous, pinguious, easily friable, and of a styptic Taste. It is digg'd out of the Mines in Turkey, and thence brought to us. It is, at present, very rare with us; for what is found in the Shops, approaching to the Colour of red Okre, is imported from Spain and Normandy, and is thought to be little different from the *Rubrica synopica*.

It is an Alexipharmic, and corrects those Acidities in the Blood which are prejudicial to Health. It is astringent in some Degree, and, for that Reason, us'd in Fluxions of Humours. When apply'd externally, it is of a drying Quality, and induces Cicatrixes on Wounds. *Dale*.

Fracastorius says, that Bole Armoniac given to a Person almost in the Agonies of Death, from the Bite of a Spider, instantly cur'd him.

BOLUS ARMENA ALBA, Mont. Exot. 13. *WHITE ARMENIAN BOLE*. *Dale*.

This Bole is brought from Armenia. Its Virtues are the same with those of the *Bole Armoniac*, but it is not to be met with in our Shops. *Dale*.

BOLUS ARMENA LUTEA, Mont. Exot. 13. *Bolus luteus Theophrasti*, Kentm. 7. *Bolus Armenus naturalis flavus*, Aldrov. Mus. Metall. 270. *An Terra Arabica sigillata sublutea*, Charlt. Foss. 6. *YELLOW ARMENIAN BOLE*.

This Bole adheres to the Tongue, is a strong Astringent, and said to be a powerful Resister of Malignity. *Dale*.

BOLUS BLESENSIS, Ind. Med. 21. *EARTH OF BLOIS*.

This is an Earth of a pale-reddish Colour; but I have never met with any Accounts of its Virtues, or its Use in Medicine. *Dale*.

BOLUS BOHEMICA, Offic. Aldrov. Mus. Metall. 271. *Bolus Bohemicus rubens*, Kentm. 7. *GERMAN BOLE*.

It is an earthy Substance, of the same Colour with the Oriental Bole Armoniac, but somewhat fainter. It has some Veins of a yellowish Colour running thro' it, and is heavy, easily friable, and of an astringent Taste. It is digg'd from the Mines of Bohemia, and thence imported to us.

Its Virtues are the same with those of the Bole Armoniac, and it is much kept in our Shops. *Aldrovandus* informs us, that it is a very efficacious Medicine in all exanthematic Fevers. *Dale*.

BOLUS CANDIDUS, Offic. *Bolus candidus Lignicensis*, seu *Terra sigillata Goltbergensis*, Charlt. Foss. 5. Worm. Mus. 10. *Bolus candidus Lignicensis*, Schw. Foss. 397. *Terra sigillata Lignicensis*, Schrod. 318. Aldrov. Mus. Metall. 265. *Unicornu Minerale*, Schrod. 111. 318. *Axungia Lunæ Chymicis*. *WHITE BOLE*.

This Bole is digg'd from the Earth at Gran in Hungary, and at Goltberg in Liege.

It relieves and mitigates Pains of the Head, strengthens the Brain, and is singularly efficacious in curing Dysenteries, and the Fluor Albus. *Dale*.

BOLUS RUBRA NOSTRAS, Ind. Med. 21. *FRENCH BOLE*.

Dale confesses he knows nothing of this Bole. I take it to be the red French Bole, which is got in many Parts of France. *Pomet* gives the ensuing Account of the French Boles.

"The Bole which we sell is found in several Parts of France, about Blois and Saumur, or Bourgogne, and which is of various Colours, as grey, red, and yellow. The Yellow is the most valuable, because it passes the readiest for Bole of the Levant, and because it fits the Gilders best.

"As these Boles are the dearest, because of the Charge of transporting them to Paris from Blois and Saumur, we prefer that of Baville and other Places about Paris, because the Peasants bring it us at a cheaper Rate than we can buy the other. The best is the cleanest, smoothest, and well-colour'd, of a light-yellowish Red, which, being tasted, seems to melt, like Butter, in the Mouth. Its Thickness is known by sticking to the Tongue. The counterfeit or adulterate Bole is of a sad-deep Red, sandy, and gritty, being, indeed, not of a third Part of the Price. It is very drying " and

"and astringent, good against Fluxes and Gleet. It thickens thin Humours, resists Putrefaction, and expels poisonous Bodies. It is likewise us'd in spitting of Blood, bleeding Wounds, and also to consolidate broken Bones, and strengthen weak Limbs."

BOLUS TOCCAVIENSIS, Offic. Charlt. Foss. 5. Worm. Mus. 2. *Bolus Hungaricus*, Crato. *Bolus Tokaicus*, Schw. 370. *Bolus Pannonicus verus*, Kentm. 7. **TRANSYLVANIAN BOLE**.

This *Bole* has all the Characteristics of the true *Armenian Bole*, and melts in the Mouth like Butter. It is digg'd from the Earth in *Transylvania* near *Tokai*.

It is highly celebrated as an efficacious Medicine in Catarrhs and the Plague. It was first apply'd to medicinal Purposes by *Crato*, who prefers it to the *Armenian Bole* brought from *Turky*. I cannot determine whether it is really different from all the former or not. *Dale*.

BOLUS FABRILIS. The same as *Rubrica Fabrilis*, which see.

BOLUS JUDÆICUS: A Name for the *Althæa*, Marsh-mallows. *Johnson*.

BOMBAX, Offic. *Gossypium sive Xylon*, Ger. 753. Emac. 901. *Gossypium frutescens annuum*, Park. Theat. 1553. *Gossypium frutescens, semine nigro*, C. B. Pin. 430. *Xylon sive Gossypium herbaceum*, J. B. 1. 343. Raii Hist. 2. 1064. Tourn. Inst. 101. Elem. Bot. 84. Boerh. Ind. A. 273. *Gossypium herbaceum, semine albo*, Hist. Oxon. 3. 517. **COTTON-BUSH**. *Dale*.

The Cotton-bush, or Shrub, grows to be a Yard high, or more, spread out into many Branches, with many brittle woody Stalks, on which grow Leaves, divided into five Segments, not much unlike the Leaves of Maple, standing on pretty long Foot-stalks; among these, on the Upper-part of the Branches, grow the Flowers, of a pale-yellow Colour, with a purple Bottom, in Shape like those of Mallows, or the Small Holy-oak, and are succeeded by roundish or oval Capsulæ or Seed-vessels, which, when ripe, open into three usually, and sometimes four Partitions, discovering the white soft Cotton, among which lies dark-brown, longish, round Seed.

Cotton is cultivated in *Greece*, *Turky*, *Sicily*, and *Malta*. It flowers in *June*.

The Seed, which is the only Part us'd, is of a balsamic Nature, us'd in Coughs, Shortness of Breath, and Soreness of the Lungs, causing Expectoration, and freeing them from tough Phlegm. It is also restraining, and good to stop Fluxes of all Sorts. *Miller's Bot. Off.*

In the Shops the Seeds and Wool of this Shrub are us'd. The Wool burn'd, and reduc'd to Powder, stops the Effusion of Blood from Wounds, if put into them. The Seeds are good for Disorders of the Kidneys and Liver, but prejudicial to the Head and Stomach. They are also esteemed excellent for those who are afflicted with a Cough, or Difficulty of breathing. They are good for the Stone, yield a wholesome Nourishment, strengthen the Constitution, and cure the Dysentery; for, by their lenitive Quality, they obtund the acrid and exulcerating Humours. *Casp. Hoffmann. de Medic. offic. L. 2. C. 105*. The Oil expressed from the Seeds removes Spots of the Skin, and cures running Sores of the Head. *Zacut. Lusitan. Prax. Hist. L. 1. C. 2. in Obs.* In *Egypt*, according to *Prosper Alpinus*, they extract a Mucilage from the Seeds, just as they do from those of the Fleabane and Quinces, which is of Use in burning Fevers, and corrosive Coughs. They also restrain all immoderate Fluxes of the Menfes. *Rein. Solenand. Consil. Medic. 8. Sect. 4*. The Inhabitants of *Malta* fatten their Cattle with the Seeds of this Herb, which have a Taste resembling that of an Acorn. See *Henr. Bunting. Itinerar. 8. 8. p. 2. fol. 95*. See also *Pliny, L. 12. C. 10 & 11. Theophrast. de Plantis, L. 9. C. 4. Claud. Salmas. ad Solin. p. 2. 296. and 998. and Erasmi. Francisc. Part. 1. p. 552. Barthol. Zorn. Botanolog.*

BOMBUS. Βόμβος. A Word made to imitate a Sound, by a Figure the Rhetoricians call *Onomatopœia*; a resounding, ringing Noise, proceeding from Blasts which break out of a narrow Passage, and diffuse themselves abroad; but if those Blasts fall into a narrow Passage, and vent themselves, as it were, thro' Chinks, there is heard a Stridor, a grating Noise, or an Hissing. In *Coac. Βόμβος ἐν ὤξει, καὶ ἥχος ἐν ὥσει, θανάσιμος*, "a resounding Noise, and Ringing in the Ears, in acute Difficulties, is mortal."

BOMBYLIUM. Βομβύλιον is expounded in *Galen's* Exegesis by a narrow-mouth'd Cup, or a Cover, so call'd from its ringing Sound. The Word occurs, *Lib. 3. de Morb. καὶ διὰ τὸν γλυκύον καὶ ὕδαρτα προτινεν, μὴ ψυχρὸν, ὁλίγον ἐκ βομβυλίου εὐερόμεν*. "Let the Patient drink a little sweet diluted Wine, not cold, out of a wide-mouth'd Bombylium."

BOMBYX, Offic. *Schrod. 5. 339. Goedart. 1. 112. T. 42. List. Ed. Angl. 41. N. 32. Mar. Eruc. Ort. 1. p. 1. Aldrov. de Insect. 278. Jonf. de Insect. 114. The SILK-WORM*.

This Insect undergoes a strange and surprising Metamorphosis in the several Periods of its Existence. This Animal, or Worm, is call'd *Bombyx* in the Shops, and is produced from

small Eggs, hatched by the genial Heat of the Sun, in the Spring of the Year. It feeds upon Mulberry-leaves till it has arriv'd at a State of Maturity. After this they are usually put into a small Paper-bag, where they wrap themselves up in a silken Case, which, coming from their Mouths, is, without Interruption, carry'd very often round them. This Case is sometimes of a palish, and sometimes of a yellowish Colour. In this Case, or Coat, it remains wrapt up, till it is transform'd into its *Cbrysalis* or *Aurelia*, and appears dead; but, at last, it falls forth from its Coat in the Form of a Butterfly, with four Wings; and after a Copulation, which lasts for three Days, and proves immediately mortal to the Male, the Female lays a considerable Number of Eggs, and dies likewise. The whole Worm, the Silk, and the silken Coat or Covering, are us'd in Medicine.

Silk-worms dry'd, and reduc'd to a Powder, are, by some, apply'd to the Crown of the Head for removing Vertigos and Convulsions. The Silk, and Case or Coat, are of a due Temperament between Heat and Cold, and corroborate and recruit the vital, natural, and animal Spirits. *Dale from Schroder*.

N. B. We must take care not to use the Coat or Case, if it is either stain'd with their Excrements, or if the *Aurelia* or Worm remains dead in it. *Dale*.

Silk yields by Distillation, a very good volatile Spirit and Salt; which Spirit is said to be the *Gutta Goddardiana*, *Goddard's Drops*, formerly so famous.

BOMPOURNICKEL. A Sort of very coarse black Bread, much us'd in *Westphalia*, on which *Hoffman* gives the following Dissertation.

'Tis a Truth not to be call'd in question, that the Bodies of Animals, being incessantly and variously agitated by the Heat and perpetual Motion of their Fluids, do, by that very means, continually lose some of their Parts, and, consequently, stand in need of a seasonable Supply and Reparation of them.

This Supply or Reparation is advantageously made by Aliments, which nourish and support our Bodies, and supply the Place of the wasted eliminated Humours, assuming their Natures, and transforming themselves into Blood and Juices. But, of the several kinds of Aliment, Bread is the principal and most considerable; for, according to *Isidorus*, the Latin Word *Panis*, which signifies Bread, is derived from the Greek Word Πᾶν, which imports as much as the English Expression, *All in all*. 'Tis certain that Bread is, as it were, the Basis of Food, and an universal Aliment, which is highly agreeable to the Constitution, and grateful to the Stomach; and which has not only been daily us'd, but highly approv'd by most Nations of the World, from the very Infancy of Mankind to this present Time; so that it is with good Reason call'd the chief or principal of Aliments: And, indeed, all the farinaceous Grains, and the Bread prepar'd of them, contain Principles more similar to our vital Juices, than any other Substances us'd in Food.

For 'tis certain, that the Fluids of our Bodies are composed of Corpuscles of widely different Figures and Bulks; and that they contain, as we find from Chymical Processes, a Variety of Principles or Elements; Sulphur, for Instance, Oil, volatile Salt, Mucilage, Earth, Water, and other Principles of a like Nature. The like Elements are contain'd in Bread; for, upon Distillation, it yields an oleous, and somewhat acid, Spirit, which, besides other Substances, speedily dissolves Coral, and, by a previous Digestion, produces a reddish Tincture, which is a Medicine of considerable Efficacy. Bread also yields a large Quantity of an inflammable Oil, and a great deal of a black fix'd Earth is found at the Bottom of the Vessel after its Distillation. As for the thick and mucilaginous Substance it contains, it is obvious to our Senses, without the Assistance of Chymistry. That it contains subtil spirituous Parts, of a comforting Quality, is not only proved by the Authority of Sacred Writ, but by the Evidence of Sense; for the very Smell of Bread is refreshing, and Water prepar'd of Bread, especially of the coarser kind, is, by Physicians, highly extoll'd as a Liquor of an analectic and cordial Quality. Its daily Use also proves, that it conveys Strength and Nourishment to the Body. Besides, the Stomach is greatly delighted with this Species of Aliment, on account of its mild and subtil Acid, by whose means the dissolvent Force and Activity of the Menstruum, appropriated for the Maceration and Digestion of Food, is highly increased and augmented.

A great many other Things known to the Antients concerning the Nature, Virtue, and various Kinds of Bread, might on this Occasion be advanced, were they necessary to my present Design. However, on this Subject the Reader may consult *Hippocr. L. 2. de Vict. Rat. Athenæus, L. 3. Cap. 17. & 18. Pollux, L. 7. Cap. 11. and Pliny, L. 18. Cap. 7*.

My present Design is only carefully, but briefly, to inquire into the Nature and Qualities of that coarse Bread used by the Inhabitants of *Westphalia*, which acquir'd the Name of *Bompournickel*, from a French Traveller, that I may rescue this Bread from the Contempt it lies under in the Opinions of many.

This Species of Bread was known long ago to some of the most antient Nations, under the Name of *Panis furfuraceus*, or

or furfuraceous Bread, because it was not thoroughly purged from the Bran, according to *Aulus Gellius*, L. 2. Cap. 9. It was also called *Panis impurus*, impure Bread. See *Hippocrates*, *Athenæus*, L. 3. calls it *Syncomiston*, prepar'd of unsifted Meal. He also called it *Coliphium*, from the Greek Words *Κόλη*, a Member, and *ιστις*, Strength, importing that it convey'd Strength to the Members of the Body. See *Petr. Faber Agonistices* L. 3. Cap. 3. By *Cælius Rhodiginus*, L. 9. C. 16. it is called *Panis cibarius*, and *Panis gregarius*; and by *Terence*, *Panis ater*.

This kind of Bread was always highly esteemed, both for nourishing the Body, and rendering it strong and robust: Hence furfuraceous Bread was among the *Greeks* called *πλουτοτροφόν*, that is, Bread which contains a great deal of Nourishment; whereas that which was made of Flour, or the finest Meal, was called *εμυροτροφόν*, or Bread which yields little Nourishment, according to *Athenæus*, in the above-quoted Book. For this Reason the Wrestlers of old, whose Limbs were of a large and robust Make, and who were full of Flesh and Blood, only used the Coliphium, or coarse Bread, for Dinner, and at Supper Swines' Flesh, not boil'd, but a little roasted by the Fire: They also drank warm Water, not only that they might receive the more Nourishment from their gross and thick Food, but that they might also be the longer sensible of the saturating and filling Quality of it. See *Petrus Faber*, in the above-mention'd Book; as also *Galen de Alimentis*, and *Arrianus*, Lib. 3. *Verrius* in *Pliny* informs us, that the *Roman* People, for three hundred Years, used only the Bran of their Corn. See *Fulvii Ursini Append.* p. 316. For this hard and firm Food generates Humours less subject to Corruption, nourishes much more than that which is soft and fine, resists Hunger more powerfully, and produces Bodies fitter for bearing Hardships and Injuries, and less subject to those Disorders which proceed from a Colliquation of the Blood generally resulting from its excessive Heat.

The Inhabitants of *Westphalia*, who are a hardy and robust Race of People, capable of enduring the greatest Fatigue, and undergoing the severest Hardships, are living Proofs of the salutary Qualities of *Bonpournickel*. 'Tis remarkable that the *Westphalians* are rarely attack'd by acute Fevers, and those Diseases which proceed from an Ebullition of the Humours, and a certain malignant Colliquation of the Blood, and of the Elements or Principles of which it is composed. But the Diseases which rage among them are of a cold and chronic Nature, a Circumstance to be ascrib'd to the Grossness of their Food, and Hardness of their Diet: For, when but a small Quantity of such Aliments as are disposed and prepared for a speedy Corruption is taken, the Humours undergo a slow and less violent Fermentation: Hence an Excess of Heat is prevented by the Cohesion of the viscid Parts. Nor can the Humours of the Body, which have acquir'd a firm and durable Texture, be easily broken and destroy'd by a preternatural and morbose Ferment; and I am actually of Opinion, that the masterly Turn of Genius, the Evenness of Temper, and the happy Judgment of transacting Business, with which the *Westphalians* are peculiarly blessed, as also their Promotions in foreign Countries both in Church and State, preferable to the Natives, are Circumstances to be ascribed partly to their Education, and partly to their Method of living. They are highly qualified for Labour and Industry, to which they are inur'd and habituated from their Infancy. Now, as People, by doing nothing, insensibly learn to do ill, so, by Diligence in the honest Employments of Life, the Seeds of Vice, and the Exorbitance of lawless Passions, are check'd in due Time. And the Method of living used by the *Westphalians* contributes not a little to the Production of this happy Effect. *Aristotle*, Lib. 1. Pol. 3. judiciously observes, that a Diversity of Food and Aliment produces a proportionable Diversity in the Lives and Morals of Men; nor is this asserted without a Reason. Since there is a continual Commerce, and an intimate Union between the Soul and the Body, such as are the State and Motion of what we call the animal Spirits, such also will be the Inclinations, Thoughts, Operations of the Mind, and Morals. But this is a Truth so well known to Physicians, and confirmed by Arguments so strong and irrefragable, that it does not, on this Occasion, stand in need of a farther Illustration.

Nor can it be said, that the gross Food used by the *Westphalians* generates gross Spirits; for, by Labour and Motion, the viscid Particles are sufficiently divided, and, as it were, prepar'd in such a manner, as not only to increase the Bulk of the solid Parts, by a closer Union and Adhesion to the Tubes, but also generates sufficiently firm Spirits, which, as they are not fluctuating and inconstant, render People fit for bearing the most obstinate Labours both of the Body and Mind; and, tho' their Blood is somewhat cold, yet their animal Spirits are of a sufficiently active Quality. It is obvious, that an intestine Spirit, which resides in the Pores of any Fluid, must be confin'd by the Pressure of the thick and rigid Parts, and of

course become less subject to Diffipation; so that the spirituous Parts, being forc'd to the Centre, and render'd stronger by a mutual Union, are possess'd of an uncommon Force and Energy.

But 'tis not to be denied, that this gross Food is less safe and salutary, for such as have the Misfortune of weakly Constitutions, or those who live a quiet and idle Life, or are not accusom'd to Labour. Hence *Hippocrates*, *de Medicina prisca*. justly observes, "That the stronger Aliments, if subdued by Nature, are excellent Nourishers; if not, they produce Pains, and cold Diseases." And *Celsus* informs us, "That the stronger Foods are not easily concocted; but that, when concocted, they nourish more than other Aliments." So that Labour and Motion are absolutely necessary for those who use strong Aliments. Athletic Bodies, and such as are accusom'd to Labour and Exercise, receive a more solid Nourishment than those who are habituated to a calm and idle Life, in whom the Nutrition, and the Fat produc'd by it, are generally suspected of being faulty; for 'tis the Motion and Circulation of the Blood, which by its internal Attrition, and elastic Force, resolves, subdues, deterges, and converts the Particles of the Aliments into the Substance of our Bodies; whereas Rest destroys Nutrition, and generates Obstructions, which prove a fruitful Source of Diseases, and render the Genius slow and fluctuating.

From what has been said, I think it evidently appears, that the *Westphalian Bonpournickel* is of a highly nourishing Quality; and that this firm and strong Species of Aliment, by which both their Bodies and Minds are recruited, may be more safely used, and produce more salutary Effects in these People, who are accusom'd to Labour, than a more delicate Diet can in those who are habituated to Idleness. Besides, if we will but take the Pains to put this Matter to the Test of Reason, many satisfactory Proofs of the Excellency of the *Westphalian* Bread occur; for the Nature and Qualities of this gross furfuraceous Bread, are widely different from those of that which is made of the finest Meal. The coarse *Westphalian* Bread, upon Distillation, yields a very large Quantity of an empyreumatic inflammable Oil. Bread indifferently fine, such as that commonly called *Second Bread*, yields a moderate Quantity of a similar Oil: But Bread of the finest Flour yields a very small Quantity, or rather none at all of it. Besides, Bran itself, upon Distillation, yields a large Quantity of Oil, produced, in my Opinion, from the hard external Husk, which is continually acted upon by the Warmth of the ambient Atmosphere. Now 'tis very well known, that a distill'd Oil is an active Principle, highly agreeable to our Constitutions, suited to the Mass of Blood; a Balsam, as it were, to the Humours, and a faithful Guardian of a due and natural Temperament. The Blood itself, upon Distillation, yields an inflammable Oil; and the more it partakes of this oleaginous Principle, the greater Strength it supplies, and the more effectually it preserves Life and Health. That distill'd Oils are the Repository, and, as it were, the Matrix of a volatile Salt, with which the animal Kingdom abounds, is a Truth sufficiently known to those who have any tolerable Acquaintance with Chymistry.

From what has been said, we may easily see, how much *Bonpournickel* is preferable to other Kinds of Bread. It may justly be called a medicinal Aliment, since, besides that Quality by which it is so friendly to our Constitutions, it is possess'd of another, by which it remarkably restores Strength, corrects a moist Intemperies, dries, defends from Putrefaction, and recruits the spent and dissipated Spirits: For which Reason it may be exhibited as a Medicine, in Cases where Strength is lost, where the Force and due Texture of the Blood is destroy'd, and where a Diffipation of Spirits is dreaded, either in Broth impregnated with Wine, Sugar, and Cinnamon, or in its own distill'd Water of a highly sweet Taste, which is excellent in Loss of Strength, and phthisical and hectic Disorders. I need not, on this Occasion, mention its singular Use, when apply'd externally in Pains of the Head, and in Cases where the Intention is to dissipate stagnating Humours.

Lastly, this coarse Bread is possess'd of a singular Quality not to be found in other Bread, since, notwithstanding the Coarseness of its Texture, it renders the Belly soluble. This Virtue in coarse Bread was long ago observed by *Hippocrates*, who affirms, "That Bread made of unsifted Meal is purgative, whereas that which is purer, is proportionably less so; and that which is purest of all, is so far from operating in this way, that it renders People costive." I am of Opinion, that this purgative Quality is to be ascribed to the rigid Texture and Figure of the Bran, which proves a quick and continual Stimulus to the small intestinal Fibres, to perform their excretory Motion; for, according to *Galen*, Bran is possess'd of a deterfive Quality. Hence we may observe, that Gruels made of coarse Meal are excellently qualified for keeping the Belly soluble.

As for the Medicines prepared of this *Bonpournickel*, the principal and most celebrated is the following Water, which is excellent

excellent for restoring Strength, and recruiting the homogeneous Humidity of the Body in hectic Heats. It is prepared thus :

Take one Pound of the Bread bruised ; of the Juice of Crayfish, half a Pound ; of May Dew, four Pounds ; of Rose-water, four Ounces ; of Nutmegs, half an Ounce ; and of Saffron, one Dram : Let the Whole be distilled together in *Balneo Mariae*, applying a moderate Heat.

Thus a highly cordial Water is yielded, of a fragrant Smell, grateful to the Stomach, and excellently calculated for allaying hectic Heats ; for which Purpose half a Pint of it must be taken daily, either by itself, or with Powder of calcined Hartshorn.

Besides, if a spirituous stomachic Water is desired, this Bread is to be distilled with Rhenish-wine, adding a sufficient Quantity of Nutmegs and Cinnamon. By this Process a Water is yielded which is of singular Service for strengthening the Stomach, when afflicted with an excessive Relaxation, Vomiting, or Loss of Appetite. Besides, the Spirit of this Bread when distilled dry in a Retort, and well purged from its fetid Oil, is a sudorific Medicine agreeable enough to the human Constitution, and highly efficacious in removing Impurities of the Blood. If this Spirit is exposed for some time to the Rays of the Sun, it assumes a reddish Colour. The Virtues and Excellencies of this Spirit are more fully insisted on by *Joh. Tackius in Chrysog. Anim. Hoffman Obs. Chym.*

BON. The Coffee-tree, or *JASMINOIDES*, which see.

BONA, or BOONA, in *Blancard*, is the Bean, or Kidney-bean.

BONASUS. A kind of wild Ox, as high as a Bull, and bigger than a common Ox. His Head and Neck are covered with great yellow Hairs, longer and softer than those of a Horse. His Horns are turned inward, so that they are no great Defence to him ; their Colour is a fine shining Black. The Hair of his Body is ash-coloured Grey, inclining to Red. His Skin is very hard, and Proof against Blows ; and he lows like an Ox. He is found between *Pæonia* and *Media*, and lives among the Mountains. His Flesh is very good Food.

His Horns are aftringent, sudorific, and alexipharmac. *Lemery de Drogues.*

BONATI is explained by *Rulandus vitreari*. I suppose glazed.

BONDUCH, Offic. *Bonduch Indorum*, *Jonf. Dendr.* 300. *Bonduch cinerea, foliis longioribus*, Aët. *Philos. Lond.* N. 267, 702. *Bonduch vulgare majus polyphyllum*, *Plum.* Nov. Gen. 25. *Boerh. Ind. A.* 2. 59. *Bonduch Pianta Indiano*, *Zan.* 44. *Bonduch Indiano*, *Pon. Ital. Bald.* 32. *Arbor exotica spinosa, foliis lentisci*, C. B. *Pin.* 399. *Raii Hist.* 2. 1743. *Herm. Mus. Zeyl.* 35. *Arbor spinosa Indica, muricatis siliquis*, *Park. Theat.* 1551. *Lobus echinatus*, or Bezoar Nuts, *Ger. Emac.* 1554. *Lobus echinatus, fructu casto, foliis longioribus*, *Herm. Parad. Bat. Prod.* 348. *Cat. Jam.* 144. *Hist.* 2. 41. *Lobus alius exoticus hirsutus cum piso duro cinerei coloris*, *Chab.* 92. *Lobus exoticus cum piso duro cinerei coloris*, J. B. 1. 439. *Acacia gloriosa, lentisci foliis, spinosa, flore spicato luteo, siliqua magna muricata*, *Pluk. Almag.* 4. *Phytog. Tab.* 2. *Fig.* 2. *Caretti*, *Hort. Mal.* 2. 35. *Tab.* 22. *Inimboy Brasiliensis*, *Marceg.* 12. *Inimboy Brasiliæ frutex spinosus spicatus platylobis echinoidibus, glycyrrhizæ foliis*, *Breyn. Prod.* 1. 40. *Inimboia sive Sylva de praya Lusitanis*, *Pis.* 95. (Ed. 1648.) *Inimboy*, *Ejusd.* 205. (Ed. 1658.) *Crista pavonis glycyrrhizæ folio minor repens spinosissima, flore luteo spicato minimo, siliqua latissima echinata, semine rotundo cinereo, lineis circularibus cincto majore*, *Breyn. Prod.* 2. 38. *Commel. Flor. Mal.* 93. MOLUCCA NUTS, MARSAO, BEZOAR NUTS.

It grows to a Man's Height ; and is a Native of both Indies ; the Parts in Use are the round Beans, which are of an Ash-colour, white on the Inside, extremely bitter, and tasteless.

They are good in Hernias, discuss Flatulencies, ease the Colic, comfort a weak Stomach, provoke the Menses, and expel the Stone. *Dale.*

There is another rarer Species of it barely mentioned by *Ray*, under the Title of *Bonduch Indorum, siliqua minime spinosa*.

BONIFACIA. The same as *Laurus Alexandrina*. See *LAURUS*. *Blancard.*

BONTIA. *Barbados wild Olive vulgo.*

It has a personated Flower, consisting of one Leaf, whose upper Lip is erect, and the under Lip divided into three Parts. From out of the Cup arises the Pointal, fixed like a Nail in the hinder Part of the Flower, which afterwards becomes an oval Fruit, which is soft, and full of Juice, in which is contained one oblong Seed, inclosed in a Nut of the same Form. *Miller's Dict. Vol.* 2.

We find no Medicinal Virtues ascribed to this Plant.

BONUM, ἀγαθόν, καλόν, Good. It signifies in general what a Person ought to chuse, do, or on which he may rely, according to *Galen, Lib. 7. de Hippocr. et Platon. Decr. Cap.* 2.

Bonum may be taken absolutely, or in itself, and comparatively, in which Sense it comprehends a Jeſs Evil. *Galen, C.* 20. in *Epid.* 1. 36. *Castellus.*

BONUS HENRICUS, *Tota bona, Mercurialis*, Offic. *Bonus Henricus*, J. B. 2. 965. *Ger.* 259. *Emac.* 329. *Bonus Henricus, Tota bona*, *Chab.* 303. *Bonus Henricus officinarum*, *Volck.* 67. *Bonus Henricus, falso Mercurialis*, *Pharm. Edengb.* 4. *Blitum Bonus Henricus dictum*, *Raii Hist.* 1. 195. *Blitum perenne Bonus Henricus dictum*, *Synop.* 64. *Blitum perenne, spinachæ facie*, *Hist. Oxon.* 2. 599. *Atriplex Chenopodia, folio triangulo*, *Hort. Monsp.* 29. *Chenopodium folio triangulo*, *El. Bot.* 406. *Tourn. Inst.* 506. *Dill. Cat.* 67. *Buxb.* 70. *Lapathum unctuosum, folio triangulo*, C. B. 115. *Lapathum unctuosum, sive Bonus Henricus*, *Park.* 1226. *Munt. Herb. Brit.* 207. ENGLISH MERCURY. *Dale.*

This Mercury has a thick, yellowish, perennial Root, with several Fibres ; the Leaves grow upon long Foot-stalks of a triangular Shape, like Spinage, of a yellow-green Colour, feeling greasy or unctuous in handling. The Stalks grow to be about a Foot high, with several of the like Leaves growing on them ; and on their Tops Spikes of small herbaceous Flowers, inclosing little, round, black, shining Seed. It grows in waste Places, and among Rubbish ; and flowers in Spring.

This Herb is of a detergent cleansing Quality. The young Shoots, before they come to Seed, boiled as Spinage or Asparagus, are pleasant to the Palate, cooling, soluble, and good for the Scurvy, and provoke Urine ; outwardly it is much used in Clysters, and a Cataplasm of the Leaves helps Pains of the Gout.

The only Official Preparation is the *Mel Mercuriale*, which is thus made :

Take of the Juice of Mercury, three Pounds ; of Honey, two Pounds : Let them be depurated, and boiled up together, to the Consistence of Honey.

This is seldom used, except in Clysters.

BOOPS, *Boax, Box, βῶξ, βίαξ, βιαξ*. The Name of a Fish that lives near the Shore. Its Flesh is reckon'd among Meats easy of Digestion, and is advised to sick Persons. It is described by *Aldrovandus, Lib. 2. de Pisc.*

BOOS *thalassiu, βοῦς θαλασσίς*, from *θάλασσα*, the Sea, the Genitive of *βῆς θαλάσσιος*, the Sea-cow. The Words are in *Galen's Exegetis on Hippocrates*, which he expounds by *σελαχάδης ἐστὶν ὁ ἰχθύς ἑτερος*, "this is a cartilaginous Fish." This Sort of Fishes *Pliny, Lib. 9. Cap.* 24. calls *plani*, and amongst them he reckons the Sea-cow ; and so does *Aristotle, Lib. 5. Hist. Anim. Cap.* 5. and *Lib. 6. Cap.* 12. who, as *Pliny* says, calls all those Kinds *σελάχη*, "cartilaginous," which are distinguished from others by having a Cartilage instead of a Spina, or Chine-bone of the Back. *Foësius.*

BORACO, *Capistrum Auri*, "the Bridle of Gold." *Rulandus.* See *Salmaſtus's* Remark on this Name under BORAX.

BORADES, Filings. *Rulandus.*

BORAGO, Offic. *Borrage*, *Park. Parad.* 249. *Chab.* 515. *Borrage hortensis*, or Garden Borage, *Ger.* 653. *Emac.* 797. *Raii Synop.* 3. 228. *Hist. Oxon.* 3. 437. *Borrage floribus cæruleis*, J. B. 3. 574. *Touſſn. Inst.* 133. *Boerh. Ind. A.* 188. *Borrage floribus cæruleis & albis*, *Raii Hist.* 1. 493. *Buglossum latifolium, Borrage*, C. B. *Pin.* 256. BORRAGE. *Dale.*

The Root of Borage is thick, whitish, and but little branched ; from which spring several large, long, and roundish green Leaves, wrinkled, rough, and even prickly in handling. The Stalk likewise is rough and prickly, beset with smaller Leaves, bearing many Flowers at the Top, which are of one single Leaf cut into five Segments, laid open like a Star, of a fine blue Colour, with a black Umbo in the Middle, each of which is succeeded by four brown angular Seeds, growing in a round Calyx. It grows in Gardens, but is found wild in divers Places near Houses, and upon Walls ; and flowers in June. The Leaves and Flowers are used.

The Leaves are accounted Cordial, good to comfort the Heart, and drive away Faintness and Melancholy ; and to that Purpose, the Tops are frequently put into Wine, and Cool-tankards. They are likewise Alexipharmac, and good in malignant Fevers.

The Flowers are one of the four Cordial Flowers. The only Official Preparation is the Conserve of the Flowers. *Miller's Bot. Off.*

BORAX. A kind of Salt used in mechanic Arts and Medicine. It is thus distinguished :

Borax, Chrysocolla factitia, santerna Plinii & Tincar, Offic. *Borax*, *Charlt. Foss.* 9. *Dougl. Ind.* 18. *Nitrum unde Borax coquitur*, *Aldroy. Mus. Metall.* 324. *Nitrum factitium, Arabice Borax*, *Worm.* 21. *Nitrum nativum aliorum fossilium modo in terra repertum durum, & spissum, ut Lapidi non abs re assimilari possit. Tincar est Arabum, ex quo Chrysocolla Græcorum, Borax eorundem Arabum, Venetiis conficitur*, *Calc.* *Mus.*

Mus. 162. *Nitrum nativum scissile durum, ex quo Venetiis Borax coquitur*, Kentm. *Baurach*, Mayern. Syntag. 1. BORACE. Dale.

The best Chryfocolla is what comes from *Armenia*, and is of a lively Leek-green. The next in Goodness is the *Macedonian*, and after this the *Cyprian*, of which Kind the pure is to be preferred; what has gathered Dirt and Stones is to be rejected.

The Manner of washing the Chryfocolla is thus: First, they break it, and then put it into a Mortar, where, pouring in Water, they rub the Chryfocolla well with their flat Hand against the Pestle; after this they let it alone to subside, and then strain it off. This done, they pour fresh Water to it, and work it as before, repeating the Operation till the Chryfocolla comes out pure and unmixed; then they dry it in the Sun, and so lay it up for Use.

When they have a Mind to burn it, they do it in the following manner: Having pounded a sufficient Quantity, they set it in a Pot upon the Coals; and proceed as has been directed in other Cases.

Chryfocolla exterges the Marks of Scars, and checks Excrescences; it is of a cleansing, astrigent, and heating Quality; and is a gentle Septic, with some Degree of Mordacity. It is reckon'd among those things which excite Vomiting, and endanger Life. *Dioscorides*, Lib. 5. Cap. 104.

Chryfocolla is a liquid Substance, which runs through a Vein of Gold, and is condensed by the Cold of the Winter to the Hardness of a Pumice-stone. The best is found in the Copper Mines, and the next in Goodness in the Silver Mines; they meet with it also in the Lead Mines, and a baser Sort in the Gold Mines. They have also a way of making Chryfocolla artificially in all these Metals, though much inferior to what grows naturally, by introducing into the Vein a gentle Current of Water during all the Winter, till the Month of June, which, in that and the next Month, drying up, leaves behind it the Chryfocolla, which may be understood, from this manner of Production, to be no other than a putrid Vein. The native Chryfocolla is far different from this with respect to Hardness; they call it *Lutea*, though they dye it also with an Herb of that Name. It is of the Nature of Wool or Flax to imbibe any Juice. They pound it in a Mortar, then pass it through a fine Sieve; after this they grind it; and being thus reduced smaller, they pass it through the Sieve again; what will not go through is pounded over again in the Mortar, and afterwards ground in the Mill. The Powder is always disposed into small Vessels [catinos], and macerated in Vinegar, to take off all Hardness; then pounded over again; and afterwards washed in Pans, and so dried. After this they stain it with plumous Alum, and the Herb *Lutea* before-mentioned; and thus it is painted, before it paints. It matters much how bibulous and receptive it is; for if it does not immediately take the Colour, they add to it Schytanum and Turbystum, which are the Names of Drugs that dispose things to receive Colours. When the Painters have stained it, they call it *Orobitis*, and make two Sorts of it; the Yellow [Lutea], which is kept for a Paint; and the Liquid, resulting from a Diffolution of the Globules by Sweat; both these Kinds are made in *Cyprus*.

The most valuable Chryfocolla is the *Armenian*, next to that the *Macedonian*, but the largest comes from *Spain*. The utmost that can be said in its Commendation is, that it very nearly represents the Colour of a lively Corn-green. The Emperor *Nero*, in the Time of the public Shews, ordered the Area of the Circle to be strew'd with Chryfocolla, then enter'd himself, habited in the same Colour, and after introducing a Rabble of Mechanics, entertain'd them with his Dexterity in driving a Chariot. They make three Kinds of Chryfocolla; the rough, which is valued at seven Libræ; the middle Sort, valued at five Denarii; and the *Attrita*, called also the herbaceous, at thirteen Denarii.

The Use of Chryfocolla in Medicine is to cleanse Wounds, being mixed with Wax and Oil: As it is dry of itself, so it dries and contracts. It is prescribed also in the Quinsy and Orthopnea, being mixed with Honey. It provokes Vomiting, and is an Ingredient in Collyria for Cicatrices of the Eyes, and in green Plaisters for mitigating Pains, and inducing a Cicatrix. Physicians call the Chryfocolla, except the *Orobitis*, *Acesis*. The Goldsmiths lay Claim to the Chryfocolla for soldering Gold, from which Use it takes its Name, [*χρυός*, Gold, and *κόλλα*, Glue, Solder] and is so called by all who use it for the like Purpose. It is temper'd with *Cyprian* Verdegrise, and the Urine of a Boy, with an Addition of Nitre; they pound it with *Cyprian* Copper Pestles in *Cyprian* Mortars; we call it *Santerna*. This makes a Solder for that Gold which they call the *Silverish*, which is known by its acquiring a Brightness by an Addition of *Santerna*. But what they call the *Copperish*, on the contrary, contracts itself, and looks dull, and is difficult to be solder'd. For this Kind they make a Solder, consisting of Gold, and a seventh Part of Silver, added to the before-mentioned, and pounded together. *Pliny*, Lib. 33. Cap. 5.

Some Sorts of Chryfocolla are found among Metals, and these

VOL. I.

only are by some accounted proper Chryfocolla. But there is a factitious Sort, which is prepared by pounding them with Boy's Urine in a Mortar of red Copper, with a Pestle of the same Metal, in the Heat of the burning Sun. This is more medicinal than the native Kinds, and makes an excellent Remedy for malignant Ulcers, either by itself, or mixed with proper Ingredients. Burning of it will diminish its pungent Quality. *P. Aegineta*, Lib. 7. Cap. 3. *Aetius*, Tetr. 1. Serm. 2. Cap. 81.

Borax is a barbarous Word Latinized, and now every-where used instead of Chryfocolla. The later Greeks also call it *βοράχιον*, (*Borachion*) as *Myrepsus*, in the Ointment *δια νιρίων*, "of Citrons," Number forty-two, where one of the Ingredients is a Quantity *λίβς βοράχιν*, "of the Borachian Stone," where you see that Chryfocolla is called a Stone. But *Dioscorides* makes it a Property of the best Chryfocolla to be without Stones; and so the best Stone must not be at all stony, which is absurd. But I have often wonder'd how both Greeks and Latins of the later Ages came to use the Words *βοράχ* and *βοράχιον*, instead of Chryfocolla. They seem to have received them from none but the *Arabians*; and yet these are no *Arabic* Words. Therefore a great Man happens to be mistaken in his Notes upon *Garcias*, Cap. 35. Lib. 1. where he observes that *Borax* is a corrupt Word, and that we ought to say *Baurac*. This *Baurac* is indeed an *Arabic* Term, but never used for Chryfocolla, but for *Nitrum*, or *Aphronitrum*; it is *Avicenna's* Word for *Nitrum*, for he calls *Aphronitrum*, *Zebed Baurac*, that is, *Spuma Nitri*. The *Arabians* sometimes also use the Greek Word *Nitron*, but Chryfocolla they call *Tincar*. In a very antient Copy of *Dioscorides*, *χρυσοκόλλα* (*Chryfocolla*) is expounded, by the *Arabian* Glosser, *Tincar va Lezac Alzeheb*, "Tincar, or the Solder or Consolidation of Gold." In the latter Explication the Greek Word *χρυσοκόλλα* is expressed, being no other than that by which Gold is solder'd. But *Zebed* is put for *Deheb*, for this is *Avicenna's* Word for Chryfocolla, as *Lezac Aldeheb*. This is the *Chaldaic* Name for Gold; for they also say *דָּהָב*, *Dahab*, instead of the Hebrew *זָהָב*, *Zahab*, Gold. *Brassavolus*, and others, observe, that Chryfocolla is called by the *Arabians* *Capistrum Auri*, "the Bridle of Gold." They were led into this Mistake by the old Interpreter, who on the Word *Tincar*, in *Avicenna*, has these Words, *et dicitur Capistrum Auri*, "and it is called the Bridle of Gold." In the *Arabic* it is, "the Consolidation or Soldering of Gold." *Avicenna* uses the Verb every-where as signifying to conglutinate and conjoin separate Parts, in the same Sense as the Greeks use *συγκολλᾶν* and *κολλᾶν* whence *κολλήματα φάρμακα*, "conglutinating Medicines." But the Letters of the Verb, with but one Apex more, signify *frænare*, "to bridle;" whence is deriv'd the verbal Noun, signifying *Frænum*, *Capistrum*, "a Bridle or Halter." This deceived the old Interpreter, who mistook it for the other; and indeed it would be absurd to call Chryfocolla, which is the Cause of the Cohesion and Conglutination of Gold to Gold, the Bridle of Gold.

The *Arabians* seem to acknowledge some Relation between the Chryfocolla and Nitre, that is, *Baurac*; for *Serapion*, in his Chapter of Chryfocolla, Cap. 413. writes, that the *Tincar* was a kind of Salt, and had some Taste of Nitre, that is, of *Baurac*. Also in his Chapter of Nitre, speaking according to the Opinion of *Rhasis*, he says, there is a kind of *Nitrum*, or *Aphronitrum*, whence is the *Tincar*, that is, the Chryfocolla. However it be, I do not in the least doubt, but from this *Arabic* Word *Baurac*, or *Borac*, which is Nitre, the *Barbarians* form'd their *Borax* to signify Chryfocolla. Thus from the *Arabian* *Sandarac* we know they made their *Sandarax*, and *βερνίκιν* (*Bernice*) they chang'd to *Vernix*, though to quite a different Sense from what the Greeks put upon their *Bernice*.

That the *Arabians* will have some Resemblance between the Chryfocolla, commonly called *Borax*, and Nitre, which they call *Baurac*, must perhaps be understood of that factitious kind of Chryfocolla, which is commonly made of plumous Alum and Sal Ammoniac; and therefore *Serapion* reckons the Chryfocolla among the kinds of Salt.

Borax, in *Albertus Magnus*, is also the Name of a Stone found in the Head of a Toad; but no Credit is to be given to that Author. *Salmasius de Homonym. Hyl. latr.* Cap. 121.

Aristotle, in his Book *περί θαυμασ. ἀνυσμάτων*, speaks of *Demonesus*, an Island over-against *Chalcedon*, which produced Chryfocolla, the finest Sort of which was valued at its Weight in Gold, being a Remedy for the Eyes. *Idem*, *Pliniana Exercitationes*.

Mr. Geoffroy gives the following Account of *Borax*.

Borax is a Salt, whose Composition, whether natural or artificial, is but little known. Natural History, as well antient as modern, affords us but little Light or Information concerning this strange Salt; and from what we can learn of it from thence, we are not sufficiently instructed to conclude, that it

is the true Chrysocola of the Antients, though the *Spaniards*, who work in the Mines of *Chili*, the *Venetians*, and other Moderns, still give it that Name, which they found in antient Natural History.

Pliny, speaking of the Chrysocola of his Time, divides it into two Kinds; the native, which was taken out of the Mines of Copper; and the factitious, which was made by stirring and beating the Urine of young Children in Mortars of Copper. See above.

Paul Herman, in his *Materia Medica*, *Straßbourg* 1706. says, that they make Borax in the *East-Indies* of a nitrous Earth, which, after they have calcin'd, and reduced it to Powder, they boil and make thereof a strong Lixivium; this they afterwards expose to the Air, in order to make it run into Crystals; that this Salt never comes to a greater Perfection in that Country; and that it is in the Places whither it is transported that they purify it.

By these two Descriptions, and especially *Pliny's*, it appears, that we are at a Loss for the true Borax at present; for, in the Essays which I made on the Solution of this Salt in Water without Addition, I could never find a single Atom of Copper, whereas there ought to have been a considerable Quantity, had it been the Chrysocola of *Pliny*.

Nor had I any more Reason, from what I could discover, to think that it might be made of a nitrous Earth, taken in the Sense, and according to the Properties of our Nitre at present, because it crystallized in a different manner, and fused upon Coal. But if *M. Herman*, by his *Indian Nitre*, means the Nitre of *Agra*, and some other Places in the *East-Indies*, which is a Natrum, and consequently a strong Alkali, Borax would be an alkaline Salt of much greater Penetration, and of a much more acrimonious Taste than we find it, unless they have a way in making this Salt, to add to the Natron some sweetening Substance to take off the Acrimony, and so make an imperfect Sal Salsum, in which the Alkali is predominant.

My late Brother, in the Lectures which he read at the Royal College upon the *Materia Medica*, and after the Perusal of some Memoirs of a German Traveller called *M. Narglin*, a good Naturalist, who had made many Essays upon that Salt, both in the *Indies*, and at *Venice*, where it was formerly purified, tells us, "That Borax was produced in several Parts of the *East-Indies*, but most plentifully in the Dominions of the Great Mogul, and in *Persia*; that, in several Places of those two Countries, there flow'd gently from different Mines, but principally from those of Copper, a salt Water, muddy and greenish, which was carefully preserved; that, after it was evaporated to a certain Consistence, they poured it into Pits sunk in the Earth, and lined with a Paste composed of the Mud deposited from the same mineral Sources, and the Fat of Animals; that they laid over these Pits a Cover of a convenient Thickness, made of the same Paste; that at the End of some Months they open'd them, where they would find the Water partly evaporated, and the Salt of the Borax crystallized; that they took these Crystals out of that fat Mud, with which they were still mix'd or cover'd, and in that Condition they were brought to us from the *Indies*."

Our Merchants import Borax also from *China*, where it costs little; which makes it probable, that this kind of Salt is natural to that Country, or at least very easy to make.

These different Boraxes are at present refined in *Holland*; but the way of doing it is not a Secret known only to the *Dutch*, for there is a private Gentleman in the *Fauxbourg St. Antoine*, who did refine it, and deliver it to the Merchants as fine and as pure as that of *Holland*. In this State of perfect Purification it is transparent like Rock-crystal.

While it is rough, or in the same State in which it was imported from the *Indies*, its Crystals are commonly of the Bigness of Hazel-nuts, of a greenish Colour, dirty, and obscure, like the Lare-stone of *China*, or of a palish Green like the Jade [a sort of precious Stone]. They are full of Impurities, and mix'd with Earth, and bedaub'd with a fat Substance, which is perhaps that of the Paste spoken of before, or some other Fat with which they were cover'd, in order to prevent their running into a Calx, or being reduced to a Powder during their Carriage in these hot Countries. For we know, that Borax is easily calcin'd in the Air, as soon as it has been washed in cold Water, and cleared of its unctuous Envelopment, which whitens the Water, and dissolves in it like Soap.

The Crystals of this Salt have the Figure of an oblique Prism, with six Faces, whose Base has six Sides, of which those opposite to each other are equal and parallel. The greatest Diameter or Length of the Base is almost double, and sometimes more than double its Breadth. What is singular in these Crystals is, that if we consider the two opposite Planes, which may reciprocally serve for a Base, we shall perceive a small Side of that Plane flatten'd throughout its whole Length; and sometimes also the acute adjacent Angle, and the two Sides, one in each Plane, thus flatten'd, are so situated, as to be diametrically opposite. Though this be not exactly true in all these Crystals, we may yet per-

ceive, that they for the most part resemble that Figure. The greatest Diameter of the Base of the largest that I could find was about ten or twelve Lines; and the least Diameter, or what measures the Thickness, five or six Lines. The Length is not always proportion'd to the Greatness of the Base; for one, the greatest Diameter of whose Base is but eight Lines, shall be thirteen or fourteen Lines in Height, whereas another, the greatest Diameter of whose Base is twelve Lines, shall have but ten Lines of Height.

There are some Crystals which come very short of that Size; and even some which are no bigger than Grains of Millet.

As it is very probable, that this Salt was form'd in a troubled or muddy Liquor; accordingly we find in dissolving it a great deal of gross Earth, or Sand; and its greenish Colour disappears, if it be crystallized anew.

This is all that I have to say concerning the external Form and Figure of Borax; as to its internal Nature and Properties, which has been the Object of the Inquiries of the most Part of the Chymists of *Europe*, I can speak no more than by Conjecture. *Becher* seems to have known the Composition of this Salt, if he did not speak at random in his *Physica Subterranea*, and his *Alphabetum Minerale*, where he says, "That the universal Acid, in dissolving a Stone, or fusible Earth, forms Borax; as it forms Alum, when it meets with an Earth fit to make Lime."

We shall, perhaps, one Day or other, discover Borax in Substances where we never suspected it could have been, as we have found *Glauber's* Salt, and vitriolated Tartar, in mineral Waters, Plants, and other natural compounded Bodies.

M. Homberg believ'd, that Borax was a mineral urinous Salt. *M. Lemery* the elder thought it had the Qualities of a neutral Salt, which neither fermented with Acids nor Alkalies; and, in the last Place, *M. Lemery* defin'd it to be a Sal Alkali, because it precipitates the metallic Earth of Vitriols, and the Earth of Alum, almost as readily as Salt of Tartar does it. He has shewn also, that Borax is sublimed not only with a vitriolic Acid, but with other mineral Acids, and with white Vitriol. *Memoires de l'Acad. Roy. des Scienc.* 1732.

The distinguishing Properties of Borax are principally these:

1. Its Form and Appearance, as brought to us from the *East-Indies*, which is that of dirty Lumps, or a coarse, saline, and particularly fetid Substance, mixed with much unctuous, earthy, and stony Matter; and in this State it is commonly called Tincal, or Tincar.

2. Its pure and entire Crystals, when refined, being octagonal Prisms very finely cut, though seldom obtained perfect in the ordinary way of refining it.

3. Its particular Taste, not easy to be described, as being sweetish, sharpish, and somewhat urinous or lixivious.

4. Its Property of folding Metals, or making them easily unite, or take hold of each other, more particularly the Parts of Gold.

5. Its making an excellent Flux for Metals and certain Ores, and, by being melted with a proper Proportion of Sand or Flint, turning, in a very short time, to a hard Glass, capable of cutting common Glass almost like a Diamond.

6. Its extremely vitrescible Nature, so as by itself, with a moderate Heat, and in a few Minutes time, to become true and permanent Glass.

The Use of Borax in Medicine is that of an incisive and aperient Salt, by virtue of which it is effectual against Diseases which proceed from an Inspissation of the Humours, and Obstructions thence arising, acting at the same time against the Acid, without exciting any Motion. The Dose is an entire Dram. It is thought by some to have a specific, emmenagogical, and expulsive Virtue, which may probably be derived from the aforesaid incisive, deobstruent, and aperitive Qualities. However, its Stimulus does not seem strong enough to be depended upon for present Relief in a difficult Birth, unless it be join'd with some other Ingredients, that are of more Efficacy by their volatile Stimulus. For this Reason Borax is commonly given in Powder mixed with Saffron, Myrrh, Oil of Cinnamon, Castor, the volatile Salt of Amber, and other Powders of known Efficacy, in promoting the Birth, and facilitating Delivery. Some advise a few Grains of it to be taken in a poach'd Egg, as a Provocative to Venery, especially to those whom poach'd Eggs alone have a good Effect upon.

Borax calcin'd is reckon'd of specific Virtue in Fluxes of the Belly, or the Semen, because it is a sort of styptic Earth. The Dose is from a Scruple to half a Dram, in Conserve of Roses, either alone, or with other suitable Ingredients, for Instance, the Bone of the Cuttlefish, or toasted Nutmeg.

Outwardly it is apply'd, though but seldom, to consume carnos and spongy Excrescences in sordid Ulcers; it is recommended also for the Itch, and in Cosmetics. The Usefulness of Borax in such Cases may reasonably be expected from its saline, incisive, and resolving Qualities, which cause it to be received into the Unguentum Citreum, which is recommended for making

making the Skin smooth, and free from Asperities. Its saponaceous, absterfive Virtue, for the Purposes aforesaid, may perhaps more justly be expected from Borax in its crude State, as it is sold in India; tho', according to *Garcias*, it is seldom used by the Indian Physicians, unless for the Itch. The *Pulvis Diaboracis Mynsichti* has Borax for its Basis, and stimulating Aromatics and Absorbents for Accessories. The Dose is to a Dram for Women in Labour, to facilitate the Birth, and to expel the Secundines, and dead Foetus.

As Examples of the Methods of prescribing Borax, I shall give the *Pulvis Emmenagogus* of *Fuller*, and the *Pulvis Diaboracis* of *Mynsicht*.

PULVIS EMMENAGOGUS, *Fulleri*.

Take of Venetian Borax, fifteen Grains; Myrrh, twelve Grains; Saffron, three Grains; Oil of Cloves, one Drop: Mix together, and make a Powder.

This is to be taken twice a Day, and is recommended for promoting the Menfes.

PULVIS DIABORACIS, *Mynsichti*.

Take of Venetian Borax, an Ounce and a half; Cassia Ligna, and Oriental Saffron, each three Drams; Savin-wood, white Amber prepared, each a Dram and a half; Bone of a Stag's Heart; Mistleto, Flowers of the Wall-flower, each a Dram: Mix, and make a Powder. The Cassia Ligna, Savin-wood, Mistleto, the Bone of a Stag's Heart, the Saffron, and Flowers dried, are to be powder'd together; and so are the Amber and Borax; and then all are to be mix'd together.

It is recommended for promoting Delivery, and expelling the After-birth; and is said to be a good Emmenagogue.

BORBONICUS, *Borbonensis*. A patronymic Epithet of some hot Springs, commonly call'd the Waters of *Bourbon*. *Castellus*.

BORBORODES, *βορβορῶδες*, muddy, dirty, earthy, feculent. *βορβορῶδες πύον*, is dirty, feculent Pus, *Hip. Prognostic.* and *Aph. 44: Lib. 7.* and *Coac. βορβορῶδες ὀσμῆς* are "muddy, earthy Smells," *Lib. πρὸς γυναικῶν. βορβορῶδες ὕδωρ* are "muddy, feculent Urines." *Galen. Comment. ad Aph. 69. Lib. 4.*

BORBORYGMUS, *βορβορυγμός*. A rumbling Noise, excited by Wind, mix'd with some Degree of Humidity. *Galen*, in his Comment on the seventy-third Aphorism of *Book 4.* says that *Borborygmus* is the Noise of a Flatus, not very loud, nor long, with a moderate Degree of Humidity, descending to the inferior Parts. And, *Lib. 3. Symptom. Caus. Cap. 7.* "a *Borborygmus* is a murmuring Sound, excited by Humidities contain'd in the Intestines, and is the Fore-runner of a humid Excretion: So Tumors about the Præcordia terminate in a " *Borborygmus*, or Rumbling; the Flatulencies, together with " the Excrements and Urine, discharging themselves principally by Stool; for such is not barely a Sign of a Flatus, but " that it is mix'd with some Humour, or more solid Body." *βορβορυγμός γένεσθαι ἐν ὑποχονδρίῳ* "A Rumbling in the " *Hypochondria*," *Coac. βορβορίζειν*, and *διαβορβορίζειν*, are spoken of the *κοιλίᾳ*, "Belly," when it rumbles, and is irritated to Excretion, *Lib. de Rat. Vict. in Morb. acut. διαβορβορίζουσα κοιλίᾳ κατὰς ἡβαστάσεις* "The Belly rumbling, with "vain Efforts to ease itself," *Prorrh. διαβορβορίζουσα ὑποχονδρία μέλαινα* "The Hypochondria rumbling, and "elevated, *Aph. 73. Lib. 4.* *ὑπερβορβορίζειν* is also used, as, *κοιλίᾳ ὑπερβορβορίζουσα φύσιν*, "the Belly rumbling with Flatulencies," *Arctæus, Lib. 2. Cap. 6. de Causis & Signis acut. Morb. οἱ ἐν πλοῖσιν ὑπερβορβορίζουσιν* "Who have a Rumbling in them when they drink," *Coac.* This sort of Noise is like what is produced by treading in Mire, *βέβροθ*, whence it takes its Name.

BOREAS, *Boreales Venti*. The Northern Winds are of a cold Temperament, and therefore the most wholesome of all Winds, especially to Bodies of a hot Complexion, and well cloathed with Flesh. *Actius, Tetrab. 1. Serm. 3. Cap. 163.*

It is observed, that the North and East Winds bring with them the universal Acid of the Air in great Abundance: Hence they might reasonably be expected to be cold, *a priori*, as we in Effect find they are. In consequence of this Cold, all Tendency to an alkaline Putrefaction, and a Dissolution of the Blood, is destroy'd; that is, all Contagion, in some Degree at least; which the South Winds, as productive of Heat, increase and promote.

Hence we may readily determine, what sorts of Diseases the North Wind is likely, in general, to produce; which are such as depend upon an increased Rigidity of the Fibres, and a Viscidity of the Juices, the Consequences of Cold. And, in Fact, we find in these Northern Climates, most Fevers, those which happen during Winter more especially, are accompanied with a Siziness of the Blood; whereas very hot Countries are more

subject to Fevers attended with a Dissolution of the Juices, that is, pestilential Disorders.

BORIDIA. A sort of salt Meat, prepared of a kind of small Fish, and eaten raw. This, with other Pickles of the like Kind, are hurtful to the Stomach, hard of Digestion, and loosen the Belly. *Oribasius* from *Xenocrates, Med. Coll. Lib. 2. Cap. 58. ad finem.*

BORITIS. The Philosopher's Stone, which melts the Copper of the wife Men, and renders it fluid like Water.

BORIZA. The same as *LUNARIA*, which see.

BOROMETZ. See *AGNUS SCYTHICUS*. See *AGNUS*.

BOROS, *βορρς*. Voracious, edacious. Hence *ὕδωρ βορρς*, voracious Water; that is, Water which excites a good Appetite, *Aph. 18. Lib. 6. Epid. Sect. 4. Galen* says, "All the Greeks, in "our Part of Asia, still call great Eaters by the common Name "of *Bori*." *βορρς*, in the Ionic Dialect, for *βορρς*, signifies Food, *Lib. 1. πρὸς γυναικῶν. βορρς*, in *Hesychius*, is expounded by *βρῶσις, σίτησις, τροφή*, "Meat, Food, Aliment."

Castellus, by an egregious Blunder, calls this *Borrhus*, *βορρς*.

BOROZAIL, or the Zail of the Ethiopians. A Disease epidemic in the Countries about the River *Senega*. It principally infects the Pudenda, but is different from the *Lues Venerea*. This owes its Rise to immoderate Venery, to which they are very subject. This Distemper, in the Men, is call'd *Asab*; in the Women, *Affabatus*. *Blancard.*

BORSELLA. An Instrument belonging to the Glassmakers, by which they contract or extend their Glass Vessels, as they see Occasion. *Castellus*.

BOS, *Offic. Schrod. 5. 269. Schw. Quad. 63. Aldrov. de Quad. Biful. 13. Gefn. de Quad. 25. Bos domesticus, Jonf. de Quad. 26. Charlt. Exer. 8. Raii Synop. A. 70. Mas Taurus. THE BULL. Dale.*

But *Bos* properly signifies a Cow, Bullock, Heifer, or any thing of the Neat Kind.

Black Cattle, or Kine, as well as other Animals which feed on high Grass and Herbs, during Winter, and the Beginning of Spring, are lean, and of bad Juice; but as the Summer comes forward, and the Grass grows, they visibly increase in Flesh, and become of better Juice. But Animals which can eat tender Herbs, and short Grass, are best in the Beginning and Middle of Spring: Such are Sheep. The Beginning and Middle of Summer agree best with Goats, and their Flesh is most wholesome when they can browse on the tender Shoots of all manner of Shrubs.

Beef affords a good deal of Nourishment, and what is not easily dissipated, but generates too thick a Blood. And if a Person be naturally of a melancholy Temperament, a plentiful feeding on Beef will bring upon him some melancholy Disorder. As much as Beef surpasses Swines Flesh in Solidity, so much does this latter exceed the other in Sliminess of Substance, and yet is much easier of Concoction. *Oribasius, Med. Coll. Lib. 2. Cap. 28.*

In a Resolution of the Stomach, by which it becomes incapable of retaining the Food, Meats of a cold Quality, and such as are difficult of Concoction, rather than easy to be corrupted, are to be prefer'd; for which Reason many Persons digest Beef, who can digest nothing else. *Celsus, Lib. 4. Cap. 5.*

The same Author advises Eating of a Bullock's Spleen, to those who labour under a Hardness and Swelling of that Part, *Lib. 4. Cap. 9.*

The Marrow of young Bulls is reckon'd, by *Oribasius*, next in Goodness to that of Stags; that of Bulls and Goats, he says, is more drying and acrimonious, and therefore not so fit as the others for dissolving a scirrhus Tumor or Hardness. *De Virtut. Simpl. Lib. 2. Cap. 1.*

The Fat of Beef is reckon'd among Sudorifics, by the same Author from *Zopyrus, Med. Coll. Lib. 14. Cap. 56.*

The Dung of Bulls, like their Food, has but little Variation: It is of a drying Quality, and is also an Attractive. A Physician, of no mean Skill in his Profession, used to cover up his Hypodermal Patients with Cow-dung, and then expose them to the Sun, and by that means did much Good. He chose the Dung in the Spring-time, when it was moist, and the Cows were at Grass: This he dried, and laid aside for Use. He applied the same, by way of Cataplasm, to strumous and all other hard Swellings. *Actius, Tetrab. 1. Serm. 2. Cap. 115.*

With respect to the Ox-kind as an Aliment, it must be consider'd, that Animals of this Species live on Grass and Water only; and that their habitual Exercise is very little, most of their Time being employ'd in Eating, Sleeping, and chewing the Cud; unless when they are imprudently put upon hard Labour, as is the Custom in some Countries. Hence their Flesh is not render'd too hard by their habitual Exercise; nor are their Salts highly exalted either by their Food or Motion. It must therefore be a very good Aliment, under proper Management, when taken in due Quantities, and in proportion to the Exercise used by the Person who eats it.

But the English generally take care to abuse the Gifts of Providence, in regard to this salutary Food; and with much Pains contrive

contrive to convert Beef, of itself a very nourishing and strengthening Aliment, into a Poison, rendering it hard, and, in Consequence of that, indigestible, by laying it in Salt for many Days before they dress it; not to mention, that it is even then frequently swallow'd half raw. The digestive Organs, therefore, not being able to dissolve this indurated Aliment, and convert it into good Chyle, many Particles, too large to circulate thro' the minute Vessels of the Body, must stagnate in different Parts, and particularly in the Glands. Hence that Distemper which we call the Scurvy, the Source of innumerable Disorders, both acute and chronical; to which Sailors, on account of their salt Diet, are particularly subject.

It is owing to this Error, more than to our Climate, that the *English* are remarkable for being melancholy and dejected, especially in a rainy or cloudy Day, when the Atmosphere is light, and the Elasticity of the Air diminish'd; for on these Occasions it is, that they appear gloomy and unfociable, and are much inclined to find out a retired Place, where they may, without Disturbance, put an End to their Lives: A Custom too frequent amongst us, and which is peculiar to our own Country; for Self-murder is scarcely ever heard of abroad.

The *French*, with respect to their manner of Diet, are more prudent than we. They boil their Beef well, unsalted, and make of it large Quantities of Soup and Bouillies; adding to them a large Quantity of Vegetables, and Salt as they like it; by which they avoid the Inconveniencies and Disorders we voluntarily run into. Hence they are perpetually gay, and full of Spirits; and hence the Scurvy, and its Consequences, are known in *France* to none but the Sailors.

Beef, according to *Hippocrates, de Diata, Lib. 2.* is a strong Food, and binds the Belly, and is of difficult Concoction, because the Animal abounds with thick Blood, and its Flesh is heavy. In another Place, which is his Book *de Rat. Viſſ.* he says, that atrabilious Affections are exasperated by eating of Beef; for its Nature is insuperable, and it is not to be digested by every Stomach; but it is best qualified for Concoction and Distribution when thoroughly boil'd, after it has been hung up for a good while.

Simeon Sethi, giving us the Opinion of the Antients, writes, that Beef affords very firm Nourishment, and that the Blood generated of it is immoderately thick; for which Reason, in melancholy Constitutions, it causes various Diseases of the same Kind. It is also very heavy of Digestion and Distribution; but, if well concocted, is abundantly nutritive. If compared with Mutton, it is of a cold Nature, and generates melancholy Blood; but Broth made of it stops a Flux of the Belly proceeding from yellow Bile. If any one desires, or is compell'd, to feed on it, let him, if he be apprehensive of any Harm from it, eat it corrected with Vinegar, Garlick, and Rue; but it only proves of bad Juice in the before-mention'd Cases, and is a Remedy for a hot Stomach, and to those who use much and continual Exercise.

From the Premises we learn, that Beef is better for strong than weak Persons; for those who use Exercise, than the Sedentary; for those who are in the Vigour of their Age, than for Children or aged Persons; and in the cold Seasons of the Year, than in the hot. We see the Reason also, why Beef is call'd the Food of Heroes in *Nonnius*; and why its Broth is good to stop a Looseness, that is, when the Disease requires a Remedy of a glutinous Nature, that tempers Acrimony, and is a Vulnerary; and lastly, why it is hurtful to those who are of a melancholy Habit of Body, if they feed too freely on it. If it be eaten, then, by those who use much Exercise, and with Moderation, it will verify what *Celsus* says of it, *Lib. 2. Cap. 24.* which is, that it is good for the Stomach.

The Flesh of Bulls is inferior to that of Oxen in Wholesomeness; unless the Ox has been much inur'd to Labour, and his Flesh by that means render'd dry and hard. The Flesh of Oxen is also prefer'd to that of Cows.

The Smell of the Hide, but especially old Leather made of it, burnt or singed, is commended for the Hysteric Passion. The Tallow is of Service, where-ever Emollients are required. The Axungia, which is melted from the Hoofs, is more penetrating and emollient, because of finer Parts; but the Marrow exerts its emollient Virtue where-ever it is applied. That the Bones, calcin'd and pulveriz'd, are said to strengthen the Bowels, to stop a Looseness, and to be effectual against Worms and the Epilepsy, used either internally, or in Ointments or Plaisters, must be understood of such Cases where the Disorder proceeds from an Excess of Humidity, or an Acid, and is to be subdued by Driers and Absorbents. Some commend the Scrapings of a Bull's Horn, taken at the Time of his Coition, for the Epilepsy and Impotence; but, supposing it easy to be obtain'd at such a Juncture, it can no otherwise be effectual to these Purposes than as an Anti-acid, which acts by its volatile alkaline Salt. The Horns are also commended as proper for Suffumigation in pestilential Times; but I much question whether the inspir'd Fume, being of an alkaline Nature, would not more dispose the Humours to Putrefaction. The Hoofs have an antepileptic Virtue, with the Limitations aforesaid: Being

fried, and so taken, they may be of some Service in a Dysentery, where an alkaline, anti-acid, glutinous Faculty is requir'd. The *Talus* of a Cow pulveriz'd, and drank in Wine, is commended by *Foreſtus*, as a Specific against Worms in the Intestines. The *Membrum genitale*, or Pizzle of a Bull, pulveriz'd, or else a Decoction of the same, is reported to create a Desire of Coition in Men, but an Abhorrence of the same in Women; but Reason does not comprehend these Contrarieties, nor Experience attest them. There is a Stone sometimes found in the Gall-bladder of this Animal, which is call'd *Bezoar Bovinus*, and *Alcheron Lapis*, by the *Portuguese Mesang de Vaca*; and by the *Arabians Haraczi*, which is said by some to have an alexipharmac and antepileptic Virtue. But this Stone is not to be confounded with the *Bulithum*, or Ball, which is sometimes found in the Stomach, and sometimes in the Intestines of this Animal: These are usually call'd also *Tephi Bovini*, and consist of Hairs, which it gets off, by Licking, from its Body, and swallows; where by degrees they concrete into a Ball, which is commonly of the Colour of the Animal's Hair. *Sir Hans Sloane*, in his History of *Jamaica*, says, that some give half a Dram of it in Powder as an Astringent. These Balls have sometimes a shining Cruſt over them, in which respect they imitate the true Bezoar-stone. The Gall is fully treated on under the Article *BILIS*. The Spleen is not only commended in Decoctions, but for external Uses, in Affections of the Spleen, as Hardness, Inflammation, Pain, and Tumor. *Paracelsus*, as *Etmuller* writes, has a remarkable Experiment of the Virtue of this Part, which he chopp'd into small Bits, and boil'd in Water, for a Suppression of the Menſes, and a Cachexy proceeding from it. Reason does not comprehend this, but must yield to Experience. *Etmuller* goes on to tell us, that the Essence prepar'd with Spirit of Baum is commended in Obstructions of the Menſes, and a Cachexy thence proceeding. It may also conveniently be mix'd with liquid Essence of Steel, that it may be more appropriated to such Cases, and more especially to the internal Parts, and principally to the Opening of the Obstructions and Oppilations of the Mesentery. *D. Michaeli* had some compound Essence of Ox's Spleen mix'd with Essence of Steel, which he used in a Suppression of the Menſes, attended with Pain. Some commend it to provoke an Appetite. The Spleen of an Ox, distil'd with Spirit of Wine, is recommended for all Infirmities of the Stomach. Thus far *Etmuller*; but the Virtue of this distil'd Liquor, I should think, were owing to the Spirit of Wine, and that of the Essence to the other Ingredient, rather than to any thing proceeding from the Spleen of the Ox. In the *Berlin Dispensatory* there is a Medicine intitled, *Essentia Splenis Bovini*, which is extracted from the Spleen of a young Bull castrated, by means of Spirit of Wine, or of Baum, after it has been cut into thin Slices, and macerated for some Days in Spirit of Wine, saturated with Myrrh, or the Powder of Angelica, and then dried in the open Air.

The Liver of an Ox, dried and pulveriz'd, is commended as good in Fluxes of the Belly, and Hemorrhages. If it be serviceable in this Case, it acts as an absorbing, alkaline Powder; but then the Liver of other Animals will have the same Effect. It is said to be conducive in curing Infirmities of the Liver, if a Decoction be made of it, and other hepatic Plants; but I attribute such Effects to those Plants alone.

The Dung of an Ox is deservedly commended for its discutive Virtue in external Applications. Hence it is used recent, by way of Cataplasm, in Inflammations, particularly the Gout, as an approved Anodyne. Some mix with it Earth-worms, and apply it to the Abdomen, in order to cure the Colic, and discuss Flatulencies; as also in the Aſcites, to repress the Tumor, and discuss the Water; for, next to human Dung, that of an Ox is reckon'd the best for this Purpose. *Etmuller* says it is very effectually applied to cedematous Tumors: It is also commended against a Suppression of Urine, if applied to the Pecten, and the Region of the Pubes. The common People give the express'd Juice in Pains of the Colic; and *Etmuller* asserts, from certain Experience, that it is not only a present Remedy in the Colic, but also in the Pleurisy; that of this Dung, in the same manner as of human Dung, by repeated Digestion and Sublimation, may be prepar'd the *Zibethum Occidentale*, so call'd by *Paracelsus*, because it exhales a sweet Smell like Civet. *Dioscorides, Lib. 2. Cap. 73.* says, that the Dung of an Ox that grazes, applied recent, mitigates the Inflammation of Wounds. It is wrapp'd, he says, in Leaves, and heated in hot Ashes, and then applied to the Place; that a Fomentation of it asswages the Pain of the Sciatica; that it discusses Hardnesses, Pain, and Strumæ, being anointed with it, infused in Vinegar; and that a Suffumigation of the Dung of the Male of this Species represses the Falling-down of the Uterus; and that the Smell of it, when kindled, drives away Gnats. On these Passages, *Matthiolus* remarks: "We are to consider, that all Medicines of this Kind are accommodated to the hard Bodies of Rustics, such as Diggers, Mowers, and such as are inur'd to Work which requires bodily Strength; to such as these, when affected with scirrhus Tumors, it is applied by way of Cataplasm, with Vinegar." *Valescus de Tarranta*

ranta assures us, that the Dung of an Ox (or a Horse) is of excellent Use in a Gangrene, to preserve the sound Parts from Corruption: And, after him, *Sylvius* and *Barbette*, as they say, made use of the same Remedy, which they kept as a great Secret. But it is really a sordid Medicine, hardly worthy of a Physician, and to be left to the poor Commonalty, rather than to be recommended to the Rich and Noble, according to *Heister*, *Chir. p. 323*.

Cow's Urine, internally used, *Etmuller* says, cures the Gout, if it be taken in the Month of May, and the Feet are bathed a while in it, and, after that, the *Norimberg* Plaister is applied to them. *Dioscorides* says, that a Bull's Urine, with Myrrh, instil'd into the Ears, eases Pains thereof. *Helmont* proposes, as an approved Remedy for the Stone, the Liquor that usually fills the Bladder of the Fœtus in a Cow, drank every Morning, to the Quantity of about two Ounces, in a like Proportion of White-wine.

The Blood of a Bull, fresh-drawn, is reckon'd poisonous, by causing a Difficulty of Breathing, and Suffocation; but *Matthiæus* on *Dioscorides* observes, that, except it be drank in great Quantities, and hot as it comes from the Veins, before it concretes, it does little or no Harm. This poisonous Quality is not, however, confirm'd by later Experiments. But the Blood of Oxen and Bulls is commended, as internally used, for the Dysentery, an Excess of the Menfes, and other internal Hemorrhages; and, for Spitting of Blood, it is prescribed to be taken in Vinegar. Externally it is effectual in discharging and mollifying Tumors, and clearing the Face of Spots and Blemishes. *Etmuller* says, the Blood is hardly used, but in case of an Atrophy of the Limbs and Joints, after great Wounds receiv'd; and for Weakness and Pains in the Members and Joints, which, being thrust into the fresh Blood of an Ox, or a Dog newly kill'd, will be wonderfully refresh'd thereby, and render'd more pliable; and fit for Motion. The Blood of an Ox then, externally applied, has these Virtues in common with the Blood of other Animals; which Virtues are derived from its saponaceous Nature, whereby it is a Dissolvent and Aperient, its native Heat promoting its Operation. Internally taken, it is hurtful, by its natural Property, which causes it to congregate in the Stomach, and renders it insuperable by the vital Powers. *Helmont* says, that the Blood of a Bull is Poison, but not that of an Ox or Cow; and assigns as a Cause the Fury of the Bull, dying with an eager Desire of Revenge, which impresses a Mark of Vengeance, and a powerful Signature, on the Blood. *Guainerius* says, that not only the Blood of a Bull, but that of an old Ox, is poisonous. *Kiegar*.

BOSA. An Egyptian Word for a Mass, prepar'd of the Meal of Darnel, Hempseed, and Water, of the same inebriating Virtue as the *Assis*, which see.

BOSCADES, *βουσκάδες*. An Epithet for Pigeons which build in Towers, which some use to erect in the Fields. They are otherwise call'd *Agrestes*, wild, to distinguish them from the Domestic, *ἡ νοτίστικος*, *Galen, Lib. 2. de C. M. S. G. Cap. 10.* *Βουσκάς* is also a kind of dry Pitch, of a tenacious Quality, like Bird-lime. *Gorraeus*.

BOSCI SALVIA. A kind of Sage which takes its Name from *Boscum*, or *Boscus*, a Wood, the Places where it grows. *Blancard*.

BOSMOROS, or **BOSPOROS**, from *βρωσ*, to feed, and *πόρος*, a Portion or Division. A kind of Corn so call'd, because it is divided by the Teeth of the Mill, or by the Stone; or because it is separated from the Chaff by the Treading of the Oxen, it may derive its Name from *βῆς*, *Dorice*, *βῆς*, an Ox; or, again, from *βῆς* and *πείω*, to pass over. *Blancard*.

BOTAMUM. Wash'd Lead. *Rulandus*.

BOTANE, *βόταν*. An Herb; whence is derived

BOTANY. The Science relating to Herbs and Plants, for which the Antients have no Name, as it was not in their Days erected into a regular Science.

Before I proceed to the History of Botany, it will be convenient to give an Explication of the Botanical Terms commonly us'd, which will save the Reader the Trouble of turning to a Multitude of Articles, in order to understand what will afterwards be said.

A

ACAULIS & ACAULOS, without a Stalk; that is, when the Flower of a Plant grows close to the Ground, having no visible Stalk, as in the Carline-thistle.

ACINUS & ACINI, are the Berries or Fruit of the Elder, Privet, Ivy, &c.

AGARICUS. See this Word in the Letter A.

ALA is the Sinus of a Stalk, which the Leaf or Pedicle makes with the Stalk or Branches, from whence a new Offspring uses to put forth.

ALCYONIUM. See this Word in the Letter A.

ALGA. The *Alga* is a Species of Plant that grows in Water, with fine oblong grassy Leaves, and more perfect Seed than that of the Fucus; for its Vessels, when come to Maturity, gape, and let fall the Seed, as it happens in more perfect Plants.

AMENTACEOUS FLOWERS are such as have an Aggregate of Summits hanging down in form of a Rope or Cat's Tail; as

the Male Flowers of the Mulberry, the Hazel, Walnut, and Oak. These are also call'd *Iuli*, and, in English, *Katkins*.

APETALOUS FLOWERS. See *FLOS*.

APICES, *Summits*, are those Bodies which hang upon the Chives, or Threads, which generally surround the Pointals of Flowers, and contain the prolific Powder, which is analogous to the Male Sperm in Animals.

ARBOR, a Tree, is defin'd to be a woody Plant of the largest Growth, whose Trunk is perennial and single, and divided into many large Branches, which are again divided into smaller Twigs, on which the Leaves, Flowers, and Fruits, are produc'd.

ARISTA is that sharp-pointed Needle which stands out from the Husk, or Covering of the Grain of Corn or Grass, and is call'd *Awn*, or *Beard*.

ARTICULATION is the Connexion of Parts that consist of Joints or Knees, such as the Pods of Birdsfoot, or French Honeysuckle, which, when ripe, divide into so many Parts as there are Knees or Joints.

AXIS is a taper Column placed in the Centre of some Flowers or Katkins, about which the other Parts are dispos'd.

B

BACCA, a Berry, a roundish Fruit, for the most part soft, containing one or more Seeds in a pulpy Substance.

BALAUSTIUM is the Cup of the Flower of the wild Pomegranate.

BARBULÆ are the Half-florets of compound Flowers.

BIVALVE: The Pods or Husks of Plants, which open lengthways in two Parts, like the Shell of a Muscle, are term'd *Bivalve*.

BRACHIA are the Division of the large Branches of Trees from the Trunk.

BRYUM. The *Bryum*, or *Bryon*, is a fertile kind of Moss, which differs from the *Polytrichum* by its smooth Calyptra, and from the *Hypnum* principally with respect to the Original of its Pedicles, which proceed from the Tops of the Stalks and Branches, or from the Radicles and annual Shoots, which, the former Year, were the Tops of the Stalks, and have not their lower Part inclosed in a squamous Sheath, like those of the *Hypnum*. Add to these Characters, that its Stalks are, for the most part, erect, and less branch'd than those of the *Hypnum*, and not trailing and creeping. The Calyptræ are situated sometimes perpendicularly, sometimes obliquely in the Head, and the Seed-vessels, usually part transversely, sometimes with an even, sometimes with an indented Margin.

BULBUS. Bulbous Roots are such as consist either of several Coats involving one another, or of several Scales lying one over another. The first of these is call'd a tunicated Root, (of this Sort is the Onion and Tulip) and the last is call'd a squamous (that is, a scaly) Root; of which sort is the Lily and Martagon.

BYSSUS. The *Byssus* is the lowest, and a barren kind of Moss, consisting of a very thin, and, to the naked Eye, imperceptible sort of Wool, which is produc'd from various Substances, appearing sometimes like a very fine Powder, sometimes like Down, and frequently lasts for a considerable time, in which respect it differs from the *Fungus*, as it does also in having no Head, or any other Resemblance to the rest of the *Fungi*.

C

CALYPTRA is the thin Involucrum or Cover of some Seeds.

CALYPTRA, a thin Cup, which covers the Heads of some of the Mosses.

CALYX, or Empalement, is generally understood to mean those less tender Leaves, which cover the other Parts of the Flower.

CAPILLAMENTS in Flowers are generally understood to mean the Chives which support the *Apices*.

CAPITELLUM, the Head or Seed-vessels, frequently applied to Mosses.

CAPITULUM is the Head or Top of any Plant.

CAPSULA is the short Pod or Husk of a Plant, containing the Seed.

CARINA is the concave Petal or Segment of a Butterfly-flower, which resembles the Keel or lower Part of a Boat.

CAUDA, the Tail of a Leaf, is a Production of the middle Rib, and connects the Leaf with the Stalk, after the manner of a Pedicle; when the middle Rib has an Appendix of the Leaf running along it, it is often call'd a wing'd Leaf.

CAUDEX is the Trunk of a Tree.

CAULIS is a Part of a Plant receiving the Nourishment from the Root, and conveying it into the other Parts with which it is cloath'd, not having one Side distinguishable from the other. The Stalk of a Tree is call'd the Trunk, and in Corn and Grass it is call'd the Blade.

CAULIS PROCUMBENS, a procumbent or trailing Stalk, is that which lies on the Ground without emitting Roots.

CAULIS REPENS, a creeping Stalk, is that which lies on the Ground, and propagates itself by emitting Roots, as the Ivy and Strawberry.

CAULIS SCANDENS, a climbing Stalk, is that which climbs by the Help of Tendrils, as the Vine and Briony.

CAULIS VOLUBILIS, a twining Stalk, is that which twists about any Prop without the Help of Tendrils, as the Hop, Kidney-bean, &c.

CIRRI are the little Fibres of the Roots of Plants.

CLAVICULUS, or *Capreolus*, (that is, Tendrils) is a Part of a Stalk, curling and laying hold on any adjacent Body, and is always produc'd at a Joint. These are also call'd *Claspers*.

COMA is the Top of a Branch or Flower.

CONSERVA. The *Conserva* is a barren kind of *Moss*, destitute of little flowery Heads, and even of those Boffes and Tubercles, which some other Kinds are furnish'd with instead of them, and consisting only of round, smooth, and uniform Leaves, or rather little Stalks, divided into fine Capillaments.

CONUS, a Cone, is the Fruit of the Pine, Fir, and Cedar.

CORYMBUS signifies a Cluster of Flowers or Fruit standing on Pedicles, which are disposed in such a manner as to form a Sphere; of this sort is the Ivy.

CRENA, or crenated Leaves, are such as are cut about the Edges into several obtuse Segments.

CUBITUS, a Cubit, that is, a Foot and a half; so the Stalks of Plants are term'd *Cubitalis*, *Bicubitalis*, &c. according to their Height.

CULMUS is the Stalk or Blade of Corn.

CYLINDRUS, that is, Cylinder; the Fruit of Plants are term'd Cylindrical, when they resemble a Column.

CYTINUS is generally understood to mean the Flowers of the true Pomegranate; but, by some Writers, the Cups of Flowers, which expand after the same manner, are term'd *Cytiniformes*.

D

DENTICULATUS, that is, indented; those Leaves of Plants which are cut about the Edges into several Segments, more acute than the crenated Leaves, are term'd denticulated.

DIGITATED LEAVES are compound Leaves divided into several Parts, all of which meet together at the Tail, in form of a Hand.

DISCUS, the Disk, is an Aggregate of Florets, forming, as it were, a plain Surface.

DISSEPIMENTUM is the thin Septum which divides the several Cells in the Fruit of Plants.

E

ECHINUS; those Plants, or Parts of Plants, which are beset very closely with Spines, like a Hedgehog, are term'd echinated.

EMARGINATUS; those Leaves of Plants which are hollow'd at their Extremities, so as to form a Heart, are call'd Emarginated Leaves.

EMBRYO is the tender Fœtus of the Plant.

ESCHARA. The *Eschara* is a stony kind of Plant, somewhat resembling a Web in its Contexture.

F

FIMBRIA, Fringe; those Parts of Plants or Flowers, whose Borders end in small Threads resembling fring'd Linen, are term'd fimbriated.

FISTULOUS PLANTS are such whose Stalks are hollow like a Pipe.

FLOS, that is, a Flower, is the Organs of Generation of both Sexes, adhering to a common Placenta, together with their common Coverings, or of either Sex separately, with its proper Coverings, if it have any.

The Flowers of Plants are distinguish'd by Botanists in the following manner.

FLOS AMENTACEUS, Amentaceous Flowers; these are such as are term'd Katkins.

FLOS APETALUS, Flowers without Petals; these are such as have no other Covering to the Parts of Generation but the Calyx.

FLOS CAMPANIFORMIS is such a Flower as is shap'd like a Bell. Those Flowers whose Edges spread very wide, are term'd open bell-shap'd Flowers; but those which are much less spread, are call'd tubulous bell-shap'd Flowers.

FLOS CARYOPHYLLEUS is such a Flower as is shap'd like a Clove-gilliflower.

FLOS COMPOSITUS is a compound Flower, which is compos'd either of Florets or Semiflorets, or of both together. Of this kind is the Blue-bottle, Knapweed, and many others.

FLOS CRUCIFORMIS, a cross-shap'd Flower, which is compos'd of four Petals, plac'd in form of a Cross. Of this sort are the Cabbage, Mustard, and Wall-flower.

FLOS FLOSCULOSUS, a flosculous Flower, is that which is compos'd of several Florets, included in one common Cup.

FLOS INFUNDIBULIFORMIS, a funnel-shap'd Flower, is that which is shap'd like a Funnel. Of this kind is the Primrose, lesser Centaury, and many others.

FLOS LABIATUS, a Lip-shap'd Flower. This is an irregular monopetalous Flower, divided commonly into two Lips; the upper Lip is call'd the Crest, and the under one the Beard. Sometimes the Crest is wanting, and then the Style and Chives supply its Place. This is by some call'd an unilabiated Flower.

FLOS LILIACEUS, a Lily-shap'd Flower, is generally compos'd of six Petals, which resemble those of the Lily. Of this sort are the Tulip and Asphodel.

FLOS MONOPETALUS, a Flower compos'd of one Leaf. All those Flowers whose Petals are join'd at the Bottom, so that they fall off entire, are term'd monopetalous Flowers.

FLOS MONOPETALUS ANOMALUS, an irregular Flower, consisting of one Leaf.

FLOS PAPILIONACEUS, a papilionaceous or pea-bloom Flower, is one which, in some measure, resembles a Butterfly with its Wings expanded. It always consists of these four Parts; the Standard, (or *Vexillum*) which is a large erect Segment or Petal; the two Wings, (*Alae*) which compose the Sides; and the Keel, (*Carina*) which is a concave Petal or Segment, resembling the Keel of a Boat; this is sometimes entire, and, at other times, it consists of two Petals or Segments, adhering pretty close together. Of this sort are the Bean, Pea, and Vetch, &c.

FLOS PERSONATUS, a personated Flower, that is, an irregular monopetalous Flower, whose upper Part resembles the Beaks of Fowls. Of this kind are the Snap-dragon, Toad-flax, and others.

FLOS PETALODES, a petalous Flower, that is, a Flower whose Organs of Generation are surrounded with Leaves or Petals.

FLOS POLYPETALUS, a polypetalous Flower, that is, a Flower compos'd of several Leaves or Petals. When these agree in Figure and Position, it is call'd a regular polypetalous Flower; but when the Petals do not agree in Figure and Position, it is call'd an irregular polypetalous Flower.

FLOS RADIATUS, a radiated Flower, consists of two Parts; the Disk, which is an Aggregate of Florets forming a plain Surface, and the Rays, which are several Semiflorets set round the Disk, in form of a Star. These are call'd radiated discous Flowers; but those which have no such Rays, are call'd naked discous Flowers.

FLOS ROSACEUS, a rose-shap'd Flower, that is, a Flower consisting of four or more Petals, which are plac'd circularly in form of a Rose.

FLOS ROTATUS, a Flower in the Form of a Wheel. Such are those of Borrage, Anagallis, and Willow-weed.

FLOS SCORPIOIDES, that is, when the Flowers are rang'd on one Side of the Pedicle, which twists at the Top in form of a Scorpion's Tail. Of this sort is the Heliotropium.

FLOS SEMIFLOSCULOSUS, a semiflosculous Flower; this is compos'd of several Semiflorets, included in one common Calyx.

FLOS SPICATUS, a spik'd Flower, is that whose Flowers are set thick on the Pedicle, in such a manner as to form an acute Cone.

FLOS STAMINEUS, a stamineous Flower, is that which is compos'd of many Chives included in a Calyx, having no Petals. Of this sort is the Bistort and Sparganium.

FLOS STERILIS, barren Flowers; these have no Embryo adhering to them; so are call'd Male Flowers, and False Flowers. Of this kind are the Melon and Gourd.

FLOS VERTICILLATUS, that is, a whorle-shap'd Flower. These Flowers grow closely united, surrounding the Stalk at the several Joints.

FLOS UMBELLATUS, an umbellated Flower, is, when the Extremity of the Stalk or Branch is divided into several Pedicles or Rays, beginning from the same Point, and opening in such a manner as to form a kind of inverted Cone, like an Umbrella. When the Pedicles, into which the Stalk is divided, are subdivided into others of the same Form, upon which the Flowers are disposed, the first Order is call'd Rays, the second Pedicles. That Umbel which consists of Pedicles only, is call'd a single Umbel; that which is compos'd both of Rays and Pedicles, is call'd a compound Umbel.

FLOS URCEOLATUS, or Pitcher-shap'd Flower. Of this sort are the Arbutus and Whortle-berry.

FOLIUM, a Leaf, is a Part of a Plant, extended into Length and Breadth in such a manner as to have one Side distinguishable from the other. This is call'd in *Latin* *Folium*, to distinguish it from the Leaf of a Flower, which is call'd *Petalum*.

FOLIUM ALATUM, a wing'd Leaf, is, as it were, compos'd of several pinnated Leaves.

FOLIUM ANGULATUM, an angular Leaf, is that whose Margin is cut into several Angles.

FOLIUM AURICULATUM, an ear'd Leaf, is that whose Base, next the Pedicle, is indented, somewhat resembling an Ear.

FOLIUM COMPOSITUM, a compound Leaf, is that which is divided into several Parts, each resembling a simple Leaf.

FOLIUM CRENATUM, a crenated Leaf, is that which is cut about the Edges into several obtuse Segments.

FOLIUM DIGITATUM, a digitated Leaf, is a compound Leaf, divided into several Parts, all of which meet together at the Tail, so as to resemble a Hand.

FOLIUM HEPTAFOLIATUM, a heptafoliated Leaf, is a digitated Leaf, consisting of seven Fingers.

FOLIUM INTEGRUM, an entire Leaf, is that which has no Division on the Edges.

FOLIUM LACINIATUM, a jagged Leaf, is that which is cut about the Edges into several deep Portions, in an irregular manner.

FOLIUM PENNATUM, a pennated Leaf, is a compound Leaf divided into several Parts, each of which is call'd a Lobe, plac'd along the middle Rib, either alternately, or by Pairs. When the middle Rib is terminated by an odd Lobe, it is call'd an unequal pennated Leaf; and when it is not terminated by an odd Lobe, it is term'd an equal pennated Leaf. When the Lobes are all nearly of the same Form and Bigness, it is call'd an uniform pennated Leaf; when they are not so, it is term'd difform.

FOLIUM QUINQUEFOLIATUM, a quinquefoliated Leaf, is a digitated Leaf consisting of five Fingers.

FOLIUM RAMOSUM, a ramose Leaf, is that which is still farther divided than the wing'd Leaf, as is the common or Female Fern.

FOLIUM SAGITTATUM, a Spear-shap'd Leaf, is that which ends in three sharp Angles, resembling a Dart.

FOLIUM SIMPLEX, a simple Leaf, is that which is not divided to the Middle.

FOLIUM SINUATUM, a sinuated Leaf, is that which is cut about the Edges into several acute Segments, like the Teeth of a Saw.

FOLIUM TRIFOLIATUM, a trifoliated Leaf, is a digitated Leaf, consisting of three Fingers.

FOLIUM TRILOBATUM, a trilobated Leaf, consists of three obtuse Lobes, which are not divided to the Bottom.

FOLIUM UMBILICATUM, an umbilicated Leaf, is that which has the Pedicle fasten'd to the Backside of a Leaf, so that, on the upper Side of the Leaf, there is a small Cavity form'd like a Navel.

FOLLICULUS is a leafy membranaceous Sheath or Covering, which surrounds the Fruit or Seed; as the Winter-cherry.

FONTINALIS. The *Fontinalis* is a sort of Moss distinguish'd by its close uniform Heads, supported by none, or very short Pedicles, and, when come to Maturity, opening transversely in the upper Part, and discharging a Capitellum.

FORNICATUS, or fornicated Petals, are such Flower-leaves as are arch'd after the manner of the Galea, or Crest, of the Clary, and Sage.

FRUCTUS, a Fruit. By the Word Fruit is to be understood the Seeds of all Plants, with their Covering.

FRUCTUS UMBILICATUS, an umbilicated Fruit, is that which had the other Parts of the Flower growing on its Top when it was an Ovary. They usually form a Cavity, which is known by the Name of the *Umbilicus*, or Navel; as in the Medlar, Rose, and Pomegranate.

FRUTEX, a Shrub, is a Plant with many woody perennial Trunks, such as Roses, Syringa's, and Spanish-broom, which divide into several Stems near the Ground; but the Word is frequently us'd by Gardeners for all woody Plants of low Growth.

FUCOIDES. The *Fucoides* is a Species of Plant which grows in Waters, and is of a middle Nature between the *Conserua*, *Corallina*, and *Fucus*. It is often finely divided, and of a more tender Substance than the *Fucus*, and not distinguish'd by Nodes, and Joints like the *Conserua* and *Corallina*.

FUCUS. The *Fucus* is a Species of Plant growing in Water, whose Leaves and Stalks are of various Figures. It is, for the most part, of a viscid and coriaceous Substance, and is furnish'd with Vessels on both Sides, which admit the Air, being form'd to assist its Floating. Its Extremities are often set with Tubercles, which seem to contain something of a seminal Nature.

FUNGOIDES. A *Fungoides* is a Species of *Fungus* without a Head or Cap, whose Pedicles or Stalks are of various Shapes and Divisions. As to its Substance, it consists of an uniform Matter, which is undivided into Lamellæ, or by Pores.

FUNGUS. A *Fungus* is the lowest, and a very imperfect Genus of Plants, having neither Seed nor Flower, as far as can hitherto be observ'd, and remarkably differing from other Plants, in that it has not an herbaceous Colour, nor Leaf, properly speaking, nor any thing else analogous in its Contexture. Most of them spring up in a very short time, and are as soon dissolv'd into the putrid Matter whence they arose.

G

GENICULUM, a Knot; such Roots and Pods of Plants are said to be geniculated, as are divided into Joints.

GLUMA is the Husk or Chaff of Corn.

H

HABITUS PLANTÆ is the outward Appearance of Plants, or what they call the *Port*.

HERBA, an Herb. By an Herb is meant all such Plants whose Stalks die to the Ground every Year. Those whose Roots do not continue longer than one Year, are term'd annual

Plants; those whose Roots continue two Years, are term'd biennial Plants; and those whose Roots continue many Years, are term'd perennial Plants.

HYPNUM. The *Hypnum* is a fertile kind of Moss, furnish'd with uniform calyptrated Heads (*Capitulis*); the Calyptræ, for the most part, being situated obliquely on them. The Capitella fall off transversely, sometimes with an even, and sometimes with an indented Margin. The Pedicles, which, for the most part, are pretty long, proceed from the Sinuses of the Leaves, and shoot along by the little Stalks and Branches, and have their lowest Part inclosed in a squamous Sheath, which is different from the Leaves. To these Characters we may add, that the Stalks are, for the most part, set at a wider Distance, and more branch'd, than in the *Bryon*.

I

IMBRICATUS. The Leaves or Scales of Plants are said to be imbricated, when they are disposed so as to lie one on the Edge of the other, after the manner of Tiles on a House.

INTERNODIUM is that Part of the Stalks of Plants between the Knots or Joints.

IULUS is a Katkin.

L

LANUGO, Down. The Seeds of Plants which have a downy Substance fasten'd to them, which serves as Wings to transport them, are term'd lanuginous, as the Thistle: These are also call'd pappous.

LICHEN. The *Lichen* is a floriferous as well as feminiferous kind of Moss, whose flowery little Heads are furnish'd with many Grains, and are variously shaped, producing, as they ripen, several little monopetalous Flowers. The Seeds, which are small, flat, and orbicular, are contain'd in some peculiar open Capsules, resting upon the Plane of the Leaves; and are sometimes found in the same Plant that bears the little Heads, sometimes in other Plants of the same Species. Besides these flowery little Heads, there are observed in some Species some umbellated Heads of different Figures, which produce neither Flower nor Seed, as other Plants of the same Species usually do. The Pedicles of both Species are, for the most part, naked, and proceed from no Vagina. Tho' these Characters are very evident, yet, the more easily to distinguish it from the rest of the Tribe of the Mosses, we may add, that the Leaves are of an herbaceous Consistence, and of an indeterminate Figure, widely spreading, and running out into numerous Roots from their back Part.

LICHENASTRUM. The *Lichenastrum* is a fertile, or a remarkably floriferous, kind of Moss, with Heads supported by pretty long Pedicles; which Heads, as they ripen, usually cleave into four equal Parts, as far as the Base, and resemble a cruciform Flower, and discharge a very fine Dust, which answers to the fine Flour of the Apices in the most perfect Flowers: This Dust cannot be denied to be of the same Service in the rest of the Mosses, since the Dust of their Heads appears to be exactly of the same Figure and Contexture, if examined with a Microscope. The Heads of the *Lichenastrum* are simple and naked, each standing on its own Pedicle, which is longer or shorter, and proceeds from a Vagina or Sheath, sometimes simple, sometimes bivalve, and sometimes divided at the Top into several Parts, by which Character it is very clearly distinguish'd from the *Lichen*.

LICHENOIDES. The *Lichenoides* is distinguish'd from the *Conserua* and *Ulua*, by its Bosses and Tubercles; and from the *Lichen*, *Lichenastrum*, and others, by the same, and its being destitute of little flowery Heads, and consisting of a middle Substance between the *Fungi* and *Mosses*; whence many of its Species are usually call'd *Musco-fungi*.

The *Lichenoides* are divided into,

I. The Cauliferous, or Stock-bearing, which are subdivided into,

1. The capillaceous, not tubulous, and scutellated, that is, with Eminences like little Targets, from *Scutella*, a little Target or Buckler.

2. The coralliform, for the most part, set with Tubercles; and of this Sort there are (1.) the solid, and not tubulous; (2.) the tubulous.

3. The pyxidated, that is, hollow'd in form of a Box, in Latin *pyxis*.

4. The fungiform, or those resembling a *Fungus*.

II. The *Lichenoides* without Stalks, subdivided into

1. The purely crustaceous.

2. Those with a leafy, scutellated Crust, or scutellated Leaves, closely adhering one to another; and these are either (1.) of a Jelly-like Substance; or (2.) of a harder and juiceless Consistence.

3. Those with Leaves more at Liberty, and not growing so close to one another; and these are either (1.) with Leaves scutellated and tuberculated, or (2.) peltated.

LITHOPHYTON. A *Lithophyte* is a Species of Plant, of horny sort of a Substance, and of a middle Nature, between Wood

Wood and Stone. There usually adheres to it a Bark, which consists of a Contexture of Fibres, or resembles Tartar. *Boerhaave* calls these *Keratophyti*.

LOCULAMENTA are the Cells in the Fruit of Plants, where the Seeds are lodged, which are divided by small Partitions.

LOCUSTA is the outer Covering of the Flower and Grain of Corn, which incloses the Chaff.

LYCOPODIODES. The *Lycopodioides* differs from the *Lycopodium*, in the same respect as the *Selaginoides* differs from the *Selago*.

LYCOPODIUM. The *Lycopodium* is a fertile kind of Moss, destitute, as well as the *Selago*, of Pedicles and Capitella: But it differs from the *Selago*, in that its Heads, or Capsules, grow not scatter'd in the Sinuses of the Leaves, but are collected into a Club; for each Scale covers a Kidney-shaped and bivalve Capsule, which loses no Part of itself when ripe.

M

MALLEOLUS, Mallet. The Cuttings of Vines, which are taken with Joints of the old Wood to their Bottom, so as to resemble a little Mallet, are term'd *Malleoli*; which Cuttings more certainly take Root than any other; and always make better Plants.

MARGINATUS, border'd. The Seeds of Plants which have a thin leafy Border round them, are said to be marginated; as those of the Stock-gilly-flower, Honeysy, and others.

MINIUM. The *Minium* is a fertile kind of Moss, furnish'd with little flowery Heads, or feminal ones, if they may be so esteem'd, which are of two Sorts; for some of them are naked and dusty, having neither Capsule nor Cover, nor so much as surrounded with a Membrane; but others are observed to be like the rest of the floriferous kinds of Moss, particularly the *Hypna* and the *Brya*; and the different Manner of flowering is what distinguishes this Kind from all the rest. There is usually a Variety in the little Heads, sometimes in the same, sometimes in different Plants; and the Pedicles which support membranaceous Heads, are pretty long and bare; but those which have their Heads naked are observed to be much shorter than the others, and surrounded with very small Leaves.

MUCRO, a sharp Point. Those Leaves or Fruits of Plants, which are terminated in a sharp Point, are termed mucronated.

MULTICAPSULAR PLANTS are such as have several Pods of Seeds succeeding each Flower, as the Celandine, Columbine, and others.

N

NUCLEUS, a Kernel, is that Part of the Fruit which is inclosed in a hard Shell, as the Kernel of the Almond and Apricock.

O

OSSICULUM, a Shell, is the hard stony Covering of Seeds.

P

PANICULA, a Panicle, is a Stalk diffused into several Pedicles, sustaining the Flowers or Fruits; of this Sort are the Oat, Millet, and others.

PAPPUS, Down. See LANUGO.

PEDICULUS, a Pedicle, is that Part of a Stalk which immediately sustains a Leaf, a Flower, or a Fruit, and in *English* is call'd Foot-stalk.

PETALA, Petals, are the tender fine-colour'd Leaves, which are generally the most conspicuous Parts of a Flower; so those Flowers which consist of one Leaf, are call'd monopetalous Flowers; those of two Leaves are call'd bipetalous; those of three Leaves, tripetalous; those of four Leaves, tetrapetalous; those of five Leaves, pentapetalous; those of six Leaves, hexapetalous; and those of a greater Number of Leaves, are term'd polypetalous.

PEZIZA. The *Peziza* is a Species of *Fungus*, sometimes without Pedicles, and sometimes with them, having its Edges divided in such a manner as to form a remarkable Cavity between them. It is of an uniform Substance, like the *Fungoides*, and neither distinguish'd by Lamellæ nor Pores.

PISTILLUM, Pointal or Style, is that Column which occupies the Centre of the Flower, rising on the Top of the Embryo, and is generally surrounded with the Chives. These differ greatly in their Form; for in some Flowers they are roundish, in others triangular, oval, or square.

PLACENTA is that Part of the Pod or Husk of a Plant to which the Seeds are fasten'd, and by which they are nourish'd till they are ripe.

PLANTA, a Plant, is an organical Body, destitute of Sense, and spontaneous Motion, adhering to another Body in such a manner, as to draw from it its Nourishment, propagating itself by Seed. Under this generical Name are included Trees, Shrubs, Under-shrubs, and Herbs.

POLYPETALOUS, many Leaves. Those Plants are term'd polypetalous, whose Flowers are composed of several Leaves.

POLYTRICHUM. The *Polytrichum* is a fertile kind of Moss, whose Capitellum commonly quits the Plant transversely, with an even Margin; and is cover'd with an upright and villous Calyptra, with a Capitellum; by which Character it is distinguish'd from the *Bryon*. From the *Hypnum*, besides the Difference of the Calyptra, it is distinguish'd by its erect and less branch'd Stalks, which, from their Tops, or from annual Shoots, produce naked Pedicles, not having their lowest Part inclosed in a squamous Sheath.

POMUM, an Apple, is generally understood to be any fleshy Vessel, containing more Seeds than one; so that all Plants which produce such Fruit are term'd pomiferous, that is, Apple-bearing.

PRUNUM, a Plum, is a fleshy Vessel, inclosing a hard brittle Shell, in which are one or two Seeds; so that all Plants which produce such Fruit are term'd pruniferous, that is, Plum-bearing.

PULPA, Pulp, is the soft Part of Fruits which surrounds the Seeds, as in the Tamarind and Cassia.

PYRAMIDATUS, pyramidal. Those Flowers or Fruits which grow in form of a Pyramid, are term'd pyramidal.

R

RACEMUS, a Cluster, is a Stalk divided or branch'd into several Pedicles, sustaining the Flowers or Fruits thick set together (as in the Vine and Currant): The first of these Conditions distinguishes it from a Spike, the last from a Panicle.

RADIX, a Root, is that Part of a Plant by which it naturally receives its Nourishment. These are of different Forms and Contextures, some of them being fibrous, others fleshy or woody.

RADIX ASPHODELI, an Asphodel-root, is that which is composed of several oblong fleshy Knobs; of this Kind are the Kingspear and Day-lily.

RADIX BULBOSA, a bulbous Root, is that which consists of several Coats, involving one another, or of several Scales lying one over another. The first of these is call'd a tunicated Root; of this Sort are the Onion, Tulip, and Hyacinth (from whence the *French* call all these Sorts of Roots Onions); the last is call'd a squamous (or scaly) Root; of this Sort are the Lily and Martagon.

RADIX FIBROSA, a fibrous Root, is that which consists only of small Fibres like Hairs; of this Sort are Grass and Corn.

RADIX GRANULOSA, a granulous Root, is a kind of grumous Root, consisting of many small fleshy Knobs, resembling Grains of Corn; of this Kind is the white Saxifrage.

RADIX GRUMOSA, a grumous Root, is that which consists of many oblong fleshy Knobs, joined to one Centre at the Top; of this Sort is the Ranunculus.

RADIX PALMATA, a handed Root, is a tuberous Root, divided as it were into several Fingers, so as to resemble a Hand; of this Sort is the handed Orchis.

RADIX TESTICULATA, a testiculated Root, is a double tuberous Root; for it consists of two Knobs, resembling a Pair of Testicles: Of this Sort are some of the Orchis Species.

RADIX TUBEROSA, a tuberous Root, is that which consists of an uniform fleshy Substance, and is generally of a roundish Figure: Of this Sort is the Sowbread.

RAMUS, a Branch, is the Division of a Stalk; in Trees it is often call'd a Bough.

S

SELAGINOIDES. The *Selaginoides* is a kind of Moss, which agrees with the *Selago* in all respects, except its Heads, which consist of three or four Grains, and, when ripe, open, as it were, into as many Capsules: Of this there is but one Species hitherto known in *England*.

SELAGO. The *Selago* is a fertile kind of Moss, destitute of Pedicles and Capitella; for the Heads are situated in the Sinuses of the Leaves, being bivalve, and shaped like a Kidney; or, when ripe, cleave in two lengthwise, and discharge a mealy Substance, without letting go any Part of the Capitellum.

SEMEN, a Seed, is that Part of a Plant which is committed to the Earth, in order to obtain a Plant of the like Kind with its Parent Plant, which produced it.

SEMEN also signifies a Body perfected by the mutual Operation of both Sexes, containing the Rudiment of such Plant as that from which it was taken; so may properly be judged to be analogous to the Egg of an oviparous Animal.

SEMEN NUDUM, a naked Seed, is that which has no Covering, beside the Empalement, remaining upon it, till the time of Vegetation.

SEMEN PAPPOSUM, a downy Seed, is that which has a downy Substance, like Wool, fasten'd to it, by which it is transported in the Air to a great Distance from the Parent Plant.

SILIQUEA, a Pod, is a long, flat, or round membranaceous Vessel, containing one or two Rows of Seeds.

SPHAGNUM. The *Sphagnum* is a fertile kind of Moss, whose Heads are furnish'd with a Capitellum, in Shape like those of the Hypnum, Polytrichum, and Bryum; but differing from them in that they are bare; and without Calyptrae, and commonly stand on none, or but very short Pedicles; whence they were heretofore call'd *Musci apocarpi*.

SPICA, a Spike, is a Part of a Stalk, thick-set with Flowers or Fruit, in such a manner as to form an acute Cone.

SPONGIA, a *Sponge*, is somewhat like a *Fungus*, being a Plant that grows in the Water, thick, of a soft; and, as it were, woolly Substance, full of little Perforations, elastic, and easily imbibing and retaining Water, or any other Moisture.

STAMINA, or Chives, are those slender Threads which encompass the Style in the Centre of Flowers, and support the Apices or Summits which contain the Male Dust.

STOLONES, Suckers, are such Shoots of Plants as arise from the Root, and may be taken off, with Fibres to them, so as to propagate the Species thereby: Of this Sort are the Filbert and Fig.

STRIÆ, Channels. Those Parts of Plants which have small longitudinal Furrows running along them, are termed striated.

STROBYLUS is the Cone or Fruit of the Pine-tree.

SUFFRUTEX, Under-shrub, is a woody Plant, not gemmiferous: Of this Sort are Thyme, Sage, and Lavender.

T

TALEA, Cuttings, are such Parts of a Branch as, when cut off from the Tree, will take Root, if they are planted in the Ground.

THYRSUS, a Thyrs, differs from a Spike in having the Flowers or Fruits set more loosely on it, so that there are Spaces visibly between them.

TOMENTUM, Flocks, is when the Leaves or Stalks of Plants are cover'd with a thick Down, as in Mullein.

TRACHÆÆ are the Air-vessels in Plants.

TURIONES, Buds, are the future Shoots of Plants, which, being inoculated into a proper Stock, will produce a Tree of the same Kind with its Parent Plant, from which it was taken.

V

VAGINA, or **THECA,** is the Sheath or Covering of a Bud.

VALVÆ, Valves, the Sides of the Pod or Seed-vessel, which, when they open lengthways in two Parts, like Muscles, Cockles, and such kinds of Shell-fish, are term'd bivalve Pods, as in the Stock-gilly-flower.

VERTICILLUM. See **FLOS VERTICILLATUS.**

VEXILLUM, or *Standard.* See **FLOS PAPILIONACEUS.**

VIMEN is the flexible Shoot of a Tree.

VITICULÆ, Runners, are the slender Shoots of Plants, which trail on the Ground, and emit Roots at their Joints, so as to propagate; as in Strawberries and Cinquefoil.

ULVA. The *Ulva* is a barren kind of Moss, which differs from the *Conserua*, in that it consists of plain and very thin Leaves, which are sometimes wide, sometimes narrow, and sometimes tubulous.

UMBELLA. See **FLOS UMBELLATUS.**

UMBILICUS. See **FRUCTUS UMBILICATUS.**

Tho' Botany, as a Science, may to some appear a Study too flat and dull for what we commonly call an exalted and refined Genius; yet, if we cast our Eyes back on the earlier Ages, and trace this Branch of Learning down to our own Times, we shall find, that it has been cultivated by those of the brightest Parts, and care'd by Men of great Distinction. As a Proof of this, I shall first mention *Solomon*, that venerable Eastern Sage, so famed for his Wisdom, that his very Name is become another Term for a wise and knowing Man. This Prince, tho' born to a Throne, and destin'd to rule over a powerful People, was yet so captivated with the Charms of Botany, and so strongly addicted to the Study of Plants and Herbs, that he is in Scripture said to have known them all, from the Cedar of Lebanon to the Hyssop that grows upon the Wall; and he himself, in the Book of *Wisdom*, informs us, that he was skill'd in the Differences of Plants, and the Properties of Roots. *Josephus*, also, that celebrated Jewish Historian, makes mention of *Solomon's* Skill in Botany, and gives us almost the same Account with that laid down in the Sacred Records. But however knowing *Solomon* might be in this respect, yet 'tis certain, we are at present no competent Judges, how far his Knowledge might have reach'd, and consequently cannot determine positively with regard to the State of Botany in his time. He began to reign in the Year of the World two thousand one hundred and twenty-nine, that is about an hundred and seventy Years after the Siege of *Troy*, and is said to be the first Botanist mention'd by any Records now extant.

But as 'tis an unpleasant Thing to grope, if I may so speak, in the dark, and a criminal Thing to advance imaginary Facts for historical Truth, we shall pass the State of Botany during

the Ages which intervened betwixt *Solomon* and *Hippocrates*, the great Founder of Physic.

This Physician was, according to most Historians and Chronologers, born in the Island of *Cos*, in the first Year of the eightieth Olympiad, that is; about four hundred and fifty-nine Years before Christ. Some maintain, that he died in the eighty-fifth, others in the ninetieth, others in the hundred and fourth, and others in the hundred and ninth Year of his Age. So that according to these different Accounts he must have died, either three hundred and seventy-four; or three hundred and sixty-nine; or three hundred and fifty-five, or three hundred and fifty Years before Christ. As in this Physician's Days it was customary for those who were cured of Diseases to fix up in the Temple of *Æsculapius* an Account of their Disorders, and the Medicines by which they had been removed; that the same Remedies might afterwards be used in parallel Cases; he is said to have wrote out these Accounts, and, according to *Varro*, constituted by their means what we call *Clinical Medicine*; after the Temple was burnt; for this Reason we find the Writings of *Hippocrates* interspersed with the Names of the Plants most known to the Greeks; and Accounts of their Uses and Virtues. But he would have done a further Service to Botany, and still more effectually consulted the Health and Welfare of Posterity, if he had given us Descriptions of them. But he has only mention'd the Names and Virtues of about two hundred and thirty-four, leaving their Descriptions to *Cratevas*, the most celebrated Botanist of his Time; whilst he himself was wholly employed in curing the Sick.

This *Cratevas* or *Crateias*, was Cotemporary with *Hippocrates*, and so skilful a Botanist, that this divine Physician styled him *ἀρχεβοτάνος*, the Prince or Chief of Botanists; and publicly professed, that he admir'd his Skill and Knowledge of Plants and Herbs. This *Cratevas*, and *Andreas Medicus*, who are thought to have been the most skilful Botanists in the Times in which they liv'd, are yet charg'd by *Dioscorides* with having left many useful Roots and Herbs imperfectly describ'd. But, however imperfect the Works of *Cratevas* may have been, yet 'tis certain, Botany has in After-ages sustain'd a considerable Loss for want of them; since in all Probability he described the Plants mention'd by *Hippocrates*. Whether this Conjecture be well founded, they who have an Opportunity of looking into the Fragments of *Cratevas* still preserv'd in the Imperial Library, are best able to judge.

The next Botanist of any Note who appear'd was *Theophrastus*, the Son of *Melantus* a Fuller of Cloth. This Author justly deserves the highest Encomiums for his History of Plants, and his Treatise intitled, *ὑποκρίων ἀντίον βιβλία η',* or eight Books concerning the Causes of Plants, of which the first six have only reach'd our Hands. He was first called *Tytramo*, according to *Diogenes Laertius*; but was afterwards called *Theophrastus* by *Aristotle*, on account of his uncommon Eloquence. He is said to have had two thousand Disciples at one time, a Circumstance which sufficiently proves the Reputation he had acquir'd. He was born at *Ereus* in the Island of *Lesbos*, and studied under *Leucippus*, *Plato*, and *Aristotle*; whom he succeeded in the hundred and fourteenth Olympiad, in the Beginning of the Reign of *Ptolemy* the Son of *Lagus*, under whom *Herophilus* flourish'd. Tho' *Theophrastus* lived till he was eighty-five Years of Age, he is said to have found Fault with Providence for giving a longer Life to Deer and Ravens, than to the human Species; since Men, if their Lives were longer, might acquire greater Degrees of Knowledge, and become more perfect than they really are when they come to die.

The Romans, tho' in other respects a polite and learned People, were nevertheless Strangers to Botany till *Pompey* conquer'd *Mithridates*, the most powerful, and at the same time the most knowing King then in the World. This Prince is reported to have drunk poisonous Draughts every Day, in order to render himself proof against Poison; and indeed so curious he was with regard to Medicinal Subjects in general, that he collected all the Observations of this Nature he possibly could, which, falling into *Pompey's* Hands, were by his Order translated into Latin by one *Lenæus*, a skilful Grammarians, and a freed Man of his own: Till this Time, according to *Pliny*, the Romans were entire Strangers to Botany; and even after this Science was known in *Rome*, it was not universally cultivated, for *Marcus Cato* alone is said to have apply'd to it. Nor after him do we read of any Botanist among the Romans, till *Caius Valgius* publish'd a very imperfect Work of this kind, dedicated to *Augustus*. After *Valgius*, appear'd *Marcus Terentius Varro*, about twenty-five Years before the Birth of Christ. This Roman, however skilful in Botany, wrote nothing on the Subject till the eighty-first Year of his Age. He has wrote three Books *de Re Rustica*, which make a Part of that valuable Collection which goes under the Name of *Rei Rusticæ Scriptores*.

Much about the same time lived a considerable Number of Physicians well versed in Botany. Of these the most celebrated are *Antonius Musa*, and *Euphorbus*, the former of whom saved the Life of *Augustus*, and wrote a Treatise on Botany, dedicated to *Marcus Agrippa*; which Work has been revised by *Gabriel Humbelbergius*, of *Ravensburg* in *Germany*, and printed at *Zurich*, together with *Apuleius's* *Treatise de Medicaminibus Herbarum*.

The next Roman Botanist who appeared was *Emilius Macer*, who was born at *Verona*, and died in *Asia*, whither he had gone to fight. As this Author had a Turn for Poetry, he clothed Botany in Numbers so agreeable and soft, as to deserve the Approbation of *Ovid*. See *ÆMILIUS MACER*.

Next appear'd *Julius Bassus*, and *Sextius Niger*, who, tho' both Romans, yet wrote in *Greek* concerning Plants. These Authors have but little Regard paid them by *Dioscorides*, a little before whose Age, or that of *Pliny*, *Salmasius* thinks they liv'd.

But hitherto Botany seems only to have been, as it were, in its Infancy, till *Dioscorides* arose, who, by his Industry and Diligence, surpassed all who had gone before him. He was born at *Anazarba*, a City of *Cilicia*, afterwards called *Cæsarea Augusta*. He is commonly distinguished from the others of his Name by the Epithet *Pedanius*, which *Photius* without any Reason supposes to be bestowed on him from his Country. In some Manuscripts the Epithet is read *Pedanius*, and 'tis pretended, that *Dioscorides* receiv'd that Part of his Name from the *Pedanian* Family, as other Foreigners did from the Roman Families into which they married. But *Lambecius* was probably in the Right, when he supposed, that this Epithet was bestowed on him, because he was the Son of one *Pedanius* or *Pedanius*, as that Author would have it.

From the Works of *Dioscorides* it plainly appears, that he was contemporary with *Licinius Bassus*, who in Conjunction with *Crassus Frugi* had been Consul under *Nero*. But the Time in which he flourish'd is a Point so much controverted, and so little capable of being fix'd, that it would be a Task both tedious and useless to attempt it. In his Works he has mention'd about six hundred Plants, four hundred and ten of which he has either describ'd or compar'd with such as were better and more universally known, but of the rest he has only given us the Names and Virtues.

Soon after *Dioscorides* appear'd *Lucius Junius Moderatus Columella*. He was born at *Cadix* in *Andalusia*, and the Time in which he liv'd may be determin'd from his having been contemporary with the *Senecas*, and his quoting *Lucius* the Philosopher as then alive. Other memorable Incidents concur to render us sufficiently certain as to the Time in which he flourish'd; for he was the intimate Acquaintance of *Gallio*, and wrote his Work after the Consulship of *Lucius Volusus*. We have only thirteen Books of his *de Re Rustica*, and one *de Arboribus*, tho' *Cassiodorus* attributes sixteen to him. In the first Chapter of his first Book he enumerates not only the Roman, but also the other foreign Authors who had wrote upon Agriculture before him. The delicate and polite Turn of his Language, together with his Learning, and the Force of his Genius, justly calls for our Admiration. In his Poem intituled *Hortulus*, the Numbers are soft, harmonious, and unswelled with that unmeaning Pomp of Words, which is the Reproach of Language, and the common Bane of the ill-form'd and luxuriant Genius. But, among all the Romans, none seems to have made more surprising Advances in Botany than *Plinius Secundus*. In his History of the World, which he dedicated to the Emperor *Vespasian*, or, according to others, to *Titus*, he treats of Plants in an historical, philosophical, medicinal, rural, and magical Light. This, according to *Gesner*, is his Design from the twelfth to the twenty-seventh Book. His Work consists in all of thirty-seven Books, which contain a great Part of the Writings of *Dioscorides*, whom he no-where quotes, having in all Probability used the very same Authors, from whom that Author had made his Collections. He also translated several Things from *Theophrastus's* History of Plants, and is thought to have been no very happy Translator, however bright his Genius might be in other respects. The precise Time in which he liv'd is much disputed: However, 'tis, I think, generally agreed, that he flourish'd pretty near the Time of *Dioscorides*. He is by some censur'd as wanting some of the Qualifications most necessary for producing a Botanist, whilst others are so blindly devoted to his Character, as to believe him infallible.

The next of the Romans who distinguished himself in this Way, was the illustrious *Palladius Rutilius Taurus Æmilianus*, tho' he is more properly to be class'd among the *Geoponici*, *Cato*, *Varro*, and *Columella*. He wrote fourteen Books *de Re Rustica*. According to *Ludovicus Vives*, he wrote in a pure and elegant Style, except that some Words and Phrases are peculiar to the Time in which he lived. *Johannes Jucundus* of *Verona*, in *Pref. Lib. de Re Rustica*, gives him an ample, and at the same time a just Character in the following Words. "When, says he, amongst other Books of Agriculture, I

" read the Works of *Cato*, *Varro*, *Columella*, and *Palladius*, " I could not help being charm'd with the delightful Study; " for I imagin'd I was transported to the Country, placed in " some agreeable Village, and leading the calm and blissful " Life of *Marcus Curius*, and *Lucius Quintius Cincinnatus*; " the former of whom, after having triumph'd over the *Samnites*, the *Sabines*, and *Pyrrhus*, retir'd to the Country to " spend the Remains of a glorious Life, where, having a large " Quantity of Gold brought him by the *Samnites*, he bravely " refused the magnificent Present, and told them, his " Grandeur did not consist in the actual Possession of Gold, but " in ruling over those who possessed it." And the other, being created Dictator, was honourably invited to leave the Country, and take his Place in the Senate.

From these Accounts 'tis plain, that the Diligence and Industry of the Romans were more employ'd in cultivating Agriculture than Botany; in which they were surpassed by the Greeks, amongst whom the most considerable, who apply'd to the Study of natural Things, was *Claudius Galenus*, who, next to *Hippocrates*, was justly accounted the greatest Ornament of ancient Medicine. He was born at *Pergamus*, a most flourishing City of *Asia*, about the Year of Christ 133. under the Reign of the Emperor *Adrian*; and flourish'd under *Antonius Pius*, *Marcus Aurelius*, *Antoninus*, *Commodus*, *Pertinax*, *Didius Julianus*, and *Septimius Severus*. He died under the Reign of *Caracalla*, after having lived, according to *Suidas*, seventy, according to *Laertius*, eighty-seven, according to others, ninety-eight, or an hundred and five Years. He was a curious and indefatigable Inquirer into the Virtues and Qualities of natural Bodies, with which View he undertook several Voyages. He went, for Instance, into *Palestine*, in order to get acquainted with the *Opobalsamum* and *Bitumen*; he sailed into the Island of *Lemnos*, that he might discover whether the Accounts he had receiv'd of the *Lemnian* Earth were true or false. He visited *Cyprus*, in order to take a View of the celebrated Mines of that Country. He also travelled into *Cilicia*, *Phœnicia*, *Crete*, *Egypt*, and several other Countries, to enrich his Mind with a proper Store of useful Observations. He has treated of the Virtues of about four hundred and forty Plants, in the sixth, seventh, and eighth Books of his Treatise, *de Simplicium Medicamentorum Facultatibus*, besides many more, which he has casually describ'd on different Occasions.

I now proceed to those who after *Galen's* Time apply'd themselves to the *Materia Medica*. The first of these who distinguished himself was *Oribasius* of *Sardis*, tho' *Cniringius* endeavours to prove, that he was a Native of *Pergamus*: This Author was contemporary with *Julian* the Apostate, whose Favour he had so effectually gain'd, as to be appointed Quæstor of *Constantinople* by him. He wrote many Things concerning simple and compound Medicines; but stole most of his Works from *Galen*, except some foolish and trifling Things he has added of his own.

Next appear'd *Aetius*, distinguish'd by the Epithet *Amidenus*, because born at *Amida*, a City of *Mesopotamia*. He has written pretty much in the same manner with *Oribasius*, since like him he has borrow'd a great many Things from other Authors. *Castellanus* seems to give him a favourable Character, when he affirms, that in his Works we have *Galen* contracted, *Oribasius* explain'd, and *Paulus Ægineta* enlarg'd. This Author flourish'd in the Year of Christ three hundred and fifty, or, according to others, four hundred and fifty-five, which was more early than *Paulus Ægineta*. See *ÆTIUS*.

Alexander Trallianus, so called from *Tralles*, a City of *Lydia* in the lesser *Asia*. He has several Things relating to Herbs, principally borrow'd from his Predecessors. See *ALEXANDER*.

After *Trallian* appear'd *Paulus Ægineta*. This Author copies pretty exactly *Dioscorides* and *Galen*, with respect to Plants. See *ÆGINETA*.

But *Gesner*, tho' a severe Censurer of these three Authors, yet seems to have entertain'd more favourable Notions of the Arabian Physicians than the rest of his Contemporaries; for the *Materia Medica*, during many Years cultivated only by the Greeks, was at last so considerably enriched by the Arabians, that a great part of the Medicines now in Use are to be ascribed to them. They receiv'd Botany, as well as all the other Branches of Physic, from the Greeks, especially after the Califs ordered the Productions of the Greek Authors to be translated into the Persian Language. The first who applied to the Sciences among them, was the second Calif *Abu-Jaafar Almanzor*, who was created Calif in the Year of Christ seven hundred fifty-four. But the Empire at last falling into the Hands of the seventh Calif *Abdalla Almamunem*, in the Year of Christ eight hundred and thirty-one, he interceded with the Greek Emperors to send him all the philosophical Works they possibly could; which Favour when they had granted him, he sought out for learned Interpreters, and order'd them to be faithfully translated. Then Learning began to flourish, and all the Branches of Medicine were cultivated with uncommon Care and Industry.

But

But of all the *Arabians*, none was more successful in carrying on this Design than *Serapio*, who collected and digested all the *Greek* and *Arabian* Authors who had wrote on *Simples* before his Time. The greater Part of this Work consists not only of the Materials, but also of the very Words, of *Dioscorides* and *Galen*; but yet it contains a great Number of *Simples* not taken from the antient *Greeks*. Some of these are at present known, whilst we are entire Strangers to the rest. According to *Wolfgangus Justus*, he flourish'd in the Year one thousand and sixty-six.

Next appear'd *Razis* or *Razy*, or *Arrazy*, which Name he receiv'd from *Rei*, the City of *Persia* in which he was born; for his original Name was *Aboubieri Mouhammad*. He is by some quoted under the Name of *Almansor*, and his Book called *Almansor* or *Manfor*. His Book is, as it were, an Abstract of thirty other Volumes, which he called *Al hhaouy*, which in the *Arabian* Language signifies *Containing*, because it was thought to contain uncommon Treasures of useful Knowledge. He likewise published *Aljanja*, which was an immense Collection of Things relating to *Physic*; and some Treatises concerning the Parts of the human Body. He flourish'd, according to *Wolfgangus Justus*, in one thousand and seventy, or one thousand and eighty-five.

Next appeared *Avicenna*, by some called *Avicenna*; or *Abensina*, or *Ben Sina*, or *Abuali Ibn Tinsa*. His second Book treats of all kinds of Medicines in general. In this Work he quotes *Galen*, *Dioscorides*, and a few *Arabian* Authors. See *AVICENNA*.

Actuarius, who lived about this Time, or perhaps a little later, has not much contributed to the Improvement of the Knowledge of Plants; all that he says concerning them being taken from others. See *ACTUARIUS*.

Next appeared *Johannes Mesues Damascenus*, the Son of *Abdela* King of *Damascus*. He acquir'd an uncommon Fame for his having been the Inventor of many of the Medicines which we daily use with Success. He flourish'd in the Year of Christ one thousand one hundred and fifty-eight.

Averrhoes about the same Time distinguished himself by the Improvements he made in the *Materia Medica*. This Physician collected an Account of the most remarkable Plants from *Galen's* Books of simple Medicines, and reduced them to the Order of the *Greek* Alphabet, as *Gesner* observes.

Next appeared *Baitar*, by others called *Ibnu El Baitar*, as also *Abenbaitar*, or, as others write it, *Ebenbaitar*. He was born at *Malaga*, in the Year of Christ one thousand two hundred and sixteen.

It must be confessed, that Botany is much indebted to the *Arabians*, who, tho' they borrow'd much from the *Greeks*, have enriched the *Materia Medica* with many Plants unknown to their Masters, among which are most of the milder Cathartics.

After the Time of these *Arabians*, a shameful and almost universal Ignorance prevailed, and the Monuments of Learning handed down from former Times were, excepting a very few, buried in Oblivion. The barbarous and ill-form'd Taste which reigned in these Days, is sufficiently prov'd by the Works of *Nicolaus Myrepsus* of *Alexandria*. We cannot precisely fix the Time in which he liv'd; yet, according to *Fuchsius*, he was among the later *Greek* Writers, since he quotes *Actuarius* and *Mesue*, who lived in the Year of Christ one thousand one hundred and fifty-five. His Style is uncorrect, and his Works abound with barbarous, and ill-chosen Words.

In the Year one thousand one hundred and eighty, appear'd *Hildegardis*, Abbot of *St. Rupert's* Monastery in *Mentz*, and one of the *Benedictine* Order. He enriched several Parts of Natural Knowledge, and among the rest Botany; but writes in a very barbarous Style, and has many Things which are not only trifling, but also superstitious, and repugnant to Truth and common Sense.

Next appear'd *Johannes Platerius* of *Salerno*. He flourish'd in the Year of Christ one thousand three hundred. As the Reader will be best able to judge both of his Design, and of his Style, from some of his own Words, I shall insert the following Passage of his Preface.

"In Tractatione, says he, uniuscujusq; Medicinæ simplicis
"Complexio rerum primo est intendenda, consequenter utrum
"sit Arbor, an Frutex; Herba, Radix, an Flos, an Semen,
"an Folium, an Lapis, an Succus, an aliquid aliud: Post-
"modum quot sunt ipsius Maneries, & qualiter fiant, & in
"quo loco inveniantur. Quæ etiam Maneries sit melior,
"qualiter sophisticantur, & sophisticatæ cognoscantur."

Much about the same Time *Matthæus Sylvaticus*, of *Mantua*, compil'd a Volume of the *Pandecks* of Medicine, and dedicated it to *Robert* King of *Sicily*; but this is a Work of so little Value, with respect to Botany, that we shall not spend Time in giving any Account of it. Its Author liv'd in 1336. Nor is a much greater Regard due to the Productions of *Arnaldus de Villa Nova*, who died in the Year 1412. or those of *Jacobus de*

Dondis, of *Pavia*; or of *Petrus Crescentiensis*, a Senator of *Bononia*, who wrote in the Year 1473.

Soon after appear'd *Johannes Cuba*, *Quiricus de Augustis de Thertona*, *Johannes de Bosco* of *Alexandria*, and *Paulus Suardus* of *Milan*; but the Works of these Authors are so obscure, and full of Blunders, that they scarce deserve our Consideration.

About this time *Avicenna* was first read in the Schools. Then *Razis*, especially his ninth Book to *Almanzor*. Numbers of the later practical Physicians were also study'd, whilst the *Greeks* were entirely neglected, and forgot so much, that the Names of *Hippocrates* and *Galen* were lost, or rather chang'd into those of *Hippocras* and *Galienu*s.

Thus, for about four Centuries, Barbarity and Ignorance had almost put an End to the Sciences, and banish'd Learning from the World, till at last, about the End of the fifteenth Century; propitious Heaven rais'd up some great Men, who rescu'd the Authors of Worth and Note from the shameful Oblivion in which they had been bury'd. At this happy Conjunction, Botany had the same good Luck with other Parts of Learning; for *Theoderus Gaza* restored *Theophrastus*, and translated his Works into *Latin*, in which he is thought to have succeeded very well. He died in *Rome* in the Year 1478.

After him appear'd *Hermolaus Barbarus*, a *Venetian* Nobleman. He was born in the Year 1454. He corrected *Pliny's* Natural History, and translated *Dioscorides* into pure and beautiful *Latin*; but he is thought to have receded too much from the Meaning of the Original, that he might imitate the Style of *Pliny*. *Fuchsius* commends him for the reasonable Aid he gave to Botany and *Physic*, and the Pains he was at in improving and enriching them, tho' he was himself no Physician.

Soon after arose *Johannes Ruellius*, born at *Soissons* in *France*, and a Man of uncommon Learning. He seems to have trod in the Footsteps of *Hermolaus Barbarus*, and pursued the same Design of banishing and exploding the Jargon of *Avicenna*, and some other *Arabians*, that we might draw our Knowledge of Plants from *Dioscorides* himself. He cultivated Botany with greater Care than any of his Contemporaries, and collected all the useful Observations which *Theophrastus*, *Pliny*, and *Galen*, had made concerning Plants.

He was soon after succeeded by *Marcellus Virgilius*, a *Florentine*, who, tho' not a Physician by Profession; nor, perhaps, very skilful in Botany, is, nevertheless, to be commended for his Industry in correcting, and restoring to their antient Splendor, some Pages of *Dioscorides*, which had been wretchedly mangled and corrupted.

Marcellus was succeeded by *Joannes Manardus* of *Ferrara*, a celebrated Physician. In his Epistles there are many Things which illustrate *Dioscorides*, especially in the eighth Book, where he corrects *Marcellus's* Version in many Places, and defends the Interpretations of *Ruellius* and *Hermolaus Barbarus*. He also wrote Annotations on the *Medicamenta Simplicia* of *Joannes Mesue*, in which, if we may believe his own Word, many obscure things are made plain, those that were formerly too concise enlarg'd, such as were lost restor'd, and such as were erroneous corrected.

In the same Age appear'd a great Number of Interpreters, Critics, and Restorers of *Theophrastus*, *Dioscorides*, and *Pliny*. Amongst the rest, *Nicolaus Leoniceus*, in his Work *de Plinii & aliorum in Re Medica Erroribus*, delivers many things of great Importance with respect to the Knowledge of Plants. He was born at *Vincentia* in the Year 1428. and died at *Ferrara*; (where he had taught for sixty Years) in 1524. after he was ninety-six Years of Age. When he was ask'd what medicinal Secret he us'd, in order to preserve so uncommon a Vigour both of Mind and Body, and elude the Attacks of old Age, since he us'd no peculiar Diet which could account for such happy Effects, he made this noble Reply: "I easily preserve my Mind
"lively, by a Reflection on the perpetual Innocence of my
"Life; and my Body sound and healthful, by a cheerful Frugality." According to *Scaliger*, this Author was, from his Infancy, afflicted with violent epileptic Fits, till the thirtieth Year of his Age; after which this formidable Disease left him, and he enjoy'd the perfect Use of all his Limbs and Senses, without the Suspicion, much less the Shock, of a Disease, till he was ninety-six Years of Age. If this Circumstance is true, he was singularly indebted to his Temperance; for, according to *Paulus Jovius*, he was highly abstemious in every respect. He first translated *Galen's* Works from the *Greek* to the *Latin* Language, and illustrated them with Commentaries.

In 1534. appear'd *Antonius Musa Brasavolus* of *Ferrara*. He publish'd an Examination of all the Simple Medicines used in the Shops, in which Work he often treats of Plants. He also wrote Commentaries upon the Aphorisms of *Hippocrates*, and compil'd a large Index to all the Works of *Galen*.

Brasavolus was succeeded by *Otho Brunfelsius*, who was born at *Mentz* in *Germany*. He was first a *Carthusian* Monk, then a Schoolmaster for nine Years, and, last of all, a Physician. He was a Man of singular Learning, and attempted to restore and illustrate Botany, both in the *Latin* and *German* Languages. Tho', in his Works, many things are imperfect,

tho' the Descriptions do not correspond to the Draughts, and tho' he often calls Herbs by their wrong Names, yet he was the first who restor'd the true way of drawing Herbs in Germany. He was at last call'd to Bern in Switzerland, where he practis'd with such Success as to acquire an uncommon Reputation; but he died about a Year and an half after he had settled there, in the Year 1534.

Bruchfelsius was succeeded in his Design of restoring and enriching Botany, by *Euricius Cordus*, born at Hesse in Germany. He practis'd and taught Medicine at Erford, Marburg, and Bremen. Besides his Skill in Poetry, and other fine Accomplishments, he was a Man of untainted Morals, and singular Industry. How much he has contributed to the Improvement of Botany, may be judg'd from his *Botanologicon, seu Colloquium de variis Herbis*. He died in the Year 1538.

Nor are we to pass over in Silence *Gualterus Hormenius Riffus*, Professor at Strasburg, and *Joannes Lonicerus*, Professor at Marburg; the former of whom has follow'd *Ruellius*, and the other *Marcellus*, in interpreting *Dioscorides*. *Gesner* gives both these Authors such a wretched Character, as would induce one to neglect their Productions, as worthless and insipid Jargon.

But the greatest Illustrator of *Dioscorides*, and the most happy Discoverer of Plants before unknown, was *Valerius Cordus*. He was born in Hesse in the Year 1515, and died at Rome 1544, in the twenty-ninth Year of his Age. He was more industrious in enriching Botany than many of those who had gone before him. Besides his exquisite Annotations on *Dioscorides*, he compil'd an History of Plants, in four Books; but as he died before that Work was completed, all his Descriptions are not equally exact and just.

In 1550, appear'd *Amatus Lusitanus*, who is by some call'd *Joannes Rodericus Lusitanus*, and *Joannes Rodericus Castellialbi*. He wrote Illustrations upon *Dioscorides*, in which he often talks of things to which he was an entire Stranger.

But *Andreas Lacuna*, of Segovia, is an Author far preferable to *Amatus Lusitanus*. He was chief Physician to *Julius* the Third. In the Spanish Language he wrote Commentaries and Annotations on *Dioscorides*, but is severely censur'd for being a Plagiarist by *Matthioli*. He also translated that Work concerning Plants, ascrib'd to *Aristotle*. He died in the Year 1552.

Hieronymus Bockius, call'd commonly *Bock*. He is known by the Name *Tragus*, and was born at *Hiedspach*, a Village of *Bretta*, near the City of *Spire*. He liv'd for some Years at *Deuxponts*, where he adorned the Gardens of Duke *Lewis*, Palatine of the Rhine, with a Variety of Herbs formerly unknown in it. He compos'd a History of Herbs at *Saarbruck*, and died in 1554.

Next appear'd *Joannes*, or *Janus Haynbut*, or *Hagenbut*, who was call'd *Cornarius*, tho' *Hagenbut* signifies the Fruit of the Dog-rose. He was born at *Zuwick*, a City of *Misnia*, in the Year 1500. He translated *Dioscorides*, and added Figures to each Chapter. Tho' in this Work he does not discover a more extensive Knowledge in Botany than some who had gone before him, yet he re-establishes the genuine Readings in numberless Places. He had for an Antagonist *Leonardus Fuchsius*, who finds fault with a great many Passages in his Translation. He died in 1558.

Next appear'd *Jacobus Goupylus* of *Peictiers*. He was Doctor of Physic at *Paris*, and very skilful in the Greek and Latin Languages. He gave some very short, but, at the same time, very useful Amendments of *Dioscorides*. He diligently and judiciously revis'd *Trallian*, *Aetnarius*, and some others. He died in the Year 1560.

At *Wemding*, in the Country of the *Grisons*, was born *Leonardus Fuchsius*, in the Year 1501. He was a Man of uncommon Application, and a diligent Inquirer into the Plants of Germany, five hundred and ten of which he represented in large Figures, to the no small Improvement of Botany. But he was so foolishly attach'd to *Dioscorides*, that he endeavour'd to accommodate *Dioscorides*'s Descriptions to the German Plants; which made him sometimes affirm, that things were clearer than the Light, when they were, at the same time, involved in the greatest Darkness and Obscurity. He died at *Tubingen* in the Year 1566.

The same Year deprived the World of *Gulielmus Rondeletius*, a celebrated Physician, born at *Montpelier*. He was indefatigably laborious in discovering and finding out Simples, and their Virtues. He wrote Commentaries upon several Parts of *Dioscorides*, which were much esteem'd by the Botanists who liv'd at the same time with himself. He died in 1566.

William Turner, an English Physician of singular Learning, in 1551, publish'd an History of Plants in English; in which Work he has, for the most part, publish'd the Figures of *Fuchsius*, and given the Names of the Plants in Latin, Greek, English, German, and French, in an alphabetical Order.

Nor ought we to forget *Lucas Ghini* of *Forli*, a Physician of an excellent Genius, and uncommon Learning. He profess'd the *Materia Medica* at *Pisa* for several Years with universal Approbation; and tho' he publish'd nothing himself, yet he

was either the Master, or the intimate Acquaintance, of those celebrated Men, *Cesalpinus*, *Anguillara*, *Marantha*, *Matthioli*, and some others, to whom he not only sent Plants, but openly deliver'd his Opinion of them; by which means he contributed considerably to the Illustration of former Authors, and the Improvement of Botany.

Petrus Andreas Matthioli was born at *Sienna*, a celebrated City of *Tuscany*. *Thuanus* gives him a very great Character for a skilful Botanist. But however well acquainted *Matthioli* might have been with the Writings of the Antients, yet he was so ignorant of the common Plants, that of the whole nine hundred he has treated of, he has scarce given an accurate Description of one. He died of the Plague at *Trent* in the Year 1577.

Bartholomæus Maranta, a Physician of *Venussum*, compos'd three Books on the Method of knowing simple Medicines, which are highly useful for understanding many Passages of *Dioscorides*. He died in the Year 1554.

Adamus Lonicerus was born at *Marburg* in *Hesse* in 1528. He was a learned Physician, and a skilful Botanist, as is obvious from his *Botanicon*, his *Historia Plantarum*, and his *Herbarium*, publish'd in the German Language. But *John Bauhine* seems to have judg'd rightly of *Lonicerus*, when he affirms, that he collected his Botanical Works from *Tragus*.

Nor at this time were there wanting Men of Learning, who either went to both *Indies* themselves, in order to discover the Spices and Plants produc'd in them, or treated largely of them after they were brought into Europe. Amongst these were *Garcias ab Horto*, *Christophorus a Costa*, *Nicolaus Monardes*, *Gonsalvus Ferdinandus Oviedo*, *Franciscus Lopez de Gomara*, *Johannes Fragosus*, *Hugo Linschotanius*, *Johannes Leirius*, *Franciscus Hernandez*, *Franciscus Ximenez*, *Josephus a Costa*, and, nearer our own Times, *Jacobus Bontius*, of *Rotterdam*, *Gulielmus Piso*, a Physician of *Amsterdam*, *Georgius Marcgravius*, of *Liebstad*, and some others.

Among those who have more particularly applied themselves to the Knowledge of Plants, was *Jacobus Dalecampius*, who was born at *Cadom*. He practis'd Physic at *Lyons*, with universal Reputation. He was the first of the Moderns who undertook to write an universal History of Plants; but being involved in a Multiplicity of Business, he did not live to finish it. This Task was, by *Revillius*, a Printer at *Lyons*, committed to one *Molinaus*, a learned Physician, who finish'd the Design, and publish'd it under the Title of *Historia Lugdunensis*. *Dalecampius* died in the Year 1537.

Jacobus Theodorus Tabernamontanus is, according to *Conringius*, justly preferable to his Master *Tragus*; since, in Imitation of him, he advanced many things new concerning the Virtues of Plants; but 'tis to be lamented, that he only finish'd the first Part of his Work, since the second and third, done by another Hand, however excellent, are yet short of the Judgment and Skill of *Tabernamontanus* himself. In his Practice, abstracting from the Theriaca and the Mithridate, he us'd very few exotic Substances, contenting himself with the Simples of his own Country. Besides his discovering some Plants formerly unknown, he has wrote very well concerning the Virtues of those which were commonly known. He was call'd *Tabernamontanus* from the Place where he was born, which is *Bergzabern*, a Town in the Territories of the Prince of *Deuxponts*. He died at *Heidelberg* in the Year 1590.

This Author originally practis'd Pharmacy at *Kronweissenberg*.

Some of the Figures of *Tabernamontanus*, and also of *Lobelius*, were taken by *John Gerard*, an Englishman, born at *Nantwich* in *Cheshire*. Nor did he add any Figures of his own, except sixteen, in the whole History of Plants which he publish'd in English. He had little or no Knowledge of the Languages. The greater Part of his Work is nothing but the *Pemptades* of *Dodonæus*, turned into English by one Doctor *Priest*, which *Gerard* took without any Alteration. To conceal this, he changes the Method of *Dodonæus* into that of *Lobelius*, beginning with Grasses and Graminifolious Plants. To this Translation of *Dodonæus* he has added some Plants from *Clusius*, and others from the *Adversaria* of *Pena* and *Lobelius*, having only given about fourteen of his own. He has confounded and unskilfully transpos'd the Figures of *Tabernamontanus*. He flourish'd about the Year 1597.

Joachim Camerarius, born at *Norimberg* in the Year 1534, acquired a far greater Reputation than *Gerard*. He is by some celebrated as a Man of profound Learning, and a skilful Botanist. He was so fond of promoting Natural History and Botany, that he purchas'd of *Wolffius* the *Bibliotheca Herbaria*, and the Botanical Works which were left him by *Gesner* in his last Will. However, he is not much extoll'd by *Tournefort*, who says of him, "That if we were to judge of him from what he publish'd during his Life, we should find his Skill in Botany far inferior to the Reputation he acquired on that account." He died in the Year 1598.

With *Camerarius* we may join *Janus Antonius Saracenus*, of *Lyons*, who flourish'd about 1598. By his Care and Diligence he

he restor'd the Works of *Dioscorides* to their primitive Dignity; for he preserves the Sense of *Dioscorides*, without receding from the Purity of *Pliny's* Diction.

Petrus Bellonius, of *Mans*, was a Man of incredible Industry and Application, as appears from his Works publish'd partly in the *Latin*, and partly in the *French* Languages. He has written concerning coniferous Trees and Evergreens. He has also given us Commentaries on *Dioscorides*, and a Book concerning Agriculture. He likewise designed some other Works; but Death prevented him.

Leonardus Rauwolfius was born at *Mechlin* in 1517. He travell'd thro' *Syria*, *Judea*, *Arabia*, *Mesopotamia*, *Babylon*, *Affyria*, and *Armenia*, from which Countries he brought back into *Germany*, with him, many Herbs, Shrubs, Plants, and other things of the like Nature. He wrote a Book, which he calls *Hodæporicon*, or Travels into *Syria*, *Judea*, *Arabia*, *Mesopotamia*, *Babylon*, *Affyria*, and *Armenia*, which he divided into six Parts, and which contain many curious things relating to the *Materia Medica*. He flourish'd about the Year 1583.

The World is considerably indebted to the Lucubrations of *Rembertus Dodonæus*, who was born at *Mechlin*, in *Brabant*, 1517. His History of Plants is recommended not only by the Elegance of the Figures, but also the Richness and Variety of the Matter. By his Learning he acquired such a Reputation, that he was invited to the University of *Leyden*, where he profess'd Physic with great Applause, and died in 1585. in the sixty-eighth Year of his Age.

Carolus Clusius was singularly fond of Botany. He became enamour'd with this Science when he was at *Montpelier*, where he lodg'd with the celebrated *Rondeletius*, as *Boissard* informs us. He was born at *Arras*, in the *French Netherlands*, in the Year 1526. His Reputation soon procur'd him an Invitation from the Professors of the University of *Leyden*, which having accepted, he there revis'd all his Writings, put the last Hand to them, and digested them into two Volumes; the former of which contains one thousand one hundred and thirty-three Figures of Plants; the other, besides Fruits, and exotic Animals, contains the Representations of forty-five Plants discover'd by himself. He died, much regretted, at *Leyden*, in the Year 1609. in the eighty-fourth Year of his Age.

Matthias Lobelius, of *Lisle*, was far inferior to *Clusius*, and less exact in describing his Plants, as appears from his *Adversaria*, and his Observations and Illustrations of Plants, in which, where Figures are wanting, he is scarcely intelligible. In assigning the Places where Plants grow, he trusts too much to his Memory; for, as *Mr. Ray* justly observes, he takes many Plants to be the natural Product of *England*, which were never seen to grow spontaneously in it, and which, perhaps, were never seen any-where in the World. *Lobelius*, relying on the Assistance of *Petrus Pena*, a Native of *Provence* in *France*, and a Man of great Learning, publish'd a Description of the rare Plants of *Languedoc*, in a harsh and uncouth Style.

I now come to *John* and *Caspar Baubine*, two Brothers, who have acquir'd such an uncommon Fame for their Skill in Botany, that the smallest Herb is hardly mention'd without, at the same time, mentioning the Name affix'd to it by them. They were born at *Basil*, but their Father was a Native of *France*. Notwithstanding the Learning and Industry of these two Brothers, they seem to have undertaken a Task to which they were by no means equal; for each of them propos'd to write an universal History of Plants. But as *Gesner*, in one of his Epistles to *Fuchsius*, well observes, one Man is not at all sufficient for carrying on so extensive a Design, since there are numberless Species of Plants, each of which a single Man must be an entire Stranger to, on account of the Diversity of Climates. But if different Men, in different Climates, would oblige the World with their Observations, there is a Possibility of an universal History of this kind being some time or other produc'd by a masterly Hand. Tho' it were to be wish'd, that a Work of this Nature should appear in our own Age, yet we have no Reason to expect it; because, from the Descriptions of the Plants already known, we can neither infallibly discover their Species, nor reduce them to their proper Genuses; and from this Source have arisen almost all the Errors of the universal Histories of this Nature, which have hitherto appear'd. But, to return to the *Baubines*: No more useful Work of the kind has appear'd than the *Pinax*, nor was it possible to render it much more perfect at the time in which it was written. Among the six hundred Plants describ'd by *Caspar* in the *Prodromus Theatri Botanici*, many were receiv'd dry and imperfect from his Friends and Acquaintances. His Brother *John*, tho' he us'd the same Practice, yet gave his Descriptions far more natural and accurate. But the great Fault of these two Authors seems to consist in their having neglected to establish the Genuses of Plants, than which nothing is more requisite to such a History. *John* died at *Mont Beillard* in 1614. and *Caspar* at *Basil* in 1624. in the sixty-fourth Year of his Age.

Nor ought we, on this Occasion, to forget the *Hortus Floridus* of *Crispinus Passæus*, publish'd in 1614. in which there are three hundred and twenty-five Figures accurately delineated, and divided according to the Seasons of the Year; nor the Works

of *Emanuel Sweertius*, a Native of *Sevensberg* in *Holland*; nor the *Florilegia* of *Theodorus de Bry*; nor the Description of the Herbs growing on Mount *Baldo*, publish'd by *Johannes Pona*, an Apothecary of *Verona*; nor the History of the Plants of *Cannada*, publish'd by *Jacobus Cornuti*, a Physician of *Paris*.

After the *Baubines* appear'd *John Parkinson*, a Native of *London*, and Apothecary to the King, who attempted to give an universal History of Plants in the *English* Language; for in his *Paradisus Terrestris*, publish'd in 1629. he gives the History of Flowers at great Length; and, in his *Theatrum Botanicum*, he has comprehended more Species of Plants, than were to be found in any History of Plants publish'd before his Time. For the most part, he follow'd *Caspar Baubine*; and added several Species from *Alpinus*, *Cornuti*, and some others. But tho' he trod in the Steps of the best Authors, who had gone before him, yet, thro' Forgetfulness or Haste, he has omitted many Things, and sometimes repeated his Descriptions of one and the same Herb.

As Kings and Princes have contributed to the Advancement of other Sciences, so have they not been wanting to the Improvement of Botany; for the Herbs of *Greece*, and the *Eastern* Countries, have been rendered as famous by the Notice which Kings have taken of them, as by their own Virtues. *Juba*, King of *Mauritania*, is as memorable for his diligent Study of Plants, as for his being cloath'd with Royalty, and swaying the Sceptre over a warlike People: And, according to *Galen*, *Mithridates* and *Attalus* were acquainted with the Virtues of almost all the Simples which resist Poison, the Qualities of which they tried upon such Criminals as were condemn'd to Death.

Nor were the *Roman* Emperors less Admirers of Botany, or less careful in advancing it; for the Botanists kept by *Cæsar* in *Arabia*, *Lybia*, *Sicily*, and *Crete*, transmitted Baskets of Flowers not only to *Cæsar* himself, but almost to all the *Roman* People. And *Evax*, a certain King of the *Arabians*, is said to have written to *Nero* concerning the Virtues of Simples.

But, to come near our own Times, *Philip* the Second, of *Spain*, as we are told by *Josephus Acosta*, sent his chief Physician, *Franciscus Hernandez*, into *America*, with a View to discover new Plants, and more accurately describe those already known.

Among the public Gardens, in which Herbs are demonstrated by Professors, that of *Padua* is the oldest. *Franciscus Bonafidius*, a Physician of *Padua*, at whose Persuasion the Design was set on Foot, first explain'd the Simples in this Garden from the Year 1533. to 1549. when, being weaken'd with Age, and losing his Sight, he resign'd his Place.

He was succeeded in this Office by *Gabriel Fallopius*, of *Modena*, whose Character, both as a Surgeon and a Botanist, is well enough known. He was succeeded by *Bernardinus Trivisanus* in 1563.

In 1561. *Melchior Guilandinus* was chosen Keeper of the *Paduan* Garden. He was born at *Comingsberg* in *Prussia*, and made uncommon Advances in Medicinal Learning, but more especially in Botany: He took Notice of an hundred Errors in the *Herbarium* of *Matthioli*; and, after having acquired an uncommon Character for Learning, died at *Padua* in 1589.

His Place was given to *Jacobus Antonius Cortusius*, in the Year 1590. who, tho' no profess'd Physician, was yet the most skilful Botanist of the Times in which he lived. He died in 1593. without publishing any thing, except a Catalogue of the Plants in the *Paduan* Garden.

The same Year *Prosper Alpinus*, born at *Marosfica*, a Town at the Foot of the *Vicentian* Mountains, in the *Venetian* Territories, was chosen to read Lectures on Simples in the Schools, and shew them in the Garden. He went into *Egypt* in the Year 1580. with *Georgius Amius*, a *Venetian*, in order to take care of the Health of the *Venetians* who resided there. He was called thence to *Genoa* in 1586. by *Joannes Andreas Aureas*, Admiral of the *Spanish* Fleet, in order to prescribe for him. Thence he went to *Padua*, and enter'd upon the Explication of Simples. He was a Man of an universal Genius, and uncommon Learning. The Plants he himself had seen in *Egypt*, as also those sent him from *Crete*, and other Parts, by *Hieronymus Capellus*, and *Nicolaus Contarenius*, are imperfectly described by him, and as imperfectly delineated, as appears not only from his Treatise *de Plantis Egyptiis*, but also from his Books *de Plantis Exoticis*, publish'd by his Son *Alpinus* in 1628. *Prosper*, the Father, died at *Padua* in 1617.

The following Year *Jacobus Zabarella* was chosen to give Lectures on Simples; and *Johannes Prevotius*, a Native of *Basil* in *Switzerland*, to shew them in the Garden; but the latter was carried off by the Plague in 1630. The following Year an Offer of his Place was made to *Joannes Rhodius*, a *Dane*, but he refused it; and in 1633. it was given by the Senate to *Alpinus Alpinus*, the Son of *Prosper*, who enjoy'd it till 1637. when he died of a Consumption. Next Year he was succeeded by *Joannes Vesslingius*, of *Minden*, whose Character, both as an Anatomist and a Botanist, is too well known not to procure him the Esteem he justly deserves. He was a Knight of the *Holy Sepulchre*, and died of a malignant Fever in 1649. He had for his Successor, in Office, *Georgius a Turre*, who is justly celebrated for his Skill in Botany. His Successor, the illustrious

Abbot *Felix Fiali*, was no less a Glory to his Country, and the University of *Padua*.

Encouraged by the Example of the *Paduans*, *Cosmo* of *Medicis*, the Great Duke of *Tuscany*, formed a Garden for the same Purpose at *Pisa*; the Care of which he committed to *Andreas Casalpini*. We must not here forget the *Farnesian*, the *Barberinian*, the *Ludovician*, the *Borghesian*, the *Aldobrandinian*, and the *Estensian* Gardens in *Italy*. The *Bononian* Garden has been singularly enrich'd by *Jacobus Zanoni*, and *Laelius Triumphetti*; and that at *Rome* by the skilful Botanist *Joannes Baptista Triumphetti*.

Nor let us imagine, that in this Particular we were outdone by the celebrated Gardens of the *Hesperides*, or those of *Babylon*, or by that of *Adonis*, *Alcinous*, *Epicurus*, or *Theophrastus*; for if we take a View of the Gardens of *Holland* and *England*, we shall find them equal, if not preferable, to the most celebrated among the Antients; since those of *Leyden* and *Amsterdam* contain whatever the *Indies* and *Africa* produce: And those of *London* and *Oxford*, the last of which has of late been greatly improved by Dr. *Dillenius*, thro' the Munificence of Dr. *Sherard*, contain whatever *Jamaica* and *Virginia* afford. And those of *Hampton*, Bishop *Compton's* at *Fulham* (now neglected), and that at *Chelsea*, are furnish'd with almost whatever is to be found in the whole World. The Gardens of Mr. *Beaumont* in *Holland*, in which there is *Euphorbium*, brought from *Africa* at the Proprietors Charges, is no less famous than that of *Juba*, and will for ever be signaliz'd by the Catalogue of its Plants, publish'd by the learned *Hagelaerus*.

Nor have the Kings of *France* been wanting in this Particular; for *Francis* the First was not only an Admirer of Botany himself, but also a great Encourager of every Plan that could improve and advance it. *Henry* the Fourth also, King of *France* and *Navarre*, form'd a Garden for the Culture of rare Plants, and gave the Care of it to that skilful Botanist *Joannes Robinus*. But *Lewis* the Thirteenth, in 1626. form'd a still larger, and more noble Garden, in the Suburbs of *St. Victor's* at *Paris*, by the Persuasion of *Heroard* his chief Physician, and *Guido Broisius* his Physician in Ordinary, and who, being created Governor of the Garden, appointed the Plants to be demonstrated by *Vespasianus Robinus*, that diligent Botanist; who, besides the Species of the *Lingua Cervina*, the Names of which are mentioned in the Catalogue of Plants contain'd in the Royal Gardens, first brought into *France* the *Filix Baccifera*, the *Adiantum Americanum*, the *Geranium Triste*, the *Origanum Fistulosum*, the *Asarum Canadense*, the *Acacia Americana*, and other curious Plants, with which *Cornuti*, a Physician of *Paris*, has adorn'd his History of Plants. At last, *Lewis* the Fourteenth gave the Charge of his Gardens to the illustrious *Guido Cressentius Fagon*; who, at his own Expence, soon enrich'd the Royal Garden with Store of curious Plants, which he cull'd, with his own Hands, in different Parts of the World: So that it is no Wonder, if the Royal Garden at *Paris* surpasses most others in the World for the immense Number of Plants it contains. Mr. *Fagon*, being call'd to the Court, put *Armandus de Mauvillain*, a Physician of *Paris*, into his Place; and in the Year 1683. *Mauvillain* was succeeded by *Tournefort*, a brief Sketch of whose Life I shall give; since he seems to have carried Botany to a higher Degree of Perfection, than any of the Authors I have hitherto mention'd.

Besides the Royal Garden at *Paris*, *France* is blest'd with another at *Montpelier*, instituted by *Henry* the Fourth, about the Year 1598. the Care of which has successively been committed to the most distinguish'd Botanists; such as *Petrus Richierius de Belleval*, *Joannes Richerius de Belleval*, *Michael Chycoineau*, *Petrus Magnol*, *Franciscus Chycoineau*, and *Nicolaus Fabricius Peireskii*, who, by a matchless Diligence, transplanted the *Myrtus latifolia flore pleno* from the woody Places between *Toulon* and *Marseilles*; the *Jasminus Indicus flavus odoratissimus* from *China*; the *Papyrus* from *Sais*, a Town of *Egypt*; the *Lisa* from *Mecca*; and some uncommon Vines from *Tunis*, *Smyrna*, *Sidon*, *Damascus*, *New France*, and other Parts.

The Gardens of *Gasto Borbonius*, Duke of *Orleans*, are also a noble and entertaining Scene for a Botanist, since it is enrich'd with Store of curious Plants. But among all the botanic Scenes the World ever saw, the most glorious and magnificent is that incredible Treasure of Plants, done in their native Colours, as large as the Life, and kept in the Repository of *Lewis* the Fourteenth. This Garden dreads neither the Cankerworm, the Locust, nor the Caterpillar; but blooms with all the Verdure of an eternal Spring, and bids a Defiance at once to the nipping Colds of the Winter, and the scorching Heats of the Summer.

LIFE of TOURNEFORT.

When we observe any Man distinguish'd by a superior Knowledge, or Skill of any Kind, it is natural for the Mind to be solicitous and inquisitive about the several Circumstances which have concurr'd to render him thus conspicuous. When, for Example, we hear of *Alexander's* Skill in all the Arts of War

and Conquest; when we view the brave and heroic Actions of *Cæsar*, *Scipio*, and *Hannibal*; when we reflect on the extensive Knowledge, the deep Researches, the accurate Deductions, and important Discoveries, of the incomparable Sir *Isaac Newton*; our Minds are indeed struck with certain Ideas of Grandeur and Surprise; but a secret Dissatisfaction is still lodged in the Breast, and the labouring Soul remains, as it were, on the Rack, till we know something more about the Men, and have discovered their Turns of Mind, and the several Steps by which they have gradually advanced to Honour, and paved their Way to immortal Glory. Now, as Mr. *Tournefort* is universally allow'd to have carried Botany to a higher Degree of Perfection than any who went before him, by enriching it with numberless Discoveries, advancing it into a Science, giving it an Air of Accuracy, which it formerly wanted, and smoothing all its Difficulties; it must, of course, be an uncommon Satisfaction to become acquainted with the Education, the Genius, the Disposition, and Studies of this celebrated Botanist.

Joseph Pitton de Tournefort, then, was born at *Aix* in *Provence*, on the Fifth of June, 1656. He was the Son of *Peter Pitton de Tournefort*, and *Aimare de Fagone*, the Descendant of a Family of Note in *Paris*.

Their Son *Joseph* was put to the *Jesuits* College in *Aix*, with a View to learn *Latin*, as the other Scholars did. But, as soon as he saw any Plants, the Bent of his Genius discover'd the future Botanist; for he was anxious and uneasy, till he found out their Names: He carefully remark'd their Differences, and sometimes neglected to attend his Class, in order to discover Herbs, and study Nature in the Fields, instead of the Language of the antient *Romans* in the Schools. And as it is no uncommon thing to see some People excel in an Art, by the mere Force of Genius, without the Assistance of a Master, this young Botanist had, by his own Industry, acquir'd a Knowledge of all the Plants produced about the Village where he was born.

When he enter'd upon his Philosophical Studies, he discover'd no great Relish for what was taught him. In Disquisitions of this Kind, instead of Nature, with whose Contemplation he was so highly charm'd, he found only vague and abstracted Ideas, which decoy and amuse the Mind, without enriching it with any thing that is solid and satisfactory. During this Period of his Education, he accidentally found the Philosophy of *Descartes* in his Father's Study, and soon discover'd it to be the very Thing he wanted. Tho' he could only read the Productions of this Author privately, and, as it were, by Stealth, yet he read them with Care and Accuracy; and the Father, who violently opposed to useful a Study, afforded him, without being sensible of it, the Advantages of a fine Education.

As he destin'd his young Son, for the Church, he made him apply to the Study of Theology, and for that Purpose enter'd him in a Seminary. But in his Breast Botany could not endure a Rival, and the Bent of Nature was too powerful to be balanced by any Views, or overcome by any Byas.

Notwithstanding the Intentions of the Father, the Son must necessarily see Plants; and for this End he retired to prosecute his darling Study, either to a curious Garden belonging to an Apothecary of *Aix*, or to the neighbouring Fields, or to the Summits of Rocks, which had been inaccessible to others, fir'd with a less ardent Desire of Knowledge than he. Either by Stratagem or Presents he found Access to the most close and conceal'd Places, where he suspected there were Plants not to be found elsewhere; and when these Means fail'd, so undaunted was his Resolution, that he would make his Way into them in an unlawful and clandestine manner, rather than not satisfy his Curiosity; and, indeed, for an Attempt of this Kind, he once ran a Risque of being stoned to Death by the Country-people, who took him for a Robber. But what Hardships will not a Mind, actuated with an ardent and insatiable Desire of Knowledge, undergo for Satisfaction?

Mr. *Tournefort* was almost as fond of Anatomy and Chymistry as he was of Botany; and at last Physic and Medicine so engross'd his Affections, as to gain a thorough Victory over his Inclinations to Theology, which he now resolv'd to drop. In this Resolution he was encouraged by an Uncle on his Father's Side, who was a Physician of great Skill and Reputation. Soon after, the Death of his Father in the Year 1677. left him at his own Disposal, and Master of his own Inclinations.

He quickly improv'd this Revolution made in his Fortune by his Father's Death; for, in the Year 1678. he carefully ranged the Mountains of *Dauphiny* and *Savoy*, from which he return'd with a large Quantity of beautiful dry Plants, which were the Beginnings of his celebrated Collection of Herbs.

Botany is not an unactive and sedentary Science, which, like Geometry or History, may be acquir'd by a recluse and solitary Application within the narrow Precincts of a Closet; or which, like Chymistry, Anatomy, and Astronomy, demands only such Operations as may be perform'd without a great deal of Exercise, Toil, and Fatigue. The Botanist must wander thro' Mountains and Valleys, range the gloomy Forests, climb the steepest Rocks, and expose his Life on the Brinks of hideous Precipices, in Quest of Knowledge. The only Books capa-

ble. of instructing us thoroughly in this Science, are, with a rich and liberal Hand, scatter'd up and down the whole Surface of our Globe. But Resolution and Patience, Industry, and Contempt of Danger, are necessary to collect and gather them. This is the Reason why so few excel in this Science: That Degree of Ardor which is capable of rendering a Man skill'd in other Branches of Literature, is by no means sufficient for forming a complete Botanist; who, besides the insurmountable Ardour of his Soul, must have an uncommon Strength of Body, and Soundness of Constitution, to bear him up under the Toils and Fatigues he must necessarily undergo. Now, Mr. *Tournefort* had a brisk laborious Turn of Mind, a robust Constitution, and a large Fund of natural Gaiety in his Temper, to support him under his painful Researches; so that both the Make of his Body, and the Turn of his Mind, joined their united Force to qualify him for a Botanist.

In the Year 1679. he went from *Aix* to *Montpelier*, where he perfected himself in Anatomy and Physic. The Garden of Plants established in that City by *Henry IV.* rich as it was, could not satisfy his unbounded Curiosity. He ransack'd all the Tracts of Ground within more than ten Leagues of *Montpelier*; and, as a Recompence for his Labour, found Plants unknown and unheard of by the Inhabitants of the Country themselves. But as he thought himself still confin'd within too narrow Bounds, he quitted *Montpelier*, and went to *Barcelona*, in the Month of April 1681. He proceeded as far as *St. John*, in the Mountains of *Catalonia*, where he was follow'd about from one Place to another by the Physicians and young Students of Medicine, to whom he describ'd the several Plants which occur'd; and one would have thought, that in this he resembled the ancient *Gymnosophists*, who led their Disciples into the Deserts, in order to instruct them.

The *Pyrenean* Mountains, which were now not far off, could not fail tempting him to make them a Visit; and before he undertook this Expedition, he knew that in these forbidding Solitudes he should have no other Sustenance than what the most austere Hermits are accusom'd to; and that the miserable Inhabitants, who could supply him with it, were not more numerous than the Robbers, to whose Violence he was sure to be exposed. Accordingly he was several times robb'd by the *Spanish* Miquelets. In order to prevent the like Misfortunes for the future, he bethought himself of a happy Expedient; for he inclosed his Money in some Bread, which was so black and hard, that the *Spanish* Robbers, undoubtedly the greediest in the World, did not think it a Prize worth the taking. The unconquerable Force of his Inclinations surmounted all Difficulties; and the dreadful and almost inaccessible Rocks, which surrounded him on every Side, had to him transform'd themselves into a magnificent and well stor'd Library, where he passed the Time with Pleasure, and fully satisfied the Ardour of his Soul. One Day a ruinous Cottage, in which he had the Misfortune to lodge, fell all on a sudden; and Mr. *Tournefort*, being buried under its Ruins for two Hours, had undoubtedly perish'd, had not a seasonable Relief been afforded him. But this Accident, which of itself would have struck Terror into the Bravest, did not interrupt the Course of his painful Inquiries, nor fright him from a Scene in other respects so agreeable to him.

At last, in 1681. he return'd to *Montpelier*, and thence to *Aix*, the Place of his Nativity, where he ranged in his Repository of Herbs all the Plants he had collected about *Provence*, *Languedoc*, *Dauphiné*, and *Catalonia*, and those less known produc'd by the *Alps* and *Pyrenean* Mountains; and whatever People, whose Minds and Studies are turned another way, may think, the Pleasure of seeing such a large Number of Plants, entire, well preserved, and disposed in a beautiful Order in large Paper Books, was a sufficient Recompence for the Toil and Pains they had cost him.

The Fame of Mr. *Tournefort*'s extensive Skill in Botany had by this time reach'd the Ears of Mr. *Fagon*, who was himself a curious Botanist, and first Physician to the Queen; and, as he had receiv'd a very advantageous Character of *Tournefort* from all Quarters, he conceived a Design of alluring him to *Paris*, the general Rendezvous of all the Literati of *France*. For this Purpose he apply'd to *Madam de Venelle*, who was second Governess to the Daughters of the Royal Family, and who was intimately acquainted with Mr. *Tournefort*, and his Relations. Accordingly, this Lady, prevailing on him to come to *Paris* in 1683. presented him to Mr. *Fagon*, who, before that Year was expir'd, procured him the Place of Professor of Botany in the Royal Garden of Plants established at *Paris* by *Louis XIII.* for the Instruction of the young Students of Physic.

This Employment did not hinder him from undertaking several other Voyages; for he went back to *Spain*, and thence to *Portugal*, where he saw new Plants, but found no Botanists. When he was in *Andalusia*, a Country fertile in Silk-worms, he endeavour'd to find out the Truth of the Reports so long ago handed down to us, concerning the Amours between the Male and Female of these Insects; but he could discover no-

thing certain with regard to this Particular; and these Amours, if real, are hitherto mysterious. He travelled also into *Holland* and *England*, where he had an Opportunity of seeing Plants he had never seen before, and conversing with some of the greatest Botanists of the Age, whose Esteem and Friendship he easily gained. As a Proof of this, no other Circumstance is necessary to be mentioned, than his being solicited by friendly and importunate Letters from Mr. *Herman*, the celebrated Professor of Botany at *Leiden*, to accept of his Place, which, as he was too old and infirm, he offer'd to resign in favour of Mr. *Tournefort*. This Gentleman's Zeal for the Interest of Botany made him choose *Tournefort* for his Successor, tho' he was not only a Foreigner, but belonged to a Nation then engaged in an open War with his own Country. Mr. *Herman* promised him four thousand *Liures* in the Name of the States-General, and gave him Reason to think, that his Salary would be augmented, when his Merit came to be better known. But tho' the Income affixed to his Place in the Royal Garden was very moderate, yet the Love of his Country prevailed upon him to reject so fair and advantageous an Offer. He also gave his Friends an additional Reason for his Refusal of this Place, which was, that the Sciences were at least in as flourishing a State at *Paris*, as in any other Part of the World; for the native Country of a genuine and unfeign'd Virtuoso would be but a dull and uncomfortable Scene to him, if the Sciences did not thrive and prosper in it.

His Country did not prove ungrateful for the Love he had shewn her in rejecting Preferment in a distant Nation, for, in the Year 1691. the Academy of Sciences being put under the Inspection of the *Abbé Bignon*, that Gentleman exerted his Authority, two Months after he was vested with it, by taking into the Society Mr. *Tournefort*, and Mr. *Hamborg*, neither of whom he was personally acquainted with, tho' he was no Stranger to the Fame and Reputation they justly acquir'd.

In 1694. Mr. *Tournefort*'s *Elements of Botany*, or the Method of knowing Plants, was printed at the *Leure*, in three Octavo Volumes. This Work, tho' generally approv'd, found some very powerful Opposers; for its Author was attack'd upon some Points by Mr. *Ray*, a celebrated Botanist in *England*. And in 1697. Mr. *Tournefort* answered the Charge in a *Latin* Dissertation address'd to Mr. *Sherrard*, another *English* Gentleman, who was a skilful Botanist. The Dispute on both Sides was manag'd not only without Bitterness, but even with a certain graceful Air of Decorum and Politeness, which bespeak Candour, and a Love of Truth. It may possibly be said, that the Subject was not of sufficient Moment to ruffle their Spirits, or inflame their Passions, since the Question in Dispute was only, whether the Flowers and the Fruits of Plants were sufficient to establish their Genuses; and whether certain Plants were of one Genus, or another. But this Circumstance does not at all detract from the Merit of these two Disputants, since 'tis natural for Men, especially of Learning, to become enrag'd at each other, on account of the most arrant Trifles in the World. Mr. *Tournefort*, in a Work posterior to the Date of this Dispute, passes very high Encomiums on Mr. *Ray* and his System; an exalted Instance of a candid and generous Soul!

Mr. *Tournefort* was created Doctor of Physic, of the Faculty of *Paris*; and in 1698. he published his *History of the Plants which grow about Paris, together with an Account of their Use in Medicine*. Now we cannot readily suppose, that the Man who had made his Way to the Summits of the *Alps* and *Pyrenean* Mountains, in Quest of Plants, could be a careless Observer of those produced about *Paris*, where he had resided so long. Botany would only be an Amusement to the Mind, if it had no Relation to Medicine; but Mr. *Tournefort* has in this Work shewn the Subserviency of the former to the latter.

We may also reckon among the Works of *Tournefort*, a Book, or at least a Part of a Book, which yet was not printed by his Orders, intituled *Schola Botanica, sive Catalogus Plantarum, quas ab aliquot annis in Horto Regio Parisiensi, studiosis indigitavit Vir clarissimus Josephus Pitton de Tournefort Doctor Medicus; ut & Pauli Hermannii Paradisi Batavi Prodromus, &c. Amstelædami, 1699.* One Mr. *Simon Wharton*, an *English* Gentleman, who had studied Botany for three Years in the Royal Garden under Mr. *Tournefort*, made this Catalogue of the Plants he had there an Opportunity of seeing.

As the *Elements of Botany* had met with as favourable a Reception as the Author himself could have desired, in the Year 1700. for the sake of Foreigners he gave a *Latin* Translation of it considerably enlarg'd, under the Title of *Institutiones Rei Herbariae*, in three Quarto Volumes; the first of which contains the Names of the Plants distributed according to his own System, and the other two their Figures very accurately engraved. To this Work he has prefixed a large Preface or Introduction to Botany, containing the Principles of his own System, ingeniously and solidly establish'd, and a History of Botany and Botanists collected with uncommon Care,

Care, and written with an agreeable Spirit. We may easily suppose, that he employ'd himself with Pleasure on every Object that had the least relation to Botany, his darling Study.

But his Curiosity was not entirely confin'd to Plants and Herbs; for he was almost equally fond of all other natural Rarities, such as figur'd Stones, uncommon Marcasites, extraordinary Petrifications, and Crystallizations, and Shells of all Kinds. 'Tis true, he look'd upon Stones to be Plants which vegetated, and had their respective Seeds; he was also pretty much inclin'd to extend this System to Metals, and seem'd inclin'd to transform every Object into the Nature of Vegetables, the Contemplation of which afforded him so ecstatic and superlative a Delight. He also collected the Garments, the Arms and Instruments of distant Nations, another Species of Curiosities; which, tho' not coming immediately from the Hands of Nature, may yet afford proper Occasions of philosophizing to those happy Souls who have the Art of doing it. With all these Objects he had furnished a Museum, surprisingly magnificent for a private Person, and justly famous in Paris. The Virtuosi valued it at forty-five or fifty thousand Livres, an Expence which would have thrown an indelible Blot on the Character of a Philosopher, had the Money been laid out for less curious and instructive Purposes. This Circumstance however proves, that Mr. Tournefort, considering his moderate Incomes, could not lay out a great deal of Money on other Pleasures more frivolous in themselves, tho' more eagerly pursued by the Generality of Mankind.

When we take a View of the fine Qualities of which Mr. Tournefort was possessed, we must readily perceive how well he was calculated for making an excellent Traveller; by which Word I do not mean the Man who runs from one Country to another, without knowing what he is about, or entertaining the least Thought of rendering himself wiser and better; but the Man who attentively views Nature in all her Variety of Shapes, with a View to become useful to his fellow Creatures, and treasure up a grateful Store of Knowledge in his own Mind; so that the faithful Accounts of the Travels of a real Philosopher may be look'd upon as sacred Archives of inestimable Value. We may therefore account it an Advantage to the Sciences, that in 1700. Mr. Tournefort received an Order from the King to travel into *Greece, Asia, and Africa*, not only to take a View of the Plants mention'd by the Antients, and perhaps to discover others unknown to them, but also to make Observations upon Natural History in general, upon antient and modern Geography, and even upon the Customs, the Religion, and the Commerce, of the People. He had Orders to write, as often as he had Opportunities, to Mr. de Pontchartrain, and to give him a Detail of his Discoveries and Adventures. Accordingly Mr. Tournefort, accompanied by Mr. Gundelheimer, a German, and an excellent Physician, and Mr. Aubriet, a skilful Painter, went as far as the Frontiers of *Persia*, collecting and making Observations on Herbs. Other Travellers convey themselves by Sea from one Part to another, if they possibly can; and, when that cannot be done, they take the most beaten and patent Roads by Land. But Mr. Tournefort with his Associates were as little at Sea as was possible, disdain'd the common Roads, and bravely struck out new ones before untrod by Mortals. A Pleasure, blended with Gloom and Horror, rises in the Mind upon reading an Account of their Descent into the Grotto of *Antiparos*, which consists of three or four hideous Abysses, one after another. Mr. Tournefort had here the sensible Pleasure of beholding a new Species of Garden, in which the Plants were different Shoots of Marble, as yet young and springing, and which, according to the Circumstances with which their Formation was accompanied, must necessarily vegetate. In vain did Nature endeavour to conceal the Vegetation of Stones in these profound and inaccessible Caverns, from so bold and curious Virtuosi.

Africa was comprehended in the original Design of Mr. Tournefort's Voyage; but the Plague, which rag'd in *Egypt*, determin'd him to return from *Smyrna* to *France* in 1702. This was the first Accident that put a Stop to the Execution of his vast and extensive Design: However, he return'd, loaded with the Spoils of the *East*; for, besides the numberless different Observations he had made, he brought along with him one thousand three hundred and fifty-six new Species of Plants, most of which ranged themselves, as it were, of their own Accord, under some one or other of the six hundred and seventy three Genuses he had already established; and, for all the rest, he had only twenty-five Genuses to create, without being obliged to augment the Number of Classes. A Circumstance which sufficiently proves the Advantage and Commodiousness of a System to which so many foreign and unexpected Plants were easily reducible. Of these he composed his *Corollarium Institutionum Rei Herbariae* printed in 1703.

When he return'd to *Paris*, he thought of resuming the Practice of Physic, which he had sacrificed to his *Levant* Voyage, at a time when he began to be well employed. Experience shews us, that in every thing depending on the

Taste of the Public, especially Affairs of this Nature, Delays are dangerous. The Approbation of Men is something forc'd, and soon comes to an End. Mr. Tournefort then found a Difficulty in getting into the Business he had left. Besides, he was obliged to go through his former Exercises in the Royal Garden, and those of the Royal College, in which he was one of the Professors of Medicine. The Functions of the Academy also took up some Part of his Time; and, besides these, he wanted to revise and polish the Relation of his last Voyage, of which he had only the simple Memoirs roughly drawn up, and intelligible only by himself. This Multiplicity of Business put him upon studying in the Night-time, a Circumstance which soon broke his Health; and, when he was in this uncomfortable State, he accidentally receiv'd a Blow on the Breast, which he thought would very soon prove mortal to him. Accordingly he languish'd for some Months, and died on the twenty-eighth of *December* 1708.

He made a last Will, in which he left his Museum of Rarities to the King, for the Use of the Literati, and his botanical Books to the Abbé Bignon. This second Article was no less a Proof of his Love to the Sciences than the former, considering the Character of the Abbé.

One Volume of Mr. Tournefort's Travels was printed in the Author's Life-time at the *Louvre*: And the second is, since his Death, printed from his own Manuscript, which was found perfect and finished. This Work, in which the original Form of Letters addressed to Mr. de Pontchartrain is retain'd, contains two hundred Plates of Plants, and other Antiquities, well engraved. Besides the Branches of Knowledge, of which we have already shewn Mr. Tournefort to be possessed, he in this Work discovers an uncommon Degree of Learning, and a very extensive Knowledge of antient and modern History. But one Quality, when possessed in an eminent Degree, is often the Reason why we overlook others, which however, deserve our Attention. *Hist. de l'Acad. des Sciences, A. 1708.*

System of Tournefort.

The Knowledge of Plants has in all Ages and Nations been justly esteem'd an useful and important Branch of Learning. People are generally convinc'd, that Simples make up almost the Whole of Medicine; and as Nature has implanted in certain Animals an Instinct, by which they discover particular Plants to be proper Remedies for their Disorders, so she seems to have acted a still more liberal Part by Man, in furnishing him with an Instinct for Plants in general, and inspiring him with an uncommon Confidence in the Remedies prepar'd from them. But, tho' Nature has been thus bountiful in giving us so useful an Instinct, yet she has left us to use the laborious Methods of Reason, Deduction, and Experiment, in order to discover the Virtues and Uses of each particular Plant; a Task, in the Execution of which, the Reason of Man can with Difficulty come up to the Instinct of some Animals.

The Works of *Theophrastus* and *Dioscorides*, of *Pliny* and *Galen*, are sufficient Proofs, that the Antients had some Knowledge of Plants, tho' their Learning in this Particular was very superficial, defective, and imperfect, since *Dioscorides*, who applied himself to this Study in a particular manner, and acquir'd the greatest Reputation, on account of the Progress he made in it, has only mention'd about six hundred Plants, and described them in a manner so obscure and intricate, that 'tis often difficult, and sometimes impossible, to know them by his Description of them.

The Ages immediately succeeding that of *Dioscorides*, did not greatly enrich Botany; for in them all the Sciences seem to have been veil'd with Clouds of Darkness and Ignorance, which were not dispell'd till the fifteenth Century. Then indeed People began to read the Antients with great Diligence, in order to make themselves Masters of their Knowledge, which had been so long involv'd in Obscurity and Oblivion. The Botanists sought for Plants no-where else than in the Books of the *Greeks* and *Romans*; and even *Matthiolus*, the most celebrated Commentator upon *Dioscorides*, was not at the Pains to compare the Plants produced by Nature, with the Descriptions his Author had given of them; but, attaching himself sacredly and inviolably to the Descriptions, form'd to himself ideal Plants, which he thought Nature must, or at least ought to have produc'd.

But, when the Sciences began again to be cultivated, Reason assumed her just Prerogative, People studied Nature as well as Books, and ventur'd to seek for Herbs in the open Fields. Upon this, Botany was enriched with new Discoveries, and became daily more extensive.

Notwithstanding this favourable Revolution, a Difficulty still remained to be surmounted. The immense Number of Plants, all differing from each other, began to prove a Grievance to Botanists; for what Memory was sufficient to retain so inconceivable a Variety of different Names, as were already in Use, or even all the new ones, which were daily becoming necessary?

The Botanists therefore bethought themselves of inventing a Method proper for the Removal of this Grievance; but it must be own'd, that few of them apply'd themselves to this Discovery; that those who did, were pretty late in doing it; and that others disputed either the Possibility or Usefulness of such a Method. But 'tis no uncommon thing to see the Progress of Learning retarded by the Learned themselves.

The only Method then, which could either be thought of or desired, consisted in distributing all the known Plants under certain Genuses, so that the Knowledge of each Genus might contain, as it were, a compendious and general Account of all the Plants it included; and that they might all, as much as the Nature of the Thing would permit, come under one Denomination common to their respective Genus, that too great a Number of particular and widely different Names might be avoided. Custom has established this Practice with regard to all the Species of the *Ranunculus*; but 'tis a hard Task to extend this Plan to a great many other Plants, whose Species do not easily exhibit to View what they have in common, and such Circumstances as may serve to establish their proper Genus.

In order to preserve that Uniformity which Method requires in the System of Plants, the same Idea must prevail in the Establishment of the different Genuses; and they must all be deduc'd from the same Principles. "A Plant, according to Mr. *Tournefort*, is an organiz'd Body, which has always a "Root, always probably a Fruit or Seed, and almost always a "Stalk, Leaves, and Flowers." These are the five Parts; some of which are essential to all Plants in general, whereas others belong only to some particular Species of Plants. It is evident, that the Resemblance between some of these Parts will constitute the Genuses; but this Resemblance ought always to be between the corresponding Parts; and our whole Business is to find out to which we ought to give the Preference. Mr. *Tournefort* determines for the Flowers and the Fruit taken in Conjunction.

Gesner and *Colonna*, two of the most learned Botanists that have hitherto appeared, were of the same Opinion; and indeed the Intention of Nature seems to point out these two Parts as the principal and most important; since the Whole of the Plant, and all the Apparatus of its Organs, which is greater and more magnificent than is commonly believed, seems only form'd with a View to the Production of the Seed, or, which is the same, of the Fruit, which is the Covering and Nourishment of the Seed. As for the Flower, it is only designed for a short time, to afford the growing Fruit a Nourishment more delicate, better prepared, and more agreeable to its Nature, than what it could draw from the Leaves.

All Plants whose Flowers and Fruits are of the same Figure and Disposition, are, then, of the same Genus, according to Mr. *Tournefort*'s System; and the Roots, the Stalks, and Leaves, are not on this Occasion taken into Consideration. But when any particular Genus is afterwards to be divided into the several Species comprehended under it, we must consider the Roots, the Stalks, and Leaves; and those Plants which either differ in all these three Parts, or only in some of them, are taken to belong to different Species.

As in all this the express Design is not exactly to follow or imitate Nature, (who, in the Production of Vegetables, seems not to have been very solicitous about a System) but only to establish an arbitrary Plan for facilitating the Knowledge of Plants, the Goodness of any Method invented for this Purpose cannot be so properly prov'd by philosophical Reasonings, as by the Advantages it brings along with it; its Clearness and Perspicuity, and the Delight and Satisfaction that may possibly be found in it; and upon these Principles we must judge of the Sufficiency and Perfection of Mr. *Tournefort*'s System.

It must, indeed, be own'd, his Plan is not universal, since there are Plants which have neither Flowers, Fruit, nor Seed; at least the Fruit and Seeds are either not at all visible, without the Assistance of a Microscope, or not easily discovered even with it; so that we are obliged, without perceiving them, to reason analogically for their real Existence.

Now in an Affair of this Nature, 'tis necessary there should be evident and uncontroverted Characteristics subjected to the Eye. And the Assistance of the Microscope is not in this Case admitted, and much less the most plausible and solid Hypothesis. Mr. *Tournefort* is therefore reduced to a Necessity of distributing these Plants into separate Genuses, which he regulates and fixes by their most remarkable Parts. And as these Genuses are only very few in Number, they make, if I may so speak, but a very inconsiderable Chasm in the Universality of Mr. *Tournefort*'s Plan, which, however, is more extensive and general than any other that could have been thought of.

Sometimes also, when the Flowers and Fruits taken in Conjunction are not sufficient for fixing the Genus, he calls in to his Assistance not only the Roots, or the Stalks, or the Leaves, but also, if there is a Necessity for it, some of their most obvious and sensible Properties, such as its manner of growing, or what Botanists call the *Port of a Plant*; that is, its general

Conformation, or what strikes the Eye immediately upon its being presented; for since, in this Case, there is not a natural System whose Rules would be unexceptionable, we must rest contented with an artificial one, as perfect and complete as Diligence and Industry can possibly make it.

The Distribution of Plants under their Genuses renders it more easy to name them; for they have first their generic and common Name, to which we add another, which determines their Species; so that the very Name of each Plant becomes a Definition of it. It is true, as the Botanists, who have gone before Mr. *Tournefort*, have not had the Genuses of Plants at all in their View, or, at least, have not had an Eye to the same Genuses he has establish'd, he is, for this very Reason, often obliged to change the Names which they had affixed to particular Plants; but he carefully mentions the ancient Names given them by different Botanists, provided their Characters were famous enough to deserve his Regard or Attention. And if Students in Botany would but habituate and familiarize themselves to the new Names used by Mr. *Tournefort*, they would reap the Advantage by it, of knowing more readily the Genuses and Species of Plants in a System, which seems excellently calculated for the Advancement and Improvement of Botany.

Some Plants lately discover'd, have, as it were, of their own accord, rang'd themselves under certain Genuses, already established by Mr. *Tournefort*; and when others shall be discover'd, which, in Consequence of their Flowers and Fruits, shall call for new Genuses, we have no more to do than to establish them.

Mr. *Tournefort*, in his Institutions, has reduced the Whole to about six hundred and seventy-three Genuses, which comprehend more than eight thousand eight hundred and forty-six Species, including all Land and Sea Plants hitherto known; so that at present we know more Genuses of Plants, than *Dioscorides* did different Plants.

But as the Memory would be very much burden'd with six hundred and seventy-three Genuses, whose different Characteristics must necessarily be known; and as the Number of these Genuses must undoubtedly be increased in Process of Time; Mr. *Tournefort* found out a happy Expedient for rendering this Task considerably more easy, by reducing the several Genuses to Classes; and he is the first of all the Botanists who formed so noble and useful a Design. In order to establish his Classes, he only considered the Flowers of Plants, if they had any, as indeed most of them have. He determines all the known Figures of the Flowers of Plants, and finds them to be only fourteen in Number, which of Consequence must only produce fourteen Classes, if their Number was not augmented by those Plants which have no Flower, and by the Distinction which it was necessary to make between Herbs or Suffrutesces (*Undershrubs*) and Shrubs or Trees, the Difference of whose Bulks has render'd it improper to range them under the same Class, tho' the Flower in both should be alike. But notwithstanding these Augmentations, the Whole of Mr. *Tournefort*'s Plan in his *Botanical Institutions* is comprehended under no more than twenty-two Classes.

It is then sufficient to retain in the Memory fourteen Figures of Flowers; and when we see the Flower of a Plant which we do not know, we may find in the Institutions to what Class it properly belongs. Some Days after the Flower, the Fruit will appear, which gives the Genus; and all the other Parts of the Plant will determine the Species. If the unknown Plant is not in Flower, we must wait till it appears, before we can pronounce certainly and infallibly.

Mr. *Tournefort* has regulated his Classes by the Flowers, rather than by the Fruits of Plants; because when we see the Flower appear, we have but a short Time to wait before we see the Fruit, and thus determine the Genus; whereas, when we see only the Fruit, we must wait till the ensuing Year, before we can have an Opportunity of viewing the Flower.

Upon this Plan all the Difficulties of Botany are render'd as easy to be surmou'd, as the Nature of the Thing can possibly admit of; and that prodigious Number of Plants, which not only adorn the Surface of our Globe, but also those which vegetate in the Bottom of the Ocean, are reduc'd to so narrow Bounds, as to be easily retained by the Memory, without in the least distracting the Imagination. But all this is no more than the first Institutions, and, as it were, the Out-lines of Botany; for the Knowledge of the Virtues of Plants, which is the most important Part of the Science, is a Field of a vast and unlimited Extent; but 'tis still more spacious and extensive, if to their real inherent Virtues we join these ascribed to them by the Whim, the Ignorance, or Caprice, of different Authors.

Mr. *Tournefort*, in his History of the Plants produc'd about *Paris*, has already given an Essay on the Manner of explaining the Virtues and Uses of Plants; and has propos'd some new Hints founded on the most solid Principles of Physic. See ANALYSIS.

Mr. *Tournefort* thus distinguishes Plants into their proper Classes.

CLASS I. comprehends

Herbs and Undershrubs with monopetalous, campaniform Flowers.

CLASS II.

Herbs and Undershrubs with monopetalous, infundibuliform, and rotated Flowers.

CLASS III.

Herbs and Undershrubs with monopetalous, anomalous Flowers.

CLASS IV.

Herbs and Undershrubs with monopetalous, labiated Flowers.

CLASS V.

Herbs and Undershrubs with polypetalous, cruciform Flowers.

CLASS VI.

Herbs and Undershrubs with polypetalous, rosaceous Flowers.

CLASS VII.

Herbs and Undershrubs with polypetalous, rosaceous, umbel-lated Flowers.

CLASS VIII.

Herbs and Undershrubs with polypetalous, caryophyllated Flowers.

CLASS IX.

Herbs and Undershrubs with liliaceous Flowers.

CLASS X.

Herbs and Undershrubs with polypetalous, papilionaceous Flowers.

CLASS XI.

Herbs and Undershrubs with polypetalous, anomalous Flowers.

CLASS XII.

Herbs and Undershrubs with flosculous Flowers.

CLASS XIII.

Herbs and Undershrubs with semiflosculous Flowers.

CLASS XIV.

Herbs and Undershrubs with radiated Flowers.

CLASS XV.

Herbs and Undershrubs with apetalous, or stamineous Flowers.

CLASS XVI.

Herbs and Undershrubs which have Seeds, but no Flowers.

CLASS XVII.

Herbs and Undershrubs which have no conspicuous Flowers or Fruit.

CLASS XVIII.

Trees and Shrubs with apetalous Flowers.

CLASS XIX.

Trees and Shrubs with apetalous, amentaceous Flowers.

CLASS XX.

Trees and Shrubs with monopetalous Flowers.

CLASS XXI.

Trees and Shrubs with rosaceous Flowers.

CLASS XXII.

Trees and Shrubs with papilionaceous Flowers.

Those who are desirous of being acquainted with the farther Divisions of Plants made by *Tournefort* into Genera and Species, I must refer to his *Rei Herbariae Institutiones*; for, to specify these, would be to transcribe the Book.

Tournefort had for an Antagonist the celebrated Mr. *John Ray*, an Englishman, born in *Black Notly*, an obscure Village of *Essex*, in the Year 1628. Though *Ray's* Father was only a Blacksmith, he sent him to *Cambridge* for the Advantages of a liberal Education. Among the several Branches of Learning taught at this University, *Ray* was principally captivated with

Phytology, by the Love of which he was prompted to range not only the Fields about *Cambridge*, but also the whole County in which it lies, in Quest of Plants, a Catalogue of which he publish'd as a happy Earnest of the future Advances he was to make in Botany. In 1661. he enter'd into Holy Orders; and in 1673. he married *Margaret*, one of the Daughters of Mr. *John Oakley*, of *Launton* in *Oxfordshire*; and betwixt 1648. and the Time of his Marriage, he undertook several Journeys through all the Parts of *England*, *Scotland*, and *Ireland*, with a View to become acquainted with the Natural History of these Countries. Nor did he confine the Scene of his Studies to these Countries alone; for he travell'd through *Holland*, *Germany*, *Italy*, and *France*, as a Companion to Mr. *Willoughby*, an English Gentleman of Note, who was very fond of Natural Knowledge. These Travels laid a Foundation for his compiling a Synopsis of the English, and another of the European Plants. But as his Travels had contributed nothing to the bettering of his private Circumstances, and only procured him the Honour of being created a Fellow of the Royal Society, after having passed four Years in *Warwickshire*, he retired along with his Wife to his native Country, where, being content with a little, an Annuity of sixty Pounds a Year left him by Mr. *Willoughby*, in 1672. being most of his Fortune, he made it his only Business to enrich Botany with his Observations, by comparing which with the Histories of *John Bauhin*, and *Carolus Clusius*, he form'd his Method, which was followed by a general History of Plants, wrote in an elegant and modest Style, and reduced to a more natural Order than any Work of the Kind before published. He was so much assisting to his Patron *Francis Willoughby*, who was then compiling a History of Birds and Fishes, that almost the whole Work may be said to be his. He also prepared for the Press a *Method of Insects*; but being spent partly by running Ulcers in his Legs, and partly by old Age, he at last died in the Year 1705.

Mr. *Ray's* System of Botany differs much from that of Mr. *Tournefort*. According to the last Edition of his *Synopsis Methodica Stirpium Britannicarum*, in which some Improvements have been made by the Editor, it consists in a Division of Plants into twenty-eight different Genera.

Under the first are contain'd the various Kinds of Fungi, which are divided into,

- I. *Fungi Pileati et Lamellati*, that is, Fungi which have a Head or Cap, the inferior Substance of which is divided into Lamellae or Plates.
- II. *Fungi Pileati lamellis carentes*, Fungi which have a Cap or Head, but which are not lamellated.
- III. *Fungi Pileis destituti*, Fungi which are destitute of a Cap or Head. These again are subdivided into,
 1. *Fungoides*.
 2. *Peziza*.
 3. *Agarici*, Agarics.
 4. *Fungi pulverulenti*, Puff-balls.
 5. *Fungi subterranei*, subterraneous Fungi, such as Truffles.

The second Genus contains submarine Plants, or Plants which grow in the Sea. These are divided into,

- I. *Spongiae*, Sponges.
- II. *Alcyonia*.
- III. *Escharae*.
- IV. *Corallia*, Corals.
- V. *Lithophytae*, Lithophytes.
- VI. *Corallinae*, Corallines; which are subdivided into,
 1. *Corallinae per Gomphosin articulatae*, Corallines articulated by Gomphosis.
 2. *Corallinae vel denticulatum divisae, vel Capillamentis Piliferae obstitae*, Corallines either indented, or thick set with Capillaments or Hairs.
- VII. *Fucoides*.
- VIII. *Fuci*. These are subdivided into,
 1. *Fuci non ramosi*, the Fuci without Branches.
 2. *Fuci ramosi*, the branched Fuci.
- IX. *Algae*.

Under the third Genus are comprehended the various Sorts of Mosses, divided into,

- I. *Byssi*.
- II. *Conservae*, subdivided into
 1. *Conservae simplices, et aequabili Filo protensae*, simple Conservae, shooting out with even Threads.
 2. *Conservae geniculatae*, geniculated or jointed Conservae.
 3. *Conservae nodosae*, knotted Conservae.
- III. *Uvae*.
- IV. *Lichenoides*, subdivided into,
 1. *Lichenoides cauliferae*, the Stalk-bearing Lichenoides.
 2. *Lichenoides cauliculis destituta*, the Lichenoides without Stalks.
- V. *Mnia*, subdivided into,
 1. *Mnion capitulis in eadem Planta conjunctis*, Cluster-headed Mnion.

2. *Mnion capitulis tota planta remotis*, scatter-headed Mnion.
- VI. *Fontinales*.
- VII. *Hypna*, subdivided into,
 1. *Hypnum capitulis erectis, vel paulum saltem inclinatis*, Hypnum with upright or very little inclining Heads.
 2. *Hypnum unicum capitulis reflexis*, the single Hypnum with Heads bending backwards.
- VIII. *Polytricha*, subdivided into,
 1. *Polytrichum capsula quadrangulari*, Polytrichum with the quadrangular Seed-vessel.
 2. *Polytrichum capsula subrotunda*, Polytrichum with the roundish Seed-vessel.
- IX. *Brya*, subdivided into,
 1. *Bryon capitulis erectis*, the Bryon with upright Heads.
 2. *Bryon capitulis reflexis*, the Bryon with Heads bending backwards.
- X. *Sphagna*.
- XI. *Selagines*.
- XII. *Selaginoides*.
- XIII. *Lycopodia*.
- XIV. *Lycopodioides*.
- XV. *Lichenastra*, subdivided into,
 1. *Lichenastrum capitulis bifariam se aperientibus*, Lichenastrum with Heads that cleave in two.
 2. *Lichenastrum capitulis in quatuor segmenta florida tanquam totidem petala se aperientibus*, Lichenastrum with Heads that open into four florid Segments like Petals.
- XVI. *Lichenes*, subdivided into,
 1. *Lichen pileatus*, Lichen with a Cap.
 2. *Lichen stellatus*, starry Lichen.
 3. *Lichenes aut Lichenastra dubia duo*, two dubious sorts of Lichen or Lichenastrum.

The fourth Genus contains the capillary Plants, with such others as nearly resemble them. These are divided into those,

- I. *Foliis integris et indivisis*, such as have their Leaves whole and undivided.
- II. *Foliis laciniatis aut pinnatis*, those with jagged or pinnated Leaves.
- III. *Herbæ capillares foliis semel divisis*, capillary Herbs, with Leaves once divided.
- IV. *Herbæ capillares foliis bis subdivisis, seu ramosis*, capillary Herbs, with Leaves twice subdivided or branch'd.
- V. *Herbæ capillaribus affines*, Herbs that have a near Relation or Resemblance to the capillary Genus. These Ray distributes into,
 1. *Ophioglossum*, Adder's-tongue.
 2. *Lunaria minor*, Ger. et Park. Moonwort.
 3. *Lentes palustres, cujus tres species recenset*, three Species of Water-lentils.
 4. *Equisetum, cujus duodecim recenset species*, twelve Species of Equisetum or Horse-tail.
 5. *Charæ quinque species*, five Species of Chara.

Under the fifth Genus Ray comprehends those Herbs which bear an imperfect or staminate, or rather an apetalous Flower. These are divided into,

- I. *Herbæ flore imperfecto seu apetalis staminibus carente*, Herbs that bear an imperfect or apetalous Flower without Stamina.
- II. *Herbæ flore apetalis, staminibus donati*, Herbs with an apetalous Flower, and furnish'd with Stamina. These are subdivided into,
 1. *Calyce vel nullo (secundum Tournefortium) vel monophyllo et indiviso*, those with no Calyx, or Flower-cup, (according to Tournefort) or a Calyx consisting only of one undivided Leaf.
 2. *Calyce donatæ in plures laciniis diviso*, those which have the Calyx jagged in several Places. To this Division belong, (1.) *Flore a semine sejuncto, vel totis plantis, quæ sexu differre dicuntur, vel in eadem*, those which have their Flower separate from their Seed, and that either in distinct Plants, which sort are said to differ in Sex, or in the same Plant. (2.) *Herbæ flore imperfecto, quarum semina floribus contigua, et triquetra*, Herbs with an imperfect Flower, whose Seeds are contiguous to their Flowers, and of a triangular Figure. (3.) *Herbæ flore imperfecto, fructui contiguo, seminibus rotundis*, Herbs with an imperfect Flower, contiguous to the Fruit, which is of a round Figure.

The sixth Genus comprehends all such Herbs as bear a full composite Flower, and afford a lacteous or milky Juice. To this Genus belong,

- I. *Herbæ semine papposo*, Herbs with a pappous or downy Seed.
- II. *Herbæ flore planifolio, natura pleno, lactescentes seminibus solidis, seu flore e flosculis irregularibus tantum composito*, Herbs with a full plain-leaf'd Flower, and affording a milky Juice, with solid Seeds; or Herbs whose Flower consists only of irregular Floscules.

The seventh Genus contains Herbs which are furnish'd with a composite discous Flower, a downy Seed, but yield no lacteous Juice.

The eighth Genus contains such Herbs as bear a composite discous Flower, with Seeds void of Down, and are call'd corymbiferous (cluster-bearing).

To these he adds the *Herbæ corymbiferis affines*, such Herbs as bear a near Resemblance to the corymbiferous, which are some Species of the *Scabiosa* and *Dipsacus*.

Under the ninth he comprehends Herbs whose Flower consists of fistular Floscules, or capitated Herbs.

The tenth Genus comprises Herbs bearing a perfect simple Flower, with naked solitary Seeds, or a single Seed to each Flower.

The eleventh includes umbelliferous Herbs; or such as are furnish'd with an Umbella; and these are divided into,

- I. *Umbelliferæ semine lato compresso, seu foliaceo, aut ala foliacea cincto*, umbelliferous Herbs with a broad flat Seed, or a foliaceous Seed, or one surrounded with a foliaceous Border.
- II. *Umbelliferæ semine et tumidiore et longiore*, umbelliferous Herbs with a long plump Seed.
- III. *Umbelliferæ semine brevioris*, umbelliferous Herbs with a short Seed.
- IV. *Umbelliferæ radice tuberosa*, umbelliferous Herbs with a tuberous Root.
- V. *Umbelliferæ semine striato minore*, umbelliferous Herbs with a small striated Seed.
- VI. *Umbelliferæ semine hirsuto, hispido, aut echinato*, umbelliferous Herbs, with hairy, bristly, or prickly Seed.
- VII. *Umbelliferæ foliis integris*, umbelliferous Herbs with entire Leaves.

The twelfth contains stellated Herbs, that is, such as have their Stalk surrounded, at Intervals, with Leaves imitating the Irradiation of a Star.

Under the thirteenth are comprehended the *Herbæ asperifoliae*, or Herbs which bear a rough Leaf.

The fourteenth comprises the verticillated *Suffrutices* (or *Undershrubs*) and Herbs.

Under the fifteenth are contain'd polyspermous (where more than four Seeds succeed to each Flower) Herbs with naked Seed.

The sixteenth contains bacciferous or Berry-bearing Herbs.

The seventeenth includes Pod-bearing or corniculated Herbs, that is, such as for every Flower produce a Pod.

Under the eighteenth are comprehended such Herbs as bear a single dry Fruit without a monopetalous Flower. These are divided, with respect to their Flower, into such as are furnish'd,

- I. *Flore regulari*, with a regular Flower; and these are subdivided,
 1. *Flore integro, aut minus profunde diviso*, such as have their Flower entire, or with very shallow Divisions.
 2. *Flore tetrapetalum referente, seu tetrapetaloides*, those with a tetrapetalous or four-leaf'd Flower.
 3. *Flore pentapetaloides*, with a pentapetalous or five-leaf'd Flower. Of this Species there are (1.) *Unicapulares*, those with one Seed-vessel, or unicapular; (2.) *Bicapulares*, the bicapular, or those with two Seed-vessels; and (3.) *Multicapulares*, the multicapular, or those with many Seed-vessels.
- II. *Flore irregulari*, Herbs with an irregular Flower.

The nineteenth and twentieth Genera consist of vasculiferous Herbs, with a dipetalous and tripetalous Flower.

The twenty-first contains tetrapetalous Herbs, divided into the,

- I. *Siliquosæ*, those with large Pods, or *Siliquæ*.
- II. *Siliculosæ*, those with small Pods, or Husks, or *Siliculae*. Under these he distinguishes the *Tetrapetalæ siliculosæ monospermæ*, the tetrapetalous Herbs with a small Pod, containing only one Seed.

The twenty-second includes vasculiferous Herbs of an anomalous Kind, with a tetrapetalous Flower.

Under the twenty-third Genus are comprehended Herbs which bear a papilionaceous Flower, or leguminous Herbs. These are divided into,

- I. *Papilionaceæ*, seu *leguminosæ scandentes*, papilionaceous or leguminous, scandent, or climbing Herbs.
- II. *Papilionaceæ seu leguminosæ non trifoliatæ*, *Claviculis carentes*, papilionaceous or leguminous Herbs, not three-leav'd, and without Tendrils.
- III. *Herbæ papilionaceæ Flore*, seu *leguminosæ trifoliatæ*, three-leav'd leguminous Herbs, or Herbs with a papilionaceous Flower.

The twenty-fourth Genus contains vasculiferous pentapetalous Herbs, divided into,

- I. *Pentapetalæ Foliis in Caule ex adverso binis*, pentapetalous Herbs with Leaves on the Stalk, standing opposite in Pairs.
- II. *Pentapetalæ Foliis in Caule alterno aut nullo Ordine positis*, pentapetalous Herbs, whose Leaves stand on their Stalk alternately, or in no regular Order. These are subdivided into,
 1. *Flore regulari*, those with a regular Flower.
 2. *Flore irregulari*, those with an irregular Flower.

The twenty-fifth Genus contains vasculiferous, hexapetalous, and polypetalous Herbs.

The twenty-sixth comprises such Herbs as have a bulbous Root; and such as are akin to bulbous Herbs.

Under the twenty-seventh we have the culmiferous Grass-leav'd Herbs with an imperfect Flower. Under this Genus are comprehended,

- I. *Culmiferæ Grano majore*, *Frumentacea et Cerealia dictæ*, culmiferous Herbs with a large Grain, such as the frumentaceous, or those Kinds of which Bread is made.
- II. *Culmiferæ Grano minore*, *Gramina dictæ*, culmiferous Herbs with a small Grain, call'd Grasses. These are subdivided into,
 1. *Gramina spicata*, Grasses bearing a Spike or Ear.
 2. *Gramina paniculata*, paniculated Grasses. And these are (1.) such as have a simple Locusta, or Husk; and (2.) such as have a squamous one. These again are either *muticæ*, such as have their Locusta without a Beard; or *aristatæ*, such as have it bearded.

The twenty-eighth and last Genus contains the-graminifolious or Grass-leav'd Herbs, with an imperfect or stameneous Flower. This may be divided into,

- I. *Gramen Cyperoides polystachion*, the Cyperoidal Grass with many Ears.
- II. *Gramina Cyperoidea cum Spicis in summo caule, quem spica paleacea non terminat*, cyperoidal Grasses with Spikes on the Top of the Stalk, which does not terminate in a paleaceous Spike.
- III. *Cypero Botanicis dicti*, the Grasses call'd by Botanists *Cypero*.
- IV. *Scirpus*, the Rush, subdivided into,
 1. *Scirpi nudi*, naked Rushes.
 2. *Scirpi foliosi*, leafy Rushes.
- V. *Juncus*, the Juncus, subdivided into,
 1. *Juncus aphyllus*, the Juncus without Leaves.
 2. *Juncus foliosus*, the leafy Juncus, with their several Species.

To these he subjoins the *Graminifolia non-culmiferæ singulares, et sui Generis*, the Grass-leav'd Herbs, which are not culmiferous, but are singular, and belong to no Genus.

To make this Method more complete, the Trees and Shrubs are divided into Genera, with respect to the Difference of their Flowers, in the following manner.

The first Genus comprehends such Trees and Shrubs as have their Flowers remote or separated from their Fruit. Of these there are the following Species.

- I. *Nucifera*, the nuciferous, or Nut-bearing.
- II. *Conifera*, the coniferous, or Cone-bearing.
- III. *Baccifera*, the bacciferous, or Berry-bearing.
- IV. *Lanigera*, the lanigerous, or such as produce a woolly Substance.
- V. *Vasculis foliaceis*, those with foliaceous or leafy Vessels.

The second contains those Trees and Shrubs which have their Fruit contiguous to a petaloidal Flower.

These are divided into,

- I. *Arbores et Frutices Flore summo Fructui insidente*, Trees and Shrubs which have their Flower resting on the Top of their Fruit; such are the pomiferous and bacciferous Species, which produce a great or small moist umbilicated Fruit.
- II. *Arbores quarum Flos Basi Fructus, seu imo Fructui coheret, et primo Fructu per Maturitatem humido*, Trees whose Flower adheres to the Base or Bottom of the Fruit, which, as it ripens, turns to a humid Substance. These are subdivided into,

1. *Prunifera*, the pruniferous, or Plum-bearing.
2. *Baccifera*, the bacciferous, or Berry-bearing.
- III. *Arbores Flore imo Fructui adnascente, Fructu per Maturitatem siccato*, Trees whose Flower grows to the Bottom of the Fruit, which grows dry as it ripens.

There are some very considerable Botanists, who, tho' they have been an Honour to their Country, and a Blessing to Mankind, are, however, not mention'd in the foregoing Account. Among these, the first who occurs is *Carolus Plumier*. He was born at *Marseilles* in 1646. and was contemporary with *Tournefort*. Tho' he was descended of an obscure Family, yet he soon became conspicuous, not only on account of his Mechanical and Botanical Observations, but also on account of the annexed Figures, delineated and engraved by his own Hand. Besides his happy Turn for Mathematics and Mechanics, he was an industrious and skilful Botanist. He presented his first Labours of this kind to *Lewis* the Fourteenth, who, as a Reward for his growing Merit, gave him at once the Title and the Salary of King's Botanist. Besides his Descriptions of *American* Plants, his History of Ferns, and his establishing some new Genuses, there are several other Works, wrote with his own Hand, which are preserved in the Libraries of the Royal Academy, and that belonging to the Monastery of the *Minims* in *Paris*. These Works contain not only the Figures and Descriptions of about nine hundred *American* Plants, but also the History of a great Variety of Birds, Fishes, Shells, and Insects, which he had seen, and whose Figures he had drawn in *America*. Whilst he intended a Voyage to *Peru*, in order to discover something more concerning the famous *Peruvian* Bark, he was seized with a Pleurisy, of which he died in the sixtieth Year of his Age, in 1704.

The Merit of *Samuel Doody* may be judg'd of by the Specimens of his Botanical Observations, given in *Ray's* History of Plants. He was born in the County of *Stafford*, and, by his Diligence, Industry, and Sagacity, soon distinguish'd himself among the Apothecaries of *London*; by whom, on account of his Skill in Natural History and Botany, he was made Master and Protector of their Garden at *Chelsea*. *Ray* ingenuously confesses, that he borrow'd a great many things from him. He was a diligent Inquirer into the Natures of Mosses, capillary Herbs, Fucuses, and Corals; so that Botany and Natural History sustain'd a very considerable Loss by his Death in 1706.

Of those celebrated Botanists who have died since the Days of *Tournefort*, *Petrus Hotto* is the first. He was born at *Amsterdam* in 1648. After he had taken the Degree of Doctor of Physic in the University of *Leyden*, he declin'd Practice, that he might pursue the Study of Botany to the greater Advantage. With this View he travell'd into *Denmark*, in order to make Observations on the Plants of that Kingdom. But he was recall'd thence by the Magistrates of *Leyden*, in order to read Lectures for *Herman*, who was appointed to go to the *Indies* to make Observations on exotic Plants; and he had the Promise of this Professor's Place, if he should happen to die in his Voyage. During *Herman's* Absence he taught with great Applause. *Herman*, upon his Return, resum'd his Place; but, after his Death, *Hotto* succeeded him in 1695.

Besides his elegant Oration de *Historia & Fatis Botanices*, deliver'd that same Year, he endeavour'd a Reconciliation of the Methods of *Tournefort* and *Herman*; but his Death, in 1709. put a fatal Stop to the Execution of so useful a Design.

Among all the Botanists produc'd by the present Age, none is more justly celebrated than Dr. *Sherard*, who had his Education begun at *Merchant-tailors School*, and afterwards became a Fellow of *St. John's College, Oxford*. His Learning, together with his other Qualifications, procur'd him an Opportunity of travelling with two Noblemen at different times; during which he visited many Countries of *Europe*, in which he was a diligent Observer of the Plants produc'd by each. Upon his Return to his native Country, he was created Consul of *Smyrna*, which gave him an Opportunity of viewing the *Asiatic* Plants. At his Death he left three thousand Pounds to the Physic-garden at *Oxford*. He was much admir'd by *Boerhaave*, who also makes honourable Mention of his Brother *James Sherard*, as an accurate and curious Botanist.

Mr. *Isaac Rand*, Dr. *Martyn*, Dr. *Dillenius*, and Mr. *Miller*, are so fam'd for their Knowledge of Botanical Subjects, that, to name them, is to praise them.

It would be doing a Piece of Injustice, not to make honourable Mention of the following Gentlemen, Messieurs *Buddle*, *Lawson*, *Lbwyl*, *Newton*, *Stonestreet*, *Dubois*, *Dale*, *Manningham*, and *Richardson*.

I must add, that Sir *Hans Sloane*, by his Skill, Industry, and Munificence, has greatly contributed to the Perfection of Botany, and laid a Foundation for its farther Improvement.

The last Author I shall mention, who has lent his friendly Aid to the Improvement of Botany, is the justly celebrated *Boerhaave*; and, indeed, by his Performances of this kind, he has, at once, oblig'd the World, and prov'd the Force and Extent of his own Genius; for, as his Aphorisms and Institutions discover

discover the sagacious and discerning Physician; and his Chymistry the skilful Natural Philosopher and Chymist; so his Botanical Productions pronounce him an accurate, a diligent, and penetrating Botanist. Tho', by the surprising Degrees of Perfection, at which this Author arriv'd in other Branches of Learning, one would be tempted to suspect, that he had too small a Portion of Time left for making any considerable Advancements in the Knowledge of Plants; yet, when his judicious Divisions and Distributions of them come to be perus'd, we are inclin'd to think he had employ'd the Whole of his Life in the Study of Botany.

In 1710. the Year after he was made Professor of Botany, he publish'd, in one *Octavo* Volume, an Index of the Plants with which the Physic-garden at *Leyden* was then stor'd. This Work, tho' perhaps the most perfect of its kind the World had ever seen, began by degrees to be look'd upon as very imperfect in its Author's Eyes; for his Impartiality, join'd with the superior Strength of his Judgment, enabled him to discover Blemishes in his own Productions, which escap'd the Eyes of all, except the happy Few, who are bless'd with a discerning Judgment. He had us'd new Names to old Plants; and, as he became sensible, that no Circumstance had a more evident Tendency to create Confusion and Disorder in Botany, he was resolv'd to rectify this Mistake, which was, perhaps, adverted to by few except himself. Accordingly, in 1720. he presented the World with a second Index, in two *Quarto* Volumes, to which he has prefix'd a new and large Preface, with a Plan, and short History, of the Physic-garden. In the Preface to this Work, he affords us an Instance of that disinterested Candour, and noble Humility of Soul, which is, at once, the peculiar Glory of human Nature, and the distinguishing Badge of every Mind that is truly great. It is customary for Men to be blind to the Imperfections of their mental, as well as of their natural Offspring: Indulgent Fathers, and tender Mothers, are not fonder of their vicious, deform'd, and ill-dispos'd Children, than some Authors are of their own Productions, however lame, monstrous, incoherent, and absurd. How far the incomparable *Boerhaave* was remov'd from this Weakness, so destructive of the true Interests of Truth, the Reader may judge from the following Translation of his own Words in the above-mention'd Preface.

"In this Edition I have endeavour'd to avoid the Innovation of Names, as much as the Nature of the Thing would possibly allow. In my former Index I transgressed against this fundamental Law, by imposing new Names upon Plants, which were long ago much better known by other Denominations. I ingenuously confess my Error, and am heartily sorry for my Fault. The Hurry in which the Work was compil'd, and my Mind not being employ'd on Botanical Subjects for a great while before, laid a fatal Foundation for my Error, which I now endeavour to amend; and the few Transgressions of this kind, which are found in the present Performance, will, I hope, be pardon'd by such as have any tolerable Share of Goodness, or a sympathizing Sense of the Frailties to which Mankind is unavoidably subjected. But I am of Opinion, that nothing more fatal can befall Botany, than that every Author should, without any Necessity, and with no other View than the Gratification of his own Caprice, impose new Names on Plants which were before accurately describ'd, and properly denominated."

Nothing paints a truly great Man in Colours that strike the Eyes of the discerning Mind with more Energy, and captivating Force, than a Confession of his Weakness from his own Mouth. He did not use the low and disingenuous Arts of Detraction and Obloquy, in order to establish his own Fame as a Botanist; for his History of his Predecessors is one continu'd Strain of Praise and Approbation. Men who want Merit themselves, are only fond of stripping others of theirs, and raising a short-liv'd Character upon the Ruins of real and uncontested Worth.

His Industry, and conscientious Discharge of the Office with which he was entrusted, appears from this Circumstance, that, in the Space of ten Years, the Time between the Publication of his first and second Indexes, he had enrich'd the Physic-garden with double the Number of Plants it formerly contain'd. But this was not all; he discover'd a fine Taste by the happy Choice he made of them, and the beautiful and regular Order into which he dispos'd them: And, as they were rang'd with a refin'd Taste, so they were cultivated with the nicest Judgment; for it must not be forgot, that all this Variety of delicate and tender Plants, under *Boerhaave's* Management, acquir'd a far greater Strength and Vigour, than the same Plants generally do under the Care and Conduct of other Botanists.

In the Conduct of his Botanical Works, he has discover'd a Mind open to Truth, and entirely free from that base and servile Attachment to Names and Authority, which has, in all Ages, prov'd the Bane of Learning and good Sense. He had a Judgment of his own, and bravely dar'd to use it. He follow'd Truth where-ever she led him, and did not, like some of his Predecessors, blindly follow the Methods of *Ray* and *Morison*, but selected, from a Variety of Authors, such Materials as were proper for forming a better and less exceptionable System; and

VOL. I.

where he found these defective, he added what he thought proper of his own. *Linnaeus*, a competent Judge of these Matters, affirms that he has form'd his *Genera Plantarum* in the most judicious manner; since he was the first of all the Botanists who call'd in to his Assistance all the Parts of Plants which concur to Fructification, and gave so accurate and minute a Description of them, as to render the Arts of Sculpture and Colouring almost entirely useless. *John Baubine*, *Morison*, *Tournefort*, and some others, tho' justly celebrated for enlarging the Catalogue of Plants, and classing them more judiciously than their Predecessors had done, yet added a fresh Load to Botany, before too burdensome to the Memory, by fixing new-coin'd Names to such Plants as were accurately enough described under old ones full as proper. This Misfortune made *Boerhaave* wait impatiently for the Publication of the *Pinax*, expected from Consul *Sherard*, who, in that Work, design'd to fix the various Names given to each Plant, in a manner so correct and accurate, that there should not remain the least Motive or Temptation, for the future, to forge any new Appellations. By this means he proposed to fix a Standard in this Part of Botany, and render it immutable and invariable for ever after. But I don't find this has ever been publish'd.

Tho' it is certain the individual Species of Plants never vary essentially from themselves, yet it is equally obvious, that, by Difference of Soil, Situation, and Culture, they may assume such a Variety of external Appearances as to deceive any one, who does not, with *Boerhaave*, distinguish them by the Parts of Fructification, which never alter. This seems to be the peculiar Excellency of *Boerhaave's* Method, above all others the World has hitherto seen. Since Botanists, after comparing Plants thus settled with the Descriptions of Authors, have collected all the various Names given by different Authors to each Plant; and since *Vaillant*, and some others, have furnish'd us with exact Descriptions and Delineations of them, according to what they really are, in the several Places where they are naturally produced; and by preserving them complete and entire, by means of proper Leaves of Paper, form'd to perfect an *Hortus Siccus*, they have been able to fix the precise Number of Plants hitherto known, and to secure the distinct and discriminate Knowledge of them to the latest Posterity: This, amongst others, is one Advantage, which we originally owe to the Perfection and Extent of Mr. *Boerhaave's* System. The Publication of his Index, abstracting from its own Perfection, produced a very happy Effect, both with regard to himself, and other Botanists, who before were unwilling to communicate their *Duplicates*, without an Assurance, that they should, in return, have their Deficiencies supplied: But when his Index appear'd, they perceived he was possess'd of what they wanted; a Circumstance, from which he was certain of obtaining his Requests from them on the Foot of Exchange. Thus the same Plant came under the Inspection and Management of different Botanists, by which means each had an Opportunity of making his own Observations on it; a Circumstance which tends more to the Advancement of Botany, than perhaps every one is aware of. To his Skill in Botany he added the most extensive and distinguish'd Gratitude; for in an Oration deliver'd in 1731. on resigning his Professorship, he immortalizes the Names of his Correspondents; and, in the warmest Strains of Gratitude, recites the Friendships and Favours of the *Sherards*, Sir *Hans Sloane*, Baron *Bassand*, and about forty more of different Nations.

Besides, his Botanical Knowledge was not of the barren Kind; for it furnish'd him with new Subjects for Chymical Operations, and new Medicines for Use. About seventeen Years after the Publication of his Index, he, in his Lectures, gave a full Description of the Plants, together with an Account of their Virtues; but he never published these, which is much to be lamented.

I shall now proceed to specify some of the modern Discoveries, relative to the Structure and Vegetation of Plants.

The STRUCTURE of VEGETABLES.

In treating this curious Subject, we shall pursue that Method, which, as Dr. *Grew* justly observes, is follow'd by Nature herself, in her continued Series of Vegetations, proceeding from the Seed sown to the Formation of the Root, Trunk, Branch, Leaf, Flower, Fruit, and, last of all, to the Seed to be sown again; to every one of which we shall speak in their particular Order.

The Seed of a Plant, then, is that Part by which the Plant is propagated, and consists of an Embryo, with its Coat or Cover; which Embryo contains the whole Plant in Miniature; and is therefore call'd the Gem or Bud, and is rooted in the Placenta or Cotyledon; which last serves the same Purposes in Vegetables, as the Secundines, or the Chorion and Amnion, in Animals.

But tho' the Constitution of the Seed is essentially the same in all Vegetables, yet, as some are more convenient for Observation than others, we shall chuse to instance the great Garden-bean; which, if we dissect, we shall find cloath'd with a double Vest or Coat. These, while the Bean is green, are separable, and easily distinguish'd; but, when it is dry, cleave so close together,

together, that the Eye, not before instructed, will judge them but one; the inner Coat (which is of the most rare Contexture) so far shrinking up as to seem only the Roughness of the outer.

At the thick End of the Bean, in the outer Coat, there is a very small Foramen or Hole, which, in Dissection, is found to terminate against the Point of that Part call'd the Radicle, of which we shall speak hereafter; and is of that Capacity as to admit a small Wyre, and is most conspicuous in a green Bean.

This Foramen may be observed, not only in the great Garden-bean, but also in the other Kinds; in the *French* Bean very plainly, in Pease, Lupines, Vetches, Lentiles, and other Pulse; and in many Seeds not reckon'd of this Kindred, as in that of Fenugreek, Goats-rue, and others; in many of which it is so very small, as scarcely, without the Help of Glasses, to be discover'd; and in some not without cutting off Part of the Seed, which otherwise would intercept the Sight.

All Seeds which have thick or hard Coats, have the same likewise perforated in this or some other manner; and accordingly, altho' the Coats of such Seeds as are lodged in Shells or Stones, being thin, are not visibly perforated; yet the Stones and Shells themselves always are.

And for the sake of this Aperture it is, that Acorns, Nuts, Beans, Cucumbers, and most other Seeds, are, in their Formation, so placed, that the Radicle still stands next it, that, upon Vegetation, it may have a free and ready Passage into the Mould.

That this Foramen exists, even in old setting Beans, likewise appears, upon their being soak'd for some time in Water; for then taking them out, and crushing them a little, many small Bubbles will alternately arise, and break upon them. And, indeed, a free Access of the Air is as absolutely necessary to maintain the Principle of Vegetation in the dry Seed, (tho' in a less Degree) as to nourish the Plant when germinated; which is well known to the Seedsmen, who find by Experience, that all sorts of Seeds are best preserved, if kept in the Pods or Husks wherein they grew, and not shut up too close from the Air.

The outer Coats of the Bean, then, being stripp'd off, the proper Seed shews itself, which, as we before observed, consists of a main Body, Cover, or Cotyledon, and an Embryo, or young Plant; which last may also be distinguish'd into two Parts, the Radicle, and the Plume.

Now the main Body is not one entire Piece, but is always divided lengthwise into two Halves or Lobes, which are both join'd together at the Basis of the Bean. These Lobes, in dry Beans, are but difficultly separated or observed; but in young ones, especially boil'd, they easily slip asunder.

There are some few Seeds, indeed, which are not divided into two Lobes, but more; as that of Cresses, which have six; and some are not at all divided, but entire, as Corn: Excepting which few, all other Seeds, even the smallest, are divided, like the Bean, into just two Lobes. But in all Seeds whatsoever, they perform the same Office to the infant Plant, as the Membranes, (call'd *Chorion* and *Amnion* by Anatomists) *Placenta* or *Cotyledons*, call'd the After-birth, do to the Embryos of Animals. When the Plant begins to take Root, and receives some Nourishment from the Earth, these Lobes, in all except those of the Pulse Kind, become the *Folia Seminalia*, or Seed-leaves, which still serve to protect the young Plant from Injuries; but, as soon as it has taken sufficient Root in the Earth to shift for itself, the Plant may be said to be born; and then these Seed-leaves, being of no farther Use, wither and drop off, like the aforesaid Membranes in Animals.

Without these Lobes, and somewhat above the thicker End of the Bean, stands the Radicle, which is so call'd, because, upon the Vegetation of the Seed, it becomes the Root of the Plant. Now this is immediately visible, upon divesting the Bean of its Coats, and is of a whiter Colour, and more glossy, than the main Body, especially in a young Bean.

The next Part to be consider'd is the Plume, which lies inclosed in two small Cavities, form'd in the Lobes of the Bean for its Reception. Its Colour comes near to that of the Radicle, to the Basis of which it is fix'd; tho' it has quite a contrary Germination, that is, towards the thin End of the Bean; and this is that Part, which, in Process of Time, becomes the Body or Trunk of the Vegetable.

It is not, like the Radicle, one entire Body, but is divided at its loose End into divers Pieces, all close set together, like Feathers, in a Bunch, whence it derives its Name; and these are so very close, that only two or three of the outermost are, at first, visible; but, upon a nice and curious Separation, others still more inward may be discover'd; all which are so many true Leaves, already form'd, tho' not display'd, intended for the said Trunk, and folded up with it, as afterwards appears upon the sprouting of the Bean. In a *French* Bean the two outermost of these are very fair and conspicuous; and in a great Garden-bean two very small Plumes frequently, if not always, stand one on each Side the great one just now described, from which they differ in nothing but the Size. In many Seeds, indeed, nothing but the Trunk is visible, without any Leaves; notwithstanding

which these last never fail to exert themselves, after the Seed has lain some time in the Ground. The Seed, thus compos'd, is inclosed within two common Membranes, the outer thin, and the inner thicker; and one proper, which we shall call the Cuticle, which covers both the Outside and Inside of the Lobes, as also the Radicle and Plume.

But, before we proceed any farther in the Description of the different Parts of Plants, it will be highly worth while to take Notice of the great Analogy there is betwixt Plants and Animals, in as few Words as may be.

First, then, as a Mixture of Male and Female is necessary in Animals towards Generation, so it is in Plants, as appears, beyond all manner of Contradiction, by a great Number of Experiments.

Again, as the first perceivable Effect of the Mixture of Sexes, in Animals, is the Production of an Egg, which is deposited in the Matrix or Womb of the Female Parent; or else laid in a Nest, to be hatch'd by the Heat of the Mother's Body; or perhaps conceal'd by the Parent in some proper Place, in order to be brought to Perfection by the Heat of the Sun: It is just the same in Plants, where the first Effect of the Mixture of Sexes is the Production of a Seed, which may very properly be call'd the Egg of the Plant; which, when deposited in the Earth, as a proper Matrix or Womb, is, in its Season, as it were, hatch'd by the Heat of the Sun, and becomes a Plant of the same Species as its Parent.

The Embryo of Animals, whilst in the Egg, is inclosed in Membranes, and is nourish'd by a Juice contain'd in the Egg, which it receives by means of a Navel-string, or something that performs the Office thereof; being first collected by a Congeries or great Number of Vessels, which is call'd the Placenta; or, in some Animals, the Cotyledons. In the Seeds of Plants, also, the Embryo is contain'd in Membranes, and the infant Plant is for some time nourish'd by Vessels analogous to the Navel-string, and Placenta, or Cotyledons, which convey to the Embryo proper Nourishment.

When the Animal is born, or hatch'd, the Way of its Nourishment is then very different from what it was in the Egg; for then there are a great Number of small Vessels, call'd by Anatomists Lacteals, which take up, from the Intestines, the finest Parts of the Aliment or Food which the Animal eats, and convey it to the Blood-vessels, where it circulates with the rest of the Juices, till it is again discharged from the Animal by means of Perspiration, Urine, or some other Evacuation. In Plants, the Fibres of the Root perform the Office of the Lacteals, and convey Nourishment to the Plant; which, after having circulated in its Vessels, is again thrown off by Perspiration. And, as curious Observers have found, that a Man in Health perspires about thirty-one Ounces in twenty-four Hours; so Dr. *Hales* has demonstrated by Experiment, that a Sun-flower perspires twenty-two Ounces in the same Time; not that the Sun-flower is the only Plant that perspires, nor a Man the only Animal; but all Plants and Animals throw off vast Quantities of their Juices by Perspiration, some more, and some less, when in Health.

Is the Air necessary to the Support of Animals? It is not less so to the Life of Vegetables; for all Plants whatever will soon wither and die, when deprived of a free Intercourse with the external Air.

Are Animals kept alive, nourish'd, and supported, by the Circulation of the Blood? The Circulation of the Sap is equally necessary to Vegetables, which cannot subsist without it.

And here we cannot sufficiently admire the Wisdom of the great CREATOR, in this surprising Harmony between Plants and Animals, than which we need no other Proof, that God is a God of Order. And it may be no ill Lesson of Humility to us, that as even the very Worm, we tread under our Feet, can say to Man, who is so wonderfully and fearfully made, *I am thy Sister*; so likewise the basest and most noisome Weed is, as well as ourselves, a Link of that golden Chain, by which the Poets feign the World to be fasten'd to the Throne of Jupiter.

The Lobes, as we have already observed, answer the same Purposes as the Membranes in Animal Fœtuses; for between these the tender Embryo is warmly and safely lodged; and by that means secured from all external Injuries, which it might otherwise sustain from the Mould, or the Access of noxious Colds; and this is continued till the little Plant is somewhat inur'd to its new Element, and its Root tolerably fix'd in the Ground, when these two Lobes become the *Folia Seminalia*, or Seed-leaves, whose Office it is still to protect the tender Plant, till the Plume is become sufficiently strong and expanded.

Nor is this the only End they answer; for while they adhere to the little Embryo, they not only guard and defend it in the above-mention'd manner, but likewise prepare and purify the cruder Juice the Plant is to receive from the Earth, by straining it thro' their own Body, and assimilating it to their own Nature; which Nourishment the little Plant receives, and draws to itself by a great Number of small branching Vessels, which it sends into the Body of the Placenta, and which answer the same

same Purposes as the *Funes Umbilicales*, or Navel-strings, in Animals.

Moreover, we find that every Placenta or Cotyledon of a Seed abounds for the most part with a Balsam, disposed in proper Cells, which is oily and tenacious, and not only serves to defend the Embryo from any extraneous Moisture, but, by its Viscidity, to entangle and retain that fine, pure, volatile Spirit, which is the ultimate Production of the Plant; and which is call'd the *Spiritus Rector*, or *Prevailing Spirit*. This Oil, it is true, is never observed to enter into the Vessels of the Embryo, which are too fine to admit so thick a Fluid; but the Spirit, being quicken'd by an active Power, may probably breathe that vital Principle into the Juices which nourish the Embryo, which stamps upon it the Character which distinguishes the Family; after which every thing is changed into the Nature of that particular Plant.

But, before we dismiss the Seed, it may not be improper to observe, that every Plant, even the least and most inconsiderable, arises from a Seed, nor is produced any other way; for, tho' the Earth nourishes every Individual, yet it cannot form an organical Body; and indeed, if it could, it must be endow'd with all the Omnipotence of the Creator.

Having thus taken a View of the Seed, we come next to the Root, or that Part of a Plant, by which it adheres to the Earth, and receives its Nourishment; but, before we proceed in our Anatomy, it may not be amiss to observe, that the Roots of Plants being of various Forms, are accordingly distinguished by Botanists. See the Explications of the different Roots under this Article.

But notwithstanding these Varieties, in regard to Matter of Form, the essential Parts of the Root seem to be the same in all; and are,

1. The Bark.

2. The Wood, or lignous Body; or, in the more herbaceous Plants, something equivalent to it.

3. The Medulla, or Pith.

The Bark, the Wood, and the Pith of the Root, seem to be nothing different from those of the Trunk and Branches. Its Use is to receive the nutritious Juices of the Earth into its Vessels, which are thence convey'd into the Trunk by corresponding Vessels therein; or, according to the Opinion of some, the Vessels of the Trunk are only a Continuation of the Vessels of the Root. Therefore what we are going to observe of the Bark, Wood, and Pith, is to be understood both of those of the Trunk and Branches, as well as those of the Root.

The Bark may be divided into the outward Skin, or Cuticle; and the inner or cortical Substance.

The outward Skin, or Cuticle, seems to derive its Origin from the inner or cortical Substance, and to be nothing more than the old Bark dried and shrivel'd up, being supplanted yearly by a new one, after the same manner as a Snake casts her Skin.

It is composed of little Bladders, or Vesicles, horizontally placed, so as to form a Ring; among which are also intermix'd, more or less, several parallel woody Fibres, or Sap-vessels.

The inner Substance consists, 1. of several Enfoldments of woody Fibres, interwoven in the manner of a Net, and wrapping over each other like the Coats of an Onion. 2. Of a great many little Bladders, or Vesicles, sometimes of an oval, and sometimes an angular Figure, which fill up the Spots or Spaces between the said Fibres; and are placed, as it were, in Lines horizontally towards the Wood. And, 3. of its own peculiar Vessels, which contain the proper and specific Juice of the Plant.

The woody Fibres are certain tubular Bodies, hollow for the Reception of their proper Fluids; and are composed of a great many smaller concave Fibres, disposed in a quadrangular Figure, and communicating one with another. These Vessels do not run in right Lines or Parallels; but, for the most part, are gather'd together, as it were, in little Bundles; which, when extended, or separated from each other, form a kind of Net, or reticular Coat, with which they embrace the Wood. Dr. Grew calls them the lymphatic Ducts, from their containing an aqueous, limpid, and almost insipid Fluid.

The Bladders, or Vesicles, which are full of a Liquor they receive from the woody Fibres, are, for the most part, placed horizontally in right Lines, which run from the Cuticle towards the Wood, and are call'd by Dr. Grew the Parenchyma of the Bark, as being analogous to the Parenchyma in the Bowels of Animals. Into these transverse Vesicles the ascending Fluid, which may be call'd the Chyle of the Tree, is deposited; where having remain'd for some time, and being intimately mix'd with the former Juice, it is at length exalted into the Nature of an Aliment, and from thence distributed to the other Parts of the Plant. And as there is great Plenty of this kind of Fluid in these little Bladders, or Vesicles, it is no Wonder, that the Bark of a Tree should supply the Fire with a stronger and more abundant Pabulum, than any other Part.

The Contents of the Sap-vessels are different in various Plants,

as a Resin in the Fir, Milk in Spurge, &c. This Juice Mr. Ray chuses to call the Quintessence of the Plant, as containing not only its Smell and Taste, but all its Virtues.

The Wood consists of the same Parts, and those connected in the same manner as the Bark, viz. 1. Of certain hollow woody Fibres, gather'd together, as it were, in little Bundles, and interwove in the manner of a Net. 2. Of little Bladders, which fill up the Spaces between the said Fibres. 3. Of the Vessels containing the specific Juice of the Plant. And, 4. of certain Vessels, which we shall call Air-vessels, and which answer to the Lungs in Animals.

The woody Fibres are exactly the same as in the Bark, only there is this Difference between them, that, upon cutting the Trunk transversely, the Sap will voluntarily flow from those in the Bark, but seldom or never from these. They compose far the greatest Part of the Wood, and their Use is for the Strength and Compactness of it. Malpighi will have them communicate one with another, like the Branches of the Veins of Animals.

The little Bladders are rank'd in Lines, between the Fibres and Vessels, from the Bark to the Pith; tho' they do not all extend quite so far, being sometimes interrupted by little Circles, which rise towards the inmost Parts of the Wood. In Shrubs, and those which have not a very thick woody Body, and are pretty pithy, these Bladders are visibly extended as far as the Pith, and resolve themselves into it; whence it plainly appears, that the Bladders in the Bark, and those in the Pith, are of the same Nature. They are composed of oval Bodies, which communicate one with another; whence they are swell'd with the Juice of the Plant, in some with a limpid, in others with a tinctur'd Liquor. Each Bladder consists of a fine transparent Membrane; and, in different Plants, they are very different, both in Number, Size, Texture, and Extension.

The Vessels containing the proper and essential Juice of the Plant are disposed in as many Circles as there are Coats, or Strata, of annual Increase from the Pith to the Bark; for these Strata are the same with the inner Parts of the Bark, which every Year apply themselves to the Wood, being render'd thus compact by the Pressure of the woody Fibres, which surround them on all Sides.

The Air-vessels consist of certain spiral Lines, each of which is composed of a great many squamous parallel Fibres, and of a great Number of smaller Fibres, which run across these, and cover them in the manner of a Coat.

These Air-pipes contain, as it were, certain pulmonary Vessels; and, where they communicate one with another, are sometimes of an oval Form, and always closed at the other End, so that they bear no small Resemblance to the Vessels in the Lungs of Insects. And Nature seems to have given both to Plants and Insects, instead of Lungs, these spiral Vessels, thus composed of hollow squamous Fibres, for the better bearing the sudden Pressure and Dilatation of the Air, in those violent Flexures which Trees are liable to, and the elastic Motion of the included Air.

They are mostly supported, surrounded on all Sides, and sometimes streighten'd by the woody Fibres; whence, on cutting the Wood across, their Orifices frequently appear oval or round, and sometimes angular. They run up almost in right Lines from the Root to the Trunk, whence they are dispersed thro' the Branches, and, growing curved in the Leaves, are interwoven in the manner of a Net. These Vessels, except the Sap-vessels of the Bark, are by far the largest of all, and occur in great Plenty thro' the whole Substance of the Wood; but none have ever been observed in the Bark.

The Pith, which was formerly look'd upon as analogous to the Heart and Brain in Animals, consists of a great Number of little Globules, rank'd lengthways. These Globules, which are so many little Bladders, or membranous Vesicles, in most Plants are of a round, and in some of an angular or cubical Figure, consisting of five or eight Sides.

Now the Pith, tho' it has a different Name from the spongy Substance of the Wood and Bark, yet is of the same Nature and Substance, as appears not only from its Texture, but Continuity; for the little Bladders, which form that spongy Substance, run quite from the Bark thro' the woody Fibres, and end in the Pith; whence it is plain, they partake of the same Nature. And, indeed, they differ in nothing but Size, the Vesicles of the Pith being very large, those of the Bark less, and those of the Wood the smallest of all. The Quantity of Pith is likewise different in various Plants; and is, in general, more in Shrubs, and the herbaceous Kinds, in proportion to their Size, than in Trees. It may be distinguish'd into its Vessels and Bladders; the first of which are placed at the Extremities of the Pith, which they circle round, and embrace. These Vessels contain the proper and essential Juice of the Plant.

The Bladders of the Pith are likewise of different Magnitudes in different Plants, at least an hundred times larger in some than in others; as in the common Thistle, for Example, than in the Oak. And it must also be observed, that the Size of these Bladders bears no Proportion to the Quantity of Pith; for

for in the Pith of the Elder-tree, which is more in Quantity than that of the Berberry-tree, the Bladders which compose it are as small again as those of the latter.

The Pith is only succulent or sappy the first Year, its Bladders, after that, growing dry, lax, and soft; and this Sap it probably receives from the reticular Vessels which surround it.

The Texture of the Branch is exactly the same with that of the Trunk.

But here we must not forget two very material Parts, remark'd by the curious Observers of Nature; and these are the Knots, and the Buds.

The Knots are those Parts of a Plant in which the Buds are lodged, and from whence it shoots out its Branches. They not only serve as Abutments for the dilating Sap to exert its Force upon, but also to prevent the rarefy'd Sap's too free Retreat from the Pith.

The Buds, to use Mr. Bradley's Words, have their first Rise in the Pith; they are there framed, and as they become fit for Action, by being furnish'd with every necessary Part for Vegetation, they are forced along certain Channells, till they meet the Air at the tender Bark, thro' which they make their Way, and would drop to the Ground, were they not restrain'd by a Number of Sap-vessels, which serve as so many Roots to nourish them from the Body of the Tree. These Buds are, in every respect, as perfect as the Seed, or rather more so; for a Bud contains a whole Plant, roll'd up in itself; and has, for the most part, its Juices so well digested, as to come sooner to bear Fruit than the Plant wrapp'd up in the Seed.

The Difference between a Bud and a Seed is, that a Seed consists of Lobes and Ear-leaves, which include the young Plant, and serve to give it the first Stamp, by teaching it what kind of Juices it ought to draw from the Earth for its Nourishment: But a Bud has no Occasion for such Ear-leaves, because it takes Root immediately in the Body of the Tree, where the Juices are already fit for it.

Buds likewise differ from Seeds, inasmuch as they are always constant to the Mother-tree, and exact Representatives of the Plant that produced them; whereas Seeds multiply their own Species, with Variety of Complexions, all the Plants produced by them being some way different from one another, either by some little Variation in the Colour of the Flower, the Taste, or Time of ripening of their Fruit, the Flower or Figure of it, or some Difference in the Shape or Colour of the Leaves. And Nature, in this respect, seems to observe the same Conduct as amongst Animals, where no two Faces are exactly alike; and where no Offspring perfectly resembles either Mother or Sire.

This constant Likeness, therefore, of the Plant, proceeding from the Bud to the Mother-tree, seems as if design'd on purpose to support the Reputation of the Mother-plant, and, in some measure, to make amends to Plants for their Deficiency in the want of local Motion; since, by the Bud, any particular Fruit, or Tree of Merit, may come to be naturaliz'd in any Part of the World.

But it must be observ'd, that the Buds are of several Sorts, viz. either Leaf-buds, or Blossom-buds. The Difference between them may be known in most sorts of Fruit-trees, before they open, by observing, that the Leaf-buds are long, thin, and pointed; but the Blossom-buds short and turgid. The Juices also, in the first, are more fluent and aqueous; and, in the latter, more digested and gummy. But both these sorts of Buds proceed from the Pith of the young Wood, and are disposed for different Offices, as the Plant or Branches that produce them are more or less vigorous. The most vigorous bring Leaf-buds, and those that are smaller, and seem to be less nourish'd, produce Blossom-buds.

They are spread into Branches, when the Temper of the Air is such, as to render the Sap or Juices of the Plant of such a Fluidity as to circulate thro' the Vessels without Interruption; when the Sap, being sufficiently fluid, fills the Buds, and they, by degrees, are open'd into Shoots and Branches, every one of which is properly a Tree growing upon another Tree; which makes it practicable to cut off Branches from any Tree, where we please, without destroying the Tree; whereas, if a Tree was one entire Body, as the Body of an Animal, the cutting off the Branch would endanger the Whole.

But the Buds are not confin'd to the Parts above Ground only, being fram'd in the Pith of the Root, as well as in that of any other Part; and here it is worthy our Notice, that those which are form'd in the Root, are impress'd with the Form of the Root, when put in Action; and so those Buds which are form'd in the Branches, are also model'd for Branches, when they begin to act; but, in their Principles, they are both the same. For if we expose the Roots of a Tree to the Air, after allowing them a little Time to be acquainted with the Element, they will put out Buds in such sort, as to produce Leaves; and if we lay down a Branch of a Tree in the Earth, after it has had time to reconcile itself to that Situation, those Buds form'd in the Pith, when they begin to move, instead of Leaves, or Flowers, or Fruit, which they would have produc'd, if rais'd in the Air, will now bring forth Roots, and from them others.

And hence it is likewise observable, that as the Pith, of consequence, is only found in the younger Shoots; so, if we would increase a Tree by Layers, those Layers must be of the young Shoots, where this Pith is perfect; otherwise they will want those Seeds or Buds, so necessary to the Production of the Root.

The Leaf consists of the same Parts as the Trunk and Branches, that is, woody Fibres, or Lympheducts, Vessels containing the specific Juice of the Plant, Air-vessels, a Parenchyma, or Ranks of little Bladders, which fill up the Spaces between the reticular Fibres, and a Cuticle; all which are substantially the same with those of the Branches: For the Cuticle of the Leaf, for Example, is no more than the Amplification of that of the Branch; as the Fibres or Nerves, dispersed thro' the Leaf, are only the Ramifications of the Wood of the Branch, or lignous Body. So likewise the Parenchyma of the Leaf, which lies betwixt the Nerves, and fills all up, is nothing else but the Continuations of the cortical Body, or the inner Part of the Bark, from the Branch into itself; as in most Plants, with a fat Leaf, may easily be discern'd. For it must be observed, that the Stalk of the Leaf, which is composed of all these, where it enters the Leaf, divides itself, like another Trunk, into a great Number of Branches; and these again are subdivided into a great many lesser Branches or Twigs, which mutually crossing each other, compose a kind of Net-work, which is very visible in the Leaves of some Plants, particularly on the back Side of those of Sage.

That these Fibres are likewise accompanied by the Vessels containing the specific Juice of the Plant, is evident from the different Colour of their Contents, which discovers itself upon Dissection of the Leaves, as a Milk in those of Spurge and Succory, and in those of Celandine a yellowish Liquid. And tho' this is not so apparent in the Leaves of many Plants, where these Vessels are only full of a limpid aqueous Fluid, yet the aforesaid Instances are sufficient to convince us, that they are present in all.

The Spaces between these Vessels and Fibres, being fill'd up by the above-mention'd little Bladders, form the Parenchyma, or fleshy Part of the Leaf; and these Bladders, according to the Nature of the Sap they contain, and the Closeness or Laxity of their Pores, are of different Figures upon the Surface of the Leaf, as in some angular, in others quite irregular.

Between these Bladders and the reticular Fibres, Malpighi observes, that there are several little Cells or Pores dispersed, which serve for the Discharge of some Fluid, or the Exhalation of some Vapour.

The Whole is cover'd with a fine Cuticle, or Epidermis, which partakes of the Colour of its Contents.

Dr. Grew divides the Flowers of Plants into the Empalement, Foliation, and Attire.

The Empalement is the outermost Part of a Flower, which covers it before it is blown, and forms a kind of Support for it afterwards. This is call'd by some the Perianthium, as surrounding the Flower; and by others, improperly, the Calix, or Cup; for the Calix is properly the hollow Cup form'd by the Perianthium, or Empalement, out of which the other Parts of the Flower grow. There are some Flowers whose Petals, or Flower-leaves, have a firm and strong Basis, sufficient to support themselves, and therefore stand in need of no Empalement or Perianthium; and accordingly Nature has given them none, as may be seen in the Tulip. These, however, have a Calix or Cup.

By the Foliation Dr. Grew means the Assemblage of the Petala, or those finely colour'd Flower-leaves, which constitute the Beauty of the Flower. These Petala, or Flower-leaves, grow generally immediately within the Perianthium, or Empalement, from the Edges of the Calix or Cup, and inclose the Attire, or Male and Female Parts of the Flower. Some Flowers consist of one Petal, or Flower-leaf, and are of different Shapes in different Plants, as that of a Bell, or a Funnel; and sometimes of two, three, four, or five Petals; and sometimes of a Number, as in the Marygold and Sun-flower.

There is a large Class of Plants which have no Petals at all, and therefore are call'd apetalous, as Hops, Mercury, Nettles, and Docks. These are also call'd stameneous Flowers, from their great Number of Stamina or Chives.

These Petals are design'd by Nature for the Safeguard of the Parts of Generation in the Flower; and hence we see them expand themselves at the Rising of the Sun, to receive the Heat; and close up, some more, others less, at the Approach of Rain or Night. Nor is this their only Office; they also draw and convey Nourishment to the Embryo; Fruits, and Seeds; for as soon as the Pistil is form'd into a small Fruit, now impregnated with its minute seminal Tree, furnish'd with its Secundines or Membranes, the Blossom falls off, leaving this new-form'd Egg, or first-set Fruit, to imbibe Nourishment for itself, and the Foetus with which it is impregnated; which Nourishment is brought within the Reach and Power of its Suction by the adjoining Leaves.

We now come to the generative Parts of Plants, call'd by Dr. Grew the Artire. These consist of the Male Parts, call'd the Stamina or Chives, and Apices; and the Female Parts, call'd the Pistillum or Stylus.

The Stamina are those fine Threads which grow up within the Foliage, surrounding the Pistil, as may be seen in Tulips and Lilies.

On the Tops of these Stamina, or Chives, are placed the Apices, or little Knobs, which may properly be call'd the Testicles of Flowers; because they contain the *Farina fecundans*, or Seed necessary for the Impregnation of the Pistillum, which may be call'd the Womb of the Plant.

In some Flowers these Stamina are exceedingly short, and in others there are none at all; but in those the Apices, with the *Farina fecundans*, or impregnating Dust, are fix'd immediately to the Capsula, or Pod, which contains the Seed.

In other Flowers, as the Thistle, and Lettuce, several of these Stamina, uniting together, form a little kind of Tube, or Pipe, which incloses the Apices, furnish'd with their impregnating Dust.

The *Farina fecundans*, or impregnating Dust, is form'd in the Apices, which, when ripe, burst; and then the *Farina* falls upon the Head of the Pistil, or Female Part of the Flower; and is thence convey'd to the Matrix, or Womb, in order to impregnate the Seed.

This *Farina fecundans* is what is gather'd by the Bees, in order to make their Wax.

The Pistil is the Female Part of the Plant. It grows upright from the very Middle of the Cavity form'd by the Flower-leaves, which is call'd the Calix; and, when ripe, forms the Pod that contains the Seed, or becomes the Fruit. Sometimes the Pistil is enlarged at both Ends, in the Shape of a Pestle, whence it derives its Name; sometimes it is, as it were, only a sort of Thread; in some Plants it terminates in several Branches, or Horns, which have their Rise from as many Pods, containing Seeds; sometimes it is round, sometimes square, triangular, or oval.

The Pistil in some Flowers is cover'd, at the Top, with very fine Hairs, which make it like Velvet. In others it is furnish'd with a sort of Plume; and others are cover'd with Vesicles, or small Bladders, full of a glutinous Juice: But all Pistils, of whatever Shape they are, have little Openings at the Top, which receive the *Farina fecundans*; and have also little Channels within, which convey the same *Farina fecundans* to the Seed, in order to its Impregnation.

Some Authors make no Distinction between the Pistil and Stylus; but Malpighi, and after him Bradley, seem to call it a Pistil when it contains the Seed within it; and name that Part the Stylus, which, in some Flowers, dries and falls off, after the Impregnation of the Seed.

Many and very different are the Opinions of Authors, in regard to the Generation of Plants: Without entering into their Disputes, we shall give that Account of it, which seems to us most probable; after having observed, that most Plants are Hermaphrodites, among which some, and that the greatest Part of them, contain both the Male and Female Parts of Generation in the same Flower. Others, the Melon for Example, bear Flowers upon the same Stem, of different Sexes, the Female, which produce Fruit, and the Male, which produce none. There are also some entire Plants, which bear Flowers without Fruit; whilst others, of the same Species and Name, bear Fruit without Flowers; and they are hence distinguish'd into Male and Female Plants. Of this last Kind are the Palm-tree, Poplar, Hops and Hemp. The Male are those which produce the Flower, and the Female those which produce the Seed.

Now 'tis highly probable, that the Embryo of the young Plant, or that Part which we have before describ'd as lying in the Middle of the Seed, and which we have distinguish'd into the Radicle and Plume, is form'd by the *Farina fecundans*, which, falling down the Pistil into the Uterus or Womb of the Plant, meets there with a proper Receptacle, where it fixes; and that the Lobes of the Seed, above describ'd, which perform the same Office as the Membranes, Placenta, Cotyledons, or After-birth, do to the Young of Animals, are furnish'd by the Female Part of the Plant.

When the Male and Female Parts of the Flower are pretty near to each other, it is not difficult to conceive, how the *Farina fecundans*, or, as it may be call'd, the Male Sperm, is convey'd to the Pistil, or Womb: But when the Male and Female Flowers are at a Distance from each other upon the same Stem, but more particularly when they grow upon different Plants of the same Species, it is not so easy to comprehend how the impregnating Dust of the Male Plant is convey'd to the Female Plant, especially when they are at a great Distance from each other.

We have a Story in *Jovianus Pontanus*, which will give the Reader an Idea of the vast Distances to which this impregnating Dust may be carried. He tells us, that there was a Female Palm-tree which grew in the Wood of *Otranto*, and a Male Palm-tree at *Brindisi*, fifteen Leagues from the Female; that

the Female was barren for several Years, and bore no Fruit at all; till at last growing above the other Trees of the Wood, it began to be fruitful, and bore great Quantities, tho' there was no other Male Palm-tree nearer than that at *Brindisi*.

Most Authors, that have treated of the Generation of Plants, have quoted this History; and, I think, generally agree, that the Male Dust must be brought from the Male Tree at *Brindisi*, to the Female at *Otranto*, by the Wind; and therefore conclude, that the Wind is the Agent which carries the Dust from the Male Plant to the Female. This would be very probable, provided these Palm-trees grew betwixt the Tropics, where the Wind, for at least three Parts of the Year, blows from the East, and the Situation of the Male Tree had been towards the East of the Female; but if the Female had been placed East of the Male, it would have proved a very unfortunate Position for the Female, which must therefore have certainly been barren.

For my own part, I don't think it probable, that the Supreme Being, who always orders all the Operations of Nature to be perform'd in the best manner, should leave a Thing of so much Consequence, as that of the Generation of Plants, to be conducted by so uncertain an Agent as the Wind; which would undoubtedly leave a great Number of Plants barren, if it did not happen to blow from a right Point, just at the Time that the Dust of the Male, being arrived at Maturity, was ready to be carried to the Female Plant.

I am therefore of Opinion, that there is some Power in Nature, which has not yet been duly consider'd by the Learned, capable of affording so sure a Conveyance to the Male Dust, that it can never fail impregnating the Female.

There is a Power in Nature to which Philosophers have given the Name of *Electricity*, because first observed in Amber, call'd in Latin *Electrum*. This is an attractive or magnetic Force, which the aforesaid Amber, Glass, and many other Bodies, exert, when rubb'd till they are warm, and by which they draw to themselves any light Body that is near them, and sometimes repel the said Bodies from them. Mr. Gray, of our own Royal Society, and Monsieur du Fay, of the French Academy of Sciences, have, by their indefatigable Researches, discover'd many amazing Properties of electrical Bodies, too long to enumerate in this Place. But it is very much to our present Purpose to observe, that Bees-wax is endued with this attractive Power, at least as much as any other Body whatever, and that without any rubbing at all; and this electrical or attractive Force Bees-wax retains longer than any other Body.

Now, if we consider, that Bees-wax is little more than a Mass of the *Farina fecundans*, or impregnating Dust of Flowers, collected by the Bees; it seems very likely, that every Particle of this was endu'd with a certain electrical or attractive Force, before it was gather'd from the Flower; and if so, why may we not presume, that the Pistil or Womb of the Plant, and the *Farina fecundans*, or impregnating Dust, strongly attract each other? And as some Bodies are known to exert an attractive Force to a prodigious Distance, we may easily conceive, that it is possible for the *Farina fecundans* of a Male Palm to sail, even against the Wind, from *Brindisi* to *Otranto*, though fifteen Leagues asunder, when the Female Palm was grown high enough to receive the *Farina*, which, before that, would be intercepted in its Passage by the other Trees of the Forrest.

There are some Circumstances relating to Electricity, which seem to confirm, that what we have hinted at is, at least, one of its principal Uses. One is, that this electrical Virtue of Bodies is much diminish'd by a moist Air. Another is, that it does not exert itself so vigorously, during the Heat of the Day.

Curious Observers of Nature will discover, upon Examination, that the Generation of Plants is principally carried on in the most temperate Part of the Day, and when the Sun has been risen long enough to dry in some measure the Air, and elevate the Vapours to some Distance from the Surface of the Earth. At this time the Mulberry, and many other Trees, during the Season of their generating, may be seen surrounded, as it were, with a Cloud of Dust; and this Appearance is not observable at any other Season of the Year but that in which they generate, nor any other time of the Day but early in the Morning.

Having now dispatch'd the Structure of Plants, and their Generation, we shall next proceed to their Vegetation or Growth.

Of the Vegetation or Growth of Plants.

In order to form some Idea of the Vegetation of Plants, it will not be amiss to consider the Production of a Plant as the Result of a Chymical Process, in which Nature is the Operator, and the Person who cultivates the Ground an Assistant.

The first thing then, that is done, is to manure the Land, or, in other Words, to furnish it with an alkaline Salt. Here we must suppose, that the Earth to be manur'd was before depriv'd of all its Salts, by bearing too frequent Crops; otherwise this Part of the Operation would be unnecessary; Nature un-

assisted being abundantly sufficient to supply the Ground with a due Quantity of Salts; but, when these are taken away, Nature unaided is a long time in providing more.

These Salts, while they retain their alkaline Nature according to their known Property, divide the Earth into small Particles, and render it light, and disposed to crumble and fall in Pieces, like Lime, when Water is pour'd upon it; and thereby promote its Fertility. It is for this very Reason that frequent Ploughing, or Digging, fertilizes the Ground, and is what People mean when they talk of *making it mellow*.

When this is done, Nature furnishes these alkaline Salts with a Fluid to dissolve them, that is, they attract strongly the Vapours and Dews floating in the Air, which have already been render'd somewhat oily, by the Oils of Animals and Vegetables, which perpetually float in the Atmosphere. By these oily Dews, they are dissolv'd into a kind of Oil, *per Deliquium*, and sink into the Bosom of the Earth, which may be esteem'd as the Vessel in which this Operation, or Process of Vegetation, is perform'd; and here again they meet with an Oil, of which all Earths contain more or less.

It has been observ'd under the Article *ALKALINE*, that if Salts are mix'd with any Acid, especially when in a fluid State, an Effervescence is rais'd, with Ebullition, and a violent intestine Motion; and that they attract the Acid of the Air so strongly, as in time to be impregnated therewith, and to become entirely neutral. It is then easy to understand, that whilst these Salts lie in the Bosom of the Earth, dissolv'd into what the Chymists call an Oil *per Deliquium*, or, in other Words, a *Lixivium* or *Lye*, as they gradually attract the Acid of the Air, a gentle Effervescence, or Ebullition, must be caus'd, which must divide and break those Parts of the Soil, which before cohered strongly together, and render the Earth yet more light and mellow.

Now let us call to mind, that when alkaline Salts are digested with an Oil, they intimately unite with it, and form a penetrating deterging Substance, which is dissoluble in Water, and is of a Nature very different, both from the component alkaline Salt, and Oil; and this is commonly called Soap.

When therefore these alkaline Salts are committed to the Earth, and dissolv'd into a kind of *Lye*, meeting there with an Oil, these Salts and this Oil are digested by the Heat of the Sun, united together, and converted into a Soap much more perfect than the artificial Sort we make use of; for this last always retains some of the Acridness of its Parent Salt, which renders it unfit for the Purposes of Vegetation till neutraliz'd; whereas that form'd in the Soil is render'd entirely neutral as it is made, the Salts attracting and imbibing the Acid of the Air, at the same time that they are mixing with the Oils of the Earth, in order to be transform'd into a Soap. See *ACETUM*.

As all Vegetables whatever contain a large Quantity of Earth, it seems at first View somewhat difficult to explain, how it should be able to get there; because the Pores of the Roots are too small to admit of Earth undissolv'd, and perhaps even of Water; or, if they would admit Water, we find that utterly incapable of dissolving Earth. How therefore Earth comes to be dissolv'd, and render'd capable of entering through the Pores of the Roots, we are now endeavouring to explain.

The Solution of a Body is nothing more than dividing it into Particles small enough to swim in the Menstruum, or solvent Liquor, without being visible. Thus, when Salts of any kind are dissolv'd in Water, their Particles are so divided by the Menstruum, Water, as to become invisible whilst they float in it. Now the dividing the Earth into small Particles, in the manner just above-mention'd, is one Step towards a Solution.

Let us now consider the saponaceous neutral Juice, form'd in the Earth by an alkaline Salt, an Oil, and the Acid of the Air, as a saponaceous or soapy Menstruum, or Solvent, and see how it is capable of acting upon Earth; and, in order to make this the more plain, we shall give a very obvious Example, which falls under the Observation of every body.

When Cloaths, or Linen, or any thing else, are dirty, that is, have Concretions of Earth sticking to them, we find the most effectual way to make them clean, is to wash them in Water wherein Soap has been dissolv'd. Here then Soap penetrates the Pores of the Earth, divides it into exceeding fine Particles, and in some measure dissolves it. A saponaceous Fluid, therefore, bids the fairest of any thing we are acquainted with, to be the Menstruum or Solvent of Earth, and it is probable, that the saponaceous Fluid which is made in the Bosom of the Earth by a long Digestion, is more penetrating than any artificial Soap, and consequently more capable of dissolving Earth.

We shall be still farther confirm'd in this Opinion, if we consider this Juice of the Earth as a neutral Menstruum or Solvent; for it appears by a great Number of Chymical Experiments, that neutral Menstruums will dissolve many Bodies or Substances, especially those that are of an earthy Nature, which no other Menstruums or Solvents will touch.

From what has been said, it appears very plain, that whe the Earth has for a considerable time been, as it were, digested by the Heat of the Sun, in a saponaceous, neutral Liquor, the Rains, falling in great Quantities, dilute this saponaceous Liquor more, extract a kind of Tincture from the Earth, that is, dissolve a Quantity thereof sufficient for the Purposes of Vegetation, which, entering the Pores of the Root, is carried into the Stem of the Plant; and by this means is brought about what could not be effected by Water alone, that is, a Solution of Earth.

The Antients, who were fond of concealing all their Knowledge under Allegories, seem, however, to give some Hints of the Earth being impregnated by the Air. Thus *Homer* tells us, that when *Jupiter*, that is, the Air, lay with *Juno*, meaning the Earth, on the Top of *Gargarus*, the Flowers sprung up under them to make them a Bed.

Ἡ δὲ γὰρ καὶ ἀγλαὴ ἐμαρτὶς Κόινε παῖς ἦν παρακοίβην.
Τοῖσι δ' ὑπὸ χθονὶ δῖα φέρον νεοθηλῆα ποίην,
Λαλὸν θ' ἐρρήναι, ἰδὲ κρόνον, ἡδ' ἑάνιθον
Πικρὸν καὶ μαλακὸν ὅς ἀπὸ χθονὸς ὕψος' ἔεργε.
Τῷ ἐνὶ λεξέσθην, ἐπὶ δὲ νεοθῆλην ἔσσασθαι
Καλὴν, χρυσέην σιληναὶ δ' ἀπ' ἐπὶ πύλον ἔεργασαι. II. 14. 346, &c.

Gazing, he spoke; and, kindling at the View,
His eager Arms around the Goddess threw.
Glad Earth perceives, and from her Bosom pours
Unbidden Herbs, and voluntary Flow'rs.
Thick new-born Violets a soft Carpet spread,
And clust'ring Lotos swell'd the rising Bed:
And sudden Hyacinths the Turf bestrow,
And flamy Crocus made the Mountains glow.
There golden Clouds conceal the heav'nly Pair,
Steep'd in soft Joys, and circumfus'd with Air;
Celestial Dews, descending o'er the Ground,
Perfume the Mount, and breathe Ambrosia round. POPE.

Virgil in some measure explains this Passage in *Homer*, speaking of the Spring.

Tum Pater omnipotens fecundis Imbribus Æther
Conjugis in Gremium lætæ descendit, & omnes
Magnus alit, magno commixtus Corpore, Fœtus.

Georg. L. 2. v. 325, &c.

For then Almighty *Jove* descends, and pours
Into his buxom Bride his fruitful Show'rs.
And, mixing his large Limbs with hers, he feeds
Her Births with kindly Juice, and fosters teeming Seeds.

DRYDEN.

Both these great Poets seem equally sensible, that the Earth owes its Fecundity to the Air; but I don't know, that either they, or any more modern Authors, have explain'd the Manner how this Impregnation is brought about.

We have before observ'd a great Analogy betwixt Animals and Vegetables. It will very much illustrate the Doctrine already laid down, in regard to the Preparation of the Food of Vegetables, that is, the Juices which enter their Roots for their Nourishment, to explain the Ways which Nature takes to prepare the Food of Animals in their respective Stomachs.

There have for many Ages been great Disputes amongst Authors who have wrote upon the Animal Oeconomy, concerning the Digestion of Food taken into the Stomach. Most have agreed, that some kind of Menstruum was necessary for its Solution. Amongst these, some have affirm'd it to be an alkaline Solvent, some an acid: There are others, who have attributed this Solution to a Ferment in the Stomach, and some have imagin'd, that Digestion was perform'd by Trituration, or grinding, as it were, the Aliment, contain'd in the Stomach, betwixt the Diaphragm and the Muscles of the Belly. But *Papin*, and since him, many more tell us, that the Aliment is digested by the Heat of the Stomach, which, rarefying the Air contain'd in the Food, breaks it into small Particles, and reduces it into a Fluid. It would be endless to enter into a Detail of all the Inconsistencies which have been broached upon this Subject: I shall therefore content myself with observing, that it is probable, that the Saliva, or Spit, together with the Juices pour'd into the Stomach out of its own Glands, much of the same Nature as the Saliva, furnish a Menstruum or Dissolvent entirely neutral, of a penetrating saponaceous or soapy Nature, capable of dissolving the Aliment by the Assistance of a gentle Heat, without having recourse to an acid or alkaline Menstruum, Ferments, and Trituration. When this Operation is perform'd in the Stomach, the Aliment, thus far digested, is protruded by a gentle Pressure from the Diaphragm and Muscles of the Belly into the Intestine, or Gut, called by Anatomists the *Duodenum*, where it again meets with a Fluid of all others, perhaps, the most saponaceous and penetrating, I mean the Bile, or, as it is usually called, the Gall; and, mixing therewith, undergoes a farther Solution, is render'd more fluid, and fitted to enter the Mouths of the

Lacteal

Lacteal Vessels, which open into the Intestines, and perform the same Office to Animals, as the fibrous Parts of Roots do to Vegetables.

That the Saliva, or Spittle, is of a saponaceous Nature, any one will readily be convinc'd, that thinks it worth while to try an easy Experiment; for he will find, that Spittle will dissolve Concretions of Earth, or, in other Words, Dirt, adhering or sticking to any Substances much sooner than Water.

There is a Remedy recommended by the good old Women for Wens, or other small Swellings upon the Surface of the Body, which, however vulgar, is said to be a very good one; it is to anoint the Part with Fasting-spittle: Now the good Effect it has in these Cases, is owing to its saponaceous, penetrating Nature.

Gall is so commonly known to be a natural Soap, that it is frequently used in Washing, especially that of Oxen, which is easily procur'd, instead of artificial Soap.

It is remarkable, that the Gall of Pikes, Eels, and other Fishes of Prey, which want some Helps to Digestion which other Animals enjoy, have a Gall the most penetrating and saponaceous of all other Animals. See BILIS.

From what has been said about Digestion, it appears how little those People consult their Health, who draw off vast Quantities of their Saliva, or Spittle, by smoking, or chewing Tobacco.

From hence also it appears, that Nature is simple and uniform in preparing the Pabulum, or Food, both of Animals and Vegetables.

This Subject must not be dismissed without animadverting upon an Error of many Authors, who have compar'd the Roots of Plants to the Stomachs of Animals, which seems to be without the least Foundation; for the Food of Plants, or the Juices which are to circulate therein, are prepar'd in the Bosom of the Earth before they enter the Pores of the Root; and the Office of the Root seems to be little more than to furnish Conduits, or Pipes, to convey these Juices to the Stem; though it is probable, they may undergo some Alteration by circulating in the Vessels of the Root.

The nutritious Juices of Plants being thus prepar'd in the Bosom of the Earth, we are now to explain, how it comes to pass, that they enter into the Seed. In order to do this, we must observe, that all Bodies whatever are expanded, that is, grow larger, by Heat. When therefore a Seed has lain all Winter in the Ground without any Signs of Germination, in the Spring, as the Seed is distended by the Heat of the Sun in all its Dimensions, though never so little, there must be some vacant Spaces within it; and, as Fluids press every Way, the nutritious Juices in the Earth, with which the Seed is surrounded, will enter the Foramen, or Hole, which we have describ'd to be at one End thereof, and fill up these Vacancies. When they are once got within the Seed, being extremely penetrating, they enter the Pores of the Cotyledons, or Lobes, for the very same Reason that they first enter'd the Seed. From hence passing through the *Funis umbilicalis*, or Navel-string, they are communicated to the Radicle and Plume, which are thereby distended, or, as it were, unfolded. And thus is the Circulation in the Infant Plant carried on, till the Radicle, by degrees extending itself into the Earth, fixes there, and becomes capable at last of furnishing the whole Plant with a nutritious Juice, whilst the Plume, shooting in a contrary Direction, in a very little time, flourishes above the Surface of the Earth.

Some Gentlemen of the Royal Academy of Sciences have pretty much puzzled themselves, and their Readers, in endeavouring to give the Reasons why the Plume ascends, and the Radicle descends, when a Seed happens to be inverted in the Earth, which must often be the Case, or, in other Words, when the Plume, which ought to tend upwards, lies lowermost; or in any other Direction but perpendicular, viz. pointing to the Surface of the Earth. 'Tis certain, that Seeds of all Kinds, from the smallest to the largest, tho' thrown never so confusedly into the Earth, and lying there in all manner of Directions, notwithstanding these Disadvantages, redress themselves when they come to spring and rise with the Plume perpendicular to the Surface of the Earth; and this is one of those amazing Instances of the Wisdom of Providence, which never leaves the Welfare of its Productions to Chance, but conducts the most inconsiderable Parts of the Creation with so much Art and Oeconomy, that the more we are acquainted with it, the more we must admire it. It seems exceeding easy to explain how this Perpendicularity is effected, if we only consider, that, whilst the Radicle is fixing itself in the Earth, the Plume lies betwixt the two Lobes, which Lobes afterwards shoot out of the Ground, together with the Plume, and become the seminal Leaves in all Plants, except those of the Pulse Kind, which have something analogous to them. We must also consider, that Fluids of all Kinds contain a great Quantity of Air.

This Part then of the Operation of Vegetation seems to us to be perform'd in the following manner; the Lobes of

the Seed are distended with, and full of, the nutritious saponaceous Juice of the Earth, which Juice has in it a great Quantity of Air: This Air, being rarefied by the Heat of the Sun, is perpetually endeavouring to ascend, and get above the Surface of the Earth, that it may perspire through the Pores of the Lobes, and mix with the Atmosphere, as we find in Fact it does, when these Lobes become the seminal Leaves, and get above the Surface of the Ground; but the Pores of the Lobes being stopp'd by the surrounding Earth, the Air, which cannot yet make its Escape, acting perpetually upon the Inside of the Lobes, forces them to tend perpendicularly upwards, and with them the Plume.

If it should be said, that the Grains of Barley, in Steep in order to be made into Malt, or that Acorns, Chestnuts, Pistachio-nuts, or any other Seeds, when laid in a moist Place to sprout, send the Radicle downwards, and the Plume upwards, notwithstanding the Pores of the Lobes cannot in this Situation be stopp'd by the surrounding Earth; I answer, That even supposing the Pores of the Lobes not to be stopp'd at all, the same End will yet be answer'd, and the Lobes, together with the Plume, will be elevated perpendicularly, by the rarefied Air perspiring through the Pores, and tending upwards.

But if we may suppose, that the perspiring Air carries along with it a Portion of the nutritious Juice, in the Form of a Vapour, imperceptible to the naked Eye, as such Vapours always ascend, they must necessarily make the Lobes from whence they perspire, endeavour to do so likewise, because they must have this Tendency to rise, before they have quitted the Vessels in which they were contain'd, whilst circulating in the Lobes.

Now, if this Reasoning, in regard to the Elevation of the Plume, holds good, 'tis not necessary to mention the Reasons why the Radicle shoots downwards, because the Radicle must necessarily grow in a Direction contrary to that of the Plume.

Let us now pursue the Progress of the nutritious Juice, or Sap, and endeavour to investigate the Method taken by Nature to conduct this Embryo to a perfect State.

We have observ'd above, that the Radicle and Plume receive their first Nourishment from the Lobes. Now, when the Radicle has fix'd itself in the Earth, and has put out Fibres sufficient for the Support of the Plant, 'tis probable, that the Order of Circulation is chang'd, and that the Lobes, now about to become the seminal Leaves, receive, in their turn, Nourishment from their Root, either by the same Vessels which originally convey'd Nourishment to the Radicle, or by others, which last is most probable.

These Lobes, now become seminal Leaves, and got above Ground, are of great Use to the Plant; for, if these are taken away before the true Leaves are expanded sufficiently to perform their Office, the Plant immediately withers and dies. The Office they perform I take to be this.

'Tis a known Maxim in Hydraulics, that when a Number of Branches proceed from one large Pipe, or Canal, if one of these Branches is open'd, a greater Quantity of the Fluid circulating in these Pipes will flow to every Branch proceeding from the same Pipe. Now these seminal Leaves, once got above Ground, are in a perpetual State of Perspiration, when the Heat of the Atmosphere is sufficient to rarefy the Juices of the Plants enough for that Purpose; or in an imbibing State, when the Heat is not so great as to make them perspire, inasmuch that Plants generally perspire in the Day-time, and imbibe the Air, and its Contents, in the Night, at the Leaves. When therefore these seminal Leaves are in a State of Perspiration, a greater Quantity of the nutritious Juice is deriv'd not only to these seminal Leaves, but also to the leading Stem or Head of the Plant, which is nourish'd by Vessels proceeding from the same Trunk with those which nourish the seminal Leaves. By means of this Perspiration, there is a perpetual Supply of a nutritious Fluid drawn to the ascending Branch of the Plant for its Support and Increase, which ceases, if the Perspiration of these seminal Leaves is by any means stopp'd, or if the Leaves are taken away before the true Leaves are expanded, and grown large enough to perform their Office, and by perspiring in a due Quantity to draw a sufficient Nourishment to the leading Stem, or Head.

As soon then as the true Leaves are fit to do their Duty, there being no farther Occasion for the seminal Leaves, they immediately wither and rot off; and this Decay of the seminal Leaves is probably caused by the Air, which, entering the Pores of the true Leaves, is from thence communicated to the Air-vessels of the Trunk, which, being distended therewith to the very Root, the small Vessels, which before convey'd the nutritious Juice to the seminal Leaves, are compress'd and stopp'd up; the Consequence of which is, that the seminal Leaves must perish. Here again we have an Instance of an exact Uniformity in animal and vegetable Productions; and may observe, with Wonder, the Analogy betwixt the one and the other.

A young Animal originally receives its Nourishment from a Placenta or Cotyledon, by means of a Navel-string; but as soon as the Animal is born, and is capable of taking in its Nourishment

ment at the Mouth, there being no farther Occasion for the Placenta or Cotyledon, the Navel-string rots, and the Animal is separated from them. Mean time the Air, falling into the Vessels of the Lungs, entirely alters the Circulation of the Blood and Juices.

'Tis pretty much the same in Vegetables, where the Infant Plant is originally nourish'd by Juices which it receives from the Lobes, by means of Vessels analogous to a Navel-string; but as soon as the Mouths of the Plant, that is, the Pores of the Root, are sufficiently opened to provide for its own Support, the Circulation is somewhat altered; and the Root giving Nourishment to the Lobes, they become the seminal Leaves, which rot off as soon as the Plant has no farther Occasion for their Assistance.

Animals are kept alive by an alternate Inspiration and Expiration of the Air, that is, by the Air's being taken into, and soon after expell'd out of, the Lungs; and if this Inspiration and Expiration is prevented for but a very little time, the Animal dies. There is also something in the Air, which, in all Probability, is communicated to, and mixes with, the Blood of Animals; entering the fine Pores of the Blood-vessels in the Lungs during Inspiration. This I take to be the Acid floating in the Air; and a fresh Supply of this is so necessary to Life, that no Animal can live long, if confin'd in a close Place where there is no Communication with the external Air.

Something of the very same Nature happens to Vegetables; they inspire or take in Air at the Leaves, during the Night, and in moist Weather; and in the Day-time, especially in the Morning, when the Weather is warm, they expire, that is, the Air is expell'd from the Plant, and carries along with it a Part of the nutritious Juice or Sap, in the Form of an exceeding fine Vapour, as it does from the Lungs of Animals, where it is visible in frosty Weather. And this Acid of the Air, or whatever is so necessary to the Life of Animals, is not less so to the Life of Vegetables; for all Plants whatever will quickly die, if set in a close Place, or covered with any Vessel in such a manner, as to be depriv'd of a free Intercourse with the external Air.

The Leaves then of Vegetables may justly be esteem'd their Lungs, and are so necessary to their well-being, that if all the Leaves are pull'd off a Plant, it will neither inspire nor expire; and an immediate Stop is put to all Accretion or Growth, inasmuch that the Plant generally dies. 'Tis upon account of this Perspiration of Plants at the Leaves, that when Trees are transplanted, they cut off a great many of the Leaves and Branches, that they may not perspire too much, and kill themselves before the Roots are sufficiently fix'd in the Ground, to supply them with a due Quantity of Nourishment; and prudent Gardeners shade their Plants, when first transplanted, that the Sun may not make their Perspiration too great, before the Roots are capable of bringing a proportional Supply of Juices. But this Inspiration and Expiration of Plants at the Leaves is only necessary at that Season of the Year when they increase or grow; and accordingly we find, that against the Winter the Leaves drop off, when there is no farther Occasion for their Ministry, from all but Ever-greens, which probably always, in some Degree, inspire and expire.

We have now conducted the Plant above the Surface of the Earth: It remains, that we examine into some Circumstances relating to its Accretion or Growth, and shew by what means it is brought to Perfection.

What has been said of the seminal Leaves drawing Nourishment, holds good of all the true Leaves of a Plant; for they all bring Nourishment to themselves, and the adjacent Parts, by the Means, and for the Reasons already taken Notice of: And as the rarefy'd Air and Vapour in the Leaves is perpetually tending upwards, this still preserves the Perpendicularity of the Plant, and keeps the Stem in an upright Direction, unless it is forced to deviate from its Perpendicularity, by some intervening Accident.

There is another thing which may also contribute something towards the Perpendicularity of Plants, and that is the different Density of the Air at different Distances from the Earth. 'Tis well known, that the Air is heaviest at the Surfaces of the Earth; and that it decreases in Gravity every Inch, to the utmost Limits of the Atmosphere. Now, when a Vegetable is once got above the Surface of the Earth, the Direction of its Growth must be towards that Part where it meets the least Resistance; and as the Air is less dense above the Plant than round about, it must meet with less Resistance upwards, and consequently tend that Way.

I am sensible, that the Difference in the Air's Gravity at such little Distances from the Earth, is very small; but small as it is, it may have a considerable Effect upon so tender a thing as a young Plant.

As the Body of the Plant is daily more and more distended by the Heat of the Sun in all its Dimensions, the Fluids it contains are yet more distended by the said Cause, I say more, because Fluids having a less Degree of Cohesion than Solids, their component Parts more easily recede from each other, and therefore

take up more Room: The Consequence of this is, that the containing Vessels of the Plant must be press'd on all Sides by the contained Fluid, and grow larger; mean time the Air contained in the Air-vessels of the Plant is also rarefied and distended, so as to keep constantly of the same Density as the external Air. Thus we see the Plant is constantly compress'd betwixt the internal and external Air; and as the Vessels of the Plant are more expanded by the Rarefaction of the internal Air, the external Air is also rarefied, and consequently, pressing less upon the Surface of the Plant, gives it more Liberty to increase its Dimensions outwards, and yield to the internal Pressure both of the Sap, and internal Air; but as the Heat of the Atmosphere is seldom many Moments exactly the same, the Rarefaction and Density both of the internal and external Air must be perpetually altering, as the Heat increases and decreases; inasmuch that the Force of the Air acting upon the Inside of the Plant, and upon the Surface, is different almost every Moment; so that by this Pressure, a Plant is acted upon much in the same manner as a Potter, who is going to form a Vessel, would act upon his Clay; pressing the Inside with one Hand, and the Outside with the other.

The reflecting Reader will readily observe, that something more than what we have already mention'd is necessary towards Vegetation, otherwise the Plant would indeed be distended; but then its Vessels would grow much thinner, just in the same manner as a Glass Vessel under the Hands of the Maker decreases in Thickness, as the Surface is enlarged by the Air the Operator forces within; or the Sap-vessels and Air-vessels of the Plant would be like a Parcel of Bladders laid contiguous to each other, some of them distended with Water; and others with Air, where the containing Vessels would decrease in Thickness, as they were expanded by their Contents: We are therefore to explain how it comes to pass, that Plants increase in Solidity as well as Dimensions.

This Part of the Operation then seems to be performed by the means of Cold, in the following manner:

The Heat of the Sun in the Day-time having distended the Sap in the Vessels, and made a Part of it perspire through the Pores of the Leaves, in order to draw Nourishment to themselves and the adjacent Parts, the Coldness of the Night immediately succeeding, when Plants are not in a State of Perspiration, this Coldness contracts both the Solids and Fluids of the Plant; for 'tis the Nature of Cold to contract all Bodies whatever, and reduce them into a less Space, which must be effected by making the Particles of Matter, of which they are compos'd, approach nearer each other; and the Particles of Matter are known to attract each other very strongly at small Distances, and infinitely more when their Surfaces exactly touch each other: Therefore that Part of the fluid Sap which is nearest the solid Sides of the Vessels, is, by the Action of Cold, which contracts both the Solids and Fluids, forc'd into Contact with the Solids, where it sticks fast by reason of the increas'd Attraction; and thus are the Salts and Earth, which were dissolv'd in the Sap, applied to the Vessels, and reduced to a Solid; and in this the Salts and Earth are much assisted by the Oil and Water, which, entering betwixt each Particle of Matter, fill up the vacant Spaces, and render the Cohesion stronger; just in the same manner as two polish'd Pieces of Marble applied to each other will adhere very strongly when the Surfaces are oiled; and as Leather or Paper will stick closely to any Body when wet.

When once these Particles of Matter have acquired such a Degree of Cohesion, the Heat of the Sun, next Day, approaching by gentle Degrees, is not capable of dissolving this Union, which however it would do, was it more sudden and intense; and indeed we find, that this Union is utterly dissolv'd by Heat or Fire applied to Vegetables in a certain Degree; for, when Vegetables are burnt, the Oil and Water is dissipated or destroy'd, whilst the Salts and Earth remain without any considerable Cohesion.

But so far is this gradual Heat from destroying this Cohesion of the Particles of Matter, that it increases it; and by drying up the superfluous Moisture, helps to harden it, and renders it more solid; just in the same manner as Bricks, before they are committed to the Kiln to be burnt, are dried and hardened by the Heat of the Sun.

Thus we see how necessary a Vicissitude of Heat and Cold is to the vegetable World; for without it not a single Plant could grow upon the Face of the Earth: Was the Atmosphere to be always hot, Vegetables would be in a perpetual State of Perspiration, so long as the Earth could afford a Supply of Juices; but then they could never be enlarg'd, or grow bigger, but would be little more than the Neck or Pipe of an Alembic, affording only a Conveyance to that Fluid which is forced thro' them by the Fire. As a Confirmation of this, we may frequently observe in very hot Summers, that Plants set in a warm Place, much expos'd to the Sun, perspire themselves almost to Death, and grow but very little; whilst others, planted in the Shade, and defended from the too violent Heat of the Sun, increase in Bulk considerably, and become very large.

Was it always to be cold, Plants would want the Cause of their Extension, and consequently not grow at all.

In either of these Cases the whole Brute Creation must want Subsistence, and consequently Mankind.

Thus, as we were originally miraculously formed, we are still supported by a perpetual Chain of Miracles; inasmuch that if it pleas'd the supreme Being to dissolve a single Link thereof, an immediate End would be put to the whole Race of Animals upon the Face of the Earth, without having recourse to a Deluge, or a Conflagration.

Many have been the Disputes amongst Naturalists concerning the Circulation of the Sap in Vegetables; some will have it, that it rises in Vessels analogous to the Arteries in Animals, and is again return'd towards the Root by other Vessels analogous to the Veins; others again are of Opinion, that there is no such Retrogradation of the Sap; and both Parties bring Experiments to justify their different Sentiments. For my own Part, I believe there are no peculiar Vessels in Plants destined, like the Arteries and Veins in Animals, for the Flux and Reflux of the circulating Juices; but that the Sap rises, and in some measure again retires, by the same Vessels, as both the solid and fluid Parts of the Plant are dilated by Heat, and contracted by Cold.

It may not be amiss to make one more Observation concerning the strict Analogy there is betwixt Animals and Vegetables. It is well known to Anatomists, that the Bodies of Animals abound with Glands of different Sorts; which are destin'd by Nature to separate various Kinds of Liquors from the Blood, necessary either for the Preservation of the Animal, or the Propagation of the Species; thus the Bile or Gall is separated by the Liver, and the Saliva or Spittle by the Glands about the Mouth and Throat. I don't in the least doubt, that there is a Mechanism like this in Plants of all Sorts; and that Vegetables are furnished with Glands in vast Numbers dispersed all over them, which separate different Liquors from the Sap, according to the Exigencies of those Parts where they are plac'd; and by these Glands I apprehend the nutritious Juices of the Earth are converted, if I may use that Expression, into the specific Juices of the Plant; which Juices distinguish every Plant upon the Face of the Earth from every other Plant, as much as their Forms and Complexions.

What we have above call'd, after Dr. Grew, the *Parenchyma*, I take to consist of a great Number of Glands destin'd to separate a peculiar Fluid from the Sap; and I also take the Pith to be a Congeries or Bundle of Glands, tied to each other; or what the Anatomists call a conglomerate Gland; and as the Pith is in greater Quantity in proportion, and more juicy, in young Plants, and the young Shoots of Trees, than in old ones, I conclude, that it furnishes a Fluid absolutely necessary to the Accretion or Growth of the Plant. Now, as the Buds are form'd in, and proceed from, the Pith, if I may be allow'd a Conjecture, do not the Glands of the Pith separate a Liquor necessary for the Formation and Support of the Bud? And may not the Apices of Flowers be considered as Glands separating the *Farina fecundans*, for the Impregnation of the Pistil or Uterus?

I am far from entering into those romantic Notions and Opinions of some late Writers, who dream that the first Plant of every Species which grow upon the Face of the Earth, contain'd in it every individual Plant, with its Seeds, in Miniature, which have since been propagated from it; for it seems to be more consistent with the general Order observ'd by Providence, that one Plant should, by a particular Mechanism, be render'd capable of forming another of the same Species out of such Materials as the Juices of the Earth afforded, than that at the Creation one Plant should be stuffed into another, and another into that, and so on, *ad infinitum*, like a Nest of Boxes.

We proceed now to make some Observations on the Flowers: The first thing then that occurs worthy of Observation in Flowers is, that they perform the same Office to the generative Organs, as the Leaves do to other Parts of Plants, that is, draw Nourishment to them for their Support, by perspiring; and that they do actually perspire, and in great Quantities, is certain; because they transmit to our Organs certain Effluvia, which affect us with that Sensation which we call Smelling. These Effluvia are a Portion of the *Spiritus Rectior*, or prevailing Spirit; which is exactly alike in no two Plants of different Sorts, but the same in every Branch of the same Family, allowing for the Accidents of Soil and Climate, and is inimitable by Art. This *Spiritus Rectior* resides in the essential Oils of Vegetables, and is probably form'd by the finest and most volatile Parts of these essential Oils, exalted by, and mixt with, the Particles of Light or Heat, which are embodied with them, and reside therein in a solid Form; and this I rather believe, because the essential Oils of Plants are of an alkaline Nature, especially those of the aromatic Kind, which, growing in hot Climates, have a greater Proportion of the Particles of Fire in their Composition. Instances to our present Purpose are the Oils of Cloves, Sassafras, and Caraway, which make a violent Effervescence, when mixt with fuming Spirit of Nitre. Now, in many Instances, Fire

renders Bodies it acts upon alkaline, or, however, dissipates or neutralizes the Acids which they contain. Therefore, as essential Oils are of an alkaline Nature, I think it highly probable, that they are render'd so by the Particles of Fire, which enter their Composition. And when I consider the extreme Volatility of this *Spiritus Rectior*, I am farther confirm'd in the Opinion, that the Particles of Light or Fire are a Part of its Composition.

If we wanted an Instance to prove the Destruction of Acids by Fire, we might find one in most Kinds of Fruits, which are originally acid; but this Acid is by Degrees destroy'd, and the Juices of the Fruit neutraliz'd, as it imbibes the Particles of Fire, that is, as the Fruit ripens.

I have a few more Observations to make upon Flowers with regard to their Colours, which, however various and beautiful, may easily be accounted for by the Action of the Acid of the Air so often mentioned, upon a Portion of the Oil, or, as the Chymists call it, Sulphur of Plants, when exposed to the Air upon the Surfaces of the Petals or Flower-leaves; and, indeed, if we consider that the Varieties in Colours depend entirely upon the different Reflexions, Refractions, and Suffocations, the Rays of Light undergo upon the Surfaces of Bodies, 'tis not surprising that so penetrating a thing as the Acid of the Air, acting forcibly upon Sulphur, which the Chymists, by a Multitude of Experiments, have prov'd to be the Parent of Colours, should so far alter the Disposition and Texture of its Particles, as to produce those beautiful Colours which we observe in the Petals of Flowers; and as the most minute Difference conceivable in Sulphurs or Oils will also make a Difference in the Action of the Acid thereon, the Variegation, or the Variety of Colours in the same Flower, may, from these Principles, be easily accounted for.

A great many Liquors, originally clear and limpid, will, by being expos'd to the Air, become red; and if a Bottle is fill'd half or three Parts full of these Liquors, the small Quantity of Air contain'd in the Bottle, though closely stopp'd, shall have this Effect upon them. That this is caused by the Air, is very plain; because if another Bottle is fill'd quite full with the same Liquors, and guarded carefully from the Air, the Liquors will retain their Limpidity.

And indeed nothing is more common than for Acids to change the Colours of Bodies; thus Nitre, which contains an Acid, and even the acid Smoak of Wood, will make Flesh intensely red.

Those who are concerned in the Trade of Dying, observe, that a cloudy, moist Air, very much interferes with the Vividness and Beauty of their Colours; and, on the contrary, a serene Sky exalts their Colours, and makes them more elegant. Now, it is certain, that an Acid does not so much abound in a moist, cloudy Air, as in one which is serene.

The Colours of Flowers are also liable to the very same Accident; for in cloudy, moist Weather, they are never so vivid and exalted as when the Air is serene and dry.

So much has been said already upon the Seeds of Plants, and their Generation, that 'tis unnecessary to repeat it in this Place: I shall therefore proceed to the Decay of Vegetables.

An annual Plant, when it has once brought the Seed to Perfection, has answer'd the End of Providence; and now the Vessels which bring Nourishment to the Leaves being furr'd up, incrust'd within-side, and render'd impervious, that is, no longer hollow, the Leaves can no more perspire, but wither and drop off; mean time the Vessels of the Root and Stem undergo the same Fate with those of the Leaves; inasmuch that the whole Plant dies, rots, and helps to supply the Earth with a fresh Pabulum or Food for a succeeding Generation.

There is a large Class of Plants which are called perennial, of which Sort are Trees that live for Ages; these, like annual Plants, lose their Leaves against Winter, and for the same Reason; but then the Sap-vessels in the Root and Trunk continue pervious or hollow, so that even in the Winter a sort of very languid Circulation is maintain'd, much like that by which Tortoises, Snakes, and many Sorts of Insects, are kept alive during Winter. These, at the Approach of Spring, when the Heat is increas'd, and the Earth has been for many Months laying in a Stock of Pabulum, or Food, for their Support, put out Leaves afresh, perspire and grow, till at last the Sap-vessels in the Root and Trunk are obstructed, and become impervious by Degrees, inasmuch that when the Circulation is entirely stopp'd in any Part of it, the Air dissolves its Texture, and it gradually decays, dies, and rots.

As the Decay of Trees begins in the Middle, this is a strong Evidence, that the Air penetrates into their inmost Recesses; for nothing can rot, unless expos'd to the Air. And this Observation helps to confirm what we have already laid down in regard to the Air-vessels of Plants.

I have purposely omitted obviating some Objections which may be made against many things I have advanc'd, (and which I think may easily be defended) for fear of being too prolix; and for the same Reason I have not drawn all the Corollaries that the Subject would have admitted of. As I hope I have led the

Reader in a just way of Thinking upon these Subjects, his own Reflection will supply him with many philosophical and useful Truths, which I have either omitted, or, perhaps, not observ'd; and the more he pries into the Myſteries of Nature, the more will he adore the Power and Goodneſs of the Supreme Being, who created all Things in the Beginning, and ſtill continues to protect them by a Series of Miracles not leſs wonderful than that of their firſt Creation; otherwiſe the whole Frame of the Univerſe would, in an Inſtant, be utterly diſſolv'd, and all things degenerate into their original Chaos.

There is one Experiment, which ſhould be taken Notice of before we diſmiſs the Subject of Vegetation, which is this: Immerſe the Ends of a Parcel of cylindrical Glaſs Tubes, open at both Ends, in Water, and the Water will riſe in theſe Tubes above the Surface of the reſt of the Water, but always higheſt in the leaſt Tube: Now, as 'tis very likely ſomething of the ſame Nature happens in the Sap-veſſels of Plants, this may be a great Help to Vegetation, and contribute much to the Riſing of the Sap.

I ſhall conclude the Article of Botany with ſome Account of the principal Authors upon the Subject, and to theſe I ſhall add the Names of others who have wrote on the different Parts of the *Materia Medica*, not with a View of giving Information to thoſe who are already acquainted with the Science; but with a Deſign to direct thoſe, who are inclined to be more acquainted with it, to proper Authors. I ſhall alſo explain the Abbreviations of Authors Names generally uſed, and ſpecify the Editions refer'd to in this Work.

Ac. Reg. Sc. implies the Hiftories and Memoirs of the Royal Academy of Sciences at *Paris*.

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BOTARGUM. The salted Spawn of the Mugil, or Mullet; which are prepar'd in the following manner:

They take out the Follicles of the Spawn entire, and cover them with rough bruised Salt for four or five Hours; after this they put them in a Press, between two wooden Planks or Boards, for a Day and a Night: Then they wash them, and afterwards dry them in the Sun for thirteen or fourteen Days together, taking them into the Houfe at Night.

Others say they hang them up in the Smoke, but far enough from the Flame, that they may not be injured by the Vehemence of the Heat.

They excite a decay'd Appetite, and provoke Thirst, and give a Relish to Wine. Dale, from Ray's Ichthyologia.

BOTHOR is taken by some for an Abscess of the Nostrils. Bothor, among the Arabians, has three Significations; in the largest Sense it comprehends all Tumors; in a more restrain'd one, a Tumor with a Solution of Continuity; but, in the strictest Acceptation, it signifies only small Tumors. Castellus.

BOTHRION, βόθριον, [a small Ditch] is a hollow or pure Ulcer in the Black of the Eye. Gal. Def. Med.

Of Ulcers in the Eye, the hollow and pure one, which is seated in the Cornea Tunica, is call'd Bothrion; but that Ulcer which is wider, but not so deep as the Bothrion, is call'd Cælo-ma. P. Æginet. Lib. 3. Cap. 22. Aetnarius de Meth. Med. Lib. 2. Cap. 7.

BOTIN, Butino, Turpentine; also the Balsam of Turpentine, when it is gather'd at a certain Season, according to its balsamic Influence. Rulandus.

Paracelsus mentions a distill'd Botin for extracting the Flos Eris. Lib. 10. Chirurg.

BOTIUM. A stumous Tumor or Abscess in the Throat. Rulandus. See BRONCHOCELE.

BOTOTHINUM. An obscure Term in Paracelsus, which he explains by the Flower of a Disease; whence he calls the Gout in the Feet Locusta gummata Botothina. Lib. 2. de Pedagric. Necromantia.

BOTOU, or BOTOUA. The same as PAREIRA BRAVA, which see.

BOTRACHOU, βότραχον, in Hippocrates, according to Galen's Exegesis, is written for Batrachou, βάτραχος, the Genitive of βάτραχος, a Frog; and some, he says, read it Batrachou; so βότραχον is expounded in Hesychius βάτραχος. Foesius.

BOTRYTES, Botritis, βότρυτις, from βότρυς, a Cluster, properly, of Grapes. A sort of burnt Cadmia, resembling a Cluster of Grapes, and collected from the upper Part of the Furnace where it is burnt; as what is collected in the lower Part is call'd Placitis, πλακίτις. Goræus.

Schroder, Lib. 3. Cap. 19. says, that the Botrytes is collected in the middle Part of the Furnace, the Placitis in the upper, and the Ostracitis in the lowest.

BOTRYS, Offic. Ger. 950. Emac. 1108. Pharm. Edenb. 4. Raii Hist. 1. 196. Botrys vulgaris, Park. 89. Botrys ple-risque Botanica, J. B. 3. 198. Botrys Ambrosioides vulgaris, C. B. 138. Botrys sive Ambrosia, Cod. Med. 22. Atriplex odora seu suaveolens, Hist. Oxon. 2. 605. Atriplex Chenopodia Ambrosioides folio sinuato, Hort. Monsp. 29. Chenopodium Ambrosioides folio sinuato, El. Bot. 406. Tourn. Inst. 506. Boerh. Ind. A. 2. 90. OAK OF JERUSALEM. Dale.

BOTRYS is a Plant all over yellow, shrubby, wide spreading, and running out into a Multitude of Branches. The Seed grows quite round the Branches; the Leaves are numerous, and much like those of Succory. The whole Plant has a very fragrant Smell, and is for that Reason laid among Cloaths. It grows chiefly by the Sides of Precipices, and the Banks of Torrents.

Drank in Wine, it has a pægoric Virtue in the Case of an Orthopncea. The Cappadocians call it Ambrosia, others Artemisia. Dioscorides, Lib. 3. Cap. 130.

The Leaves of Oak of Jerusalem somewhat resemble the Leaves of the common Oak, whence it derives Part of its Name;

Name; only they are longer and narrower in proportion, and pointed at the End, having the like Incisions; they are somewhat rough, and of a yellowish-green Colour, of a pleasant agreeable Scent. The Stalk is striated, or chanel'd, growing about half a Yard high, much branch'd, and full of the like Leaves. On the Tops of the Branches grow long Spikes, loaded with Bunches of small round, greenish, mossy Flowers; in which lie very small, round, and black, shining Seeds.

This Herb is of a bitter Taste, and of a strong, but not a disagreeable Smell: It is of a heating, drying, dissolving, opening, cleansing, and purgative Nature. It resists Putrefaction, and is singularly efficacious in Oppressions, Coughs, and all cold Disorders of the Breast, and Difficulties of Breathing. It is also very effectual for dissipating viscid Matter lodged in the Thorax, *Hier. Cappivacc. Pract. Medic. L. 2. C. 2. Hier. Mercurial. Med. Pract. L. 2. C. 2.* It opens Obstructions of the Liver, Kidneys, and Matrix; cures the Jaundice, prevents Dropsies, promotes a Discharge of the Menfes and Lochia, and cures Pains of the Uterus and Belly. The Venetian Women find the *Botrys* to be a sure and infallible Remedy against hysterical Fits, both when used internally and externally, *G. H. Velsch. Mictomim. ad Societ. Nat. Cur. Cent. 2. Obs. 35.* Fumigations of the Herb itself are excellent for provoking the Menfes, and expelling dead Fetuses, *Dom. Ghabr.* The Leaves dried, reduced to Powder, and mix'd with Honey, are excellent for Vomiting of Blood, and Disorders or Ulcers of the Lungs, *Camerar. in Hort. Med. Matthiolus* informs us, that by this Medicine he cured Patients, who had spit up Pieces of their Lungs. A Decoction of the *Botrys*, with Syrup of Violets, is recommended, as good for Abscesses, by *J. Heurn. L. 2. Meth. ad Prax. C. 8.* In the foreign Shops there is a Conserve made of the young Leaves, and a Water distil'd from the whole Plant when it flowers: Both these are very good Medicines in Oppressions of the Breast, and in Pains of the Belly. A Lohoch of the *Botrys* is recommended as an excellent Medicine for all Disorders of the Breast, by *P. Forest. L. 16. Obs. Med. 4. in Schol. Guil. Fabr. Hildan. Cent. 1. Epist. Chirurg. 49.* And the *Syrupus Diabotrys* is, by *Levin Fischer. L. 3. Corpor. Med. Imper. Tit. 4.* said to be an excellent Medicine for those who are phthical. The Herb itself, boil'd in any Lixivium, kills Vermin, and carries off other Sordes of the Head, if wash'd with it. *Joh. Theod. Tabernemont. in his Herb. L. 1.* informs us, that the Seeds of this Herb, if sown with Corn, kill the little Worms which prove so hurtful to it. *Barthol. Zorn Botanolog.*

BOTRYS MEXICANA, *Cod. Med. 22. Botrys Ambrosioides Mexicana*, *C. B. Pin. 136. Raii Hist. 1. 196. Botrys Americana*, *Park. Theat. 89. Atriplex odorata suaveolens Americana*, *Mexicanave*, *Hist. Oxon. 2. 605. Chenopodium Ambrosioides Mexicanum*, *Tourn. Inst. 529. Elem. Bot. 406. Boerh. Ind. A. 2. 90. Epazoth, Atriplex odorata Mexicana*, *Hern. 159. MEXICO THEA.*

This is only found in Europe, in the Gardens of the Curious. The Herb and its Root are in Use; both which are said to corroborate the Stomach, and to relieve in Asthmas and Obstructions. A Decoction of the Root restrains Dysenteries, dissolves Inflammations, and is said to be disagreeable to poisonous Animals, and therefore to keep them at a Distance. *Dale from Hernandez.*

BOTUS, *bocia, botus barbatus*. A Chymical Vessel, otherwise called *Cucurbita*. Also a Vessel upon a Vessel, a Vessel for melting, a Crucible. *Castellus.*

BOUBALIOS, *βεβάλιος*, in *Galen's Exegefis on Hippocrates*, is expounded by *σίνος ἀγρίος*, a wild Cucumber. But *βεβάλιος*, in *Hesychius*, is expounded the wild Cucumber in *Hippocrates*, and also the *Pudendum Muliebre*.

BOUBON, *Βεβών*, in *Hippocrates*, sometimes signifies the Groin, and the Place where the Thigh-bone and Hip-bone meet; sometimes it means the Glandules on either Side, and a Tumor and Inflammation of the same. Hence the Appellation has been transferr'd to Tumors or Inflammations in the Glandules of the Neck and Arm-pits, which are sometimes called *Βεβώνες*. Places to this Purpose are very frequent in *Hippocrates*, as in his Books, *de Epid. Coac.* and *Lib. 2. de Morbis*; also in *Aretæus* and *Galen*.

Βεβών is also taken universally for an Inflammation of a Glandule of any kind, whether it be in the Neck, in the Arm-pit, in the Groin, or behind the Ears; as *ὅτι ἐπὶ βεβώνσι πυρετοί*, "Fever proceeding from Buboes," (Inflammations of the Glands) *Apb. 55. Lib. 4. and Lib. 4. Epid. So Lib. 2. Epid. ὅτι ἐπὶ πυρετοῖσι βεβώνες κακώτεροι*, "Buboes from Fevers are of a worse kind." *Galen* also *Meth. Med. Lib. 13.* says, *ὁνομάζουσιν δὲ τὰς ἐξ αἰσθησάσας ἀδένες βεβώνας*, "they call Tumors of the Glands Buboes." And in his first Book *de Diff. Febr. βεβών ἐκ τοῦ γένους ἐστὶ τῶν φλεγμονῶν*, "a Bubo is a kind of Inflammation." See **BUBO**.

BOUCERAS, *Βούκερας*, from *βῦς*, an Ox, and *κέρας*, an Horn, in *Galen's Exegefis*, is expounded *ἡ τῆλης*, Fenugreek; to which he adds, that *Mnetrus*, in the Titles of Medicines, thought that *Anagallis* came under that Name. It is also called

Βούκερας, by Contraction from *Βούκερος*, in *Theophrastus*. And *Pliny, Lib. 24. Cap. 19.* says it is called *Telis*, by some *Carphos*, by others *Buceras*, by others *Agoceras*, because its Fruit is corniculated, by us (*Latins*) *Silicia*. *Columella* calls it *Siliqua*, because its Pods resemble those of the *Siliqua*. *Hesychius* says, that *Βούκερας* signifies τὸ σπέρμα τῆς τῆλης, "the Seed of Fenugreek." The Word is used by *Hippocrates* (*Lib. 1. περὶ γυναικ.*) *ὃ βούκερας, ἢ αἰσθησάσας πυρετὸς μάλλον χυλός*, "and Fenugreek, or rather the Juice of Pisan made of Wheat."

BOVILLÆ, with the antient Physicians, were the same as the *Morbilli*, or Measles, with the Moderns, in the Opinion of *Raym. Vinarius de Peste, Lib. 3. Castellus.*

BOVINA AFFECTIO. A Disease among Black Cattle, caused by a Worm lodged between the Skin and the Flesh, and perforating the same.

Something analogous to this is a cutaneous Disorder, with which some scorbutic Constitutions are frequently affected. It seems to be owing to an Obstruction of the perspirable Matter, which concretes in the Pores of the Skin, and forms a sebaceous Substance, resembling a Worm with a black Head, which may be squeez'd out; and sometimes causes a small Suppuration, and is discharg'd along with the Pus. I never heard of these being attended with any great Inconvenience. But as they are Blemishes, I have given a Preparation of Gall, which is said to cure them, under the Article *BILIS*, from *Homberg*.

BOVISTA. The same as *LYCOPERDON*, which see

BOULIMUS, *βούλιμος*, from *βῦς*, a Particle which in Composition augments the Sense, and *λιμός*, Hunger, is a Disease which causes a Desire of Food at very short Intervals. Persons thus affected faint, and fall down, lose their Colour, are cold in their extreme Parts, feel Oppression at their Stomachs, and have a weak Pulse. *Galen. Def. Medica.*

Boulimos, as the Name itself indicates, is a great Hunger. It proceeds, as Reason seems to inform us, from the immoderate Heat and Weakness of the Mouth of the Stomach, which causes the Patients, unless supported with an excessive Quantity of Food, to faint and fall down; under which Misfortune there is hardly any so ignorant, but knows how to have recourse to such Smells as are proper to recal and recollect the dissipated vital Spirits. Among such Things as remarkably affect the Sense of Smelling, it is usual to offer Bread fopp'd in Wine, roasted Swines Flesh, or Kid, and, in general, all such things as have a nidorous and well-savour'd Smell. They compress the Extremities, prick them in every Part, rub their Ears, and pull them by the Cheeks, and by the Hair. When they are come to themselves from the Lipothymy, the most proper Thing to be given them in the first Place, is Wine, and, after that, other Food. In our future Management, we are to restore them by such Meats as are of good and quick Nutrition, but difficult of Alteration and Digestion; they are also to be treated with such things as refrigerate and strengthen; by this Method they are greatly benefited, and, in Process of Time, are restored to a good Temperament. Some for a *Boulimos* have given Opium in cold Water, in order to allay the excessive Heat; but I would advise you to be cautious how you give Opium, but rather let the Patients take such Food as is difficult of Concoction and Alteration. I knew a Woman who eat a vast Variety of Meats, and in immoderate Quantities, and digested them all, and never said she was satisfied, but felt a Gnawing at her Stomach, and a Pain in her Head; at last, she took the Cathartic Powder, called *Hiera*, which brought away from her by Stool a Worm supposed to be above twelve Cubits in Length; after which her immoderate and furious Appetite ceased, and it appear'd, that it was not a *Boulimos*, but this mischievous Animal, which compelled her to take such Quantities of Food, and consume it all. *Alex. Trallianus, Lib. 7. Cap. 4.*

Paulus Aegineta gives much the same general Account of a *Boulimos*, as this of *Alexander's*.

In the *Caninus Appetitus*, there is a Desire after much Food, and great Quantities are eaten, which, oppressing the Stomach, are again discharg'd by Vomit: The Patient being thus relieved, his Appetite returns, which having gratified, he finds himself obliged to ease his Stomach again, like a Dog, by vomiting.

Sometimes this Disorder has procur'd a *Boulimos*, a deep Sopor, a Lientery, Dropsy, Atrophus, and Death itself.

In a *Boulimos*, the Patients at first labour under a great Hunger, which however, does not last long. At every turn also they faint away, and at the same time their Breath fails them; in which Case a Syncope may be feared to be at Hand, followed by Death. *Lomii Med. Obs.*

Boulimos is sometimes called *Phagedæna*, *φάγδαίνα*, which is also a Name for eating, spreading Ulcers; and *Fames canina*, because the Persons affected have their Appetites vehemently set upon their Food, after the manner of Dogs.

It is to be observ'd, that some make a Distinction between *Boulimos* and *Fames canina*, whereas others take them for the same.

fame. The former say, that in the *Fames canina* the Patient is taken with Vomiting, as Dogs are, after eating too great a Quantity of Food; tho' some are seized with a Flux of the Belly instead of Vomiting, Nature that way discharging the Superfluity of Aliment, which the Stomach was incapable of digesting; but the *Boulimos* is not attended with Vomiting, but sometimes with a Lipothymy. Some there are who labour under this insatiable Desire of eating, and yet are not molested with Vomiting, nor a Flux; but thoroughly digest all the Food they take, and are sick if they are not readily supplied with more. *Sennertus* relates a Story of a Student, a Man of a black Complexion, who would be eating not only in the Day-time, but in the Night, and perfectly digested whatever he took, without Vomiting; nay further, he could not be satisfied with delicate Food, but long'd for coarser; for which Reason he did not eat such Bread as was made by the Bakers, but what was bak'd by the Peasants in the neighbouring Villages, as being more solid and substantial. He would often eat a great Number of raw Garden Parsnips in the Morning, without the least Injury.

Galen makes the immediate Cause to be, first, a vicious and acid Humour stimulating the Stomach; and, secondly, a want of Nourishment from too great a Digestion.

The vicious Humours lodged in the Stomach excite an immoderate Hunger, because by their excessive Coldness, Acidity, and Austerity, they cause a Constriction, Corrugation, and Vellication of the Mouth of the Stomach, and so excite a Sensation like that of natural Hunger.

The perpetual Craving after Food is sometimes owing to a Defect of Nourishment, on account of excessive Evacuations, by a Hemorrhage, Flux of the Belly, Vomiting, Sweating, or the like, or from too great a Consumption of the alimentary Substance, effected by the immoderate Heat of the Parts, the Thinness of the Humours, the rare Contexture of the Body, and Laxity of the Pores, want of Sleep, Bathing, immoderate Exercise, or excessive Venery; all which Things cause a great Dissolution of the alimentary Matter, and consequently a great Inanition, and want of Nourishment; whence the Food is hurry'd out of the Stomach with greater Speed than it ought to be.

Sometimes this Affection is owing to Worms consuming the Chyle, as in the Case related by *Trallian*.

The diagnostic Signs of this Disorder are sufficiently evident, as well to the Patients as Attendants, who cannot but observe a depraved and excessive Appetite, which compels them to receive into their Stomachs an immoderate Quantity of Victuals, which afterwards proving burdensome and oppressive to Nature, are thrown up again by Vomiting, in which Case the Distemper is the *Fames canina*; or, if there be no Vomiting, the Patient is seized with a Lipothymy, and then it is a *Boulimos*.

The different Causes of this Distemper are distinguishable by the Circumstances, which are antecedent, attendant, and consequent to it. Acid Evacuations and Vomitings, crude Stools, and want of Thirst, are Signs of an Acid abounding in the Stomach. In Defect of Nutrition, the Patients are emaciated; and lastly, the Signs of Worms, are to be taken from their proper Symptoms.

As to the Prognostics of this Disorder, if it depends wholly on external Causes, there is no Danger, provided these are speedily remov'd; and what proceeds from Worms carries but little Danger in it, because their Effects cease as soon as they are destroy'd. In Pregnancy, where an inordinate Appetite is frequent, there is no Danger to be apprehended from it.

But the Distemper is very dangerous when followed by large Evacuations or Colliquations of the Body; and especially, when after receiving Food, while the Stomach is yet full, the Patient is seized with fainting Fits; for when those Things, which ought to give most Relief, prove of none or ill Effect, it is a Sign of a great Disorder in the Tone of the Stomach.

So also the canine Appetite, when the Vomiting or Flux is obstinate, is not void of Danger; for it commonly degenerates into a Cachexy, Dropsy, Lientery, Atrophy, and other fatal Distempers.

For the therapeutic Part, since the *Fames canina* generally takes its Rise from redundant Humours inherent and lodging in the Stomach, we are to use evacuant and alterative Remedies, not omitting such as are proper to strengthen the affected Part.

Evacuation is to be perform'd either by Vomits or Purges, and that by means of such Remedies as are proper for those who labour under a want of Appetite; for, though these Affections are contrary one to another, yet they are usually produc'd by the same Humours, differing only in Degrees of Frigidity, and some very different secondary Qualities which affect the Stomach after a different manner. A Remedy of this kind, which is very much commended by *Galen*, is *Hiera* made into Pills, in the following manner.

Take of choice Aloes macerated [*nutrita*] in the Juice of Wormwood, one Dram; Troches of Agaric, two Drams; Rhubarb pulverized, and sprinkled with White-wine, one Dram; Nutmegs and Spikenard, each half a Dram; Salt of Tartar, Mastich, and Cinnamon, each one Scruple; and with Syrup of Wormwood make them into a Mass for Pills, six of which gilt are to weigh a Dram, and are a Dose in the Morning, if the Patient has a mind to purge thoroughly; or three of them may be taken two Hours before Dinner, two or three times in a Week.

Such Remedies also as heat and strengthen the Stomach, both internal and external, are of very great Service: Of this Nature are Syrup of *Pontic* Wormwood, taken to the Quantity of an Ounce in the Morning fasting, for some Days together; or, instead thereof, Wormwood-wine may be substituted. Or,

Take Conserve of Rosemary-flowers, Mint, Lemon-peel preserved, Nutmegs preserved, each half an Ounce; Chebule Myrobalans preserved, Number one; Confectio Alkermes, three Drams; the inner Membrane of Hens Gizzards prepared, two Drams; Cinnamon pulverized, and Aromaticum Rosatum, each one Dram; make them into an Opiate with Syrup of Mint, or into a Conserve with Sugar of Roses. Let it be used in the Morning, drinking after it a little generous Wine.

Salt of Wormwood, or Chymical Oil of Mint, may very properly be added to the above-recited Remedies: Or,

Take of Salt of Wormwood, and Orange-peel, or either of them, half a Dram, and take them in Wine or Broth.

The following Mixture is also very effectual:

Take of Syrup of Quinces, and preserved Lemon-peel, each two Ounces; Cinnamon-water, one Ounce; Oil of Sulphur, twelve Drops; mix, and give a Spoonful at proper Intervals.

In a very great Frigidity of the Stomach, Cinnamon-water by itself is of excellent Use; or it may be mixed with Syrup of Wormwood, of Mint, or of Coral, to which Ambergrise may properly be added.

External Remedies are Fomentations, Liniments, and Plaisters, such as the following.

Take of the Root of Cyperus, Galangal, Florentine Orris, dry'd Lemon-peel, each two Ounces; the Leaves of Mint, Hyssop, Sage, Rosemary, and Marjoram, each one Handful; Anniseeds, Bay-berries, Nutmegs, Cloves, and Cinnamon, each three Drams; Flowers of Stoechas, Schoenanth, and Rosemary, each one Pugil: Cut and bruise them, and inclose them in two Bags, which must be macerated in generous Wine, and by turns applied warm to the Stomach. Or,

Take Oil of Wormwood, Oil of Mint, and of Hops, each half an Ounce; Oil of Nutmeg, two Drams; Lignum Aloes, Mace, Cinnamon, each a Scruple, with a little Wax; make a Liniment. This may be improved by adding of Oil of Cloves, six Drops; of Musk and Ambergrise, each seven Grains: Or a Liniment may be made of Oil of Nutmegs, and Balsam of Peru; or of Oil of Wormwood, and Balsam of Peru.

For a Plaister.

Take Mastich, one Ounce; Aromaticum Rosatum, one Dram; Oil of Nutmegs, a sufficient Quantity; mix, and make a scutiform Plaister, which apply to the Region of the Stomach.

Crato greatly recommends the following Plaister:

Take of Ladanum, two Ounces; Wax, four Ounces; Oil of Nutmegs, three Drams; make them into a Mass for a Plaister, and add of Tacamahac and Mastich, each one Dram.

Galen, *Lib. 7. Meth. Med.* advises not to suffer Plaisters of this kind to continue long on the Place, because by long Continuance they dissolve the natural Heat.

Besides the above-mention'd Medicines, pure Wine alone, drank in sufficient Plenty, is a most powerful Reliever of Hunger, according to the Aphorism of *Hippocrates*, 21. *Sect. 2.* And the Spirit of Wine, commonly called *Aqua Vita*, has still a more powerful Effect than way.

Such

Such Medicines as mightily relax and moisten the Stomach, and correct the Acidity of the Humour, have a peculiar Virtue, in taking off the Sense of Hunger. Of this Sort are all pinguious and oleaginous Things; as Fats, Oils, and the Extremities of Animals. Thus *Villanovanus* relates, that a certain Man, affected with this Disorder, eat hot Bread dipt in Lees of Oil; and that a Woman, in the like Case, drank twice the melted Fat of Beef with a like Quantity of hot Oil; and that both these Patients contracted so great a Loathing of Food, that neither of them eat any thing for five Days, and so got rid of their Distemper.

Narcotics, by blunting the too exquisite Sense of the Stomach, have a Virtue of moderating the *Fames canina*. Among other Remedies of this sort, *Venice Treacle*, when new, is of common Use; because, besides its narcotic Virtue, it has a Power, as an *Alexipharmac*, of correcting the malignant Quality of the Humours, which some suppose to belong to this Affection.

But, because Narcotics are seldom, and never without Necessity, to be used, old *Venice Treacle* is to be used at other times, as well for the Reasons above given, as for the sake of corroborating the Parts.

Ambergise to the Quantity of five or six Grains, taken in a poach'd Egg, not only strengthens the Stomach, but is supposed to be endu'd with a specific Virtue against this Disease. *Riverius, Prax. Med.*

So far *Riverius*; and it must be confess'd, that the most rational Way of curing a Disorder, which is caus'd by an acrid Humour irritating the Stomach, is, first, to evacuate such Humour, or correct its Acrimony; and then to restore the Stomach, and the Organs employ'd in Digestion, to their natural Tone and State, that no more may be generated.

BOUNIAS, *βουνίας*, a Species of *Napus*, which has a round Root, and delights in *βρύσις*, or rugged Places. *Blancard. See BUNIAS.*

BOUSTHE, *βούσθη*, a corrupt Word, tho' found, as *Foefius* says, in all the Copies of *Hippocrates*. It is in a Passage of his *παρρησιαί*, which is, *δυσχεαίμει δ' ἀν' ὑπεράλειος βούσθη*. Here plainly appears, says *Foefius*, a Mistake, and all Translators read it *βούσθιν*, rendering the Place thus: "I would with Confidence ask Assistance," or, "I would confidently desire them to give their Assistance." For the Subject of the Discourse are those Physicians, who, being destitute of a Method of curing, insinuate themselves into popular Favour by pompous Words. With such Physicians *Hippocrates* declares himself unwilling to hold a Conference concerning a Method of Therapeutics, but rather desires Assistance from them, or calls upon them to perform, by their Actions, what they so confidently pretended to by their Words.

BOXUS, *Μίστο*, growing on Trees, such as Mistletoe of the Oak. *Castellus from Dornæus.*

BRABE, in *Oribasius*, is an Herb, a Cubit high, shooting forth thin Branches on both Sides, with Leaves like those of Dittander, but softer and whiter. At Top it bears an Umbella like that of Elder, with white Flowers. *Oribas. Med. Coll. Lib. II.*

BRABYLA, *τὰ βράβυλα*, large, sweet, black-azure Plums, commonly call'd *Damaſcene* and *Hungarian* Plums. They are reckon'd by *Galen, Lib. 2. de Alim. Fac. cap. 38.* amongst Aliments which afford but little Nourishment to the Body, and are of bad Juice; but the boil'd Juice is accounted amongst Stomachic Medicines by the same Author, *Lib. 6. de C. M. S. L. cap. 2.*

BRACHERIUM. A Surgeon's Bandage and Truss for an Hernia. *Castellus. Scultetus* gives Figures of two of these, *Tab. 39. Fig. 6. and 7. of his Armamentar. Chir. printed 1657.*

BRACHIA, *βραχίαιες*. The Branches of Plants, especially Trees; so call'd because they are extended like the *Brachia* (Arms) of a Man. *Blancard.*

BRACHIÆUS. There are two Muscles which go by this Name. The first is the *Brachiaeus internus*.

This derives its Name from its Situation, lying partly under the Biceps. It ariseth fleshy from the internal Part of the Os Humeri, at the Insertion of the Deltoides and Caracobra-chialis Muscles; and, descending over the Junction of the Cubit with the Arm-bone, it's inserted, partly fleshy, and partly tendinous, to the superior and fore Part of the Ulna. This helps to bend the Arm.

The second is the *Brachiaeus externus*. This seems to be the third Beginning of the Gemellus. Its Origination is continu'd from above the Middle of the Insertion and back Part of the Os Humeri to its Cavity, which receives the Olecranon in the Extension of the Cubit, where, joining with the tendinous Outside of the Gemellus, it is inserted into the superior and external Part of the Ulna, call'd Olecranon, and Ancon, or the Elbow. *Cowper. See GEMELLUS.*

BRACHIALE. The same as CARPUS, which see.

BRACHIUM, *βραχίον*, in *Hippocrates*, signifies the Bone which lies between the Cubit and the Joint of the Shoulder.

Galen, in the Beginning of his second Comment on Hippocrates of Fractures.

But the fore Arm, as we express it, the *Avant Bras* of the French, signifies properly that Part of the superior Extremities which lies betwixt the Elbow and Wrist.

That the Reader may not lie under a Necessity of turning to too many different Articles, for an Account of the Parts belonging to the Arm, I shall, in this Place, take into Consideration the entire superior Extremities, and describe particularly the Bones, Cartilages, and Ligaments, belonging to these.

The Os Humeri, or Bone of the Arm, is both longer and thicker than any other Bone of the upper Extremity. It is situated under the Acromium, along the lateral Part of the Thorax, from which, however, it may be remov'd to a considerable Distance in all Directions. Its Figure is irregularly cylindrical, and it is thick at one End, and broad at the other.

It is divided into the Body and two Extremities, or into an upper, middle, and lower Part.

The upper Part is generally call'd the Head of the Os Humeri, and the Part immediately below that, is call'd the Neck.

In the Head, we consider a Half-globe obliquely inclined, cruſted over with a smooth Cartilage; two Tuberosities, one large, terminating upward in a Point, over-against the Half-globe; the other small, placed laterally between the large one and the Half-globe: A Chanel or Groove between the two Tuberosities; four muscular Impressions, three of which are on the large Tuberosity; one in the Apex, one on the Side opposite to the Groove, and the third lower down on the same Side, over-against the small Tuberosity upon which the fourth is found. Of these four Impressions, that on the small Tuberosity, and the second of the other three, are the largest. All these Parts of the Head of the Os Humeri, are one Epiphysis in Children, of which very plain Marks remain sometimes in an advanc'd Age.

The Chanel, or Groove, between the two Tuberosities, is continu'd downwards, in an oblique Direction, thro' one Quarter of the Length of the Bone; and there becoming rough, it forms a muscular Impression, not always equally sensible. The Edges of this Chanel are two Ridges, or prominent Lines, continu'd down, as it were, from the two Tuberosities. That from the great Tuberosity is the most considerable, and is continu'd down to the Middle of the Bone, where it is lost in a long, broad, rais'd muscular Impression, more or less rough. The other, which comes from the small Tuberosity, is less prominent, and shorter. At the Side of this Ridge, toward the lower Part, are two other narrow, longitudinal, and superficial muscular Marks, one above the other, the lower Extremity of the first reaching down on the fore Side of the upper Extremity of the second.

The middle Part, or Body of the Os Humeri, comes nearer to a cylindrical Figure than the Extremities. It is a little rais'd at the rough Eminence, or Impression, already mention'd. On each Side of this Eminence is another muscular Impression, which uniting immediately below it, it appears to be inclos'd between them as between the two Prongs of a Fork. On that Side which answers to the Middle of the Half-globe, we see likewise a longitudinal muscular Mark; and about the Middle of that Side which is even with the great Tuberosity, there is an oblique hollow Turning, of a considerable Length and Breadth, which, running down by the Side of the fork'd Impression, makes this Part of the Bone appear contorted.

The lower Extremity of the Os Humeri is triangular from its very Beginning, and from thence grows very broad and flat, being bent a little near the End, towards that Side which answers to the small Tuberosity in the upper Extremity. It is divided into three Sides, two anterior, and one posterior, which is the broadest; and into three Angles, one anterior, and two lateral.

At the End of this broad Extremity are two Tuberosities; one short and prominent, answering directly to the Middle of the Half-globe; the other oblong, rough, and resembling a Crista, which answers to the Apex of the great Tuberosity of the Head. The short Tuberosity is call'd the internal Condyle, the other the external Condyle.

Between these two Condyles, on the very lowest Part of the concave Side of this Extremity, are two articular Eminences; one double, like a Pulley, next the short Condyle; the other rounded, like a small Head, next the long Condyle. The Pulley has a great and small Edge, with a Depression between them. The small Edge is lost in the round Eminence, or Head; the great one is gradually widen'd, and ends in a sharp Circumference. This Pulley is situated obliquely; for, on the concave Side, it approaches toward the short Condyle, and, on the other, it is turn'd from it.

Three Fossulae are likewise observable in this lower Part of the Bone; two anterior, one immediately above the Pulley, the other above the small Head; and one posterior, which is very large, and situated likewise immediately above the Pulley. In Children, the Pulley, the small Head, and the short Condyle, are Epiphyses.

The outer Substance of this Bone is compact, especially in the middle Part, within which there is a large tubular Cavity, containing a reticular Texture of bony Filaments. The Out-sides of the Extremities are less solid, and their inner Substance is cellular.

The particular Situation of this Bone deserves well to be consider'd, because we are often misled in forming an Idea of it, by viewing the Bone itself separated from the Trunk of the Body, by the Figures which have been given of it, and by the undue Application of the Terms External, Internal, Anterior, and Posterior, to the different Parts thereof; which Mistakes may be of very bad Consequence in many surgical Cases.

When we examine the Os Humeri, as lying along either Side of the Trunk, in its natural Situation, the Head will be found so dispos'd, as that the Half-globe is turn'd inward and backward, answering to the Situation of the Glenoide Cavity of the Scapula, the great Tuberosity outward and forward, the Chanel between the two Tuberosities almost directly forward, the long Condyle, said commonly to be external, turn'd as much forward as outward, and the short Condyle, call'd the Internal, turn'd as much backward as inward.

This Bone is articulated above with the Glenoide Cavity of the Scapula, by Enarthrodia, which is much plainer in the fresh Bones than in the Skeleton; and below, with the two Bones of the fore Arm.

The Uses of this Bone are generally well enough known. The Explication of all its different Motions presupposes the Knowledge of the fresh Bones, and of their Ligaments and Muscles.

The BONES of the FORE ARM; and, first, the ULNA.

The fore Arm is made up of two long Bones, whereof one is nam'd Cubitus, or Ulna; the other Radius.

The Ulna is irregularly triangular, diminishing in Thickness from one End to the other. It may be divided into the Body or middle Part; and two Extremities, one great, the other small.

In the great Extremity we observe two Eminences, one large, call'd Olecranon or Ancon; the other small, call'd Corone, or the Coronoide Apophysis; and two Semilunar or Sigmoide Cavities; one great, the other small.

The Olecranon is a large Apophysis ending in a rough Tuberosity, and an obtuse Point. The Tuberosity makes the Corner of the Elbow; the Point is lodg'd in the posterior Cavity of the lower Extremity of the Os Humeri, when the fore Arm is extended. Next under the Tuberosity is a flattish, oblong, triangular Surface, on the Outside of which is another of the same kind; but longer, and a little hollow, together with a muscular Fossula.

The Coronoide Apophysis is prominent, and a little pointed; resembling a broad short Beak. It is receiv'd into the anterior Cavity above the Pulley, at the lower Extremity of the Os Humeri, when the fore Arm is bent.

The great Sigmoide Cavity lies directly between these two Eminences, reaching from the Point of one to the Point of the other. It is articular, cover'd with a smooth Cartilage, and divided thro' its whole Length by a middle angular Line; being thus suited exactly to the Pulley of the Os Humeri, upon which it moves obliquely; these two together making a most perfect Ginglymus, as well in respect of their Structure as of their Use. The Half-cavities on each Side the angular Line are also divided transversely by another Line a little hollow, which terminates at the Middle of each Edge of the Cavity, by a very small Notch.

The small Sigmoide Cavity, which may likewise be term'd transverse or lateral, is a sort of transverse Notch in the inferior Portion of one Edge of the great Sigmoide Cavity, at the Side of the Coronoide Point, directly opposite to the muscular Fossula already mention'd. It is cover'd with a Cartilage as well as the great one, of which it appears to be a true Continuation, and it belongs to the Articulation of the Radius. Near this Cavity, directly under the Coronoide Apophysis, there is a very rough muscular Impression, sometimes rais'd like a Tuberosity.

This upper Extremity is oblique, and its Obliquity answers to that of the Pulley in the Os Humeri.

The small Extremity is cylindrical, of a less Diameter than any other Part of the Bone. It may be reckon'd a kind of Neck, ending in an inverted Head, flat at Top, and of a cylindrical Circumference, both which are cover'd with the same smooth Cartilage; and the Circumference is broader on the Side of the Coronoide Apophysis; and small Sigmoide Cavity, than any-where else. From the Head runs down a short Styloide Apophysis, on the Side of the Tuberosity of the Olecranon, distinguish'd from the rest of the Circumference by a small Notch.

The middle Portion, or Body of the Ulna, is divided into three Sides and three Angles. One of the Sides is narrow and rounded, one broad and hollow, and the third flat; and mark'd with an oblique Line on its upper Part. The narrow Side answers to the Tuberosity of the Olecranon, and is cover'd only by the common Integuments. The other two Sides are distinguish'd from the former by two blunt Angles; and they unite

at a sharp Angle, which lies opposite to the rounded Side; and answers to the Point of the Coronoide Apophysis. The hollow Side is even with the small Sigmoide Cavity, and the flat Side opposite to it. These two Sides give Insertions to many Muscles; and the sharp Angle, to what is call'd the Interosseous Ligament. At the Top of this Angle there is a narrow, oblong, muscular Impression. The Angle common to the rounded and flat Sides ends below in an oblong, uneven, muscular Eminence.

The Substance of the Ulna is much the same with that of the Os Humeri, already describ'd. The Tuberosity of the Olecranon, and the small interior Head, with its Styloide Apophysis, remain for a long time Epiphyses in some Subjects.

It is connected with the Pulley of the Os Humeri, by an angular Ginglymus; with the two Extremities of the Radius, by a compound lateral Ginglymus; and with the Hand, by Ligaments, and not by Articulation.

The Situation of this Bone may be consider'd two ways; either when the fore Arm is extended, and lies along the Side of the Trunk, or when it is bent, and lies on the lower Part of the Breast. The first Situation appears to be most commodious for determining what Parts of the Bone are to be call'd anterior, posterior, superior, inferior, external, and internal; but the second seems most natural, as being the most common in living Bodies, whether sitting or standing, and has accordingly been follow'd by some of the Antients.

The RADIUS.

The Radius is nearly of the same Length with the Ulna, bigger at one End than at the other, irregularly triangular, a little bent, and situated along the Side of the Ulna. Its Name is taken from the Resemblance it bears to the Spoke of a Wheel.

We are to consider in the Bone two Extremities, and a middle Portion. One Extremity is small, and like a kind of Head set upon a Neck; the other is large, resembling a Pedestal or Basis; and therefore it might be divided into a Head, Body, and Basis.

The Head, or small Extremity of the Radius, is very short or low, the Top of it is concave, and the Circumference cylindrical; and both the Glenoide Cavity and the Circumference are cover'd with the same smooth shining cartilaginous Crust; and about one Quarter of the Circumference is broader than the rest. The Neck is small, and its Situation a little oblique. It ends by a lateral Tuberosity, which lies directly under the broad Part of the Head, being rough in the Middle and on one Side, and smooth and superficially cartilaginous on the other.

The Basis, or great Extremity of the Radius, is much broader than it is thick, and has two broad Sides, and one narrow. One of the broad Sides is a little hollow, and pretty even; the other is unequally convex, and divided by longitudinal Eminences, or bony Lines, into three or four longitudinal Chanels, much more distinct in fresh Bones than in the Skeleton. The narrow Side is concave lengthwise, and between its Edges, and those of the two broad Sides, two Angles are form'd, by which the three Sides are distinguish'd; and, opposite to it, the broad Sides form a common Edge, and a third Angle. This narrow Side ends in a semilunar Cavity, border'd with a smooth Cartilage, and lying almost in the same Direction with the Tuberosity. The broad Sides end at their common Angle, by an obtuse Point or Production, which has been call'd the Styloide Apophysis of the Radius, and is really a Continuation of one of the bony Lines.

The whole Basis ends in an oblong, triangular, Glenoide Cavity, the Cartilage of which is continu'd over the hollow Edge of the narrow Side. This is an articular Cavity, resembling an Arch, and ending on one Side at the Styloide Apophysis, and hollow'd on the other, by the Cavity of the narrow Side. It appears divided into two Portions by a small transverse Line, and in the natural State the hollow'd Side is lengthen'd out by a cartilaginous Production, the Description of which belongs to the History of fresh Bones.

The Middle, or Body of the Radius, is a little incurvated, the Concavity lying between the Tuberosity in the Head, and semilunar Cavity in the Basis. It has three Sides, one rounded, which forms the convex Side of the Curvature, and two concave; three Angles, two of which are obtuse, distinguishing the two concave Sides from the convex; and the third sharp, lying between the two concave Sides, opposite to the convex Side. In each of these Sides there are several muscular Marks.

The Substance of this Bone is like that of the Ulna. The Head and Basis are Epiphyses in Children, and, in some Subjects, remain such for a long time afterward.

The Radius is connected with the Ulna, the Os Humeri, and Carpus. It is articulated with the Ulna, at its two Extremities, by a double lateral Ginglymus; the cartilaginous Circumference of the Head turning in the small Sigmoide Cavity, and the semilunar Cavity in the Basis turning upon the small Head, at the lower Extremity of the other Bone; and thus the small Extremity of one Bone is join'd to the great Extremity of the other.

It is articulated with the Os Humeri, by the Application of the Cavity in the Top of its Head to the small Head at the lower Extremity of the other Bone. By this Conformation it would be capable of moving in all Directions; but, as it is ty'd to the Ulna at both Extremities, its Motions on the small Condylloid Head, at the lower Extremity of the Os Humeri, are confin'd to two kinds; that of Rotation, when it turns on the Sides of the Extremities of the Ulna, and that of Flexion and Extension, in common with the Ulna; and both these Motions may be perform'd at the same time.

The Articulation of the Radius with the Bones of the Carpus shall be explain'd in describing these Bones.

The BONES of the HAND; and, first, the BONES of the CARPUS.

The Hand is the last Part of the upper Extremity, and is divided into the Carpus, Metacarpus, and Fingers. It may be further divided into the concave and convex Side. The concave Side is likewise call'd the Inside, because it is commonly, and, as it were, naturally, turn'd toward the Body, and so hid. The convex Side is, for the same Reason, nam'd the Outside, as being, for the most part, turn'd outward, and expos'd to View. The first is also nam'd the Hollow or Palm of the Hand, the other the Back of the Hand.

The Carpus, or Wrist, consists of eight small, unequal, and irregular Bones; and, taken all together, they represent a sort of Grotto (*Grote*) of an irregular quadrangular Figure, and connected principally with the Basis of the Radius. Consider'd in this manner, the whole Collection of them has two Sides, and four Edges. One of the Sides is convex and external, the other concave and internal. The Convexity of the Outside is pretty uniform; but the inner or concave Side has four Eminences, one at each Corner. One of the four Edges touches the fore Arm, and is, as it were, the Head of the Carpus: another Edge may be term'd the Basis, and touches the Metacarpus; the third is toward the Point of the Radius, and the fourth toward the Point of the Ulna. The first of these last I shall call the small Edge, and the other the great Edge.

The Bones of the Carpus are divided into two Rows; the first of which lies next the fore Arm, the second next the Metacarpus. Each Row consists of four Bones; but the fourth of the first Row lies, in a manner, out of its Rank. Each Bone has several cartilaginous Surfaces for their mutual Articulations; and, in some of them, for their Articulations with the Radius, and Bones of the Metacarpus and Thumb.

It is to no purpose to distinguish the three ordinary Dimensions in any of these Bones, except one; but, in most of them, we may consider six Sides, one external, turned toward the convex Surface of the Carpus; one internal, toward the concave Surface; one toward the fore Arm, which I call the brachial Side; one toward the Fingers, which I call the Digital Side; one toward the Point of the Radius, or the Radial Side; and one toward the Point of the Ulna, or the Cubital Side.

Of these Sides some are bony, others cartilaginous or articular. These last I shall call Sides, the other Surfaces, as being Portions of the common Surface of the Carpus in its natural Situation.

To distinguish these eight Bones from each other, they are call'd first, second, third, and fourth Bones of the first or second Row, beginning to count from the Radius or Thumb.

Lyserus has been at the Pains to give a particular Name to each of them: He calls the first Bone of the first Row Os Scaphoides, or Navicular; the second, Os Lunare; the third, Os Cuneiforme; the fourth, Os Pisiforme: The first Bone of the second Row, Os Trapezium; the second, Os Trapezoides; the third, Os Magnum; and the fourth, Os Unciforme.

OS SCAPHOIDES.

The first Bone of the first Row is term'd *Scaphoides* in Greek, and *Navicular* in Latin, from its Resemblance to a small Boat. Next the Radius it has a convex Side, by which it is articulated with the Basis of that Bone; and a Tubercle, which is one of the four Eminences on the concave Side of the Carpus. Toward the Thumb it has two Half-sides; a large one for the Os Trapezium, and a small one for the Os Trapezoides. It has likewise a hollow Side for the Os Magnum, and a small semilunar Side for the Os Lunare. The inner and outer Surfaces are rough.

OS LUNARE.

The second Bone of the first Row is call'd *Lunare*, because one of its Sides is in form of a Crescent. The articular Sides in this Bone are four in Number; one convex, for the Basis of the Radius; one semilunar, for the Os Scaphoides; one almost triangular, for the Os Cuneiforme; and one hollow, which, with the hollow Side of the Os Scaphoides, forms a Cotyloid Cavity for the Head of the Os Magnum. The convex Side, together with that of the Os Scaphoides, forms an oblong Convexity, answering to the oblong Concavity in the Basis of the

Radius. The outer and inner Surfaces are small and rough. This Bone would be better nam'd Os Semilunare.

OS CUNEIFORME.

The third Bone of the first Row, call'd *Cuneiforme* from its Figure, appears rather like a Wedge sticking between the two Rows. It has a rough Surface, with a small Tubercle upon it, which forms the greatest Part of the cubital Edge of the Carpus; and four articular Sides, whereof one is convex, which completes the articular Convexity of the Carpus; one orbicular and internal, or on the concave Side of the Carpus, on which the Os Pisiforme is set; and two which make an Angle between them; one for the Os Semilunare, and the other for the Os Unciforme.

OS ORBICULARE.

The fourth Bone of the first Row, call'd *Orbiculare*, *Pisiforme*, and *Lenticulare*, from its Figure and Size, is irregularly round. It has but one cartilaginous Side, irregularly orbicular, the Border or Circumference of which represents a sort of narrow Collar. The rest of the Bone is rough, convex, and irregularly round, making one of the four Eminences on the concave Side of the Carpus. This Bone, and the Os Cuneiforme, may be suppos'd to make a third Row distinct from the other two.

The four Bones of the second Row lie all in a Line, the first being articulated with the Thumb, the rest with the Metacarpus.

OS TRAPEZIUM.

The first Bone of the second Row is nam'd *Trapezium*, as being suppos'd to be of an unequal square Figure. Its outer Surface is rough, and makes a Portion of the convex Side of the Carpus. On its inner Surface is an oblong Eminence, which makes one of the four Eminences on the concave Side of the Carpus; and, on the same Side, it has a Groove or Channel. There is likewise a small Tubercle on the outer Surface.

It has several articular cartilaginous Sides; one Brachial, one Digital, and two Cubital Sides.

The Brachial Side, which is hollow, is articulated with the Os Scaphoides; the Digital, with the first Phalanx of the Thumb; one of the Cubital Sides, with the Os Trapezoides, and the other with the first Bone of the Metacarpus.

The Side which is articulated with the first Phalanx of the Thumb, appears to be made up of two superficial Sigmoide or Semilunar Half-sides, distinguish'd by an Eminence of the same Figure, being each more hollow toward the Sides than at the Middle, which makes a Portion of a sort of superficial Pulley, with the Edges much worn.

One of the Cubital Sides, which is articulated with the Os Trapezoides, is large; the other, which joins the first Metacarpal Bone, is small.

OS TRAPEZOIDES.

The second Bone of the second Row deserves the Name of *Pyramidale*, rather than *Trapezoides*, being a kind of Pyramid with the Point broke off. Its Basis makes a Portion of the outer or convex Side of the Carpus, and its Point a Part of the concave Side.

It has several articular Sides; one Brachial, which is the least of all, and articulated with the Os Scaphoides; one Digital, of a considerable Length, notch'd on each Side, and divided into two Havles, by a sort of middle Line or Angle, which gives it the Appearance of a Pulley, articulated with the Basis of the first Metacarpal Bone; one Radial, irregularly triangular, and articulated with the Os Trapezium, and one Cubital, a little hollow, and articulated with the Os Magnum.

OS MAGNUM.

The third Bone of the second Row, call'd *Os Magnum*, is the largest of all the Bones of the Carpus. It is of a considerable Length, and has a kind of articular round Head, which is receiv'd into the Cotyloid Cavity form'd by the two first Bones of the first Row; and this Articulation is capable of a small Degree of Flexion and Extension.

The Digital Side is a cartilaginous Basis, unequally and obliquely triangular, the Apex being turn'd inward. It is articulated with the second Metacarpal Bone, and is also a little notch'd on the Radial Edge, for its Articulation with the small Edge of the first Metacarpal Bone.

The Radial Side is very small, and, near the Basis, it is articulated with the Os Pyramidale; the rest of this Surface is without Cartilage. The Cubital Side is double, answering to a like Side in the Os Unciforme, with which it is articulated.

The outer Surface, which forms a Portion of the convex Side of the Carpus, is broad, rough, and uneven, for the Insertion of Ligaments. The inner Surface is likewise rough, but narrower; and round both Surfaces are several Depressions, which, in the natural State, are fill'd with small Glands and Ligaments.

Os UNCIFORME.

In the fourth Bone of the second Row we are to consider the Body, and hook'd or Unciform Apophysis, from whence it has the Name of *Unciforme*. This Apophysis, one of the four Eminences on the concave Side of the Carpus, is flat, and the hollow Side of its Curvature is turn'd toward the Os Magnum. The outer Surface of its Body is rough, and, in some measure, triangular. It completes the convex Side of the Carpus, and, toward the Ulna, terminates in a small Tuberosity, which is all the Cubital Side of this Bone.

It has three articular or cartilaginous Sides, one Radial, one Brachial, and one Digital.

The Radial Side is double, answering to the Cubital Side of the Os Magnum. The Brachial Side is very oblique, partly a little concave, and partly a little convex, answering to the Digital Side of the Os Cuneiforme. The Digital Side is double, or distinguish'd into two Halves, by a Sigmoid angular Line, for its Articulation with the two last Bones of the Metacarpus.

The Bones of the Carpus are articulated with each other by Arthrodia, but the first Row forms a sort of Ginglymus with the second, because the Head of the Os Magnum may turn in the Cotyloide Cavity of the first Row, while the two first Bones of the second Row slide upon the Digital Side of the Os Scaphoides, and the Os Unciforme in the same manner on the Os Cuneiforme.

When all these Bones are in their natural Situation, a transverse Depression is form'd on the convex Side of the Carpus, by which the two Rows are distinguish'd. This Depression appears most between the Os Scaphoides and the three last Bones of the second Row, and looks like a kind of Fold, by which the second Row is thrown a little back upon the Convexity of the first. The four Eminences on the concave Side of the Carpus are for the Insertion of a strong transverse Ligament. The inner Substance of all these Bones is spongy, and their Surfaces are not very compact.

The BONES of the METACARPUS:

The Metacarpus is the second Part of the Hand, situated between the Carpus and Fingers. The Antients, who call'd the Carpus, *Brachiale*, from whence the Word Bracelet seems to be deriv'd, term'd the *Metacarpus*, *Post-Brachiale*.

The Metacarpus consists of four Bones, one Side of which forms a broad Cavity, call'd the Palm of the Hand; the other a gentle Convexity, call'd the Back of the Hand. The ancient Anatomists reckon'd five Bones in the Metacarpus, including that Bone which is now look'd upon as the first Phalanx of the Thumb.

The Bones of the Metacarpus are long, thicker at the Extremities than at the Middle, and of unequal Length and Bigness. The first is the largest, the rest are lessen'd by Degrees in all their Dimensions. The two first are sometimes, tho' very rarely, equal.

Each Bone is divided into the Extremities and Middle-part; or into a Basis, Body, and Head. The Bases are angular, and turn'd toward the Carpus; the Heads rounded like Condyles, and turn'd toward the Fingers. Both are cover'd with Cartilages, and the Heads remain for a long time very distinct Epiphyses.

The Bases are narrow, and almost angular, toward the Palm of the Hand; toward the Back of the Hand their Breadth is considerable; but, on the other two Sides, they are very broad; and there they have small articular Sides, which I call lateral Sides. The Heads are flatted on the two Sides, which answer to the lateral Sides of the Basis; and their greatest Convexity is turn'd toward the Palm of the Hand, terminating in two obtuse Points. Several Notches and Fossulae break in upon the lateral Sides, and the flat Sides of the Heads are a little depress'd, a small Tubercle arising in the Middle of each Depression.

The Body of each Bone is contracted, of a triangular Figure, and distinguish'd into three Sides, whereof one is external, and a little convex, contributing to make the Back of the Hand; the other two internal, and a little concave, one being turn'd obliquely toward the Radius, the other toward the Ulna. These three Sides are separated by the same Number of Angles; and that Angle, which parts the two internal Sides, is sharp. It is by these two Sides, and the Angle between them, that the Hollow of the Palm of the Hand is form'd.

FIRST BONE.

The first Bone of the Metacarpus is longer, thicker, and bigger, than any of the rest, and supports the fore Finger. Its Basis is a little hollow, answering to the Digital Side of the Os Pyramidale of the Carpus. On the outer Edge there is a small angular Notch, and, on the Cubital Edge of the Basis, a small lateral Line, which is articulated with the Basis of the second Bone. The inner Edge is terminated laterally by an oblique Angle, which is articulated with the neighbouring An-

gle in the Basis of the Os Magnum. Round the Basis are Inequalities and Depressions, for the Ligaments and articular Glands. The Outside of the Body of the Bone is broader toward the Head than toward the Basis.

SECOND BONE.

The second Bone of the Metacarpus supports the middle Finger, and has this peculiar to it, that its Basis is very oblique, terminating at the outer Edge by an angular Point, turn'd toward the first Bone. By the triangular Side of its Basis, it is articulated with the Basis of the Os Magnum; and, by its lateral Sides, with those of the first and third Bones of the Metacarpus.

THIRD BONE.

The third Bone of the Metacarpus supports the Ring-finger, being less than the first and second. Its Basis is irregularly triangular, and proportionably less than the two former; and by the principal Side thereof, it is articulated with the first Half of the Side of the Os Unciforme. The small lateral Sides of the Basis join those of the second and fourth Bone of the Metacarpus.

FOURTH BONE.

The fourth Bone of the Metacarpus supports the little Finger. The principal Side of its Basis, instead of being triangular, as in the other Bones, is all of an equal Breadth, a little oblique, somewhat convex, somewhat concave, and is articulated with the second Half of the Side of the Os Unciforme. By its lateral Side it joins the corresponding Side of the Basis of the third Bone; but in a much looser manner than in the other Articulations of the like Kind. On the opposite Side there is a small Tuberosity.

The BONES of the FINGERS.

The Fingers make the third Part of the Hand, and terminate the whole upper Extremity. They are five in Number in each Hand, call'd the Thumb, the fore Finger, the middle Finger, the Ring-finger, and the little Finger.

They may be said in general to represent the same Number of compound, long, small, bony Pyramids, convex on one Side, somewhat concave on the other, and join'd by their Bases to the Carpus and Metacarpus, from whence they diminish gradually, and end in a sort of small Heads.

The Thumb is the biggest of all the Fingers; next to that is the third, call'd the long Finger. The second and fourth are shorter than the third; the fourth being a very little longer than the second. The fifth is the smallest of all.

Each Finger consists of three Pieces, call'd *Phalanges*; the first of which is longer and thicker than the second; and the second than the third. Each *Phalanx* is divided, in the same manner as an entire Finger, into a Basis, middle Portion, and Head; into two Sides, one convex, the other concave; and into two Edges. The Bases of the Phalanges remain Epiphyses for a long time, as well as the Heads of the metacarpal Bones.

FIRST PHALANX of the THUMB.

The first Phalanx of the Thumb is not like those of the other Fingers. Ancient Authors reckon'd it among the Bones of the Metacarpus, which it resembles very much; and then they counted five Metacarpal Bones, allowing only two Phalanges to the Thumb. The convex Side of this Phalanx is very much flatten'd, and broader toward the Head than toward the Basis. On the concave Side is a kind of angular Line, which in some measure distinguishes it into two Parts. Its Head is like those of the metacarpal Bones, only flatten'd at the Top.

The articular Side of its Basis is proportion'd to the Digital Side of the Os Trapezium of the Carpus; and fram'd in such a manner, as that the Sigmoid Cavities and Eminences in both Bones cross each other. This Articulation has something very particular in it. It is a kind of double Ginglymus, which readily allows of Flexion and Extension, Adduction and Abduction, but with Difficulty permits the oblique Motions; because then the two Sides run counter to each other.

The Head and Basis carry for a long time the Marks of Epiphyses; and for all these Reasons, this Bone may be reckon'd a Metacarpal Bone degenerated.

The SECOND PHALANX.

The second Phalanx of the Thumb is shorter than the first; its Body convex or semicylindrical on one Side, flat on the other, and contracted between the Edges. The articular Side of the Basis is gently concave, and surrounded near the Edges by small Tuberosities; as also near the Angle of the Phalanx. The Head is a regular Portion of a Pulley, which projects more on the concave than on the convex Side; and on each Side of it there is a small Fossula, and some Inequalities in form of Tubercles. On the flat or concave Side of the Phalanx are two rough Lines, one near each Edge, which are often destroy'd in cleaning the Bones; they are the Impressions or Marks of the articular

articular Vagina, which shall be explain'd in describing the fresh Bones.

The Connexion of this Phalanx with the first is by a kind of Arthrodia, or by a flat Enarthrosis, which permits a Motion in several Directions; though more limited than in other Articulations of the same Kind. It is articulated with the third by a very perfect Ginglymus.

THIRD PHALANX.

The third Phalanx of the Thumb represents the half of a sort of Cone, cut lengthwise; and by joining it to the same Bone of the other Thumb, an entire Cone is form'd. The convex Side is more even than the flat Side; and on each Edge there is a Tuberosity near the Basis. The Basis has two hollow Sides, which form a Ginglymus, with the Head of the second Phalanx. The Head is small and flat, ending in a rough semi-circular Border; which, on the flat Side of the Bone, represents a Horse-shoe.

The FINGERS.

The other four Fingers in general, and their Phalanges in particular, are all nearly of the same Structure, differing chiefly in Size. The fore and Ring-fingers are almost equal, only the fore Finger is generally a little bigger, and sometimes a little shorter than the other. The middle Finger is the longest; and the little Finger the least. Almost the same Proportions are to be observed in the Phalanges.

FIRST PHALANGES.

The first Phalanges of these four Fingers are made nearly in the same manner with the second of the Thumb; only they are longer in proportion, flatter on the concave Sides, and more rounded on the convex Sides. The Edges of the flat Sides have the same rough Line as the second Phalanx of the Thumb. Their Bases are more hollow for their Articulations with the Heads of the metacarpal Bones, and their Heads are like Pullies, as in the second Bone of the Thumb.

SECOND PHALANGES.

The second Phalanges are shorter, narrower, and thinner than the first. Both Phalanges are somewhat incurvated, and resemble each other in Structure, except that the second contracts by Degrees from their Bases to the Heads, which are very small; and that their Bases have a double Cavity for their Articulation, by a Ginglymus, with the Heads of the first Phalanges. Their flat Sides have the same rough Lines already mentioned.

THIRD PHALANGES.

The third Phalanges are in every thing like that of the Thumb, except that they are smaller, each of them being proportion'd to the Fingers they belong to.

It is to be observed concerning all the Phalanges, that their Bases have small Tuberosities; and their Heads, except those of the last Phalanges, have on each Side a roundish sort of Fossula, border'd with small Eminences.

The particular Situation and Uses of the BONES of the UPPER EXTREMITIES.

The Hand is generally represented in Skeletons and Figures, as lying in the same Plane, and in the same longitudinal Direction with the Bones of the fore Arm. This gives a very false Idea of its true Situation, which, with respect to the fore Arm, is oblique in two respects. The Back of the Hand is inclined upon the convex Side of the Carpus, and makes an Angle with the fore Arm; and, besides, the fourth Bone of the Metacarpus is inclined towards the Ulna in particular. In a Word, the Breadth of the Hand makes an Angle with the Breadth of the fore Arm; and the Thickness of the Hand, at the same time, with the Thickness of the fore Arm. I mean here that Part of the fore Arm which is next the Hand.

This is owing to the Structure and Situation of the Bones of the Carpus, and to their Connexion with those of the fore Arm. First, the two Rows of these Bones make a sort of transverse Fold on the convex Side of the Carpus; and the articular Brachial Sides of the two first Bones of the first Row are turn'd a little toward the same convex Side of the Carpus; which obliges the whole Hand to be a little bent back in its natural Situation. Secondly, the Edge of these Bones next the Ulna is much shorter than that next the Radius; which makes the Cubital Edge of the whole Hand incline to that Side.

By not considering this, a large void Space is commonly left in Skeletons, between the Extremity of the Ulna and the Os Cuneiforme of the Carpus. It ought likewise to be observed, that the Edge of the Metacarpus next the Ulna is shorter than the other; so that in the Metacarpus a small and great Edge may as justly be distinguished as in the Carpus.

In this oblique and natural Situation of the Hand, the Fingers being extended, and a little separated, the Extremity of

the fore Finger will be found to answer to the Interstice between the Bones of the fore Arm; and if in this Situation we make alternately the Motions of Pronation and Supination, the Extremity of the fore Finger will be found to be in some measure the common Centre of these Motions.

This Disposition of all the Bones of the Hand is moreover very well contrived, to give it several kinds of Attitudes; for by means thereof it may be lengthen'd, flatt'd, shorten'd, and contracted. The Hand is lengthen'd or widen'd, and flatt'd, by extending all the Fingers, and turning back the Thumb, which is what is called extending or opening the Hand. It is shorten'd by bending all the Fingers, whether in what is call'd closing the Fist, or in grasping any thing; and to this the Situation of the Thumb, and the oblique Disposition of the Bones of the Metacarpus and Fingers, contribute in a particular manner. And as in this Case the Thumb counterbalances all the other Fingers, the Articulation of the first Phalanx thereof with the *Os Trapezium* appears to be render'd more firm and steady, by partaking a little of the Nature of a Ginglymus, without hindering its other Motions. Lastly, the Hand is contracted, and made into a sort of Gutter or Furrow, by the Adduction of the Thumb, and the easy Motion of the fourth Metacarpal Bone; and if at the same time we bend the Fingers, and press them close together, we both shorten and contract the Hand; and thereby form a Hollow, which is called *Diogenes's Cup*.

In the Fingers we ought likewise to remark, that though the Articulation of the second Phalanx of the Thumb, and first Phalanges of the other Fingers, be moveable in many Directions, and framed nearly in the same manner as that of the *Os Humeri* with the Scapula; yet these Phalanges cannot be moved round their Axes. This is not owing to their Conformation, but to the want of proper Muscles. The same thing cannot be said of the first Phalanx of the Thumb; because, though it had proper Muscles, yet the kind of Half-ginglymus, by which it is articulated, would not allow of such a Motion.

The Thumb is situated differently from the other Fingers. The Fingers, both with respect to their Sides and Edges, have, in their natural Situation, nearly the same Direction with the Plane of the Metacarpus. The Thumb being in its natural Situation, and free from the Action of all its Muscles, its convex Side answers to the convex Side of the Radius, and its flat Side is turn'd toward the little Finger; and the first Phalanx makes an hollow Angle with the Radius, and a prominent Angle with the second Phalanx; but both this, and the third Phalanx, lie in a strait Direction, like that of the fore Arm.

The Carpus is the Basis and Centre of all the Motions of the Hand, except that of Rotation. By means thereof, we can bend the Hand in all Directions, but with more Ease toward the Sides and Edges, than any other Way. The four Bones of the second Row may have a small Degree of Motion on the first, such as a Ginglymus can allow of.

The Radius is in a manner the Handle of the Hand; and it is chiefly by means thereof, that we can move the Hand reciprocally as on the Axis, turning either Edge of it toward the Body. This Motion or Attitude is term'd Pronation; and when the Cubital, or small Edge, is toward the Body, it is term'd Supination. In the natural and most ordinary Situation of the Hand, the Palm is turn'd toward the Body, and not the Edges.

This Disposition of the Hand determines the true Situation of the Radius, which is not on one Side of the Ulna in a parallel Direction, as the Figures and Skeletons commonly represent it; but the Radius crosses the Ulna obliquely in such a manner, as that the Styloide Apophyses in both Bones are directly over-against each other. This is its true natural Situation. The Radius, being bent, may be still farther cross'd over the Ulna, than in its natural Situation; and this happens in Pronation, but in Supination it is parallel to the other Bone.

The Ulna supports the Handle of the Hand, without being itself articulated with the Hand. Two lateral *Ginglymi*, and very strong Ligaments, connect the Radius closely with it, so that in the most violent Motions these two Bones cannot be separated. When we push or press any thing with the Hand, the whole Force is sustain'd by the Radius, the Basis of which supports the Wrist, and its concave Head is strongly press'd against the small inferior Head of the *Os Humeri*. The oblique Direction of the Pully of the Ulna is the Reason, that, in bending the fore Arm upward, the Extremity of that Bone is naturally turn'd toward the Thorax, and not without Difficulty toward the Articulation of the Scapula.

An Account of the Cartilages and Ligaments are not less necessary to a Knowledge of the superior Extremities, than the preceding Detail of the Bones. For this Reason, I shall give

WINSLOW'S Remarks upon the FRESH BONES.

The Cartilage by which the Hemisphere of the Head of the *Os Humeri* is covered, is gradually thicker toward the Middle, than toward the Edges;

The four Surfaces of the Tuberosities, which appear cartilaginous in dry Bones, serve only for the Insertion of the Tendons of four Muscles, which move the Os Humeri on the Scapula.

The Channel or Sinus between the two Tuberosities is partly covered by a thin Crust, which appears rather ligamentary than cartilaginous; and partly by a tendinous Stratum, of which hereafter.

The Trochlea and small Head of the lower Extremity of the Os Humeri are covered by a common Cartilage, in which the same Proportion of Thickness is observable, as in that of the upper Extremity. This holds pretty generally of all the convex articular Cartilages.

The Fossula near the Pulley and small Head are covered with a kind of thin cartilaginous or ligamentary Varnish.

The Capsular or mucilaginous Ligament loosely surrounds the whole Articulation of the Scapula with the Head of the Os Humeri. From its Insertion round the Edge of the Glenoid Cavity, it is continued over the Hemisphere of the Head of the Os Humeri, and fixed near its Edges, towards the muscular Surfaces of the great and small Tuberosities.

Afterwards parting from them on both Sides, in the large Space left between the two Tuberosities, that is, between the small Tuberosity and the lowest Surface of the great Tuberosity, it runs down gradually on the Neck of the Bone below the lowest Part of the cartilaginous Hemisphere.

In all this Course the Capsula is closely fixed in the Bone, except in the small Space left between the two Tuberosities, that is, at the Channel or Sinus, where it forms a Production like the Tube of a Funnel, proportion'd to the Capacity of the Channel, and strongly fix'd in the upper Portion thereof. This membranous Tube is the Vagina of the inter-articular Tendon of the Biceps.

The true Ligament of this Joint appears to be composed of two Ligaments closely united together; one a Capsular Ligament, which surrounds the whole Articulation; and the other, fram'd by several true Ligaments which run over, and closely adhere to the former in different Places.

Thus the Capsula, or mucilaginous Bag of this Articulation, is in part strongly united to four flat Tendons inserted in the two Tuberosities; and in part covered by true ligamentary Bands, which, between the four Tendons, and on both Sides of the first and last, form a considerable Thickness. The rest of the Space between the first or superior Plane of the great Tuberosity and the small Tuberosity is so little provided with ligamentary Fibres, that it has been believed to be altogether without them; and Anatomists have satisfy'd themselves with telling us, that in these Places the orbicular Ligament is very rough on the Outside, but shining and smooth on the Inside.

On the Body of the Os Humeri there are two particular Ligaments, which I term intermuscular, or lateral. They are long, flat, thin, strong, and narrow, fixed on one Edge along the two lower Thirds of the Bone, and reaching to both Condyles. They are braced pretty tight, and are very narrow at the upper Part, but broader toward the Condyles.

The lower Extremity of the Os Humeri is joined to the Bones of the fore Arm by two Fasciculi of Ligamentary Fibres, one fixed to the internal Condyle, the other to the external. Each Fasciculus is composed of Fibres closely joined together at the Condyle, and afterwards parting in distinct Bands like a Goose's Foot.

The Capsular Ligament is fixed to the Condyles, and there covers them; and afterwards it is fixed round both Sides of this lower Extremity above the Fossula. Its Insertion in these Sides is Archwise; so that it is there at a much greater Distance from the Articulation, than at the Condyles. The Fossulae are slightly varnish'd over with a cartilaginous Substance.

This Capsula appears to be strengthen'd by a Ligamentary Web, the Fibres whereof cross each other in different Directions; but we must not take for Ligamentary Filaments some tendinous Fibres of Muscles, to which the Capsula adheres very closely. It appears larger and looser when the Muscles are separated from it, than in its natural State, when closely united to the Muscles.

The two Sigmoid Cavities in the upper Extremity of the Ulna are covered by a Cartilage common to both, which is a little interrupted about the Middle of the Edges of the Cavities by the transverse Notches mentioned before. This cartilaginous Crust seems to be thicker at the Edges, than in the Middle.

The inferior Extremity, or small Head of the Ulna, is crufted over by a Cartilage round its cylindrical Border, in the Notch near the Styloide Apophysis; and for some Space on the Apophysis itself.

The Cartilage which covers the Head of the Radius is likewise stretch'd over the cylindrical Border thereof; and a lateral Portion of the muscular Tuberosity immediately below the Neck is also covered with a thin shining Cartilage.

All the concave Side of the Basis of the Radius is cartilaginous, and often divided by a small cartilaginous prominent Line. The

lateral Notch of the Basis is likewise covered by a Continuation of the same Cartilage.

The lateral Half-grooves or Channels of the Basis of this Bone appear likewise to be crufted over with a cartilaginous Matter; but this I rather take to be Portions of the annular Ligaments.

At the Basis of the Radius there is likewise a particular additional Cartilage, or triangular Production, longer than it is broad, very thin, and rather flat than concave on both its smooth Sides. It is fixed by its Basis, or shortest Side, to the lateral Sigmoid Notch of the Basis of the Radius, in such a manner as that one Side of it is on a Level with the large cartilaginous Surface of the Basis of the Bone, and its Apex directly opposite to the Styloide Apophysis. The other Side touches the flat Extremity of the small Head of the Ulna, but is not fixed to it.

This Cartilage may be term'd the interarticular Cartilage of the Joint of the Wrist. It is tied to the Radius by very short Ligaments; and sliding on the small Head of the Ulna, it follows all the Motions of the Radius. It is therefore a sort of articular Production of the lower Side of the Basis of the Radius, and fills in the natural State the void Space, which, in the Skeleton, appears between the End of the Ulna, and the neighbouring Bone of the Carpus.

Some of the Ligaments of the Bones of the fore Arm are common to them with the Os Humeri; some common to them with the Bones of the Hand; and some are proper. These last are two in Number; one call'd the interosseous Ligament of the fore Arm; and one which may be termed the coronary Ligament of the Radius. To these may be added the annular Ligaments, which only serve for the Passage of Tendons, and other Ligamentary Expansions, which may be called muscular Ligaments.

The interosseous Ligament of the fore Arm is very like that of the Leg. It is fixed by one Edge along the sharp Angle of the Ulna, and by the other along that of the Radius. It is principally made up of two very strong Planes of Fibres, which cross each other at oblique Angles, and leave Holes at different Distances for the Passage of the Blood-vessels.

This Ligament ties the two Bones closely together; and the two Planes serve for the Insertion of several Muscles. In the Supination of the Hand it is very tightly braced; but in Pronation it is folded a little Lengthwise.

The Coronary Ligament of the Radius is a sort of Ligamentary Hoop surrounding the circular Circumference of the Head of that Bone, reaching from one Side of the small lateral sigmoid or transverse Cavity of the Ulna to the other, in an Arch, which is about three quarters of a Circle. It is very strong, and comes near the Solidity of a Cartilage. The Side next the Radius is very smooth; and though it connects that Bone very closely to the Ulna, yet it leaves it room enough to turn in the Motions of Pronation and Supination.

The Capsular Ligament of the Joint of the Elbow runs down from its Insertion in the Os Humeri, and is fixed in the Olecranon round the Edge of the great Sigmoid Cavity, including both the Apex of the Olecranon, and of the Coronoid Apophysis. It likewise runs over the Head of the Radius, and is fixed to the Coronary Ligament quite round. Thus it completely surrounds the Articulation of these three Bones, and serves to contain the mucilaginous Liquor furnished by the Glands, and fatty Substance, both which are found in great Quantities near the Extremity of the Bone which forms the Elbow.

The true common Ligaments by which the Os Humeri is connected to the Bones of the fore Arm, call'd lateral Ligaments, are the two Fasciculi before-mentioned, which, after being inserted in the Condyles of the Os Humeri, are expanded like a Goose's Foot. That which is fixed in the inner Condyle may be call'd Brachio-cubital, and the other Brachio-radial.

The Brachio-cubital Ligament running down over the Capsula, to which it closely adheres, below the great Edge of the Trochlea of the Os Humeri, is inserted like Radii (of which its other Extremity fixed in the Condyle is the Centre) on the Side of the great Sigmoid Cavity of the Ulna. It is covered on the Outside by several Tendons which adhere closely to it, and seem to strengthen it.

The Brachio-radial Ligament is disposed much after the same manner, but is of a greater Extent. It is expanded from the external Condyle of the Os Humeri, as from a Centre; and is inserted round the Coronary Ligament, and from thence all the Way down to the Neck of the Radius; and also in the neighbouring Parts of the Ulna. Through all this Passage it covers the Capsular Ligament, and is covered by several Tendons adhering closely to both.

Of the Ligaments by which these Bones are connected to those of the Hand, one is like a roundish Cord fixed in the Styloide Apophysis of the Ulna, and from thence passes directly over the Os Cuneiforme of the Carpus, in which, and in other Bones, it is inserted in a peculiar manner. Another pretty broad Ligament is fixed in the Point of the Radius; and by its other Extremity, in the Bones of the Carpus.

From this Styloide Ligament of the Radius, along each Edge of the Basis of that Bone, are Ranks of Ligamentary Fibres lying much in the same Direction with the Ligament itself, and continued all the Way to the Styloide Ligament of the Ulna; those nearest the Ulna inclose the interarticular Cartilage of the Basis of the Radius, and near the Styloide Ligament of the Ulna there is a particular Fasciculus inserted in the Point of that Cartilage.

All these Ligaments surround and cover the Capsular Ligament so closely, that they can hardly be distinguished from it. The Capsula is likewise in part cover'd by a Portion of a great oblique Ligament, which being by a very broad Insertion fixed in the large Extremity of the Radius, about two Fingers Breadth above the Styloide Apex, afterwards crosses obliquely, partly over the convex Side of the *Basis Radii*, and partly over that of the Carpus; and then turning towards the Os Orbiculare, is inserted therein. It is called the external transverse Ligament of the Carpus; and may likewise be named the great oblique Ligament of the Wrist.

There are several small annular Ligaments placed at different Distances on the convex Side of the *Basis Radii*, from its Styloide Apex to its Articulation with the Extremity of the Ulna. They are at least six in Number, some of them being often double or triple.

The first is fixed in the Styloide Apex; the second in the Groove near that Apex; the third, in the small narrow or middle Groove; the fourth, in the Groove next the former; the fifth, in the Corner of the semilunar Notch of the Basis, at its Articulation with the Ulna; and the sixth, in the Extremity of the Ulna; near the Styloide Apophysis.

These particular Ligaments are almost wholly covered by the great oblique Ligament, and are fixed as strongly in it on one Side, as they are in the Bones on the other. They are all very strong; and their concave Sides, serving for *Fræna* to the Tendons of several Muscles that pass over them, are very smooth, and accompanied with thin mucilaginous *Vagina*.

To these we may add the Ligamentary Expansions, with which several Muscles are cover'd, and separated from each other, as by so many distinct *Septa*; which are all very thick and strong, where they are inserted in the Bones. One kind of them may be term'd Ligamentary Bands, or muscular *Vagina*, the other Ligamentary *Septa*, or intermuscular Ligaments.

All the Bones of the Carpus, Metacarpus, and Fingers, are crusted over with Cartilages at those Places, which I term'd Cartilaginous Surfaces, in the Treatise of dry Bones: but in fresh Bones they are thicker, softer, and whiter, than in the Sceleton. In adult Subjects, their Figure remains the same in both; but it changes in the dry Bones of younger Subjects, and in those of Children it is quite different. The Impressions and Notches in which the mucilaginous Glands are lodged, are most sensible in the Cartilages of fresh Bones, because of their Thickness.

The Ligaments of the Carpus are very numerous. Some of them tie each Bone to one or two neighbouring Bones in the same Rank; and these are composed of a great Number of Filaments, but so very short, as to allow these Bones only a small Degree of Motion. Some of them tie the Bones of one Row to those of the other; which are likewise made up of many Filaments, but not so short as the former, and therefore allow these Bones a more manifest Motion, as we see in bending the Wrist. Lastly, there are other Ligaments of the Carpus, by which the three first Bones of the first Row are connected to the Bones of the fore Arm; and to these may be added the Ligaments by which the Bones of the second Row are join'd to those of the Metacarpus, and first Phalanx of the Thumb.

We have already describ'd all the Ligaments belonging to the Articulation of the Carpus, with the Bones of the fore Arm, except their Insertions in the Carpus. The Styloide Ligament of the Radius is fixed round the neighbouring Tuberosity of the Os Scaphoides. The Styloide Ligament of the Ulna is fixed first in the Os Cuneiforme, and then in the Os Unciforme, from whence it is a little stretched over the fourth Bone of the Metacarpus.

The Ligamentary Ranges, which lie between the above-mention'd Ligaments, the Basis of the Radius, and a small Portion of the Head of the Ulna, are fixed round the common Convexity of the three first Carpal Bones, as is also the mucilaginous Capsula, by which these Ligaments are lined.

Besides all these small short Ligaments belonging to each Bone in both Rows, the rough Surfaces of all the Bones, especially those which form the Convexity of the Carpus, give Insertion to a great many Ligamentary *Fasciculi*, stretched over, and closely united to the former small Ligaments, and serving, probably, to strengthen them. Some *Fasciculi* of the same kind are found on the concave Side of the Carpus, but they are fewer in Number, and not so strong.

There is likewise a considerable Ligament, called the inner transverse Ligament of the Carpus. It was formerly called an

annular Ligament, and may still very justly retain that Name in the Sense already explain'd, when I spoke of the Ligaments in general.

The Bones of the Metacarpus, besides the short Ligaments by which they are tied to the second Row of the Bones of the Carpus, have several Rows, by which both their Bases and Heads are connected together. The Bases of the third and fourth Bones are not so closely tied as the rest, and therefore they have a very sensible Motion, which, however, is greater in the fourth than in the third.

The Heads of these Bones are firmly tied to each other, by a strong transverse Ligament, situated in the Palm of the Hand, and fixed by distinct Productions in the neighbouring Part of the Heads, in such a manner, as to form in the Spaces between the Heads, as it were, perforated or chanel'd *Fræna*, through which the Tendons of the Flexor Muscles of the Fingers have a free Passage, and these *Fræna* are also supported by aponeurotic Expansions.

The first Phalanx of the Thumb is fixed to the Os Trapezium by short Ligaments, which pass obliquely over the Articulation. The first Phalanges of the other four Fingers are joined to the Heads of the Metacarpal Bones, almost in the same manner, and by Ligaments like the former, which are strengthen'd by adhering to the transverse Ligament. The second Phalanx of the Thumb is joined to the first, by Ligaments of the same kind.

The third Phalanx of the Thumb is joined to the second; the second Phalanges of the other Fingers to the first, and the third to the second, by lateral Ligaments almost in the same manner as the Bones of the fore Arm to the Os Humeri; that is, these Ligaments spread from a Point fixed in the lateral Tubercles of the Heads of the Phalanges, and are inserted by their other Extremity like *Radii*, in the Bases of the neighbouring Phalanges.

The two first Phalanges of each Finger have a very strong Ligamentary *Vagina* inserted in the rough Lines or Ridges on their flat Sides. These *Vagina* are lined with a mucilaginous Membrane, which runs like a Tube, from one Phalanx to the other, over the Articulation. They serve for *Fræna* to the Flexor Muscles of the Fingers, the Tendons of which pass through them. *Winslow*.

All these Bones would be useless, and an Incumbrance, if they were not furnish'd with Muscles, in order to move them in such Directions, and for such Purposes, as the Exigencies of Mankind may require. All these Muscles are described, and their Uses are specify'd, under their proper Names. I shall therefore only, in this Place, give their Names, and some Observations of Mr. *Cowper*, relative to them.

Galen, *Jacobus Sylvius*, and *Vesalius*, describe seven Muscles belonging to each Arm, that is, the

PECTORALIS.

DELTOIDES.

TERES MAJOR.

LATISSIMUS DORSI.

SUPRASPINATUS.

INFRASPINATUS, and

SUBSCAPULARIS.

Arantius, in his Anatomical Observations, counts another, by *Riolanus* called,

CORACOBRACHIÆUS.

To which *Julius Casserius Placentinus* adds the

TERES MINOR

By some reckoned as the eighth Muscle of this Part, which is therefore called OCTAVUS HUMERI PLACENTINI.

The MUSCLES of the CUBIT.

The lower Part of the Arm, from the Elbow to the Wrist, is called the Cubit, which is either bended or extended by five Muscles, which are the

BICEPS.

BRACHIÆUS INTERNUS.

GEMELLUS.

BRACHIÆUS EXTERNUS, and

ANCONÆUS.

Of the MUSCLES of the PALM of the HAND.

The antient Anatomists mention but one Muscle belonging to the Palm, which is the PALMARIS LONGUS.

But *Fallopian* describes the PALMARIS BREVIS, communicated to him by *Joannes Baptista Cananus*, an eminent Anatomist, his Contemporary, and was first published by *Valverda*, in his Anatomy written in *Spanish*.

The MUSCLES of the FOUR FINGERS.

The Muscles of the four Fingers are divided into common and proper. The common Muscles of the Fingers are such as arise

arise from the external or internal Protuberances of the *O. Humeri*, and, subdividing themselves, are inserted into most, if not all the Fingers; they are the

PERFORATUS.
PERFORANS.
LUMBRICALES, and
EXTENSOR COMMUNIS DIGITORUM.

The proper Muscles of the Fingers are such as have their Beginnings distinct, and are inserted, without any Subdivision, into each respective Finger; as the

INTEROSSEI.
EXTENSOR INDICIS.
ABDUCTOR INDICIS.
EXTENSOR MINIMI DIGITI.
ABDUCTOR MINIMI DIGITI.

Of the MUSCLES of the THUMB.

Authors disagree concerning the Number, Rise, and Insertions of the Muscles of the Thumb; which may partly proceed from that great Variety, which may be so frequently observed in divers Subjects: They are the

FLEXOR TERTII INTERNODII, SEU LONGISSIMUS POLLICIS.
ABDUCTOR POLLICIS.
FLEXOR PRIMI ET SECUNDI OSSIS POLLICIS.
ADDUCTOR POLLICIS.
EXTENSOR PRIMI INTERNODII POLLICIS.
EXTENSOR SECUNDI INTERNODII OSSIS POLLICIS.
EXTENSOR TERTII INTERNODII OSSIS POLLICIS.

Of the MUSCLES of the WRIST or CARPUS.

These are generally well described by most Authors, and receive their Names from their Situation and Use.

FLEXOR CARPI RADIALIS.
FLEXOR CARPI ULNARIS.
EXTENSOR CARPI RADIALIS.
EXTENSOR CARPI ULNARIS.

Of the MUSCLES of the RADIUS.

The Radius is moved in common with the Ulna, or Cubitus; but besides that, it hath also a proper Motion, in which the Carpus, together with the Hand, is chiefly moved, or turned either upwards or downwards: And to this End there are two sorts of Muscles; of which some are called *Pronatores*, or those that turn it inwards, and the Palm of the Hand downwards; and others *Supinatores*, which turn it outwards, and the Palm of the Hand upwards. These have their Names from their Figure and Use, and are,

PRONATOR RADII TERES.
PRONATOR RADII QUADRATUS.
SUPINATOR RADII LONGUS.
SUPINATOR RADII BREVIS.

For the Blood-vessels of the superior Extremities, see *ARTERIE*, and *VENÆ*. And for the Nerves, see *NERVI*.

BRACHUNA. The same as *ACRAI*, which see.

BRACHYCEPHALI, *βραχυκεφαλοι*, from *βραχυς*, short, and *κεφαλη*, a Head. A kind of Fish, condemn'd by *Oribasius*, *Med. Coll. Lib. 2. cap. 58.* as of bad Juice, and a rank Smell.

BRACHYCHRONIUS, *βραχυχρονης*, from *βραχυς*, short, and *χρονος*, Time. An Epithet of a Disease which continues but a short Time. *Galen. Def. Medicæ.*

BRACHYLOGIA, *βραχυλογία*, from *βραχυς*, short, and *λογος*, a Word or Sentence. A short Sentence, such as the Aphorisms of *Hippocrates*.

BRACHYPNŒA, *βραχυπνοια*, from *βραχυς*, short, and *πνέω*, to breathe; most frequently signifies a short and small Respiration, and one fetch'd by long Intervals, according to *Galen*, *Lib. 3. de Diff. Resp. Cap. 8.* So *βραχυπνοος* is one who draws his Breath small and rare, that is, by long Intervals, from an universal Refrigeration of the Body, and Extinction of the natural Heat, *Lib. 3. Epidem. Ægr. 1. & 15.* But, *Lib. 1. Epid. and Lib. 6. Epid. Sect. 2. Aph. 9.* *βραχυπνοος* is a short Respiration at small Intervals, or small and frequent, and is oppos'd to *μακρόπνοος*. *Galen, Lib. 3. de Diff. Resp. Cap. 11. Foesius.*

BRACHYPOTÆ, or BRACHYPOTI, *βραχυποται* ή *βραχυποτοι*, from *βραχυς*, short, small, and *πότης*, Drink. Little Drinkers. Persons in a Phrensy are said, *Lib. 1. Prorrhætic.* to be *βραχυποται*, that is, to drink little and seldom. The same in *Galen, Com. 3. in 3. Epid.* are call'd *βραχυποται*, which he explains to be *οσοι εβραχυ εδιδ πολλη πινεσιν*, "such as "drink little at a time, and at long Intervals."

Some have erroneously imagin'd, that by this Word *Hippocrates* means to express the Dread of Fluids, with which People under a Hydrophobia are seiz'd. But it is plain, that he only

means a Symptom very common in Fevers of the worst kind; and which is necessarily bad, because it prevents the Patient from taking sufficient Quantities of diluting Liquors; which are of great Importance in the Cure of acute Diseases:

It seems not unlikely, that this Disgust at Fluids may arise from a Dryness, and consequent Closure of the Mouths of the lacteal Vessels, which prevents Liquors from entering into them: Hence Liquors swallow'd are a Burden in the intestinal Tube; and consequently are nauseated:

Upon this Subject, I remember a pretty Observation of a Physician of Reputation, communicated to me; which was; that he attended a Patient in a Fever, whom he imagin'd plentiful Diluting would relieve; but could not prevail on him to take any Fluids, 'till, at last, he offer'd him some Oil of sweet Almonds, which he took with Pleasure, and would not be easy without taking it in large Quantities 'till he recover'd. If we consider the Lacteals, in this Case, as obstructed by extreme Dryness, and, at the same time, reflect upon the relaxing Nature of Oils, we may readily conceive why Oils should be agreeable to this Patient, whilst he could bear to drink nothing else:

BRACHYS. See *BREVIS*.

BRACIUM. Copper. *Rulandus*:

BRACTEA, *ελασμα*, *ελασμός*, *πτερον*. The same as *Lamina*, a Plate, or thin Piece of Metal. *Rulandus*:

BRADYPEPSIA, *βραδυπεψια*, from *βραδύς*, slow, and *πέψω*, to concoct. A slow, weak, and imperfect Concoction of Food. *Gal. de Diff. Sympt. Cap. 4*:

BRADYS, *βραδύς*, slow. See *TARDUS*.

BRANCA, an Italian Word, signifying Foot. Hence the *Acanthus* is call'd *Branca ursina*, that is, *Bear's-foot*, from the Resemblance of its Leaves to the fore Feet of a Bear. *Blancard*:

BRANCA LEONIS, or PES LEONIS. The same as *ALCHIMILLA*, which see.

BRANCA URSINA, *Germanica*. See *SPHONDYLIVM*.

BRANCHUS, *βραγχος*, *τὸ*, a Diffusion of Humours upon the Fauces, being a Species of Catarrh, call'd by *Cælius Aurelianus*, *Lib. 2. Tard. Pass. cap. 7*: *Rauitas*, a Hoarseness: Hence, *Lib. 1. Epid. βραγχώδεις φωναι*, and *βραγχώδης ἀλσάδα*, *Lib. de Aer. Loc. et Aqu.* are Waters which very much dispose to a Hoarseness. *Foesius*.

BRANCHI, or BRANCHÆ, is also a Name for those glandulous Tumors in the Fauces, which resemble two Almonds, and are accompany'd with a Difficulty of Spitting, and a troublesome Respiration. *Castellus*.

BRANCIA. Glass. *Rulandus*:

BRANTA, or BERNICLA. A kind of Goose in *England* and *Scotland*, which has been the Subject of many fabulous Stories; as that it grows on Trees, and hangs on the Trunk or Branches; or is generated of rotten Wood: It is described by *Aldrov. Ornith. Lib. 19. Cap. 23*. Its Flesh is more unfavoury and rank, than of the common Goose, but is esteem'd a Delicacy in the inland Parts of *Scotland*.

BRASE. Coals. *Rulandus*:

BRASILIA, Offic. *Arbor Brasilia*; *Raii Hist. 2. 1736*. *Park. Theat. 1644*. *Brasiliun lignum*, *J. B. 1: 490*: *Brasiliun lignum*, *Chab. 37*: *Lignum Brasilianum*, *Geoff. Tract. 310. Mont. Exot. 8*. *Pseudosantalum rubrum*, sive *Arbor Brasilia*, *C. B. Pin. 393*: *Ibirapitanga sive Lignum rubrum*, *Pison. (Ed. 1658.) 164*: *Ibirapitanga Brasiliensis*, *Marcg. 101*: *Crista pavonis Coronilla folio tertia*, sive *Tinctoria maxima Brasiliensis*, *flore variegato parvo odoratissimo*, *siliquâ aculeatâ*, *lignum Brasiliun dictum ferens*, *Breyn. Prod. 2. 37*. *Ethythoxylum Brasiliun spinosum*, *foliis Acaciæ*, *Herm. Par. Bat. Prod. 333*: *BRASIL WOOD*. *Dale*.

This is the Wood of a Tree call'd *Pseudosantalum rubrum Brasiliæ*, *C. B. P.* It is used by Dyers in dying Red, as the yellow *Brasil Wood* is for that Colour. *Geoffroy*.

It is cold and dry, mitigates the Heat of Fevers, and is a Refrigerant and Strengtheners, like the Wood of *Sanders*. *Dale*.

BRASIUM. The same as *BYNE*, which see.

BRASMA, *βεγσμα*, in *Dioscorides*, *Cap. 189. Lib. 2*: is a light empty sort of black Pepper, which is good for nothing; *John Bauhine* assures us, that it is the same with what is now observed to corrupt on the Plant, and never come to Maturity.

BRASMOS, *βεγμός*. The same as *ζύμωσις*, "Fermentation;" for which a very ancient Greek Author, *Pharnuthus*, is quoted. It is also call'd *Ecbasmus*, *εκαβεγμός*. *Castellus*.

BRASSATELLA, *Brassadella*. The same as *OPHIOGLOSSUM*, or *Adder's Tongue*. *Rulandus*:

BRASSICA. A Cabbage. A celebrated Plant among the Antients, and much in Use among the Moderns.

The Garden Cabbage is agreeable to the Stomach, if it be eaten slightly boil'd; for, after thorough Boiling, it binds the Belly; and much more, if it be twice boil'd, or boil'd in a Lixivium. The Summer Cabbage is more acrimonious and hurtful to the Stomach. What grows in *Egypt* is not eatable, because of its Bitterness.

Cabbage, in Food, is good for Dulness of Sight and Tremblings: Eaten after Meals, it prevents the mischievous Consequences of Surfeiting and Drunkenness. The tender Shoots are most agreeable to the Stomach, but fuller of Acrimony, and more diuretic; but, being put in Pickle, are hurtful to the Stomach, and disturb the Belly. The Juice of raw Cabbage, taken with Iris and Nitre, mollifies the Belly; and, drank in Wine, is good against the Bite of a Viper. Mix'd with the Meal of Fenugreek and Vinegar, it helps the Gout in the Feet and Joints; and is effectually apply'd to old and foul Ulcers. Infused by itself into the Nostrils, it purges the Head; and, made into a Pessary with Meal of Darnel, provokes the Catamenia. A Cataplasm of the Leaves, either alone or bruised with Polenta, is effectual against all kinds of Inflammations, cedematous Swellings, and Erysipelas; and cures the Epinyctides and Lepra. The Leaves, applied with Salt, cause a Carbuncle to break, and restrain the Falling-off of the Hairs of the Head. The same boil'd, and mix'd with Honey, stop the Progress of a Gangrene; and, eaten raw with Vinegar, relieve those who labour under splenetic Disorders: Chew'd in the Mouth, so as that the Juice be swallow'd, they restore a lost Voice. A Decoction of Cabbage, drank, loosens the Belly, and provokes the Menfes. The Flowers, used in a Pessary after Child-birth, prevent Conception. The Seed, especially what grows in Egypt, being drank, expels Worms; and is an Ingredient in theriacal Antidotes. It also clears the Face of Freckles. The green Stalks, burnt, with the Roots, and then mix'd up with old Swine's Fat, and applied, mitigate inveterate Pains of the Sides. *Discorides, Lib. 2. Cap. 146.*

Wild Cabbage grows, for the most part, in craggy Places, and by the Sea-side. It is like the Garden Kind, only whiter, more hairy, and bitter. The tender Buds, boil'd, in a Lixivium, are not unfavourable to the Palate.

A Cataplasm of the Leaves conglutinates Wounds, and dissolves cedematous Tumors and Inflammations. *Idem, Cap. 147.*

It would require a long Time to speak all that has been said in Praise of Cabbage. *Chrysippus* the Physician wrote a Volume on this Subject; which he digested under general Heads and Sections, according to the different Parts of the human Body; and *Diaches* has written another: But, before them all, *Pythagoras* and *Cato* were no less liberal of their Encomiums on Cabbage. The Opinion of *Cato* concerning its Virtues deserves to be fully represented; and the rather, that we may know what sort of Phylic the Roman People used for six hundred Years together.

The most antient *Greeks* made three Species of Cabbage: As, first, the curled, which they call'd *Selinas*, from the Resemblance of its Leaves to those of Apium. This Kind is friendly to the Stomach, and gently mollifies the Belly. Another Species was the smooth, shooting forth broad Leaves from its Stalk, whence it was call'd by some *Caulodes*: It was of no Use in Medicine. The third was properly call'd *Crambe*, which produced thinner Leaves, plain, and growing very thick together: This is of a bitter Taste, but of great Virtues. *Cato* most approves of the curled; next to which he prefers the smooth, with the large Leaves, and great Stalk.

He tells us, that it is effectual for Pains of the Head, Dimness of Sight, and Scintillations of the Eyes; for the Spleen, Stomach, and Præcordia, if it be taken in the Morning raw, in Vinegar and Honey, mix'd up with Coriander, Rue, Mint, and the Root of Lafer, to the Quantity of a Quarter of a Pint: That there is so great a Virtue in this Medicine, that the very Person who bruises the Ingredients will feel an Increase of Strength. It may be supp'd after it is bruised with these Simples, or taken out of the Liquor and eaten. Mix'd with Rue, Coriander, a little Salt, and Barley-meal, it makes a Cataplasm for the Gout. A Decoction of it in Water wonderfully helps the Nerves and Joints; and is an effectual Fomentation for Wounds, whether recent or old; and even for a Carcinoma, which can be cured by no other Medicine. He first orders the Part to be fomented with the warm Decoction, and the Herb to be bruised and applied twice in a Day; and by the same Method are hollow Fistulas incarn'd, and Tumors discuss'd. Boil'd Cabbage, plentifully eaten fasting, with Oil and Salt, relieves under Want of Sleep: Twice boil'd, and eaten with Oil, Salt, Cumin, and Polenta, it eases the Gripes; if eaten without Bread, it will have the more Effect. Among other Virtues, drank in black Wine, it purges Bile. The very Urine of one that usually eats Cabbage, being kept a while, and heated, is a Remedy for the Nerves. I will express the Author's Mind in his own Words, which are as follow: "If you wash little Boys with that Urine, they will never grow weak." He also advises the Juice of Cabbage, in Wine, to be infill'd warm into the Ears, and assures it to be good for Dulness of Hearing; and says, moreover, that it cures the Impetigo without ulcerating the Parts. So far *Cato*, for whose sake it is fit that I should subjoin the Opinions of the *Greeks*, which I shall do only in those Things which he has omitted. They hold it, if par-

boil'd, to be a Cholagogue, and to loosen the Belly; but, after two Boilings, to be binding: That it resists Wine, as being an Enemy to Vines: That taken first at Meals, it prevents Drunkenness; if last, Surfeits: That, eaten as Food, it conduces much to Clearness of Sight; but is much more effectual, if only the Corners of the Eyes be touch'd with the raw Juice, mix'd with Attic Honey: That it is a Food of very easy Concoction, and cleanses and quickens the Senses. The Disciples of *Erasistratus*, with one Voice, assert, that there is nothing more beneficial to the Stomach and Nerves, and prescribe it in Palies, and Tremblings, and Spitting of Blood. *Hippocrates* orders it, after two Boilings, with Salt, to be given to those who labour under the Colic or Dysentery. He judges it also to be good in the Tenesmus and Affections of the Kidneys, and to procure Plenty of Milk to Women in Child-bed who eat it, and to provoke the Menfes. The Stalks, eaten raw, expel the dead Fœtus. *Apollodorus* advises the Drinking of the Seed or Juice, against the Poison of Mushrooms [*Fungi*]. *Philisius* recommends the Juice in Goats Milk, with Salt and Honey, for the *Opisthotonici*. I find also, that some have been freed from the Gout by eating it, and drinking the Decoction; and it is prescribed for the Cardiac Passion, and the Epilepsy; and also for Disorders of the Spleen, in White-wine, for forty Days. The raw Juice of the Root is order'd to be gargarized, and drank, for the Jaundice, and in a Phrensy. For the Hiccough it is prescribed to be drank in Vinegar, with Coriander, Dill, Honey, and Pepper; and Inflammations of the Stomach have been relieved by anointing it with the same. The Decoction only, with Barley-meal, or the Juice in Vinegar, or with Fenugreek, heal the Bites of Serpents, and old fordid Ulcers. Some apply it to the Joints affected with the Gout; and an Application thereof cures also the Epinyctides, or any other spreading cutaneous Affection; also a sudden Dimness [*Caligines*], which it also helps, if eaten with Vinegar. The simple Juice takes off the livid Marks of Blows in the Face, or any other Part, if it is anointed therewith: The same, with round Alum and Vinegar, cures the Lepra and Psora; it prevents also the Falling-off of the Hair. *Epicharmus* asserts, that an Application of it is very effectual in Diseases of the Pudenda; and that its Virtue is increased by mixing it with Bean-meal. Mix'd with Rue, it cures Convulsions; and, taken with the Seeds of Rue, it allays the Heat of burning Fevers, helps Disorders of the Stomach, and expels the After-birth. The Powder of the dried Leaves cures the Bites of the Shrew-mouse.

Of all the sorts of Cabbage, the sweetest are the *Cymæ* (young Sprouts, after the first Cutting); tho' they are of no Use in Medicine, are difficult of Concoction, and noxious to the Kidneys. We ought also to take Notice, that the Liquor of boil'd Cabbage, so much commended for its manifold Usefulness, stinks when pour'd upon the Ground. The Ashes of burnt Cabbage-stalks are reckon'd among Caustics; and, mix'd with very old Fat, help the Sciatica. With Lafer and Vinegar they serve as a Psilothrum, to prevent the Growth of Hairs after they have been pull'd out. Drank in heated Oil, or in Water wherein they alone have been boil'd, they are effectual in Convulsions, inward Ruptures, and Bruises by Falls.

Are there, then, no ill Properties belonging to Cabbage? Yes, these same Authors acknowledge, that it gives a Person a rank Breath, is hurtful to the Teeth and Gums; and in Egypt they will not eat it, on account of its Bitterness.

Cato is very diffuse in his Praises of the wild Cabbage, and affirms, that the Powder of the dried Plant, made into an Er-rhine, or the Smell of it alone, taken up the Nostrils, cures all Defects, and amends the ill Scent therein. Some call this the Rock Cabbage, and say, that it is a great Enemy to Wine, that the Vine avoids it above all things, and, if it cannot get rid of it, dies. It has two small round smooth Leaves, and is much like the Garden Colewort, but whiter and more hairy. *Chrysippus* recommends it for Inflammations, and melancholy Disorders; also for recent Wounds, being applied with Honey, and not taken off before the seventh Day: For strumous Swellings and Fistulas, he orders it to be bruised in Water. Others affirm, that it checks the Progress of spreading Ulcers, which they call *Nomæ*; consumes Excrescences, and smooths the Skin from Seams and Scars; that being chew'd, or the Decoction of it gargariz'd with Honey, it heals Ulcers of the Mouth, and Affections of the Tonsils; and that three Parts of it, mix'd with two Parts of Alum, in strong Vinegar, cure the Psora, and inveterate Lepra, if anointed therewith. *Epicharmus* will have the Application of it a sufficient Cure for the Bite of a mad Dog; but it is more effectual with Lafer and strong Vinegar. It is also said to kill Dogs, if given to them in Fleth. The Seed, roasted, is a Remedy against the Venom of Serpents, and the poisonous Effects of Mushrooms, and Bulls Blood. The boil'd Leaves are given in Food for Disorders of the Spleen; and are applied crude, with Sulphur and Nitre, by way of Cataplasm, to the affected Part, with good Success; as also to a Hardness of the Breasts. The Ashes of the Root cure a Swelling of the Uvula, by touching it; and, made into a Litus, with Honey,

Honey, repels the Parotides, and heal the Bites of Serpents. We shall here add one great and wonderful Argument for the Virtues of Cabbage, which is, That if all your Vessels, used for Boiling, have contracted a Crust or Foulness on the Inside, to such a Degree, that you know not how to remove it, Cabbage boil'd in your Vessels shall effectually scour it off, and leave them clean.

The Lapsana is a Species of wild Cabbage, a Foot high, with hairy Leaves, and very much resembling the Napus, but that it has a whiter Flower. It is eaten in Food, and gently mollifies the Belly.

The Sea Cabbage purges with more Violence than any of the rest: It is dress'd with fat Flesh-meats on account of its Acrimony, and is very offensive to the Stomach. *Pliny, Lib. 20. Cap. 9.*

Cabbage twice boil'd, if it be eaten, binds the Belly; but Cabbage once, and not much, boil'd, and then taken in Oil, Garum, or Salt, is rather loosening than binding; and the Juice thereof is also more purgative than that of Lentils: But the *Brassica marina*, or Sea Cabbage, is more manifestly of a purging Quality, which may be known by its saltish and bitter Taste. *P. Aeginet. Lib. 1. Cap. 74.*

Cabbage is of a drying Quality, whether eaten or outwardly applied, without any manifest Acrimony; for which Reason it conglutinates Wounds, and cures malignant Ulcers, and Tumors which are difficult to be discuss'd. It has also somewhat of a deterfivè Property, by which it heals the Lepra. The Seed, especially what grows in Egypt, being drank, destroys Worms. The Ashes of the burnt Stalks are a Caustic; and, mix'd with Fat, are effectual in removing an inveterate Pain in the Sides. The wild Cabbage is stronger than the Garden Kind upon all Accounts, and is therefore not to be taken inwardly without Injury. *Idem, Lib. 7. Cap. 3.*

The Juice of Cabbage has somewhat of a purgative Quality, tho', according to the common Notion of Dryers, it should rather bind, than dispose to Excretion. Cabbage is, indeed, as much a Dryer as Lentils, and therefore dulls the Sight, except the Eye be preternaturally moist. However, it is not so wholesome a Green as Lettuce, but contains a bad and stinking Juice. *Oribasius, Med. Coll. Lib. 2. Cap. 5.*

The same Author recommends a Decoction of the Root of Cabbage as a Diuretic and Emmenagogue. *Synops. Lib. 1. Cap. 22.*

A Way of preparing CABBAGE, quoted by Oribasius, from Mnesitheus Cyzicinus.

Cut up a Cabbage with a very sharp Knife; then wash it, and throw away the Water. After this, pound the same with a sufficient Quantity of Rue and Coriander; then sprinkle it well with Oxy-mel, and throw over it some fine Scrapings of Silphium.

Half a Quarter of a Pint of this Medicine, being taken, will suffer no Collection of noxious Matters in the Body, and expels them, if already gather'd. Besides, it helps Dimness of Sight, Shortness of Breath, and all manner of Disorders in the Region of the Diaphragm and Hypochondria, opens Obstructions of the Spleen, and extenuates that Part, when increased to an enormous Size; and is wonderfully effectual in Disorders proceeding from the Atra Bilis, by purging the Veins. In Diseases of the Joints, there is nothing of such Efficacy as this Preparation of Cabbage, taken in the Morning fasting.

For the Gripes it is prepared in the following manner:

Let the Cabbage be first macerated in Plenty of Water; then put into hot Water, and boil'd till it be much wasted. This done, the Water must be all thrown away, and Oil put to it: Let them boil together, and then be put into a Vessel. It is to be eaten alone cold, or with other Food, not once only, but every Day in the Morning, for many Days together; but not much of it must be taken at a time, lest it should do more Harm than Good. *Oribasius, Med. Coll. Lib. 4. Cap. 4.*

Simeon Sethi, an Author amongst the lower Greeks, and who lived about the Year 1070. writes thus of Cabbage.

Cabbage generates depraved and melancholic Juices, weakens the Sight, and interrupts Sleep with frightful and disagreeable Dreams. Its Juice is purgative, but the Substance of the Cabbage itself is binding; for which Reason, when we intend to stop Diarrheas, we pour out the Water in which the Cabbage has boil'd for some time, and add fresh Water to it immediately; and, after it has been thus boil'd, it is to be used without being exposed to the Air, or put in cold Water to cool it. Its Juice is more prejudicial in the Summer than in the Winter-time. It provokes Urine, kills Worms, and removes the bad Consequences arising from a Surfeit of Wine. It is said to render the Sight of sound Eyes dim; and, on the other hand,

VOL. I.

to remove that Species of Dimness which arises from a superfluous Humidity. It loses much of its noxious and hurtful Quality, by being boil'd with fat Flesh. Its Seeds, applied to the genital Parts, by a certain peculiar occult Quality, corrupt the seminal Juices, and hinder Women from conceiving; they are also prejudicial to the Lungs: It is reported, that Cabbage is, of all other Foods, the most proper for preventing Intoxication by Liquors; and that its Juice, exhibited in Honey, wonderfully restores the Voice when lost or disorder'd. If applied to Wounds, it conglutinates them; and cures malignant Ulcers, and scirrhous Inflammations. *Simeon Sethi.*

From these Observations of the Antients it is obvious, that in Cabbage we are to consider two kinds of Substances, on which the different Effects produced by it depend: The one is a solid and terrestrial Principle, from which it derives its drying, astringent, and obstructing Qualities, and its Tendency to generate depraved and melancholic Juices. The other is its Juice, to which its abstergent, opening, and deobstruent Virtues are to be ascribed. This Doctrine is also inculcated by the *Schola Salernitana*, C. 57. in these Words:

Jus Caulis solvit, cujus Substantia stringit.

But as the Sentiments of Dr. Hoffman will, in all Probability, be of greater Weight with the present Age, I shall here give his Opinion of Cabbage, in a Translation of his own Words.

Common red Cabbage, says he, is evidently possess'd of a medicinal Quality; and abounds with a Juice, which, by its nitrous, sweet, emollient, laxative, aperitive, attenuating, and stimulating Qualities, promotes those Excretions which are absolutely necessary to the Preservation of Health. For this Reason it is not only a Preservative against Diseases, especially of the chronical Kind, but also contributes very considerably to their Cure. *Bartholine*, in *Lib. de Medicina Danorum Domest. Dissert. 1.* extols Cabbage in these Words: "The common Cabbage of the Country-people is justly preferable to other Pot-herbs, since, both raw and boil'd, it is possess'd of such salutary Qualities, as to prevent Occasions for the Medicines used in the Shops. For this Reason, when a certain foreign Physician came into Denmark with a Design to settle, and saw the Gardens of the Country-people so well stock'd with Cabbage, he, with good Reason, prognosticated small Encouragement for himself in that Part of the World. It keeps the Belly in an easy and soluble State, and a Decoction of the Tops of its tender Shoots discharges such an incredible Quantity of Bile and Phlegm, that no Medicine proves a quicker, a safer, or a more efficacious Purge, Hellebore and Scammony not excepted." In the Shoots of the common red Cabbage, cut longitudinally, when the Autumn is pretty far advanced, there is a Juice whose Taste resembles that of Honey or Manna, which flows from them when laid in a cool Place for some time, and which I have often experienced to be of a purgative Quality. It is a bad Method of preparing Cabbage, first to boil it for some time, and pour out the Water; and then to boil it again with fresh Water; since, by this means, its salutary and medicinal Juice is in a great measure lost. For this very Reason I cannot help commending the Method of preparing it used by the Inhabitants of *Westphalia*, and the Duchy of *Brunswick*; for they do not throw away the Broth, which is impregnated with the more noble and salutary Virtues of the Plant; but, adding Salt and Fat to it, prepare it in such a manner, as that it becomes not only agreeable to the Taste, but wholesome and salutary to the Constitution. Of the Tops of red Cabbage, Water-cresses, Ground-ivy, Spinage, Asparagus, Succory-root, and Dead-nettle, boil'd in Beef or Capon Broth, a Food is prepared, far preferable to all other Medicines in pthysical and scorbutical Disorders. *Hoffman de Præstantia Medic. Domest.*

The Juice of Cabbage is of such a Nature as not only to afford a sufficient Supply of Nourishment to the Body, but also to correct the acrid Salts of the Juices, allay the Acrimony of the Blood, cleanse the Intestines, and scour the Kidneys. For this Reason, Cabbage is highly salutary in Disorders of the Breast, if baked in a close Vessel in an Oven, adding Sugar or Honey to it, after it is taken out; for by this means it will, in the Space of half an Hour, become a Jelly, or thick Juice, which, used as a Lambative, is of singular Efficacy in dry Coughs, excoriated Fauces in old Men, and Cases where a purulent Matter is expectorated. A Decoction of Cabbage, with an Addition of Raisins, is used by Preachers and Pleaders in Hoarseness, and Defects of Voice, arising from too long Speaking. Its Juice, used for ordinary Drink, proves an excellent Remedy for the Scurvy; and this was, in all Probability, the Reason why the foreign Physician, mention'd by *Bartholine*, promised himself so poor Encouragement in Denmark, where the Scurvy is endemial, when he saw their Gardens so well stored with this Plant. The *Italians* put the young Tops of the *Brassica fimbriata*, or Boor-cole, into their Sallads, in order to render the Body soluble, and provoke Urine. *Kapigijs* gives

as an Account of a dropical Patient, who, after despairing of Relief from the Physicians, was at last happily cured by a Quack, by means of Cabbage infused in Wine, with proper Correctors. The Plant itself, a little boil'd, with an Addition of Lemon-juice, and new Butter, is an excellent Remedy in phthical and hectic Disorders. The red Cabbage is preferable to the white, in Cases where the Body is afflicted with Ulcers, since, in such Constitutions, the white soon assumes a putrid Quality, and becomes fetid. I am of Opinion, that the moderate Use of it may, in some Cases, produce salutary Effects; but can't persuade myself to believe, that large Quantities of it, frequently taken, supply the Body with laudable nutritious Juices. Where Urine is to be provoked, or the Body render'd soluble, it, by its stimulating Muriatic Acid, proves effectual, with such as are not accusom'd to take Physic. Many People, especially in Poland, use pickled Cabbage for dissipating the Remains of a Debauch, which Intention they find it answers very well. Besides, it has been observed, that the Pickle of Cabbage plentifully drank, by the Country-people, has removed continued Fevers, cured Dropsies, and carried off the most obstinate Tertian Agues. When the Peasants of Croatia are seiz'd with Fevers, they successfully apply Cataplasms of pickled Cabbage to their Foreheads. The Pickle of Cabbage is said to be very effectual in Burns, Gangrenes, and the Beginnings of Inflammations in the Fauces, where the Intention is to refrigerate and repel, especially with an Addition of Lemon-juice. Nor is unpickled Cabbage less useful for various external Purposes, since it refrigerates, repels, opens, and deterges. Thus 'tis usual, after Vesicatories are taken off, to apply the Leaves of white Cabbage, anointed with Butter; but they ought to be removed every two Hours. According to *Etmuller*, they may also be very properly laid upon Issues, in order to carry on the Discharge of the Matter, and prevent Consolidation. Nurses also apply the Leaves of Cabbage to their Breasts, in order to prevent Coagulations of their Milk, and hinder it from being accumulated in too large a Quantity. Some apply them to Abscesses of the Breast, in order to prevent Inflammations, and promote the Consolidation of the Ulcer. The Country-people, in order to cleanse Wounds and Ulcers, either pour the Juice of Cabbage into them, or lay its Leaves bruised to them. Some use red Cabbage-leaves, after having stripp'd off the outer Skin and Ridges, by way of Plaister, in inflamed Wounds, and itchy Ulcers. The Leaves, anointed with Rape-oil, are, in pestilential Disorders, very successfully applied for the Maturation of Ulcers and Carbuncles. *Diemerb. de Peste*. The Leaves, boil'd up into a Cataplasma, with Butter, maturate and break Impostumations. It is said, that when the Achors of Children are repel'd, the Leaves of the *Brassica Capitata*, applied to them, never fail to make the Discharge of the Matter return. *Simon Pauli* tells us, that he himself knew a certain Girl, who, in the Space of fourteen Days, had an incredible Number of Warts taken off one of her Hands, by anointing them with the Juice of Cabbage, which she allow'd to dry on them. In feverish Heats the Leaves are applied to the Soles of the Feet, with Salt, instead of Vesicatories. *Etmuller* informs us, that an antipleuritic Ointment is prepar'd of the Root of Cabbage, mix'd with Clove-gilly-flowers and Honey. *Bartholæus* gives Directions with regard to the Method of using it in Pleurifies, and affirms, that he has known many restored by its means, without the Concurrence of Venesection. Others make it thus:

Take fresh Hogs-lard, and Cabbage-juice, each two Ounces; and of Cummin-seed, three Drams. Mix up into the Form of an Ointment, to be applied to the Part affected. *ETMULLER*.

The Efficacy of Cabbage, so much extol'd by the Antients in arthritic Pains, was happily experienced by a certain strolling Quack in Holland, by whose Prescriptions many were sensibly relieved from the most racking arthritic Pains and Swellings, in the Feet, Hands, and Knees. The Leaves of red Cabbage, for this Purpose, are to be warm'd at the Fire, and applied to the Parts affected. Some use them anointed with new May Butter. *Forest. Obs. Med. L. 29. Obs. 10.* The Seeds of the red Cabbage, and especially the black Seeds of the *Brassica Fimbriata*, are possess'd of an anthelmintic Quality; and, when bruised, with Sugar, contribute to invigorate the Organs of Speech, and render the Voice clear, strong, and sonorous. But when they are grossly pounded, boil'd in Flesh-broth, and drank with the Broth, they are said to give certain and immediate Ease in Colic Pains. When reduced to the Form of an Emulsion, with Succory-water, they are also an excellent Medicine in nephritic Pains, and scorbutic Cases: If they cannot be had, Turnep-seeds are used as a Succedaneum to them.

The *Syrupus Brassicæ rubræ*, in the *Pharmacop. Argentoratensis*, is made of the Juice of that Plant mixed up with Sugar, and is highly recommended in Disorders of the Breast, especially Coughs and Asthmas. The *Laboch de caulibus Gor-*

donii in the Pharmacop. Augustana, and *Antwerp.* is prepar'd of the Juice of red Cabbage, with Saffron, Sugar, and Honey, and is highly extol'd in Hoarseness, and in Coughs, which arise from Cold. The same Medicine is, by *Mesue*, prepar'd of the Juice of the Cabbage, with Sapa and Honey. Cabbage is a flatulent Species of Food, and of hard Digestion; for which Reason it is a good, as well as an antient Custom, to boil it with fat Flesh, that it may become tender, and easily digested, and to eat it with gross-pounded Pepper, in order to prevent Flatulencies. That Cabbage is of a hard Substance, is obvious from its being render'd more sweet and tender by Frosts, and nipping Colds; for 'tis probable, that its compressed and constricted Fibres are by the penetrating Cold so chang'd and alter'd, as to become softer when boil'd, and consequently more easily digested by the Stomach. With regard to the Method of preparing Cabbage, I shall here give the Advice of *Brayerinus*. "I must, says he, expose an Error which is no less common, than pernicious, in preparing Cabbage. Most People, in consequence of the Ignorance of the Cooks, eat it after it has been long boil'd, a Circumstance which does not a little diminish both its grateful Taste, and salutary Qualities. But I observe, that those who have a more polite and elegant Turn, order their Cabbage to be gently boil'd, put into Dishes, and season'd with Salt and Oil, by which Method they assume a beautiful green Colour, become grateful to the Taste, and proper for keeping the Body soluble. This Circumstance ought not to be forgot by those who are Lovers of Cabbage." The Antients boil'd their Cabbage with Nitre, which render'd it at once more grateful to the Palate, and more agreeable to the Eye. Hence *Martial, L. 13. Epigr. 17.* gives the following Advice.

*Ne tibi pallentes moveant fastidia caules,
Nitrata viridis Brassica fiet aqua.*

Among the Antients it seems to have been a Tradition commonly receiv'd, that Cabbage not only carried off the troublesome Consequences of a Surfeit, but also guarded against Intoxication, if eat before a Drinking-match was undertaken. For this Reason, the Egyptians were esteem'd a debauch'd and intemperate People, because they used previously to eat boil'd Cabbage, that they might indulge themselves the more freely and immoderately over the social Bowl. The Seeds of the Cabbage were also previously taken by many, with a View to prevent Intoxication. Besides, the Antipathy between the Cabbage and Vines was believ'd to be so great, that the latter yielded a poor and weak Wine, if the former happen'd to grow near them. See *Athen. L. 1. C. 25. Alex. Trallian. L. 1. C. 10. Pallad. R. R. L. 9. C. 5.* This Antipathy they accounted for, by a Fable almost too ridiculous to be mention'd. They affirm'd, that the Cabbage sprung from a Tear shed by *Lycurgus*; for, said they, when *Bacchus*, being afraid of *Lycurgus*, enter'd into the Sea, *Lycurgus* in the mean time, begirt with the pliant Branches of the Vine, dropt a Tear, from which the Cabbage rose; and ever since there was an Antipathy betwixt the Vine and the Cabbage; for, say they, when the Vine and Cabbage happen to grow near each other, the Cabbage itself either decays immediately, or causes the Twigs of the Vine to do so. They affirm'd also, that in Consequence of this Antipathy, when the Uvula or Columella was too much relaxed by a Defluxion of Humours, the Juice of raw Cabbage applied to the Head drew it back. They maintain'd in like manner, that if Cabbage and Vines were planted near each other, the springing Shoots of the Vine, when beginning to approach the Cabbage, ceased to come forth in their former Direction; but were turned backwards, as if they had been conscious of the mutual Antipathy between themselves and the Cabbage. In like manner they said, that when the least Quantity of Wine was pour'd upon Cabbage when it was boiling, it would after that become incapable of being boil'd, and have its Colour spoil'd. *Geopon. L. 12. C. 17.*

Aristotle, L. 3. Prob. 17. starts the Question, why Cabbage removes the Consequences of hard Drinking; and seems to account for it, from its sweet and discenting Juice. Whether what he advances on this Head is consonant to Philosophy, and good Sense, or not, 'tis yet certain, that aqueous Liquids possess'd of an abstergent Quality, as the Juice of Cabbage is, not only dilute the Humours of our Bodies, and allay their Fervor, but also make a Revulsion from the superior to the inferior Parts; and consequently carry off a Crapula, by freeing the Head from the offensive Matter; and that Cabbage, eaten previously to a Debauch, dilutes the spirituous Liquors drank, and blunts their Strength, so as to make them act less powerfully than they would otherwise do. But Experience convinces us, that the Efficacy of Cabbage is not so great in this respect, as entirely to prevent the Effects of immoderate Drinking.

As for the innate Antipathy between the Vine and the Cabbage, some of the Moderns have endeavour'd to account for it from the Nature of these two Plants, by saying, that they are both so fond of nutritive Juice, as greedily to suck up the Moisture of the Earth; from which it happens, that when they are planted in the Neighbourhood of each other, the one must languish and decay, because the other robs it of a sufficient Supply of Moisture. *Levin. Lemn. Mir. L. 2. C. 52. L. 4. C. 10. And Baco. H. N. Cent. 5. Exp. 479, 480.*

This Account however ingenious, labours under a terrible Disadvantage, which is, that it is contradicted by Experience, since we find, that Cabbages thrive no-where better than among young Vines, which in their Turn thrive as well as if there was no Cabbage near them. See *Eph. N. C. D. 2. a. 7. o. 64.*

The several Species of Cabbage best known, and most used, are the following.

BRASSICA SATIVA, *Caulis*, Offic. *Brassica capitata alba*, or white Cabbage Cole. Ger. 244. Emac. 312. C. B. Pin. 111. J. B. 2. 826. Chab. 268. Raii Hist. 1. 794. Tourn. Inf. 219. Elem. Bot. 188. Boerh. Ind. A. 2. 21. Hist. Oxon. 2. 206. *Brassica capitata*, Park. Theat. 268. *Brassica capitata vulgaris*, Park. Parad. 503. **WHITE CABBAGE and COLEWORTS.**

This Species of Cabbage is among the Germans most frequently used for Food; and of it they make their celebrated pickled Cabbage, called *Sauer Kraut*, of which *Gesner* says, that if *Cato* had only tasted it, he would have pray'd, *Totum ut se facerent Dii Palatum*, that the Gods would convert every Part of him into the most exquisite Organs of Taste, that he might regale himself with so delicious Food.

BRASSICA CAPITATA RUBRA, Offic. Ger. 245. Emac. 313. J. B. 2. 831. Chab. 270. C. B. Pin. 111. Raii Hist. 1. 794. Hist. Oxon. 2. 207. Park. Parad. 204. Tourn. Inf. 219. Elem. Bot. 188. Boerh. Ind. A. 2. 10. **RED CABBAGE.** *Dale.*

This Species of Cabbage is cultivated in Gardens, and its Leaves are only used, a Decoction of which, sweeten'd with a little Sugar, and drank at medicinal Hours, is an excellent Medicine for promoting a Discharge of the purulent Matter in Empyemas by Urine. *Dale* from *Etmul.*

It bears the Winter better than most others; and is for medicinal Purposes esteem'd preferable to the white; for which Reason it is used in the Preparation of Syrups and Lo-hochs.

CAULIS RUBRA, Offic. *Brassica rubra*, C. B. Pin. 111. Ger. 244. Emac. 312. Tourn. Inf. 219. *Brassica rubra vulgaris*, J. B. 2. 831. Chab. 270. Raii Hist. 1. 796. *Brassica sativa rubra aperta laevis*, Hist. Oxon. 2. 207. **RED COLEWORTS.**

This Plant is cultivated in Gardens, and its Leaves are only in Use, a Decoction of which, sweeten'd with Sugar, is a celebrated Remedy in Asthmas. *Dale* from *Riverius.*

This Species of Cabbage bears the Cold of the Winter very well. In the Kitchens 'tis principally used in the Winter Season, after it is exposed to the Frost. In the Beginning of the Spring the Tops of its Shoots are by many thought a choice Ingredient in their Sallads.

BRASSICA SABAUDA, Offic. Ger. 247. Emac. 315. Park. Parad. 504. *Brassica alba, capite longo, non penitus clausa*, C. B. Pin. 111. Tourn. Inf. 219. Elem. Bot. 188. Hist. Oxon. 2. 207. Boerh. Ind. A. 2. 11. *Brassica Italica tenerima glomerata, flore albo*, J. B. 2. 827. Chab. 268. Raii Hist. 1. 795. **SAVOY CABBAGE.**

In the Gardens of England, this Species of Cabbage is only cultivated for the Kitchen. *Dale.*

The Savoy Cabbage is very delicate and tender, for which Reason it is much sought after by those who have nice Palates, and are acquainted with its agreeable Taste.

BRASSICA FLORIDA, Offic. Park. Theat. 269. Ger. 246. Emac. 314. Raii Hist. 1. 795. *Brassica cauliflora*, C. B. Pin. 111. Hist. Oxon. 2. 208. Tourn. Inf. 219. Boerh. Ind. A. 2. 11. *Brassica multiflora*, J. B. 2. 828. Chab. 269. *Caulis florida*, Park. Parad. 505. **THE COLLIFLOWER.**

This Species of the Cabbage is cultivated in Gardens, and is much used in the Kitchen. *Dale.*

The Use of the Colliflower is well enough known to Cooks, who prepare it much after the same manner they do the other Species of Cabbage. In Conjunction with other proper Ingredients, they also add it to Pyes and Sauces, which are very agreeable both to the Sick, and to the Healthy.

BRASSICA GONGYLODES, B. *Brassica caulorapa, Rapocaulis vulgo*; and *Brassica caule rapum gerens*. The **TURNIP-CABBAGE.**

The Heart of the Stock of this Cabbage, boil'd in fat Broth, is eat in the same manner Turneps usually are.

In Egypt the Eunuchs eat this Cabbage cut into small Portions, and boil'd in fat Broth; sometimes they also use it

boiled in Water; preparing it with Oil, Salt, and Vinegar. *Prosp. Alpin.*

The Seeds of the Turnep Cabbage yield an Oil by Expression, very proper for Lamps, and for the Purposes of those concern'd in the Woolen Manufactory: After the Oil is obtain'd, what remains is allotted for Food to the Cattle.

BRASSICA FIMBRIATA, B. *Brassica tophosa*; *Brassica crispa laciniata*. The **BOOR-COLE.**

This Species, both for Food, and medicinal Uses, is not inferior to the red Cabbage.

Its Seeds are of a blackish Colour, an acid aromatic Taste, and of a Smell sufficiently grateful, tho' not strong.

BRASSICA CAMPESTRIS *perfoliata, flore albo*, C. B. P. *Perfoliata filiquosa*; Perfoliated wild Cabbage, with a white Flower.

This Species grows spontaneously in Spain, in some Parts of Austria, Provence in France, and in the Corn-fields about Marbach, in the Duchy of Wirtemberg. It flowers in the Summer, and brings its Seeds to Perfection. It is thought to be possessed of singular, if not more powerful Qualities, than the other Species of Cabbage; for which Reason it is by some called *Brassica rustica*; it is not used as Food. It is by other Authors distinguish'd by the Epithets, *Perfoliata, Napifolia*. *Bauh. Morif. Garidel. Boccler. and Clus. Hist. Morison* thinks, that it is the *Kegupn d'yeia* of *Dioscorides*, and the *Brassica Sylvestris* of the Latins, for the Virtues of which, see the Passage already quoted from *Pliny*, L. 20. C. 9. and that from *Dioscorides*, L. 2. C. 114.

BRASSICA CAMPESTRIS *perfoliata, flore purpureo*, C. B. P. or, *Perfoliata filiquosa purpurea*. Perfoliated wild Cabbage, with a purple Flower.

Its Seeds, Root, and medicinal Virtues, agree pretty much with those of the perfoliated wild Cabbage with white Flowers.

BRASSICA RADICE NAPIFORMI, C. B. P. or, *Brassica Sylvestris*, called *Napobrassica*. **TURNIP-ROOTED CABBAGE.**

This Species of Cabbage is principally cultivated in the colder Parts of Germany, in the Mountains especially, and towards Bohemia. Its Root may be eaten, and some pickle it, like the Colliflower.

BRASSICA ASPARAGODES CRISPA, *Brassica Epiphyllitis*, C. B. P. *Brassica thyrsoides*. **CURLED COLEWORT.**

This Species lasts a long time, and endures the Rigors of the Winter in England. It was by the Greeks called *Asparagodes*, from its sending forth small Shoots like Asparagus, which are prepar'd in fat Capon or Mutton Broth. *Ray.*

BRASSICA SATIVA ALBA, *vel viridis*; *vulgaris aperta laevis*; or, *Brassica vulgaris sativa*. *Brassica laevis Theophrasti, Catonis, & Plinii*, the last of whom also called it **CAULODES.**

BRASSICA ALBA CRISPA; and *Brassica Sabauda rugosa*. **WHITE CURL'D CABBAGE.**

This Species is cultivated in Gardens, but does not endure the Winter. *Morison.*

BRASSICA CAPITATA ALBA MINOR MUSCOVITICA, H. A. The **RUSSIAN CABBAGE.**

This Species was formerly in much greater Esteem than at present, since 'tis now only to be found in particular Gentlemen's Gardens, who cultivate it for their own Use, but 'tis rarely ever brought to the Market. *Miller.*

BRASSICA CAPITATA ALBA COMPRESSA, Boer. Ind. The flat-sided Cabbage.

BRASSICA capitata alba pyramidalis. The Sugar-loaf Cabbage.

BRASSICA capitata alba praecox. The early Battersea Cabbage.

BRASSICA Sabauda byberna, Lob. Ic. The white Savoy Cabbage.

BRASSICA capitata viridis Sabauda, Boer. Ind. Green Savoy Cabbage.

BRASSICA capitata virescens Italica crispa, Munt. Hist. The green Broccoli.

BRASSICA peregrina moschum olens, H. R. Par. The Musk Cabbage.

BRASSICA maritima arborea, seu procerior ramosa, Mor. Hist. Branching tree Cabbage from the Sea-coast.

BRASSICA rugosa, longioribus foliis, J. B. Brown Broccoli.

BRASSICA arvensis, C. B. P. Common Colewort.

BRASSICA Alpina perennis, Tourn. Perennial Alpine Colewort.

SOLDANELLA, *Brassica marina*, Offic. Chab. 123. *Soldanella*, Merc. Bot. 1. 72. Phyt. Brit. 115. *Soldanella marina*, SEA BINDWEED, Ger. 690. Emac. 838. Mer. Pin. 114.

SEA COLEWORT, Raii Hist. 1. 726. *Soldanella maritima minor*, C. B. Pin. 293. *Soldanella vulgaris volubilis marina*, Park. Theat. 167.

Brassica marina, sive Soldanella, J. B. 2. 160. *Convolvulus maritimus Soldanella dictus*, Raii Synop.

3. 276. *Convolvulus maritimus nostras rotundifolius*, Hist. Oxon. 2. 11. Boerh. Ind. A. 245. Tourn. Inst. 83. Elem. Bot. 73. SCOTTISH SCURVY-GRASS, or SOLDANELLA.

It is produc'd in the most sandy Parts of the Sea-coast, and flowers in June. The whole Herb is in Use, and, as it is excellently calculated for discharging Water, it contributes very much to the Cure of Dropsies and Scurvies. Dale from Schrod.

Of this Plant Miller enumerates the three following Species.

1. The *Soldanella Alpina rotundifolia*, C. B. P. Round-leav'd Soldanella of the Alps.

2. *Soldanella Alpina rotundifolia, flore niveo*, C. B. P. Round-leav'd Soldanella of the Alps, with a Snow-white Flower.

3. *Soldanella Alpina, folio minus rotundo*, C. B. P. Soldanella of the Alps, with a Leaf less round. Miller's Dictionary.

What they call the Sea Cabbage is, in all respects, different from the cultivated Kind, as producing numerous thin slender Leaves, like those of round Birthwort, each proceeding from a very red Spray, and standing upon a single Pedicle, like those of Ivy. Its Juice is white, but not copious; and tastes saltish, with a kind of Bitterness, and is of a fat Consistence.

The whole Plant is hurtful to the Stomach, and acrimonious; and, if boil'd and eaten, is extremely opening to the Belly. Some boil fat Flesh-meats with it, because of its Acrimony. Dioscorides, Lib. 2. C. 148.

The Root of Soldanella is small, white, and stringy, sending forth long weak trailing Branches, climbing on any thing it lays hold on, like the common Bindweed. The Leaves grow alternately on the Stalks, in Shape and Bigness like the lesser Celandine, set on long Foot-stalks. The Bell-fashion'd Flowers come forth at the Joints, with the Leaves in Shape like the common Bindweed, of a reddish-purple Colour. The Seed is black and corner'd, contain'd in a round Capsula. The Root, Stalk, and Leaves, afford a milky Juice.

It grows upon the Sea-beach, in many Parts of the North of England; and flowers in June.

Sea Cabbage evacuates watery Humours very powerfully, and is by some given as a good Purge in the Dropsy; but it works very ruggedly, and very much disorders the Stomach, and therefore needs good Correctives. It is given likewise in the Scurvy and Rheumatic Cases; tho' it is but seldom us'd. Miller's Bot. Off.

BRASSIDELICA Ars. A Way of curing Wounds in Paracelsus, Lib. 2. de Vita longa, cap. 14. by applying the Herb Brassidella, or *Ophioglossum*, to the Place.

BRATHU, *βραθυ*, in *Oribasius* and *Aetius*, is the Herb Savine. See SABINA.

BREGMA, *βρέγμα*, *βρέγμα*, *βρέγμα*, from *βρέχω*, to irrigate, or moisten. The middle and fore Part of the Head, situated above the Forehead, and extended on the Sides as far as the Temples, call'd by *Cael. Aurelianus*, *Tard. Pass. Lib. 1. cap. 4. Medium Testæ*. *βρέγμα* is expounded in *Hesychius* by τὸ μέσον τῆς κεφαλῆς, "the Middle of the Head;" by others the *Sinciput*. Thus *Homer, Iliad. 3. εὐρύχως ἐκπρεσ δ' ἵππε, κῆρυγας ἐν ζορίῳ ἐπὶ βρέγμαν τε καὶ ὤμους*, "he fell forward out of his magnificent Chariot into the Dust, upon the Sinciput and Shoulders." Where *Eustathius*, on this Place, writes, that the Part is call'd *βρέγμα*, because, in Infants, it is not only tender, but very humid, so that it may seem *βρέχεται*, "to be irrigated." *Hippocrates, Lib. de cap. Vul.* says, that "the thinnest and weakest Bone of all the Head is," τὸ κατὰ βρέγμα, "that at the Bregma." Again, in the same Treatise, he says, "the Brain is very tender, and quick of Sense, in Wounds which affect the Flesh and Bone," κατὰ τὸ βρέγμα, "about the Bregma;" καὶ ὁ πλεῖστος ἐνέμεται ὑπὸ τὸ βρέγμα καὶ νῆται, "and that great Part of the Brain lies under the Bregma."

BRELISIS. The Caranna (a sort of Gum). *Rulandus*.

BRENTHUS, *βρένθος*, a Species of Duck or Moor-hen, accounted delicious Food by the *Bæotians*. *Aldrovandus Ornitholog. Lib. 19.*

BREPPOS, τὸ βρέπω, whether from *τρέπω*, to nourish, by changing *τ* into *β*, or from *βρέβο* of the same Import, by a Metathesis of the Letters *ε* and *ρ*, let Philologists determine. An Infant. *Castellus*.

BREVE VAS, or *Vasa Brevia*. These are form'd by some Branches of Veins from the Coronary Veins of the Stomach, which join with the splenic Veins at the Spleen.

Thro' these Vessels the Antients thought that a melancholic Humour was convey'd from the Spleen to the Stomach, which served to vellicate the Membranes of it, and to excite Appetite. But this Fancy is refuted by the Discovery of the Circulation of the Blood, which has demonstrated, that nothing comes thro' those Vessels from the Spleen to the Stomach; but that, on the contrary, Blood is convey'd from the Stomach into the Splenic Vein, and by that to the Vena Porta. *Drake*.

BREXANTES, *βρέξαντες*. An Epithet of a kind of small green Frogs, in *Galen, Lib. 10. de San. tuend.* where he ex-

poses the Vanity of a Remedy, prepar'd of the Blood of those Frogs, for hindering the Regeneration of Hair. The Word *Brexantes* is made by an Onomatopoeia taken from the Sound of the Voice of these Animals. *Castellus*.

BREYNIA. A Plant so nam'd in Honour of Dr. *Breynius*, a learned Botanist at *Dantzick*. It has a Rose-flower, consisting of many Petals, which are placed in a circular Order, from whose Flower-cup rises the Pointal, which afterwards becomes a Fruit or Pod, which is soft and fleshy, in which are several Kidney-shap'd fleshy Seeds. There are two Species of this Plant, which are, the *Breynia* with broad Almond-leaves, and that with Leaves like those of the wild Olive. It grows very common in *Jamaica*, and several other Parts of *America*, being a Tree thirty Feet high, with a Trunk of the Bigness of a Man's Thigh. I find no medicinal Virtues ascrib'd to it. *Miller's Dict.*

BRICUMUM. The Name by which the *Gauls* call'd the Herb *Artemisia*. *Marcellus Empiricus, cap. 26.*

BRINDONES. *Indici Fructus rubentes acidi*, J. B.

In *Goa*, in the *East-Indies*, as *Garcias* relates, there is a kind of Fruit, which they call *Brindones*; it is a little reddish on the Outside, but the Inside is as red as Blood, and of a very four Taste. Sometimes the Outside is blackish, which Colour it contracts by Maturity; and the Fruit is not near so sour as the other, but altogether as red in the Inside. This Fruit is very agreeable to many Palates, but not to mine, says *Garcias*, because of its excessive Sourness. The Dyers use it, and the Rind is preserved, and transported to make Vinegar, for which Purpose it is used by some in *Portugal*. *Raii Hist. Plant.*

BRISTOL WATER. These Waters, in respect to Heat, are the fourth in Degree amongst the Waters which are esteem'd warm. Those of *Bath* are the first, *Buxton* the second, *Matlock* the third, and *Bristol* the next.

As to the Virtues of the *Bristol* Water in particular Cases, the Physicians upon the Spot are the best able to adapt them properly; but, that I may not omit some general Account of their Uses, I shall insert the subsequent Extract from Dr. *Wynner's Cyclus Metasyncriticus*.

In speaking of the Differences betwixt *Bath* Waters and those of *Bristol*, I would willingly, says he, do strict Justice to both, with the utmost Impartiality: But since they can never prove Rivals, but on the contrary, Friends, and, by reason of their Vicinity, of mutual Good to each other, there can arise no Emulation, no Competition, much less Contention. Some, indeed, have endeavour'd to raise the Repute of the one, by lessening and denying the other: But this Practice, so dishonest in itself, must fall to the Ground, after I have made it appear, that they are of Qualities and Effects altogether different; that where the one is useful, the other is improper; and that therefore they are to be us'd in different Cases.

I shall likewise observe one Caution more; that I will not, with almost all the Writers who have gone before, make each Water to cure every Disease, and thereby render either suspected of having none, when each has manifestly so many good Qualities.

Dr. *Guidot*, indeed, has made these two Waters of one Kind; and then says, *Bristol* Waters cannot do the same as the *Bath*, as being impregnated with far less Quantity of Salts than they; but drank in greater Quantities, and for a longer Time, their Effects are not unlike those of the *Bath* Waters.

Who is there, that sees not the Doctor has hereby, with great Address, render'd the *Bristol* Waters of no Use at all? For who would chuse to drink more Water, or continue sick longer, than Necessity obliges him? But this Insinuation happens to be as false, as it is artful; and, indeed, I cannot forbear applying the Character a certain great Man gives Dr. *Morton's* Performances on another Subject, to our Author: He often wants Method, Clearness, and Judgment; is tedious, without instructing; and arguing, like the other, from chimerical Principles, draws not only trifling, but absurd and wrong Conclusions.

The learned Professor *Pittairn* has laid it down as a certain Maxim, That due Secretions from the Blood, and their proper Distributions, are as necessary to the Preservation of Life, as the Circulation itself; and that the greatest Part of Diseases take their Origin from the glandular Secretions being too much increased or diminished. Whether this Doctrine will hold in acute or epidemic Diseases, the Cause of which the Antients ascrib'd to the Anger of the Gods, and the wisest of the Moderns profess themselves ignorant of, I shall not inquire: but it seems to be evident, that chronic Diseases are owing to one or other of these Causes.

The Blood is sometimes too thin, and then too great a Quantity of its serous Part is separated either by the Glands of the Skin, Guts, or Kidneys; as in colliquative Sweats, Fluxes of the Belly, and Diabetes: The Blood grown too viscous, occasions Obstructions not only in its own Canals, but in the Glands; and then the Secretions are less than they should be in a State of Health, and hence various Maladies.

Again,

Again, there is, in some Cases, too great Fulness; in others, Deficiency of Blood. Both these interrupt due Secretions.

Bath Waters, then, are beneficial, where the Secretion is diminished; *Bristol*, when too much increased. *Bath* attenuates powerfully; *Bristol* incrassates: *Bath* is spirituous, and helps Defect; *Bristol* is more cooling, and suppresses Plenitude, with its Consequences, Inflammation, and Hemorrhage.

The Medicinal Waters of *Bristol* are by no means so modern a Discovery, nor is their Use of so late a Date, as is generally imagined. Dr. *Venner*, near seventy Years ago, writes professedly of them, and recommends them internally in all the Diseases for which they are at this time so deservedly celebrated; the Diabetes excepted, which was not known 'till near thirty Years after. From the Doctor's so full a Knowledge of their Qualities, we may infer, that they must have been in Repute and Use long before. Indeed, in his Time, and some Years after, they were not so much frequented, which might have been owing intirely to their inconvenient Situation, and want of Accommodation, which have been but of late sufficiently remedied. The incomparable Dr. *Maplet*, the Ornament of his Age, in the Year 1665. confirms their Virtues in the Stone and Gravel, Ulcers of the Kidneys and Bladder; and adds their external Force in curing cancerous Ulcers, in a very short time, which the Doctor thought incurable; by washing and fomenting them therewith. And, in a Letter to the Dean of *Wells*, 1669. he says, *Ad rupem Vincentianam tibi confugiendum esse arbitror, è qua prosiliunt aquæ renibus, & vesicæ, frivæ calculosis, sive exulceratis succurrere, necnon sanguinis massam contemperare, & ab illâ segregandam Urinam lenire, & educorare aptæ natæ.*

Thus, you see, the Virtues of *Bristol Waters*, and the several Diseases in which useful, were known to the Learned long ago: But that they are at this time so universally known, so successfully administered; that they are so much frequented by Persons of all Ranks in our own Kingdom, and in such Esteem abroad, is owing to Dr. *Mead* and Dr. *Lane*, who have so established their Reputation, that it seems of an equal Period with their own.

I find myself again oblig'd to retire to my old Sanctuary, Experience; for it will be demanded, I should give an Account of the Contents and Cause of Heat in these Waters; and from thence, by an easy Hypothesis, deduce their Effects as a necessary and natural Consequence. But I had rather give the Assertions of others, than my own Conjectures, in Matters so abstruse.

Dr. *Venner* tells us, this Water receives its medicinal Faculties from Sulphur and Nitre, and from both but in a small Degree: He adds also, Iron; from which, he is persuaded, it has some Tincture; because a Patient of his, troubled with Gravel, and subject to Obstructions in the Spleen, in the Use of it, voided black feculent Matter by Stool.

Dr. *Guidot* says, their Impregnation is from Iron, a small Proportion of a nitro-sulphureous Salt, and Lime-stone: He informs us, that they can have but very little of Iron, because they neither turn purple with Galls, nor curdle Milk: But what I am surpris'd at is, how the Doctor came to find out they had any Iron Particles at all, since they give not the least Sign of it, torture them as you will.

I have taken the Courage now to add my Conjecture, which is, that if we may judge of their Contents from their Effects, which are exceedingly deterfivè and healing, they partake chiefly of Chalk, Lapis Calcaris, and Calaminaris, the Virtues of which, we know, are to dry, to cleanse, to incrust, or fill Ulcers with Flesh, and cicatrize them.

But, whatever the Substances are that impregnate them, it is very plain they are very subtle, and that there is but little of a terrestrial Part in them, from their specific Lightness above all other Waters; which is of itself so excellent a Quality, as by no means to be overlook'd; and also from Experiment; for, after Evaporation, I found only three Drams two Grains of the mineral-like Substance in five Gallons; and, after Distillation, no more than one Dram and a half of a white Powder, like levigated Pearl: So that the highest Proportion the vital Part bears to the elemental, is as 7 to 6814 in each Quart.

But when we consider how agreeable to the Sight, Smell, and Taste; how clear, pure, and soft, they are; their gentle Degree of Heat, so adapted to sundry Diseases; we cannot but conclude, that these Waters have imbib'd some salutary Particles in their Passage thro' the Earth; and, from the many Cures yearly wrought by them, that they have an undoubted Title to a Place in the first Class of Medicinal Waters.

Nor is it necessary, that Medicinal Waters should contain so large a Quantity of the Particles they have imbib'd, as may be evident to our Senses; for we know, by Experiment, that *Regulus of Antimony*, frequently macerated in Wine, loses nothing of its Weight or Substance, tho' the Wine prove strongly Emetic: In vain, therefore, do many Physicians erect Labora-

Vol. I.

tories, and take great Pains, to discover what that adventitious Matter is, which these Waters carry with them.

The Diseases in which *Bristol Waters* are more properly prescribed, are internal Hemorrhages and Inflammations, Blood-spitting, Dysentery, and immoderate Fluxes of the Menfes, purulent Ulcers of the Viscera: Hence in Consumptions, Dropsy, Scurvy with Heat, call'd by Dr. *Willis*, *Scorbutus sulphureo-salinus*, Stone, Gravel, Strangury, the Habitual Gout, that kind of Rheumatism which Dr. *Sydenham* terms *Scorbutic*, Diabetes, slow Fevers, Atrophy, Pox, Cancer, Gleet in both Sexes, and King's-evil, in these Disorders *Bath Waters* are not only improper, but hurtful; they rouse the too languid, and quicken the too lazy Circulation; these allay the Heat, and restrain the too rapid Motion of the Blood: Those impregnate the phlegmatic; these attemperate the choleric Constitution. *Bath Waters* seem to be adapted to the Maladies of the Stomach, Guts, and Nerves; *Bristol*, to those of the Lungs, Kidneys, and Bladder. Again, *Bath Waters* are at Variance with a Milk-course; and the *Bristol* can never be judiciously directed, but where that may be joined with Reason and Success. This is so great a Truth, that it holds even in the Diabetes, in which Milk is of great Service, and prescribed as early as the Age of *Arctæus*, who, say the Learned, is at least as ancient as *Galen*: Tho' that this Disease was little known to Antiquity, is certain, since it is not once mention'd by *Hippocrates*: *Galen* says he never saw it but twice; and *Rabbi Moses* affirms the Diabetes is very seldom seen in the Western Parts of the World, but oftener in the hot and Eastern Countries, insomuch that, in *Egypt*, in ten Years Practice, he saw more than twenty Patients of this kind; but we see a greater Number, almost every Year, in our Western World.

Perhaps some may be surpris'd to find *Bristol Waters* prescribed in Dropsies, in which Authors order also those of *Bath*; but which of the two, with best Judgment, is worth while to inquire. That diuretic and drying Medicines are of great Service in this Disease, no one can doubt; that *Bristol Waters* have these two Qualities in a greater Degree than the other, is also as evident. For which Reason I should prefer the *Bristol* to *Bath*, in this Instance, unless where it happens, as it too often does, that a Jaundice attends it; and here *Bath* claims the Precedence, from its great Efficacy in opening Obstructions of the Viscera, where there is no formidable Inflammation.

But there is another Question of more Importance, and that is, Whether *Bristol Water* be specific in the Diabetes? A specific Remedy for each Disease would prove in Physic, what finding the Longitude must in Navigation: We should go directly to the Cure, without the Circle of the alternative Course: But, at present, there is as little Probability of discovering the one, as the other. We know but one Specific, and but one Disease cur'd by it, unless I can prove this to be such in the Diabetes.

The Diabetes, then, is defin'd to be the too quick and large Excretion of crude, unalter'd, and sweet-tasting Water, exceeding the Proportion of the Fluids taken into the Body, accompanied with intolerable Thirst: And a specific Medicine is that which cures a Disease, without promoting any sensible Evacuation.

Suppose then a Person labouring under a Diabetes, voids a given Quantity of such Urine, (for Example, four or five Quarts in twenty-four Hours) let him drink as many of this Water, and he shall excrete less daily; from whence it is manifest, that it proves no Evacuant. Another Argument to prove it specific is, that, in this Instance, we need not observe the Rule of drinking Mineral Waters in small Quantities; for 'tis specific, and may be taken in as large Doses as the Stomach will bear; and this is no bad News to a Person dying with Thirst. In all other Disorders, where it acts by its counteracting, alternative, and healing Qualities, the Rule holds good. A third is; that we see, by daily Experiments, its Effect in Diabetes more quick and sudden than in any other Disorder, the Patient being certain of a Cure in a very short time.

The proper Seasons of drinking *Bath* and *Bristol Waters* are generally known. *Bath Waters* may be drank, with Benefit, the whole Year; I think best in the cold, or, at least, the cooler Months of *April*, *May*, *September*, and *October*. The *Bristol* are to be taken medicinally, only during the hotter Months, as from *April* to *September*. *Wynter's Cyclis Metasyneriticus*.

BRITANNICA. *Betarrica*.

The *Bretanica*, or *Bettonica*, is an Herb with Leaves like the wild *Lapathus*, but blacker and more hairy, and of an astringent Taste. It sends forth no great Stalk, and its Root is but short and slender. The Juice is expressed from the Leaves, and inspissated in the Sun, or by the Fire-side.

It has an astringent Virtue, and is particularly accommodated to eating Ulcers of the Mouth and Tonsils. It is effectual also to all those Purposes for which Astringents are required. *Discoïdes*, Lib. 4. Cap. 2.

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Not only Beasts, but even Waters and Places, shew their Malignity to Mankind. When *Germanicus Cæsar* had removed his Camp beyond the *Rhine* in *Germany*, they had only one Spring of fresh Water in that maritime Tract of Land, by drinking of which, within the Space of two Years, their Teeth fell out of their Heads, and the Joints of their Knees were enfeebled and relaxed. The Physicians call'd these Disorders *Stomacace* and *Scelotyrbe*. There was a Remedy at length discover'd, which was the Herb *Britannica*, a most salutary Medicine not only to the Nerves, and in Diseases of the Mouth, but also against an Angina, and the Poison of Serpents. It has oblong black Leaves, the Juice of which they express, as also from the Root. They call the Flowers *Vibones*, which, being gather'd and eaten before Thunder is heard, secures the Person from being thunder-struck. The *Frisians* who were in the Camp, shew'd it to our Men; and I cannot but wonder how it came by its Name, unless the People who are Borderers on the *Britannic* Sea, gave it the Name of *Britannica*, out of Respect to the neighbouring Island of *Britannia*; for it is certain, *Britannia* now lying open, that it does not take that Name because that Island abounds with it. *Pliny*, *Lib. 25. Cap. 3.*

The Virtues attributed to this Plant agree pretty well with those of the *Hydrolapathum*, *Offic. Hydrolapathum magnum*, *Ger. 312. Emac. 389. Hydrolapathum majus*, *Park. 1225. Lapathum aquaticum, folio cubitali*, *C. B. 116. Hist. Oxon. 2. 579. Tourn. Inst. 504. Boerh. Ind. A. 2. 85. Dill. Cat. 111. Buxb. 178. Lapathum palustre maximum*, *Schw. 218. Lapathum maximum aquaticum, sive Hydrolapathum*, *J. B. 2. 986. Raii Hist. 1. 171. Synop. 35. Lapathum maximum aquaticum*, *Chab. 309. Britannica antiquorum vera, sive Lapathum longifolium nigrum palustre*, *Munt. Herb. Brit. 150. GREAT WATER DOCK. Dale.*

It has a thick, round, broad, juicy Root, spongy when old, about a Hand's Breadth in Length, divided below into several pretty thick Parts, and surrounded with fibrous little Roots; the Colour of it, when newly taken out of the Ground, is black on the Outside, and white within, but soon alters into a reddish-yellow, like that of the true Rhubarb; and the Root, when dry, turns quite brown. The Leaves are not many; but the longest of all belonging to any of the kinds of Docks, situated near to one another, tho' not closely joined, but separate, always pointing upwards, of a Foot and half, or two Feet in Length, and three or four Fingers broad, being widest in the Middle, and running up to a sharp Point, like the Head of a Spear, of a deep Green, or Sky-colour, inclining to a dark Green above, but paler underneath, with pale-green Fibres, of a pretty thick, hard, dense, close, and firm Substance, the Edges sometimes, especially of those which grow to the Stalk, a little curl'd; they stand on Pedicles which are of a moderate Length and Thickness, and sometimes red near the Ground; they have also an Astringency, with something of an Acidity, and fall off towards the End of *August*. The Stalk is single, or multiply'd, according to the Age or Bigness of the Plant, two, three, and sometimes four Feet in Length, strait, round, green, hollow, adorn'd on both Sides with lesser Leaves, which bend a little upwards as well as downwards, from whose *Ala*, here and there, proceed little Sprigs, laden with little, short, and tender pendulous Leaves, and pale Flowers, which open towards the End of *July*, and are thinly dispos'd about the Joints, but not in the manner of Whorles. The three outer Petals of the Flower are conspicuous on both Sides, for two hairy pale-whitish Gemmule; but these are observ'd in no Species of the *Lapathum*, but the *Virginian Britannica*. The Seed is small, triangular, and of a spadiceous Colour.

Abr. Muntingius is persuaded, that this Plant is the true and genuine *Britannica* of the Antients, since both its Figure and Virtues answer, in all Points, to the Descriptions which they have left us of it. He endeavours also to prove, that the Word *Britannica* is of *Frisian* Original, for it is not likely that this Plant took that Denomination from the Island of *Britain*, to which, as a respected neighbouring Land, the *Frisians* dedicated it, as *Pliny* conjectures. *Brit*, in the *Frisian* Language, signifies to consolidate, render firm and compact; but *Tan* is a Tooth; and *Ica*, or *Hica*, signifies Ejection. Hence *Britannica* is as much as to say, the Herb which consolidates and confirms the loosen'd Teeth, or cures the Disease that makes the Teeth fall out.

Every Part of this Herb, as the Stalks, Leaves, Flowers, Seed, but principally the Roots, are powerfully astringent, consolidating, and conglutinating; for which Reason it restrains and heals all Sorts of Putrefactions, as Erysipelas, ulcerated or not, Herpes, Phagedenic Ulcers, and Gangrenes. It stops Hæmorrhages from any Part, as also the Hæmorrhoids and Menfes, and is effectual for all those Purposes in which other cold Astringents are requir'd.

It cures all manner of Diseases of the Nerves, as Twitchings, Contractions, Tremblings, Convulsions, Palsies, febrile Heats, or Rigors. It chafes away Serpents and other venom-

ous Animals, and heals their Bites; for which Reason it is reckon'd among Alexipharmacs. It gives Relief under all Species of the Angina, Relaxation of the Uvula, Swelling of the Tonsils, and other like Diseases of the Mouth, Fauces, and Stomach, which require Astringency; as also Abscesses, Tumors, and Ulcers. It removes various sorts of Defluxions; and, lastly, Diseases which proceed from hidden Causes, as the *Stomacace*, the *Scelotyrbe*, (the Scurvy affecting the Mouth and Legs) and Ulcers in the Legs.

The green Leaves are apply'd to ulcerated Parts for twelve Hours, and then changed; the Juice also harden'd by the Dog-days Sun, or inspissated by the Fire, is used to anoint the Sore.

Now because the Scurvy, says *Muntingius*, has taken such deep Root in some Persons, that they can receive but little Benefit from a Decoction of *Britannica* alone, I am willing to communicate the Preparation of a Medicine, never yet, that I know of, made public, that all may have the Knowledge of so useful a Medicine, and be able to prepare it for themselves; for the Remedy is more precious than Gold, and ought to be kept in Houses, as an inestimable Treasure, in Readiness against all Attacks, or bare Suspicions, of the Scurvy.

Take of Saffron, two Ounces; Mace, Liquorice, the best Cinnamon, black Pepper, Gentian-root, each three Ounces; *Britannica*, six Ounces: Pulverize them all grossly, and infuse them in sixteen Pints of *Spanish* White-wine, together with three Pints of Elder Vinegar, or some other very strong Vinegar; and add thereto three Yolks of new-laid Eggs. Let them lie macerating together in a glazed Stone Vessel, well closed, for seventy-two Hours, in hot Ashes, Horse-dung, or hot Sand, but with no greater than a tepid Heat; after which set it aside for Use.

Let the Patient take of this Decoction three, four, five, or even six Ounces, according to the Nature of the Subject, in the Morning fasting, for fourteen or twenty Days together, or more. To quench his Thirst, let him drink every Day of the best *Rhenish* Wine; or, if he be accustomed to Beer, let him take it not new, but defecated, and well boiled; and as often as he drinks it, he must also have three Spoonfuls of this Wine.

But it is here to be observed, that if the Patient labours under a Dryness, a violent Cough, or is suspected to be in a Consumption, instead of the Pepper, let six Ounces of Liquorice be added; when the Wine is almost consumed, an equal, or twice the Quantity of Wine, may be pour'd to the Ingredients.

By the Use of this Wine, not only an inveterate Scurvy, especially if it be without a Fever or Inflammation, but also all other scorbutical Disorders, inveterate Hernia's, Palsies, and Lues Venerea, are most successfully cured. *Raii Hist. Plant.*

Its Leaves are styptic, a little bitter, and give a deep Tincture of red to blue Paper. The Root gives it a little fainter; it also is very styptic and bitter. Its Bark is thick, of a Flesh-colour, streaked; its Heart is soft, and of a pale Yellow.

It is probable, that the Salt of this Plant may be composed of Alum and Sal Ammoniac, mix'd with a great deal of fetid Oil. *Martyn's Tournefort.*

I believe this Plant is very effectual in scorbutic Symptoms; and am convinc'd by Experience, that it will effectually cure bleeding of the Gums, if chew'd in a Morning.

Muntingius has wrote an intire Volume in 4to. on the Subject of this Plant.

BRITHOS, *ῥιθός*, a Weight, a Load, *Lib. 1. ῥιθὸς γυναικὸς*, *ῥιθὸς ἐν τῇ γαστρὶ ὑγερῆσαι*, "and there be a (Sense of) Weight in the Belly." And in the same Book, *ῥιθὸς γυναικὸς ἐν τῇ μήτρῃ*, "and there be a Heaviness in the Uterus." Hence the Verb *ῥιθίζω*, which, in many Places of *Hippocrates*, carries much the same Sense.

BRIZA, *Offic. Briza monococcus*, *Ger. 67. Emac. 73. Zea Briza dicta, seu monococcus Germanica*, *C. B. Pin. 21. Theat. 415. Hist. Oxon. 3. 205. Zea monococcus, sive simplex, sive Briza*, *Park. Theat. 1124. Zea monococcus Briza quibusdam*, *J. B. 2. 413. Raii Hist. 2. 5242. Zea simplex & monococcus Briza*, *Chab. 174. Hordeum distichum, spica nitida, Zea seu Briza nuncupatum*, *Tourn. Inst. 513. Boerh. Ind. A. 2. 159. ST. PETER'S CORN.*

It is cultivated in *Germany*; and the Seed is used, which agrees in Virtues with the *Zea*, or *Spelta*.

BROCHOS, *ῥοχός*. The same as *Laqueus*, Bandage. See **LAQUEUS**, and **FASCIA**.

BROCHTHUS, *ῥοχθος*, in *Hippocr. Lib. 2. de Morb.* is a small kind of Drinking-vessel. *ῥοχθος* also signifies the same as *ῥοχός*, "the Throat;" whence *καλαβροχθίς*, and *καλαβροχθίς*, in *Coac.* are both used to express the Action of Deglutition.

BROCHUS, *ῥοχός*. One who has a prominent upper Lip; or, as others would have it, one with a full Mouth, and prominent Teeth. *Castellus.*

BRODIUM. A Pharmaceutical Term, signifying the same as *Fusculum*; or the Liquor in which some solid Medicine is preserved, or with which something else is diluted. *Castellus*.

BROMA, βρώμα, Food, any thing eatable, by way of Distinction from πόμα, Drinkables. *Galen, Lib. 1. de Alim. Fac.* expounds βρώμα by τὰ ἐσθίμενα, ἢ ἐδεσς, ἢ τροφὴς, ἢ σίτια, which are different Words for Eatables. In *Hippocrates, Lib. 2. Epidem.* τὰ βρώματα καὶ τὰ πόματα πείρης εἶναι, ἐπὶ τὸ ἴσον μένει, “whether Meats and Drinks are of equal Continuance, (equally “long in Passage) must be judg’d from Experience.” And *Lib. 6. Epid. Sect. 5. Aph. 35.* βρώματα τὰ μὲν ταχέως καταλείτται, τὰ μὲν ἐν αἵματι, “of Foods, some are soon overcome, “(digested) with others the contrary happens.” And *Aph. 31.* πυρρὰς βρώμα φασι, κίχχοι, κολοκύθαι, “Lentils, “Millet, and Gourd, are very cold Foods.” *Lib. περὶ ἀρχ. αἰσθ.* ἰσχυρὰ βρώματα are strong hard Meats, which require a strong Digestion; and, in the same Book, ἰσχυρὰ βρώμα signifies strengthening Foods. In the same way of speaking, βρώματα are said to indicate πλῆρωσις, “a Plenitude.” βρώμα also, *Lib. 4. Epid.* signifies an Erosion of a Tooth; as it does also in *Galen, Lib. τῶν ἐμπορίων*, where he says κατέπλεσε τὸ βρώμα, “apply some Cataplasma to the corroded Tooth.”

BROMION, βρόμιον. The Name of a Plaister, in *P. Aegineta, Lib. 7. Cap. 19.*

BROMUS, Offic. *Bromus sterilis*, or WILD OATS, *Ger. 69. Emac. 76. Mer. Pin. 16. Bromus herba sive Avena sterilis, Park. Theat. 1147. Ægilops, Chab. 177. Ægilops Matthioli forte, J. B. 2. 439. Festuca avenacea sterilis elatior, seu Bromus Dioscoridis, C. B. Pin. 9. Theat. 146. Raii Hist. 2. 1289. Synop. 3. 412. Hist. Oxon. 3. 212. Festuca & Avena Græca, Merc. Bot. 1. 35. Phyt. Brit. 41. Gramen avenaceum, panicula sparsa, locustis majoribus & aristatis, Tourn. Inst. 526. Buxb. 142. Gramen Festuca sterile elatius, Tourn. Hist. Plant. Bar. 91. DRANK, or WILD OAT-GRASS.*

The Bromus is a Plant much like the Ægilops, being of a drying Quality; for which Reason, if it be boiled with the Roots in Water to a third Part, and then strained, and mixed with an equal Quantity of Honey, and again boiled to the Consistence of liquid Honey, it makes a good Remedy for an Ozæna, by dipping a linen Cloth in the Decoction, and then putting it up the Nostrils. This Effect it has by itself; but some mix Powder of Aloes with it, and use them in the same manner. Boiled in Wine with dry’d Roses, it amends a fetid Breath. *Dioscorides, Lib. 4. Cap. 140.*

A Decoction of the Root is recommended for the Worms in Children. *Dale.* See ÆGILOPS.

BRONCHIA, βρογχία. So *Hippocrates* calls the great Artery, (*Lib. περὶ ἀναιμίας*) ἀπὸ δὲ καρδίας ἐς πύλας βρογχίαν πάλιν καθήκει, καὶ μετὰ βρογχίης φλέβος μεγάλη καλεούμενη, δι’ ἧς ἔρχεται τὸ αἷμα πρὸς τὰς πύλας. “From the Heart to the Liver, “extend numerous Branches of the Bronchia (Aorta); and “with them the great Vein, as it is called, (*Vena Cava*) “by which the whole Body is nourished.” This Place *Galen*, in his Exegesis, seems to have in his Eye, when he expounds βρογχίης by τῆς βρογχώδους ἀρτηρίας, “the bronchoidal Artery;” where for βρογχίης, I suppose should be read βρογχίης. See BRONCHOS.

BRONCHOCELE, βρογχόκελη, from βρογχός, the Windpipe, and κέλη, a Tumor. A Tumor in the Neck, principally in Women, frequently call’d a *Derby Neck*, probably on account of the Inhabitants of that Town, or rather County, being much subject to it; which is not unlikely to happen for the same Reasons, that the Inhabitants about the Valleys of the Alps, and other mountainous Countries, are so much affected with these Tumors, as to have been taken Notice of proverbially by *Juvenal*.

Quis tumidum Guttur miratur in Alpibus?

Whether this proceeds from the Coldness of the Waters which they drink, or from some Mineral with which their Waters are impregnated in the Bowels of these Mountains, I will not pretend to determine.

In the Neck, between the Skin and the Aspera Arteria, there rises a Tumor, call’d by the *Greeks* βρογχόκελη (*Bronchocele*); which incloses sometimes an inert Kind of Flesh; sometimes a sort of Humour, resembling Honey or Water; and sometimes Hairs mix’d with small Bones; but whatever may be the Contents within the Coat of this Tumor, they may be treated with Caustic Medicines; which, penetrating the outer Skin, with the subjacent Tunica, or Coat, make a Way for the included Matter, if it be a Humour, to run out; or if it be of a denser Substance, to be drawn out with the Fingers; which done, the Ulcer is healed up with Dressings of Lint. But the shortest way of Cure is by the Knife. The Tumor is laid open by one strait Incision in the Middle, as far as the Tunica. Then the corrupt Sinus, being separated from the sound Parts with the Finger, is taken out entire together with its Tunica; after which the Place is washed out with Vinegar, with which some mix Salt or Nitre; and the Lips of the

Wound are joined by a single Suture, upon which must be applied what is usual in other Sutures; and the Whole must be bound up in a gentle manner, so as not to bear hard upon the Fauces. If the Tunica cannot be taken out, you are to sprinkle the Cavity with Cathartics, and dress the Wound with Lint, and other Suppuratives. *Celsus, Lib. 7. Cap. 13.*

There is a large and round Tumor of the Neck, which takes its Name from the inward Parts, and is call’d *Bronebocele*, of which there are two Kinds, the *steatomatous*, and the *eurysmatous* (εὐρυσματώδης). This latter is known by the same Marks as an Aneurysm; and the Cure of it, for the same Reasons, is look’d upon as desperate; for as almost all Aneurysms are dangerous in the Operation, so especially is an Aneurysm about the Neck, because of the Largeness of the Arteries. The steatomatous Tumor is to be treated like a Steatoma, by separating and passing beyond the Vessels, in the same manner as we are directed in strumous Cases. *P. Aeginet. Lib. 6. Cap. 38.*

Albucasis, treating of a Bronchocele, or a Rupture in the fore Part of the Neck, which, he says, is most frequent in Women, is fuller than the *Greeks* or *Celsus*; and he very rightly distinguishes between that which is natural, and that which is accidental. The first Sort is not to be touch’d. Of the second there are two Species; one like a Tumor, which contains some gross Substance; the other like an Aneurysm. But though he is so bold in using the Knife, he advises the Operation only in the former Case; and even not there neither, unless the Tumor be loose, and little, and inclosed in a Cystis. This Sort of Swelling may, no doubt, be removed by Art. Sometimes these Excrescences are full of Water, sometimes they have nothing in them but Air; and these Cases may likewise be remedied by Incision, Friction, or Compression. Sometimes they turn to a fleshy Substance, which, lying between the Skin and the Wind-pipe, resembles a Flap or Dew-cap hanging out, just like that of a Turkey-cock, when he is angry. This is a frequent Distemper in those Countries where they drink great Quantities of cold Water; especially where they do not cool their Water in Snow, as in other warm Climates; but pour Ice into it, as the way is with the ordinary People, who live upon the bleak Mountains of *Genoa* and *Piedmont*. The Matter of Fact is as true, as that they themselves attribute it to the drinking this Water; and from the Nature of Cold, it is not difficult to account for this Effect: For the Liquor in going down, must needs chill the Muscles of the Throat, that is, it contracts the Vessels, and thickens the Humours which circulate through them at the same time; from whence must follow a Stagnation or Obstruction, and, after a while, a Swelling, in those Parts. And it is remarkable, that Tumors, which owe their Origin to this Cause, are and always continue fleshy; whereas other Bronchoceles, which proceed from Strains, Bruises, and such-like Accidents, often suppurate, or turn to a Melicoris, Steatoma, &c. as *Albucasis* observes. Among the *Spaniards*, Swellings in the Glands of the Throat are very frequent; who indulge themselves immoderately in the Use of cold Liquors. And that the Coldness not only of the Liquors, but of the Climate itself, may produce these Effects, seems to be plain, from the Observations we find in Writers, that these Swellings about the Throat and Head are much more frequent among the Northern Nations, than the Southern.

Tumors very often happen in the Thyroidal Glands; but such a Swelling is not properly a *Bronchocele*, though sometimes so miscalled, but a *Struma* or *Scrophula Colli*. In morbid Bodies I have seen these Glands enlarged to an extraordinary Bigness, so as to reach down almost to the Clavicles; and in such Cases they generally turn scirrhus. When the Swelling here is thus confirm’d, we may easily learn from Anatomy, were we not warn’d of it, that the Distemper is in its own Nature incurable; for, I believe, neither any inward Medicine, nor outward Application, can dissolve it; and Repellents would rather do Mischief, and throw the Humour upon some other Part. Neither would any prudent Surgeon, I presume, attempt to extirpate such a large Tumor, for fear of cutting an Artery or Vein, or the recurrent Nerve. And *Albucasis* gives us a sufficient Caution, in telling the Story of an ignorant Operator, who, in this Case, by wounding the Arteries of the Neck, killed the Patient upon the Spot. *Freind’s History of Physic.*

The *Bronchocele* is a Tumor situate upon the investing Membrane of the Windpipe, or betwixt that and the Muscles of the said Part; where it sometimes takes so large a Compass, as to extend itself from one Jugular to the other, lying high and prominent, like a Semisphere, or half Globe, or at least of a spheroid Figure.

It takes its Rise commonly from loud Crying, Coughing, and Vomiting; as also from a sudden Jerk, or hasty Turn of the Neck, as I have been inform’d by some therewith affected.

It is call’d also *Hernia Branchialis*; but if there be a Rupture in the Case, as that Name will imply, it is most likely to be that of some lymphatic Vessel, diffusing or shedding its Contents betwixt the Membranes of the Aspera Arteria, and the Muscles incumbent, where being leisurely accumulated, it distends

diffends the containing Parts, and, from the broken Fibres thereof, makes itself a Cover, which grows along with it in like manner, as the other Capsulate Tumors.

There are others who derive their Origin from some nutritious Juice extravasate, and turning into a Flesh-like Substance, after the manner of certain other Sarcomata; and indeed both these may be right, since we often find the Body thereof made up partly of a fluid, and partly of a more firm and glandulous Substance: But to proceed to the Prognostic and Cure thereof.

The *Bronchocele*, by reason of its unhappy Situation among the large Blood-vessels, the recurrent Nerves, and Windpipe itself therein concern'd, at least its investing Tunicle, affords a very hazardous and uncertain Issue; and if it admit not of Discussion, there is little Encouragement to meddle farther: For if it suppurates, there is left commonly a very fordid and sinuous Ulcer, which since you cannot dilate so conveniently as in other Parts might be done, nor have any Advantage by rolling, which the same will not allow, you may be put upon risking your Patient's Life, or leave him in a Condition worse than you found him, with an incurable gleeing Fistula, or Dyspepilotic Ulcer; so that if any thing be done in order for the Cure, it ought always to be attempted first of all by some proper Discutient. For this Use also serves the Empl. Antimoniale of Dr. Fuller, to be met with in his *Pharmacopœia extemp.* but indeed these Tumors are most commonly left to themselves; the great Danger by Incision on account of their Situation, and the Difficulty of healing when they come to suppurate, having very much discourag'd their Undertaking. Wherefore the much greater Number now content themselves without any Surgery, when apprised of their stubborn Nature, and the Uncertainty of Success.

'Tis much more rare to find these Tumors in the Necks of Men than Women, or at least-wise, being less obvious to Sight, they pass unheeded, and we are not so often consulted about them. I am sure, to one that I have observed in our Sex, I have met with half a Dozen on the Throats of Women.

That the Nature of this Tumor may be the better apprehended, I will here transfer an Account thereof, presented by the ingenious Dr. Douglass to the Royal Society, in these Words.

I had lately (*said he*) the Opportunity of opening a Woman about fifty Years old, who had a very large Tumor, or hard Swelling, in the fore Part of the Neck, possessing all the Space between the whole Extent of the lower Jaw, and the upper Part of the Sternum, with a considerable Rising in its Middle, laterally its Point inclining to the Left Side, though the biggest Part of the Tumor was on the Right. The Skin on the Apex of this protuberating Part was thin and shrivel'd, of a Colour different from the rest, and look'd as if the Swelling would have broke in that Place.

The Skin was exceeding thin, having no Fat under it, only in a Cavity between two Lobes, to be afterwards describ'd. On its Right Side there was a small Appearance of some; for the Skin being less stretch'd there, the Cells of the Membrana Adiposa were not quite emptied. The fleshy Fibres of the *Latissimus Colli* were scarcely visible, the *Massoideus* and *Coracohyoideus* were extremely thin, and in their Ascent they adher'd very firmly to the subjacent Tumor. The *Sternohyoideus*, and the *Sternothyreoideus* that run up the fore Part of this Swelling, were diffended so thin, that it was difficult to separate them, especially the last named. The Right Carotid Artery, in its Ascent to the Head, ran along the outer Edge, which increasing, much obstructed the Current of the Blood that Way.

The internal Jugular, the Par Vagus, and the Intercostal Pair, went also over some Part of this Swelling, in their Descent to the Thorax; two of the Lymphatic Glands of the Jugular Vein were swell'd to the Bigness of little Eggs, being placed at some Distance one from the other, with a Hollow between, where some Fat was found; these two Lobes made the Tumor very uneven also on its Right Side.

These Muscles, the Jugular with the Glands adhering to it, and the rest of the forenamed Vessels, being remov'd on both Sides, I could easily observe the Bigness, the Figure, and the Circumscription or Limits of this preternatural Tumor, with all its Adhesions to the adjacent Parts. In Magnitude it seem'd to exceed that of two Fists join'd together: Its Figure was almost triangular, with a broad Basis under the Chin, sloping a little on each Side, as it descended to the upper Part of the Sternum, where its Point was pretty narrow; its Surface was made uneven by three Risings, of which the largest was turn'd to the Left Side, the other being plac'd on the Right, as above remark'd. It adher'd by membranous Filaments to the maxillary Glands, to the *Digastric* Muscle, and to the *Stylohyoideus*, under which, on the Right Side, a small Portion of it, in the Form of a Nipple, did intrude itself, as it were, under the Tongue; in the upper and fore Part it also adhered to the *Os Hyoides*.

Laterally it was connected to the *Levator Scapulae*, and lower down to that Part of the *Cucullaris*, which terminates in the Clavicles backwards, to all the fore Part of the *Aspera Arteria*, between its third and fourth cartilaginous Rings, and the *Os Pectoris*, as also to that Muscle of the Head called *Rectus internus major*, and to some Part of the *Scaleni*; its lower Part was engag'd under the Jugulum, or lunated Part of the Breast-bone to which it adhered. It was easily freed from its Connexions to all these different Parts, but not so from the *Glandulae Thyreoidae*, to which it adher'd after a far different manner; for where the Thyreoidal Glands are joined to one another, a little below the *Cartilago Cricoides*, on the fore Part of the *Aspera Arteria*, there was no separating of it without cutting its Substance; whence it plainly appears, that the Union of these Glands was the Root or Beginning of this Tumor; and yet, which is very remarkable, the Glands themselves kept their usual Figure, and were no larger than ordinary.

This Tumor was hard, and very firm, being exactly of the Consistence of a Cow's Udder when boiled; yet in a few Places it was softish, containing a liquid and thick Juice. Its Colour was chiefly of a whitish-yellow, only in some Places it was exceeding red, from its having a greater Store of Blood-vessels, and in others it was very white: I pared off all the soft Part, and the hard Substance, that remain'd, I boil'd, and then clear'd it very well, having left sticking to it at one Centre a soft cartilaginous Body, which possibly, had the Patient lived longer, would have acquir'd the same Degree of Induration. It very much resembles a Piece of white unpolish'd Rock Coral; but whether it may be reckon'd osseous, or if it be rather the viscid Humour of the Glands; hardened and concreted into this irregular, chalky or gravelly Substance, or whatever else it may be, I leave to better Judgments.

The first Appearance of this large Swelling was about thirty Years ago, caused by the breaking of a Vein, as the good Woman used to express it, in a hard and very difficult Labour. It increased very slowly, not arriving to any considerable Bulk, till a few Years before she died: It was never very painful, being a true Scirrhus. Many Things by several Persons had been used, and applied unsuccessfully: Its Bigness at length became very troublesome, in impeding her Swallowing and free Breathing, and at last it quite choked her, by compressing the Windpipe, upon which it lay. *Turner's Surgery.*

I was formerly acquainted with a Woman who was in great Reputation for resolving these Tumors. Her Secret consisted in anointing the Part frequently with the Oil of Chamomile made by Infusion.

But the most celebrated Remedy for this Disorder is one which is sold at *Coventry*, and, which is kept as a Secret by the Preparer. It is order'd to be laid under the Tongue every Night going to Bed.

I am pretty well inform'd, that this secret Remedy is thus prepar'd.

Take of Sponge, Cork, and Pumice-stone calcin'd, each equal Parts. Half a Dram of this is mix'd with Sugar, and, with the Addition of some Syrup or Conserve, is made into a Bolus, and laid under the Tongue every Night.

What makes me the more inclinable to believe this the true *Coventry* Receipt is, that *Mustanus*, as I remember, has one much like it, which he directs to be used in the same manner for such Tumors. And I remember there is a Receipt in some of the old *German* Dispensatories, not very different from this, with an Addition of the *Pila Marinae*, which is order'd to be laid under the Tongue, as a Remedy *ad Botium*, for the *Bronchocele*; but I cannot at present recollect the Authors.

Rondeau also gives a Receipt for the same Purpose, which he intitules, *Pulvis pro Botio D. D. Wolfgangi Gabelchoveri*, as thus.

Take of Sponge and Lapis Calaminaris calcin'd, each two Ounces; of Pumice-stone, and Lapis Spongiae, each four Ounces; fine Sugar, three Ounces: Mix, and make a Powder.

But they all agree in making the Sponge a principal Ingredient.

BRONCHOTOMIA, *βρογχότομία*, from *βρόγχος*, the Throat, and *τέμνω*, to cut, Bronchotomy. See ANGINA.

BRONCHUS, *βρόγχος*, *βρόχης*, *βρόχιν*. The Word *βρόγχος*, according to *Galen*, in the Beginning of his seventh Book de *G. M. S. L.* is the *Aspera Arteria*, which reaches from the Larynx to the Lungs, consisting of a Multitude of cartilaginous Bodies, called *βρόγχια* (*Bronchia*). The same Author, *Com. 3. in Lib. de Art.* says that *βρόγχος* is put for the entire *Aspera Arteria*, or only for the Fauces. *βρόγχος*, in *Hippocrates*, signifies the Throat, whence, *Lib. de Artic. ἐξ ἐξέβρογχος* is expounded by *Galen*, *τὸς ἐξέχοντα ἐς τὸ πρὸς τὸν βρόγχον ἐχόντας*, "those who have a prominent Throat. And,

And *Lib. 5. Epid.* ὁδὸν ὑπὸ τὸν βρόγχον, "a Tumor under the Throat." And *Lib. de Rat. Viâ. in Morb. acut.* διατεταμένους τὸν βρόγχον, "dilate, as it were, with expanded Wings the Throat." See PULMONES.

The *Bronchia* or *Bronchi*, as now understood, are the Ramifications of the *Aspera Arteria*.

BRONTE, βροντή. Thunder; see TONITRU. I don't know, that this relates to Medicine, farther than as it purges some People by the Fright.

BRONTIS, from βροντή, Thunder. The Thunder-stone. See BELEMNITES, and CERAUNIA.

BROTOS, βρώτος, from βρώσκειν, to feed. An Epithet of Man, signifying his Necessity of eating and drinking, and consequently his Mortality; but the Word is more in Use among the Poets than the Physicians.

BROUILLAMINI. A Term given by the French to such Masses of Bole, which are as thick and long as a Finger. They also call these *Bol en Bille*.

BRUCHUS. A sort of Caterpillar. *Forestus* in his Observations relates, that a *Bruchus* was thrown up by vomiting as big as a little Ball, inclosed in a Bit of Flesh as in a Pod. *Hartman*, in his *Praxis Chymiatrica*, writes that *Bruchi*, that is, May-worms dry'd, and given to such as are mad by the Bite of a mad Dog, will in a short time cure them of their Madness. But I am afraid he is mistaken.

BRUMA. The same as HYEMS, Winter; but especially that Part of Winter which is about the Solstice, when the Days are shortest.

BRUMASAR, a Spagirical Term, signifying Silver, or, the *Magn. Castellus*.

BRUMATI terreum. A glazed Vessel. *Rulandus*.

BRUNELLA. The same as PRUNELLA, which see.

BRUNSFELSIA. A Plant which takes its Name from Dr. *Brunsfelsius*, a famous Physician.

The Flower consists of one Leaf, shap'd like a Funnel, which is tubulous, and cut into many Parts at the Top, from whose Calyx arises the Pointal, which afterwards becomes a round, soft, fleshy Fruit, containing roundish Seeds between the Rind and the Flesh.

There is but one Species of this Plant, which is,

BRUNSFELSIA *Flore albo, Fructu croceo molli*, Plum. N. G. *Brunsfelsia* with a white Flower, and a soft Saffron-colour'd Fruit.

It is very common in *Barbadoes* and *Jamaica*, but I find no Medicinal Virtues ascribed to it.

BRUNUS, *Ignis sacer*, St. Antony's Fire, or Erysipelas. *Rulandus*.

BRUSATHAER. The Name of a Tree that grows in *China*. *Ray's Index to his Hist. Plant.*

BRUSCANDULA. The same as LUPINUS, a Lupin, which see. *Blancard*.

BRUSCUS, *Ruscus*, Offic. *Ruscus sive Bruscus*, or *Kneeboline*. Ger. 752. Emac. 907. Mer. Pin. 107. *Ruscus*, J. B. 1. 579. Chab. 46. C. B. Pin. 470. Park. Theat. 253. Raii Hist. 1. 664. Synop. 3. 262. *Ruscus myrtifolius aculeatus*, Tourn. Inst. 79. Elem. Bot. 70. Boerh. Ind. A. 2. 63. *Ruscus*, *Bruscus*, *Oxymyrsine*, Merc. Bot. 1. 65. Phyt. Brit. 107. BUTCHERS-BROOM. Dale.

Ruscus, or the wild Myrtle, has a Leaf like the Myrtle, only broader, and pointed at the Top like a Spear; a round Fruit, which sticks to the Middle of the Leaf, and is red when ripe, with a stony Inside. From one Root proceeds a Multitude of twiggy Stalks, hard to break, a Cubit in Height, and cover'd with Leaves. The Root is like that of the *Agrostis*, and is of a tart and bitterish Taste; it grows in rough and craggy Places.

The Leaves and Berries, drank in Wine, provoke Urine, and the Menfes, and break the Stone in the Bladder. They also cure the Jaundice, Strangury, and Head-ach; a Decoction of the Root in Wine, if drank, produces the same Effects. The young Stalks, when they have just begun to shoot, are eaten instead of Asparagus, or other Greens; they are diuretic, and of a bitter Taste. *Dioscorides*, *Lib. 4. Cap. 146*.

The Roots of Butchers-broom are white, thick, and knobbed, matted together, and sending down large Fibres. The Stalks grow to be about a Foot high; they are tough, pliant, and hard to break, striated and thickly beset with small, stiff, rigid, nervous Leaves, about the Bigness and Shape of the small Myrtle, ending in a sharp and prickly Point, and sticking close to the Stalks. The Flowers grow on the Backs of the Leaves, being small and purple, made up of six Leaves apiece; and after them come round red Berries, like the Berries of Asparagus, containing two Seeds. This Plant grows in Hedges and Thickets, as on *Epping-forest*; plentifully flowering in Summer.

The Root of *Ruscus*, which is the only Part in Use, is one of the five opening Roots. It opens Obstructions of the Liver and Spleen, and helps the Jaundice and Dropsy. It is a strong Diuretic, provoking Urine, and helping the Stone and

Gravel; and brings down the Catamenia. *Tournefort* commends a Conserve of the Berries to stop a Gonorrhea. *Miller's Bot. Off.*

What *Dioscorides* has said of the *Ruscus*, does not disagree with the Plant now called by that Name: the Seeds in the Berries are very hard; so I believe we must read in *Casalspinus*, *quasi cornea substantia*, instead of *carnea*: The Root is one of the five opening Roots, good to remove Obstructions of the Bowels, and to evacuate by Urine. For the Dropsy, Cachexy, Jaundice, Stone, and Retention of Urine, it is prescribed in Broths, Ptisans and Apozems. For scrophulous Tumors, they give to drink, for several Days, a Pint of White-wine, in which a Dram of the Powder of the Roots of Butchers-broom, with the same Quantity of those of Figwort and Dropwort, have been infused. The Conserve of the Berries is good for Heat of Urine: the Seeds are used in the *Benedicta laxativa*.

The Flower is monopetalous, three Lines in Diameter, greenish, divided into three larger and three smaller Segments. It has a Violet-colour'd Sheath, instead of Chives, which sustains six Summits, and is raised with six rounded Ribs running lengthwise. *Vaill. Martyn's Tournefort*.

BRUTA, is that Virtue of the Celestial Influence which is manifested by brute Animals to the rational; as the Virtue of Celandine communicated to Mankind, by reason of the Swallow; the Use of Salt in a Clyster, taught by the Stork. *Rulandus*.

BRUTIA. An Epithet for the fattest and most refinous kind of Pitch, which was therefore thought fit to be used in making a factitious Oil, called *Oleum pistum*, *Pliny*, *Lib. 15. Cap. 7*. We often meet with *pix Brutia*, in the ancient Physicians, which was so called from *Brutia*, a Country in the extreme Parts of Italy, where it was produced.

The *Brutii* were a People of Calabria, over-against Sicily, beyond the *Lucani*. *Pliny*, *L. 16. C. 11*. gives the ancient Method of making this Pitch, from the *Tæda*, Mountain-pine.

BRUTOBON. A barbarous Name for some Greek Ointment, the Preparation of which is unknown. *Castellus*.

BRUTUM, βροτον. An Epithet for Animals void of Reason, signifying the same as irrational, *Galen*. *Orat. Suasor. ad Artes*. He also calls them βροτομαῖα (*Brutomata*), 4. de R. V. I. A. In the *Theatrum Chymicum*, Vol. 4. the Philosopher's Stone is call'd *Cor Brutorum*. *Castellus*.

BRUXANELI, H. M. *Baccifera Indica, flosculis umbellatis, baccis umbilicatis dicocis*. It is a tall Tree, about the Bigness of an Apple-tree, growing in the mountainous and woody Parts of the Kingdom of Malabar: It flowers in July and August, and the Fruit is ripe in November and December. The Tree lives a long time.

Of the Juice of the Leaves, mix'd with fresh Butter, is prepared a Liniment, which is used in the Cure of a Carbuncle. A Decoction of the Bark of the Tree is held to be diuretic. Of the Bark of the Root, mix'd with Ginger and Turmeric, in Butter-milk, they make a Poultice, which is highly commended for arthritic Pains. *Ray's Hist. Plant.*

BRYCHIOS, βρυχιος. Deep, sunk; the same as ὑπεβρυχιος. In *Lib. περὶ ὁρίων φασ*. we read, ἀπὸ τῆς διὰ τῆς ἐπιγαστρικῆς ἐστὶ τὸ εἶδος διὰ τῆς κνήμης τὸ μὲν, βρυχίν ῥεταλαρ "This (Vein) extends itself by the Patella, and, passing by the Muscle of the Tibia, runs deeply into the inner Parts." *Brychion*, in *Erotian* upon *Hippocrates*, is expounded ὡς ἐν βύθῳ, κατὰ βάθος, κείμενον, "as it were, submerged, and lying in the Deep." *Hesychius* expounds βρυχιον and ὑπεβρυχιον, by βυθίζεσθαι, "submerged, and sunk in deep."

BRYGMUS, βρυγμος, is expounded by *Galen*, in his *Exegesis*, ὁ ἀπὸ τῆς ὁδὸς συνιπνομένης ᾠδῆς, "the grating Noise made by the Gnashing of Teeth." *Erotian* makes βρυγμος to be ἰσχυρὰ ποῖς ᾠδῆς, "a peculiar Kind of Noise"; that is, such as is made by the Gnashing or Collision of the Teeth. *Hesychius* expounds βρυγμος by τρισμαὶ ὁδὸς ἢ ἀκόντισις μύλων "A Stridor Dentium, or a Grinding of the large Teeth, or Dentes Molares." *Brygmus*, *Lib. περὶ γυναικ. φασ*. signifies a Stridor Dentium; as κατὰ τὸν αὐτὸν καὶ βρυγμος λαμβάνεται, "a Fever seizes her, attended with a Stridor Dentium." And it has the same Signification in many other Passages of *Hippocrates*.

BRYON, βρύον, is a Moss which grows to the Barks of Trees, being the grey Hairs of Trees, as *Pliny* expresses it, *Lib. 12. Cap. 23*. which appear most remarkably upon Oaks. *Bryon*, and βρύα, are used by *Hippocrates*, *Lib. περὶ γυναικ. φασ*. and *Lib. 2. περὶ γυναικ.* in Suffumigations for the Uterus.

Bryon Thalassium, βρύον θαλάσσιον, in the Alga, or Sea-moss, which *Hippocrates* applies, by way of Cataplasm, to Women labouring under an Inflammation of the Uterus, *Lib. περὶ γυναικ.* calling it βρύον θαλάσσιον, ὅ ἐστι τὰς ἰχθύας ἐμπλάσσον "Sea-moss, which they cast over Fishes." *Galen*, *Lib. 3. Meth. Med.* directs the Bandage of an Ulcer to be βρυώδες καὶ μαλακόν, "soft and yielding, like Alga;" to which is opposed ἑταῖς σκληρὸν ὡς θλίβειν, "one so hard as to press or squeeze the Part."

I have given an Account of what is at present meant by *Bryum*, in the Explication of Botanical Terms.

Bryon, by some call'd *Splachnon*, is found upon Cedars, white Poplars, and Oaks; that upon Cedars is the best, and that upon Poplars is next to it in Goodness. The white and fragrant is the most valued, but the blackish is not so good.

Bryon has an astringent Virtue, is temperate in Quality, between Heat and Cold; and the Decoction of it makes a good Infusion for uterine Affections, and is mix'd with Unguenta Balanina, and with Oils or Litufes, because of its inspissating Quality. It is also an useful Ingredient in the Preparation of Suffumigations, and Medicines call'd *Acopa*. *Dioscorides*, Lib. 1. Cap. 20.

Bryon Thalassum, Sea-bryon; grows upon Stones and Shells by the Sea-side. It is a capillaceous Plant, slender, without Stalk, of a very astringent Taste, and effectual in Inflammations, Gouts, and other Disorders in which Astringents are proper. *Idem*, Lib. 4. Cap. 99.

Bryon must be reckon'd among Sea-herbs: It has Leaves like Lettuce, but shrunk and shrivel'd. It grows mostly on Rocks and Shells, which stick in the Ground. It is of a remarkably drying and inspissating Quality, by which it represses all Collections of Matter, Inflammations, Gouts, and other Disorders which want Refrigeration. *Pliny*, Lib. 27. Cap. 8. See ALGA.

BRYONIA ALBA, Offic. Ger. 720. Emac. 869. Raii Hist. 1. 659. Synop. 3. 261. Merc. Bot. 1. 24. Phyt. Brit. 17. Mer. Pin. 16. *Bryonia alba vulgaris*, Park. Theat. 178. *Bryonia aspera sive alba, baccis rubris*, C. B. Pin. 297. Tourn. Inst. 102. Elem. Bot. 85. Boerh. Ind. A. 2. 61. *Bryonia aspera incana alba, baccis rubris*, Hist. Oxon. 24. *Vitis alba vel Bryonia*, J. B. 2. 143. *Vitis alba, Bryonia*, Chab. 120. **WHITE BRYONY.** Dale.

This Bryony has a large thick Root, frequently as big as a Man's Arm, growing very deep in the Earth, of a light Brown on the Outside, and White within, of a bitter unpleasant Taste. In the Spring it sends forth a great many rough and hairy slender Stalks, which have curl'd Tendrils at the Joints, which climb to a great Length upon the Hedges near which it grows. The Leaves are, in Shape, like Vine-leaves, whence it is call'd *Vitis alba*, the white Vine; they are rough and hairy. The Flowers grow several together, on a common long Foot-stalk, each of a single Leaf, cut into five Segments, of a whitish-green Colour; after which follow red small Berries, full of Seeds. It grows in Lanes, and by Hedge-sides, flowering in May, the Berries being ripe in September.

Paulus Aegineta, Lib. 7. C. 3. informs us, that the young Shoots of white Bryony are used as a Food grateful to the Stomach. But in this he himself has either been in an Error, since it only holds true of black Bryony, or the Hands thro' which his Works have pass'd, have made him say a thing which is absolutely false. Neither can I comprehend how white Bryony should generate Milk, unless, with *Baubine*, we say, that it may accidentally produce this Effect by purging such Nurfes as are valetudinary, and in a bad State of Health; for all the Parts of the Plant are of an acrid exulcerating Quality; which *Mesue*, R. III. L. 2. C. 25. seems to have had in his View, when he uses these Words: "Its young Shoots, when they first appear, are principally used with Aromatics, and correct the fetid and disagreeable Smell of the Breath, especially when that Misfortune proceeds from a Corruption of the Humours lodged in the Stomach." For, by the Addition of the Aromatics, the drastic purgative Quality of the Plant must, in some measure, be corrected and balanced. The same Author, for a Purge, prescribes from one Dram to two Drams of the Juice of its Root; and of itself, in Substance, from one Dram and an half to three Drams. Later Authors have observed, that not only the Roots, but also the young Shoots and Berries, are possess'd of a very drastic and powerful purgative Quality, and must consequently be proper for removing Obstructions. The Root alone is, at present, used for medicinal Purposes; and Authors, I believe, are sufficiently agreed, that it is intolerably acrimonious and nauseous, that it provokes Urine, purges violently, and vomits briskly. It is generally class'd among the phlegmagogue and hydragogue Medicines; and is, on account of the Violence with which it operates, call'd *Rusticorum Purgatio*, the Purge of the common People. The Dose of the Root, reduced to Powder, is from two Scruples to one Dram: Half an Ounce of its Juice may be given; and three Drams of Infusions or Decoctions of it may be used. But to whatever internal Purposes it is used, *Tournefort* thinks it expedient to correct its strong and drastic Qualities, by the Addition of a proper Quantity of Cream of Tartar, or *Tartarus Tartari-satus*.

According to *Le Mort*, an excellent Purge is prepared of Bryony in the following manner:

Take of fresh Bryony, a sufficient Quantity; after having bruised it, and express'd the Juice, let it be well dried.

Then bruise it a second time; and to one Ounce of the dried and pulverized Root, add three Drops of the Oil of Cloves, and half a Dram of distil'd Vinegar: Mix all together; and lastly, dry the Whole, either over a very slow Fire, or by the Heat of the Sun. Thus will you have an excellent and efficacious Purge in Cachexies, and all Obstructions of the Uterus. The Dose is from five Grains to one Scruple. *Coll. Leyd.*

Baubine informs us, from *Jo. Stoffelius*, that if we cut the Bryony-root close by the Surface of the Earth, and excavate that Part of it which is left in the Ground, covering it over with that Part of the Root which was cut off, in order to hinder Dust and Earth from falling into the Cavity, we shall next Day, upon uncovering it, find it full of a certain milky Juice, which continues in it till the third Day; and that a Spoonful of this Juice purges a Man no less safely than speedily. *Ray* also, from *Daleus*, informs us; that by taking from one to two or three Spoonfuls of this Juice every Morning, many dropical Patients have been cured; provided the Juice has been gather'd in the Spring of the Year, when the Moon is increasing. *Hoffman* acquaints us; that *Platerus* took the white Bryony-root before it germinated; and, after pulling off the Bark, and cutting it into Shreds, pass'd a Thread thro' it, and hung it up to dry, either by the Heat of the Sun, or that of the Fire; and that, when it was sufficiently dry, he infused it in generous Wine, and dried it a second time: This Method he repeated several times, and affirm'd, that, when thus prepared, it purged excellently, and without creating any Uneasiness. The same Author prepares Troches of white Bryony in this manner:

He reduces the Bryony, thus corrected, to a Powder; and, after sprinkling it with *Malmsey* Wine, in which Ginger has been infused, he forms it into small Cakes, which, when dry, he reduces to a Powder, and uses in Infusions: When thus prepared, it purges, according to that Author; in the same manner the Troches of Agaric do.

Now since this Root, when used internally, acts by its stimulating and resolvent Acrimony, 'tis obvious, that it may be exhibited with Success in Cases where heating Medicines are indicated, and when the Intention is to stimulate the Nerves strongly, and give a Concussion to the whole System. To this Quality it is also owing, that it is so much extol'd in Intermittent Fevers, in provoking the Menses, curing those uterine Disorders to which young Women are subject, and in killing and dislodging Worms lodged in the Intestines; for, being possess'd of a highly drastic Virtue, it powerfully incides the tenacious Juices, and surprisngly opens and removes Obstructions. Thus *Ray* informs us, that the Bulk of a Nutmeg of the Conserve made of its Root, taken twice a Day, and persisted in for a long time, often proves the happy Means of removing and entirely curing Epilepsies, and hysteric Passions; and that the same good Effect is produced by continually putting a Piece of its Root into the Cup, out of which the Patient drinks. *Baubine*, from *Arnaldus de Villa Nova*, gives us the History of a certain Patient, who, in the Space of three Weeks time, was completely cured of an Epilepsy, only by purging himself with depurated Juice of Bryony, edulcorated with a little Sugar. *Matthiolus*, in his Commentaries on *Dioscorides*, informs us, that he knew a certain Woman, who, for several Years, had been daily subject to hysteric Fits; and who was at last advised, by a common Herb-man, once a Week, when going to Bed, to drink White-wine, in which an Ounce of Bryony-root had been boil'd; by which Medicine, continued for a Year, her Disorder was entirely removed. *Forestus*, *Obs. Chir. L. 6. Obs. 22. Schol.* informs us, from *Avicenna*, that Patients render'd delirious by dangerous Wounds, are in a great measure restor'd, either by drinking Bryony-root for some Days, in some refrigerating and diluting Liquor, or using it in any proper Food, capable of obtunding and blunting its Taste. The Root, externally applied, has, in many Cases, given incontestable Proofs of its resolvent Qualities. When newly bruised, and mix'd up with Salt and Vinegar, it resolves cold Tumors, and removes the discolour'd Marks arising from extravasated Blood, if applied to them. *Helmont* affirms, that in Contusions, where a black discolour'd Blood is lodged under the Skin, Bryony-root alone, shaved down and applied, will, in a few Hours, resolve the Blood into Water, and draw it thro' the Pores of the Skin. According to *Etmuller*, Bryony-root not only cures the Dropsy, when exhibited internally, but also evacuates the Waters collected in the Abdomen, when applied externally, by way of Cataplasm, to the Region of the Loins, either bruised by itself, or made up with the Dung of a Cow, the Pigeon's, or Goat's. It is also applied to cedematous Swellings of the Feet and Legs, a Hydrocele of the Scrotum, and other Disorders of a similar Nature, in which Cases it carries off the Serum, and consequently discusses the Swellings. It is also properly applied to scrophulous Swellings, whether exulcerated or otherwise; for which Intention,

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Let half a Pound of the Root, cut into small Shreds, be fried in a Pan till the Shreds are shrunk and shrivel'd up: Then let the Liquor, strain'd off, be reduced to the Consistence of an Ointment; with half a Pound of Refin of the Fir-tree, and five Ounces of Wax. Let this Ointment be applied to the strumous Swelling every Morning and Night, upon a Piece of Linen Cloth.

This Medicine either dissolves the *Strumæ*, or brings them to Suppuration; and heals the Ulcers, as *Zacutus Lusitanus* affirms from Experience. If the Root of the white Bryony is excavated in the Ground, and cover'd with some proper Covering, the Liquor collected in it proves an excellent Medicine for arthritic Pains, if applied immediately to the Parts affected. The Root itself also, fresh bruised, mix'd up with Linseed-oil, and applied warm, removes sciatic and arthritic Pains: This Medicine must be repeated till the morbid Matter is resolved and dissipated. It is also excellent for Contusions, and for dissolving grumous and coagulated Blood. The Leaves of Bryony also, if bruised, and applied to livid and discolour'd Spots in the Skin; powerfully discufs the grumous Blood. For this Reason, in Gangrenes, and other Tumors, *Tacius* made Trial of the Root fresh bruised, or cut down, either alone, or mix'd with Chervil, by way of Cataplasim. It is also thought good for curing wandering arthritic Pains, by Transplantation, as it is commonly call'd. The Method of doing this is to hang the Bryony-root for some time to the Member or Part affected, and to bury it, when taken away, in any Garden or fruitful Soil where it grows. In the last Place, when the Uterus is to be purged, white Bryony-root may either be used as an uterine Pessary, or by way of Fumigation. See *Etmuller, Lib. 1.*

According to *Baubine*, the Root is by some highly esteem'd in arthritic Pains; and their Method of using it is to cut it down, and macerate it in Brandy, which they afterwards distil, and steeping Linen Cloths in the Water, when warm'd, apply them to the Parts affected. *Dr. Hopper, in Eph. N. C. D. 1. a. 4. App. p. 47.* informs us, that Warts, on any Part of the Body whatever, are safely and effectually destroy'd by Ashes of Bryony-root, mix'd with the Juice of the same.

It is not, on this Occasion, improper to inquire, whether, from a Knowledge of the component Parts of Bryony, we can account for its Effects, and ascertain the particular Form in which it may best answer the Intentions of a Physician, when prescrib'd for internal Purposes? *Tournefort* informs us, that its Leaves are insipid, contain a viscid Juice, and do not, in the least, tinge blue Paper with a reddish Colour; whereas it is considerably tinged by the Root: From which Circumstance, he says, we may reasonably conjecture, that the Acid of Sal Ammoniac, which, in this Plant, is superior to its other Principles, is free and disentangled in the Root, in consequence of which it is left at Liberty to act agreeably to its own Nature; whereas in the Leaves this Acid is sheath'd up in a larger Quantity of Sulphur; and that the Root, subjected to the Fire, yields a large Quantity of an acid Liquor, a great deal of fetid Oil, and a considerable Portion of a volatile concreted Salt. *Mr. Boulduc* affirms, that the Root consists of saline, without any Mixture of resinous Principles; that it acts more powerfully when taken in Substance, than in any other Form whatever; and that, for a Dose, one Dram of the dried Root is sufficient; whereas, when fresh gather'd, four Drams of it are requir'd, because it then abounds with a superfluous Moisture. But as it is to be dreaded, lest too violent Effects should be produced by the Bryony-root in Substance, he thinks it more safe and expedient to have recourse to Infusions, Decoctions, and Extracts of it. He also prefers Infusions to Decoctions of it; and approves more of infusing it in Wine than in Water. When the precise and only Intention is to discharge the Waters from the Abdomen, he maintains, that Extracts prepared from its Juice, are preferable to those obtain'd by Infusion or Decoction, *Hist. Ac. Roy. des Sci. A. 1712.* It is to be observed, that the Root, when fresh gather'd, is thought to act more powerfully, than when it is dried; for which Reason, according to *Pomet*, it is call'd, by the Country-people of France, *Nouveau enragé*. In *Lemery's Pharmacopæia*, the *Aqua Bryoniæ Composita* is directed to be prepared in the following manner:

Take of the Juice of Bryony-root, four Pounds; of the Juices of the Leaves of Rue and Mugwort, each two Pounds; of dried Savin-leaves, three Handfuls; of Feverfew, Catmint, and Pennyroyal, each two Handfuls; of sweet Basil, and Dittany of *Crete*, each one Handful and an half; fresh Orange-peel, four Ounces; Myrrh, two Ounces; Castor, one Ounce; and rich Canary Wine, twelve Pounds. Digest for four Days in a proper Vessel; then subject it to Distillation in *Bainæ Mariæ*. About the Middle of the Distillation express and strain; and then, by continuing the Distillation, and inspissating the Tincture, make an Hysteric Extract.

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The Bryony-root must be fresh gather'd, rasp'd down, and the Juice express'd. The Leaves of the Rue and Mugwort must be also fresh gather'd, and bruised in a Mortar, and the Juice express'd in the common way. The Savin-leaves must be dry. The Dittany of *Crete*, together with the other Leaves, must be bruised and mix'd with the Orange-peel, the Myrrh, and the Castor. When all together are put into a large Cucurbit, the Juices and Canary Wine must be pour'd upon them, and the Cucurbit must be close stopp'd, put in a warm Place, and the Ingredients allow'd to digest for four Days. Then distil in *Bainæ Mariæ*; and when half of the Quantity is drawn over, express what remains in the Alembic, and distil the express'd Liquor as before, till there remain but little in the Still; and then evaporate the Humidity till it acquires a pretty solid Consistence. Thus you will have an Extract to be kept for Use. Mix the distil'd Waters together, and thus you will have the COMPOUND BRYONY-WATER, which must be kept in a well-stopp'd Bottle.

This Water is antihysterical, aperient, good for the Vapours, and proper to excite the Menses, resist Poison, fortify the Brain, corroborate the Nerves, and eliminate noxious Humours by Transpiration. Its Dose is from half an Ounce to three Ounces.

The Extract is also antihysterical, and proper to promote the Menses. *Lemery's Pharm. Univers.*

In the *London Dispensatory*, from which *Mr. Lemery* took the above-mention'd Recipe, Spirit of Wine is order'd for the Distillation. In the *Edinburgh Dispensatory* Spirit of Wine is also used for that Purpose, but the Castor is rejected. Instead of the Extract, *Tournefort* recommends an Infusion of the Root in Wine, which he orders to be inspissated. In the *Collect. Leyd.* there is an Extract of Bryony prescrib'd, which, in the Opinion of *Mr. Le Mort*, tho' a Medicine of a low Price, is yet a Purgative of great Value and Efficacy. It is prepared in the following manner:

Take of dried Bryony, one Pound; of the Herb Fumitory, two Pounds; and of Sena-leaves, four Drams: Boil all together for two Hours, in a sufficient Quantity of Water; and let the express'd Liquor be reduced to the Consistence of Pills. The Dose is from half a Scruple to half a Dram.

The *Electuarium Diabryonias Democriti*, in *Mesue*, is said to be wonderfully efficacious in Epilepsies, Palsies, Vertigoes, and other cold Disorders of the Brain, and Spinal Marrow, and of the Nerves which arise from them. It is prepared thus:

Take of Bryony-root, cleansed and tritured, five Pounds; of the Rob of Grapes, four Pounds; roasted Squills, and the Kernels of Pine-nuts, each half a Pound; Agaric, three Drams; Nutmegs, Cardamoms, Mace, and Ginger, each two Drams; Cloves, Long-pepper, and Stoechas, each one Dram and a half; Seeds of Hartwort, Sal Gem, and the Trochisci Galliæ Moschatæ, each one Dram; and of Spikenard, half a Dram: Mix up into an Electuary, according to Art. After it has stood six Weeks, the Dose is from two Drams to five or six; tho' *Lemery* orders an Ounce and a half.

As *Mr. Lemery* thinks the above Preparation very faulty in several respects, he proposes the following in its stead, under the Title of *Electuarium Diabryonias Emendatum*, which he prepares thus:

Take of the Juice of cleansed Bryony, fresh extracted, four Pounds; of the best Honey, two Pounds: Let them be boil'd to the Consistence of Honey; then add, of the Powder of Turbith, Hermodactyls, Jalap, Agaric, and Salt of Bryony, each six Drams; and of the *Fæcula Bryoniæ*, half an Ounce. Make up into an Electuary, according to Art. The Dose is from one Dram to one Ounce. *Lemery Pharm. Univers.*

By the above-quoted *Mesue* a Syrup is ascribed to the said *Democritus*, which is compounded of the Juice of Bryony, Aromatics, the Rob of Raisins, and Honey. This Syrup is said to be as efficacious as the former Electuary, if two Ounces of it are taken for a Dose.

In the *Dispensatorium Borussæ-Brandenburgicum*, there is a *Syrupus de Bryonia*, prepared of the Juice of Bryony-roots, with Honey and Sugar, which may be given to asthmatic and hysterical Patients; and in Cases where Animals are suspected to be lodged in the Stomach or Intestines. *Faber, in Myroth. L. 6. C. 10.* prepares a Syrup of Bryony, from a Decoction of its new-pull'd Roots, inspissated, and Sugar; to which he afterwards adds the finest of the Salt, procured by drying the Root,

and

and reducing it to white Ashes, allowing half an Ounce of the Salt for each Pound of the Syrup. He informs us, that this Medicine gently purges all ferous Humours, powerfully promotes the Menfes, and safely cures most of the Disorders to which young Women are subject, because it opens all Obstructions, and purifies the Blood. Half an Ounce of it, or in strong Constitutions a whole Ounce, is exhibited for a Dose, in some proper Broth, early in the Morning, with an empty Stomach: A Regimen must at the same time be observed, as in other Cases.

An Ounce of the *Fœcula Bryoniæ*, or the Powder which subsides in the express'd Juice of its Root, is by many exhibited as a Medicine safer than the Root itself, or its Juice, and is expressly class'd among the Openers of the Uterus; but, as *Ludovicus* in his *Pharmacop.* well observes, it is a very ineffectual Preparation, unless assisted with Chalybeats; since, according to *Etmuller*, it is a dead Calx, of no manner of Use nor Efficacy; besides, what is commonly sold is for the most part adulterated. The *Nectar Succosum* of *Clossæus*, which, in *Schroder's Phar.* is directed to be prepared of one Ounce of the express'd Juice of Bryony, mix'd with one Dram of the Oil of Vitriol, or Sulphur, is, in *Etmuller's* Opinion, a very safe and proper Purge, provided the Dose does not exceed one Dram.

But, that we may see how prone some People are to Fraud and Imposture, I shall here recount some Circumstances mention'd by *Morison*. "Mountebanks, says he, and some Botanists, form very strange Monsters of the Bryony-root; upon which, if bifurcated when taken from the Earth, as it frequently is, they with a Pen-knife form the genital Parts of a Boy; and endeavour, by a proper Fissure, to imitate those of a Woman, by *Laurentius* call'd the Sacred Cave. After they have taken these Measures, they bury the Root for some time in Sand, or rather in a sandy Soil, till the wounded or factitious Parts have assumed a Skin; after which they confidently expose it to Sale, as the Male and Female Mandrakes. We daily observe, that many Roots, such as Carrots, and some others of the umbelliferous Kind, grow spontaneously bifurcated; and I boldly assert, that, if sufficient Art is used, they may be caused to grow in the Shape of other Parts of the human Body. Now, when the Bryony-root happens to be old, thick, and bifurcated, these trifling Forms may easily be obtain'd. But to complete the Farce, and render, as they think, the Imposture beyond the Hazard of a Discovery, these Wonder-working Botanists put the Seeds of Oats into the Wound made in the Bryony-root, which germinate in the Earth, and make an Effort to send forth Leaves; but wanting sufficient Nourishment, and being shut up from the Influence of the Air, they degenerate into small capillary Fibres. This Piece of Fraud may easily be detected by a skilful and quick-sighted Botanist. I myself remember to have seen such forced Productions carried about by strolling Mountebanks, both at *London* and at *Paris*, where their despicable Proprietors did not scruple to expose them to Sale for the genuine Roots of the Mandrake."

Dioscorides gives the following Account of the white Bryony.

The white Vine, otherwise call'd Bryony, *Ophiostaphylum*, *Chelidonium*, *Melothrum*, *Psilothrum*, *Archezostis*, *Agrostis*, and *Cedrostis*, in its Branches, Leaves, and Tendrils, resembles the cultivated Vine, only is more hairy in every Part. It twines about the neighbouring Shrubs, taking hold of them by its Tendrils. Its Fruit grows in Clusters, of a deep Yellow, and is used by the Tanners in taking off the Hairs from their Skins.

The tender Shoots of the first Budding, being boil'd and eaten, loosen the Belly, and provoke Urine. The Leaves, Fruit, and Root, are of an acrimonious Quality; and therefore proper, being made into a Cataplasm with Salt, for *Chironian*, gangrenous, and phagedenic Ulcers, and for putrid Ulcers in the Legs. The Root, with bitter-Vetches, Earth of *Chios*, and Fenugreek, absterges and clears the Skin from Wrinkles, Sun-burns, Freckles, and black Marks. Boil'd in Oil till it be liquefy'd and dissolved, it works the same Effects. It takes off the livid Diffols of Blows in the Face, and represses the *Pterygia* of the Fingers. Applied in a Cataplasm with Wine, it discusses Inflammations, and breaks Abscesses; and the Powder of it, in a Cataplasm, extracts Splinters of Bones: It is a proper Ingredient in septic or suppurative Medicines. A Dram thereof, drank every Day for a whole Year, is a Medicine for the Epilepsy; and is good for those who are subject to an Apoplexy or Vertigo. Two Drams of it, drank, are effectual against the Bite of the Viper, and kill the Child in the Womb. Sometimes it slightly disturbs the Reason. Being drank, it provokes Urine; and, apply'd as a Pessary, extracts both Birth and Afterbirth. It is made into an Eclegma with Honey, for the Use of those who are oppress'd with a Strangulation, or a Dyspnoea, and for Coughs, Pains in the Sides, Ruptures, and Convulsions. Half a Dram of it, taken in Vinegar, for thirty Days together, wastes the Spleen; and, applied by way of Cataplasm with a Fig to the Place, is effectual for the same Purpose. Its Decoction is proper for Inseptions, being a Purger of the Uterus, and expelling the dead Fœtus.

The Juice is expressed from the Root in the Spring-time, and is drank in Hydromel for the foremention'd Purposes, being a Phlegmagogue. The Fruit, us'd by way of Unction, or Cataplasm, is of Efficacy against the Psoa and Lepa; and the Juice of the Fruit, supp'd with boil'd Wheat, causes Milk to flow in Plenty to the Breasts. *Dioscorides*, *Lib. 4. Cap. 184.*

Pliny, in the first Chapter of his twenty-third Book, ascribes the same Medicinal Virtues to white Bryony, with those now enumerated from *Dioscorides*.

There are several other Species of Bryony, such as,

1. The *Bryonia Zeylanica*, *foliis profunde laciniatis*, B. This Plant is frequently us'd in Dropsies, by the Inhabitants of *Ceylon*, an Island in the *East-Indies*, where it grows spontaneously on ruinous Walls, and in other uncultivated Places. *Buccler.*

2. The *Bryonia alba vulgaris procerior, folio cucurbitæ*. This agrees in Virtues with the other white Bryony.

3. The *Bryonia Indica* or *Americana*. The same with *MECHOCANNA*, which see.

4. The *Bryonia Africana glabra, foliis in profundas lacinias divisis, flore luteo*, Olden. Smooth African Bryony, with deep-cut Leaves, and yellow Flowers.

5. The *Bryonia Americana, olivæ fructu rubro*, Plum. Cat. American Bryony, with red Olive-shap'd Fruit.

6. The *Bryonia Africana, fructu variegato*, Hort. Elth. African Bryony, with a variegated Fruit.

7. The *Bryonia Africana laciniata, tuberosa radice, floribus herbaceis*, Par. Bat. African cut-leav'd Bryony, with a tuberose Root, and herbaceous Flowers.

BRYONIA NIGRA, Offic. Ger. 721. Emac. 871. Raii Hist. 1. 660. Mer. Pin. 16. *Bryonia sylvestris nigra*, Park. Theat. 178. *Bryonia lævis sive nigra racemosa*, C. B. Pin. 207. Hist. Oxon. 2. 5. *Bryonia nigra, sigillum Beate Mariæ officinarum*, Merc. Bot. 1. 24. Phyt. Brit. 17. *Vitis nigra quibusdam, seu Tamnus Plinii folio cyclamini*, J. B. 2. 147. *Vitis nigra sive Bryonia nigra quibusdam*, Chab. 120. *Tamnus racemosa, flore minore luteo-palescente*, Tourn. Inst. 103. Elem. Bot. 85. Boerh. Ind. A. 2. 62. Raii Synop. 4. 262. BLACK BRYONY. Dale.

The black Vine, which some call black Bryony, others the *Chironian* Vine, has Leaves like Ivy, but more nearly resembling those of the Smilax, only larger; their Stalks also are alike. This Plant, as well as the white Bryony, takes hold of the neighbouring Trees by its Tendrils. The Fruit grows in Clusters, and is green at first, but black when ripe. The Root is black on the Outside, but of the Colour of Box within. The Shoots of the first Budding are eaten as other Greens.

They provoke Urine and the Menfes, waste the Spleen, and are good for epileptical, vertiginous, and paralytical Persons. The Root has the same Virtues as that of the white Vine, and performs the same Effects, but in a less efficacious manner. A Cataplasm of the Leaves with Wine cures the gall'd and ulcerated Necks of Beasts of Burden, and is apply'd also to Luxations. *Dioscorides*, *Lib. 4. Cap. 185.*

The black Vine, properly call'd Bryony, is by some named *Chironia*, by others *Gynecanthe*, or *Apronia*; it is like the white Vine, except in Colour. The tender Shoots of it, eaten as Food, are prefer'd, by *Diocles*, before Asparagus, for provoking Urine, and diminishing the Spleen. It delights to grow among Shrubs and Reeds; the Root is black on the Outside, but of the Colour of Box within, and is more effectual in extracting Splinters of Bones, than the white Vine; but it has a peculiar Virtue of curing the gall'd Necks of Beasts of Burden. They say that if a Farm-house be mark'd with it, Hawks will not approach it, and so the Poultry will be kept in Security. The Plant, bound about the Ankle of Man or Beast, cures a Defluxion of Phlegm or Blood upon the Part. *Pliny*, *Lib. 3. Cap. 1.*

The Root of the black Bryony is less than that of the white, blackish on the Outside, whitish within, more solid, but slimy withal. The Branches grow as long as the white, climbing and ramping upon the Hedges in its Way, but without Tendrils or Claspers; they are smooth as well as the Leaves, which are of a dark-green Colour, and shining, in Shape of an Heart inverted, but longer pointed. The Flowers grow among the Leaves in long Clusters, much smaller than those of the white Bryony, of a greenish Colour, of one Leaf cut into six Parts; after which come red Berries, as in the former. It grows in the same Places with that, and flowers about the same time.

Some Authors affirm, that the Root of this Bryony is a strong Purge; but *Hoffman* could not find any purgative Quality in it, no more than *Dr. Lister*, tho' both try'd it several times. It provokes Urine, and cleanses the Reins from Gravel. A Cataplasm of the Root, with Vinegar and Cow-dung, helps the Gout. It is but rarely us'd. *Miller's Bot. Off.*

There are several Species of the black Bryony, or *Tamnus*; such as,

1. The *Tamnus racemosa, flore minore luteo-palescente* of *Tournefort*. The common black Bryony mention'd above.

It flowers in June, and its Root is only in Use. It incides and attenuates viscid Phlegm, especially in Disorders of the Thorax. *R. H. p. 661.* It provokes Urine and the Menfes, and

and discharges Sand from the Kidneys, if drank in a proper Liquor. *Label.* Concerning its purgative Quality, I have as yet found nothing. *C. Hoffman.* *Gesner* affirms, that it is possess'd of an exulcerating Quality. It is possess'd of very violent Qualities, and is said to have something of a poisonous Nature in it; for which Reason it is very improperly us'd instead of the white Bryony. *Dale* from the above-quoted Authors.

2. The *Tamnus Cretica, trifido folio*, *Tourn. Cor.* Black Bryony of *Crete*, with a trifid Leaf.

3. The *Tamnus Americana tubifera, radice fungiformi*, *Plum.* American black Bryony, with a Root resembling a Mushroom.

4. The *Tamnus Americana racemosa minor*, *Plum.* Smaller branching American black Bryony.

5. The *Tamnus Americana racemosa major*, *Plum.* Greater branching American black Bryony.

6. The *Tamnus Americana, amplis foliis, subtus purpureus*, *Plum.* American black Bryony, with large Leaves, which are purple on their under Side.

7. The *Tamnus Americana, anguria folio*, *Plum.* American black Bryony, with a Water-melon-leaf.

BRYOPTERIS, or **DRYOPTERIS**, from βρύον, Moss, or βρύς, an Oak, and πτερίς, Fern. White Fern of the Oak, which grows on Moss of the Oak. *Blancard.* See **DRYOPTERIS**.

BRYTHION, a Malagma so call'd; the Composition of which is describ'd by *P. Ægineta, Lib. 7. Cap. 18.*

BRYTIA, βρύτια. The solid Parts of Grapes, remaining after the Must is expressed. *Galen, Lib. 2. de Alim. Fac. Cap. 9.*

BRYTON, βρύτον. A kind of Drink, made of Barley, which *Aristotle* calls πινον (*Pinon*). They who get drunk with it, do not fall indifferently any way, as with other Liquors, but always supine, and on their Backs. *Hellanicus* says the *Bryton* is made of Rice; and it may be also made of Millet, as *Athenæus* informs us; who also says, that πρὸ βρύτον, "the *Bryton*," is by some call'd κριθίνου διῶν, "Barley Wine;" and tells us, in the same Place, that this κριθίνου διῶν is call'd πινον. But *Eustathius* says there is this Difference, that the πινον is made of Barley, but the βρύτον also of Roots. *Goræus.*

BUBALUS, *Offic. Schrod. 5. 272. Gesn. de Quad. 122. Bubalus, Ital. Bufalo, Raii Synop. A. 72. Buffelus, Bellon. Obs. edit. Clus. 102. Jonf. de Quad. 38. Buffelus five Bubalus vulgaris, Aldrov. de Quad. Biful. 365. THE BUFFAL.* *Dale.*

The Parts us'd in Medicine are the Horns, Hoofs, Tallow, and Dung, of which the Horns and Hoofs are good against Convulsions; and the other Parts are reckon'd to be endu'd with the same Virtues as those of the Ox.

Those who have wrote the History of Quadrupeds, deny this Animal to be the *Bubalus* of the Antients, but rather the wild *Indian Bos*, describ'd by *Aristotle* without a Name, and said to be found among the *Arachotæ*. But the learned *Ray* is strongly of Opinion, that the Name of the *Bubalus* came into *Italy* with the Animal to which it belong'd, and which, consequently, took its Name *Bubalus* from its native Country in *India* or *Asia*. *Bellonius, Observ. Lib. 2. Cap. 50.* takes the *African Bos* for the *Bubalus* of the Antients. *Idem ibidem.*

BUBO, βουβάλιον. A Bubo.

A *Bubo*, *Phyma*, and *Phygethlon*, are Affections of the Glands. A *Phyma* is an Inflammation of a Gland; a *Bubo* is the Inflammation of that Gland, hastening to a Suppuration; but the erysipelatous Inflammation of that same Gland is call'd a *Phygethlon*. *Actuarius, Meth. Med. Lib. 2. Cap. 12.*

According to *Galen*, a *Bubo*, *Phyma*, and *Phygethlon*, are Affections of the Glands; and a *Bubo* is an Inflammation, but a *Phyma* an Inflammation of a Gland tending to a Suppuration. But, according to others, all preternatural apostematous Tumors, in whatever Part they arise, are call'd *Phymata*. *Hippocrates* says, that they who are molested with *Phymata* in their urinary Passage, are freed by the Suppuration and Breaking of the same. Buboes which owe their Rise to Bruises, other Ulcers, or Pains, are not dangerous; but such as proceed from a Fever, as it usually happens in Pestilences, are of a very malignant Kind, whether they be near the Thigh, or in the Armpit, or about the Neck.

Buboes of the first or milder Sort are to be treated, like all other Inflammations, with Refrigerants and Astringents, and such Medicines as have a repelling Virtue; such are Applications of Sponges dipp'd in Oxycras, or Wool moisten'd with Wine and Oleum Omphacinum (ελαιν ομωτρίβες), Oil of Roses, Oil of Quinces, Oil of Mastich, or Oil of Myrtle. After these, discutient Remedies are to be us'd; but, if the Body abounds with Humours, they are first to be evacuated. If there be nothing that requires Purging, we are to apply ourselves to the Cure of the Ulcer from whence the Bubo was generated, which must be treated like other Ulcers. The Inflammation in the Glands must be mitigated by Applications of Wool moisten'd with some laxative kind of Oil, and the same must also be

wrapp'd about the Part. The Tumor, when suppurated, is not hastily to be open'd, but we must try to resolve it by Medicines made into Cerates, particularly the Cerate nam'd *Diapyranon*, and that call'd *Botanicon*. If the Resolution does not succeed, we must endeavour to break it by the same means as are us'd for other Abscesses; and the Cure is the same. In Buboes proceeding from Fevers, or a mere Redundance of Humours, Repellents are to be avoided, lest we should repel the Matter upon the inward Parts; but we must begin with Discutients: If the Age and Strength of the Patient will permit, Blood is to be first taken from the Vein of the Cubit; after which we must use Fomentations of the Decoction of Chamomile, Dill, and such-like Herbs. The other Medicines are such as we have recommended as proper for the Parotides, and for Inflammations. After *Atticus*, call'd also *Bubonium*, from its Virtues in this Distemper, is said to cure it, not only if it be apply'd to the Sore, but worn as an Amulet. *P. Ægineta, Lib. 4. Cap. 22.*

There are some sorts of Tubercles, or Tumors, which never appear but in certain Places, which are in a manner appropriated to them. To these kinds belong what we call Buboes, which infect no Parts but the Groin and Armpits, and may be divided into the mild and the malignant; which Distinction, because it includes a different Method of Cure, requires a little Explication. A mild Bubo is so nam'd, first, when it rises, as it were, spontaneously; that is, when the Patient is in a State of Health, and wholly free from any contagious or pestilential Disease, in the same manner as a Furunculus, or Phlegmon, arises, especially on Infants; tho', for the most part, without Danger: Or, secondly, a Bubo is said to be mild, when it makes its Appearance at the End of some mild and favourable kind of Fever, the Violence of the Disease being, by the Strength of Nature, diverted that Way. A malignant Bubo is one which owes its Rise to some pestilential Contagion, or the Lues Venerea, and is therefore usually call'd a pestilential or venereal Bubo.

As to the Causes of a mild Bubo, I must remark, that this, as well as all other Inflammations proceeding from internal Causes, takes its Rise from the Stagnation of some glutinous and inspissated Blood; and, consequently, no way differs from other Inflammations, except its Place, which is in the Groin or Armpit, where much Fat, and many Glands, are situated.

A mild Bubo is not difficult to be distinguish'd, if we consider, that it is nothing but a Tumor, with an Inflammation, in the Parts above-mention'd, without any pestilential or venereal Contagion.

This kind of Bubo also is very seldom of dangerous or pernicious Consequence, being commonly resolv'd, or brought to a Suppuration. But this Resolution or Suppuration is sometimes brought about with Difficulty, especially in Persons of a bad Habit of Body, inasmuch that these suppurated Tumors have sometimes ended in stubborn Fistulas. A Bubo in the Armpit is more easily brought to a Suppuration than one in the Groin; but neither of them is so difficult of Suppuration as the Parotides.

For Buboes which happen without any other Distemper, especially in Infants, the best way is often to administer frequently some purging Medicine, mix'd with Mercurius dulcis, that the glutinous and coagulated Blood may be drawn by Revulsion from the affected Part, and, at the same time, dissolv'd. Then other Medicines, which attenuate the Blood, are to be prescrib'd, as Decoctions of the Woods. If the Bubo be attended with a slight Fever, a Physician ought to be consulted, for administering some antifebrile Medicines.

Where the Inflammation is but moderate, and, consequently, Resolution may be hop'd, it will be proper to apply digestive Plaisters, such as those of simple Diachylum, Sperma Ceti, Galbanum, Diasaponis, or De Ranis cum Mercurio; for these sorts of Tumors are often resolv'd by such external Applications.

If the Inflammation be violent, and the Pain intense, or if outward Digestives have no Effect, we are immediately to have recourse to Suppuration, by applying a Plaister of *Diachylum cum Gummi*, which is of excellent Service in this Case. If the Pain be very great and intolerable, digestive Cataplasms, applied warm to the affected Part, and often chang'd, are usually of very great Efficacy, not only in mitigating the Pain, but resolving the Tumor. Cataplasms for this Purpose may be compos'd of Crums of wheaten Bread, and Milk, boil'd to a Poulitis, with an Addition of some Saffron; or of Meal, with Honey and fresh Butter, work'd to a Cataplasm by the Fire-side; to which may conveniently be added a small Quantity of *Venice Treacle*. This is to be apply'd hot, and often chang'd.

When, by these and such-like Medicines, we have reduc'd the stagnating Matter to Maturation, we are to make use of some Caustic, or of the Knife; but all imaginable Care is to be taken, that, in making an Incision, we do not injure the axillary Vessels under the Armpit, or the crural Vessels which lie under the Groin, and, by that means, excite a very dangerous Hemorrhage. The Abscess, when open'd, is to be

treated according to the general Method of treating Abscesses; tho' we ought to observe, that a Plaister of Diachylum is of extraordinary Use in this Case, as being extremely well adapted to the mollifying or resolving any Hardnesses or Callosities about the Edges of the Ulcer. *Heister.*

Gulielmus de Saliceto, an Author who wrote before the Venereal Disease was imported from America, mentions a Bubo *propter concubitum cum fœda muliere*. This Dr. Freind does not think was a Venereal Bubo; because all Buboës are not Venereal; and both these, and Tumors, and Abscesses in any of the genital Organs, may be contracted by conversing with Women, who, without having the Leprosy, or the Venereal Disease, are affected with Ulcers and Impostumations in those Parts.

Hippocrates takes Notice of a sort of Bubo arising on account of a Suppression of the Catamenia, and coming to Suppuration, in his Treatise *de Natura Pueri*. He calls it *φύμα κατά τὸν βελόνα, πύον γυναικῶν*.

PESTILENTIAL BUBOES.

Pestilential Tumors are, by Professors of Surgery, generally divided into Buboës, and Carbuncles, or Anthracæ. Under the Name of Bubo they comprehend all inflammatory Tumors from a pestilential Cause, which arise not only under the Ears, in the Armpits, and in the Groin, but also in the Neck, on the Breast, Arms, Feet, or any other fleshy Part of the Body; the corrupt and pestiferous Matter being, by the Benefit of Nature, driven to the external Parts.

A pestilential Bubo may be known from other Tumors, by its appearing commonly just at the Time of a Pestilence, and its being accompanied with other pestilential Signs. For it is to be consider'd, that the best of our later Writers, who liv'd in the last pestilential Times, have assur'd us, that Persons seiz'd with the Pestilence, unless they died on the Spot, were every-where observ'd to have an Eruption of such Tumors. This Eruption happens sometimes quicker, sometimes slower; for some perceive them before they are sick, or have any Sense of the pestilential Poison; on others they appear not till the second, third, or fourth Day after their being seiz'd with the Contagion; but they are very rarely observ'd to come forth later. Sometimes these Buboës are accompany'd with a Carbuncle, or Anthrax, but are more frequently without them; whereas a Carbuncle very seldom happens without a Tumor.

It is an old Observation, and confirm'd in the last Pestilences, that most of those on whom Tumors appear'd, if they were not attended with very severe Symptoms, or an Accession of other Disorders, had the good Fortune to recover. Therefore our later Physicians have come into an Opinion, and not without Reason, that the principal Part of our Business in managing the Pestilence consists in promoting, by all imaginable means, the Growth of the Tumor, or Bubo, without the Benefit of which there is no Preservation of Life under the Pestilence; and that the Physician, who takes a right Method of curing the Bubo, at the same time cures the Pestilence. This being granted, digesting, dissolving, or repressing Medicines, Phlebotomy, or Purging, are so far from conducing to the Cure of the Pestilence, that, by retracting the Poison into the Blood, they destroy the Patient. The principal Business therefore of the Physician, or Surgeon, in this Case, is, to assist provident Nature, by promoting the Expulsion of the Tumors forming in the Body, and reducing them as soon as possible to a Suppuration or Maturity.

For the more ready Accomplishment of this End, it is much the safest way for the Patient, as soon as he perceives the Eruption of a Tumor, to confine himself to his House, and avoid the Air, and even to betake himself to his Bed; for, by this Method, he may be the more successfully defended from the external pestiferous Air, and the Buboës, by the right Administration both of internal and external Remedies, be the more easily expel'd, and brought to Suppuration.

As to external Management, it will be extremely proper to rub the swelling Part, with some Vehemence, both with the Hands, and with Linen Cloths; and, what is most effectual to the Purpose, after that to apply some emollient and maturing Remedies, to promote a speedy Eruption. A very good Remedy, in particular, is a Malagma compos'd of Ferment of Bread hot, alone, or mix'd with Salt and Mustard-seed bruis'd. By virtue of this Medicine the constricted Parts are wonderfully mollify'd and stimulated, till the pestiferous Matter, being attracted from the Blood toward the intumescent Parts, passes into a Suppuration. Of the same Virtue are Cataplasms, suppurative of other Tumors; especially one compos'd of Onions, roasted under the Ashes, and work'd with Treacle and Butter; or a Cataplasm prepar'd of the Inside of a wheaten or white Loaf, and well boil'd with Milk and Saffron. There are some Surgeons, who, to avoid exposing the Body to the Air, because of the frequent Change of Cataplasms, by which Transpiration may be disturb'd or hinder'd, are rather for applying emollient Plaisters, particularly a Plaister of Diachylum, simple or compound, instead of Cataplasms:

Barbette, a very noted Physician, in his Book of the Pestilence, prescribes the following, which seems a very good one.

Take Plaister of Diachylum and de Mucilaginibus, each half a Pound; Mustard-seed pulveriz'd, four Ounces; Unguentum Basilicum, four Ounces: Mix them, and make them into a Plaister. This must be laid upon the swelling Part, which must first be well rubb'd, and renew'd every Day, or every other Day.

Hodges, a famous English Physician, in the Description of that terrible Plague which rag'd at London in the Year 1665. very much commends the following.

Take Plaister of Oxycroceum, three Ounces; Gum Galbanum strain'd, and Caranna, each one Ounce; common Pitch, two Drams. With Oil of Chamomile melt and make them into a Plaister according to Art, which must be applied in the same Method as the former.

Nor does that Plaister deserve to be despis'd, which consists of Honey, Meal, and Yolks of Eggs. The Remedies which most of the ancient Physicians us'd to accelerate Suppuration, as Vesicatories of Cantharides, and dry Cuppings, are almost wholly rejected by the Moderns, and those the most experienc'd Physicians in curing the Pestilence.

But what is much to be admir'd, and deserves a deeper Consideration, is, that the very celebrated *Beintema*, Physician to the Emperor, in his Latin Treatise of the last Pestilence, assures us that pestilential Buboës were often safely and successfully resolv'd and cur'd by the bare Imposition of hot Ashes. But tho' there be hardly any besides this Author, who advises the Resolution or Cure of Buboës in a Pestilence, it will not be amiss here to observe, that the pestiferous Venom was not, by the Resolution, repress'd and repelled into the Blood, but rather extracted out of the Body, by means of the hot Ashes, and quite subdu'd.

To these external Medicines it will be proper to add the Use of internal Remedies, by whose Assistance the latent Venom may be expel'd by gentle Sweat; but immoderately heating and vehement Sudorifics have been always found to be noxious and dangerous, by Physicians of later Times; whereas sucking of small Liquors hot has been experienc'd to have a very good Effect, as being excellently accommodated to excite a gentle Sweat, and to temper the Blood. Medicines of this Nature, among others, are Potions of Tea, mix'd with a little Saffron, or of other alexipharmic Herbs, as Sage, Scordium, Rue, Millesolium, or Betony; Pisan also, prepar'd with, or without, the Root of Scorzoneria, and drank hot, in order to maintain a continual, but gentle Sweat. And as vehement Sudorifics, so cold Liquors are not a little dangerous; for they not only repress the Sweat, but, in a remarkable manner, restrain the Eruption and Growth of the Buboës, on whose kindly Promotion and Increase the Fate of the Patient so much depends. The Air of the Chamber in which the Patient lies, must be kept in a temperate State, neither too hot, nor too cold; the Bed also must be kept in the same Temperament, and as commodious as possible. If the Patient be weak and low, but without any remarkable Degree of Heat, it will not be improper to give thirty or forty Drops of Elixir Proprietatis, or the Mixture Simplex, the Bezoartic Tincture, Essence of Myrrh, Essence of Scordium, two or three times every Day, in some warm Liquor; or exhibit some good Bezoartic Powder. On the contrary, for those who are of a hot Complexion, or are molested with immoderate Heat, nothing is more proper than Nitre depurated, with Crabs-eyes, and testaceous Powders, or temperate Acids, such as the Juices of Citrons, Currants, and Pomegranates, or the Syrup and Water of Borage, Bugloss, or any other temperate and cooling Simple, often exhibited, instilling at the same time, if the Heat be vehement, some Drops of sweet Spirit of Vitriol.

The Remedies above prescrib'd are of sufficient Virtue to expel all the Poison of the Contagion from the inward and noble Parts, on the Authority of the most learned and experienc'd Physicians, who have written on the late Pestilence in Poland, Prussia, Denmark, Austria, Hungary, and Ratibon. These, then, are to be frequently repeated, till either the Tumors are digested and resolv'd, which, they tell us, sometimes happens without Suppuration, or, what more generally happens, are brought to Maturation. In some Cases the Tumor immediately inclines to Suppuration, sometimes it remains for whole Weeks, without being in the least mollify'd. When this happens, the Use of the above-prescrib'd Medicines is to be continu'd till the Tumor either breaks of itself, or is open'd with the Incision-knife; and the pestiferous Matter, being thereby prohibited from returning into the Blood, is evacuated, and the Wound thoroughly cleans'd.

The Abscess being open'd, we must immediately set about cleansing it, which being completed, the Wound must be heal'd by means of some vulnerary Balm. For the Purpose of cleansing,

cleansing, we have a most noble Remedy, which is, the digestive Ointment, (Turpentine with the Yolk of an Egg) mix'd with a small Quantity of Venice Treacle, and Balsam of Sulphur with Oil of Turpentine. At every Dressing the Pus is to be gently absterge'd from the Ulcer, which is afterwards to be dress'd with the before-mention'd Ointment, but not tented, except the Orifice be too narrow; and a Plaster must be laid thereon, and the Place carefully bound up. Some of the best Plaisters in this Case are Diachylon, or what is compos'd of Meal and Honey, and these may very properly be apply'd till the Wound is heal'd.

As to the most convenient Time for making the Incision, Physicians are not agreed. Many Authors, especially among the Moderns, who have given us Precepts concerning the Pestilence, are utterly against opening a pestilential Bubo till it be perfectly ripe, and thoroughly soft. For, besides that these Buboes, as some have observ'd, almost constantly break of themselves, there is very great Danger, if we may believe these Authors, lest a too hasty and precipitate Incision of a Bubo should be succeeded by a Fistula of a bad kind, by an Immobility of the Limbs, and even by a Gangrene. Others, on the contrary, assert that the immediate Incision of a pestilential Bubo in the Beginning is not only safe, but the most likely means to preserve the Patients, and the surest, as well as speediest, way to free them from the Contagion.

Tho' some of the ancient Physicians have directed the utter Excision of pestilential Buboes, in order to extirpate the Venom, later Authors, for good Reasons, have been of a contrary Opinion. For such a Method of Cure is esteem'd not only too violent, but even very dangerous, especially in some Parts of the Body.

Thus also Cathartics and Emetics of all kinds, Phlebotomy, and internal healing Medicines, such as a Bezoartic Tincture, distil'd Oils, with hot volatile antipestilential Spirits, Venice Treacle, and Mithridate, are almost unanimously reject'd by later Physicians, tho' former Physicians laid a great Stress upon them. *Heister Chirurg.*

Of VENEREAL BUBOES.

Venerae Buboes are painful, hard, renitent Tumors of the Conglobate or Lymphatic Glands, which are situated in the Groins, and which tend slowly to Suppuration, arising mediately or immediately from impure Venereal Commerce. Therefore when this Species of the Venereal Disease affects either Male or Female immediately after impure Embraces, or in a few Days after, some or more Glands, in either or both Groins, give some slight Pain in walking; and, upon feeling them, it may be perceived, that they are somewhat tumefy'd. The Tumor increases faster or slower, and grows hard, tense, and renitent; hence the Pain in the Part increases, a Sensation of preternatural Heat is perceiv'd, but the Skin still retains its natural Colour; the Patient finds more Difficulty in walking; at length a manifest Bubo appears, which are different in Figure, as orbicular, oblong, or round; sometimes of the Size of a Pigeon's or Hen's Egg, sometimes as large as a Man's Fist.

Venerae Buboes admit of a threefold Distinction. 1. They may be distinguish'd by the Manner in which they make their Attack; for some proceed immediately and solely from impure Embraces, and constitute an *essential* Disease; others accompany a Gonorrhea which is suddenly suppress'd, or has but a small Discharge; or else attend chancrous Ulcers of the Penis, and form a *symptomatical* Disease; lastly, others arise spontaneously without any immediate previous Embraces, and constitute a Pathognomonic Sign of a latent Pox.

2. They may be distinguish'd by their Qualities; for some are attended with great Pain, Heat, and Pulsation, and are of the Phlegmon kind; others have but little Heat, Pain, Pulsation, and Hardness, but are rather soft, and retain the Marks of the Fingers after Pressure, and are of the oedematous kind; lastly, others being quite void of Pain, Heat, and Pulsation, are very hard, and are call'd *scirrhus*.

3. They may be distinguish'd by their manner of terminating, which is various; for some, either spontaneously, or by the Force of the Remedies applied to them, are dispersed by Degrees, and disappear; others come to Suppuration, and, after Evacuation of the Pus which was collected in them, at an Aperture made by a Caustic or Incision, form a Cicatrix; lastly, others, eluding the Force both of Ripeners and Emollients, persist in their Hardness and Renitency.

CAUSES of VENEREAL BUBOES.

The inguinal Glands cannot be tumefy'd after impure Embraces, and indurated into a Bubo, unless the Lymph, which is convey'd to them from the neighbouring Parts, as to a common Reservoir, and ought to flow thro' their Cells or Vesicles, in order to be carried off again, stagnate there, and be accumulated in them. But the Lymph cannot stagnate, and be accumulated in the inguinal Glands, unless it be thicker, and more viscid than usual. It follows, therefore, that the Lymph, which circulates thro' the inguinal Glands, is render'd too

thick and viscid by impure Embraces, and, by being accumulated in those Glands, produces Venereal Buboes.

But nothing new happens to the Body from impure Embraces, except the simple Admission of the Venereal Infection. That Infection, therefore, being admitted into the Body, and blended with the Lymph of the inguinal Glands, renders it too viscid and thick; for the producing of which Effect it is very well adapted, since it is of a salso-acid Nature, and is, for that Reason, effectual in coagulating sulphureous Humours, of which kind the Lymph is.

The infectious Matter, when once receiv'd, can be communicated to the inguinal Glands two ways; the one a long and intricate one, that is, by the Circulation of the Blood; the other much shorter and more expeditious; for Instance, by the Lymphatic Vessels, which are sent to the inguinal Glands. The first we reject, as not fit for resolving this Question, since that being once admitted, all the conglobate Glands in the Body are equally liable to be affected with the inguinal Glands, since they derive their Lymph from the same Mass of Blood. But this contradicts Experience. Therefore, in the present Case, we are of Opinion, that the later Way is only to be admitted.

But since there are three Species of Buboes, as we said above, consider'd with respect to the Manner in which they originally appear, the Diversity of the Manners in which they are contracted, deserves to be farther explain'd.

During the Act of Venereal Commerce, the external Parts of the Pudendum Muliebre, together with the Vagina, are irrigated with the *Liquor Genitale* of the Male. If this, therefore, should be corrupted, the infectious Matter will be imbib'd into the spongy Substance of the Parts, and mix'd with the Lymph which circulates in them; but this is sent by peculiar Lympheducts to the inguinal Glands. The infectious Matter, therefore, which is admitted, will be carried with it, at the same time, to those Glands.

In the same manner the Pudenda Mascula, and Pubes itself, will be affected, by the Communication with the other Sex. Therefore, if the Humours there are corrupted, the infectious Matter, penetrating the Pores of the Parts, will insinuate itself into the Lymph which flows thro' them, but this Lymph continually flows from thence to the inguinal Glands. Therefore the Venereal Matter, which is mix'd with the Lymph, tends to the same Parts.

In a suppress'd Gonorrhea, or a Gonorrhea where the Discharge is too small, the feminary Vesicles, Cowper's Glands, and Testes, in Men, but, in Women, the Prostates, Cowper's Glands, and the Botryform Glands of the Vagina, will be turgid with a corrupted Fluid. Some Particles, therefore, of the virulent Humour exhaling from thence will be taken up by the reflux Lymph, which flows from those Receptacles, or from the Parts which lie very near them in both Sexes, and will be carried with it to the inguinal Glands, where they will produce Buboes, unless a Passage be instantly open'd, by which the putrid Humour, which has been confin'd, may be discharged.

After the same manner the Lymph which returns from the Pudenda in either Sex, when they are affected with chancrous Ulcers, conveys with it several Particles of virulent Matter, from the ulcerated Parts, to the inguinal Glands, which by inspissating the Lymph, and obstructing the Glands in which it is contain'd, frequently occasion Buboes.

Lastly, in a latent Pox, when the Contents of the Testes, Prostates, Vesiculae Seminales, and Cowper's Glands, in Men, but, in Women, of the Prostates, Botryform Glands, and Cowper's Glands, is infected with the Venereal Taint, the Lymph of these Receptacles themselves, and of the Parts adjacent, will be so vitiated by the contagious Matter received from thence, that, being convey'd into the inguinal Glands, and infecting the Lymph collected there with the same Disorder, will produce Buboes, if the Infection has Virulency enough to produce such an Effect. But let the Bubo arise from whatever Cause, either from impure Embraces, a suppress'd Gonorrhea, chancrous Ulcers, or, lastly, from a latent Pox, if it happens, that the Lymph in each Groin be equally infected with the Venereal Poison, a Bubo will certainly arise in each Groin; but if there should be any Disparity in either Part, it will only happen on one Side.

This Disparity may arise from three Causes.

1. From the Disorder of the Part from whence the Poison is convey'd. So it appears, that the Glands of the Right or Left Side receive more Infection, as the Prostates, feminary Vesicles, Cowper's Glands, or the Testes, in the Man, but the Prostates, Cowper's Glands, or the Botryform Glands of the Vagina, in the Woman, shall be more turgid with virulent Humours on either Side, because the Lymph that returns from thence, and is convey'd into the Glands of the same Side, will be more virulent.

2. From the Disorder of the particular Part, to which the Poison is communicated. Thus it appears, that the inguinal Glands

Glands on either Side are more affected, as they are, by their natural Conformation more full of Windings; more intricate, more cellular, in a Word, as they are less pervious, and therefore the more easily obstructed with inspissated Lymph.

3. From external Causes, or, as they term it, from Accidents. Thus it appears, all other Circumstances being alike, and the Glands of either Side equally infected with the Poison, that a Bubo may be raised on either Side by Pressure or Contusion of either Groin, by which the Congestion of the infected Lymph will be promoted; and this will sometimes happen by only lying on one Side, by which means the Regress of the Lymph is rendered slower, and more difficult, the Declivity of its Passage being diminished.

SYMPTOMS attending VENEREAL BUBOES.

1. The Lymph which is convey'd into the inguinal Glands, being inspissated by the Venereal Poison, will be inclin'd to stagnate there, from the Multiplicity of Windings and Cells which communicate with each other, which will be so many Obstacles to its Discharge. From hence, therefore, in the Beginning of the Disease, will arise a small Tumor of the inguinal Glands.

2. The Glands of the Groin cannot swell, without being upon the Stretch; nor can they suffer Distention without Pain, more or less, according to the Degree of the Tumor. Hence, therefore, upon the Increase of the Bubo, Pain will arise in the inguinal Glands.

3. It is impossible to walk, unless the Muscles of the Leg and Thigh pull them forward; but these Muscles cannot act without pressing upon the tumefied Glands of the Groin, and, by this Pressure, Pain will be excited. The Action of Walking, therefore, cannot be perform'd without raising Pain in the Venereal Bubo.

4. The Glands of the Groin, being once obstructed, will daily be more and more swell'd by the continual Accession of fresh Lymph, till, at last, the Force with which the Glands resist farther Dilatation, will be equal to the Force with which the fresh Lymph is impel'd. Therefore the Bubo will daily increase, grow harder, and, becoming prominent, tend to a Point, extending itself obliquely, according to the Situation of the inguinal Glands; more or less, however, in proportion to the Magnitude and Extensibility of these Glands, and the different Impulse of the Lymph which arrives at the Part.

5. Upon the Increase of the Bubo, the Blood-vessels which creep thro' the Middle of the Substance of the indurated Gland, must necessarily be compressed. But the Blood which flows thro' these compressed Vessels, must stagnate and be retarded in them, and, by that means, increase the Heat of the Part, till it has found itself a Passage. Hence, therefore, the Heat of the Bubo will increase.

6. But if the Tumor of the Gland increases exceedingly fast, and suddenly restrains the Course of the Blood; if the Pulsation of the Arteries is very strong, from the natural Make of the Body, or from a Fever coming on; lastly, if the Blood, being naturally hot, rarefies much; several small Drops of Blood will force their Way into the lateral Lymphatic Vessels, from whence a new Circulation of the Blood, deviating from its Course, being begun, the Bubo will increase in Heat, Pain, Pulsation, and Resistance; in a Word, will become a true Phlegmon.

7. But because the Blood-vessels of the Skin, which is free from any Disorder, are not at all, or very little, straiten'd, the Blood flows there as usual, and the Skin is not at all inflamed, and scarcely changes its Colour, but preserves that which is natural to it, or assumes one very little different from it.

8. If the Tumor increases slowly, if the Pulsation of the Arteries is slow and weak, if the Blood of the Patient is naturally aqueous, and inclin'd to Dissolution, the Blood will be driven languidly and slowly into the Vessels of the obstructed Gland, and in them it will flow still slower, and therefore will be less restrain'd; it will not stagnate, therefore, or will stagnate very little, in the neighbouring Vessels; and therefore will bring on but a moderate Degree of Heat and Pain, and a weak Pulsation of the Arteries; but it will, by Degrees, so dilate the Passages thro' which it passes, that the Straightness which was brought on upon the external Parts, will give very little Trouble; or it will open itself a new Passage into the lateral Vessels, leaving only its thinner Serous or lymphatic Parts with which it abounds, in the Substance of the Humour. Hence therefore the Bubo in the inguinal Glands will be attended with moderate Heat, Pain, and Pulsation; and, being soft, at least externally, will easily receive and retain the Print of the Finger upon Pressure; in a Word, it will become cedematous.

9. Lastly, if the Blood is more thick, and inclin'd to Dryness, and secretes a thick and less fluid Lymph; if that Lymph is collected very slowly in the inguinal Glands, the Bubo which arises from thence will be scirrhus, that is, hard and renitent, because it is occasion'd by a Collection of very thick Lymph, indurated by Length of Time; it has neither Heat, Pain, or

Pulsation, as it is attended with no Stagnation of the Blood; because, as the Collection of Lymph in the Glands was form'd very slowly, the neighbouring Vessels were compressed in proportion; by which means the more remote Vessels, with which they communicated, were dilated, by Degrees, sufficiently to keep a free Passage open.

10. The Bubo of the Phlegmon kind, may be easily and perfectly resolv'd; for the Blood, by whose Stagnation it is principally brought on, is easily restor'd to its natural Fluidity; but the Lymph which is retain'd in the obstructed Glands, preserves its Fluidity, and is strongly urged on to a circulatory Motion, by the intense Heat, and violent Vibrations, of the Arteries, which are proper to this kind of Bubo; and therefore it is the more easy to be resolv'd.

11. But if it does not resolve, it is on the same Account not difficult to be brought to Suppuration; for the Blood, by whose Stagnation it is principally supported, is naturally subject to Putrefaction; the Lymph, with which the Glands are stuffed, is easily disposed to Suppuration, by the violent Heat, and by the Pulsation of the Arteries with which it is agitated.

12. The cedematous Bubo is, indeed, easily resolv'd, as far as it relates to the thin Serum which fills the Vessels which surround the Tumor, because it is easily restor'd, by the lymphatic Ducts, to its usual Course of Circulation: but it is imperfectly resolv'd, because the thick Lymph collected in the Cells of the Glands not being supplied with a Degree of Heat sufficient to render it fluid, and not being agitated by the Vibrations of the Arteries, which would urge it forward, both of which natural Assistances are wanting in this kind of Bubo, it is very difficult to be entirely resolv'd, on which Account a hard Nucleus always remains.

13. For the same Reason also, it is not easily brought to Suppuration, because the inspissated Lymph, both from its natural want of saline and active Parts, and from the Defect of an intense Heat, by which it might be rendered fluid, and of the Vibrations of the Arteries by which it might be divided, is very unfit to form a Suppuration.

14. Lastly, The scirrhus Bubo is never either resolv'd, or suppurated, without great Difficulty, but generally grows daily harder; as well because the Lymph which stagnates in the Cells of the Glands, is thicker and more viscid, as because the preternatural Heat and Vibration of the Arteries are wanting, by which it might be brought to Resolution or Suppuration.

DIAGNOSTICS and PROGNOSTICS relative to VENEREAL BUBOES;

Venereal Buboës agree with simple, pestilential, scorbutic, and strumous Buboës, with respect to their Situation and Figure; but are distinguishable from them by peculiar Marks: 1. From simple and pestilential Buboës, because in these the Skin is red and inflamed, different from what it is in the Venereal Bubo. 2. From strumous and scorbutical, because from the known State of the Patient manifest Signs of strumous or scorbutical Disorders are collected. 3. But they are most certainly distinguished from all others by the Relation of the Patients, who confess, that they have been guilty of unclean or suspected Venery; or that they are affected with a Gonorrhea, or chancrous Ulcers.

Venereal Buboës bear no very small Resemblance to the Bubonocoele, or inguinal Hernia; yet we have known them sometimes confounded with it, not with that kind of Bubonocoele which is occasioned by the falling down of the Omentum, and is called Epiplocele, in which the Tumor is softer, but with that which is occasioned by the Intestine, and is called Enterocoele, in which there is greater Resistance, and is for that Reason more like a Bubo: but it cannot readily be mistaken for that Species of Enterocoele, in which the Intestine slips through the oblique Rings of the Epigastric Muscles, because the Place in which the Intestine falls down, and where the Tumor is raised, is at a Distance from the Inguinal Glands, and of Consequence from the Venereal Bubo; but it may be confounded with that Enterocoele, in which the Intestine falls into the Groin through the Foramen in the Peritonæum, through which the crural Vessels pass, which in their Situation differ not much from that of the Inguinal Glands, or Buboës.

But a Bubo may be easily distinguished from an Enterocoele of any kind, by the following Signs.

1. In the Enterocoele the Tumor is smooth upon the Superficies, and pretty nearly of a spherical Figure; the Superficies is pretty broad, but the Basis slender, equal to the Size of the Foramen, from whence the Intestine is fallen, and adheres to the Groin, as it were by a Stalk: the Bubo, on the other Hand, has an unequal Superficies, and is generally of an oblong Figure, and has a wide expanded Basis.

2. In the Enterocoele the Tumor easily yields upon Pressure, but, upon taking off the Finger, it instantly recovers itself: on the contrary, the Bubo resists Pressure, as the Bubo of the Phlegmon and scirrhus kind; or, if it yields to Pressure, it retains

tains the Print of the Body impressed upon it, as the cedematous and suppurated Bubo.

3. In the Enterocoele it appears by its giving Way to Pressure, and easily rising again, that either Flatuluses alone, or mixed with a liquid Matter, are the Contents of the Tumor: But in the Bubo no Flatulency is to be discover'd; or if by any obscure Fluctuation it shall be discover'd, that any Fluid is contained therein, it is but in a very small Quantity, and lies deep, and is only contained in the Middle of the Tumor, as it happens in the suppurated Bubo.

4. The Enterocoele brings on very bad Symptoms, as Fever, colical Pains, total Abstractions of the Bowels, vomiting of the intestinal Feces upwards, and Iliac Passion, which never attend the Bubo. Besides, it is an exceedingly rare Thing, that the Use of impure or suspected Venery, by which the Bubo is produced, shall so aptly coincide with a Fall from on high, a Blow upon the Belly, or violent Motion, by which the Enterocoele is brought on, that it shall make it a Doubt of which kind the Tumor of the Groin is, and to which Cause it ought to be ascribed.

As soon as ever it appears, that there is a Venereal Bubo, it is easy enough to find out the Differences by which it is distinguish'd, by the Signs which we have laid down in its Description. For if the Tumor is intensely hot, painful, has a Pulsation in it, and resists Pressure, it is a Bubo of the Phlegmon kind; but if the Heat, Pain, Pulsation, and Resistance are in a moderate Degree, or if it is of a softer Nature, and retains the Print of the Finger impressed upon it, it is cedematous; lastly, if it is hard, makes great Resistance to Pressure, is quite free from Heat, Pain, or Pulsation; it is manifest, that it is a Bubo of the scirrhus kind.

Lastly, The Causes of Venereal Buboes are to be inquir'd into, either from the Relation of the Patient, or from the Knowledge of what has preceded; from whence it will appear, whether the Venereal Infection was communicated to the Inguinal Glands immediately by impure Coition, or by the Suppression of a Gonorrhœa, or by chancreous Ulcers of the Penis, or from a latent Pox.

As to the Prognostics, the Venereal Bubo, if it is treated with Caution, is attended with no Danger; it is, however, a very troublesome Disorder, since it always requires a tedious Method of Cure, and oftentimes a Chirurgical Operation.

A Bubo may nevertheless be accounted dangerous on this Account, that it frequently brings on the Pox, unless the Poison that it receives is evacuated by Suppuration, or repeated Purging, and the Relicts, if any such should remain in the Blood, are diligently corrected by specific Remedies. But there is less Danger of the Pox to be apprehended from the Bubo which arises from impure Embraces, or from a suppressed Gonorrhœa, or from Ulcers of the Penis, than from the Bubo which arises without any present manifest Cause; for the first arises from the Infection, which is just admitted, and which, as it has not been communicated to the Blood, may be discharg'd or corrected; but the latter depends upon the Infection which has been already conceal'd a long time in the Blood, and therefore has thoroughly tainted it.

The Bubo of the Phlegmon kind admits of a much more easy Cure, than that of the cedematous, or of the scirrhus kind; for as the first may be easily resolv'd, or brought to Suppuration, it in either way, by observing proper Cautions, quickly admits of a perfect Cure: but the latter frequently ends in a truly scirrhus Tumor, which for a considerable time eludes the Force of all Remedies, and at length frequently degenerates into a cancerous Nature.

CURE.

The Cure of the Venereal Bubo may be undertook in three Cases. 1. If it has come on without any manifest Cause. 2. If it is accompanied with a virulent Gonorrhœa, or chancreous Ulcers of the Penis. 3. If it is unattended with any other Disorder, and arises immediately after impure Embraces.

In the first Case, when the Bubo is an Evidence of a latent Pox, it is proper without Delay to have recourse to Mercurial Unction, by which both the Bubo, and the Pox, by which it is occasion'd, may be perfectly cured. But, if the Patient cannot, or will not, make use of this salutary Advice, you may try other specific Remedies, according to the Methods laid down below, cautioning the Patient, as it is the Duty of every ingenuous Physician, that by this Method the Disease will not have a complete, but a palliative Cure only.

In the second Case, the same Remedies in like manner are to be applied after the same Methods, but joined with others which may be proper for the Gonorrhœa or Ulcers, in such a manner, that by the joint Force of the Remedies both Disorders may be perfectly cured at the same time.

Lastly, in the third Case, (which, as it is the most simple, may be a Rule for the rest) the utmost Endeavours should be used to destroy or discharge the Infection which is just admitted; and, if any Relicts remain in the Blood, which may

renew or bring on the Pox, they should be diligently corrected.

Custom has established two Methods, by which all these Effects are equally produced; one by which Venereal Buboes are cured without Suppuration, or any Application of ripening Medicines, that is, only by the Use of Mercurials and Cathartics, till the Tumor, being dispersed, disappears by Degrees.

The other consists in curing Buboes by Suppuration, which is promoted by the Application of ripening Topics to the Part, and is so united with the internal Use of Mercurials, that the morbid Infection is by both destroyed.

The first Method requires no Operation to be perform'd, is shorter, free from Pain, and equally safe, and therefore, in the Judgment of many, seems preferable to the other. But at the same time it has this Inconvenience, that the Patient must be confin'd to his Chamber, during the whole Time of the Cure, if he would avoid the Danger he may incur from the Coldness of the Air. The later Method generally takes up more Time, is very tedious, and, as it requires the Performance of an Operation, is painful; but, as it generally permits the Patient to follow his usual Business, it is not yet quite neglected; but sometimes things come to that Height of themselves, when the Suppuration is once begun, that the Physician is obliged to follow this Method, though it be ever so much against his Will. Therefore, lest I should seem guilty of an Omission, I shall describe both Methods, but as briefly as I can.

1. Therefore first according to the former Method.

1. In the Beginning you should bleed, that the Glands may be unloaded, and the Inflammation of them prevented. The Blood should be drawn freely, if the Bubo is of the Phlegmon kind; but very sparingly, if it is cedematous, or scirrhus. Therefore the Practice of the old Authors is not to be regarded in this Case, who, led by Prejudice, which Experience proves to be false, were afraid of opening a Vein in curing a Bubo, as if the Infection would by this means be thrown into the Blood, and produce a Pox.

2. After this, the Patient should be purged, both that the Way may be prepared for the Use of other Remedies, and that Part of the infectious Matter may be carried off. Mild and cooling Purges should be prescribed, if the Bubo is attended with Inflammation. These may consist of the Pulp of *Cassia*, Decoction of Tamarinds, some purgative Salt, with a moderate Dose of *Mercurius Dulcis*, or *Calomel*. Proper Formulæ of this kind are these following.

Take fifteen Grains of well prepar'd *Mercurius Dulcis*, and of the Pulp of *Cassia* newly extracted, one Ounce; mix up into a Bolus, to be taken with an empty Stomach. Or,

Take of Tamarinds, one Ounce and a half; and of Vegetable Salt, one Dram. Boil them in a Pound and an half of common Water. Let the Liquor, when strain'd, be divided into two Doses, to be taken at three Hours Distance from each other, having first swallow'd a Bolus, consisting of fifteen Grains of *Mercurius Dulcis*, mix'd up with a proper Quantity of Conserve of Roses.

But stronger Purges should be order'd, if the Bubo should be cedematous or scirrhus. These may consist of Jalap, Diagrydium, large Doses of Calomel, adding also, if necessary, the *Trochisci albandal*. Proper Formulæ for answering this Intention are these following.

Take of Calomel, twenty Grains; of Jalap, and sulphurated Diagrydium, each twelve Grains. Make up into a Bolus, with a sufficient Quantity of Conserve of Roses. Or,

Take of Calomel, twenty Grains, or one Scruple; of sulphurated Diagrydium, ten Grains; of the *Trochisci albandal*, four Grains; and of the Oil of Anise, three Drops. Make up into a Bolus, with a sufficient Quantity of Conserve of Roses.

3. Mercurial Preparations, which have no purging Quality in them, are now to be prescribed, because they continue longer in the Blood, and have greater Efficacy in throwing out the Venereal Taint. Of this kind are,

The Mercurial Panacea sublim'd twelve times; the *Mercurius Violaceus*, or Antimonial Flowers of Mercury well wash'd; *Æthiops Mineral*, either triturated with Mercury and Sulphur, or prepar'd by Ignition; or, which is still better, the other *Æthiops Mineral*, triturated with *Peruvian Balsam*, or that of *Canada*. The Dose of these is from fifteen to twenty or thirty Grains, which, being mixed with Conserve of Roses, may be taken twice every Day, Morning and Evening, or only once

every Day, or every other Day, as it shall have a quicker or slower Effect, persisting in this Method, till the Gums begin to swell, the Mouth grows hot, and a Ptyalism seems to be coming on.

4. But then, as soon as a Ptyalism is apprehended, you must immediately have recourse to Purging, after the manner we just now prescribed, that Part of the morbid Venereal Taint may be carried downwards, which otherwise would be discharged by the Salival Glands. That this may succeed the better, you must entirely abstain for some time from the Use of Mercurials; and rest till all is quiet again; if it shall seem proper, the Purging should be frequently repeated, that the Salivation may be the more powerfully restrain'd.

5. The Tendency towards a Salivation being quite remov'd, you must return to the Use of Mercurials after the same Method, and the Ptyalism is to be again provok'd, which, as soon as it appears, is to be again restrain'd, as before, by repeated Purging, and refraining from the Use of Mercurials; repeating this Course alternately till the Bubo, being dispersed, by Degrees disappears.

6. Emollient and resolving Topics conduce much to this End, as the *Emplastrum de Ranis*, either with or without Mercury; the *Emplastrum de Mucilagibus*, and the *Emplastrum de Spermate Ceti*; or, which are still more powerful, gentle Unctions of the Buboes and Groins, with mercurial Ointment, from one Scruple to half a Dram daily, or every other Day, or every third Day, as it shall seem requisite, or as the Danger of a Ptyalism is greater or less. For by this means the Lymph, which from its Thickness stagnates in the Inguinal Glands, is render'd more fluid, and is therefore more easily dispersed.

7. It has been the Practice for some time, to lay aside the internal Use of Mercurials, which load the Stomach, or vitiate the Blood, and in their room to order external Inunctions with the mercurial Ointment, from half a Dram to one Dram, upon the Nates and Inguina, sometimes every other Day, sometimes upon every third Day, according to the different Degree of the Disease, and the different Effects that are produced. But upon the first Signs of a Salivation coming on, you must not only abstain from farther Use of the Ointment, but the Patient must be instantly purged, that the Matter may be diverted downwards, as we have observ'd above. But the Hurry being over, the Frictions are to be repeated, and the Salivation taken down again upon its first Appearance, proceeding in this manner till the Bubo is perfectly dispersed.

8. There is no manner of Danger from this Method, that the Venereal Infection should be sent into the Blood with the reflux Lymph, and produce a Pox; because the Poison which is again mixed with the Blood, is corrected by the Power of the Mercury, and therefore has lost its Virulence; and because, although it should retain its Virulence, it does not remain long enough in the Blood to infect it, since it is carried off by purging Medicines, as fast as it is sent into the Blood.

9. During this whole Course of Cure, the Patient is to be confin'd to his Chamber; otherwise there would be Danger, lest the cutaneous and salivary Glands being suddenly contracted by the Coldness of the Air, and by that means Perspiration and Spitting being suppressed, the Thorax or Brain would be in Danger of being loaded.

10. A thin, diluting, moist Diet should be prescribed, of Puddings, Panadas, Creams of Rice, Jellies, Broths, and at most poached Eggs, forbidding, or very sparingly admitting of, the Use of Flesh, though it be ever so young or light, as Pullets or Chickens. Lastly, Care should be taken, that the Patient should abstain from Venery, Exercise, Passions of the Mind, and especially from Wine, and drink plentifully of Pilsan, that the Particles of Mercury may have the freer Admittance into the Blood, and have the greater Power to divide the inspissated Lymph.

II. Hitherto we have treated of the first Method; but if the Patient shall be better pleased with the other Method, as not being able to absent himself so long from Business as the former Method requires, or if the Physician shall find, as soon as he is called, that the Matter in the Bubo is tending to Suppuration, the later Method may be prosecuted in the following manner.

1. Universals should be premised, that is, Bleeding and Purging, with the same Cautions that we have already laid down.

2. Then, during the whole Course of Cure, mercurial Preparations should be order'd, which are free from any purging Faculty, in a smaller Dose, and at longer Intervals, than in the former Method, but in a sufficient Dose to destroy the Venereal Poison. But if a Ptyalism should be threaten'd by this Method, it should be taken down by Purging, as we advis'd before.

3. Topical Applications are at the same time to be made use of, by which the Matter of the Tumor may be soften'd, and brought to Suppuration. The following Cataplasms are very serviceable to this End.

Take two Ounces of Onions roasted under the Ashes, of black Soap, and Diachylon with the Gums, each an Ounce and a half; and of Basilicon, an Ounce: Beat all together in a Marble Mortar for a Cataplasma. Or,

Take of the Roots of Marsh mallows, Bryony, and white Lily, each an Ounce; cut them all down, and boil them. Add of the Leaves of Mallows and Brank-ursine, each one Handful; boil all to a kind of Mucilage, and let them be bruised in a Mortar, and pass'd through a fine Sieve. To the Pulp thus pass'd through, add of old Leaven and Basilicon, each half an Ounce, or an Ounce; one white Onion roasted under the Ashes, and Oil of Lilies, a sufficient Quantity. Make up into a Cataplasma to be applied to the Part affected, and to be frequently renew'd.

4. In the room of Cataplasms you may order ripening Plaisters, which adhere to the Part, and are therefore more conveniently carried about. Of these the best are,

Simple Diachylum; Diachylum with the Gums, or that which is mix'd up with Galbanum, Gum Ammoniac, Sagapenum, and Opopanax, Diachylum diluted with the Oils of Galbanum and Ammoniac; Diachylum mix'd with an equal Quantity of black Soap; and common Pitch mix'd with an equal Quantity of Burgundy-pitch.

5. Though it should appear by certain Signs, that Matter is found in the Bubo, yet you are not too hastily to open this Bubo, but should wait for some time, till the greatest Part of the Bubo is suppurated, that by this means the callous Parts of the Bubo being destroy'd, the Cure may be perfected with the greater Ease and Safety.

6. The suppurated Bubo may be laid open two different ways, either with an Incision-knife, or by the potential Caustery: If the former way is made use of, the Incision should be deep; if the Bubo is small, one Wound will be sufficient; but if it is large, two Incisions should be made in the Form of a Cross, the Corners of which should be taken off with the Scissors. If you chuse the latter way, the Bubo, according to its Size should have a large Eschar made upon it with the Caustic, guarded by a proper Plaister, which if it does not penetrate as far as the Abscess, another Caustic should be laid on, or what remains should be cut through.

7. It is plain, that, in laying open a Bubo, the Use of the Caustic is preferable to Incision, both because the Caustic makes a larger Opening, by which means it is easier to inspect and dress the internal Parts of the Bubo; and more particularly because the Caustic, by its Cathartic Faculty, destroys the callous Bodies, and harder Parts of the Glands; by which means the Suppuration, Detersion, and Union of the Ulcer, are the more happily brought on.

8. The Pus being discharged, the Cavity of the Bubo is to be instantly filled up with dry Lint; which being removed the next Day, the Wound is to be dressed with common Digestive, prepared of Turpentine, the Yolk of an Egg, and Oil of St. John's-wort; to which, if the Foulness of the Ulcer shall require it, you may add some of the Unguentum Ægyptiacum, or Tincture of Myrrh and Aloes. Lastly, the Suppuration going on, the Ulcer may be cured with the Liniment of *Arcæus*.

9. As soon as ever the Inflammation shall be remov'd by the Suppuration, the Cavity of the Ulcer should be diligently examined; and if any Sinuses should be discovered, they must be laid open by Incision, if possible; or at least dilated in such a manner, that they may easily be deterged and healed. But if any callous Bodies remain, as is commonly the Case, they are to be consumed by Degrees with corrosive Medicines, as some Caustic Powder sprinkled upon a Pledget, or red Precipitate mix'd with Basilicon.

10. Lastly, the hard Basis of the Bubo should be softened and relaxed by the repeated Use of a mercurial Ointment; the Flesh with which the Ulcer is filled, should be made firm with the *Balsamum Viride Metensium*. If it is too luxuriant, it should be taken down by Dressings of dry Lint, or burnt Alum. At length the Tumor of the Glands being quite subsided, the divided Parts are to be united.

11. During this whole Course of Cure the Patient has fewer Restraints laid upon him, as to his manner of Living, than in the former Method, unless a Fever should come on at the time of Suppuration; in this Case it will be necessary to forbid the Patient the Use of Meat for some few Days. Nevertheless it will be proper to abstain from Wine, Venery, Exercise, Salt, or high-season'd Meats; and he should be cautious of exposing himself

himself to the Inclemency of the Air, especially as long as he takes mercurial Preparations.

From what has been said, it will be no hard Task to solve the following Problems :

1. Whether Venereal Buboes arise in any other Parts besides the Groin ?

It appears by Experience, that Venereal Buboes, or Tumors of the same Kind, sometimes appear in the Axillae, the Throat, or upon the Sides of the lower Jaw, which are very like the Inguinal Buboes, come on in the same manner, take the same Course, and are cured by the same Remedies.

2. From what Cause should Venereal Buboes arise in those Parts ?

From a twofold Cause, as we just now said of the Inguinal Buboes: (1). From an old Venereal Infection, which in the Pox infects and inspissates the Lymph; by which means there will be an easy Descent upon these Glands, whenever the external Cold, a Blow, Attrition, or strong Pressure, shall afford an Occasion. (2). From the Venereal Infection just admitted, which being absorbed in certain Parts, is carried with the reflux Lymph into the Glands, to which that Lymph is determined by the Laws of the Circulation. So Nurses who are infected by the Infants which they suckle, have most frequently Buboes either in the conglobate Glands, which are situated at the Basis of their Breasts, to which the Lymph first flows; or else in the Axillary Glands, to which it is afterwards carried. So Children which receive the Infection from their Nurses, or the Lover who receives it from his Mistress, or the Mistress from her Lover, by kissing, are subject to Buboes in the Maxillary or Jugular Glands; whence the Lymph is conveyed that returns from the Tongue, Cheeks, and Gums, and from the internal Parts of the Mouth, into which the first Particles of Infection penetrate, blended with Milk or Saliva.

3. How are these Buboes cured ?

After the same Method by which the Inguinal Buboes themselves are cured, since they agree with them in all Points. Therefore by Bleeding, Purging, and Mercurial Unctions, they are to be dispersed, if possible; but if these Methods do not answer the desired End, they are to be brought to Suppuration, laid open, deterged, and cicatrized, according to Art, as we have advised above.

4. Do Venereal Buboes ever arise in the internal Lymphatic Glands ?

I never observed any Venereal Buboes of this Kind myself, nor do I remember to have read of any one that ever did observe them. But it is common enough for hard and scirrhous Tubercles to be found in the Lungs of pocky Persons; and hard scirrhous Obstructions in the Mesenteric Glands, which if they do not go off in the same manner with Buboes, yet they acknowledge the same Cause.

5. Whence arises this Difference, since, on the other hand, in the Pox, the morbid Matter being equally mixed with the whole Mass of Blood, and in the same manner with all the Lymph, ought to produce the same Disorder in each of the Glands ?

Perhaps, from hence; because as the internal Lymphatic Glands are situated in Places that abound constantly with a great deal of Heat, the native Fluidity of the Lymph is the more easily preserved in them. Thence a Stagnation of the Lymph must be an uncommon Case in them; and if it should by chance happen, it will be less, make a slower Progress, and be more easily dispersed, than in the external Glands, which are subject to the Coldness of the Air. Besides, the internal Glands are guarded from Blows, Attrition, and Pressure, by which the Lymph is frequently invited to stagnate in the external Glands.

6. Lastly, whether Venereal Buboes are formed in Catamites and Pathics; and if they are produced by this means, in what Parts is it usual for them to appear ?

As to the first Question, I never observed myself, nor did I ever meet with any one that ever observed Buboes upon Catamites, which could certainly be determined to arise from the Infection just contracted: For I do not imagine, that there are any Catamites who are so fond of playing the Pathic, that they never attempt to play the Agent; but it is in enough to have once played the Virile Part, to make it Matter of doubt whence the Bubo arises, if it shall follow this Action.

As to the later Question, I scarcely believe, that the Buboes which are formed in Catamites, if such do ever proceed from unnatural Venery, fall upon the Inguinal Glands, to which Parts the Lymph is never carried, or at least in exceeding small Quantities, from the Extremity of the Rectum, and the neighbouring Parts of the Anus; but they will rather arise in those Lymphatic Glands, which are situated in the Cavity of the Abdomen, near the Division of the descending Aorta, to which Glands the Lymph of these Parts is carried: And this, perhaps, is the Occasion that Buboes of this Kind are never, or very rarely, produced; because as these Glands are situated in the Cavity of the Abdomen, the Heat of the neighbouring Parts resists the Inspissation of the Lymph, as was just now observed.

But let not these Wretches congratulate themselves upon this Account, since, besides many very grievous Disorders, which are peculiar to their filthy Vice, they are intitled to Buboes of as bad, if not of a worse Kind, than Inguinal Buboes; for it frequently happens in them, that the Lymph, which returns from the Extremity of the Rectum, and the Parts near the Anus, being inspissated by poisonous Particles, enlarges, distends, and swells the Lymphatic Glands, which are very small, but situated in great Numbers in the Fat about the Podex; whence arises a kind of an annular Bubo, with which the Podex is incircled, attended with Heat, Redness, Hardness, and excessive Pain, especially at the Time of the Excretion of the Fæces. This is to be cured with the same Remedies, and treated after the same manner, with the Inguinal Venereal Buboes.

Thus far Mr. Astruc. But with respect to the Cure of Venereal Buboes, I must remark, that the Method of Cure by Suppuration is preferable on all Accounts to that by Resolution; for the former is much less Trouble to the Patient, supposing the Cure by both Methods to be perfected; and not by far so subject to be followed by other Venereal Symptoms, and those of the very worst Kind, which I have seldom fail'd to see consequent to the Resolution of a Venereal Bubo.

Heister, I am sensible, is of a different Opinion; but I am inclined to believe, that the general Practice of those most concern'd in Venereal Cases will determine it against him. I believe, however, that it is possible to cure a Venereal Bubo by Resolution; but with less Ease and Safety. But as Heister is an Author of Reputation, I shall specify the particular Method of Cure, which he recommends, as follows.

As to the Cure, there are many Physicians who will not admit of resolving this any more than a pestilential Bubo; for by such a Method the Venereal Venom, contrary to the Intention of Nature, would return into the Veins, and, by infecting the Blood, excite a Lues Venerea. For the same Reason they forbid the Use of Cathartics and Phlebotomy; and direct a Suppuration to be forwarded as much as possible. But, for my part, though with due Respect to these Authors, I am for a different Way of Proceeding; for since the Method by Suppuration is not only very slow and tedious, but subjected to several other Inconveniences, it is much the better and safer Way, as I have often found by Experience, to begin immediately with Purging, and other Mercurial Medicines, and Purifiers of the Blood, such as Decoctions of the Woods, and other things of the like Nature. By these means the Venom is expell'd by a far more expeditious Way than by the Method of Suppuration; and the Tumors themselves may also be resolv'd without Fear or Danger of the Lues Venerea, or any other Distemper.

Whether, therefore, the Buboes be attended with a Gonorrhœa, or not, the most proper Way, certainly, is to purge the Patient with large and frequent Doses of Mercurius dulcis, as is usual in a Gonorrhœa; for the internal Cure of a Gonorrhœa is usually the Cure of the Buboes, which can never be perfectly healed before the Venereal Poison be quite expelled from the Body. If there be a considerable Inflammation, it will be necessary, especially if the Patient be young, and of a sanguine Constitution, to take away some Blood, and afterwards administer some mercurial Cathartics, with Essences that purify the Blood, and Decoctions of the Woods. Outwardly, to the Tumor, must be apply'd digestive Plaisters, such as those of Melilot, de Ranis cum Mercurio, Diachylum, and such-like. At the same time the Patient must observe a very strict Regimen in his Diet, and Way of Living, confining himself principally to Liquids, prepared of Water, Barley, Oatmeal, and the like. His common Drink may be Ptisan, prepared of Barley, Liquorice, Anise, or Fennel, or a second Decoction of the Woods, or very small Beer. Wine, Brandy, and all Kinds of generous Liquors, are carefully to be avoided, as exasperating the Inflammation. By observing strictly these Rules, the Venereal Buboes, if not inveterate, may very commodiously be resolv'd without Fear or Danger.

When the Assistance of the Physician is call'd late, or the Buboes are too malignant to be cured by way of Dissolution, or it may be thought proper, for some other Reasons, to attempt the Cure by Suppuration, our chief Care, in order to the expelling and subduing the contagious Matter, is to be directed to the promoting and accelerating as much as possible the Suppuration. And besides suppurative Plaisters, it would not be amiss, either with Linen Cloths, or the Fingers anointed with Butter, or Oil, to rub these Buboes frequently and strongly, till they become red, and then immediately to apply a maturing Plaister; for this is an admirable Means of accelerating the Suppuration. And these Kinds of Plaisters, that is, Diachylum cum Gummi, or a Plaister of Galbanum, and the like, are fittest to be apply'd while the Patient is yet able to walk without much Inconvenience, and may be taken off twice, thrice, or four times a Day, as Occasion requires, that the Bubo may be as often strongly rubb'd. Violent Exercises also, such as Dancing, Fighting, Fencing, and the like, are very proper Means to accelerate the Suppuration. But if the Patient, as it often happens, is no longer able to walk, because of the Pain,

Pain, some maturing Cataplasim, of more Force and Efficacy than the Plaisters before-mentioned, may be apply'd. Cataplasms very convenient for this Purpose are those composed of Onions roasted under hot Ashes, or of Honey and Meal, or of Ferment; or, to mention no more, of Crums of white Bread boiled with Milk and Saffron: These Cataplasms must be applied every now-and-then after Friction.

With the Use of these external Applications, internal Remedies must also be administer'd. Thus the Patient is to take a Draught of eight, ten, or twelve Ounces, of a warm Decoction of the Woods, two or three times every Day, together with thirty or forty Drops of the Essence of those Woods, white Burnet, Fumitory, Germander, and the like, and some Grains of Mercurius dulcis, every Day. These Medicines, by greatly attenuating the Blood, and forcing it towards the Skin, and correcting the Venereal Poison, are very conducive to Dissolution, as well as Suppuration.

This Course must be follow'd till the Matter be either dissolved, or brought to Maturity. In this latter Case the Knife is to be used, and an Incision to be made; but with a great deal of Care and Circumspection, lest the larger Blood-vessels of the Groin or Armpits, which lie near, should be wounded, and a dangerous Hæmorrhage thence occasioned. The best Precaution you can use in this Case, is to take the Head of the Bubo between your Fingers, and pull it upwards. As to the Time when the Incision is to be made, this one Observation is necessary, that it be not too soon nor too late, since both are dangerous. For as too much Haste procures Pains, dangerous Inflammations, and other Mischiefs, so too long a Delay, as *Hildanus* assures us, has almost constantly given Occasion to the Matter of the Bubo to mix again with the Blood; and by corrupting the whole Mass, to induce the Lues Venerea.

If the Patients be timorous, and dread the Knife, the Buboes must be open'd by some corroding Medicine, as the Practice is in Abscesses. When the Pus is evacuated, the Ulcer must be thoroughly cleansed by some Digestive, mixed with a little Venice-treacle, and red precipitate Mercury. After this a Plaister of *Diachylum cum Gummi* must be apply'd, in order to mollify the Margin of the Bubo; and when the Ulcer is sufficiently deterged, it is to be healed up with some vulnerary Balsam and Lint.

Sometimes these Ulcers are so stubborn, as not to be dry'd, nor conglutinated, by the Help of Medicines, but continually run with a plentiful Effusion of Sanies. In such a Case, and when neither the above prescribed Medicines, nor red Precipitate, nor burnt Alum, are of any Effect, there is no other Way, at least in my Opinion, but to cauterize the corrupted Part with a hot Iron, by which means the Lymphatic Vessels by searing are often effectually closed.

From the Premises, if I am not mistaken, it plainly appears, that it is always the best and most commodious Way, if it can be done, to discuss Venereal Buboes as soon as may be; or to attempt the Cure by Resolution, rather than Suppuration. But when the Blood is so far infected and corrupted by the Venereal Poison, as to shew manifest Symptoms of the Lues Venerea, another Way of Treatment, proper to that Disease, is required. *Heister*.

Of the Accidents which sometimes accompany a Venereal Bubo; and, first,

Of the FISTULOUS BUBO.

When a Bubo is once opened, if it is neglected, the Lips uniting, and the Orifice contracting, it degenerates into a Fistula, that is, into a sinuous and callous Ulcer; for both these are implied in the Nature of a Fistula. There are some Differences in this kind of Fistula.

1. With respect to the Aperture, which is sometimes wider, and therefore constantly gaping; sometimes narrower, and then it is sometimes covered with a Crust, or thin Skin.
2. With respect to the Sinuses which are concealed within, which are either wide or narrow, many or few, cutaneous or deep, strait or curve, &c.
3. With respect to the Fluid which is discharged, as it is either in great or small Quantities, purulent, sanious, or only simply ichorous.
4. Lastly, with respect to the callous Bodies which line the Sides of the Sinuses, and greatly differ in Size, Number, and Hardness.

As to the Causes, the Bubo, after it is laid open, may degenerate into a fordid and obstinate Ulcer, by the bad Disposition of the Blood, but more especially if the Venereal Poison should be latent in the Blood, by which the Pus will be render'd more acrimonious; but it will never degenerate into a Fistula, but by the gross Neglect or Ignorance of the Surgeon.

1. For Instance: If an unskilful Surgeon has made too small an Aperture in the suppurated Bubo, either with the Knife or Caustery; for by this means the Bottom of the Ulcer not being open to the View, nor easily reached by Medicine, it will be difficult to discover what Alterations are made within, or to

apply proper Remedies; so the internal Parts of the Ulcer remain foul, whilst the Lips of it, which are more exposed to the Force of the Remedies, and are well deterged, hasten to a Union, by which means a Fistula is necessarily formed.

2. If he unwarily permits the Ulcer (though the Opening be sufficiently large) to tend too soon to a Cicatrix, before the ulcerated Gland be perfectly suppurated, or at least, whilst a small Portion of it at its lower Part, which occupies the Centre of the Ulcer, or several Membranes by which it adheres, and which are so many Pedunculi to it, are left unsuppurated. For we know very well by Experience, that no Ulcer can be ever perfectly cured, unless its Bottom be well deterged; nor can the Bottom be ever well deterged, as long as the least Portion of the ulcerated Gland, or of the Membranes by which it adheres, remain unsuppurated.

3. If from want of due Care he omits taking Notice of Pus being secretly discharged into the Bottom of the Ulcer from any neighbouring suppurated Gland, or from the Parts which lie between the neighbouring Glands; for unless this Fountain of Pus be speedily remov'd by dilating the Passage with the Knife or Caustery, a perfect Union of the Parts will be expected in vain; for though the Lips may seem to tend to a Cicatrix, yet the Ulcer will necessarily end in a Fistula.

As to the Symptoms; whichever of these Errors the Surgeon is guilty of, it will follow from thence,

1. That the Bottom of the ulcerated Bubo, if it is not deterged by proper Remedies; if it is lin'd with putrid Portions of the Gland, or its Membranes; if it is continually kept moist with a purulent Discharge; it will neither be cleaned, nor filled up with good Flesh, nor unite; but being continually eroded with a foul Exulceration, will form a larger or smaller Cavity.

2. But the Lips of the Ulcer, which, as they lie open to the Force of the Remedies which are applied, and are free from the other Inconveniencies which have been related, will be perfectly cleansed, deterged, and filled with new Flesh, which will by Degrees so contract the Mouth of the Ulcer, that there will remain a very small Opening into the Cavity, which will be wider or narrower, or covered with a Crust or thin Skin.

3. In the mean time the Pus, being confined in the Cavity of the Ulcer, and exercising its Force upon the adjacent Parts, by distending their Fibres, and inspissating the Lymph, will, in a short time, produce hard callous Bodies all round, which vary with respect to their Number, Size, and Hardness, in proportion to the different Qualities of the Pus, the different Firmness and Density of the eroded Fibres, or the different Degree of Inspissation of the circulating Lymph.

4. And if it is retained for any time, and is of an acrimonious Nature, the Erosion being by Degrees promoted, it will shortly form itself new Sinuses in several Places, many or few, wide or narrow, in proportion to the Degree of Acrimony which it possesses; strait or curve, deep or cutaneous, as the adjacent Parts afford more or less Resistance to the Force of the acrimonious Pus.

5. The Discharge from the Ulcer will be of a different Nature; ichorous, if pure Lymph flows from the eroded Lymphatic Ducts; but sanious, if Blood be discharged from the wounded Vessels, and mixed with the Lymph in the Cavity of the Fistula; purulent, if by Delay the Lymph and Blood acquire the Form of Pus; lastly, in great or small Quantities, in proportion to the Flux of Humours to the Part.

As to the *Diagnostics*; the State of the Fistula into which an ulcerated Bubo has degenerated, lies open to the Eye; the Sinuses which are form'd, are discover'd by the Probe; callous Bodies are distinguished by the Touch; lastly, the Causes are easily found out, if you are acquainted with the Method in which the Bubo has been treated.

As to the *Prognostic*; a Fistula in the Groin, arising from a Bubo, is a very bad Disorder, and never to be made light of, since it generally supposes the Pox, by which it is brought on or supported; and it always requires a long, difficult, laborious, surgical Treatment. It is attended with Danger, (1.) if it has Sinuses which penetrate deep to the Crural Vessels, or their larger Ramifications. (2.) If some of the callous Bodies, which are concealed in it, are attended with acute Pains, and approach to the Nature of a Cancer.

As to the Method of Cure; if you are certain, or indeed if there are only strong Reasons for Presumption, that the Fistula, into which the ulcerated Bubo has degenerated, is accompanied with the Pox, by which it is aggravated, mercurial Unction should be advised, before the Cure of the Fistula be attempted. Nor are there any Hopes that the Effect shall ever perfectly cease, unless the Cause be first removed. Towards the End of the Ptyalism, when the Blood has now been well depurated, the Fistula is to be cured according to the Rules of Art, that by this means the Cure of the Pox and the Fistula may proceed equally, and at last be completed together.

But if it shall appear, that the Bubo has become fistulous, wholly by the Unskilfulness of the Surgeon, and that there is no Suspicion of a latent Pox; in this Case, if the Season of the Year will permit, you should lay aside all manner of Delay, and

and proceed to the Cure of the Fistula, after the following Method.

1. The Patient should be prepared for the Method of Cure, not only by universal Remedies, that is, Bleeding and Purging, which should be repeated according to the Strength and Constitution of the Patient, and the Nature of the Disease; but, besides, he should drink diluting and cooling Broths, made of Chicken or Veal, with proper Herbs and Roots; chalybeated Whey, Asses or Cows Milk; or, if the Season of the Year renders it proper, he should bathe in warm Water, or drink proper mineral Waters.

2. After this, having first examin'd the Number, Length, and Direction of the Sinuses which communicate with the Mouth of the Fistula, you must lay each of them open; and, if they are cutaneous, and not very callous, you may perform the Operation with the Knife or Scissors, which are to be introduced upon a Director, and the Lips should be carefully taken off, that the Bottom of the Sinuses may be exposed to View; and then, according to Custom, it will be proper to fill up the Wound with dry Lint, in order to stop the Blood; which Dressing being taken off the next Day with a light Hand, the Ulcer should be treated for some time with a simple Digestive, and afterwards with the Liniment of *Arcaus*.

3. But if the Sinuses should be very deep or callous, it will be more advisable to make the Aperture with the Caustery, as we advised above. Therefore, laying a Plaister upon the Fistula, with an Opening in it, in such a manner that the principal Part of the Sinuses may be immediately under the Opening in the Plaister, apply some Pieces of the caustic Stone to the Part, sufficient to procure a deep Eschar. If they do not reach to the Sinuses, scarify the Eschar to the Quick, and apply another Caustic; or, which is the quicker Method, cut away the half-rotten Flesh with which the Sinuses are covered.

After this, promote the Falling off of the Eschar as soon as possible, by emollient and relaxing Applications; as Butter, the Yolk of an Egg, either alone, or beat up with Oil of St. John's-wort, Basilicon, or Turpentine, and laid upon Lint.

The other Eschar being fallen off, the Ulcer is to be treated with common Digestives, till the Decrease of the Pus indicates the Use of the Liniment of *Arcaus*.

5. The Lips, and the neighbouring Parts, of the Ulcer being now relaxed by the Suppuration, it will be proper to examine all the Parts diligently, by pressing them with the Finger, by examining them with the Eye, and with the Probe, to find whether any Sinus, or considerable Callus, be conceal'd anywhere, which will be necessary to be remedied before the Ulcer can be united, and form a Cicatrix, lest the last Error be worse than the first, and another Fistula be brought on.

6. Therefore if any Sinus should be discover'd, but in a Part which will admit of Incision without any Danger, the Aperture should be made according to the whole Length of it, if possible; or, at least, the Mouth of it should be so enlarg'd, by thrusting in an Escharotic, that the Bottom may lie sufficiently open to be freely deterged, and perfectly cured, by the Application of proper Medicines.

7. But if the Sinuses should reach so near to the Crural Vessels, or any of their larger Branches, that an Incision would not be free from Danger, Cathartics alone must be us'd, and those of the milder Sort, which act moderately, and, by a gradual Erosion, dilate the Part in such a manner, that you may daily form a Judgment of their Effects; it will also be worth while diligently to take care, that the Cathartic Medicines may be applied only to that Mouth of the Sinus which is at the greatest Distance from the Crural Vessels, and which may be exposed therefore to their Force with the greater Safety.

8. If the harder Callosities should escape Suppuration, they are to be consum'd, by Degrees, with Cathartics, as the *Lapis Infernalis*, or any other Caustic, or red Precipitate mix'd with some Ointment; and, to render them the more efficacious, it will be convenient to make light Scarifications upon the Surface of the callous Bodies with the Point of a Lancet.

9. The Sinuses being once agglutinated, the callous Bodies consumed and suppured, if the new Flesh, which springs up, is firm, thick, granulated, and rosy-colour'd, the Ulcer is to be brought to a Cicatrix, to which End epulotic Medicines are of Service, which, by drying the Superficies of the Ulcer, bring on a Cicatrix; of this kind are the Green-balsam, Pompholyx, burnt Lead, Cerus, or Plaisters in which these are Ingredients; dry Lint, burnt Alum; or Agglutinants which guard the Rudiments of the Cicatrix, upon its first Formation, from being eroded by the Air; amongst which the best are Turpentine, dry'd and powder'd, Sarcocolla, Frankincense, and Myrrh.

10. Lastly, from the very Beginning of the Cure, a proper Regimen of Diet should be prescrib'd; it should be light, consisting of Pudding, Panadas, Creams of Rice, or, at most, the Flesh of Chickens, when every thing is going on well; but very light, and only of the smallest Broths, if the Patient is afflicted with a Fever, if the Suppuration is in great Plenty, and very fetid, if the Lips of the Ulcer are inflam'd, if the Flesh is spongy, fungous, and luxuriant.

Of the SCIRRHOUS BUBO.

It sometimes happens, that the Venereal Bubo, evading the Force of all Remedies, is neither dispers'd, nor brought to Suppuration; but entirely, or almost entirely, by Degrees, becomes thicken'd and indurated, and turn'd into a hard Scirrhus, which chiefly happens to the cedematous and scirrhus Bubo.

Scirrhuses, form'd in this Manner, differ,

1. With respect to their Figure and Size, in which there is great Difference.

2. With respect to the Number and Situation, of the Glands which they possess; for some occupy only one Gland, and are call'd *Conglobate*; others occupy more, and are dispos'd either in Clusters, or after the manner of Links in a Chain; and are said to be *congested* either *racematim* or *catenatim*.

3. With respect to their State of Mobility, as some adhere loosely to the subjacent Parts, being moveable either to one Side or the other; whilst others adhere so immediately to the Part beneath them; that they can by no means be brought to vary their Situation.

4. Lastly, with respect to their Sensation; as some are without Pain, and truly scirrhus, whilst others produce an obtuse Pain, and approach near to the Nature of a Cancer.

As to the Causes, a Bubo is converted into a Scirrhus, when the Lymph, stagnating in the Cells or Vesicles of the Inguinal Glands, is more than ordinarily inspissated; by which means the Parts being stuffed up, and, by Degrees, brought to a more intimate Contact, it acquires, as it were, a cheezy Hardness. But the Lymph is thicken'd in this manner by several Causes.

1. By its natural vitiated Thickness, by which means, upon the Accession of the Venereal Poison, it is inspissated, *ceteris paribus*, more than it would be otherwise.

2. By the too great Quantity or Energy of the Venereal Poison which is receiv'd; whence it happens, that the Lymph, into which it is admitted, is, *ceteris paribus*, so much the more coagulated.

3. By either of the foregoing Causes concurring with the other; whence it happens, that the Lymph, being naturally too thick, meeting with too great a Quantity, or too virulent a Portion of the Infection, is violently coagulated.

4. By the preposterous Use of topical Repellents, such as are frequently applied upon the first Appearance of the Bubo, but very unadvisedly, since, by this means, the Thickness of the Lymph being increas'd, the Bubo becomes scirrhus, which might otherwise have dispers'd of itself.

5. By the Abuse of topical dispersing or ripening Applications, which, if they are unequal to the Office of rendering the Lymph fluid, increase its Thickness, inasmuch as they dissipate the thinner and more fluid Parts of it.

6. Lastly, by the Abuse of stimulating topical Applications. Of this sort are the ripening Cataplasms, with which bruised Mustard-seed is mix'd, which, by their Irritation, solicit the glandular Texture to frequent systaltic Constrictions; which is useful enough, if the confin'd Matter is fit to be dispers'd; but very hurtful, if it is of a hard Nature; since the finer and thinner Parts being forcibly thrown out, the thick Part which remains will form still a harder Mass.

As to the Symptoms, it appears, that according to the different Nature, Disposition, and Infection of the Lymph in the different Glands of the Groin, or according to the different Tension, Texture, and Permeability of those different Glands, sometimes one Gland only, of a different Size or Figure, is affected; whence,

1. A conglobate Bubo, and so a Scirrhus, different in Figure and Size, is produc'd; sometimes more together disposed in Clusters or Links, whence a Bubo, and so a Scirrhus *congested* *racematim* or *catenatim*.

2. According to the different Situation, of the obstructed Gland, whether it be more or less deep, or according to the different Length, and Degree of Softness, of the tendinous Fibres or Membranes, by which the Gland adheres to the neighbouring Parts, a Bubo, and so a Scirrhus, is produc'd, sometimes moveable, sometimes, on the other hand, fix'd and ty'd down to the subjacent Part.

3. As the Lymph which stagnates in the Gland, is either quiet without Motion, or, from any Cause, is rarefy'd and expanded; the containing Membranes of the Glands will sometimes remain unmov'd, whence the Tumor will be without Pain, and truly scirrhus; sometimes they will be distended painfully, whence the Tumor begins to have an obscure Pain, and so to degenerate into a Cancer.

Lastly, in the former Case, where the Blood and Lymph have either dilated their Vessels by Degrees, or made themselves new Passages into the collateral Vessels, since, by the Matter of the Scirrhus being unmov'd, no new Pressure of the Vessel is brought on, nothing hence will arise new, with relation to the Colour or Heat of the Part; but, in the latter Case, things fall out differently, as will hereafter appear.

As to the Diagnostics, the Presence of the Inguinal Scirrhus, and the Differences into which it is distinguish'd, are sufficiently evident to the Sight and Touch; the Causes by which it was brought on, may be collected from the foregoing Ætiology.

As to the Prognostics; the Prognostic is always bad, since it is no easy thing to disperse or suppurate a Bubo, which is degenerated into a Scirrhus.

But it is worst of all, if it begins to be painful, since by that it is manifest, that, by Degrees, it is becoming cancerous.

As to the Method of Cure, it is exceeding difficult, as we observ'd before, to disperse or suppurate a scirrhus Bubo. Some advise dry Cupping upon the Part, to be daily repeated for a Quarter of an Hour at a time; that, by the Flux of Blood to the Part, the Matter of the Scirrhus may be heated, and, by that means, yield more readily to the Force of topical Discutients or Ripeners. But Experience has taught us, that this Method is almost always fruitless, and frequently even dangerous; since the Scirrhus, being heated by the Conflux of Blood to the Part, at length becomes frequently cancerous.

Others advise the scirrhus Gland to be consum'd, by Degrees, with Cathartics, if it refuses to yield to the Force of Discutients and Ripeners; or making an Incision into the Skin, to extirpate it with the Knife. But I should never advise the undertaking of Operations of this kind, which are tedious, difficult, and full of Danger; as long as the Scirrhus is without Pain, and brings on no Inconvenience: I would have this more particularly understood of Cathartics, since, by the preposterous Use of them, a Scirrhus is frequently converted into a Cancer.

Therefore it is better to have recourse to Mercurial Unction; from which you may expect a happier Event. For, as the Parts of the Mercury, which are convey'd into the Blood by this means, not only very powerfully attenuate and divide the stagnating Lymph, but correct also the Particles of the Venereal Infection which coagulate the Lymph, they are the most efficacious Remedies that can be made use of to disperse gradually the scirrhus Bubo, since it is produced by the too great Viscidity of the Lymph, and the Inspissation of the Venereal Poison.

But two things are diligently to be observ'd in the Administration of the Mercurial Unction.

1. That the Patient be duly prepared with the Use of diluting and relaxing Remedies, as well Universals as Particulars; Universals to liquify the Blood and Lymph, that they may yield with the greater Ease to the Particles of Mercury; Particulars, or Topics, to soften and relax the Texture of the Bubo, that the Lymph may have a more free Passage thro' it.

The first Intention is answer'd by warm Baths of River-water, cooling Broths, or Apozems, chalybeated Whey, Asses Milk, acidulated or chalybeate Mineral Waters; the latter by Cataplasms of the Crums of Bread, or of the Pulps of emollient Roots and Herbs, or by the Mucilage-plaster, or that of Sperma Ceti, the Use of which must be long persisted in.

2. That the Mercurial Unction be us'd in small Quantities at each Friction; that the Frictions be perform'd at long Intervals, in order to permit the Mercury, which is mix'd with the Blood, to be retain'd in it for a long time, to the end that the Particles of Mercury circulating for a considerable time with the Blood, may the more forcibly divide the Lymph which stagnates in the Inguinal Glands, and so procure a perfect Resolution of the scirrhus Bubo.

By this Method, it is certain that the Inguinal Scirrhi, which succeed the Bubo, are, at least, so much lessen'd, if they are not perfectly dissolv'd, (which is rarely the Case) that the remaining Tumor is scarcely equal to the Size of an Almond or Hazel-nut. But I would, by no means promise this as the certain and undoubted Effect of it, since I have known scirrhus Buboes so stubborn sometimes, that they have obstinately remain'd, notwithstanding the utmost Caution has been us'd in administering the Mercurial Unction. If this should be the Case, and the Bubo has not yet acquir'd a stony Hardness, nor is inclin'd to turn cancerous, it will be proper to visit the warm Mineral Springs, and frequently to pump those Waters upon the Part, covering it afterwards with the Slime that remains at the Bottom of those Waters; by which means the coagulated Lymph may, by Degrees, be render'd fluid, and dispers'd.

But here also some Caution is necessary; for if the Bubo begins, by this means, to rarefy, grow hot, and painful, the Patient should instantly leave off the Use of these Waters, lest the Scirrhus should degenerate into a Cancer. In this Case, all Remedies being laid aside, the Whole is to be left to the Strength of Nature, advising a proper Regimen to be observed in Diet, and applying a Plaster to the Tumor, compos'd of equal Parts of the *Emplastrum Diabotani*, and *de Mucilaginis*.

Of a CANCEROUS BUBO.

The scirrhus Bubo, whilst it is becoming cancerous,

1. Grows hot, has an obscure Pain upon Pressure, swells, and grows very hard, sometimes shoots, but seldom; and then it is call'd a beginning Cancer.

2. Then all the Symptoms increase, the shooting Pains are

more frequent and acute, it changes its Figure, and rises to an Apex, which is cover'd by a tense, smooth, shining, reddish Skin; and now it is call'd a confirm'd, but occult, Cancer.

3. Lastly, the Skin dividing upon the Apex, it forms an Ulcer, from whence Blood, Ichor, and Sanies, are discharg'd Drop by Drop; the Ulcer spreads slowly, the cancerous Bodies are expanded and enlarged, the Lips of the Ulcer turn back, fungous Flesh arises, Ichor, Blood, and Sanies, are discharged plentifully, a tearing, shooting, burning Pain comes on in a violent manner, the Parts which are situated near the Tumor grow livid; in a Word, it is now a confirm'd ulcerated Cancer.

But, as was said before of the Scirrhus, the Cancer differs with relation to its being fix'd, or moveable; for sometimes it is moveable, and sometimes it firmly adheres to the subjacent Parts.

The whole Ætiology of the Cancer depends upon one Principle, which has been hitherto unregarded, however true; which is, That the Lymph, stagnating in the scirrhus Body, is rarefiable by Heat; and, being once heated, expands itself with so much the greater Force, as it is increased in Thickness and Inspissation. This is abundantly demonstrated from hence, that a scirrhus Tumor, when it begins to degenerate into a Cancer, swells without any Suppuration; that, upon the Increase of the Swelling, Part of the Scirrhus forms an Apex; lastly, that the Skin being once broke, the cancerous Matter which is conceal'd within, rising up, and, as it were, pouring out as soon as Room is allow'd for its Expansion, by Degrees enlarges the Ulcer, and, as it spreads more and more, turns out the Lips of the Ulcer all round.

From hence it follows, that the preternatural Heat which the Matter, confin'd in the scirrhus Body, conceives, is the proximate Cause by which the Scirrhus is converted into a Cancer. But it appears, that this kind of Heat is conceived by the scirrhus Matters;

1. Whenever the Blood which flows near the Part is render'd too hot, by an acute or hectic Fever; by an acrimonious, salt, piperine Diet; by the immoderate Use of Wine, or spirituous Liquors; by immoderate Venery, Exercise, or Watching.

2. Whenever the Blood, tho' it may not be too hot, is forc'd to stagnate in the neighbouring Parts of the Scirrhus; from the too great Plenty of it, as it happens by too frequent Application of Cupping Glasses, or by a Contusion upon the Scirrhus.

3. Lastly, whenever the scirrhus Tumor is heated beyond measure, by the Application of Topics, which are actually or potentially hot, or by the imprudent Use of Escharotics.

Therefore all these are to be reckon'd as remote or procaccatic Causes of a Cancer.

As to the Symptoms;

1. It appears from what has been said, that a Scirrhus begins to be chang'd into a Cancer, because the contain'd Matter is heated and rarefied. Therefore a Scirrhus, degenerating into a Cancer, ought to increase a little in Heat, Tumor, and Resistance.

2. The Matter in the degenerating Scirrhus enlarges: The containing Cells, therefore, and external Coverings of the scirrhus Gland, are, by this means, strongly distended, and produce Pain.

3. The same Matter still rarefying more, and with greater Force, from any external Cause, presses strongly upon the neighbouring Vessels. The Arteries, by this means, becoming more turgid with Blood which is confin'd in them, will be provok'd to more frequent Vibrations, and shake the neighbouring Parts with the greater Vehemence, from whence will proceed a shooting Pain.

4. In the same Proportion that the Matter of the degenerating Scirrhus increases in Heat and Rarefaction, the Pain, Tumor, Resistance, and Shooting, will increase daily.

5. As the scirrhus Matter is not perfectly homogeneous and uniform, but more or less prepar'd for Expansion in different Cells of the Tumor; and as the Cells in which it is contain'd do not equally resist its expansive Force, so one or other Part of the degenerated Scirrhus, from one or both of these Causes, will enlarge itself beyond the rest, and, changing its Figure, by Degrees protuberate into an Apex.

6. As one or other Part of the Tumor is more enlarg'd into an Apex, the Skin which covers it will be more distended; the Top of the Apex, therefore, will be cover'd with a tense, smooth, shining, thin Skin, of a darkish-red Colour, because the Blood meets with Difficulty in passing thro' its Vessels, which are too much distended.

7. The Skin, being render'd thin by violent Straining, is, at last, divided by the contain'd Matter. Hence, at first, proceeds a small superficial Ulcer, which, by the Continuance of the same Causes, by Degrees increases, and is dilated.

8. Blood flows from the ulcerated Cancer, if any of the larger Blood-vessels are divided; Lymph or Ichor, if the Blood-vessels remain unhurt, and only the Lymphatics are injured; purulent Matter, if the fungous Flesh, with which the Ulcer

is cover'd, putrefies; lastly, Sanies, or Lymph, mixed with Blood or Matter, if any of the foregoing Circumstances concur at the same time: But never true, unmix'd, laudable Pus, since the scirrhous Matter, as well from its lymphatic Nature, as from its too great Inspissation, is render'd unfit to form a perfect Suppuration.

9. The Expansion of the cancerous Matter increasing, as the Circumference of the Skin cannot be extended in the same Degree, the Lips of the Ulcer will, consequently, be turned back, and look very ill.

10. Lastly, the Veins being compressed on every Side, the Blood not only stagnates in the Parts which are situated near the Tumor, but, by this Stagnation, puts off its natural red Colour, and contracts one more black, from whence proceed the livid and varicose Branches of Vessels, with which the Cancer is surrounded.

The Nature, State, and Differences of the cancerous Bubo, readily appear from the Description of it. But the Causes of it may be discover'd, by examining the Way of living which has preceded it.

As to the Prognostics, the cancerous Bubo is a terrible and dangerous Disease, which is seldom cur'd, and never without the Knife, and actual Caution.

If the Bubo strictly adheres to the subjacent Parts, since it can neither be extirpated with the Knife or Cathartics, it is evidently incurable, and can only be treated with Palliatives.

But if it is moveable, and not firmly united with the subjacent Parts, it may be perfectly cur'd by Extirpation, if it is at a sufficient Distance from the Crural Vessels, that the Operation may be perform'd without Danger.

In general, the larger cancerous Bubo is of more dangerous Consequence than the smaller; the painful, than that which is attended with but little Pain; the ulcerated, than the occult.

The Method of Cure is different; according to the different Condition of the Tumor; that is, curatory, if it is moveable; but palliative only, if it is fix'd.

1. In the first Case, the present Indication requires, that the cancerous Tumor be speedily taken out, lest the neighbouring Parts be brought into Consent, or left, by being increased in Size, it should adhere to the neighbouring Parts.

Therefore,

1. The Patient should be prepar'd for the Operation by universal Remedies, as by Bleeding and Purging, by alterative Broths or Apozems, by Asses or Cows Milk, or Whey, by mineral Waters, and by Bathing, which should be varied according to the Constitution, State, and Age, of the Patient, and the Season of the Year. Mercurial Uction should even be premised, if there is any Suspicion of a conceal'd Venereal Infection, as is frequently the Case.

2. In the Opinion of some, Cathartics should be us'd, especially Preparations of Arsenic, corrected, or calcin'd, with which, they assert, the whole cancerous Gland will be mortify'd, as they term it, and fall off with little Trouble. Of this Opinion are *Fallopianus*, *Sennertus*, *Vigierius*, *Faber*, and *Johannes Baptista Alliot*.

3. But this Method, tho' perhaps it may be attempted upon small cutaneous Glands, with a very sparing Hand, yet we think it dangerous, and not safe, in larger or deeper Cancers: (1.) Because Cathartics applied liberally, by Irritating, Stimulating, and Corroding, bring on an Inflammation, attended by a Fever, which is never free from Danger. (2.) Because, by the acute Pain which they occasion, they change the neighbouring Parts, which were sound, into a cancerous Nature, by which means the Cancer increases, and adheres to the subjacent Parts, from whence it was before free. (3.) But principally, because I could never think the Use of Arsenic safe, however prepar'd, calcin'd, or corrected. For it has been known more than once, that a miserable Death has been brought on by the external Use of Arsenic. Concerning this see *Fernsius, Method. Medendi, Lib. 16. Cap. 18.* where he tells you, that Arsenic and Mercury Sublimate being applied to a cancerous Breast, destroy'd the Woman in six Days, in the same manner as if it had been taken by the Mouth.

4. It is better, therefore, to extirpate the moveable Cancer by the Knife instantly. To this End let the cancerous Gland be taken hold of with the Fingers, a Ligature, or a circular Pair of Forceps: then divide the Skin and the Basis of the Tumor all round with a Knife, arm'd half the Way up with Lint wrapt round it, till the Cancer is wholly extirpated, taking great care, that nothing be left which may be suspected to be of a cancerous Nature. The Flux of Blood may be stopp'd either with a Ligature, if the Vessels from whence it flows are large, or only by the Application of a small Piece of Vitriol. The Wound may be fill'd up with dry Lint, which should be pressed down for some time with the Hand, till the Blood is stopp'd. Then, upon the second or third Day, when the Lint falls off, the remaining Ulcer is to be treated with common digestive Balsamum Arcæi, or Balsamum Viride, according to the Rules of Art.

5. But it is necessary, that the Surgeon attend diligently to

the following Circumstances; (1.) That if any small cancerous Gland, or Gland of a cancerous Nature, remain, it should be carefully extirpated; for a Cancer is of the Hydra kind, which will constantly spring up again, unless all its Heads are taken off. (2.) That he should carefully provide for the Regeneration of good Flesh, by treating the Ulcer with the greatest Caution, lest it degenerate into a Fistula, which is too frequent in cancerous Ulcers.

6. Lastly, the Ulcer being healed, or tending to form a Cicatrix, the vitiated State of the Blood, which was brought on by the Cancer, and which afterwards aggravated and kept up the Cancer, is to be corrected by proper Remedies, lest a fresh Cancer should arise in another Part. To this End the palliative Method, which we shall describe below, will be of Service; for all those Remedies which conduce to the Mitigation of the Cancer, are of Use in preventing it.

II. In the other Case, that is, if the cancerous Tumor adheres to the neighbouring Parts, and therefore cannot possibly be extirpated by the Roots, you must refrain from all Operation, as useless, and even pernicious, and only insist upon the Use of palliative Remedies.

1. But there are not wanting those who will promise a perfect Cure, even in this Case, by the Use of Cathartics, those especially of the arsenical Kind; but the Patients, who rashly trust to their great Promises, will suffer a most miserable and cruel Death for their Credulity: For there is no Reason to expect, that this Method of Treatment should be serviceable in a fix'd Cancer, which we just now demonstrated to be prejudicial in one which is moveable.

2. It is best therefore, in this Case, for the Patient to look for no Cure, and, laying aside all vain and dangerous Credulity, only to take all possible Care to prevent the spreading of the Cancer: Let the vitiated State of the Blood be corrected, and the Pains, which cruelly torment the Patient, allwaged: Lastly, let Life be prolong'd as much, and upon as easy Terms, as possible; and to these Ends the palliative Method wholly tends.

3. Therefore let the Patient be every now-and-then purged, not with strong Cathartics, as some rashly advise, but with the milder Sort, as Manna, Cassia, Rhubarb, or Syrup of Peach-flowers, which gently carry off the ill-digested Chyle, and Foulness of the Bile, which lies in the first Passages, without giving any violent Stimulus.

4. A Vein also should be sometimes open'd in either Arm, if the Pain and Heat are violent; for by this Method, like Vessels being emptied, the Arteries which run near the Tumor will be less turgid, and therefore, vibrating with less Force, will bring on less Heat and Pain.

5. The Patient must be forbid the Use of Wine, Venery, immoderate Exercise, vehement Passions of the Mind, salt, spiced, sharp, or preserved Meats of any Kind; and be prescribed a thin, moist, cooling Diet, of Barley, Rice, Pudding, light Broths, or Jellies, or at most Chicken or Veal in Substance.

6. Cooling and diluting Broths or Apozems are to be used at the same time, and light chalybeated mineral Waters; Baths or Semicupia in warm Water, Asses or Cows-milk, or Whey, or, what is better, Cows-milk, for constant Diet, or used very frequently at least; and, lest it should offend the Stomach, you may add to the Morning Dose Lime-water, from one Ounce to three Ounces; or of the bitter Decoction of the Leaves of Wormwood, Centaury, and Germanander, to three, four, or five Ounces; or, before the Morning Dose, you may give a Bolus of red Coral, Crabs-eyes, *Peruvian Bark*, Blood-stone, seal'd Earth, Chalk, or any of this Kind which may be prescribed, of each one Scruple, if you mix two or three of them together.

7. If the Cancer is an occult one, no topical Remedies are to be applied to it; neither warm, sharp, dispersing Medicines, which, by their Heat, aggravate the Disease; nor cooling, anodyne, fatty, softening Medicines, which, by stopping up the Pores, and obstructing insensible Perspiration, increase the Heat of the Tumor, and by that means forward its Progress. It is sufficient therefore to guard it from Cold, or any Injury that it may receive from the Moisture of the external Air; which is no difficult Matter, if you consider the Part which the Tumor occupies.

8. On the other hand, if the Cancer is ulcerated, then it will be necessary to dress the Ulcer daily, to clean it gently with dry Lint, and to wash it with Decoction of Agrimony, or Herb-Robert; and to mitigate the Acrimony and Pierceness of the desluent Humour with Topics, which are possess'd of an anodyne or absorbent Quality, so that they are not of an unctuous Nature. Various kinds of Remedies are recommended to answer this Intention, but the following seem to be preferable to the rest:

Ointment prepared of the fresh-express'd Juice of the Garden Nighthade, beat with a Leaden Pestil, in a Leaden Mortar, with the Sugar, or rather Magistery, of Lead.

Fresh

Fresh Oil of Eggs, beat in a Leaden Mortar till it grows black.

A thin Plate of Lead, either alone, or rubb'd over with Mercury.

The Flesh of common Snails, or of Cray-fish, boil'd much, and rubb'd in a Leaden Mortar.

Slices of Veal, just kill'd; or young Puppies, slit thro' the Middle, and applied hot to the Part.

Oil of green Frogs, distill'd *per Descensum*, with an Addition of powder'd Frogs, Toads, or Craw-fish.

All Preparations of Tutty, Pompholyx, and Lead.

9. If the shooting Pains are very violent, Narcotics should be mix'd with the foregoing Remedies, as Opium, from one Grain to two or three. They should also be given internally in a proper Dose, that the Pain by this means may be more powerfully allwaged; which we would have understood of the moveable Cancer, if it is attended with acute Pains, and also of the occult.

10. Lastly, it will be proper at the same time to restrain the Luxuriance of the fungous Flesh with a mild cathæretic Medicine, of which Sort we have found the *Balsamum Chalybis* to exceed all others; for this kind of Balsam destroys the fungous Flesh by corroding it, but in a very gentle manner; for the corrosive Points of the Spirit of Nitre are rubb'd down by Fermentation, and blunted by the Olive-oil. But, if it shall seem necessary, that Balsam may be render'd still weaker and weaker, and by that means less corrosive, if, by repeated Ablutions, the acid Points of the Spirits of Nitre are wash'd off. *Astruc.*

The BALSAMUM CHALYBIS is thus made.

Take of double Aqua-fortis, three Ounces: Put into this Needles, made of the purest Steel, which may be known by their Brittleness, till a small Ebullition is raised. Then add three or four Ounces of the best Olive-oil. Mix them to the Consistence of a Balsam. When cold, dulcify it, by repeated Washings with Water; by which its corrosive Quality may be taken off to what Degree the Compounder pleases.

BUBONIUM. See **ASTER ATTICUS.**

BUBONOCELE, *Βυβονοχήλη*, from *βουβων*, the Groin, and *χήλη*, a Tumor, is a soft Tumor in the Groin, caused by a Wound or Rupture of the Peritonæum, which was never conglutinated. If it arises about the Navel, the Patient has the Epithet of *Exomphalios* bestow'd upon him by some Physicians.

The Falling down of the Intestines, occasion'd by a Rupture of the Peritonæum, is a difficult Case; but if it be owing to the Thinness of its Contexture only, it is more easy to be cur'd, especially in Children, as they abound with Humidity.

While the Intestine continues above the Groin, the Disease is nam'd *Bubonocèle*; but, when it descends into the Scrotum, it is call'd an *Enterocèle*. *P. Æginet. Lib. 3. Cap. 53.*

An *Enterocèle*, occasion'd by Distention or Stretching of the Part, is preceded by a *Bubonocèle*; for the Peritonæum being distended, the loosen'd Intestine falls upon the Groin, and constitutes a *Bubonocèle*. *P. Æginet. Lib. 6. Cap. 66.*

Dr. Freind has the following Remarks upon the *Bubonocèle*, or Inguinal Hernia, which are too curious to be omitted.

An Inguinal Hernia, according to all Authors, is only the Beginning of an Intestinal; the Gut, they say, must descend by the Groin first, before it can pass into the Scrotum; and therefore *Paulus* says, that a *Bubonocèle* always precedes an *Enterocèle*. Accordingly all Anatomists, as well as Surgeons, have agreed, that in a *Bubonocèle* the Gut comes down thro' the Rings or Perforations of the Abdominal Muscles. But tho', no doubt, this be often the Case, yet perhaps, if we examine the Matter a little more nicely, we shall find, that the Gut may take another Course; hitherto unobserv'd, to produce a *Bubonocèle*. The Cavity in the Thigh between the Muscles *Pectineus* and *Sartorius*, where the Crural Vessels descend, is very remarkable: And the Tendons of the Abdominal Muscles lie so loose, that there is nothing but a little Fat, and some membranous Fibres, which separate it from the Abdomen; so that we see how easy it is for the Peritonæum to be forced down by any Pressure, thro' this Interstice into the Cavity we have describ'd; especially since, considering our erect Posture, it lies in a more direct Line than even the Rings of those Tendons. And if we compare the Accounts of those very Authors, who think that a *Bubonocèle* is always formed in the Processes of the Peritonæum, we shall find them often agree to this Place only.

Aquapendente remarks, that a *Bubonocèle*, and a *Varix* of

the Crural Vein, have often been mistaken for a *Bubo*; in which Case, upon Incision, the Vein or the Gut has been cut, so as to endanger the Person's Life. *Buboes*, we all know, are always in those Glands which lie upon the Crural Vessels; and therefore 'tis plain, he thinks, in many Instances, that a *Bubo* and a *Bubonocèle* are in the same Place, that is, in the Place we have taken Notice of. Upon this Account too it seems to be, that *Celsus* call'd a *Bubonocèle* a *Varix Inguinis*.

The late Mr. Serjeant *Bernard* was concern'd in a Case, where the Gut reach'd under the Skin down to the Middle of the Thigh; in which Instance it must descend through the Interstice, under the Tendons of the Abdominal Muscles; for, if it had come down through the Rings, it must have gone directly into the Scrotum, and not turned down the Thigh. And *Barbette* seems to imply this Way, tho' he has express'd it with the same Obscurity as other Writers do, when he says, *Experimur etiam processum Peritonæi ita posse dirumpi, ut Intestina non in Scrotum, sed inter Cutim & Musculos, versus Femur, sese urgeant.* Where by the Words, *processum Peritonæi*, if he means the Productions which arise from the Vaginal Coat, we have seen, that the Gut cannot get into the Situation he describes. Perhaps it may give us a little more Light into the Matter, if we consider the Inguinal Hernia in Women. *Fallopious* deduces it from the round Ligaments of the Womb, which make the same Perforations in the Tendons of the Abdominal Muscles of that Sex, as are in those of Men. 'Tis very true, they do, but not in the same Place; for these Rings in Women lie just upon the Os Pubis, and the Ligaments, as soon as ever they are pass'd through them, are strongly inserted with the Tendons into the Bone. So that, by the Straightness of the Passage, there seems to be little room for a Hernia here: and if there were, the Gut must lie just forward upon the Os Pubis, as indeed we find sometimes it does, even as far as the very *Labia Pudendi*. But I believe in such Ruptures it will be found generally to take its Course much more aside, towards the Os Ilium. And therefore *Celsus* expressly says, that a Hernia in Women *fit præcipue circa Ilium*. That the Peritonæum may be distended in this Place, is plain from the Account *Nuck* gives us of a Dropsy in this Membrane, which spread itself, he says, and form'd a Sack in the Thigh, *per vacua musculorum spatia*. And *Hildanus*, in explaining the Reason of a *Hernia Uterina*, thinks the Extension of the Peritonæum happen'd *circa foramina illa, circa quæ Bubonocèle fit in Mulieribus*: and if we compare these Words, which are ambiguous enough, and perhaps left so on Purpose, with a Description of the Posture which is given of the Tumor, we shall find them only applicable to the Interstice we speak of. How capable the Peritonæum is of a large Distention, an Ascites alone will sufficiently convince us; and that such a Distention as there is generally in the present Case, without any Rupture, may happen, not only at its Productions in the Groin, or the Navel, we may find sufficient Proof in the Writers of Surgery. *Barbette* gives Instances of such Hernias in the Back, above the Navel, below the Navel, *longe supra Ilium*, he says, which have been by Mistake cut for an Abscess. *Paulus* indeed distinguishes the Intestinal Hernia, as it proceeds either from a Rupture, or a Distention of the Peritonæum; and says expressly, that the Operation by the Knife is only to be attempted in the latter Case. But whoever with Attention considers the Anatomy of these Parts, must, I think, be of a quite contrary Opinion; for in a Rupture of the Peritonæum, if the Operation be perform'd, and the Gut once reduced, we may conceive how all the Parts of the Peritonæum, as well as the rest, may be so healed and united, as not to give way to any Descent of the Gut for the future. But in the Case of Distention, if, after the Operation, the Peritonæum remains distended, as it must, how is the Return of the Hernia prevented? To form a right Notion of such a Distention, one ought to see the curious Preparations of that diligent and accurate Anatomist Dr. *Douglas*, who is the first who has given us any true Idea of the Peritonæum, a Part which is so much concern'd, and whose Structure should be so much consider'd, not only in this Operation, but in the High-way for cutting for the Stone. *Freind's History of Physic.* See the Account of the *Hernia Cruralis*, in the latter Part of this Article.

A Tumor proceeding from the Falling down of the Intestines, or Omentum, or both together, through the Processes of the Peritonæum, towards the Groin, is call'd by Physicians a *Bubonocèle*, taking its Name from *Bubo*, as resembling that Disease. Some, with *Celsus*, have call'd it a Rupture of the Groin, or a *Hernia inguinalis*. Others have nam'd it an *incomplete Hernia*, distinguishing it from that perfect Hernia, which in Men is form'd by the Falling down of the Intestines into the Scrotum; tho', to speak the Truth, the former of these Disorders wants nothing to make it a *complete Hernia*. Commonly there is a Prolapsus, or Falling down, of the small Intestine only; but sometimes it is attended with that of the Colon, and the Cæcum, especially on the Right Side of the Groin, of which I have known some Examples. And not only

only Men, but Women also, are frequently affected with such Ruptures, and that to so great a Degree, that the prolapsed Intestines have sometimes penetrated to the very Labia Pudendi. And not only *Ruyfch*, but *Petit* and *Arnaud*, have observ'd a Prolapsus of part of the Bladder; and *Hildanus*, as well as *Ruyfch*, mention a Falling out of the Uterus into the Groin. We ought therefore to be extremely cautious, lest by mistaking a Bubonocoele for a Bubo, or any other like Tumor or Abscess, we make an Incision in the Part, and so, by perforating the Intestine, destroy the Patient. This is a Caution given by *Fabricius ab Aquapendente*, as well as by many modern Authors.

A Bubonocoele arises from two different Causes; for sometimes the Perforations in the Muscles of the Abdomen, through which the Processus of the Peritonæum, and the spermatic Vessels, pass, or those which transmit the Crural Vein and Artery, are by Degrees, and almost insensibly, by various Causes, relaxed, in such a manner, as to give occasion for the Intestines, together with the internal Membrane of the Peritonæum, to break through. Sometimes on a sudden, and by violent means, as Leaping, a Fall, a Blow, Overstraining in moving or lifting great Weights, or any other way, a Cough, Vociferation, blowing a Wind-instrument, Riding, violent Gestation, eager and immoderate Venery, Vomiting, or any other forcible Way, the Peritonæum, in the Places before described, is either lacerated, or, according to the general Opinion of the Moderns, so far distended, as to make way for a Falling thro' of the Intestines, sometimes with, and sometimes without the Omentum. Sometimes only one Side of the Intestine, opposite to that which joins the Mesentery, is engag'd in the Perforations or Rings, as *Morgagni* and *Ruyfch* observe, and of which *Mr. Littre* relates a History in the Memoirs of the Academy of Sciences for 1700.

When this Disorder comes on slowly, and by Degrees, the Patients for the most part feel no great or frequent Molestations or Inconveniencies; but if they become sensible of the Distemper on a sudden, or, after they have long been afflicted with it, expose themselves too much in the Cold, use violent Motion or Straining, fall into a violent Fit of Anger, as I have observ'd, or make too plentiful a Meal, especially on gross Aliments, and such as are of bad Juice, they commonly suffer very severely from it. For not only the Intestines are miserably distended by the Fæces, but sometimes the Openings or Perforations, through which the Intestines fall, are streighten'd to such a Degree, as to compress the Intestines in an extraordinary manner, so as to hinder them from transmitting any of their Contents, and even to stop the Circulation of the Blood in their Veins. Such a Case must almost necessarily be attended with a great Inflammation of the Intestines, Pains, Inquietude, violent Vomiting, and the Iliac Passion, commonly called the *Miserere mei*, just in the same manner as these Symptoms are excited by an *Omphalocoele*, or *Gastrocœle*; and so there is form'd a sort of *Hernia incarcerata*, as Physicians call it. Here take Notice by the way, that they who labour under a Hernia of the Scrotum, are often exposed to the same Inconveniencies; for which Reason all Persons afflicted with a Hernia, whether it be of the Navel, the Groin, or the Scrotum, ought never to go without a proper Girdle, Fillet, Bandage, Bracers, or Truss; and, after they have worn them, should be very cautious of leaving them off, for fear of exposing themselves to the Danger of a *Hernia incarcerata*, which very often destroys the Patient; tho' it cannot be deny'd, that such Disorders may sometimes happen to those who are secur'd by Bandage or Trusses, on occasion of hard Riding, or any other violent Commotion of the Body, by which the Truss is broken, or mov'd out of its right Place, or loosen'd in such a manner, that the Intestines force a Passage out of the Abdomen. Such an Accident once happen'd to the Duke de Villeroy, a Marshal of France, while he was hunting, as *Dionis* tells us in his Book of Surgery, where he treats of Hernias. Persons therefore under such an Affliction, should either ride not at all, or be very cautious in riding.

A Bubonocoele, or *Hernia Inguinalis*, is commonly known by the following Signs: There is a Tumor in the Groin, which extends itself to the Ring of the Muscles of the Abdomen; and, when it is not incarcerated, is sometimes visible, and then again disappears, according to the different Situations and Motions of the Body. When we apply our Hand, we plainly perceive an equally hard Prominence, not unlike an inflated Intestine. As the Disorder gradually increases, the Tumor, when gently depressed with the Hand, and especially when the Patient lies upon his Back, quite vanishes, retiring into the Abdomen with a sort of rumbling Noise. But when there is only a Prolapsus of the Omentum, the Tumor is commonly softer, and like Fat to the Touch, and not mutable in Bigness, like that of the intestinal Hernia, but, for the most part, constantly appearing the same. When there is a Prolapsus of both the Omentum and Intestines, there is almost constantly a soft kind of Tumor, which remains after the Intestines are replaced. A *Hernia* which happens suddenly,

and an incarcerated *Hernia*, are known by the following Symptoms: The external Tumor, sometimes when only excited by the Omentum, is remarkably red, with a Hardness and Inflammation. The Patients suffer most intense Pains, both internal and external, attended with a vehement Heat, or a Fever; and commonly violent and obstinate Vomiting, quickly succeed, first of the Aliments, and natural Contents, and at last of the Excrements, with extreme Anguish and Agitations, under which the Patients are very much weaken'd, and faint at every Turn, till, falling into a cold Sweat, and Refrigeration of the whole Body, they at last expire, unless seasonably reliev'd.

As *Hernias* in general are accounted shameful Diseases, so especially are those which affect the Pudenda regarded as such, and therefore usually kept secret. The Event also of this Distemper is usually doubtful and dangerous, especially when it is degenerated into an incarcerated *Bubonocœle*. If the Intestines are not as yet intercepted or engag'd, and the *Hernia* comes on gradually, the Disease is the milder, and less dangerous, especially when the Intestines, after being replaced, are secur'd and restrain'd by some proper Truss or Bandage, which must be constantly worn for a long while. The Disorder, however, is very troublesome, and renders the Patient unfit for many kinds of Business; besides, it is to be fear'd, that the *Hernia*, tho' never so favourable, should by too streight a Constriction of the Tumor by the Truss by little and little, or perhaps on a sudden, degenerate into a *Hernia incarcerata*, attended with all the foremention'd dreadful Symptoms. In a *Hernia incarcerata*, if the Intestines be not seasonably replaced, commonly after the second or third Day, and sometimes sooner, a violent Inflammation seizes the Parts, which in a very short time destroys the Patient; for which Reason we must be speedy in our Assistance, and if the Distemper be too stubborn to yield to Medicines, and the Symptoms are very threatening, we are not to delay the Operation, but enter upon it sometimes before the End of four-and-twenty Hours; for when the Strength of the Patient is exhausted, and red and black Spots appear on the Tumor, a Sphacelus is indicated, and a cold Sweat, and total Refrigeration of the Body bring on Death in a very few Hours. In such Circumstances, therefore, not only all Assistance from the Surgeon is useless, but it is greatly to be feared, lest the Patient should expire under an Operation sufficiently dangerous of itself, and so the Cause of his Death, which ought rather to be ascribed to a Sphacelus of the Intestines, should be rashly and inconsiderately imputed to the Operation. But when the Symptoms are more mild, and less urgent, and the Patient is yet sufficiently strong, the Use of the Knife may be deferr'd. When the Omentum falls out with the Intestines, there is commonly less Danger, than when there is an Incarceration or Coarctation of the bare Intestine, tho' sometimes a Prolapsus of the Omentum alone has excited the Symptoms of a *Hernia incarcerata*, as is observ'd by several Authors in Cases where after Section they discover'd nothing but a Prolapsus of the Omentum. But as soon as the Tumor, the Redness and Hardness of it being in some measure diminish'd, begins to grow black, with a kind of Softness, or appears with red, livid, or blackish Spots, as we said before, and has lost the Sense of Feeling, and a continual Vomiting, with a Fever, afflicts the Patient; if the Pulse be weak, and the Eyes look disturb'd, and, as it were corneous, we ought to consider these Symptoms as manifest Indications, that the Intestines are already seiz'd with a Sphacelus. If the Inflammation be communicated to the interior Parts, which is conjectur'd by the Distention of the Belly, and the Elevation of the Navel, there is little or no Hope of Life. And in the last Place, where there is a Coalition of the prolapsed Intestines with the other Parts, the Method of Cure by the Knife usually proves very doubtful and difficult, because the Intestines can very seldom or never be replaced within the Belly, unless by means of the Knife they are separated from the Parts to which they adhere, which is sometimes impossible to be effected, especially in a *Hernia femoralis*, when the Intestines have made a Coalition with the Crural Vein or Artery, as *Garengot* has observ'd. They may therefore be thought to be in the right, who are of Opinion, that the Antients never undertook a Chirurgical Operation of this kind; for neither *Celsus*, nor *Paulus Egineta*, nor any other of the Antients, as far as I know, have mention'd it. However, because this Method of Cure has been often found to be of Service, tho' attended with many and great Difficulties, we think that in due Season it ought by no means to be neglected.

There are, in general, three Methods of Cure, which are to be chosen according to the Degrees and Age of the Distemper. Where the prolapsed Intestines may be commodiously restor'd, the Method of Treatment may be as follows: The Patient being laid upon his Back, with his Thighs somewhat bended, that the stretched Skin may have Liberty to relax, the prolapsed Intestines, with all that belongs to them, are to be taken with the Hand in the softest manner imaginable, and repressed

repressed into their proper Situation with all possible Gentleness; after which a glutinous Plaster, with a Bolster, must be laid on the Part which transmitted the Intestines, and fasten'd and secured by a fit Bandage, or Truss, furnished with its Bolster, or Escutcheon, various Sorts of which are represented *Tab. 46.*

This Instrument by keeping the Belly, and the relaxed Parts, in a firm and proper Constriction for several Months together, if the Patient be a Child, and oftentimes in adult Persons, effects a Conglutination, and a perfect Cure, or at least so contracts and streightens the Aperture, that the Intestines no more falling out, the Abdomen, and the relaxed Part, are in a great measure restored to their former Tone and Vigour. It is certain, that Infants, Children, and young Persons, or such as are not much above twenty Years of Age, may for the most Part by this Method, with the greatest Ease and Success, be restored to a perfect Soundness; and consequently, there is no Necessity of immediately subjecting them to a cruel Section under the Hands of strolling Quacks and Mountebanks, since a much milder Treatment would have done the Business; besides which it ought to be consider'd, that the sole Aim of these Pretenders is to extort as much Money as they can for the Cure, which costs the Patient a Testicle, and oftentimes his Life. Elder Persons, who have once experienced the Method of Cure by Trusses, ought to be very cautious how they leave them off during their Lives, unless they have a Mind to run over a new Course of Pain and Trouble; and they ought no less to avoid all violent Agitations of the Body. Numbers of Persons, who have formerly labour'd under a Hernia, with due Caution, and the Help of a proper Bandage, have been enabled to follow Business, and live to a good old Age. As for young Persons of twenty Years of Age, or more, if the Disease be but newly contracted, I have very often known them to be happily cured by wearing proper Bracers (*Bracheria*). *Heister. Chirurg.*

BUBONOCLE, or HERNIA INGUINALIS, INCARCERATA.

If the Hernia be incarcerated, or intercepted, whether it be by the Ring of the Muscle of the Abdomen, or, as *Le Dran* observes, by the upper Part of the Sack itself, which contains the prolapsed Intestines; and the Circumstance is such, that not only the Patient suffers most acute Pains, but the Intestines cannot conveniently be reduc'd; some immediately betake themselves to the Knife, for enlarging the Opening thro' which the Intestines are thrust out, in the same manner as is directed for the *Omphalocele*. However, because the Cure of a *Hernia incarcerata* principally consists in restoring the prolapsed Intestines, or Omentum, with all that belongs to them, to their former Situation, it is the Part of a prudent Physician first to try milder Remedies, before he proceeds to so painful and dangerous an Operation. Therefore, besides Phlebotomy, which is often of very great Service in this Case, and the same, if necessary, repeated, there ought to be frequent Applications of mollifying Oils, Ointments, or Cataplasms; and the Belly is to be evacuated by Clysters, till both the Intestines, and the Openings thro' which they burst, being sufficiently mollify'd, all that is removed from its proper Situation may, by means of the Fingers, be reduced to their proper Place within the Abdomen; and the most convenient Way of Operation for this Purpose is as follows: The Patient, having first made Water, is to lie on his Back, with his Head depressed, his Hips pretty much erected, and the Thigh of the affected Side a little bent: then the Intestines, by Application of the Fingers upon the Tumor, and, as it were, circularly agitating the same, are to be repressed towards the Os Ileum, and restor'd to their proper Situation. This done, that Part of the Abdomen whence the Intestines burst forth, is to be very carefully held by an Assistant, that the reduc'd Parts may not break out again; and, in the last Place, a proper Bandage is to be made, by applying a glutinous Plaster, with a thick simple or double triangular Bolster, upon the defective Part, and securing their firm Adherence, bringing over them a kind of Fillet, which they call *Spica Inguinis*, or Straps of Leather. This Bandage must not be left off without the utmost Caution, but must be worn for a long while, and, if the Age of the Patient requires it, during Life. But if the Intestines cannot be reduc'd by the foregoing Method, it will not be amiss to attempt the Cure by means of a Clyster of the Smoke of very strong Tobacco, continually injected into the Anus for a sufficient Time; by Help of a peculiar Machine, represented in *Tab. 55. Fig. 13.* By Help of this Instrument I have cured several, and, among the rest, a Man upon whom all other Clysters had no Effect, and who, for three Days, had suffer'd the most tormenting Pains from an *Hernia incarcerata*; and, on account of the intolerable Fœtor of his stercoraceous Vomitings, and the extreme Weakness of his Body, was given over by all who attended him. And I have since restor'd several others by means of this Fume of Tobacco, so that hitherto I have had no Occasion to make use of the Knife in these Cases. *Gladius* supposes, that the prolapsed Intestines may very commodiously be restored, by means of frequent

Applications of Linen Cloths, dipt in cold Water, to the Tumor. This Method, while the Disease is recent, I believe, may not be altogether ineffectual; but, where the Intestines have contracted any Corruption, I am of the contrary Opinion.

When the prolapsed Intestines cannot be reduced by the foregoing Method, which is sometimes the Case, as when the Tumor is grown too hard, and the Inflammation, with the Pains, and stercoraceous Vomitings, are come to a great Height, it is the Part of a prudent Physician to inform the Friends and Relations of the Patient, of the great Danger of the Case, and of the Necessity of having recourse to the Knife, not forgetting to represent also the Difficulty of an Operation of this kind. And this is to be done in Season, before the Patient be grown too weak, or the Intestine corrupted, and the dubious Hopes of Life, by Delay, converted into Fear of present Death; that the Destruction of the Patient may not be imputed to the Surgeon, when it was impossible to save him. When, therefore, the Patient, with the Consent of his Friends, is willing to submit himself to the Operation, he is, first of all, to empty his Bladder, lest, being distended with Urine, it should hinder the Regress of the Intestines, or be hurt with the Knife. The Urine, then, being discharg'd, the Patient is to be laid on his Back, on a Table, or the Side of a Bed, and the Groin, if hairy, shav'd, that the Hairs may not be an Impediment to the Operator. Then, the Head being depress'd, and the Hips rais'd, the Patient is to be firmly held by some of the strongest Assistants, the Thigh adjacent to the diseas'd Part being a little bent, in order to avoid too great a Distention of the Skin. After this, the Surgeon takes up the Skin, together with all the Fat, on one Side of the Tumor, whilst an Assistant does the same on the other, and, raising it as much as possible, makes a strait Incision with the Knife thro' the Middle of the Tumor, and afterwards widens the Wound, both upwards and downwards, as much as he thinks sufficient. But if, by reason of the Violence of the Inflammation, the Skin cannot be taken up in the manner aforesaid, as it sometimes happens, the Operator takes hold of the Tumor with the Thumb and middle Finger of his Left Hand, and, with the greatest Caution, and Steadiness of Hand, drawing the Knife downwards, makes a strait Incision over the Middle of the Tumor; but so slight a one, as only to divide the Skin, which, in these sorts of Tumors, is usually very thin, for fear of cutting the Intestines, which sometimes happens, and endangering the Life of the Patient. The Skin being a little divided, in the manner directed, a groov'd Probe is to be introduc'd between the Skin thus divided and the Tumor, and the Wound enlarg'd, with the Knife or Scissars, above and below. After this, the Lips of the Wound being kept asunder, by Hooks, on each Side, and the Knife laid aside, to avoid injuring the Intestines, whatever Portion of Fat, or of the Membrana Cellulosa, may be found cohering, must be carefully separated, by means of the Probe, the Spathula, the Handle of a Knife, or the Nails of the Fingers, till the Intestines, or, what more frequently happens, their Integument, which is a Dilatation of the Peritonæum, and call'd the *Bag*, appears in View. The modern *French* Surgeons, as *Garengot* assures us, gently and warily divide the Laminæ of the Membrana Cellulosa, that this Part of the Operation may the sooner be over, not with a blunt Instrument, but with the Incision-knife, which they draw along, not in a perpendicular, but oblique, Direction, till they come to the Bag before-mention'd, when the utmost Circumspection is requir'd, in order to avoid wounding the Intestines with the Knife. While we are cutting this Integument, or Bag, it seems necessary, for the Security of the subjacent Intestines, to pinch it up a little between the Thumb and fore Finger of the Left Hand, and, with the Knife, or Scissars, warily applied, make a very slight Incision, or only a small Perforation. While this is doing, the Surgeon ought not to be terrify'd, if any thing like Serum, or Water, should happen to gush out, as if he had wounded an Intestine, (for some sort of aqueous Liquor almost constantly occurs) but must go on with the Operation, in cutting up the Bag, till he comes to the Perforation, or Annulus of the Abdomen, which is done by means of a Pair of Probe-scissars, or a Knife, either strait or crooked, introduc'd by Help of a groov'd Probe, or a Knife arm'd with a Button, (see *Tab. 26. Fig. 3. 4. and 5.*) which *Garengot* prefers before all other Instruments, or by the Scissars, or Knife, introduc'd upon the Finger. If, during this Incision, any little Blood-vessel should happen to be cut, and, by bleeding plentifully, hinder the Operation, it must be compress'd, by an Assistant, with his Fingers alone, or a Bolster under them; or a Ligature may be made on the Vessel with a Needle and Thread, and the Blood must be absterge'd with a Sponge, or Linen Rags. This being done according to Art, the next thing is, by a gentle Compression of the Fingers, to force back the Intestines, if they have escaped sound, thro' the Ring of the Muscles of the Abdomen. In this Attempt, if the Surgeon be hinder'd by the included Fœces or Flatus, he must first try to remove them by gentle means; but, if such a Method prove ineffectual, the Place of the Prolapsus, that is,

the Opening, or Ring of the Muscles of the Abdomen, must be enlarg'd to a sufficient Breadth with the Knife, but with Caution, and inwardly, or towards the Linea Alba, for fear of cutting the Epigastric Artery, which runs along the Outside, and thereby causing an immoderate Effusion of Blood. But if this should happen, the Blood must be stop'd by a Pledget of Lint, arm'd with a styptic Liquor, and by Compression against the Os Ileum. If there be an Adhesion of the prolapsed Parts externally, they must be loos'd with the greatest Caution. The Instruments proper for dilating the Annulus are the Knife, or the before-mention'd Instruments; and, for Defence of the Intestines, are the Probe, with a Plate in the Figure of a Heart, (Tab. 45. Fig. 8.) or *Morandus's* Knife, (Tab. 45. Fig. 9.) or that of *Le Dran*, (Tab. 45. Fig. 10.) inclosed in a Sheath, as in a sort of hollow Probe. For some time those Knives, which are delineated, (Tab. 46. Fig. 1. and 2.) and are inclosed in Sheaths, were very much in Request for this Purpose. The first of these is here represented, (Fig. 1.) conceal'd within its Capsula (A. C.), which, after its being introduc'd into the Place of the Prolapsus, by pressing the Plate (B.), comes out of its Capsula, as is shewn, (Fig. 2. A.) and makes an Incision in the Place of the Prolapsus, whether it be the Ring of the Muscles of the Abdomen, or the upper Part of the Bag, in which the Intestines suffer a Strangulation. But, because the interior Parts are more subject to be cut and wounded, when the Point of the Instrument first comes forth and cuts, than the Part which compresses the Intestines, the former Instruments are now justly look'd upon as the most convenient. But lest the Intestines, as being remarkably lubricous, should happen to rush out, and fall upon the Knife, while we are busy in using the simple groov'd Probe, or *Morandus's* Knife, (Tab. 45. Fig. 9.) they ought to be carefully repressed, and held down by an Assistant. For the same Purpose, under the Instrument represented (Tab. 46. Fig. 2.) is a Plate (D.), which afterwards *Messieurs Petit* and *Le Dran* imitated, and endeavour'd to correct; the first in a Probe, represented (Tab. 45. Fig. 8.), and the other is figur'd (Tab. 45. Fig. 10.). The Place of the Prolapsus being dilated, the Intestines are to be replac'd, and secur'd with Linen Compresses, triangular Bolsters, and the Bandage call'd the *Spica* (see FASCIA). Some first scarify the Annulus, in order to raise a firmer Cicatrix, by which the Return of the Hernia is the more easily prevented. This Practice I judge not to be altogether amiss, especially in a lax State of those Parts. And some there are who introduce a long Tent into the Opening of the Abdomen, and apply Bolsters upon it; which Method, in a recent and simple Disorder, I think is needless, or rather hurtful; as, on the other hand, in an inveterate and complicated Disease, where the Humours are vitiated and putrefy'd, and there is an inward Abscess, it may be convenient to use a Tent.

Tho' the prolapsed Intestines may be successfully replac'd by the Methods before propos'd, it will not be amiss to give a Description of other Ways, which some eminent Surgeons have try'd. Some, in Imitation, and by the Advice, of *M. Arnaud*, a famous Surgeon of *Paris*, having perforated the Skin, gently introduce a groov'd Probe, shut at the Extremity, as is represented (Tab. 22. M. and N.), under the Skin, and, cutting upon it with blunt-pointed Scissars, enlarge the Wound to a sufficient Wideness. Then taking hold of the Lips of the Wound with the Fingers of either Hand, with one Finger of the other they gently separate the Skin from the subjacent Tumor; and then cutting with the Knife, or Scissars, upon the Finger, divide the same as the Bulk of the prolapsed Intestines requires. After this, putting the middle Finger and Thumb of the Left Hand upon the Tumor, they take a sharp crooked Knife in their Right Hand, and, holding it a little on one Side, for the sake of better Light, and the more easily to avoid wounding the Intestines, or their Bag, they very cautiously cut thro' all the Tunics which inclose the Bag, which are sometimes more, sometimes fewer in Number, in proportion to the Inveteracy of the Tumor. If any Blood-vessels occur, they tie them in two Places before they cut them, that they may have no Impediment from an Hæmorrhage; and whatever Blood happens to flow from the Wound, is carefully wip'd away with Linen Cloths. Whatever Pieces or Scales of the Tunics adhere, on either Side, to the Bag, they are either pull'd off with the Fingers, or cut away by the Probe-scissars, introduc'd upon a groov'd Probe. This done according to Art in every Particular, the next thing is, with the Thumb and fore Finger, to take firm hold of the upper Part of the Coat of the Tumor, or the Bag of the Intestines, and distend it upwards. Near this Bag, separated from whatever adheres to it, and left entirely imperforated, the famous *M. Petit* introduces his groov'd Probe with a sheathed Point, under the Annulus, by which the Intestines fall out, and enlarges the Passages by the Method before prescrib'd. Then, taking hold of the lower Part of the Bag with his Hands, he gently depresses the Intestines therein contain'd towards the Os Ileum, and so, by Degrees, reduces them to their former Situation. The Intestines being thus reduced, for their better Security against a future Hernia, he represses

also the Bag, being first doubled, thro' the same Opening; (in which, as he assures us, it afterwards hardens by Degrees, and firmly closes it up) applying upon it a Linen Ball, made of Linen Thread, and cover'd with Linen Cloth, call'd by the *French M. Petit's* Pellet, which is first well moisten'd with the White and Yolk of an Egg, beaten up with a little Spirit of Wine, and afterwards squeez'd, and roll'd within the Hands into a cylindrical or oval Figure. By the Sides of this Ball, and also upon it, are plac'd other very small Linen Balls, or Lint; and, in order to their firm supporting and keeping in the diseas'd Parts, they are cover'd with three or four triangular Bolsters, one larger than another, moisten'd with Spirit of Wine; and the Whole is very exactly secur'd with the Bandage call'd *Spica inguinalis*.

But, if we may speak the Truth, this last Method of Cure, which does not permit the Bag to be open'd, is not approv'd of by me, nor by those who are better Surgeons than myself; and that, first, Because there is commonly a Coalescence on all Sides of this Bag with the Spermatic Vessels, which are easily injur'd in their Separation from it. (2.) Because the prolapsed Omentum, or Intestines, frequently contract a Corruption, which, if the Bag be left closed within the Abdomen, can neither be known, nor conveniently remedy'd, and, consequently, may be the Cause of the Patient's Death. (3.) Sometimes the Bag includes a large Quantity of fetid Ichor, which cannot be repell'd into the Abdomen without most manifest Injury; for *Chefelden*, a modern and very celebrated *British* Surgeon, writes, that he has found about two Pints of fetid Matter, like Lees of Oil (*Amurca*), in a Hernia of this kind, which, if repell'd, and clos'd within the Belly, would doubtless have prov'd mortal. (4.) The Intestines, and Omentum, in these Cases, often grow to the external Parts, and, if the Bag be not open'd, can neither be separated, nor reduced within the Belly. (5.) The Bag left entire, especially if it be large, may easily give Occasion to a new Hernia, and be a fit Receptacle for it. (6.) This Method, in case of a Rupture of the Peritonæum, is altogether unsuccessful. These, and other Reasons, were very fitly objected to *M. Petit* by *Manchartus*, Professor of Physic in the University of *Tubingen*, and formerly a Pupil of ours. And *Le Dran*, so often quoted, a Surgeon of *Paris*, does not at all approve of this Method; first, because no particular Advantage can be perceiv'd to attend it; and, secondly, because, if the Hernia be incarcerated for several Days, the Intestine is often corrupted with a Sphacelus, in which Case the vitiated Parts of the Intestine are separated, and fall off, as it often happens, or at least ought to happen, if the Patient recover; and the Chyle and Excrements would then be discharg'd into the Cavity of the Abdomen, and so necessarily destroy the Patient. For these Reasons I think it a better Way, for the most part, especially if the Disease be inveterate, and the Tumor large, to open the Bag, than to leave it entire; and I am of Opinion, that *Petit's* Method can safely be used only when the Disease is recent, and where there is no Corruption of the Intestines, no Concretion; and no Abscess; and *Garengeot* himself, in the second Edition of his *Chirurgical Works*, confines this Method of Cure within the Limits of these Observations.

Cyprianus, an eminent *Dutch* Physician and Surgeon, who spent the last Part of his Life in *England*, and to whom I am oblig'd in Gratitude, for what I there learn'd of him, practis'd much in the same manner as I have directed above for this Distemper, by opening the Skin, and Bag of the Peritonæum; but, instead of a Probe, or Conductor, he us'd his Finger as the best Conductor, in order to enlarge the Wound in the Bag and the Skin. But when the Opening, or Ring of the Muscles of the Abdomen, was not large enough for reducing the prolapsed Intestines, he first introduc'd a groov'd Probe, with a Knife, for dilating the Ring; and then cutting upon his Finger with the Scissars, divided the Skin, Fat, Muscles, and Peritonæum, till he had made a Passage wide enough for reducing the Intestines without any manner of Violence. For he much recommended wide Incisions in this Case, so far as were sufficient for restoring the Intestines without much Trouble, and almost without any Pressure; since, if the Dilatation were too narrow, there would be too great a Compression and Collision of the Intestines, in our endeavouring to reduce them; which might easily give Occasion for dangerous Inflammations, Gangrenes, and Death itself. Whenever he discover'd a Coalition of the great and small Intestines with the external Parts, he very dexterously separated them with the Knife, and then replac'd them in the Belly; after which he closed and conglutinated the Wound, by means of the knotted Suture, as is practis'd in *Gastrostomy*. And not only *Celsus* has recommended this Suture in the Cure of this Disease, but the famous *Rouset* has directed it in a Hernia incarcerated; and the very learned *German* Physician and Surgeon *Roalsfincius*, a hundred Years ago, practis'd the same with Success, in the like Disease.

That celebrated *British* Surgeon, *Chefelden*, after the Example of *Rouset*, in curing an *Hernia incarcerata*, where the Intestines and Omentum were fallen out, open'd the Belly, that

is, the Skin, Fat, Muscles of the Abdomen, and the Peritonæum, with the Knife, by making a great and strait Incision above the Ring of the Muscles of the Abdomen, as far as the Place of the Prolapsus, and thro' this Wound introduc'd the prolapsed Intestines with his Finger. As for the Omentum which adher'd, he perforated it with a Needle carrying a double Thread; then ty'd it, and cut it off; and, by these means, happily restor'd the Patient. He has publish'd the whole Process in his Book of Anatomy, and illustrated it with Cuts; but whether he conglutinated the Wound by a Suture, as I suspect, or by any other Way, he does not inform us; and it were to be wish'd, for the sake of the Public, that he had given a fuller Description of so extraordinary an Operation and Cure, for the Improvement of the Art of Surgery.

The Intestines being, by some way or other, restor'd to their former Situation, as was directed, some use to make frequent Incisions and Scarification with the Knife, or Scissars, in the upper Part of the Ring, with this View, that a more firm and solid Cicatrix may be rais'd upon the Wound, in order to prevent a new Hernia; but a great deal of Care is to be taken, during this Operation, that the Intestines do not fall out afresh, or be cut. For avoiding these Accidents, they ought, in the first place, to be carefully held, and kept in with a warm Towel; after this, the Remains of the Tunic of the Bag are to be separated, then ty'd with a Thread near the Ring, and cut off below the Ligature; what is superfluous in the Skin must also be taken away. The Wound is then to be dress'd with Pledgets of Lint, and particularly the Ball or Pellet of *Petit*; and these are to be secur'd with thick triangular Compresses, and the Bandage call'd *Spica inguinalis*. When the Wound is thus dress'd, the Patient should be put to Bed, and some Hours after he should lose some Blood, unless already very weak. During the whole Course of the Cure, the Patient should lie very still, with his Head somewhat low, and his Diet should be spare, and easy of Digestion, as in other large Wounds. Then, if the Patient should not have sufficient Stools naturally, they should be every Day procur'd by emollient Clysters; and, if the Patient should continue without any bad Symptom for four or five Days after the Operation, we may reasonably expect a Cure will succeed; to promote which, it will be prudent to purge the replaced Intestines of all vicious Humours, by some proper laxative Medicine, administer'd during the first Days; but if Hiccoughs, and a Fever, supervene, we may be certain, that the Patient is in imminent Danger, and, perhaps, not to be sav'd by the most effectual Remedies, tho' immediately apply'd.

With respect to the Dressings, the following Cautions are to be observ'd: First, the Dressings should not be remov'd, without urgent Necessity, during the two or three first Days, unless any noxious Humours contain'd within, or any other sufficient Cause, render it proper to open it the second Day; but when the Wound is open'd, it may be cleansed of its Sordes with warm Wine, or Spirit of Wine; and the Remainder of the Cure is to be perform'd as in other Wounds: But care should be taken at every Dressing, which ought to be but once a Day, or once every other Day, to place the Patient with his Hips elevated, and his Head depressed, whilst an Assistant compresses the upper Part of the Wound, to prevent the Intestine from falling out again, and this till the Cure is perfected. When the Wound is heal'd, if the Patient be young, he should wear a proper Truss for a Year or two; but if an Adult, or old Person, the Truss should be wore during Life. But I must not omit taking Notice, that some think fit, immediately after the Operation, before the Wound is dress'd up, to anoint the whole Abdomen with warm Oil of Roses, and then to cover it with warm Linen Cloths, which does not appear to be absolutely necessary.

Many of the most considerable Surgeons of *Paris*, as *Dionis*, *Mery*, *Arnaud*, *Thibot*, and others, advise the Use of a large Linen Tent, after the Operation and Reduction of the Intestine, which being of a considerable Length and Thickness, and fasten'd to a Thread, is to be introduced into the Abdomen, to keep open a Passage for the Vent of such Humours as may be contain'd within. *Widenman*, a modern German Surgeon, and *Dionis*, direct the Tent to be made about an Inch and a half long, and an Inch thick; and tell us, that it ought not to be extract'd, but to be left in till it falls out spontaneously by Suppuration; but *Petit* condemns the Use of them as pernicious, by irritating the Parts, and admitting the external Air, which may do Injury in the Abdomen: Yet I cannot forbear thinking the Use of them very proper, when there is, as it frequently happens, a Discharge of putrid Humours to be made from the Abdomen, in which Case *Le Dran* also approves them; otherwise the Tent may be omitted, and it may be sufficient to apply, according to *Petit's* Method, a thick Pallet or Ball only, for the more speedy Agglutination of the Wound, together with the above-mention'd Bolsters and Bandage.

If in the Operation, upon opening the Bag, the Omentum appears to be suppurated or enlarged, so that it cannot be replaced, a Needle, with a double Thread, is to be pass'd round the sound Part, and tied on each Side, and the vitiated Part afterwards is to be cut off; but the sound is to be returned,

leaving the Thread hanging out of the Wound. The rest of the Treatment must be the same as in other Wounds of the Abdomen, attended with a Suppuration of the Omentum. But if the Omentum is only corrupted, but not thicken'd, the corrupted Part may be left out of the Wound without a Ligature, and the sound return'd; and the corrupted Part will separate, and fall off spontaneously by Suppuration.

But if the prolapsed Intestine itself be found already mortified or corrupted, as sometimes happens when the Operation has been too long delay'd, the Patient is then in the utmost Danger; for, under these Circumstances, the Patients generally die either under the Operation, or soon after. For this Reason they are usually deserted by the Surgeon, upon a Supposition of the Impossibility of doing any Service, and the Apprehension of putting them to farther unnecessary Pain: But as it is better to attempt a doubtful Cure, than abandon the Patient to certain Destruction, and as replacing the Intestine in this mortified State would be attended with certain Death, the Surgeon should cut off the mortified from the sound Part of the Intestine, and stitch the superior Part of the latter to the Edge of the Wound, in the manner specified for Wounds of the Abdomen; by which means many have been known to survive the Disorder, and regain Health, tho' there was little or no Hope of their Recovery. We are encouraged to this Practice, not only by our own Experience, but also that of others: Besides, we are told by *Mery*, that a Man was happily cured, who had four or five Feet of his Intestine cut off, which was mortified in this kind of Rupture, and the sound Part joined to the Lips of the Wound in the abdominal Muscles. *Garengot* also takes Notice of a Man, whose Intestine being found mortified upon opening the Sack, and return'd by the Surgeon, in that Condition, into the Abdomen, he had soon after a Discharge of his Excrement by the Wound; and a Month afterwards the Flux, by the Wound, not only lessen'd, but the Lips of the Wound itself, being stopp'd with a Pellet or Ball, tied with a Thread, gradually heal'd in such a manner, that by untying the same, when there was Occasion, the Man survived, and had the natural Function of the Parts perform'd as usual, with but little more Trouble.

Le Dran observes, that it is a common Calamity among poor People, who have had the Misfortune of an incarcerated Rupture, to mistake it for an Abscess, and to treat it accordingly, without calling in the Assistance of any Physician or Surgeon; by which means they bring the Part to Suppuration, after intolerable Pains; and upon its discharging Fœces or Worms, which I have sometimes observed, they then implore the Help of the Surgeon. These, he says, generally require nothing more than the Ulcer to be cleansed daily, and treated with some vulnerary Medicine, cover'd with a Plaister of the same Kind; by which means many such Patients have been recover'd, more by Nature than Art, the Ulcer being entirely agglutinated and heal'd; whereas in others it has left an Aperture in the Groin, through which the Fœces, and sometimes Worms, are discharged, as it were, by a new Anus. In Imitation of Nature therefore, who, in this Case, often produces a happy Effect of her own Accord, *Le Dran* (*Obs. 60.*) does not return the corrupted Intestine into the Abdomen; since by this means the corrupted Parts, and the Fœces, falling into the Abdomen, would bring on the most dreadful Symptoms, and perhaps Death itself: Nor does he cut it off, but only, by Incision, dilates the Place, whose Narrowness occasions the Strangulation, that the Blood may have a free Course; and opens the corrupted Part of the Intestine, that the contain'd Sordes may have a free Discharge. Thus having applied vulnerary Medicines, Cloths dipp'd in camphorated Spirits of Wine, and proper Bandages, to the Parts, he waits a Separation of the corrupted Parts, and spontaneous Agglutination of the sound Intestine with the Lips of the Ulcer, since by this means a great deal of needless Labour may be avoided; but if the Surgeon should have injured the sound Intestine in the Operation, he then thinks it necessary to stitch the Intestine to the Lips of the Wound, which, inflaming, will more intimately unite with each other.

That the Parts will thus agglutinate, or join together, is confirm'd by a late Observation of *Ramdohr*, present Surgeon to his Serene Highness the Duke of *Brunswick*, who, some Years ago, cut off a large Part of a mortified Intestine in a Woman, who had an incarcerated Rupture, which broke of itself; and, joining the two sound Parts of the Intestine together, he inserted one into the other, and tied them together loosely with a String; and, replacing them in the Abdomen, drew them by the String to the Mouth of the Wound; by which means the divided Intestine inflamed, and surprisngly united, the Woman discharging her Fœces afterwards not thro' the Wound, but by the Anus, as before. The Woman afterwards lived in a State of Health, till, in about a Year's time, she died of a Pleurisy; and, upon opening her, the divided Intestines appear'd to be united with each other, of which he made a Present to me, together with Part of the Abdomen, to which they adhered; and I now keep them in Spirits, to convince such as are incredulous, and of a different Opinion.

If the Intestine should be prolapsed into the Scrotum, and so contorted or intercepted, that it cannot be reduced or return'd into the Abdomen, the Surgeon must, in this Case, have recourse to the Operation. The Reader may be furnish'd with more useful Observations upon this Subject in *Saviard, Obs. Chir.* 19. and 20. *Courtial, Obs. Pag.* 150. also in *Le Dran, Obs. Chir.* and three other Dissertations or Descriptions of Cases, in *Commere. Literar. Norimb. Ann.* 1735. *Pag.* 3. by *Werlhof*, Physician to the King of Great Britain, which are very learned, and worthy of the Reader's Perusal. *Heister.*

Mr. Sharp informs us, that the *Hernia Inguinalis*, and *Hernia Scrotalis*, are both call'd by the common Name of *Bubonocoele*, tho' this Appellation is only proper to the first. As this Author makes some Observations not taken Notice of above, and as the Opinion of our own Country Surgeons, whose Judgment is, I believe, inferior to none, will have some Weight in so nice an Operation as that now treated of, I shall give his Sentiments; and am persuaded, that the few Repetitions of what has been said before will be of no Diservice to whoever reads this with a View of being inform'd.

The Rupture of the Groin, or Scrotum, is the most common Species of Hernia, and in young Children is very frequent; but it rarely happens in Infancy that any Mischief arises from it. For the most part, the Intestine returns of itself into the Cavity of the Abdomen, whenever the Person lies down; at least, a small Degree of Compression will make it. To secure the Intestine, when return'd into its proper Place, there are Steel Trusses now so artfully made, that, by being accommodated exactly to the Part, they perform the Office of a Bolster, without galling, or even sitting uneasy on the Patient. These Instruments are of so great Service, that were People who are subject to Ruptures always to wear them, I believe very few would die of this Distemper; since it often appears, upon Inquiry, when we perform the Operation for the *Bubonocoele*, that the Necessity of the Operation is owing to the Neglect of wearing a Truss.

In the Application of a Truss to these kinds of Swellings, a great deal of Judgment is sometimes necessary; and for want of it we daily see Trusses put even on Buboes, indurated Testicles, Hydroceles, &c. But, for the Hernias, I shall endeavour to lay down two or three Rules, in order to guide more positively to the Propriety of applying or forbearing them.

If there is a Rupture of the Intestine only, it is easily, when return'd into the Abdomen, supported by an Instrument; but if of the Omentum, notwithstanding it may be return'd, yet I have never found the Reduction to be of much Relief; for the Omentum will lie uneasy in a Lump at the Bottom of the Belly, and, upon Removal of the Instrument, drop down again immediately; upon which Account, seeing the little Danger and Pain there is in this kind of Hernia, I never recommend any thing but a Bag-truss to suspend the Scrotum, and prevent, possibly by that means, the Increase of the Tumor. The Difference of these Tumors will be distinguish'd by the Feel; that of the Omentum feeling flaccid and rumpled, the other more even, flatulent, and springy.

Sometimes, in a Rupture of both the Intestine and Omentum, the Gut may be reduced; but the Omentum will still remain in the Scrotum, and, when thus circumstanced, most Surgeons advise a Bag-truss only, upon a Supposition, that the Pressure of a Steel one, by stopping the Circulation of the Blood in the Vessels of the Omentum, would bring on a Mortification: But I have learnt, from a Multitude of these Cases, that, if the Instrument be nicely fitted to the Part, it will be a Compression sufficient to sustain the Bowel, and at the same time not hard enough to injure the Omentum; so that, when a great Quantity of Intestine falls down, tho' it is complicated with a Descent of the Omentum, the Rupture will conveniently and safely admit of this Remedy.

I have, as yet, consider'd the Rupture as moveable; but it happens frequently, that the Intestine, after it has pass'd the Rings of the Muscles, becomes inflamed; which, enlarging the Tumor, prevents the Return of it into the Abdomen; and, becoming every Moment more and more strangled, it soon tends to a Mortification, unless we dilate the Passages, through which it is fallen, with some Instrument, to make room for its Return; which Dilatation is the Operation for the *Bubonocoele*.

It rarely happens, that Patients submit to this Incision before the Gut is mortified, and it is too late to do Service; not but that there are Instances of People surviving small Gangrenes, and even perfectly recovering afterwards. I myself have been an Eye-witness of the Cure of two Patients, who, some time after the Operation, when the Eschar separated, discharged their Fæces through the Wound, and continued to do so for a few Weeks in small Quantities; when, at length, the Intestine adher'd to the external Wound, and then was fairly heal'd.

In Mortifications of the Bowels, when fallen out of the Abdomen into the Navel, it is not very uncommon for the whole gangrened Intestine to separate from the sound one; so that the Excrement must necessarily, ever after, be discharged at

that Orifice: There are likewise a few Instances where the Rupture of the Scrotum has mortified, and become the Anus, the Patient doing well in every other respect. These Cases, however, are only mention'd to furnish Surgeons with the Knowledge of the Possibility of such Events, and not to mislead them so far as to make favourable Inferences with regard to Gangrenes of the Bowels, which generally are mortal.

Before the Performance of the Operation for the *Bubonocoele*, which is always to be done in Extremity of Danger, the milder Methods are to be tried; these are, such as will conduce to soothe the Inflammation; for, as to the other Intent of softening the Excrements, I believe it is much to be question'd, whether there can be any of that Degree of Hardness in the Ileum, which is the Bowel diseased, as to form the Obstruction: And, in Fact, those Operators who have unluckily wounded the Intestine, have proved, by the thin Discharge of Fæces which has follow'd upon the Incision, that the Induration we feel is the Tension of the Parts, and not the harden'd Lumps of Excrement.

Perhaps, except the Pleurisy, no Disorder is more immediately relieved by plentiful Bleeding than this. Clysters, repeated one after another, three or four times, if the first or second are either retain'd too long, or immediately return'd, prove very efficacious: These are serviceable, not only as they empty the great Intestines of their Excrements and Flatulencies, which last are very dangerous, but they likewise prove a comfortable Fomentation, by passing through the Colon, all around the Abdomen. The Scrotum and Groin must, during the Stay of the Clyster, be bathed with warm Stoops wrung out of a Fomentation, and with these on the Part you must attempt to reduce the Rupture: For this Purpose let your Patient be laid on his Back, so that his Buttocks may be considerably above his Head; the Bowels will then retire towards the Diaphragm, and give way to those which are to be push'd in. If, after endeavouring two or three Minutes, you do not find Success, you may still repeat the Trial. I have sometimes, at the End of a Quarter of an Hour, return'd such as I thought desperate, and which did not seem to give way in the least, till the Moment they went up; however, this must be practis'd with Caution, for too much rough Handling will be pernicious.

If, notwithstanding these Means, the Patient continues in very great Torture, tho' not so bad as to threaten an immediate Mortification, we must apply some sort of Pultice to the Scrotum: That which I use, in this Case, is equal Parts of Oil and Vinegar, made into a proper Consistence with Oat-meal: After some few Hours the Fomentation is to be repeated, and the other Directions put in Practice; and if these do not succeed, I am inclin'd to think it advisable to prick the Intestine in five or six Places with a Needle, as recommended by *Peter Lowe*, an old English Writer, who says, he has often experienced the good Effects of this Method in the Inguinal Hernia, when all other Means have fail'd.

After all, should the Pain and Tenseness of the Part continue, and Hiccoughs and Vomitings of the Excrements succeed, the Operation must take place; for if you wait till a languid Pulse, cold Sweats, subsiding of the Tumor, and emphysematous Feel come on, it will be most likely too late, as they are pretty sure Symptoms of a Mortification.

To conceive rightly of the Occurrences in this Operation, it must be remember'd, that in every Species of Rupture the Peritonæum falls down with whatever makes the Hernia; for the Contents of the Abdomen being immediately enveloped in this Membrane, they cannot push thro' any Orifice, but they must likewise carry a Part of it along with them: So that, in the *Bubonocoele*, the Situation of the Tumor will be in the Cavity of the Scrotum, upon the Tunica Vaginalis, and Spermatic Cord.

The best way of laying your Patient will be on a Table of about three Foot four Inches high, letting his Legs hang down; then properly securing him, you begin your Incision above the Rings of the Muscles, beyond the Extremity of the Tumor, and bring it down about half the Length of the Scrotum, thro' the *Membrana Adiposa*, which will require very little Trouble to separate from the Peritonæum (call'd the Sack of the Hernia), and consequently will expose the Rupture for the farther Processes of the Operation; but I cannot help, once more, recommending it as a thing of great Consequence, to begin the external Incision high enough above the Rings, since there is no Danger in that Part of the Wound; and for want of the Room this Incision allows, the most expert Operators are sometimes tedious in making the Dilatation. If a large Vessel be open'd by the Incision, it must be taken up before you proceed further.

When the Peritonæum is laid bare, you must cut thro' it carefully, to avoid pricking the Intestines; though, to say the Truth, there is not quite so much Danger of this Accident as is represented; for, generally speaking, the Quantity of Water separated in the Sack of the Peritonæum raises it from the Intestine, and prevents any such Mischief. This Discharge of Water, which follows upon wounding the Peritonæum, and the

the Ignorance of the Structure of the Tunica Vaginalis, have made it so generally thought, that Ruptures were received into the Cavity of that Tunic.

It has lately been consider'd by some as an Improvement in the Operation, to forbear wounding the Peritonæum, and to return the Sack entire into the Abdomen, thinking by this means to make a firmer Cicatrix, and more surely to prevent a Relapse for the future: But, besides that this Practice is not founded on Reason, in the very Particular it is recommended for, the seeming Necessity there is of letting out the Waters, that are frequently fetid, of taking away the mortified Part of the Omentum, which we cannot come at without the Incision; and lastly, to leave an Opening for the Issue of the Excrements out of the Wound, in case an Eschar should drop from the Intestine; put out of Dispute, in my Opinion, the Impropriety of this new Method.

The Peritonæum being cut thro', we arrive to its Contents, the Nature of which will determine the next Process; for, if they be Intestine only, it must directly be reduced; but if there be any mortified Omentum, it must be cut off; in order to which, it is advised to make a Ligature above the Part wounded, to prevent an Hæmorrhage; but it is quite needless, and in some measure pernicious, as it puckers up the Intestine, and disorders its Situation, if made close to it. For my Part, I am very jealous, that Wounds of the Omentum are dangerous; on which Account I cannot pass over this Part of the Operation without cautioning against cutting any of it away, unless it is certainly gangrened; and, when that happens, I think it advisable to cut off only some of the mortified Part, and leave the rest to separate in the Abdomen, which may be done with as much Safety as leaving the same Quantity below a Ligature.

When the Omentum is removed, we next dilate the Wound; to do which with Safety, an infinite Number of Instruments have been invented; but, in my Opinion, there is none we can use, in this Case, with so good Management as a Knife; and I have found my Finger, in the Operation, a much better Defence against pricking the Bowels, than a Director which I intended to employ: The Knife must be a little crooked, and blunt at its Extremity, like the End of a Probe. Some Surgeons, perhaps, may not be steady enough to cut dexterously with a Knife, and may therefore perform the Incision with Probe-scissars, carefully introducing one Blade between the Intestine and Circumference of the Rings, and dilating upwards. When the Finger and Knife only are employ'd, the manner of doing the Operation will be by pressing the Gut down with the fore Finger, and carrying the Knife between it and the Muscles, so as to dilate upwards about an Inch, which will be a Wound large enough.

The Opening being made, the Intestine is gradually to be push'd into the Abdomen, and the Wound is to be sitch'd up; for this Purpose some advise the quill'd, and others the interrupted Suture, to be pass'd thro' the Skin and Muscles; but as there is not so much Danger of the Bowels falling out when a Dressing and Bandage are applied, and the Patient all the while kept upon his Back, but that it may be prevented by one or two slight Stitches thro' the Skin only, I think it by all means advisable to follow this Method, since the Stricture of a Ligature in these tendinous Parts cannot but be dangerous.

Hitherto, in the Description of the Bubonocèle, I have supposed it loose or separate in the Sack and Scrotum; but it happens sometimes in an Operation, that we find not only an Adhesion of the Outside of the Peritonæum to the Tunica Vaginalis, and Spermatic Vessels, but likewise of some Part of the Intestines to its internal Surface; and in this Case there is so much Confusion, that the Operator is often obliged to extirpate the Testicle, in order to dissect away and disentangle the Gut; tho', if it can be done without Castration, it ought. I believe, however, this Accident happens rarely, except in those Ruptures that have been a long time in the Scrotum without returning; in which Case the Difficulty and Hazard of the Operation are so great, that, unless urged by the Symptoms of an inflamed Intestine, I would not have it undertaken. I have known two Instances of Persons so uneasy under the Circumstance of such a Load in their Scrotum, tho' not otherwise in Pain, as to desire the Operation, but the Event in both proved fatal; which, I think, should make us cautious how we expose a Life for the sake of a Convenience only, and teach our Patients to content themselves with a Bag-truss, when in this Condition.

The Operation of the Bubonocèle in Women so exactly resembles that perform'd on Men, that it requires no particular Description; only in them the Rupture is form'd by the Intestine or Omentum falling down thro' the Passage of the Ligamentum Rotundum into the Groin, or one of the Labia Pudendi, where causing the same Symptoms as when obstructed in the Scrotum, it is to be return'd by the Dilatation of that Passage. Sharp.

Of the HERNIA CRURALIS.

What bears a very near Resemblance to the *Bubonocèle*, is the Disease which modern Physicians usually call a *Hernia Cruralis*, or *Femoralis*; for it is seated in the upper and exterior Part of the Thigh, near the Groin, where the Crural Vein and Artery descend from the Belly to the Thigh. And tho' this Disorder be pretty common, especially to the weaker Sex; yet, which is strange, very few have taken the Pains to examine or describe it; but it has almost universally pass'd, without Distinction, for a *Bubonocèle*, or *Hernia Inguinalis*. Verheyen was the first, that I can find, who wrote any thing about a *Hernia Cruralis*; tho' *Barbette* has some obscure Indications of the same thing. After *Verheyen*, *Palsyn* treated this Subject in a more explicit and copious manner; as did also, after him, *Garengot*, in his Chirurgical Works, Chapter of the *Hernia*; *Koch*, in his Dissertation on the *Hernia Cruralis*; and *Le Dron*, in his Chirurgical Observations, Tome the second. *Garengot* pretends, that *Paulus* was long ago acquainted with this Disorder, but does not tell us the Place in that Author where it is described; and, for my Part, I could never find any thing in him about it. On the same Occasion he adds some Words, as taken from *Barbette*, which yet I do not find in that Author's Chapter of an *Hernia*.

For the better understanding the genuine Nature and Properties of this Disease, it will not be amiss briefly to remark, from Writers of Anatomy, that the Place where the *Musculus Psoas* and *Iliacus*, and over them the Crural Vein and Artery, pass from the Abdomen to the Thigh, is not sufficiently fortified to sustain the Renitency of the Intestines, being inclosed only with the Peritonæum, the Fascia Lata, and with the Fat and Skin. Moreover, in viewing a Skeleton, we may observe in the Os Ileum, above the Acetabulum, a small Depressure, which is cover'd by the lower Part of the *Musculus Obliquus Descendens*, in manner of a Ligament extended archwise, which some call the Ligament of *Vesalius*, others the Ligament of *Poupart*. Thro' this small Opening, or Arch, the Intestines or Omentum sometimes force their Way, and so excite a peculiar Kind of *Hernia*. *Garengot* is of Opinion, that this Species of *Hernia* happens more frequently than others; but, for my Part, I have seen and cured Multitudes of *Hernias* of all kinds, but scarce ever met with two Instances of a *Hernia Cruralis*.

Tho' there be a very considerable Agreement between the *Hernia Inguinalis* and the *Hernia Cruralis*, it is easy enough to distinguish them by a careful Inspection of the peculiar Places in which they are situated: For a *Hernia Inguinalis* is form'd not far from the Pudenda, where the Ring of the Muscles of the Abdomen, and the Process of the Peritonæum, the Anatomy of which Parts is necessary to be known, descend to the Scrotum, and the Tumor extends itself from the Ring towards the Scrotum. But a *Hernia Cruralis* affects the outer Parts of the Groin, usually arising in the uppermost, outer, and fore Part of the Thigh, above the Acetabulum, or at the Juncture of the Thigh with the Acetabulum. This Species of *Hernia* is also, for the most part, lesser and rounder than the *Inguinalis*, and consequently far more subject to be confounded with a Bubo; for the *Inguinalis* is usually somewhat oblong in Figure. However, since the *Hernia Cruralis* has yet no peculiar Word, that I know of, in *Germany* to express it, I think it would not be amiss to constitute two Species of *Hernia Inguinalis*, one of which should be the *Hernia Inguinalis interior*, and the other, which would be the same with the *Hernia Cruralis*, should be call'd the *Hernia Inguinalis exterior*.

As to what respects the Event and Cure of this Disorder, it very little differs from what has been before observed and directed concerning the *Hernia Inguinalis*; only take Notice, that those who labour under a *Hernia Cruralis* sometimes run a far greater Hazard of their Lives than under the *Hernia Inguinalis*. It is to be observed also, in the Cure of the *Hernia Cruralis*, that in restoring the prolapsed Intestines we take care to force them gently back more towards the Linea Alba, but by no means towards the Os Ileum, as in the Case of the *Hernia Inguinalis*. If the prolapsed Intestines can be replaced by the Hands, the best Method to establish them in their proper Situation is by applying a convenient Plaster, with a bandage over it, as we directed for the *Hernia Inguinalis*: But if the Intestines are incarcerated, or intercepted, in such a manner, that neither Oils, nor Ointments, nor Cataplasms, nor Clysters, nor the Fumes of the strongest Tobacco injected, nor any other Medicines of this Kind, which have been before recommended, are of any Effect, but dreadful Symptoms begin to appear, we must next have recourse to the surgical Operation, as directed for the Bubonocèle. The Bag being laid open, in the manner above described, the Passage by which the Intestines burst forth is to be somewhat enlarged; and if the Disease be recent, the Bag itself, according to the Example and Advice of *Petit*, is to be replaced whole and untouched; together with the prolapsed Intestines and Omentum, as gently as possible. It is not difficult, for the most part, to force back and restore the Intestines, because,

because, as *Verheyen* in his Anatomy rightly observes, most commonly a very small Portion of them, and sometimes only the outer Side, or even but a sort of *Appendicula*, appear prolapsed about the Thigh. The Intestines being thus replaced; the Wound must be very exactly bound up, in the same manner as after the Operation for the *Bubonocoele*, which is the ready way to have it happily and speedily conglutinated. If a more considerable Part of the Intestines be fallen out, if there be a Coarctation of the prolapsed Intestines with the next adjacent Parts, or if there be any other Circumstance which hinders the convenient Restitution of the prolapsed Parts, without Incision of the Bag; or if the Disorder, by its long Continuance, has occasion'd a Corruption of the Intestines; in these Cases we must proceed, but with the greatest Caution, to cut the Bag in the manner above directed; then, if the Intestines are sound, they must be gently put back in their proper Place; and if they are connected with the adjacent Parts, a Separation must be made, tho' with great Circumspection, for fear of wounding the subjacent Crural Vein and Artery, and so exposing the Patient to the Danger of present Death. When the Intestines or Omentum are found to be corrupted, you are to proceed in the manner above directed in that Case. *Heister, Chirurgi.* See *HERNIA*.

BUBULA is used as a Substantive, that is, without *Caro*, by *Scribonius Largus*, N^o. 188, 189. and by *Celsus* in several Places, particularly, *Lib. 2. Cap. 18.* where he says, *Inter domesticas Quadrupedes levissima Suilla est, gravissima Bubula*: "Of tame Quadrupeds, Swines Flesh is the lightest, and Beef the heaviest."

Sir Theodore Mayence recommends the following Preparation of the Flesh of the Ox, in Cases where obstinate Gonorrheas have degenerated into habitual Stillicidiurns.

Take, says he, Beef indurated by the Smoak of a Fire; and after having taken off the external black Part, divide it into Filaments, which must be carefully freed from the Salt by repeated Washings. Then cleansing them well with a Towel, let them be put into an Oven, when the Bread is taken out of it, and dried till they are capable of being reduced to a Powder; of which let two Parts be intimately mix'd with one Part of the Powder of ripe Ivy-berries. Let one Dram of this Powder be taken for many Mornings successively, drinking a Glass of simple Hydromel, or a Draught of the Decoction of Eryngo-root. For Constitutions abounding with Phlegm, it is sufficient to dry the Beef without washing it at all.

BUBULCA, in *French*, *Bouvier*, or *Peteuse*, is a small River-fish, three or four Fingers-breadth in Length, and one and a half in Breadth, flat, and of the Colour of Silver. It commonly keeps in the Mud, and is always dirty when taken. It is cover'd with large broad Scales, has a small Mouth, and no Teeth, and has a forked Tail.

The Flesh is aperitive. *Lemery des Drogues.*

BUCCA, *γράβω*. The Part that lies under the Ball of the Cheek. *Galen, Com. 2. de Artic.*

It is also taken for the Cheek itself, and sometimes for the Mouth.

BUCCACRATON, *βυζακράτων*. A *Bucca*, or *Buccella*, that is, *Morsel*, of Bread sop'd in Wine, which served, in old Times, for a Breakfast. *Castellus.*

BUCCATUM, *Glased*. *Ruland.*

BUCEA, **BUCELLA**, *βύζα, βύζος*. A *Græco-barbarous* Word, signifying such a Fragment of any thing as a Man can put in his *Bucca*, or *Mouth*, and eat at one Time. *Castellus.* See *BOLUS*.

Paracelsus calls by the Name of *Buccella* the carneous Excrescence of a Polypus in the Nose; because he supposes it to be a Portion of Flesh parting from the *Bucca*, insinuating itself into the Nose. *Lib. de Apostem. Cap. 20.*

Buccellare, in *Rulandus* and *Johnson*, is to feed or cram with Bits and Morsels.

BUCCELATON, *Buccella purgatoria*, *Buccellatus purgatorius*, *βυζέλατον*. A purging Medicine, made up in Form of a Loaf, consisting of Scammony prepared, with its Correctives, and put in fermented Flour, and so baked in an Oven, according to *Actius, Tetrab. 1. Serm. 3. Cap. 100.* But *Paulus Aegineta* directs it to be made into a solid Kind of Electuary with Honey, or like a Cheesecake, after it is baked, consisting of roasted Scammony, with the Seeds of Smallage, Anise, Fenel, and Pepper, *Lib. 7. Cap. 5.*

BUCELLA. See *BUCEA*.

BUCELLARE. See under *BUCEA*.

BUCELLATUS. See *BUCCELATON*.

BUCCINA, *χύψ*. The same as *BUCCINUM*, which see.

BUCCINATOR. The Name of a Muscle, which, by its Substance, constitutes the *Buccæ* or Cheeks.

This Muscle is so call'd, because, in Trumpeters, it forces the Breath. This Muscle does not spring from the Gums of the upper, and end in those of the nether Jaw; nor is it of

that Figure which vulgar Anatomists would persuade us; or interwoven with various Orders of Fibres, as others pretend. It arises broad and fleshy, from the fore Part of the *Processus Coronæ* of the lower Jaw-bone; from hence proceeding with direct Fibres, it adheres to the Gums of both Jaws, and is so inserted to the Angle of the Lips.

Through the Middle of this Muscle passes the *Ductus Salivaris superior*, which *Placentinus* observed, and call'd *Vinculum robustum* (as *Caspar Bauhine* writes). Besides the Use Trumpeters make of this Muscle, it also pulls the Lips or Mouth to one Side. *Crotopar.*

BUCCINUM, *Offic. Buccinum album larvæ maximum, septem minimum spirarum*, *List. Hist. A. A. 135.* *Buccinum rostratum majus crassum, orbibus paululum pulvinatis*, *Ejusd. Hist. Conch. 4. Sect. 14. N. 4.* **THE WHELK.** *Dale.*

Whelks, calcin'd, work the same Effects as the Purple-fish, but are of a more caustic Quality. Fill'd with Salt, and then burnt in a crude earthen Pot, they make a good Dentifrice, and are applied with Success in Compositions, where it must be left alone to harden like a Shell; for, as soon as the burnt Place is brought to a Cicatrix, this Medicine falls off of itself. A Quicklime is made of them. *Dioscorides, Lib. 2. Cap. 5.*

The Whelk is a Sea Shell-fish, of which there are many Sorts; but they all seem to agree exactly as to their Medicinal Virtues, being Alcalies and Absorbents; and, by Calcination, they are converted into Lime; and these Properties they possess in common with all other Shell-fish.

BUCCULA. The fleshy Part under the Chin. *Castellus.*

BUCELLATIO. A way of stopping the Blood, by applying Lint upon the Vein or Artery. *Castellus.*

BUCERAS, **BUCEROS**, *βυκράς, βυκέρως*. See *BOUCÉRAS*.

BUCRANION, *βυκράνιον*, from *βύς*, an Ox, and *κράνιον*, a Head. The Herb *Antirrhinum*, so call'd because the outer Face of the Flower resembles an Ox's Head. *Blancard.*

BUCTON. A Name in *Severinus Pinæus, de Notis Virginitatis, Lib. 1. Cap. 5.* for that Part in Virgins, otherwise call'd *HYMEN*, which see.

BUFFELL. A Ring made of the Horn of a Buffalo, which, being worn upon the Ring-finger, is said to cure the Cramp. *Johnson.*

BUFO. The Toad. A well-known Animal, thus distinguished.

BUFO, *Offic. Schrod. 5. 272. Mær. Pin. 169. Rondel de Aquat. 2. 221. Aldrov. de Quad. Ovip. 609. Jonst. de Quad. 131. Charlt. Exer. 27. Bufo sive Rubeta, Raii Synop. A. 252. Ind. Med. 23. Bufo terrestris major, Schw. Rept. 159. Rana rubeta, tum palustris, tum terrestris, Gefn. de Quad. Ovip. 64. THE TOAD.* *Dale.*

This Animal was by the *Latins* also called *Rubeta*, by the *Greeks* *ρεῦρον* and *ρούσαλον*; and by the *English* a *Toad*. It is among the Number of those Animals which have only one Ventricle in their Heart, and is of the Frog-kind, tho' somewhat larger; for which Reason it is by some called *Rana terrestris, omnium maxima, & venenosa*. Its Body is thick, its Back flat and broad, its Belly turgid and inflated. Its Skin is full of Tubercles of an unequal Bulk; and so strong and tough, that it can hardly be pierced with a sharp-pointed Piece of Wood. It is of a cineritious Colour, with brown, blackish, and yellowish Spots intermixed. This Animal moves slowly, is of the amphibious Kind, copulates and disposes of its Eggs in the same Manner with other Frogs, if we except that *American* Species of *Surinam*, call'd the *Pipa*, the Female of which lays her Eggs on the Back of the Male, in order to be nourish'd. The Toad lives upon Insects and Vegetables, but not Earth. It does not croak like the Frog, but makes an indistinct, obscure kind of Noise, somewhat resembling the Word *Gru*, or rather *Bu*; from which Circumstance, some are of Opinion, it received the Name *Bufo*. In the Winter, and in the Day-time, especially when the Sun shines, it is found lurking in shady Places, Fens, Stables, Collections of Stones, and in Garden-beds, especially under Sage. It is also sometimes found in the Hearts of Stones, but these are Circumstances which come more properly under the Consideration of the Natural Historian, than of the Physician. The Toad is by some affirmed to be a very long-liv'd Animal. Some are of Opinion, that the Toad is called *Rubeta*, from *Rubus*; because they are found among the Bramble-bushes in Nurseries and Hedges. Others think it receiv'd the Name *Rubeta* from the reddish Spots sometimes found on its Belly. But these are Controversies of too trifling a Nature to deserve our Attention or Regard.

The Toad is killed by being covered over with Tar, by sprinkling Salt of Tartar upon it, or by being laid upon common Salt; see *Oligerus Jacobæus de Rânis, Eph. N. C. D.* or by the Juice of Tobacco. *Etmuller* observes, that Toads, upon having Oil of Tartar per Deliquium apply'd to them, express the most exquisite Sense of Pain by their Gesticulations, and soon after die. Gardeners commonly banish Toads from their Ground,

Ground, by burning old Leather upon it; see *Jo. Baptista Ferrarius, de Florum Cultura*. Concerning the Antipathy between Toads and Serpents; see *Eph. N. C. D. 1. a. 1. o. 137*. The Antipathy between them and Spiders is so commonly known, that it is sufficient only to mention it; but it will not be improper to add a Circumstance mentioned by *Helmont*, which is, that when the Toad perceives itself wounded by the Spider, and begins to swell, it has immediate Recourse to the narrow-leav'd Plantain, in order to prevent its own Death. But *Valsinerus* seems to doubt of the Truth of this Observation. See *ARANEAE*.

Whether it is owing to this Antipathy, that the Toad, in dry Weather, and when the Sun shines, does not come Abroad without being arm'd with Rue, for fear of meeting with the Spider, as *Kircherus, Mund. Subt. T. 2.* asserts, I leave others to determine; only of this we are certain, that most Gardeners think Rue disagreeable to the Toad, since they plant their Sage in alternate Rows with Rue, in order to save it from the Poison of that Animal. It is repugnant to Experience, that Toads are produc'd from the Bodies of Ducks when buried, as is reported; because, when alive, they were fond of eating Toads; see *Kircherus*. From this Circumstance, however, we learn, that Toads devour'd by Ducks do not prove poisonous to them. Neither do Ants sustain any Harm from them, since, according to the same Author, a Toad thrown into a Nest of these Insects is soon consumed and eat up by them. Now 'tis certain, that neither Ducks Flesh, nor Ants, are possess'd of a poisonous Quality; but that the Toad proves hurtful and poisonous to Mankind is sufficiently plain, from numberless Instances; and the Toad which lives in dry Places is said to be more hurtful and poisonous than that found in moist and marshy Places; and those found in dark and cold Places are thought to be more noxious than others. Authors inform us, that Strawberries, and other Vegetables, contaminated by the Saliva or Urine of the Toad, have, if used in Food without being wash'd, produced very bad Consequences by their poisonous Quality; see *Francisci Joelis Opera Medica*. Concerning the poisonous Effects produc'd by frequently handling a Stone, with which a Toad had been struck, see *Eph. N. C. D. 2. a. 1. o. 134. a. 5. App. p. 29. a. 6. o. 113*.

That the Water in which Toads live, when warm'd, produces poisonous Effects on the Persons who bathe in it, we are told in *Eph. N. C. Cent. 3. p. 256*. That the Air also in Places much frequented by Toads, does Harm to the Lungs, we are told by *Valentinus*, in his *Pandecta Medico-legales*. When the Toad is enraged, he is said to discharge his Urine in the Eyes of his Persecutor; and by that means make Reprisals for the Injury done him, since it is thought to be possess'd of a Quality highly prejudicial to the Eyes. But *Brown* doubts of the Truth of this Fact, and is of Opinion, that the Toad cannot properly be said to piss, but, like Birds, discharges its Urine and Feces from one and the same Passage; *Brown's Vulgar Errors*. According to *Vallisnerus*, the Toad discharges its Urine, which is yellow and oleous, from a Passage allotted solely for that Purpose. But 'tis known from incontestable Facts, that this Urine is not of a poisonous Quality, whether exhibited internally, or apply'd externally. Besides, an Ophthalmic Virtue is ascrib'd to the Urine of the Toad; and this a certain Physician informs us he experienc'd on himself; for, whilst he look'd at a large Toad, which he had run through with his Sword, the Toad, with a violent Impetus, discharged his Urine in his Face and Right Eye, by which Accident a troublesome Itching was excited for about the Space of half an Hour; after which his Eye was not only as well as it was before, but rather clearer, and its Sight stronger; for it had formerly been subject to Redness and Dimness; see *Eph. N. C. D. 3. a. 7. o. 59*. Another Physician calls the Ophthalmic Virtue of the Toad's Urine in Question; because the Quack at *Venice*, who provok'd a Toad to piss in his Mouth, paid for his Folly, by losing his Life half an Hour after, though he immediately made use of his boasted Antidote, in order to prevent the fatal Consequences that might ensue; and this Physician is of Opinion, that the Liquor discharged by Toads, when attack'd by Men, is not their Urine, but a Liquor darted from their Eyes, which, when a certain Person who had struck a Toad, receiv'd into his Left Eye, he immediately felt an Itching in that Eye, which was soon after seiz'd with a burning Heat, an Inflammation, a Swelling, and a kind of Blindness, accompany'd with a darting Pain. But these Symptoms were at last removed by repeated Infiltrations of the express'd Juices of the greater Houseleek, and the broad-leav'd Plantain; see *Eph. N. C. Cent. 4. o. 107*. Others ascribe a venomous Quality both to the Blood, and to the Saliva, of the Toad, but more especially to the latter; see *Foresti, Obs. Med. L. 30. Obs. 6. & 7. in Schol.* Some are of Opinion, that Nature herself has wisely distinguish'd venomous Animals by their ghastly and horrid Colour. Some have also asserted, that the Person who gazes long on an ill-colour'd Toad of an horrid Aspect, becomes pale, and assumes an icteritious Colour. If 'tis true, that this Circumstance really happens, I am of Opinion, that it is not to be accounted for from

any Effluvia passing from the Animal to the Person, but from his being struck with Terror upon reflecting on the poisonous Nature of the Toad, and his entertaining a Notion, that it can exert its hurtful Qualities at a Distance; for a Toad is commonly call'd the *Magnetic Purse* of Poison, and contagious Virulence. *Dioscorides, L. 6. C. 31.* says, that a Toad swallow'd excites Tumors; and that by such a Misfortune the Skin becomes pale, and at last as yellow as Box-wood; the Patient is rack'd with a Difficulty of Breathing, his Breath becomes ill-scented, he is afflicted with the Hiccough, and sometimes an involuntary Effusion of the Semen ensues. The Patient is reliev'd by Vomiting, by liberal Draughts of Wine, and by taking two Drams of the Root of common Reed, or an equal Quantity of the Cyperus. By-and-by the Patient must be forc'd to walk hard, or run, in order to carry off the Torpor with which he is seiz'd. He must also be wash'd every Day.

Paulus Aegineta, L. 5. C. 36. says the same things. *Caspar Caldera* affirms, that the Eggs of the Toad, swallow'd, kill very suddenly, and produce most violent Pains of the Stomach; and that such as have the Misfortune to swallow them die, with their Bellies prodigiously inflated. According to *Bartholine*, in *Aet. Haffn.* a Toad held in the Hand cures it, after it has been hurt by another Toad. *Boerhaave*, in his *Institutiones Medicae*, § 1144. classes Toads among the heteroclit Poisons, destructive of Life, whose Virtues are not as yet sufficiently understood, which kill in a manner not easily to be accounted for; and which, besides the general Antidotes, such as Vomits, aqueous, emollient, laxative and oleous Substances, call for spirituous Acids, saline Substances, and such as resist Putrefaction. Among the Poisons most remarkably possess'd of a deleterious Quality, is the *American Toad*, by the *Brasilians* call'd *Cururu*, and by the *Portuguese* *Capo*, which has Excrescences from both Sides of its Head, resembling large Warts. This Species is very large, and swell'd as big again as the *European Toad*. It is of a cineritious or bay Colour: Its Urine and Saliva produce dismal Consequences, whether internally used, or externally applied; but still more terrible Effects are brought about by swallow'd its Blood, its Fat, and especially its Gall. The most wicked and abandon'd of the Inhabitants, and some others after their Example, torrify these Toads, and reduce them to a Powder, of which they prepare poisonous Draughts, which, exhibited in the smallest Quantity, immediately bring on Inflammations, and Dryness of the Fauces and Throat, Difficulty of Breathing, Hiccoughs, Vomiting, Dysenteries, Faintings, Dimness of Sight, Convulsions, Deliriums, and Paleness. If there is room left to hope any thing from Medicines, Evacuations are to be made by Vomit and Stool; and the Remains of the Poison are to be eliminated by Exercise and the Bath, and by putting the Patient into an hot Oven, or into the Belly of a fresh-kill'd Animal. The general compound Alexipharmics are to be exhibited for some Days, and the Patient order'd to drink Infusions or Decoctions of such Roots as are produced in the Country, and look'd upon as Antidotes against Poison. But above all, the Herb by them call'd *Nhambi* is to be exhibited, since it seems to have received from bountiful Nature a Quality capable of curing, or at least allaying and mitigating, so formidable a Disorder. The most profligate and wicked of these *Barbarians* hang up this Species of Toad in the Sun, collect its Spume and Gall, and keep them as secret and slow-killing Poisons, *Piso, L. 5. C. 15*. The Figures of the *American Toads* may be seen in *Albinus Seba*.

Turner gives the following Account of the Toad.

Among us, some believe, we are more afraid of them than there is Occasion for; and there have been found those who have been very familiar with them; and that upon some Wager or Frolick have eat them, and commend them for as great Dainties as the Frog. But let not Peoples foolish Presumption, who have by some singular Accident, as a full Stomach beforehand, or some Idiosyncrasy, escaped freed, induce others to take the like Freedom, lest they pay dearly for their Folly, as did a Person I knew many Years ago, who putting the Head of one of them into his Mouth for some time, whether by the Bite, or Slaver only, of the Creature, communicated to his Tongue and Lips, had that Night, and the next Day, both so swelled, that he could not pronounce any Word plain for several Days after, and was in no small Danger of being famish'd, by reason of the said Tumor affecting the back Parts of his Throat, with the Muscles subservient to Deglutition.

Redi, instancing in some who eat these Creatures without Harm, subjoins, that though the Toad may happen to prove no Poison in the Whole, yet may it envenom outwardly; an Example whereof he gives in a Boy, who stumbling on a Toad, and after throwing Stones at it, some Juice from the bruised Toad chanced to light upon his Lips, whereupon they swelled each to about the Thickness of two Thumbs; and he neglecting to use what might be proper to restore them, they have continued in that mis-shapen Size ever since, *Philos. Trans. Abr. Vol. 2.*

Ardoynus observes, that as he came from the University of *Bologna in Italy*, (where he had newly taken his Doctor's Degree)

gree) to *Pefaro*, he saw a young Man, who having killed a large Toad with his Lance, he fell into an absolute Stupor of his whole Body, and lay snorting for two Days together without Pulse. Had I known, says he, as much then as now, I make no doubt, but I could have recovered him. From whence we may suppose the young Man dy'd.

As remarkable is that of *Ferdinandus Pontellus*, of a Person going over his Grounds with a Reed in his Hand, and therewith transfixing all the Toads he met with, throwing them out into the Highway: When, on his Return home to Dinner, he threw up all he eat; nor did his Vomiting leave him 'till he fed himself with the other Hand, that had not held the same Instrument. But more tragical yet is the Story which *Mizaldus*, in his first Century of Remarkables, recites, of a Gentleman sporting with his Sweetheart in the Garden, near a large Bed of Sage, who, inadvertently pulling off some Leaves, fell to rubbing of his Gums and Teeth; which so soon as he had done, he dropt down dead. The young Gentlewoman, being carry'd before the Magistrate, upon Suspicion of poisoning the Man, told the Judge he had only rubb'd his Teeth with such a Leaf as she had brought with her, and desperately in the Court began to use the same, with the like Event, she dying also thereupon, that she might not be thought to have deprived him of Life, without whom she could not live herself. Upon which, by Order of the Magistrate, the Sage was order'd to be dug up and burnt; when, turning the Ground, behold, a large and ghastly Toad appears; which Creature is said to be much delighted with this Plant; and which he, says our Author, should have first consider'd, who compil'd that Verse;

Cui moriatur Homo, cui Salvia crescit in Horto?

This Effect of Sage is however more rationally attributed to the poisonous Eggs of Insects lodg'd on the Leaves.

Though Toads want Teeth, saith *Parey*, yet with their hard and rough Gums they so streightly press the Part they take hold on, that they will force their Poison thereinto, and so over the whole Body, by the Pores of the pressed Part. Moreover they cast forth their Venom by Urine, Spittle, Vomit, or Slaver, upon Herbs; but chiefly upon Strawberries, which they are reported greatly to affect. Hence many have suddenly and ignorantly caught their Deaths. A sad Instance whereof he lays down, in the Cases of two Merchants near *Thoulouse*, who, whilst the Dinner was getting ready, walking into the Garden belonging to their Inn, and gathering some Sage-leaves, put them unwash'd into their Wine. After which, before they had fully din'd, they were seized with a Vertigo, and lost their Sight, fainted, and had Convulsions; they stammer'd with their Lips, and their Tongues appeared black, looking frightfully, continually vomiting, with cold Sweats, the Forerunners of Death, which quickly ensued; their Bodies becoming afterwards exceedingly swell'd, by reason whereof there was just Suspicion, that they had been poison'd; and the Host, with all the Servants and Guests at that Time in the House, were apprehended; and, being examin'd, they all constantly, and with one Voice, asserted their Innocence; affirming, that they had all the same Provision with the dead Parties, of which they had eat and drank, only the Deceased had put Sage into their Wine. A Physician was ask'd the Question, whether Sage might be poisoned: He answered affirmatively. But, to come to the Purpose, it must appear whether any venomous Creature hath poisoned the Plant with her Spittle or Sanies. This, which was lightly pronounced, and only by Conjecture, was by the Eye found true; for, at the Root of this Bed of Sage was found a Hole in the Ground, full of Toads, who coming out upon pouring in hot Water, made it credible, that the Herb was poisoned by their Slaver, or venomous Urine. Whereby you are to understand how indiscreetly they act, who devour either Herbs or Fruits fresh gather'd, without well washing or rinsing of them.

Parey, amongst the Symptoms consequent upon receiving the Poison of a Toad, reckons the turning Yellow, Swelling, difficult Breathing, Vertigo, Convulsions, cold Sweats, Syncope, &c. to which *Sennertus* joins a growing pale and wan, Vomiting, involuntary Discharges of the Semen, falling of the Hair, and sometimes dropping out of the Teeth, with great Stupor, saith *Haffenreffer*, which she communicates not only by her Urine, Spittle, or Vomit, but her very Breath or Halitus emitted will affect those who stand too near her.

As to the Cure, if the Poison was receiv'd inwardly, Vomiting is propos'd for the immediate Discharge of the same, together with proper Clysters; and afterwards the common Alexipharmacs, such as Venice-treacle dissolved in a Glass of good Wine, whereby the Patient may be disposed to sweat; for which others propose some brisk Exercise, or the Use of warm Baths. *Sennertus* treats the Hurt outwardly much the same way with *Parey*, ordering the Part to be well washed with Man's Urine, Water, and Salt, after anointing with Oil of the Yolks of Eggs, or Oil of Roses. The reputed Antidotes are Juice of Betony, of Plantain, and Mugwort. *Pliny* writeth, that their Heart and Spleen resist Poison; but the bruised Toad,

or some Preparation thereof, like those of other venomous Animals, rightly apply'd, will sympathetically (as reported) extract their own Poison.

Rondeletius, in his *Traët. de Piscibus*, affirms the same things of the deleterious Property of this Creature, with others; yet he says they seldom bite, but cast forth either their Urine, which they gather in a large Quantity in a great Bladder, or else their venomous Spittle, or even Breath, against those they meet with, or assail. Besides, the Herbs which they taint with their said Breath, but much more such as are imbued with the Slaver or Urine, are sufficient to destroy those who eat them.

The aforesaid *Haffenreffer* asserts, in general, that the Bites and Stings of the *Reptilia* are to be treated much alike with those of the Viper, and serpentine Kind. The Spittle, Urine, or Sanies of the Toad, says he, must be cleansed well away with Urine, or Salt-water; or if the Poison was taken inwardly, you are to procure Vomiting; and farther, to take off all the Symptoms, he extols the *Confectio Diasulphuris*, thus describ'd by *Serapio*:

Take of yellow Sulphur, of the Seeds of white Henbane, of Cardamoms, Storax, and Myrrh, each one Ounce; of Opium, and Saffron, each two Drams; of Cassia Lignea, six Drams; and of white Pepper, two Ounces: Let them be tritured, pass'd through a Sierce, and made up into a Confection with Honey.

For this Use he also takes Notice of the *Cray-fish*, and *Gen-tian-root*, exhibited internally, whilst the Place is dress'd externally with the following Medicine:

Take three Heads of Garlick; and of Castor, one Dram: Let them be tritured, mixed with old Oil, and apply'd by way of Plaister: Or,

Take of Gum Sagapernum, Castor, Asa foetida, Pigeon's Dung, Calamint, and Penyroyal, each three Drams; Oil of Olives, and Pitch, each a sufficient Quantity: Make up into a Plaister.

Squills also boiled with Meal, and Meal of the Orobis mix'd with Vinegar, are properly apply'd to the Part: Or,

Take Nitre, Mustard, common Salt, and Sal Ammoniac; make into a Liniment, with strong Vinegar: Or,

Take Garlick, Salt, and Pigeon's Dung, each equal Parts: Mix all together, and apply by way of Plaister. *Turner, de Morbis Cutaneis.*

Since from what has been said 'tis obvious, that in all Nations Toads are look'd upon as poisonous Animals, it now remains, that we take Notice of some other Circumstances relative to this Animal. That Toads, then, may be safely eaten, provided their Sweat, Spit, or Urine, are not swallow'd, is asserted by *Borelli, Cent. 2. Obs. 37*. People who have had the Misfortune to eat boil'd Toads instead of Frogs, have felt no more terrible Consequences from the Use of such a disagreeable Food, than a gentle Excoriation of the Lips, Palate, Tongue, and Fauces; from which Circumstance *Vallisneri* concludes, that the Flesh of Toads is by no means of a poisonous Quality, but abounds with a volatile diuretic Salt, which, when reduc'd to Powder, may be of excellent Service in the Dropsy. *Mundius* affirms, that the Toad, that hated Animal, has Flesh not altogether useless; for, says he, by eating Toads, and by the natural Salubrity of the Air, the *Lues Venerea* is in some *American* Islands most infallibly cured. In *Eph. N. C. D. 2. a. 7. o. 167*. we have an Account of a certain Quack, who affirm'd, that the Whole of a Toad's Body might safely be eaten, provided the Head was only thrown away, assigning this Reason for his Assertion, that the Toad, at once enrag'd and terrify'd at the Sight of any Person, calls together the Force of his Poison to his Eyes, and the anterior Parts of his Head, by which means no Parts of the Poison are left in the rest of his Body. If this is true, Impostors and Strollers have no occasion to counterfeit Toads, by filling the Skins of these Animals with Wine, in order to make the gazing Croud believe they have devour'd real Toads, as we are inform'd they do by *Borelli, in Cent. 2. Obs. 74*. *Vallisneri* also informs us, that the Excrements of this Animal are not of a poisonous Nature, but endow'd with a highly diuretic Quality. Upon the Whole, *Etmuller* concludes, that the poisonous Quality consists entirely in its Fury, or in its Excrements, especially the Urine, which is impregnated with an acrid, caustic, volatile Salt, whose acrimonious Quality seems to be deriv'd from the Aliments on which the Animal lives, that is, the small Beetles found in its Stomach and Throat. If instead of the Urine, which, from the Circumstances already mention'd, does not seem to be poisonous, we substitute the venomous Liquor deriv'd from the Body to the Head,

Head, and especially the Eyes, this Conclusion does not seem improbable. But the Toad does not for this Reason cease to be properly classed among the venomous Animals; for tho' the Viper is not only eaten, but applied to medicinal Purposes, when the Head, which about the Teeth contains a Bag filled with a deleterious Liquor, is thrown away, yet the Viper does not on this account cease to be a poisonous Animal.

In what Cases the Toad is used for medicinal Purposes, I now come to consider. *Etmuller*, then, informs us, that a live Toad, bruised, proves an effectual Medicine for the Bite of the Viper, and other poisonous Serpents, when applied to the wounded Part. In *Velsch. Hecat. 1. Obs. 53.* we have an Account of a Country-man bit by a Serpent, and that in so violent a manner, that his Hand and Arm immediately swell'd to a prodigious Bulk; and the Poison reaching his Heart, he was seized with frequent Faintings, so that he seem'd to be on the very Brink of Death. But, after having tried all the ordinary Methods to no Purpose, he was speedily restored by the Application of entire Toads dried, which swelled wonderfully by the Poison they extracted. The Patient in the mean time had internal Alexipharmics exhibited to him. Some Authors, as *Helmont* informs us, order live Toads to be applied over both Kidneys, for removing the Dropsy, by a plentiful Discharge of Urine. *Paracelsus* affirms, that Toads are of singular Service in the Cure of pestilential Buboes in the Groin, and such as Women are afflicted with. His Method of preparing them is, to thrust a Piece of Wood thro' their Heads, to hang them up till dry, and then to macerate and mollify them in Rose-water, after which they must be applied to the Bubo; and he affirms, that they extract the pestilential Venom, since by applying four or five of them successively they all become wonderfully tumid by the Poison they have imbib'd. *Helmont*, when making mention of these Circumstances, confesses, that he has applied Toads to Buboes and Eschars in the Heads, Breasts, and other Parts of Men and Women, and that he always found they afforded a speedy Relief and Mitigation of the Pain; but could never observe, that a Toad applied in this manner became in the least tumid. I shall here enumerate the anti-pestilential Virtues of the Toad, in the Words of the learned *Kramerus*: "I know, says he, several Country-people, as also Mr. *Steikarte*, a Physician at Vienna, who, by attending People infected with the Plague, have, if we except Carbuncles, been seized with all the Symptoms of that Disorder, especially beginning Buboes. And for a Cure they used no other Means than covering themselves lightly with Bed-cloaths, and applying whole Toads dried in the Air, and wrapt up in Cloths, to both Arm-pits, to the Thighs, and to the Perinaeum between the Scrotum and the Anus. They kept themselves easy also during the Transpiration of the Matter, and, for carrying it on more effectually, they kept the Toads at the above-mention'd Parts till they would swell no more by the Poison they extracted. After which they remov'd them, and in their stead put other Toads three or four times successively, till they felt themselves reliev'd."

Franciscus Joel affirms, that a Toad run thro' with a sharp Probe, dried in the Air, and moistened in Vinegar, if applied to pestilential Carbuncles, extracts all the Poison from the Body. *Helmont* also from the Toad prepared an Amulet for the Plague; and others, as *Etmuller* informs us, prepare Amulets for the same Purpose of the Bones of Toads, or whole Toads mixed up with Iling-glass, which they say extract the Poison, and prove a Preservative, if hung about the Neck. Others bruise whole Toads, boil them in Vinegar of Roses or Rue, and with Mucilage of Tragacanth make them up into Troches, which they wear about the Neck. Others order the Toad itself, thrust thro' in June or July, and hung up till dry, to be hung on the Region of the Heart, as an Amulet against the Plague. But the last Author immediately subjoins, that he was told by a certain skilful Physician, that in the Application of Toads there was a Necessity for distinguishing Plagues: That if the Plague arises from a terrestrial and incoercible Gas, exhaling from the Mines and Caverns of the Earth, in such a Case Amulets prepared of Toads were proper, because the Toad attracts such a Gas as a proper Aliment: But that, when the Plague arises from an unlucky Influx of the Stars, the most proper Amulet was prepared from Spiders, since they attracted the Poison of the Air. See *ETMULLER*.

The learned *Vallisneri* thinks it probable, that a Toad, or its Skin, applied to Buboes, or other hard Tumors, may contribute considerably to their Resolution, and also to the deterring sordid Ulcers; but he does not believe, that it can defend the Person who wears it against the Plague. Besides, by *Etmuller* we are told, that a dried Toad hung about the Neck, or in the Pit of the Stomach, or applied to the Arm-pits, or even held in the Hand, most effectually stops and cures all kinds of Hæmorrhages, and more especially such as happen in malignant Fevers, Small-pox, and some other Disorders of a like Nature.

Willis in his *Pharmaceutice Rationalis*, has these Words:

"A Silken Bag, in which a dried Toad is contained, seems to be an empirical and foolish Medicine, when wore on the Pit of the Stomach in order to stop Hæmorrhages, and prevent their Return: unless perhaps, according to the Theory of *Helmont*, that Application so frights the *Archæus*, that the Blood shall forthwith be forced to recoil, or altogether desist from flowing." The *Pulvis Bufonum siccatorum*, or the Powder of Toads dry'd in the Sun, directed in the *Brandenburg Dispensatory*, when carefully preserv'd in a dry and temperate Place, is, according to the Testimonies of a great Number of celebrated Authors, an excellent Remedy in several Disorders, whether exhibited internally, but cautiously, and in some proper Vehicle; or externally used when inclosed in Bags, or mixed with proper Plaisters, Ointments, or Cataplasms. Thus the Powder of dry'd Toads was the celebrated Secret of *Kyperus*, for the Cure of the Ascites. He prepar'd them in this manner.

Take Toads, and after having cut off their Heads, and pulled out their Intestines, dry them in the Sun, and reduce them to a fine Powder; of which the Patient is to take ten or fifteen Grains, in an equal Quantity of Sugar. This Medicine may be exhibited three or four different times, but in such a manner, that three or four Days may intervene betwixt each time; for it is a very drastic Preparation.

These Toads may also be dry'd in an Oven, and reduc'd to a fine Powder. *Etmuller*, that the Medicines may produce its Effects the more infallibly, advises, that the Toads should be killed in the Month of July. A dry'd Toad inclosed in a Silken Bag, with a proper Quantity of the Moss of the Sloe-tree, when applied to the Navel of a Woman afflicted with a terrible Hæmorrhage of the Uterus, stopp'd the Flux as soon as it was warm on the Part, as we are told in *Eph. N. C. D. 1. a. 9. p. 366.*

The *Bufonum Cinis* of the *Brandenburg Dispensatory*, the *Bufo preparatus* in that of *Edinburgh*, and the *Pulvis Æthiopicus* of *Bates*, which he calls so on account of its Blackness, are no more but large live Toads burn'd to Ashes, in a new earthen Vessel. The Dose, according to *Bates*, is half a Dram and upwards, in the Small-pox. He affirms of it, that it relieves the Patients, tho' at the Point of Death; and says, that some highly extol it for the Cure of the Dropsy.

It is by other Authors recommended to be put into a Silken or Linen Bag, and hung upon the Breast for Incontinencies of Urine, arising from a Violence done to any of the Parts. *Eph. N. C. vol. 1. c. 227.* *Musitanus* prescribes a Toad put into the Oven alive, that it may become dry gradually as it dies, to be reduc'd to Powder, and form'd into a Poultice, with Barley-meal and human Saliva or Urine. This Poultice he orders to be laid on a Cloth, and applied to pestilential Carbuncles or Buboes. In a Quarter of an Hour after the Application, he says, the Pain will be entirely remov'd, and in two Hours a perfect Suppuration will be brought about.

The same Author proposes another very singular Benefit, which would accrue to the Inhabitants of *Naples* from the Use of this Cataplasm, which was, that by its means they might know whether Disorders that appear'd like the Plague were really pestilential or not. "In dubious Cases, says he, let it be applied to the Carbuncles, the Buboes, or any other Tumors which shall happen to appear; and, if they are really of the pestilential kind, the Pain of them will be remov'd in a Quarter of an Hour; within two Hours a perfect Suppuration will be form'd, and the Bubo or Carbuncle being open'd, all the pestilential Venom diffused thro' the whole Body will be drawn forth, if the Physician be duly careful. On the contrary, if the Tumor is not pestilential, but malignant, tho' not of the contagious kind, the Application of the Plaister will produce no Remission of the Pain, neither will any Suppuration appear; but the Tumor will remain in its former State, and be attended with the same Symptoms that generally accompany other malignant Tumors, which are not of the contagious kind."

With regard to the Preparation of this Cataplasm, *Kramerus* affirms, that the Urine of the Person to whom it is to be apply'd, is most properly used in its Composition. Afterwards he goes on to inform us, 1st, That he was induc'd to make Trial of the Cataplasm of *Musitanus*, by observing, that pestilential Buboes with Difficulty yielded to other Topics. 2dly, That this Cataplasm immediately on its first Application to Buboes, produced such intolerable Pains, that many Patients entirely refused to bear them. 3dly, That this Cataplasm, as it becomes dry, adheres so strongly to the Buboes, and Parts adjacent, that it can scarce be torn from them with the Finger. 4thly, That when it is once become dry, it ceases to produce any further Pain. 5thly, That the Buboes do not suppurate by its means in twenty-four Hours. 6thly, That they require three or four Days for that Purpose, whereas by other Topics the very same Buboes could not be soften'd, and brought to a Suppuration, in less than a Fort-night.

night, or perhaps three or four Weeks. 7thly, That as soon as the Cataplasma becomes dry upon the Buboës, and ceases to produce burning Heats, it is to be immediately renew'd, and its Renovation continued, till the Buboës are soften'd, at which time they are to be laid open. 8thly, That by the same Cataplasma, as *Kramerus* once observ'd in a robust old Man, of a thick Skin, tho' the pestilential Buboës were not soften'd, and brought to a Suppuration, yet their Surfaces were so corroded, as to give a free Discharge to a certain Ichor. 9thly, That this Cataplasma, in Venereal and other Buboës, neither excites the above-mention'd Pains, nor brings on a Suppuration. From all these Circumstances *Kramerus* thinks he has just Reason to declare in Favour of the specific antipestilential Virtues of the Toad. He recommends this Affair to the diligent Consideration of other Physicians, and refers his Reader to an Appendix he wrote to *Behren's Treatise* on the Plague, published in the German Language in 1713, in which Work he from his own Experience warmly recommends a topical Preservative prepar'd of Toads, and Roots of the Carline-thistle reduc'd to a Powder, and inclosed in a proper Bag.

In the Cure of a Cancer, says *Etmuller*, and more particularly unexulcerated Cancers in the Breasts of Women, Toads are of singular Service, either calcin'd alone, or dry'd to such a Degree, that they may be reduc'd to a Powder. The Method of applying this Powder is to sprinkle it on the Part affected. This Powder may also be mix'd with Orpiment and Soot, and apply'd, when spread, upon a Pledget moisten'd with *Saliva*. We are also told, that many Patients labouring under epidemical Dysenteries have been happily recover'd by the Use of this Powder, which operates as a Sudorific. Some prescribe half a Dram of it and upwards in the Small-pox. *D. Carlius* recommends the Powder of calcin'd Toads, mixed with the Powder of blue Linen Cloth burnt, in Epilepsies of adult Persons attended with an Infiltration of the Juices; and affirms, that as much of it as may be taken at twice upon the Point of a small Knife, has in some epileptic Patients produc'd the most happy and surprising Effects. He also informs us, that a Dose from ten to twenty Grains of the Powder of calcin'd Toads, exhibited internally, wonderfully mitigates arthritic Pains, and more especially those with which Wounds are attended. *Com. Lit.* for the Year 1733. p. 210.

In the same Work for the Year 1735, we have an Account of two Boys, who towards the latter End of a pestilential Disorder, in which they had been long afflicted with Carbuncles and Buboës, together with an universal Anasarca and Dropsy, were cured by a plentiful Diuresis excited by the Powder of Toads, mixed with Salt of Wormwood daily exhibited.

The diaphoretic Virtue of this Powder, by which it must of course contribute to the Cure of a Dropsy, was accidentally discover'd, as *Boecler* from *Solenander* informs us in the following History. At Rome a certain Man had the Misfortune to be afflicted with a Dropsy, and his Wife, thinking much of the Expences laid out for his Cure, maliciously resolv'd to poison him; for which Purpose she gave him a Dose of the Powder of a Toad calcin'd in an earthen Vessel, by which means a very plentiful Discharge of Urine was occasion'd. But the Wife, heartily wearied of so useless and expensive a Husband, was exceedingly desirous to put an End to his miserable Life by a sudden Death. With this View she exhibited the same Powder a second time, by which means the Waters were plentifully discharg'd by Urine, and the Patient cured. Thus the Views of Lust and Avarice were disappointed, and what was hellishly intended for a Poison, happily prov'd a noble and efficacious Medicine.

As for the Powder and Ashes of the Toad, 'tis highly probable, that the Effects they produce in the Constitution, are to be ascribed to an acrid Stimulus of a resolvent Quality, and of a salino-alkaline Nature. Hence Discharges of Urine or Sweat are excited according to the Constitution of the Patient, or the particular Regimen he uses. For this Reason many prescribe two Drams of the Powder of Toads to be taken by those who have the Misfortune to be seized with pestilential Disorders. Some Authors of undoubted Learning and Veracity also affirm, that the same Powder is an excellent Medicine for expelling Poison. Hence the Powder of incinerated Toads is by *Helvetius* called the Sudorific Powder. The sudorific Quality of the Toad is sufficiently confirm'd by the Case of a certain Countryman, who, when seized with the Plague, boiled a Toad with all its Intestines in Vinegar; and, after he had boiled it, he eat the Whole of it, and drank the Broth. However terrible this Medicine might appear, it was followed with very happy Effects; for by its means incredible Discharges of Sweat and Urine were excited; and these continuing for a whole Day, the Cause of the Pestilence was expelled, and the Patient's Strength gradually returning, a thorough Cure was brought about.

From these Qualities, I think, we are also to account for the Efficacy of the Toad's Heart, which, when dry'd, reduc'd

to Powder, and exhibited an Hour before the Paroxysm, has in some Cases cured quartan Agues. I must not on this Occasion forget to mention another Cure of the said Fever, which is said to be an infallible one, and consists in drinking the Milk in which a dry'd Toad has been boil'd. By this Medicine the febrile Matter is powerfully evacuated by Vomit, Urine, and Sweat. *Eph. N. C. D.* 2. a. 8. o. 104. a. 5. app. p. 40. The small Bones either of the fore or hind Legs of the Toad, which, when exhibited internally, produce, according to *Etmuller*, so surprising and happy Effects in the Cure of the Epilepsy, seem also to act by means of their resolvent Quality. To this Quality it is also probably owing, that dry'd Toads are by some applied to the Soles of the Feet, by way of Epispastics in Fevers, and Disorders of the Head. In *Eph. N. C. D.* 2. a. 5. o. 114. a dry'd Toad, applied to the Crown of the Head, is said to have allay'd the Violence of Madness, and at last to have cured the Patient. But how the Ashes of the Toad, used as an Amulet, can cure Incontinence of Urine, I must with *Schulzius*, in his *Prælectiones*, frankly acknowledge to be far beyond my Comprehension, I am equally in the Dark, and equally incredulous, with regard to an Effect of which *Helmont* affirms that he was an Eye-witness, and which is, that the Bone of the fore Leg of a Toad removes the Tooth-ach, immediately upon its touching the Part affected. Neither can I give an implicit Assent to a Story of *Etmuller's*, who tells us, that the same Bone, apply'd to the Pulse in the Wrist of a Child seized with an Epilepsy, in consequence of having suck'd the Milk of its Mother after she had receiv'd a terrible Fright, instantaneously allay'd and mitigated the Paroxysm. The medicinal Efficacy of the same Bone, apply'd in the same manner in intermittent Fevers, is also what I do not well comprehend.

The *Oleum Bufonum*, in the *Brandenburg Dispensatory*, is prepar'd of Toads infused and boiled in Oil of Olives, or Oil of sweet Almonds. 'Tis generally believ'd, that Toads, by a kind of magnetic Quality, attract and draw the Poison out of the Body; for which Reason the now-mention'd Oil is made an Ingredient in Cataplasms, intended for the Maturation of pestilential Buboës. The *Oleum Bufonum* in *Bates's Dispensatory* is thus prepar'd.

Boil four live Toads in two Pounds of Oil of Olives, for the Space of an Hour, or till they burst; then, straining off the Oil, keep it for Use.

This Oil is of great Service in Pustles of the Lips, and Cancers of the Breast. In Dropsies it is of singular Service, by exciting a plentiful Discharge of Urine, if the Region of the Kidneys be anointed with it. According to *Schulzius*, in his *Prælectiones*, this Oil is highly beneficial in the Cure of poisonous Wounds. *Musitanus* asserts, that it is a singular Secret in curing the Falling-off of the Hair, and other Disorders to which it is subject. The Method of using it is to anoint the Head often with it, having first purged the Body, and cut off the Hair. *Jacobæus* asserts, that it cleanses old Ulcers, removes Spots of the Face, and, more effectually than any other Medicines, carries off strumous Swellings. Concerning the Use of this Oil, in strumous Cases, *Borelli* writes thus: "The Scrophulæ are first to be excoriated by the Application of Arsenic; after which they must be corroded with Sublimate; and, last of all, this Oil must be used, which will become still more efficacious by an Addition of the Salt of Toads. Hence, perhaps, it was, that, according to many Authors, the ancient Arms of France were three Toads, since the Kings of that Nation undertook the Cure of the King's-evil, for which Toads are accounted so efficacious and powerful a Remedy." Others warmly recommend this Oil in Leprosies, and cutaneous Foulnesses. *Etmuller* gives us the following Account of it: Some, says he, prepare an excellent anodyne Oil, by infusing Toads in common Oil. Such an anodyne Oil is also prepared by putting live Toads into Water, in which sea Salt, or common Salt, has been dissolved, and allowing them to remain in it till they are dead. The Liquor is strain'd off, and then coagulated; but the Toads themselves are to be calcin'd with Salt, and fused with Lime; and, after the Fusion, the Lime is to be dissolved in Water, that the Fæces may be carried off. After this it is to be mix'd with Oil of sweet Almonds; this wonderfully removes Tumors, and mitigates Pains of every Kind, if the Parts affected are anointed with it. The *Oleum Bufonum Compositum*, also recommended for discharging Tumors, and removing Dropsies, is, in *Schroder's Pharmacop.* directed to be prepared thus:

Take of the Oil of Sheeps Feet, any Quantity at Pleasure; boil it with Sulphur reduced to Powder, till the Oil assume a reddish Colour: Then separate the Sulphur from the Oil, in which, whilst as yet warm, let Toads be immersed and suffocated; and, after Expression, subject to Distillation.

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The *Emplastrum ex Bufonibus* of *Knoffelius* is prepared thus:

Take of the Powder of the best Amber, half an Ounce; and of Toads dried, and reduced to a Powder, one Ounce: Mix these together in an Alembic, and add as much Spirit of Wine as rises a Finger's Breadth above them. Draw off the Spirit in *Balneo Mariæ*, till what is left in the Alembic acquires the Consistence of a Magma. Fresh Spirit of Wine must be added three different times; and the Quantity remaining is most commodiously reduced to the Consistence of a Plaster, by being mix'd with Melilot-plaster.

This Medicine is of singular Service, when applied in proper Cases to any of the Emunctories. When applied to the Throat, it also contributes to the Cure of spurious Quinsys. Others prepare a *Cerate of Toads*, for curing Incontinence of Urine. Their Method of preparing it is thus:

Take one Pound of Toads, half a Pound of Oil of Olives, and three Ounces of Wax; let them boil, in a Pot, to the Consumption of half, or till it is of the Consistence of a Cerate, which is to be spread upon a Linen Cloth, and applied to the Region of the Kidneys.

Some suffocate live Toads in Spirit of Wine, or in *Malmsey* Wine; after which they take them out of the Liquor, put them into a Retort, in order to obtain a Spirit, a volatile Salt, and an Oil. This Spirit, rectified with the volatile Salt, is an excellent Sudorific and Diuretic, and a Medicine highly commended in the Plague. The Spirit of Wine, on the other hand, or the *Malmsey* Wine, in which the Toads have been drowned, is accounted an excellent Alexipharmic, if used internally. The volatile, and not rectified, Spirit of Toads, applied tepid, twice or thrice a Day, with two or three Folds of a Linen Cloth, to cancerous Tumors, is, in *Eph. N. C. Cent. 4. o. 179*, said to have cured many of that Disorder. *Faber*, in his *Myrothecium*, recommends

One Dram of the Salt of Toad-ashes, calcined to Whiteness, extracted either with the Water of *Cardus Benedictus*, or Scabious, or that of Lemon-peel, and mix'd with Treacle-water; to be taken in the Morning fasting, with Cinnamon-water, as an Antidote against all Poisons, whether convey'd into the Constitution by poison'd Draughts, or owing to the Impurity of the Air. Externally used, this Preparation is said safely to cure pestilential Carbuncles and Cancers, if anointed with it.

As for the volatile Salt obtain'd by Distillation, I can't think, that, when it is duly depurated, it differs from the Salts of other Animals of a like Class and Nature; but that a Salt can possibly be elixiated from the Ashes of Toads, is what I very much doubt. As for the Salt of Toads, and other Secrets prepared from them, *Daniel Ludovicus*, in his *Treatise de Pharmacia*, thinks, that such Preparations are, for the most part, handed down by Tradition, without having the Countenance and Sanction of Experiment to support them.

There is an anatomical Description of a Toad in *Valentinus's Amphitheatrum Zootomicum*. It is much disputed, whether Toads can be form'd in the Stomachs of Men: Some maintain the Affirmative, and assert, that they are generated from the Sperm or Eggs of Toads drank in Water; or rather, that they are enlarged and nourish'd in the Stomach, and afterwards thrown up by Vomit, or discharged by Stool. But *Vallisneri* not only calls these Relations in Question, but openly pronounces, that Animals cannot be generated in the Stomachs of Men, by the Sperm of these Animals being convey'd into them; for thus, says he, according to *Aristotle*, the *Primordia Geniturae*, or first *Stamina of Generation*, would be concocted. However curious and subtle the several Reasonings on this Subject may appear, 'tis yet certain, that the Eggs of Animals, laid and impregnated with their Embryos, may be farther perfected without the concurring Care and Nourishment of the Mother; as is obvious not only from oviparous Fishes, but from most Insects, from whose Eggs, nourish'd in a proper Place, perfect Animals are brought into the World, without the Help and Assistance of the Mother. That Worms are generated in our Intestines, in consequence of the Eggs or Sperm of these Animals being convey'd into the Stomach, is an Opinion universally received in our Days: Neither, if we argue from Analogy, shall we find it improbable, that the Eggs of Toads, swallow'd in impure and marshy Water, have proved the original and immediate Cause of those Toads which have been generated in the Stomachs and Intestines of Men, and afterwards discharged; unless, with *Vallisneri*, we assert, that the Worms found in human Bodies are nourish'd and propagated in us by the Worms communicated to us in the Uterus. The Observations concerning a live Toad, found in an Abscess of the human

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Body; would not only favour, but absolutely confirm, this Opinion; unless we had Histories of some Parts of Vegetables, and other Substances formerly swallow'd, being found in Abscesses of the Body. See *Eph. N. C. D. 1. a. 2. o. 103*. There are Cases of live Toads swallow'd during Sleep, and Accounts of the Symptoms arising thence, in *Eph. N. C. Cent. 3. o. 163*, and *Cent. 8. o. 84*.

BUFONITES, or *Bufonius Lapis*. It is also call'd *Lapis Rubetæ*, and *Myxolithus*, and *Batrachites*; but the *English* have no other Name for it than the Toad-stone.

Some affirm, that these Stones are found in the Heads of old Toads, which have lived in dry Places; and that the Stone is far more valuable when taken from the Toad immediately kill'd, than when it has been dead for a great while. The common People affirm, that an old Toad, if laid upon a red Cloth, will vomit up this Stone. Others, for obtaining the Stone; order a Toad to be exposed to the Heat of the Sun till it be parch'd with Thirst; upon which they maintain it will vomit its Stone, as too great a Burden to its Head. Others, in order to procure the Stone, order a very large live Toad to be put into an earthen Vessel, full of small Holes; and the Vessel, when close stopp'd; is to be buried among a large Collection of Ants, for the Space of a Month; for then they affirm, that the Flesh of the Toad being destroy'd by the Ants, nothing remains but the Bones, and the Stone which was lodged in the Head: I cannot forbear looking upon these Accounts as so many Lyes, too palpable and glaring to deserve our Attention, much less our Assent. Our learned Countryman, Mr. *Brown*, in his *Vulgar Errors*, thinks; that People have some Reason to seek for Stones in the Heads of Toads, because stony Concretions are often form'd in the Heads of many other Animals, but more especially Fishes and Snails; but he doubts whether such a Stone is really found in the Head of the Toad; and, if it is really there, he thinks it is the Cranium indurated or petrified: Others have asserted, that this Stone was produced from the viscid Spume deposited upon the Head of a large Toad by a Collection of Toads, lodged in a Cave in the Winter Season: Hence *Christophorus Salveldensis* informs us, that in *France* and *Spain* this Stone is only produced by a certain Species of horned Toad call'd *Borax*; and mark'd with Saffron-colour'd Spots, and blackish livid Streaks: *Lanxonus*, from *Alb. Seba*, informs us, that the Origin of the Toad-stone is very uncertain, and involved in a kind of impenetrable Obscurity; since, notwithstanding the large Number of Authors who have wrote concerning them, and endeavour'd by Examination to discover their Natures, not one has hitherto dar'd to assert, that he has, with his own Hands, extracted a Stone of this kind from the Head of a Toad, or even pretended to shew one obtain'd in that manner; for *Vallisneri*, after all the Pains he could take, could by no means obtain any Stone from the Toad; from which Circumstance, he thinks, he has Reason to conclude, that this Stone being found in the Toad is a Story, which, like some other Pieces of Imposture, has met with a kindly Welcome from the Credulity of Mankind. *Merret*, in his *Pinax Rerum Naturalium*, affirms, that the Stones call'd Toad-stones, and accounted Gems, are only certain Teeth, call'd the Grinders, in the *Lupus marinus*, or Sea-wolf.

Schroder, as *Dale* informs us, recommends the Toad-stone as a most valuable Medicine against the Plague, and all kinds of Poisons.

Some affirm, that the *Bufonites*, or Toad-stone, carried about any Person, preserves him against all kinds of Poison, and changes its Colour upon its coming near to a poison'd Cup. But, as these things are not found to hold in Fact, I think it enough just to have mention'd them; only I must observe, with *Boerhaave*, that the *Bufonites*, in consequence of its being an alkaline Substance, may absorb Acids, and contribute to the Cure of Fluxes.

BUGANTIAE, Chilblains. *Castellus*. See PERNIO.

BUGLOSSUM, Offic. Park. Parad. 249. *Buglossum vulgare*, Raii Hist. 1. 495. Chab. 515. *Buglossum vulgare majus*, J. B. 3. 578. *Buglossum angustifolium majus*, C. B. Pin. 256. Tourn. Inst. 134. Boerh. Ind. A. 188. *Buglossum perenne majus sativum*, Hist. Oxon. 3. 438. *Buglossa vulgaris*, Ger. 655. Emac. 798. BUGLOSS. *Dale*.

Bugloss is like Mullein, but has a rough and blacker Leaf, like the Tongue of an Ox, spread on the Ground. This, put into Wine, is supposed to promote Chearfulness. *Dioscorides*, Lib. 4. Cap. 128.

Bugloss, from a long, thick, brown Root, sends forth large, rough, hairy Leaves, less prickly than *Borrag*, half a Foot long, narrow, and sharp-pointed. The Stalks arise to the Height of two or three Feet; full of short stiff Hairs, on which grow long narrow Leaves, set on without Foot-stalks. The Flowers grow several together, at the Top of the Branches, in long rough Calyces, of a single Leaf, cut into five round Partitions, of a purple Colour at their first appearing, and turning to a bright Blue as they stand, and are succeeded by four-corner'd rough Seed.

Bugloss is usually planted in Gardens, and flowers in June and July. The Leaves, Flowers, and sometimes the Root, are used.

Bugloss is much of the Nature of *Borago*, being accounted cordial, and good to exhilarate the Spirits, and drive away Melancholy; and is useful against Hypochondriac and Hysterical Disorders.

The Flowers are among the Number of the Four Cordial Flowers. *Miller's Bot. Off.*

The Roots are very glutinous, and give a deep Tincture of Red to blue Paper; the Flowers give it but very little, and the Leaves hardly any at all: So that probably the Sal Ammoniac in this Plant is involved in a glutinous Juice, in which the Earth and Sulphur predominate. The *Bugloss* moistens, cools, and gives great Relief to melancholy Persons; it is good to dissipate the Defluxions of the Breast, and an obstinate Cough. The Juice is drank from three Ounces to six. The Pitsan is taken by Glassfuls. The Roots and Leaves are used in cooling Broths, and this Plant cools no otherwise than by restoring the Motion of the Blood, which stagnates and heats the Parts wherein its Circulation is retarded. *Bugloss* Flowers are used after the manner of Tea. A Conserve is made of the Flowers. The Syrup made with the Juice of the Leaves of *Bugloss* gives great Relief to melancholy Persons: This Juice is employ'd in the simple *Byzantine* Syrup, and the compound one of *Mesue*. It enters also as an Ingredient in *Fernelius's* Syrup of Spleenwort. *Martyn's Tournefort.*

The Conserve, Syrup, and distill'd Water of *Bugloss*, are all highly extol'd by *Faber* in his *Myrothecium*. *Etmuller* is of Opinion, that, from the Leaves or Flowers of *Bugloss*, an ophthalmic Liqueur may be prepared, not inferior to that obtain'd from the Flowers of the Blue-bottle, or any other Liqueur of the same Intention. *Forestus* tells us, from *Augerius*, that People who have used a Decoction of *Bugloss* for thirty Days, purging off the Superfluities, every seventh Day, with Cassia sometimes alone, and sometimes with an Addition of the *Confectio Hamech*, have been cured of the *Lues Venerea*. The *Pulvis Diabuglossi Mynsichti*, in *Lemery's Pharmacop.* is prepared of Stimulants and Absorbents, the Aurum Potabile of *Mynsicht*, and Sugar, mix'd with the Bark of *Bugloss*-root. This Powder is said to be possess'd of a cordial and cheering Quality, and may be exhibited to the Quantity of a Dram.

BUGLOSSUM SYLVESTRE, *Offic.* *Buglossum sylvestre minus*, C. B. Pin. 256. Park. Theat. 765. Tourn. Init. 134. Boerh. Ind. A. 188. Elem. Bot. 110. *Buglossum sylvestre asperum minus annuum, foliis undulatis*, Hist. Oxon. 3. 439. *Buglossa sylvestris minor*, or, SMALL WILD BUGLOSS, Ger. Emac. 799. Raii Hist. 1. 494. Synop. 3. 227. Merc. Bot. 1. 24. Phyt. Brit. 17. Mer. Pin. 17. *Echium Fuchsii seu Borago sylvestris*, J. B. 3. 581. WILD BUGLOSS. *Dale.*

This is a much less Plant than the Garden Kind, growing not above a Foot high, with a small whitish Root, which dies yearly: The Leaves are long and narrow, but broader, and roundish-pointed at the End, rough and prickly, like *Borago*. The Stalks are thick, succulent, and prickly, clothed with narrow and sharp-pointed Leaves, set on without Foot-stalks. The Flowers grow on the Tops of the Stalks, in Shape like the Flowers of *Garden Bugloss*, but less, and of a light-blue Colour; the Seeds are also like the Seeds of that. It grows by Hedges and Way-sides, and among the Corn; and flowers in May.

This *Wild Bugloss* is but seldom used, tho' it is said to have the same Virtue with the Garden, but in a lower Degree, and, for want of that, may serve to supply its Place. *Miller's Bot. Off.*

Tragus made use of this Plant instead of *Borago*; and the Apothecaries of *Antwerp* use it (according to *Label*) in the room of *Bugloss*. *Martyn's Tournefort.*

The other Species of *Bugloss*, taken Notice of by Authors, are,

The *Buglossum latifolium sempervirens*, B. *Buglossum folio Boraginis, Hispanicum: Borago sempervirens*, or the ever-green *Borago*.

This Plant is said to be possess'd of an astringent Quality, which is stronger in the Root than in the Leaves, which, if drank in Wine, stop Fluxes.

Buglossum radice rubra.

Buglossum sylvestre, cauliculis procumbentibus.

Buglossum orientale, flore luteo, T. Cor. The Eastern *Bugloss*, with yellow Flowers.

Buglossum Creticum verrucosum perlatum quibusdam, H. R. Par. Warty *Bugloss* from *Crete*.

Buglossum angustifolium majus, flore albo, C. B. P. Greater narrow-leaved *Bugloss*, with a white Flower.

Buglossum angustifolium majus, flore rubro aut variegato, C. B. P. Greater narrow-leaved *Bugloss*, with a red or variegated Flower.

Buglossum foliis sinuosis, C. B. P. *Bugloss* with sinuated Leaves.

VOL. I.

Buglossum sylvestre majus nigrum, C. B. P. Greater wild black *Bugloss*.

Buglossum Creticum majus, flore caeruleo purpurante, H. R. P. Greater *Bugloss* of *Gandy*, with a blue Flower, inclining to a purple Colour.

Buglossum Lusitanicum, Echii folio undulato, Inst. R. H. Portugal *Bugloss*, with an undulated *Viper's Bugloss*-leaf.

Buglossum Creticum minimum odoratum, flore vario elegantis, H. R. Par. The least sweet-scented *Candy Bugloss*, with an elegant Flower of various Colours.

Buglossum Creticum humifusum acaulon perenne, Echii folio angustissimo, Tourn. Cor. Perennial *Candy Bugloss*, lying spread upon the Ground, without Stalks, and with a very narrow *Viper's Bugloss*-leaf.

Buglossum Samium frutescens, foliis rorismarini obscure virentibus, lucide hirsutis, Tourn. Cor. Shrubby *Bugloss* from the Island of *Samos*, with *Rosemary*-leaves, of a shining dark-green Colour, and hairy.

Buglossum orientale erectum, foliis undulatis, flore amarae caeruleo, Tourn. Cor. Upright Eastern *Bugloss*, with undulated Leaves, and a Flower of a beautiful blue Colour.

Buglossum orientale angustifolium altissimum, Tourn. Cor. The tallest Eastern *Bugloss*, with narrow Leaves.

BUGLOSSUS. A kind of Fish. The same with the Sole. e SOLEA.

BUGONES, βυγόνες, βυγώνες, from βύς, an Ox, and γίνομαι, to be bred or generated of. An Epithet for Bees, in Use among the Antients, who supposed these Insects to be bred of the Putrefaction of an Ox. *Varro de Re Rustica, Lib. 2. Cap. 5.*

BUGULA, CONSOLIDA MEDIA, *Offic.* *Bugula*, MIDDLE CONSOUND, Ger. 500. Emac. 631. Merc. Bot. 1. 24. Phyt. Brit. 17. Raii Hist. 1. 575. Synop. 3. 245. Mer. Pin. 17. Dill. Cat. Giff. 49. Buxb. 46. Rupp. Flor. Jen. 187. Tourn. Init. 208. Elem. Bot. 177. Boerh. Ind. A. 184. Rivin. Irr. Mon. *Bugula vulgaris sylvatica caerulea*, Hist. Oxon. 3. 391. *Bugula vulgaris, flore caeruleo*, Park. Theat. 525. *Bugula Consolida media pratensis caerulea*, C. B. Pin. 260. *Consolida media, quibusdam Bugula*, J. B. 3. 430. *Consolida media, symphytum medium, Bugula*, Chab. 474. **BUGLE**, *Dale.*

Bugle has a small stringy Root, sending forth several Stalks of different Forms; some roundish, and lying along, and creeping on the Ground, sending out fibrous Roots from the Joints; the other, which grow erect, and bear the Flowers, are square, beset with but few Leaves, standing in Pairs opposite to one another; the lower on long Foot-stalks, the upper on very short ones; they are oblong, somewhat crenated about the Edges, an Inch and half long, and an Inch broad, of a dull-green Colour, and oftentimes with a Dash of Purple: The Stalks are eight or nine Inches high, having the Flowers growing at the Top, in loose Spikes, whorle-fashion, with two small brownish Leaves under each Whorle. They are of a blue Colour, and labiated, but have the Galea so small, that it is hardly discernible. When the Flowers are past, they are succeeded by small longish Seeds, in five-pointed Calyces. It grows in Woods and Hedges, and flowers in May.

Bugle is a noted vulnerary Plant, and us'd inwardly and outwardly for all kind of Bruises, Wounds, and Contusions, as likewise for Sores and Ulcers, for spitting of Blood, and Hemorrhages from any Part. It is also aperitive and diuretic, and good to open Obstructions of the Kidneys, and provoke Urine. *Miller's Bot. Off.*

This Plant is bitter, deterfive, and gives a faint-red Colour to blue Paper. It is employ'd in vulnerary Potions, Pitsans, and Apozems; the Dysentery, Fluor Albus, and Diseases of the Throat, Ulcers and Thrushes in the Mouth. The clarify'd Juice of *Bugle* has the same Virtues; it is us'd in Plaisters. *Camerarius* and *Dodonæus* prescrib'd it for Obstructions of the Liver. It contains some Sal Ammoniac involv'd in Sulphur. *Martyn's Tournefort.*

On account of its abstergent Qualities, it is accounted an excellent Vulnerary, and is very much us'd not only in vulnerary Potions, but also in Plaisters, particularly among the *French*, with whom it is a Proverb, that the Person who has *Bugle* and *Sanicle* has no Occasion for a Surgeon. In consequence of its abstergent Virtue, it is also said to be a present Remedy in spreading Aphthæ, and Ulcers of the Mouth: That an Ointment made of the Leaves of *Bugle*, *Scabious*, and *Sanicle*, bruised, boil'd in Lard till they become dry, and then express'd, is excellent for the Cure of all Ulcers, Contusions, and Wounds, we are told by *Parkinson*, who recommended the Use of it to those charitable Ladies, whose Compassion for their Fellow-creatures prompts them to relieve the Disorders of the Neceffitous. *Konigs* affirms, that, by means of its Bitterness, he has known it to heal scrophulous Ulcers in the Neck. From what has been advanc'd, we may easily perceive the Reason why this Plant is said to be diuretic, and why it is recommended in Spittings of Blood, Dysenteries, and the Fluor Albus; for, when coarse, tenacious, and viscid Substances are attenuated,

attenuated, and Obstructions remov'd, in order to make way for a free Circulation of the Juices, the Emunctories are not only open'd, but the spasmodic Contractions, which are the immediate Cause of the morbid Fluxions, being remov'd, these Disorders are cur'd. The Herb Bugle is most properly us'd in Decoctions, or its express'd Juice may be us'd, which is highly saponaceous and opening. The distill'd Water is not possess'd of very eminent Medicinal Qualities.

Potterius recommends a Decoction of Bugle, made with Mutton-broth, as an excellent Medicine in a Phthisis, and internal Ulcers; affirming that it gently relaxes the Belly, wonderfully recruits the Liver, and fortifies other Parts. *Et-muller* informs us, that the *Italians*, in the Spring, cleanse the Root and Leaves of Bugle, and use them as a Salad, which is not only grateful to the Palate, but acceptable on another Account, which is, that it seems calculated to prevent Cachexies. The same Author also informs us, that its Juice is an excellent Medicine in malignant Ulcers. *Rieger*.

The several Species of Bugle mention'd by Authors, besides the preceding, are

Bugula flore cinereo vel albo, *Inf. R. H.* Bugle with a white or ash-colour'd Flower.

Bugula Alpina maxima, *Inf. R. H.* The greatest Bugle of the Alps.

Bugula sylvestris villosa, flore caeruleo, *Inf. R. H.* Hairy Wood-bugle, with a blue Flower.

Bugula sylvestris villosa, flore suaverubente, *Inf. R. H.* Hairy Wood-bugle, with a fine red Flower.

Bugula sylvestris villosa, flore albo, *Inf. R. H.* Hairy Wood-bugle, with a white Flower.

Bugula Samia verna, boraginis folio, flore inverso, & caeruleo flavescente, *Tourn. Cor.* Samian Spring Bugle, with a Borrage-leaf, and an inverted Flower of a yellowish-blue Colour.

Bugula orientalis villosa, flore inverso caeruleo, alba maculata, *Tourn. Cor.* Hairy Eastern Bugle, with an inverted blue Flower, spotted with White.

Bugula orientalis villosa, flore inverso candido, cum oris purpureis, *Tourn. Cor.* Hairy Eastern Bugle, with an inverted white Flower, edg'd with Purple.

Bugula orientalis, flore ex violaceo purpurascente, *Tourn. Cor.* Eastern Bugle, with a purplish violet-colour'd Flower.

Bugula orientalis longifolia, flore majore intense caeruleo, *Tourn. Cor.* Eastern Bugle, with a long Leaf, and a larger Flower of an intense blue Colour.

BULAPATHUM, βυλάπαθον, from the intensive Particle βύ, and πάθω, a Dock. A Species of Dock. See **LAPATHUM**.

BULBASPHODELUS. An Asphodel with a bulbous Root. See **ASPHODELUS**.

BULBINA, BULBINE. Diminutives from **BULBUS**, which see.

BULBOCASTANUM, *Offic. J. B. 3. 30. Ger. 906. Phyt. Brit. 17. Buxb. 47. Raii Hist. 1. 440. Synop. 3. 209. Chab. 385. Mor. Umb. 5. Bulbocastanum majus & minus. SMALL AND GREAT EARTH-NUT, Ger. Emac. 1065. Bulbocastanum minus, Mer. Pin. 17. Bulbocastanum majus, folio Apii, C. B. Pin. 162. Hist. Oxon. 3. 274. Boerh. Ind. A. 70. Tourn. Inf. 307. Elem. Bot. 257. Nucula terrestris major & minor, Park. Theat. 893. EARTH-NUT, KIPPER-NUT, PIG-NUT, and HAWK-NUT. Dale.*

This Plant has a Root as big as a large Nutmeg, hard and tuberous, of a whitish Colour, shooting out Fibres from the Bottom and Sides; the lower Leaves are wing'd, cut into several Divisions of Leaves, finer and smaller than those of Meadow-saxifrage; the Stalk grows to be more than a Foot high, having one Leaf about the Middle, which is as fine and slender as Fennel, having the like Leaves at every Division of the Branches; on the Tops of which grow thin Umbels of small white Flowers, each of which is succeeded by two smooth long Seeds. It grows in sandy gravelly Places, and flowers in May.

The Root, which is only us'd, and either roasted or raw, is of a pleasant sweetish Taste, and is accounted nourishing, and to be a Provocative to Venery. It is likewise commended against the Strangury and bloody Urine. *Miller's Bot. Off.*

The Root of this Plant, when the Skin of it is taken off, proves a nourishing Food, but is subject to produce Crudities and Flatulences, in consequence of its being with some Difficulty concocted. It is also emollient, and inspissates the Juices; for which Reason the Use of it is often recommended to those whose Fluids are too thin, and to such as are phthical, consumptive, and extenuated. *Alexander Trallianus, L. 7. C. 2.* informs us, that the Bulbocastanum, or Earth-nut, is of great Service, prepar'd in the Food of those who are afflicted with a Spitting of Blood. *Baubine*, from *Tragus*, tells us, that the excoriated Root of the Earth-nut, boil'd in Flesh-broth, with a little Pepper, is a Food which is not only sweet and nourishing, but also proves a Stimulus to Venery. The Seeds of this Plant are said to be possess'd of a diuretic Quality.

Miller enumerates six Species of the *Bulbocastanum*.

BULBOCODIUM vulgatum, *J. B. Bulbocodium*, *Theophr. Codium vel Codiaminum flore codii, i. e. Campanulae, Gesn. Hor. Bulbus sylvestris et Codiaminum, Gesn. Hor. Narcissus luteus sylvestris, Dod. Pseudo-narcissus, Offic. Et Anglicus, Ger. 115. Emac. 113. Pseudo-narcissus Anglicus vulgaris, Park. Parad. 100. Narcissus luteus, Merc. Bot. 1. 53. Phyt. Brit. 79. Narcissus seu Pseudo-narcissus Anglicus, Mer. Pin. 83. Narcissus sylvestris pallidus, calyce luteo, C. B. Pin. 52. Raii Hist. 2. 1131. Synop. 3. 371. Dil. Cat. Giff. 40. Tourn. Inf. 356. Bulbocodium, Chab. 2. 2. WILD DAFFODIL. Lemery. Dale.*

Bulbocodium is a Species of wild Narcissus, about half a Foot high, with long strait Leaves, bearing on the Top of its Stalk a beautiful, monopetalous, bell-shap'd, pale Flower, in a yellow, gold-colour'd, shining Calyx, which is inclosed in a membranaceous Sheath, and surrounded with six pale pointed Leaves. The Flower is succeeded by a round Fruit, with three Eminences; and its Inside divided into three Capsules, which contain black, and almost round, Seeds. The Root is bulbous, and viscid to the Taste and Touch, with a kind of Sweetness, mix'd with a little Acrimony. It grows by the Sides of Fields, in Meadows and moist Places, and in Woods and Gardens. The Plant abounds with Oil, and essential Salt.

The Root is purgative and aperitive, and evacuates viscid Phlegm. The Dose is two Drains in an Infusion. *Lemery des Drogues*.

It has the same Virtues as the Narcissus, or common pale Daffodil. *Dale*.

The Root is emetic, and hurtful to the Nerves; but, outwardly, is said to be good for Ambuissions, Wounds, and Hernias. *Clusius* assures us, that the Root of every Species of Narcissus excites Vomiting, as he has often experienc'd; and *Lobel* says, that the Peasants use to vomit themselves with the Root of *Bulbocodium*. *M. Herman* says, the bruis'd Leaves are good for an Erysipelas. *Raii Hist. Plant.*

BULBONACH, *Offic. Phyt. Brit. 18. Bulbonac annum, siliqua rotundiore, Rupp. Flor. Jen. 70. Bulbonac vulgatissime, viola lunaris, viola latifolia, Phyt. Brit. 129. Viola lunaris seu Bulbonach, Ger. 377. Emac. 464. Park. Theat. 1366. Viola lunaris vulgaris, Ejuld. Parad. 265. Viola lunaria major, siliqua rotunda, C. B. Pin. 203. Raii Hist. 1. 787. Lunaria major, siliqua rotundiore, J. B. 2. 881. Tourn. Inf. 218. Elem. Bot. 187. Boerh. Ind. A. 2. 5. Leucoium lunatum, seu Lunarium latifolium majus annum, siliqua rotunda, flore violaceo seu subcaeruleo, Hist. Oxon. 2. 245. Herm. Cat. 368. SATIDN or HONESTY. Dale.*

The Stalk of it grows to the Height of a Cubit and a half, or more, and sometimes to the Thickness of the little Finger, of an azure or dark-red Colour, and hairy. The Leaves are like the Nettle, but sometimes twice or thrice as large, hairy, serrated, situated sometimes opposite, and sometimes single, where the Branches divide, and tasting like Pot-herbs. The Branches, and the Summit of the Stalk, are laden with Flowers, disposed almost in the same Order as in the Cabbage, of a purplish or carnation Colour, of the Size of those of the common Cabbage, and less than those of the *Leucoium*, but like them in other respects, of a faint Smell, with a whitish and remarkable Unguis on the Inside. Four greenish Stamina, with yellow or pale Apices, but just emerge out of the Calyx, which is of an oblong Form, red, and composed of two larger and two smaller Leaves, being like the Calyx of the *Leucoium*. The Pods are wide, roundish, flat, bivalv'd, a silver-colour'd Rim passing between the exterior Laminæ on both Sides. They shoot forth a Filament at the upper End, and contain a double Row of flat orbicular Seeds. The Root is frumous, or glandulous, whence it takes its Name, *Bulbonach*. The Seed is of a dark Red, and very large for the Kind, and of a very acrid Taste, mix'd with some Bitterness. It keeps its Leaves during Winter. The second Year of its Planting, the Stalk drops, and falls to the Ground, and, when the Seed is ripe, perishes. It grows plentifully in several Parts of *Germany* and *Hungary*; in *England* it is cultivated in Gardens.

It is of a hot, bitter, and acrimonious Taste, especially the Seeds, tho' the Roots are eaten in Salads. It absterges, moderately heats, and provokes Urine, like the *Rapunculus*. The Powder of the bitterest Seed is given, in a Water appropriated to the Distemper, for the Epilepsy. A Surgeon of *Switzerland*, with the bruis'd Leaves of the perennial *Lunaria*, or *Bulbonach*, and Sanicle, prepar'd a vulnerary Ointment of no contemptible Virtue. *Raii Hist. Plant.*

BULBUS.

The *Bulbus esculentus*, being commonly eaten, is known to every Body. The reddish Sort, which is brought from *Africa*, is agreeable to the Stomach and Belly; but the bitter and squillaceous Kind is more friendly to the Stomach, and helps Concoction.

The *Bulbi* are all acrimonious and heating, stimulating to Venery, inducing a Roughness on the Tongue and Tonfils, nutritive,

nutritive, and increasing the Flesh, but they generate Inflammations. They are effectual, in Cataplasms, for Luxations, Contusions, Darts, or other such Weapons, lodg'd in the Flesh, and for Pains of the Joints. They are good also in a Gangrene, and for the Gout, either alone, or mix'd with Honey. A Cataplasm of Bulbi, with Honey and pounded Pepper, is successfully apply'd to the cedematous Tumors of hydropical Persons, and to the Bite of a Dog. They restrain Sweating, and mitigate the Pain of the Stomach. Mix'd with roasted Nitre, they absterge the Scurf and *Acheres* of the Head. Alone, or mix'd with Egg-shells, they take off the Marks of Blows, or Spots (*irides*) in the Face; and, with Honey or Vinegar, they clear the same Part of Freckles. Mix'd with *Potentilla*, they heal Fractures (*hæmorrhage*) about the Ears, and Contusions of the Nails. Roasted in hot Cinders, and apply'd, with the Ashes of the calcin'd Heads of Mæxæ, (the Cackarel Fifth, *Dale*) they remove a Ficus. Burnt, and mix'd with *Alcyonium*, it clears the Skin of Sun-burning, and black Cicatrices, if rubb'd on the Parts exposed to the Sun. Boil'd in Vinegar, and eaten, they are effectual in Ruptures. It is advisable to abstain from a plentiful Use of them, because they affect the nervous System. *Dioscorides*, Lib. 2. Cap. 200.

There is a Plant of the bulbous Kind, which, as *Alpagus*, in his *Lexicon*, observes, is call'd, by the *Arabians*, *Arzi Anil*, or *Arz Arnil*. What it is, he explains from some *Arabian* Expositors, who say it is a Bulb of the Onion-kind, of a sweet Taste, grows in the Mountains, and is call'd, by the People of *Damascus*, *Arzi Anil*, or *Hafnil*; and that it is eaten in the Spring, on account of its Sweetness. *Alpagus* adds, That this Bulb was of the Shape and Size of the Pear commonly call'd the Muscadell, and was surrounded with a fine hairy Tegument, in manner of a Net, from which proceeded many long and fine Leaves; that it grows on Mountains, and was call'd by the *Arabian* Naturalists *Bulbus*. This is the *Bulbus* which *Avicenna* call'd by that Name, and says is the same as the *Bulbus esculentus* of the *Greeks*, and that it is of the Shape and Size of the Bulb of the Narcissus, has a Leaf like a Leek, and a Flower like a Violet.

Dioscorides has given no Description of the *Bulbus esculentus*, and, by that means, has put all our Botanists to the Trouble of searching it out, and they have not yet found it. *Avicenna* takes it for what we have said above; tho' he shews, at the same time, that the Matter is no less doubtful among the *Arabians*. Some, he says, think it to be the *Azzir*, which is a kind of Onion, which has the same Virtues, he tells us, as another Onion call'd *Basal Alfar*, that is, the *Mousse-onion*. Others, he says, take it for the *Cepe Althalcair*; for so *Alpagus*, in his *Lexicon*, reads the Words, and expounds them of a small oblong Species of Onion, which the *Venetians* commonly call *Scalogna*, and is the *Cepa Ascalonica* of the *Antients*.

Since there are so many Species of Bulbs, it is no wonder that the *Arabians* are not certain on which to fix for the *βολβος ἐσθλός*, "*Bulbus esculentus*," of the *Greeks*. *Avicenna* takes it as above, and calls it also *Basal Macul*. *Basal* is a Name common to all the cepaceous Kinds, from the *Hebrew* *בצל*, which signifies an Onion. *Serapio* takes the *Basal Azzir* for the *Bulbus*, and quotes the Place of *Dioscorides*, concerning the *Bulbus*, under that Head, which he expounds by an Onion without Coats. But the *Arabian* Interpreters, whose Opinion is given us by *Alpagus*, have confounded the Bulb of the *Egyptian* Lotus, or *Nymphæa* of *Nile*, which was call'd *Arz Elmil*, or *Hafnil*, with that eatable Bulb, which was call'd by the *Arabians* absolutely *Bulbus*.

Dioscorides seems to make two Sorts of the *Bulbus esculentus*; one sweet, and the other bitter, and favouring of the Sea-onion, or Squilla. *Avicenna*, in his Chapter of the *Bulbus esculentus*, towards the End, quotes the Words of *Dioscorides*, and, in like manner, makes two Kinds, the sweet, and the bitter; the sweet, which is red, is good for the Stomach, but the bitter Kind is better. *Pliny* tells us, that the *Bulbi* differ in Bigness, Colour, and Sweetness. Some Sorts are eaten raw, which, for that Reason, must be sweet; these grow, he says, in the *Taurica Chersonesus*. Next in Goodness, of the same kind, are the *African*; and, after them, the *Apulian*. The *African*, therefore, must be sweet. *Dioscorides* makes the *African* Bulbi red and sweet; on the contrary, *Heraclides Tarentinus*, in *Athenæus*, says they were white and bitter. These are Contradictions; yet *Dioscorides* mentions *Heraclides Tarentinus* as one of his Authors. The *antient Greeks* highly commend the *Bulbus* of *Megara*. *Theophrastus* writes, that Bulbs, in some Places, are so sweet, that they are eaten raw, as in the *Taurica Chersonesus*. At present we are ignorant of the *Bulbus esculentus* of the *Antients*, as well of the sweet as the bitter Kind; nor have our Botanists observ'd, that *Dioscorides* makes two Sorts of *Bulbs*, besides the *Bulbus vomitorius*, which are the sweet and red, brought out of *Africa*, and the common bitter Sort, which were known to every body.

There was also a sweet *Bulbine*, which *Theophrastus* does not reckon among the *βολβοι*, (*Bulbi*) but the *βολβωδον* (*Bulbodea*). And, indeed, the *βολβωδον* is so call'd, from its Similitude to

the *βολβος*. Thus we meet with *καρδαμύνη, ἐλλεβορίνη*, (*Cardamine, Helleborine*) and the like. *Heraclides Tarentinus*, before quoted in *Athenæus*, says, that what we call the *Bulbine* is of better Juice than the *Bulbus*, but not so agreeable to the Stomach, because it had somewhat of a pinguious Sweetness. Perhaps this *Bulbine* was the sweet *Bulbus* of *Dioscorides*, which, he says, was less agreeable to the Stomach than the bitter Sort.

Pliny, Lib. 20. Cap. 9. writes, that the *Greeks* call'd by the Name of *Bulbine* an Herb which had the Leaves of a Leek, and a red Bulb. On the contrary, *Matron*, in *Athenæus*, makes it have a Bulb whiter than Snow; and *Theophrastus* reckons the *Bulbine* among those bulbaceous Plants which were white, and not inclos'd within several Coats; such, he says, grew in the *Taurica Chersonesus*.

They who take the *Cepa Ascalonica* for the *Bulbus* of the *Antients*, are utterly in the wrong. The *Antients* plainly distinguish between what was properly call'd *βολβος*, and every thing of the cepaceous Kind; and *Theophrastus* even reckons among the *βολβωδον* some things which were different from the *βολβοι*, properly so call'd. He calls them *Bulbodea*, from the Similitude, because they had a round Root like the *Bulbus*, tho' not inclos'd in Scales or Coats. The *Bulbus*, therefore, consists of several Coats, one within another. In another Place he says, of the Root of the *Narcissus*, that it was much like the *Bulbus*, *πλὴν ἔχει σκαλῶδους*, "but not consisting of Scales or Coats." The *Arabians* knew no more of the *Bulbus* than the *Moderns*, as appears from the Chapter of *Avicenna* on the *Bulbus esculentus*; and they retain'd the *Greek* Term *βολβος*, because they knew not how to give a Name to a thing of which they were wholly ignorant. *Salmasius de Homonym. Hyl. latr.* Cap. 114.

Paulus Aegineta, L. 1. C. 76. informs us, that the "*Bulbs* are of an astringent abstergent Quality, and procure an Appetite; that they strengthen the Stomach, and promote the Expectoration of viscid Humours; that, when twice boil'd, they become more nourishing, but lose their emollient Quality, since, by that means, their Bitterness is destroy'd; that they increase the Quantity of the femoral Fluid, and, consequently, prove a Stimulus to Venery, if us'd in large Quantities; that they excite Inflammations and Gripes; but that, if eaten with Oil, Garum, and Vinegar, they are very grateful to the Palate, easily digested by the Stomach, cease to prove flatulent, and nourish very much."

Matthioli informs us, that *Galen* accounted the *Bulbus esculentus* cold; and thought that it render'd the Juices viscid, was with Difficulty concocted, produc'd Flatulences, and prov'd a Stimulus to Venery; but that, when it was apply'd by way of Ointment, it cleansed and agglutinated, in consequence of its Bitterness, and astringent Qualities. *Celsus*, L. 2. C. 18. reckons all the *Bulbi* among the Pot-herbs *valentissimi generis*, by which, in all Probability, he means such as afford a great deal of Nourishment; and, in the twenty-third Chapter of the same Book, he asserts that they generate a thick Phlegm. 'Tis no difficult Task to assign a Reason for the *Bulbi* being thought of hard Digestion, and calculated to inspissate the Humours, since they themselves abound with a tough and viscid Juice. That they were us'd by the *Antients* in Food, as a Stimulus to Venery, is a Circumstance not to be doubted. Accordingly *Martial*, in the seventy-fifth Epigram of his third Book, gives them the Epithet *Salaces*, in consequence of the Effects they produc'd in the Constitution; and, in the thirty-fourth Epigram of the same Book, he gives the following Advice:

*Cum sit anus conjux, & sint tibi mortua membra,
Nil aliud bulbis quam satur esse potes.*

And *Ovid*, when prescribing for the Cure of Love, he enumerates such things as are to be abstain'd from, he sings thus:

*Daunius an Libycis bulbus tibi missus ab oris,
An veniat Megaris, noxius omnis erit.*

BULBUS VOMITORIUS, Off. *Muscari Clusii*, ASH-COLOUR'D GRAPE-FLOWER, Ger. 105. Emac. 120. *Muscari obsoletiore flore*, Tourn. Inst. 348. *Muscari majus, obsoletiore flore*, Elem. Bot. 288. *Muscari obsoletiore flore ex purpurea virente*, Boerh. Ind. A. 2. 114. *Hyacinthus racemosus moschatatus*, C. B. Pin. 43. Raii Hist. 2. 1162. *Hyacinthus racemosus seu botryoides major, seu Muscari majus, obsoletiore albo flore*, Hist. Oxon. 2. 372. *Hyacinthus botryoides major moschatatus, seu Muscari flore cinericeo*, Park. Parad. 112. *Hyacinthus odoratissimus, dictus Tibcadi & Muscari*, J. B. 2. 578. *Hyacinthus odoratissimus, Dipeadi & Muscari dictus*, Chab. 207. **MUSK-GRAPE-FLOWER**, Dale.

The *Bulbus* called vomitorius has a Leaf as flexible as Leather, and much longer than those of the *Bulbus esculentus*; its Root indeed is like the Root of that *Bulbus*, but cover'd with a black Rind.

This Root eaten alone, or a Decoction thereof drank, is a Remedy for Defects of the Bladder, and provokes Vomiting. *Dioscorides, Lib. 2. Cap. 201.*

It produces five or six oblong Leaves, which spread themselves on the Ground in a disorderly manner, and are obliquely inflected, channelled, and sufficiently substantial and juicy, being very like the Leaves of the larger tufted Hyacinth, and shewing their fine Stamina, even when they are broken, but not so abundantly as the Leaves of the *Hyacinthus Eriophorus*, which, when first they bud, turn purple or whitish, and sometimes become of a very beautiful Red. From the midst of the Leaves in the Spring-time shoots up a pretty thick, round, and naked Stalk, very weak in proportion to its Thickness, and surrounded with Clusters of Flowers, from the Middle almost to the Top. These Flowers pretty well resemble a small Drinking-cup, and are at first purplish or green, afterwards of a Purple inclining to Green, or of a whitish-green, sometimes of a sort of Sea-green Colour; sometimes they are black in the Beginning, or of a deep Purple, and afterwards turn pale or yellowish; or they are pale at first, and grow yellow afterwards, and, when they begin to wither, turn black, or dark-colour'd; and this kind are more bluntly mucronated than others. Sometimes, when they begin to wither, they emit a most grateful Odour, almost like that of Musk or Spices. There are some found of a Snow-white Colour, and of a most lively Red, but I had never the Fortune to meet with any such. They are all succeeded by very large, triangular, and as it were pinnated Heads, containing black round Seed, of the Size of the *Orobis*. The Root is large, whitish, perennial, and composed of many Coats like the Onion, and strengthen'd with many thick Fibres, which proceed from its Base, and are perennial, not withering and perishing every Year, like the Fibres of the Hyacinths, Narcissuses, Tulips, Lilies, and many other bulbous Plants. The Flowers being to unfold from the Base, as in other Plants of the bulbous kind, which bear their Flowers in Spikes or Clusters.

It grows in the Gardens about Constantinople plentifully, and beyond the Bosphorus in Asia, from whence according to *Clusius*, it was originally imported into Europe. *Raii Hist. Plant.*

It flowers in the Month of April, and its Root is only in Use. When chew'd, or drank by way of Decoction, it cures Disorders of the Bladder.

See BULBUS, in the Explication of Botanical Terms in BOTANY.

BULEUMA, βύλευμα. The same as *Consilium*, which see.

BULIMIA, BULIMIASIS, BULIMUS. The same as BOULIMOS, which see.

BULITHOS, βύλιθος, from βύς, an Ox, and λίθος, a Stone. A Stone often found not only in the Gall-bladder, but also in the Kidneys and Bladder of an Ox; so that *Aristotle* seems to be mistaken, *Seet. 10. Prob. 42.* where he labours to give a Reason, why Man only is afflicted with the Stone. *Castellus*. See Bos.

BULLA, πομφόλυξ. A Bubble. It is generated, according to *Galen, Com. in Lib. 7. Aph. 34.* "by a Flatus included within a humid Substance." This happens most frequently when this Humid has something of Tenacity, which renders the Bubble more stable, and less liable to Diffolution. Πομφόλυγες (Bubbles) in *Hesychius* are expounded διὰ τῆς ὕδατος γινόμεναι ὑδατοεῖς, ἢ φυσήματα ὕδατος, "Tumors generated in the Water, or flatulent Swellings of the Water." In *Hippocrates, Lib. 7. Aph. 34.* οὐκίστοι δ' ἐπὶ τοῖσιν οὐρεσὶν ἐξίσανται πομφόλυγες, νεφρὶκά σημαίνουσι, καὶ μακρὴν ἀρρώστιν ἐκείνου. "Bubbles arising in the Urine indicate Nephritic Disorders, and a long Disease."

Bulle is used to signify Pustules arising in the Eye, or proceeding from Combustions in any Part. *Galen, de Simp. Fac. Lib. 6. & 9.*

BULLIMENTA. A Word used by some Chymists to signify Gold and Silver Vessels, as they appear after Washing and Scouring, that is, with a glittering Brightness. *Castellus*.

BUMELIA, βυμελία, from βύς, a Particle adding Greatness, and μελία, an Ash. A Species of Ash. See FRAXINUS. *Blancard*.

BUNA. See COFFEE.

BUNIAS, *Napus dulcis*, Offic. *Napus*, J. B. 2. 842. Chab. 272. *Raii Hist.* 1. 801. *Park. Parad.* 509. *Napus sativa*, C. B. Pin. 95. *Hist. Oxon.* 2. 114. *Rupp. Flor. Jen.* 65. *Buxb.* 231. *Bunias*, Ger. 185. *Emac.* 235. NA-VEW-GENTLE. *Dale*.

The boiled Root of the Bunias generates Inflatons, and affords but little Nourishment. The Seed drank prevents the ill Effects of Poisons, for which Purpose it is mixed in Antidotes. The Root is preserv'd as a Pickle. *Dioscorides, Lib. 2. Cap. 136.*

Those Leaves of the Garden-naveu, which lie on the Ground, are long and large, deeply cut in, and in Shape like a Turnep-leaf, but less, and very little hairy. The Stalks

grow to be two or three Foot high, beset with smaller Leaves, smooth as well as the Stalk, and little or nothing jagged, especially those which grow higher upon the Branches, which are round and broad at Bottom, and encompass the Stalk, ending in a narrow Point of a bluish-green Colour. The Flowers grow many together on the Tops of the Stalks, made of four bright yellow Leaves, and are succeeded by long cylindrical Pods, containing small round black Seed; the Root is white, longer and slenderer than a Turnep, but much like it in Taste. It is sown in Gardens, and flowers in April; the Root is used in Food, and the Seed in Physic.

The Seed is commended by the Antients as good against all kinds of Poisons, and the Bites of venomous Creatures, to provoke Urine, and the Menses. *Matthiolus* extols it against all kinds of infectious Distempers, to expel Malignity, and cheer the Heart, as also to drive out the Small-pox and Measles. It is an Ingredient in the *Theriaca Andromachi*. *Miller's Bot. Off.*

These Seeds are said to be heating, drying, absterging, aperitive, and digestive; and to be Enemies to Venery.

NAPUS SYLVESTRIS, Offic. C. B. Pin. 95. *Raii Hist.* 1. 802. *Synop.* 3. 295. J. B. 2. 843. Chab. 272. *Hist. Oxon.* 2. 114. *Rupp. Flor. Jen.* 65. *Dill. Cat. Giff.* 51. *Buxb.* 232. *Napus, Bunias*, Merc. Bot. 1. 52. *Phyt. Brit.* 79. *Bunias sylvestris Lobelio*, Ger. 181. *Emac.* 235. *Bunias sive Napus sylvestris*, Park. Theat. 865. Mer. Pin. 17. RAPE.

It grows amongst Corn, and on the Sides of Ditches. It flowers in Summer. The Seed is in Use. It agrees with the former in Virtues, but is somewhat more acrid. *Dale*.

This is a much less Plant than the Garden Naveu, having a long, slender, whitish, sticky Root, full of Fibres at the Bottom; the lower Leaves are less, and much jagged, and round at the Ends. The Stalks are smooth, and beset with the like smaller Leaves; the Flowers and Seed are much alike. *Miller's Bot. Off.*

PSEUDO-BUNUM, Offic. *Napus sylvestris Cretica*, C. B. Pin. 95. Park. Theat. 865. CANDY WILD NAVEW.

The Herb is only in Use, and is found in the Island of Crete. According to *Dioscorides* it cures Gripes, Stranguries, and Pains of the Sides. It also dissolves scrophulous Tumors, if mix'd with Salt and Wine, and apply'd to them by way of Ointment.

'Tis a Controversy hotly agitated among the Literati, whether the Seeds of the *Napus dulcis*, or those of the *Napus sylvestris*, ought to be used in the Composition of the Venice Treacle. The Seeds of the former are for this Purpose used in our Shops. In this they imitate the Greeks; for *Dioscorides* makes not the least mention of any of the *Napus sylvestris*. *Andromachus* the elder, also, orders the Seeds of the *Napus dulcis*; and *Matthiolus*, in the fifth Book of his Epistles to *Balthaserus*, affirms, that the Seeds of the *Napus dulcis* resist Poison more powerfully than those of the *Napus sylvestris*. *Andromachus* the younger, when enumerating the several Simples which enter the Composition of the *Theriaca*, commends the Seeds of the *Napus sylvestris*, as being more acrid, and of Consequence more efficacious in promoting the Intention of the Medicine. But *Galen*, in his first Book *de Antidotis*, differs from both these Opinions, and recommends the Seeds of the *Pseudo-Bunium*, as most proper for composing the *Theriaca*. *Dale*.

BUNITES Vinum, βυνίτης δίνος, Wine of Bunium; is made by putting two Drams of Bunium into two Quarts of Must, and letting it stand for a Quarter of a Year, and then straining it off.

It is good in Disorders of the Stomach, and relieves such as are fatigued with Riding or Fencing. *Dioscorides, Lib. 5. Cap. 56.*

BUNUM, βύνιον. Wild Parsley. See APIUM.

BUPEINA, βύπεινα, from βύ the augmentative Particle, and πεινάω, to hunger. The same as BOULIMOS, which see.

BUPHAGOS, βύφαγος. The Name of an Antidote in *Marcellus Empiricus, Cap. 29.* against the Colic.

BUPHTHALMUM, Offic. Chab. 364. *Buphtthalmum cotula folio*, C. B. 134. *Raii Hist.* 1. 341. *Buphtthalmum peregrinum*, Alp. Exot. 221. *Buphtthalmum alterum, cotula folio*, Park. 1371. *Buphtthalmum peregrinum Alpino*, Ejusd. 1371. *Buphtthalmum verum*, Ger. 607. *Emac.* 746. *Buphtthalmum tenuifolium, folio Millefolii fere*, J. B. 3. 124. *Hist. Oxon.* 3. 16. *Chrysanthemum cotula folio*, Her. Cat. 145. *Chrysanthemum folio cotula*, Flor. 2. 46. *Chrysanthemum alterum, cotula latiori folio*, P. Al. *Cotula flore luteo radiato*, Elem. Bot. 396. *Tourn. Inst.* 495. OX-EYE.

The *Buphtthalmum*, by some called *Cachlan*, sends forth tender, and somewhat slender Stalks, with Leaves like those of Fennel, and yellow Flowers, larger than those of the *Anthemis*, and resembling an Eye, whence it took its Name. It grows in Fields, and about Cities and Towns.

The bruised Flowers with Cerate discuss cedematous Tumors and Hardnesses. They say, that *Bupthalmum*, drank after coming out of the Bath, restores, after some time using it, a good Complexion to those who are discoloured with the yellow Jaundice. *Dioscorides, Lib. 3. Cap. 156.*

Ox-eye is a Plant which has a great many shrubby Branches, whereon grow fine winged Leaves, like Yarrow, but shorter, stiffer, and somewhat white and hoary: Each Stalk is terminated by one pretty large corymbiferous Flower, of a deep yellow Colour like a Marigold, but that the middle Thrum is larger in proportion, and the Petala are much shorter and firmer. The Root is small and fibrous. It grows wild in some Parts of the North of England, and flowers in June or July. It is seldom or never used: But that which is called the Ox-eye in the Shops, is the *Bellis major*. *Miller's Bot. Off.*

There is another Sort of *Bupthalmum* thus distinguish'd.

BUPHTHALMUM GERMANICUM. Offic. *Bupthalmum vulgare*, Raii Hist. 1. 341. Synop. 3. 18. Ger. Emac. 747. *Bupthalmum tanacetum minoris folio*, C. B. Pin. 134. Chomel. 2. 692. Boerh. Ind. A. 106. Tourn. Inst. 49. Elem. Bot. 396. Rupp. Flor. Jen. 136. Dill. Cat. Giff. 159. Buxb. 47. *Bupthalmum Matthioli sive vulgare, millefolii foliis*, Park. Theat. 1370. *Chamamelum Chrysanthemum quorundam*, J. B. 3. 122. *Chamamelum Chrysanthemum quorundam: Bupthalmum multis*, Chab. 363. *Chrysanthemum perenne, brevioribus et incanis foliis tanacetum instar alatis*, Hist. Oxon. 3. 20. **COMMON OX-EYE.**

This Herb is said to be aperitive, vulnerary, and to be good for a Jaundice; but it is seldom met with in our Shops.

Miller takes Notice of five Species of this Plant.

BUPLEUROIDES, βupleuroidης, from βupleuron, Bupleuron, and εἶδος, a Form or Shape, that is, a Plant much of the Figure of the *Bupleuron*. It is thus described.

The Leaves grow together by Twos and Threes in the same Place. The End of the Foot-stalk bears an oblong Ovary, the Apex of which is crown'd with a naked, herbaceous, pentapetalous Flower, the Petals being rolled up, inclosing five Stamina. The Ovary has a Tube cleft in two, the Apices of which are backwards, and rough. When ripe, it passes into two longish Seeds; the Flowers are disposed in the Form of an Umbel or Umbrella. It is an Evergreen. *Miller's Dict.*

I find no Medicinal Virtues ascrib'd to it.

BUPLEURON, βupleuron, from βῆς, an Ox, and πλευρον, a Side, because it is said to cause a Crepitation of the Side of an Ox, but more probably, because it affords the Ox a Bed: Or it may be supposed to be so called, because the Leaves bear some Resemblance to the Ribs of an Ox; or of βῆς, great, and πλευρον, Side, as the large Rib. *Miller's Dict.*

The Plant usually understood by this Name is thus distinguished.

BUPLEURUM, Offic. Ind. Med. 23. *Bupleurum folio subrotundo, sive vulgatissimum*, C. B. Pin. 278. Rupp. Flor. Jen. 226. Raii Hist. 1. 473. Tourn. Inst. 309. *Bupleurum angustifolium herbariorum*, Elem. Bot. 259. *Bupleurum angustifolium*, Buxb. 47. *Bupleurum perenne angustifolium*, Mor. Umb. 26. *Bupleurum perenne, longis et angustis foliis incurvis*, Hist. Oxon. 3. 300. *Auricula leporis umbella lutea*, J. B. 3. 200. Chab. 409. **HARES-EAR.**

It grows in hilly Places; flowers in July and August. The Herb is in Use. It is accounted a good Drier, Aperitive, and Discutient; it expels Urine and Sweat, and mundifies Wounds. *Zwing. Theat. Dale.*

Its under Leaves are sometimes oval, and much larger than the others: Both they and the Root are well drawn in *Tragus's* Figure. This Plant is very well described in *Cordus*, who calls it *Hysophyllon*, and makes use of *Tragus's* Figure. The Figures of other Authors represent only the Leaves which accompany the Stalk of this *Bupleurum*, and resemble those of Dogs-grass: Which is the Reason, that they very well express another Plant also of the same Family, which grows in *Provence* and *Languedoc*, but is annual. *M. Magnol* has named it *Bupleuron annuum angustifolium* Bot. *Monsp.* He observes, that it is the *Auricula Leporis Monspelienfium*, Plantaginifolius. *Gesn. Dodonæus's* Figure represents it not amiss.

C. Bauhine has confounded *Gesner's* Plant with that of which we are speaking. *Martyn's Tournefort.*

BUPRESTIS, Offic. Aldrov. de Insect. 487. Jonf. de Insect. 78. Mouff. Insect. 141. Charlt. Exer. 48. **THE BURN-COW.** Dale.

The Buprestes, which are a kind of Cantharides, are cured for Use like Cantharides, and so are the *Eruca* of Pine-trees. But these last must be roasted a little while in a Sieve hung over hot Ashes, before they are reposit.

They are all, in common, of a septic, exulcerating, and heating Quality; for which Reason they are mix'd up with Medicines adapted to the Cure of a Carcinoma, Lepra, and malignant Lichen. Mix'd in emollient Pessaries, they provoke the Menfes. Some affirm, that Cantharides mix'd with Antidotes help the Dropsy, because they provoke Urine; and

others have written, that their Wings and Legs taken internally are an Antidote. *Dioscorides, Lib. 2. Cap. 66.*

Buprestis, βῆρης, is deriv'd from the intensive Particle βῆς, and πῆσις, a Burner, from πῆσις, to burn, because it is an Insect of a very inflammatory Quality; or, as some will have it, from βῆς, an Ox, and the aforesaid Word; for if an Ox, they say, swallow this Insect, he dies of an Inflammation and Tumor of the Abdomen. *Castellus. Blancard.*

Pliny, Lib. 30. Cap. 4. says, "It is rarely found in Italy, and is like a long-legged Beetle, and is most pernicious to Black Cattle, who devour it among the Grass, whence it takes its Name; for it so affects their Gall, as to cause an Inflammation and Rupture of the Bladder." And the same Author, *Lib. 22. Cap. 22.* says, "that the Greeks by a strange Inconsistency commend it in Food, and prescribe Remedies against it as a Poison, which its very Name shews it to be at least to Black Cattle, which, they confess, will burst upon eating of it." *Vegetius, Artis Veterinariae Lib. 3. Cap. 78.* says, "That if a Horse chance to eat a *Buprestis* in his Hay, or at Grass, his Belly becomes inflated, he starts back from his Fodder, he dungs little and often, in which Case you must immediately saddle him, and put him upon a Course."

Bῆρης is in *Galen's* Exegesis expounded, τὸ τε ζῶον τὸ τῇ καθάρσει παραπλήσιον, ἔστι δὲ καὶ τὴν λαχάνων ἀγρίων, ἢ μέμνηςαι Δισκορίδης ἐν τῷ πρῶτῳ τῶν ὑγίωνων, καὶ ἐν τῷ περὶ λαχάνων. "The *Buprestis* is an Animal much like Cantharides, and also to a wild Green, mention'd by *Dioscorides*, in his Book of wholesome Things, and in his Book of Greens." The *Buprestis*, Animal, is often used by *Hippocrates, Lib. 1. περὶ γυναικ.* and *Lib. περὶ γυναικ. φύσ.* in Pessaries, for a Strangulation of the Uterus, and to provoke the Menfes. *Theophrastus* mentions the *Buprestis* among Greens. *Hist. Plant. Lib. 7. Cap. 8.*

The *Buprestis*, βῆρης, is a kind of little Animal like the Cantharis, which if an Ox happens to eat, he immediately swells and dies; and from this Effect it takes its Name. *Bῆρης* is also a kind of Green. *Hesychius, βῆρης λαχάνων εἶδος*, "The *Buprestis*, &c." This Green took that Name not from causing Inflammations in Black Cattle, but because it was a large Sort of *Pressis*, a Green so called, for what Reason I know not. So βελάπαθον (*Bulapathum*) is a great *Lapathum*; and βουέλιον (*Buselinum*) is a large Sort of *Apium*; and βύσυνα (*Busyca*) large Figs. *Pliny* did not imagine, that *Buprestis* was a common Name for two different Things; and therefore says, *Lib. 22. Cap. 22. Buprestim magna inconstantia Græci in laudibus ciborum etiam habuere, iidemque remedia tanquam contra venenum prodiderunt. Et ipsum nomen indicio est boum certe venenum esse, quos dissilire degustata fatentur.* "The Greeks with great Inconsistency, &c." (See before). Here the want of Consideration in *Pliny* is much to be admir'd for blaming the Inconsistency of the Greeks with respect to the *Buprestis*; for the *Buprestis*, which is Poison to Black Cattle, is quite another thing from the *Buprestis*, which the Greeks commend in Food: This is a Green, that a poisonous Animal. When they therefore prescribe Remedies against the *Buprestis*, it is against the Animal; when they commend it in Food, they mean the Herb or Green of that Name; so that there is the same Name, but not the same thing, nor perhaps the same Etymology of that Name. But the Greeks very clearly distinguish the *Buprestis* by the Words following, βῆρης τὸ τε ζῶον, &c. (See before). But *Pliny* confounds together not only Things which are really homonymous, but sometimes such as have some Similitude of Names, or where they differ only in Accent. Thus he makes ἀδίασιν (*Adiantum*) a Topiarian Plant, when he intended ἀκανθα (or *Acanthum*); and the Herb ἐξίμν to be the same with the ἐξίμν of *Theophrastus*, with an infinite Number of other such Mistakes. *Salmasii Prolegom. in Homonym. Hyl. Iatr. p. 3.*

It seems to belong to the kind of Cantharides, but it is more oblong in Body; and the crustaceous Integument of its Wings appears outwardly of a green, inclining to yellow, or rather is of a Gold-colour; it has also longer Legs, and somewhat thicker. The Eyes are globous and prominent, and from the Forehead, near the Eyes, proceed two oblong articulated Horns. The Head is but small, but the Mouth wide, hard, strong, forcipated, and armed with Teeth, with which it wounds and bites cruelly; the Belly is not round, but runs out in Length. Dale.

BUR. A Term in *Helmont*, the Meaning of which may be best known by giving the entire Passage in which it occurs, which runs thus. "Water putrefying (*frascens*) in the Earth acquires either a local or a native (*insitum*) Seed; for which Reason it either passes into a Liquor, which I call *Leffas*, for the furnishing of all Plants, or into a mineral Juice called *Bur*, according to the Species chosen by the Direction of the Seeds." *Elementa, 13.*

BURAC. All kinds of Salts; but some distinguish them into *Baurac*, *Denequat*, *Borago*, *Borax*, *Uritar*, and *Angar*. *Rulandus.*

BUR

BURDO, *Burdus*. A Colt, or young Mule, the Liver and Testicles of which last are recommended by *Aldrovandus*, de *Quad. L. 1. C. 4.* for their Medicinal Virtues. *Castellus*.

BURDUNCULUS. The Name of an Herb in *Marcellus Empiricus*, otherwise, as he says, called *Lingua Bovis*.

BURINA. Pitch. *Rulandus*.

BURIS. A Name given by *Avicenna* to a scirrhous Hernia, caused by the Lapidosity of a hard Abscess. *Castellus*.

BURNEA. Pitch. *Johnson*. I suppose he means *BURINA*.

BURRHI SPIRITUS MATRICALIS, or *Burrhus Spirit* for Disorders of the Matrix, is thus prepar'd:

Take of Mastich, Myrrh, Olibanum, and Amber, each two Ounces: Bruise them together, and add twenty-four Ounces of rectify'd Spirit of Wine: Digest for four Days, and afterwards distil to three Fourth-parts. *Pharmacop. Leydens.*

Boerhaave us'd this much in his Prescriptions.

BURSA PASTORIS, Offic. Ger. 214. Emac. 276. Mer. Pin. 17. *Bursa pastoris major vulgaris*, Park. Theat. 866. *Bursa pastoris major*, Merc. Bot. 1. 24. Phyt. Brit. 18. *Bursa pastoris major, folio sinuato*, C. B. Pin. 108. Rupp. Flor. Jen. 68. Tourm. Inst. 216. Elem. Bot. 185. Boerh. Ind. A. 2. 3. Buxb. 48. *Bursa pastoris major, capsula cordata, foliis laciniatis*, Hist. Oxon. 2. 304. *Bursa pastoria*, J. B. 2. 936. Chab. 295. Raii Synop. 3. 306. Dill. Cat. Giff. 45. *Thlapsi fatuum*, *Bursa pastoris dictum*, Raii Hist. 1. 838. Synop. 2. 176. **SHEPHERD'S-PURSE**. *Dale*.

The lower Leaves of *Shepherd's-purse* lie flat on the Ground, in a round Compass, three or four Inches long, narrow, and cut into several Gashes, a little hairy. The Stalk is slender, about a Foot high, branch'd towards the Top, beset with a few whole Leaves, which are sharp-pointed, and set close on, without Foot-stalks. The Flowers are small, white, and four-leav'd, and are succeeded by three square Seed-vessels, in Shape of a Purse, containing very small reddish Seed. The Root is whitish, woody, and full of Fibres, of but little Taste. It grows every-where among Rubbish, Banks and Walls, and flowers all the Summer. *Miller's Bot. Off.*

It is of an herby Taste, a little saltish, and deterfive. The Juice of its Leaves gives a faint-red Colour to blue Paper, which gives us Reason to imagine, that, in this Plant, the Sal Ammoniac, which is natural in the Salt of the Earth, predominates over the other Principles; this Sal Ammoniac is dissolv'd in a considerable Quantity of Phlegm, and is temper'd by a good deal of Earth, and a little Sulphur.

This Plant does not yield much Acid, by a Chymical Analysis; almost all that is extracted from it is Alkaline.

There are but few Plants which yield more concrete volatile Salt, fix'd lixivial Salt, and Earth. These Principles, mix'd together, render the *Shepherd's-purse* proper to dissolve the Blood, when it is thicken'd by foreign Acids, which hinder it from passing, with its ordinary Velocity, from the Arteries into the Veins; to which we may refer the greatest Part of Defluxions. Besides, the Earth, which is in this Plant, easily imbibes the Serosities, which occasion a Relaxation of the Fibres; thus, by the Consent of all Authors, it is vulnerary and astringent; it is also believ'd to be febrifugous and lenitive. The Juice of its Leaves drank, from four Ounces to six, is an excellent Remedy in all Losses of Blood, and in Defluxions attended with an Inflammation. They boil a Handful of it in lean Broth, and employ it in Pustians, Glysters, and Cataplasms. Its distil'd Water has little or no Virtue; it is nothing but the Phlegm separated from the other Principles.

It is found almost all the Year; for it propagates itself by Seed towards the End of the Summer. *Martyn's Tournefort*.

Those People are mistaken, who imagine that the styptic and astringent Qualities of the *Shepherd's-purse* are owing to its Coldness; for, like *Alcohol* of Wine, it acts by a hot and acrid Quality, either strengthening and constricting the Vessels, by burning them, or coagulating the Juices by its Heat; when it is either bruised, and apply'd to Wounds in the Surface of the Body, or when, in Hemorrhages of the Nose, its expressed Juice is drawn up the Nostrials, or a Tent dip'd in it put up, and retain'd in them. In dissolving Cataplasms, and in febrifuge Preparations, to be apply'd to the Wrists, the *Shepherd's-purse* is used in the same Manner, and with the same Intention, that other hot and stimulating Medicines are. When *Borelli*, Cent. 3. Obs. 27. affirms that the Bulk of a common Nut of bruised *Shepherd's-purse*, put into the Ears, is an excellent Medicine for removing the Tooth-ach, I should think, that this Effect was not to be ascrib'd to the Coldness, but rather to the Heat of the Plant, which stimulates the Nerves, and dissipates the Cause of the Disorder. But whether, when apply'd to the Nape of the Neck, or to both Arm-pits, or pressed pretty hard in the Patient's Hand till it becomes warm, or put under the Tongue, it stops Hemorrhages of the Nose, are Points which can only be determin'd by Experience. The learned *Pauli* tells us he knew a Man cur'd of a Spitting of Blood by

BUS

means of this Plant, which, during the Paroxysm, he used to grasp hard, and afterwards putting it between the Soles of his Feet and his Stockings, he walk'd upon it. But 'tis to be observ'd, that, at the same time, the Patient receiv'd the Fume of the best native Sulphur into his Mouth and Throat. *Shepherd's-purse*, apply'd to the Soles of the Feet, is said to be an approv'd Remedy for Head-achs. According to *Etmuller*, its Juice, put into Ears from which purulent Discharges are made, heals them; and, when mix'd with Vinegar and Houfleeck, it allays Inflammations of all kinds, the Gout arising from a hot Cause, inflammatory Tumors of the *Pudenda*, and *Erysipelas*. Four or six Ounces of its express'd Juice are recommended as a Medicine to be taken internally in Spittings of Blood, immoderate Fluxes of the Menfes, Discharges of bloody Urine, Diarrheas, Dysenteries, Lienteries, and Gonorrheas. Decoctions of it are also us'd, made with Red-wine, or common Water in which red-hot Steel has been extinguish'd; as also with lean Flesh-broth. Clysters of the above Decoctions are also said to contribute to the Cure of Fluxes. In Gonorrheas *Etmuller* recommends one Ounce of the expressed Juice, or two Ounces of the Decoction of *Shepherd's-purse*, to be drank, with three or four Grains of Camphire. The *Aqua bursa pastoris styptica*, so much extol'd in Fluxes, and Hemorrhages of the Uterus, Mouth, and Nostrials, as also for cleansing Ulcers, and allaying Heat, is, by *le Mort*, L. 2. 37. prepar'd thus:

Take of the Herb *Shepherd's-purse*, as much as you will; cut it small, and to each Pound of it add of crude Alum, and Vitriol of Mars, each half an Ounce; and of Water, a sufficient Quantity: Infuse for ten or twelve Days, and then distil in the common Manner.

The *Bursa pastoris major, folio non sinuato*, agrees with the former in its Medicinal Virtues.

BURSA TESTIUM. The Purse or Bag of the Testes. See **SCROTUM**.

BURSALIS MUSCULUS, *μὲν βοσκειδής*. The purse-like Muscle, a Name given to the *Musculus obturator internus femoris*. *Castellus*. See **MARSUPIALIS**.

BUSELINUM, *βουσελίον*. The common Daucus so call'd, the Word importing a large kind of *Apium*. *Blancard*.

BUSII SPIRITUS BEZOARTICUS. Bezoartic Spirit of *Busius*.

This Spirit takes its Name from its Inventor, *Busius*, an eminent Physician of *Dresden*; and the Medicine itself is of universal Use in *Saxony*, and well deserves our Notice; for it is a powerful Sudorific and Diuretic, with due Management; and is an excellent Antispasmodic, especially when mix'd with our anodyne Liquor (See **VITÆ BALSAMUM**). Besides, it recommends itself on account of its grateful Flavour, having nothing of a nauseous empyreumatic Smell.

The Foundation of the Preparation consists in mixing the volatile, urinous, and oily Spirits of Animals with highly rectify'd Spirits of Wine, and, with an Addition of balsamic Species, distilling them over a proper Fire; by which means we obtain a Spirit well impregnated with a volatile Salt, an empyreumatic Oil, and refinous, sulphureous, balsamic Particles, and of no unpleasant Smell and Taste. Tho' there are many different Preparations of this Spirit, our way of making it is as follows:

We take of Spirit of Ivory, saturated with a subtile Oil, and volatile Salt, about two Ounces; Sal Ammoniac, four Ounces; Pot-ash, first dissolv'd in Water, eleven Ounces; Amber, finely pulveriz'd, half a Pound; genuine Oil of Cedar, or of Juniper, half an Ounce: All these Ingredients, being exquisitely mix'd in a Glass Cucurbit, are to be distil'd in a Sand-heat, by which we extract a Spirit, endu'd with the aforesaid Virtues. A volatile Salt first rises in the Alembic, which is afterwards successively dissolv'd by the Spirit.

It is here to be observ'd, that the *Peruvian Balfam*, or the fresh Peel of Lemons or Oranges, or Juniper-berries, or any other balsamic and aromatic Powders, may be us'd instead of the Ingredients before-mention'd.

In the Process, a limpid Spirit, like Water, comes over; but the longer it is kept in a Vessel exposed to the Air, the more yellow it turns, till its Colour be heighten'd almost to a Redness. If the Glass be filled with this Spirit, and covered with the Stopple, it will continue clear, and suffer no Alteration of Colour; whence we are plainly taught, that the Cause of this Change is in the Air. And I am of Opinion, that the original, and most simple, Acid of the Air, which is of wonderful Virtue in exalting the Colour of Sulphur and Oil, concurs in this Alteration.

This Spirit abounds with an oily volatile Salt; for the more a volatile Salt is impregnated and intimately mix'd with an Oil, the more easily and readily it unites with highly rectify'd Spirit of Wine; and that Salt may immediately be precipitated from

BUT

from this Spirit, by mixing a few Drops of Oil of Vitriol with it, which produce a Coagulation and Precipitation of the Salt to the Bottom, where it firmly adheres to the Sides of the Glass. It is worthy our Observation, that this volatile Spirit of *Bussius* is endu'd with an almost incredible Virtue, in subverting and expelling all kinds of Acids, tho' never so strong; and these Effects are attended with different Circumstances and Events. Thus, if one Part of Spirit of Nitre, or Aqua-fortis, be pour'd to three Parts of this Spirit, all the Acidity is soon taken off, without any remarkable Ebullition, and nothing is precipitated to the Bottom; the Mixture acquires a mild nitrous Taste, and, being put into a Silver Spoon, and evaporated by the Heat of a Candle, leaves a Salt of an exquisitely nitrous Flavour. This Mixture also, on account of the volatile Nitre which it contains, is endu'd with excellent Medicinal Virtues; for, in acute Distempers, where volatile Medicines are of no Effect, because of the violent Motion and Effervescence of the Blood, this Spirit, mix'd with Spirit of Nitre, and render'd more temperate, gives all the Relief that can be wish'd, by gently carrying off the morbid Matter.

If this Spirit of *Bussius* be mix'd with Spirit of Salt strongly concentrated, there arises a greater Ebullition than in the former Case; but all the Acid is, in like manner, in a very short time, subdu'd, and the Liquor turns salt, which, in Disorders of the Stomach, where the Appetite is lost, may be given with Success, for dissolving viscid Crudities. When this Spirit is mix'd with distill'd Oil of Vitriol, there immediately arises an Effervescence, the Mixture becomes turbid, and all the volatile Salt is precipitated to the Bottom; the Taste of the Mixture has nothing of Acidity, but has a grateful Smell.

The Reason why there is a Concretion and Precipitation of the volatile Salt at the Mixture of concentrated Oil of Vitriol, but not with other Acids, seems to be as follows.

Oil of Vitriol, as being a very strong Acid, unites with inflammable Spirit of Wine, which is an oily Substance; hence the volatile Salt, which it contains, is precipitated; but, from other acid Spirits, which are weaker, and incapable of so intimate a Combination with the inflammable Spirit of Wine, there follows no Precipitation.

From these Experiments we may draw this Conclusion, which is very useful in Practice: That this Spirit, which abounds with an oily volatile Salt, may be given in large Doses, without Inconvenience, in Distempers, especially chronical ones, where a strong and copious Acid is lodg'd in the Sinuses of the Stomach and Intestines, and creates Disturbances in those Parts, as it does more remarkably in Hypochondriacal Affections. *Fred. Hoffman, Observ. Physico-chy.*

BUSTIA. Boil'd with Poison. *Rulandus.*

BUTEO, Offic. Jons. de Avib. 11. Charlt. Exer. 72. Gefin. de Avib. 39. Raii Ornith. 70. *Buteo vulgaris*, Will. Ornith. 29. *Buteo five triorchis*, Aldrov. Ornith. 1. 363. Bellon. des Oyse. 109. Mer. Pin. 171. *Buteo vulgaris five triorchis*, Raii Synop. A. 16. *Accipiter*, *Buteo*, Schw. A. 187. THE BUZZARD. *Dale.*

The Testicles of this Animal are only us'd for Medicinal Purposes.

A Decoction of them, with Spring-water and Honey, is said to prove a Stimulus to Venerly. *Dale from Johns.*

BUTIGA. An Inflation of the whole Face; call'd also *Gutta ruonia*, or *rubea*. *Rulandus.*

BUTLER, an *Irishman*, the Inventor of a Stone of wonderful Efficacy in the Cure of very dangerous Diseases, in a very speedy Manner; he is also said to have been excellent at making Gold out of Lead and Quicksilver. However, it is certain, that he was in great Esteem with our King *James I.* and *Van Helmont* did him the Honour to intitle one of his Tracts BUTLER, in which he relates several strange Cures perform'd, in all Appearance, by means of his Stone; particularly, that when Butler was a Prisoner in the Castle of *Vilvorden* in *Brabant*, he took Notice, one Evening, of one *Bailly*, a *Franciscan* Monk, and a very celebrated Preacher of *Bretagne* in *France*, who was his Fellow-prisoner, and had his Arm affected with a terrible Erysipelas; and, taking Pity of the Man, he took a small Stone, and hastily dip'd it in a Spoonful of Almond-milk, immediately taking it out again; then said to the Keeper, "Give this to that Monk, and, whether he takes more or less of it, within the Space of one Hour, at farthest, he shall be a sound Man." This actually came to pass, to the Astonishment of the Keeper, the Sick not knowing by what means he came to be so suddenly restor'd to his Health, or that he had taken any thing for that Purpose; but his Left Arm, which was swell'd to an immense Degree, immediately fell to such a Pitch as scarce to be distinguish'd from the other. The next Day, says *Helmont*, I came to *Vilvorden*, at the Request of some Persons of Quality, that I might be a Witness of these Actions, where I contracted a Friendship with Butler; and, soon after, observ'd an old Washer-woman, who, for about sixteen Years, had labour'd under an intolerable Hemicrania, cur'd in an Instant, while I was present. For he took the same

BUT

Stone, and carelessly dipp'd it in a Spoonful of Oil of Olives; then taking it out immediately, lick'd it dry, and put it into his Breast-pocket; the Spoonful of Oil he pour'd into a little Flaggon of the same Liquor, and then order'd only one Drop of it to be put upon the Head of the old Woman, who recover'd her Health that Moment, and has remain'd well from that Time, which is some Years ago. I could not help being vastly surpris'd; but he look'd at me with a smiling Countenance, and said, "My dear Friend, unless you can arrive to such a Degree as to be able to cure all Diseases with only one Remedy, you are still but a Novice in the Art, how many Years soever may have pass'd over your Head." I easily acquiesced in what he said, because I had learn'd as much from the *Arcana* of *Paracelsus*, and was further convinc'd of it by what I now saw, and expected to see; but this new Method of Curing, I freely confess'd, was utterly strange and unknown to me. I told him then, that there was a young Prince in our Court, Viscount *Ghent* by Title, and Brother to the Prince of *Episnoy*, who was so over-run with the Gout, that he was able to lie only on one Side, and was quite miserable, and deform'd with a Multitude of nodous Swellings. Says he, taking me by the Right Hand, "Are you willing that I should cure this young Prince? I will cure him for your sake." "But, said I, he is so stubborn, that he will rather die than take one Dose of Physic." "No matter, answer'd Butler; all I require of him is, only every Morning to touch this little Stone, which you see, with the Tip of his Tongue; for, after three Weeks from that Time, let him but wash the painful, and the not-painful Nodes with his own Urine, and, in a very short time, you shall see him upon his Feet, and a sound Man. Go, and tell him with Joy what I say." So I returned to *Brussels* with these glad Tidings, and told what Butler had said. The Nobleman answer'd, "Go tell Butler, that if he makes me sound, he shall have whatever he will ask; let him but name his Price, and I will freely deposit the same in Pledge for his Security." When I return'd to Butler the next Day with this News, it put him in a great Heat, and he said, "Your Prince is mad and miserable, for which Reason I shall never do him any Good; for I do not want his Money, but am as good as himself." Nor could I ever afterwards prevail with him to perform what he had promis'd. Wherefore I began to doubt whether what I had seen before ought not to be regarded as Things pass'd in a Dream. But it happen'd, some time after, that a Friend of Butler's, who was Master and Overseer of a Glass-house in *Antwerp*, and of a very gross Habit of Body, earnestly begg'd of Butler to be freed from the Burden of his Fat. Butler offer'd him a little Bit of his Stone to lick once; that is, to give it one quick Touch with the Tip of his Tongue every Morning; and, within three Weeks, I saw him shrunk a full Span at the Breast, and yet never the worse in Health. This Event inclin'd me to believe, that he could have made good his Promise, and perform'd a Cure upon the gouty Person before spoken of. But, in the mean time, finding myself poison'd by some secret Enemy, I sent to Butler, at *Vilvorden*, for a Remedy. I was in a very languishing Condition, pained in all my Joints, my Pulse beat double, (*dicrotus*) and, at last, was intermittent, attended with a Lipothymy, and an utter Decay of Strength. Butler, who was still a Prisoner, immediately order'd the Messenger, my Servant, to bring him a little Pot of Oil of Olives, and, dipping his Stone therein, as usual, sent the Oil to me, with Directions to put only one Drop of Oil upon one, at least, of the pained Parts, or one Drop upon each of them, if I pleas'd. I did according to his Orders, but receiv'd no Benefit thereby. In the mean time, my Enemy, being taken sick, and upon his Death-bed, sent to ask my Pardon for the Injury he had done me, and so confirm'd my Suspicion, that I was poison'd. I had then no more to do but to use the best means I could to put a Stop to the Operations of this slow-working Poison, and wholly to subdue it; and, by the Grace of God, I escap'd. But my Wife, for some Months, had been afflicted with a Pain in her Right Arm, so that she could not so much as lift her Hand, much less lift up a Weight, and, with Sorrow and Concern on my Account, contract'd at last a dangerous oedematous Tumor in both her Legs, which, by Degrees, extended itself from the Foot as high as the Groin, as appear'd from the Pits left by the Impression of the Fingers; and, because her Distemper was owing to Grief and Concern for my Troubles, she would take no Physic while her Sorrow lasted. In this Condition, my Wife finding that Butler's Oil had no Effect upon me, and being willing to pass a Joke upon my Credulity before some Ladies, put only one Drop of this Oil upon her Right Arm; the immediate Consequence of which was, contrary to all Hope, the Restoration of that Arm to its free Motion, and former Soundness. We were all struck with Wonder at so sudden and miraculous an Event, and she was encourag'd to anoint her Ankle-bones with the same Oil, on each of which she put only one Drop, drawing it round the Eminence of the Bone, and, within a Quarter of an Hour, the

the Œdema quite vanish'd, and she is still living in good Health, tho' nineteen Years are past since this extraordinary Event.

Van Helmont proceeds to relate two more such prodigious Cures; one perform'd on a Maid-servant of his, who, from an Erysipelas, which had thrice afflicted her, and been as often ill cur'd, had her Right Leg of a leaden Colour, and swell'd from the Knee to the Toes; the other was on a Widow Gentlewoman, who, for some Months, had not been able to lift her Hand.

After this, says *Helmont*, I ask'd *Butler* why so many Women could be suddenly cur'd, and I, who lay even at Death's Door, oppress'd with Pains in every Limb and Joint, could not receive the least Relief. He desir'd to know what was my Distemper, and, when he understood, that it was the Effect of Poison, he said, "That, since the Cause had betaken itself from the inward to the outward Parts, the Oil should have been taken, or the Stone dip'd; that Pain, internally confin'd and nourish'd, could not be topical or external." I observ'd also, says *Helmont*, that this Oil, by Degrees, lost its Efficacy; because the Stone, which was slightly dip'd therein, did not make a thorough Alteration in its Substance, but only imparted to it a Fragrancy, which in time went off. For this Stone, to the Sight, and on the Tongue, was like melted Sea-salt; and it is well known, that Salt cannot be intimately mix'd with Oil. *Butler* also cur'd an Abbess of sufficient Note, who, for eighteen Years, had her Right Arm swell'd, with a deprav'd Motion, with the Fingers extended and immoveable; and this only with a Touch of the Tongue upon the Stone. Multitudes of those who were Witnesses of these strange Events, presently suspected there must be some Witchcraft, or diabolical-Compact, in the Case; for it is usual with the Vulgar, and has been so of old, to refer those Events, in which they think it shameful to confess their Ignorance, to the cunning Wiles of evil Spirits. But I am not inclin'd to their Opinion, because the Remedies are supposed to be natural, and have nothing unusual besides the Quantity; for no Ceremonies, Words, nor any other suspected Thing, was requir'd. Nor, indeed, is it lawful, as far as human Understanding can perceive, to transfer the Glory of God, manifested in Nature, to an evil Spirit. For none of the Women, who were thus cur'd, ever consulted *Butler*, as one in the least suspected of Necromancy; and even his first Essays met with Laughter, instead of Faith and Confidence. However, the Facility and Celerity of such a way of Curing will, I know, remain suspected by many; for the fickle and lazy Disposition of the Vulgar, in arduous and unusual Events, prompts them to judge of all alike, because it is the easiest Way; and they had rather ascribe the Benefit of so great Cures to diabolical Deceit, than to the Divine Goodness, to the Author, Lover, Saviour, and Restorer of human Nature, and the Father of the Poor. And, in this vain and weak Opinion, they are follow'd by those among the Learned, who take a wrong Method of investigating the first Principles of curing Diseases, who are not yet instructed, or observe the common foolish Rules. *Helmont*.

These Relations, strange as they are, Mr. *Boyle* seems not to disbelieve. He tells us, That a Gentleman in France was reported to have some Portion of this Stone, and to have cured several inveterate Diseases, by suffering the Patients to lick it; and Sir *Kenelm Digby*, upon Inquiry when in France, found no Reason to disbelieve these Reports. He farther says, That *Helmont's* Widow, many Years after her Husband's Decease, confirm'd to a Friend of his the Story told above relating to herself. These Particulars, adds he, receive Confirmation from two remarkable Circumstances; for, first, *Helmont* is the more to be credited here, because he mentions Cures not perform'd by himself, but by a second Person, and that too with Remedies unknown to him. Secondly, our famous Countryman Dr. *Higgins*, who lived familiarly in the same House with *Butler*, gives a strange Attestation to his Secrets.

BUTOMUS, Offic. Mont. Ind. 65. Cæs. 553. Raii Synop. 3. 273. Elem. Bot. 235. *Butomus flore roseo*, Tourn. Inst. 271. Boerh. Ind. A. 299. Buxb. 49. Rupp. Flor. Jen. 124. Dill. Cat. Giff. 97. *Funcus floridus*, J. B. 2. 524. Park. Theat. 1197. Raii Hist. 1. 701. *Funcus floridus paludosus*, Chab. 198. *Gladiolus palustris Cordi*, WATER GLADIOL, Ger. 27. Emac. 29. Mer. Pin. 46. *Gladiolus aquaticus sive palustris Cordi*, Merc. Bot. 1. 38. Phyt. Brit. 47. *Sedo affinis juncoides umbellata palustris*, Hist. Oxon. 3. 468. WATER GLADIOLA.

It has two Roots; the more slender and black of which descends, whilst the thicker spreads itself transversely almost at the Surface of the Earth, with some Shoots, and many Fibres, adhering to it. The Roots have a sweetish Taste, and are glutinous in the Mouth. The thicker Root is, in my Opinion, the last formed Part of the Root, and of one Year's Growth only. As this Root grows, it sends out Leaves above, and thrusts large white Fibres downwards. It raises many soft Leaves with a spongy or porous Medulla; and these Leaves are triangular, long, concave at their Origins, and embracing some

Part of the Stalk with membranous Appendices; but they are more flat towards their Points. The Stalk is two Cubits and more in Length. It is round, smooth, and spongy, but not concave; bare of Leaves; and on its Top bears several Flowers disposed in the Form of an Umbel, and supported by slender naked Pedicles, about half a Handbreadth in Length. The Flowers are hexapetalous, and of a carnation Colour, somewhat inclining to Purple. The three exterior Petals are carinated and largest, and seem to belong to the Calyx; but the three interior ones are less. The small seminal Vessel consists of six purple-coloured Capsulas, corniculated at the Top, and containing within them very small Seed. About nine Stamina surround this Seed-vessel in the Middle of the Flower. These Stamina are furnished sometimes with long purple Apices, and sometimes with shorter. They stain the Fingers of those who handle them with a yellowish Kind of Powder. Three remarkable acute small Leaves stand round the Basis of the Umbel.

- According to *Cordus*, it grows in fat, slimy, and moist Places, which are overflow'd by Rivers. With us it is, for the most part, found in the Channels of Rivers among the Mud near the Edges. *Raii Hist. Plant.*

It flowers in June, and the Herb is only in Use.

It is of an aperient and deobstruent Quality. *Dale*, from *Josephus Monti*.

BUTYRUM, βούτυρον, or βούτυρον. Butter, from βύς, an Ox, or Cow; and τυρός, Coagulation of Milk, or Cheese.

Good Butter is made of the fattest Milk, such as that of Sheep; it is also made of Goat's-milk, by stirring it in a Vessel, till the pinguious Part be separated.

It is of a mollifying Nature, and has the Qualities of Oil; hence taken in large Quantities it loosens the Belly, and is used as an Antidote against Poison, where Oil cannot be had. Mixed with Honey for a Litus it promotes Breeding of Teeth, and cures Itching of the Gums, and the Aphthæ of Infants. Outwardly used it renders the Body smooth and florid, and free from Psudraeia [little pustulous Eminences]. Provided it be neither old, nor contract a rank Smell, it is effectual also in Inflammations and Hardnesses of the Uterus. It is also administer'd in Clysters for a Dysentery, and Ulcerations of the Colon. It is an useful Ingredient in suppuratory Medicines, and especially in Wounds of the Nerves, Meninx, Bladder, and Neck. Moreover it fills, cleanses, and incarns; and is apply'd with Success to the Bite of an Asp. While recent, it serves with Meats instead of Oil, and for Pastry instead of Fat.

They collect the Soot from Butter in the following manner:

They pour Butter into a new Lamp, and setting it on Fire, cover it with an earthen Vessel, made like a Tube, which is narrow in its upper Part, and perforated at the Bottom with Holes like an Oven [καίσαρον]; there they let it burn; and as soon as it is consumed pour more Butter, and continue so to do, till they have obtained as much Soot as they please; after which they take it off with a Feather, and apply it to a proper Use.

It is a serviceable Ingredient in Medicines for the Eyes, being of a drying and astringent Quality. It stops Defluxions, and brings Ulcers speedily to cicatrize. *Dioscorides*, Lib. 2. Cap. 81.

Hippocrates, in his fourth Book de Morbis, informs us, that the Scythians make Butter of Mares Milk.

There are as many Sorts of Butter, as there are different Milks of Animals whereof to make it; that of the Cow is most in Use. You are to make Choice of that which is fresh, of a good and pleasant Taste, such as has been well made; but May Butter is esteem'd the best.

Butter is nourishing and pectoral; it opens the Body, allays the Sharpness of corrosive Poisons, is of a dissolving and digesting Nature, and good to ease Pains, and remove Inflammations. It is used in Clysters against bloody Stools, and the Dysentery. They rub the Gums of Children with it, in order to their Breeding of Teeth the easier.

The too frequent Use of Butter relaxes and debilitates the Stomach, takes away the Appetite, provokes Reachings to Vomit, and heats much, especially if it be old.

Butter contains much Oil, and a little volatile Salt.

It agrees at all times with any Age and Constitution; those, however, who have a weak Stomach, ought to use it moderately, as well as young People of a hot and bilious Nature, because it inflames, and in these last easily turns into Choler.

Butter is nothing but the Cream of Milk, or the fattest and most oily Part thereof, which is separated from the Serum or Whey by Churning; the more fat or oily Parts the Milk contains, the more Butter it yields; and therefore you have more from Cows Milk than any other.

Every body knows, that Butter is used every-where; and there is hardly any Sauce made without it. The Northern People make more use of it than any; and 'tis pretended, that 'tis Butter which makes them look so fresh and well.

BUT

The newer Butter is, the more pleasant and wholesome you will find it; and the Reason is, because its oily and saline Principles are then strictly united together; whereas, on the other hand, when Butter is a little too old, it has undergone a sort of internal Fermentation; which has exalted and disengaged these same Principles, which makes it a little sharp, and, at the same time, oily and unpleasant. Now, in order to prevent this Fermentation, and the better to make the Butter keep, they salt it; and the Acid of the Salt preserves its Texture.

The good Effects produced by Butter proceed from its oily and balsamic Principles, which are proper to restore the solid Parts of the Body, by sticking to them; to qualify and embarrass the sharp Humours they meet with, and several other the like Uses. When they use Butter to Excess, these same Principles so much moisten the Fibres of the Stomach, that they lose their elastic Virtue.

Lastly, it is observed, that Butter used immoderately heats much; and the Reason is, because the oily and fat Parts where-with it abounds are easily inflamed; and therefore this is not good Food for bilious Constitutions.

Buttermilk is a kind of Serum that remains behind, after the Butter is made. It is very cool and moistening. *Lemery on Foods.*

Butter, by the Texture and Nature of its Substance, tends to relax the Solids, and supplies the Juices with Particles light and adhesive. Upon the first Account it may be good in dry and costive Constitutions; but must be hurtful in lax, moist, and corpulent ones. By the Levity and Tenacity of its Parts, it is also very subject to stop in the Glands and Capillaries, whereby it fouls the Viscera, but particularly the small Glands of the Skin; hence it is subject to produce Blotches, and all cutaneous Deformities. And this Opinion is much confirm'd by the Experience of all whose Business has made them conversant with young Children, they having much of this in their Diet, whereby they have been observ'd to grow weakly, corpulent, big-belly'd, and very subject to Breakings-out, and to breed Lice, and such-like Uncleanlinesses; but upon restraining them from it, without any other visible Means, they have outgrown all those Inconveniences. *Quincy.*

Boerhaave, speaking of express'd Vegetable Oils, thus mentions their bad Qualities, and compares them with Butter.

These Oils have one strange Property, whereby, with the Heat only of seventy Degrees, they presently degenerate, without any foreign Body being mixed with them, and thus become thin, sharp, bitter, rancid, yellow, corrosive, and inflammatory; whereas they were before thick, mild, sweet, almost insipid, white, anodyne, and relaxing. And these surprising Changes happen in a few Days in the Summer's Heat. Is it not therefore strange, that fresh-drawn Oil of Almonds should prove healing and suppling to the parched rough Mouth and Jaws in the Quinsy, and the same Oil in a few Days afterwards suddenly inflame the Jaws of a Person in Health? And the sweeter it was when fresh, the sharper it proves when old and rancid. Hence Almonds, Walnuts, and Pistachos, become exceedingly nauseous when rancid, and subject to occasion a sudden Quinsy in the Throat, and excite a Fever, through the burning Effect they have upon the Mouth, Throat, Stomach, and Intestines. Physicians, therefore, should be cautious when they order Oil of Almonds in acute Distempers, that it be fresh-drawn from Almonds that were not rancid; and, in the Heat of Summer, not kept above twenty-four Hours. The same thing is also found in Butter, Animal Fat, Bacon, Marrow, and the more perfect Oils hereof; all which, though innocent when fresh, become highly nauseous by standing unsalted in a hot Air, where they turn yellow, blue, or green, become rank, corrosive, and fatal in the Plague. Thus a great Acrimony is sometimes found in Cheese that has been long kept, whereby I have seen the whole Mouth violently inflamed. Whence we may easily conceive what Effects it may have upon the Viscera. It is an obvious Experiment, that Oil, by boiling, will soon turn yellow, red, black, bitter, sharp, and unwholesome. And this shews us how Oils may in six Hours time become extremely bitter in the Stomach; and, when vomited up, be erroneously taken for the Bile; for this Matter takes Flame at the Fire. These Observations upon the Nature of Oil may lead us to understand many Particulars in Natural, Medicinal, Pharmaceutical, and Culinary History. *Boerhaave.*

Buttermilk is esteemed an excellent Food, in the Spring especially, and is particularly recommended for Hectic Fevers.

Butter has been recommended as an excellent Application for the Teeth, in order to make them white.

In the Edition of *Schookins de Aversatione Casei*, printed at Groningen 1664. 12mo. there is a Treatise expressly upon Butter.

The Chymists have several Preparations which they style Butters; as the Butter of Antimony, the Butter of Arsenic, the Butter of Wax, the Butter of Lead, and the Butter of Tin.

The Process for making the Butter of Antimony is describ'd under the Article ANTIMONIUM.

VOL. I.

BUX

BUTYRUM ARSENICI, *Butter of Arsenic*, is thus prepar'd:

Take of Arsenic, and corrosive Sublimate, equal Parts; reduce them to a Powder; and after mixing them, put them into a Glass Retort plac'd in a Sand-heat; adapt a proper Receiver to the Retort; and having luted the Joins, distil by a small Fire a Butter-like Liquor resembling the Butter of Antimony. When no more of this Liquor can be obtained, take away the Receiver, and in its Place put another full of Water; augment the Fire, and you will see the Mercury descend in the Water, Drop by Drop. Continue the Distillation till no more can be obtained.

This Mercury, when sufficiently wash'd and dry'd, may be used for all the Purposes to which other Mercury is apply'd.

The *Butter of Arsenic* is a very strong Caustic, and produces an Eschar sooner than the *Butter of Antimony*.

REMARKS.

In this Operation the same thing happens as in the Operation for obtaining the Butter of Antimony; which is, that the Spirits of the corrosive Sublimate quit the Mercury, in order to unite with the Arsenic, which they carry along with them in a gummy Liquor. The Mercury being afterwards disengaged, and not finding Sulphur for fixing itself, it comes over in Vapour, and is condensed in the Water. *Lemery Cours de Chymie.*

BUTYRUM STANNI is thus made.

Put a Mixture of one Part of Tin, and three Parts of corrosive Sublimate, both reduc'd to Powder, into a Retort; and by the same Process used for obtaining the Butter of Antimony, we shall have the Butter of Tin, which is a thick Liquor, and has this peculiar to it, that it fumes perpetually. *Lemery Cours de Chymie.*

BUTYRUM CERÆ. See CERA.

BUTYRUM SATURNI. See SATURNUS.

BUXTON. A Place in the Peak of *Derbyshire*, celebrated for warm Medicinal Waters, the hottest in *England* next to *Bath*. As I have not had an Opportunity of examining these Waters accurately myself, I must give the fullest Account I can meet with, which is that of *Dr. Short*, who begins properly enough with an Account of the usual Strata of Earth and Minerals, in the adjacent Parts.

In the Coal-pits, a Mile and an half South-west of *Buxton*, the Strata of Earth lie thus: First, Peat-moss; then blue Clay; then Shale full of Marcasites of Iron, and Iron-stone; then sundry Beds of Iron-stone; last of all a Seam of Coal, five Feet thick, mixt with much Sulphur and Brasil, several Lumps of Ocre and Rubric; this Seam of Coal dips a Yard in three; its upper Part is very soft, open in its Texture, and fit only for burning of Lime-stone; its lowest Part is harder, though still a very indifferent Coal, which melts on the Fire, and is form'd into a Cake; sometimes a Vein of Lead an Inch thick crosses the Coal. It is more beautiful than other Ore, and sparkles like fined Silver; but bring it to the smelting Furnace, and you have little besides Sulphur; the Acid of the Coal having consumed the Lead till it reach its kindly Soil the Lime-stone and Greet-stone below the Coal. Fifty Yards below the Surface of the Ground is a strong thick Bed of blue Clay, whose upper Part is of a deep Ocre, or reddish Colour, full of black Lumps like rusty Iron, which, put into Aqua fortis, raise neither Heat nor Fermentation; but in a little time several small Bubbles rise, and the Liquor turns green, which is occasioned by a Dissolution of the Copper contained in it; all the Water in the Coal-pits is very cold; nor can Lime-stone and Coal consist together.

The Strata of Earths in the Lead Mines next to *Buxton* are first a thick-set fine Turf, a Foot and an half deep; then betwixt a Sand and a red Clay, or a reddish sandy Clay, or a hard Soil, half a Yard thick; thirdly, brown Clay, from half a Yard to two Yards thick; fourthly, fine white Sand, half a Yard thick; fifthly, a very hard Rock of white Lime-stone, two Fathoms thick; sixthly, redder Sand, from ten to twenty Fathoms; this is of a hard Substance, and accompanies the Ore; seventhly, a black Lime-stone, from six to eight Yards thick; then they come to the same Sand as before, if there is Ore; but if no Ore, there is a reddish-yellow Bed of Clay, of the Nature of Marl. If they pursue this through the Clay, they come to a yellow Sand with Ore. These Strata lying in several degrees of Thickness, are from sixteen to eighty Fathoms deep: Here is very much white Spar, but none of the green nor yellow; it breaks into Rhomboids. If this be without a Lime-stone, there is very little or no Ore. But if under the Lime-stone Clay appears, the Vein is said to be out, and there remain no more Hopes of Ore, except they soon find the Lime-stone again below the Clay. Most of the Ore lies in Cauce-stone three or four

Feet thick. Here is very little Shale or *Brasils*: Where a Chink happens between the Greet-stone and Lime-stone, it is fill'd up with Petrefactions, between a yellow and a white Colour, and very hard, as Spar. The Workmen, afraid of Damps, are always well provided with Drifts or Levels, that they may be supplied with fresh Air, which, causing a free Ventilation, prevents both the Stagnation of the Air, and a Collection of Sulphur, which might be fired with the Candles. The Lime-stone, in working, smells strong of Sulphur; and their Blasts, (which are Bores made in the Stones, fill'd with Powder, and blown up) being so very strong of Sulphur, extinguish the Smell of the Gun-powder. They have here Spar-ore and Cauke-ore; the last is much the richest. In digging for Stone near the warm Waters, you find several surprising Masses of mix'd Minerals, as tho' they had been artfully melted together, as of Lime-stone, Iron-stone, and Copper-ore, of Sulphur, Iron-ore, of Lead-ore, Iron-sulphur, and Lime-stone.

The warm Waters, which I have observed there at present, are, first, the Bath, which takes in several warm Springs. Thirty-two Yards and a half North-east of it, is *St. Anne's Well*, which is chiefly supplied from a Spring on its North-side, rising out of a Rock of black Lime-stone, or Bastard Marble, under a shelving Stone laid so on Purpose. Twenty Yards South-east of *St. Anne's*, in another Close, is a hot and cold Spring, both rising up into the same Receptacle. About sixty-three Yards, South and South-east of *St. Anne's*, in the same Close with the hot and cold Spring, is *Bingham Well*, ordinarily call'd *Mr. Leigh's Water*, a worthy Gentleman seven Miles distant, who has made this Spring his Favourite for several Years, and reap'd great Benefit by it. A little Way, East of this, on the East-side of a Stone Wall, is another small flow hot Spring, which mixes with a beautiful purling cold Spring, that rises up close by it. Another plentiful warm Spring rises up in the Stream of the Level, that carries the Water from the Bath: This is thirty-four Yards East of *St. Anne's*. Four Yards farther East, on the South-side of this Stream, rise two or three other warm Springs.

Bingham, or *Mr. Leigh's*, Well is a very strong Spring, rising out of the black Lime-stone, in a very dry Ground; sometimes it throws forth six times more Water than at other times. October 6. 1732. after much Rain, both on that and the preceding Day, this Spring threw forth a prodigious Quantity of Water, whose Warmth raised the Spirits in the Thermometer only four Inches and six Eighths in the Forenoon; but it fell yet half an Inch lower in the Afternoon. But *St. Anne's Well* raised the Spirits five Inches above *Bingham Well*; but the small Spring beyond the last, lost very little of its Heat: So that *Bingham Well* is rather an uncertain than perennial Spring. But the above two Springs never alter by Vicissitudes of Weather, or Seasons; nor yet that Spring which rises up in the Canal from the Bath, all which three boil up with an impetuous Force in large Bubbles of heated Air, which break on the Surface. I tried these Waters with the Hydrostatical Balance, by immersing the Glass Bubble, whose Bulk was equal to the Bulk of fifteen Drams and a half of common Water, that is, one eighth Part of fifteen Ounces and a half. I found several Variations; for, certainly, to try the Weight of Water, is the most difficult and uncertain Experiment that attends a strict Examination of Waters; it is never a whole Day the same exactly, but differs according to the Expansion or Condensation of the Air in them, the Quantity of Water contain'd in the subterraneous Channels, the Rapidity or Slowness of its Motion, whereby it brings more or less foreign Matters along with it, its Stagnation, and some other Circumstances. September 15. being a very clear hot Day, with a small Breeze of Wind, till Two o'Clock of the Afternoon, then, at Three o'Clock, Thunder, Lightning, and a prodigious hot sultry Air, *St. Anne's* and *Bingham Well* weigh'd three Grains and a half lighter than the River-water; that is, near twenty-nine Grains in a Pint; the Bath was four Grains lighter than these, that is, thirty-three Grains in a Pint. I put some of each of those Waters into three different Glasses, set them into the Air-pump, exhausted the Air out of the Receiver; but scarce had we the least Bubble, only it was whitish, as if a little Flour had been mix'd with it; and tho' I made what haste I could, lest the Water should cool in the Bath-room, yet it weigh'd two Grains heavier when I had done, that is, sixteen Grains in a Pint. March 17. early in the Morning, being a hard Frost, strong East Wind, and some Hail, I made a fresh Trial, and the Bath was seven Grains lighter than the River-water, that is, near fifty-eight Grains in a Pint. *St. Anne's* and *Bingham* were each six Grains lighter than the River, that is, about forty-nine Grains lighter than common Water, and nine Grains in a Pint heavier than the Bath.

April 17. the Air being pretty temperate, the last two weighed only four Grains and a half lighter than common Water, that is, thirty-six Grains in a Pint. I took up a Pot of each of those Waters, and a Pot of common Water, set them upon a Table in my Room, that they might be of an exact

Temperature; next Morning all three weighed a Grain and a half lighter; the last, when taken up, and allow'd to stand still, it settled, and let fall all its grosser Parts; being heated to the same Degree of Warmth with the Bath, both were nearly of the same Weight.

As to the Warmth of these Waters, I took a Thermometer whose Tube was fifteen Inches long, and the Diameter of its Bore one Twenty-third of an Inch, and fill'd it only so high with Spirits, that on the fifteenth of September, (as above) when the Thermometer was set in *Buxton River*, the Spirits were two Inches and one Fourth above the Ball. This Tube being set in the Bath one Quarter of an Hour, the Spirits rose four Inches and six Eighths higher, that is, to seven Inches. *St. Anne's Well* brought the Spirits down one Fourth of an Inch in the Tube; *Bingham Well* brought them still five Eighths of an Inch lower. On the same Evening the Sky clear'd again, and all East, North-east, and North-west, up to the Zenith, was cover'd with *Aurora Boreales*, or Streamers, the Air at the same time being very calm: Next Morning there was a gentle Frost, and the Spirits in the Thermometer were only one Inch above the Ball, that is, one Inch and one Fourth lower in the Tube than they were the Day before. I set the Thermometer in the Bath-room for half an Hour, and the Steam raised the Spirits one Inch and seven Eighths higher: Then I set them in the Bath-room for half an Hour, upon which the Steam raised the Spirits one Inch and seven Eighths higher: Then I set them in the Bath for thirty-five Minutes, and they mounted up to the same Height they were the Day before. December 27. 1733. being, perhaps, the coldest Day that has been known in England this Age, (for a strong North Wind blow'd, and the clear Frost was so violent, that in seven Hours time the Ice bore Horse and Rider, tho' it rain'd and snow'd the Night before, till Two o'Clock in the Morning) the Spirits in the common Thermometers were at excessive Cold, tho' the Glass, I observed, hung in a Stair-case between two Rooms, with continual great Fires, and the Door of one Room was never shut, nor was there any outer Door near. The Spirits in my small Thermometer were more, within the Ball, than would fill an Inch of the Tube: Both Thermometers being set in a Pitcher of River-water that Moment taken up where the River was most frozen, the Spirits in the first Thermometer presently rose six Minutes or Degrees, and those in mine just fill'd the Ball. Three Fourths of a Pint of boiling Water, put to three Pints of this River-water, raised the Spirits in my Thermometer to the exact Height that *Buxton River* did, on September 15. and one Pint and a Quarter more of boiling Water, being added, brought it just to the Warmth of *Buxton Bath*; that is, it raised the Spirits in the Thermometer to the very same Height. So that I take these two for the great Extremes of Cold and Heat, all the rest being intermediate Degrees. January 10. being cloudy Weather, sharp Frost, and some Snow, the Spirits in my Thermometer fill'd not the Ball: I put it into *Bingham Well*, and the Spirits rose a little above the sixth Inch; but being removed thence into *St. Anne's Well*, they ascended one Eighth above the seventh Inch; and when carried thence, and set in the Bath, they rose to seven Inches five Eighths, and there stopp'd. May 27. being a very stormy Day, with a raging Wind, and great Rain, I tried two new Thermometers with fresh Spirits; the Bore of the larger Tube was one Twenty-third of an Inch, that of the lesser was one Twenty-seventh of an Inch: I put both in the River, which was then in a Flood; the Spirits in the smaller were hid within the Ball, those in the larger were one Inch and three Eighths above the Ball: I removed both into the small Spring beyond *Bingham Well*; upon which the Spirits in the small Tube rose eight Inches, and those in the larger Bore seven Inches, that is, to eight Inches three Eighths. When both were taken out of this, and put in *Bingham Well*, the Spirits in the smaller Bore rose to eleven Inches, and those in the larger to nine Inches; but when both of them were set in *St. Anne's Well*, the Spirits in the smaller Tube rose to fourteen Inches five Eighths; and when both were put into the Spring beyond the hot Bed, which rises up in the Level that carries the Water from the Bath, the Spirits in both Thermometers rose one Eighth. I carried them thence, and set them in the Bath; upon which the small Bore rose to fourteen Inches three Eighths; with this last I stripp'd, and went into the Bath, and put it upon the Spring at Bottom, next the Pump, and it rose to fourteen and a half: Then I removed it into the second Spring, which rises out of the black Rock, and it yet ascended one Sixth of an Inch higher; but here the Tube being but sixteen Inches long, the Air above the Spirits was compress'd into so narrow a Compass, that its Resistance was too forcible for the Ascent of the Spirits. Then I suspended the Spirits upon the Surface of the Bath, and the Spirits fell down to fourteen Inches one Tenth; so that, when the Bath is full, the second Spring is a one hundred and seventeenth Part warmer than the first, even in this whole Mixture of Water; and the Bottom of the Bath is one fifty-sixth Part warmer than its Surface. It is pleasantly surprising to stand in the full Bath, and see the Ex-

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halation of the compress'd and rarefied Air, and sulphureous Steam, continually playing on the Surface of the Water; like the Transition of the fiery Particles in scalding Water before it boil, and is yet calm and clear; or just as if a Cloud of small Flies were rising up, whose Feet raised a small, but general, turbid Motion on the Top of the Water: Common Water, when made of the same Warmth with that of the Bath, during the first thirty Minutes, cool'd faster than that of the Bath by an hundred and twelfth Part; but, after that, the Bath-water cool'd sooner by an hundred and eleventh Part.

Neither Dr. Lister, Sir John Floyer, Dr. Leigh, nor Allen, in their treating of these Waters, have once attempted to give us the Quantity of Water these Springs throw out in any given Time. This I endeavour'd to satisfy myself in, and I find it as follows: St. Anne's Well throws out three hundred and ninety Gallons of Water in an Hour, or nine thousand three hundred and sixty Gallons in a natural Day and Night, or three millions four hundred sixteen thousand and four hundred Gallons in a Year.

Bingham Well varies in its Stream, being sometimes higher, sometimes lower; but when I examin'd it, in a great Drought, it discharged seventeen hundred and fifty-eight Gallons of Water in an Hour. Six Quarts of this Water, exhaled, left thirty-three Grains of Sediment, twenty whereof were salt: So that this Spring sends out thirteen millions six hundred and forty-seven thousand one hundred and eighty Gallons of Water in a Year, which carries in it forty-eight thousand three hundred and sixty-eight Pound of fix'd Sediment; near two Thirds of which being salt, it must of course afford thirty-two thousand two hundred forty-five Pounds five Ounces two Drams and two Scruples of Salt in that Time; the rest is Earth, besides a Fragment of twelve Ounces and a half of Sediment. The little Well of warm Water, thirteen Yards East of Bingham Well, affords seventy-eight Gallons and a half of warm Water in an Hour, or six hundred eighty-seven thousand six hundred and sixty in a Year.

All these four warm Springs together throw forth, in a Year, ninety-seven millions six hundred and eighty-one thousand eight hundred and sixty Gallons of Water; besides the waste Water that gets out of the Bath, and the strong Spring rising up in the Middle of the Bath-level, beyond St. Anne's Well, and the warm Water which rises up in the hot and cold Spring; and lastly, the two small warm Springs which rise up in the low Ground, between the hot and cold Spring, and the large Spring in the *Sough*, with several other Outings of warm Water in sundry other Places; so that the Whole, added together, will be near double this Computation.

All these Waters brighten the Solution of Gold; and first make the Solution of Silver white, then turbid; after which it lets fall a large white Sediment. They turn Solution of Iron and Mercury yellow. Solution of Sublimate turns them first of a faint Pearl Colour, and clear; but, by long standing, they become muddy and blackish. They presently become white by Solution of Sugar of Lead, and then let fall a large Sediment. Oil of Tartar makes them first of a bluish White; and, in one Night and a Day, you have a Sediment of the same Colour, half an Inch high. Spirit of Vitriol, and the Oils of Salt and Sulphur, turn the Water rather clearer and finer, tho' they raise a visible intestine Commotion, and the Sides of the Glasses hang full of Air-bubbles. Spirits of Hartshorn, or Sal Ammoniac, change it to a whitish Clear; and, upon standing twenty-four Hours, leave a small Sediment like Wool or Cotton. Syrup of Violets made it first blue, then greenish. Syrup of Cloves made it of a whitish Blue, and muddy; Tincture of Fustic, of a pale Sack Colour; Tincture of Logwood, of a beautiful Red; Tincture of Galls, of a muddy yellowish Colour, which in four Days time turn'd green. Green Tea alter'd it not. Tincture of red Roses gave it a Brandy Colour. Rum, Brandy, Balaustian Flowers, Pomegranate-peel, and Oak-leaves, produced no Change in it.

The Water of Bingham Well, upon being mix'd with the aforesaid Ingredients separately, in sundry Glasses, and allow'd to stand all Night, next Morning that Portion mix'd with Solution of Silver was of a Pearl Colour, clear at Top, and let fall a large Sediment. With Tincture of Rhubarb it assumed a yellowish-brown Colour. With Solution of Sublimate the Liquor remain'd clear, but the Sides and Bottom of the Glass were blackish. With Spirits of Hartshorn it was changed into a bluish Green. With Tincture of Fustic it became yellowish. With Tincture of Brazil it was changed into a light faint Red. With Tincture of Logwood it assumed a deep reddish-brown Colour. With Tincture of Galls a deep purple Scum appear'd on its Surface; it was yellowish in the Middle, and of a bluish Pearl Colour at Top and Bottom. With French Brandy it was clear, but darker than common Water.

The Differences between this and St. Anne's Well were very small; the former made Solution of Silver of a bluer White, and afterwards of a more purple Colour, than the latter. It also retain'd its reddish Colour longer with Syrup of Cloves; it let fall more Sediment with Solution of Lead; and its Sedi-

ment, left after Exhalation, was more pungent and saline, and at the same time very white. Eleven Quarts of it, at another time, left thirty-three Grains of Sediment; twenty-four of which were a white Salt, which changed Syrup of Violets to a beautiful light-green Colour; but the Salt of St. Anne's Well made little Alteration upon it. The former also turn'd Solution of Sublimate a little Orange-colour'd; and, mix'd with Sal Ammoniac, sent forth an urinous Smell. It crackled a little on a red-hot Iron, but did not swell much. It fermented strongly with Acids, but not with Alkalies.

Bingham Well-water being fetch'd sixteen Miles, and kept five Nights, I compar'd it with common Pipe-water, which had stood two Nights in a Leaden Cistern. Tincture of Rhubarb turn'd common Water of a light-yellow Colour; but Bingham Water was by it changed into a reddish, or reddish-brown Colour. Solution of Sublimate changed not common Water, but produced a Pellicle on its Surface of a Red, Blue, and Yellow, according to the various Directions of the Rays of Light. Bingham Water became whitish, and had a Scum of Yellow, Red, Green, and Blue. Oil of Tartar made no Alteration on this common Water; but the other was first white, then curdled, and deposited large and whiter Flakes at the Sides and Bottom of the Glass. The acid Spirits raised a greater intestine Motion, and more Bubbles, in the Mineral Water than in the other. Spirits of Hartshorn had no Effect on the latter, but changed the other white, which became also greener with Syrup of Violets than the common Water. After standing four Days longer, Tincture of Brazil Wood had turn'd the Bingham Water of a deeper Red than the other; and Tincture of Galls and Sumach had changed the former green throughout. Solution of Silver had made it of a light Purple, but the common Water was a pale Pearl Colour.

When I had kept the Bath-water, that of Bingham Well, and that of the hot and cold Spring, for a long time, then, with Tincture of Nephritic Wood, they all became whitish first, then pale, lastly curdled, and became green. The second of these, with Solution of Silver, was reddish; but soon chang'd to a Pearl Colour. With Tincture of Galls, both it and the third were first of a muddy Clay Colour, then of a Leaden Colour, and cover'd with a variegated Scum; but that of the Bath, with Tincture of Sumach, became wholly green in five Days. Syrup of Violets turn'd Bingham Well very green in two Days.

I exhaled each of those Waters several times, and always found some Difference in the Quantity, but never in the Nature of their Sediments, which was always the same: The former, that is, the Quantity, was varied, sometimes by the Water, sometimes by the Fire, and sometimes by the Vessel. Not only the Sediment, but also the Salts, fermented with Oil of Vitriol; they also crackled in the Fire, and swell'd a little. But, finally, to be satisfied of both their Kind and Proportions, I set them to crystallize: The Bath-water afforded both Sea-salt and Nitre, but most of the former. The Salts of St. Anne's Well were the same in Kind, only they yielded more Nitre than that of the Bath. Bingham Well-water contains most Nitre of any of them, and less Marine-salt. I took the Crystals of Nitre from the Marine-salt, dissolved them, and set them to project into regular Crystals, that I might obtain their true Figures.

From the preceding History we draw the following Observations:

That tho' there is Plenty of Ocre, Iron-stone, and Sulphur, in the Coal-pits here, which are generally reputed the Cause of hot Springs; yet the Water is so far from being warm, that it is intensely cold; so that, in order to cause Warmth, there must either be some other Materials, or there is a Mixture of other Ingredients, which prevent their Effect in warming the Water; or these Ingredients are mix'd in undue Proportions.

Again, since we find the Veins of Lead, crossing the Coal, corroded, it is plain, that Vitriol acts upon and consumes Lead as well as other Metals.

Since Lime-stone and Coal cannot agree, we see, that the alkaline Earth of the former is as hurtful to the Acid of the latter, as this Acid is prejudicial to Lime-stone; for, that it is not the Nitre in the Lime-stone that is hurtful to the Coal, appears from this, that most of the Chalybeate or Vitriolic Waters contain also a fix'd Nitre.

However homogeneous Buxton Waters may appear, or however similar in their Nature to common Water, in all other respects, besides their greater Heat; yet seeing several of the above-mention'd tincturing Ingredients, produced in them Phenomena differing from those produced in common Water by them, it must therefore contain some other Principles than those of common Water.

Tho' it cannot be denied, that this Water has a Mixture of different Principles; yet seeing it is still eight or ten Grains in a Pint lighter, when cold, than common Water, this shews, that it has fewer earthy or other gross Parts in it than River-water.

Since common Water, made equally hot with *Buxton* Bath-water, cools sooner at first, but slower than it toward the latter End, *Buxton* Mineral Water must of course either have less gross and foreign Matter in it, or this Matter must exist in smaller Particles in the Water, and so give less Resistance to the flying off of the less rarefied Particles of Heat.

Seeing *Buxton* Water is so much lighter and warmer than common Water, before it has received any culinary or artificial Fire into its Pores, to rarefy the Air contain'd in it, it is plain, it brings something along with it, which is equivalent to the fiery Particles in heated Water; which being occasion'd by this Water's washing Mixtures of several Minerals in its Course, we shall therefore call that a Mineral Vapour.

Since this Water washes so many Ingredients abounding with Sulphur, and since we find, that even gross Sulphur, by the Mediation of Lime-stone, communicates some of its Parts to Water; and also seeing there is constantly such a visible sulphureous Halitus upon the Surface of *Buxton* Water; it is reasonable to think, that this Water, whilst warm, is impregnated with a sulphureous Steam or Vapour, as one Part of its Mineral Spirit.

From the whole Processes and Experiments made on *Buxton* Waters, it is plain, that the Minerals, warming and impregnating these several Springs, are the same; only differing somewhat in the Proportion of their Ingredients.

These Minerals lie in a Stratum, or Bed, from West to East.

Since *Bingham* Well increases or decreases upon Vicissitudes of Weather or Seasons, 'tis hence probable, that its Spring is not supplied from any great Depth in the Earth, but chiefly from the Surface of the Ground, and the small Hill above; and seeing both it, and the small warm Spring beyond it, (which I have seen quite dry) are so superficially provided, and yet warm, the impregnating Ingredients seem not to lie very deep in the Earth.

Since these Waters continually bring up so large and numerous Bubbles, with an impetuous Force, from the Bowels of the Earth, then must their Interstices be richly stored with a fine Air, which produces this Effect.

Seeing *St. Anne's* was known to be of the same Nature, and threw forth the same Quantity of Water before the Bath-level was made, that it does since; and since, from this Well to the Bath, there is a continued Rock of firm black Lime-stone, or a Substance between Marble and Lime-stone; and especially, seeing the main Spring, which supplies this Well, rises up thro' a black Lime-stone on that Side next the River, and not on that next the Bath; and, in the last place, since we find two considerable Differences in its Contents from those of the Bath-water; it is ridiculous to suggest, that this Spring has any Communication with the Bath.

Since there is such a Difference at sundry times in the Weight of these Waters, it follows, that there is no certain Standard for determining their specific Gravities; only this, in the general, is certain, that they are lighter than other common Water, and that the lighter they are, so much the more are they impregnated with the Mineral Spirit, and the fewer extraneous Bodies they bring along with them; and the lighter they are, the warmer; and the warmer, the more medicinal.

The more the Pores of the Earth are lock'd up by Frost, or fill'd with Water, provided these affect not the Springs, the warmer and lighter is the Water; and the warmer it is, so much stronger is its Mineral Vapour, and therefore the more powerful are its Virtues.

From the Use of the Thermometer we see, first, The different Degrees of Heat contain'd in the several Waters. Secondly, We find that there are different Degrees of Heat contain'd in the same Water in the several Seasons of the Year, and according to the various Temperatures of the Air. Thirdly, That these Waters are not relatively, but absolutely, warmer in Winter than in Summer, in Frost than when there is none, in a cold than in a hot Season, the Bath at least being one twentieth Part warmer in Frost or Winter, than in warm Weather. Fourthly, That, in a great Frost, four Fifths of the coldest Water not frozen, and one Fifth of boiling Water mix'd, make the just Warmth of common River-water in hot Weather about the Autumnal Equinox. Fifthly, That a Quart of boiling Water added to three Pints of such cold Water, in an earthen Vessel, at two sundry times, about seven Minutes Distance from each other, gives the true Warmth of *Buxton*.

Or five Eighths of a Quart of boiling Water, added to three Pints of common River-water in Summer, gives the exact Heat of *Buxton* Bath in that Season; and then whatever raises such a Thermometer five Eighths of an Inch higher, shews you the Warmth of *Buxton* Water, in a strong Winter Frost.

By these Experiments we have the Quantity of Water each Spring sends forth in a given time. Secondly, The Proportion that the Vehicle and fix'd Parts have to each other. Thirdly, The Proportions of the Earth and Salts separately,

And, lastly, Which of the different Salts exceeds the others in Quantity.

From the small Proportion of the fix'd Parts in those Waters to their Vehicle, especially considering the small Quantity that should be drank, it is plain, these Parts can do little to the Removal of any obstinate Chronical Disease. Suppose, for Example, a Man daily drinks four Pints of Water, at most he swallows not, with this Dose, above five Grains of Lime-stone Powder, which we shall call an Alkali or Absorbent, and two Grains and an half of Marine-salt, and as much Nitre, which let us suppose stimulant: What can these do? If he should drink half that Quantity of common Water that comes from the white Lime-stone Hills, he shall have as much alkaline Earth, if not some fix'd Salt, besides a vegetable Salt: Yet who would call these Medicinal Waters? Hence it is plain, that the Virtues of our Waters consist, first, In the pure, smooth, fine, common Vehicle; and, secondly, In their Warmth and Mineral Spirit.

Is the Bath, when its Doors and Windows are shut, warmer than when open'd? Is the Bath that is shut up on all Sides, warmer than *St. Anne's* Well, which is only shut up on three Sides? Is this warmer again than *Bingham* Water, that is wholly exposed to the open Air above and on all Sides? Then it is plain, that were these Waters kept close cover'd, and their Heat reverberated, they might still be much warmer.

From the Experiments made with the Mixtures, we see first, from the intestine Motion excited by the acid Spirits, That the Water contains an Alkali. Secondly, That this Alkali being precipitated by a Solution of Sugar of Lead, or the Water thrown into an Alembic and distilled, and that which comes over with a slow Fire tried, neither of these Waters ferment with Acids. Thirdly, Not only the alkaline Nature of this Earth, but its Whiteness, shew it to be Lime-stone Powder, tho' it warm not the Water after Calcination. Fourthly, This Earth being calcined in a Furnace, which quickly melts Iron, and then applied to the Load-stone, it attracted this Dust or Powder briskly; therefore I conclude it contains also Iron-stone. Fifthly, Seeing the Water precipitates the Solution of Silver, and a Part of its Salts runs into Crystals of a cubic Figure, like a Dye, a Part of its Salt must be Marine-salt. Sixthly, Since it lets fall a Sediment with Oil of Tartar, and Spirit of Hartshorn, and also affords some long Crystals with six unequal Sides, terminating at each End in a Pyramid under several Triangles; we conclude, it contains also Nitre. Seventhly, Seeing neither Galls nor other Astringents alter'd this warm Water, we cannot trace any Vitriol, either volatile or fix'd, in it, nor does it taste chalybeate; however the Credulity of some People may impose upon their Tastes, and tho' the Load-stone attracts some of its calcined Earth, it does the same with most other Earths, which never afforded any Solution of Vitriol, nor any Appearance of it. Eighthly, Did *Bingham* Well, when putrified, and its Sulphur spent, become red with Galls, and purple with Solution of Silver? Then it must not only partake more eminently of Nitre, but also have more of the Chalybeate Principle in it, than any of the rest.

Did these Waters afford sundry Proportions of Sediment at different times? Then they are not alike fraught with their fix'd mineral Principles at all times. Secondly, We may hereby observe, that when their fix'd Contents are least, their volatile Principles are most, as in Winter and very cold Weather; and when their volatile Spirit is smallest or weakest, their fix'd Parts are proportionably increased, as in very dry and hot Weather. Thirdly, Have several Authors examin'd the same Waters at several times, and found their Contents to differ in Quantity, but not in Kind? Then are they not to be arraigned and accused about small Differences, as is too ordinary.

Does Dr. *Lister* tell us, that *St. Anne's* Water proves emetic upon swilling down large Quantities of it? This is nothing peculiar, but what it has in common with all other Water. Secondly, Does he assert a Quantity of Pit-coal to lie immediately under the Lime-stone, out of which this Water springs? It is surprising how so good a Naturalist could make such a Blunder; for, first, Lime-stone and Coal are found inconsistent with each other in the Peak-country. Secondly, Who ever found warm Water in Coal? Thirdly, Tho' the Sediment of those Waters be very small, yet it at least affords a Scruple to a Gallon; tho' he obtained but one Scruple or two, out of four Gallons, this must have been owing to some Neglect or Mismanagement. Fourthly, He says the Sediment was all Salt, and no Stone Powder, whereas the Bath yields above one Half, and sometimes two Thirds of Stone Powder to one of Salt. Fifthly, The Salt, he says, is chiefly marine. Tho' this be true of the Bath, yet *St. Anne's* Well contains as much Nitre as Marine-salt, and *Bingham* Well more than either of them. Nor, sixthly, Can I here overlook *Allen's* Account of this Water. For, first, He will have but three warm Springs here, viz. two for Bathing, and one for drinking: Now

Now the outer Bath is no Spring, but supplied from the inner Bath. Secondly, He says, that it is as warm as Blood newly let out of the Veins; but, had he used a Thermometer in examining both, he would have found the former much short of the Heat of the latter. Thirdly, He will have Lead, Iron, and Sulphur to be the Principles that mediate this Water; but how can Lead communicate any of its Parts to the Water, without it be dissolved? Where is the Solvent and Menstruum? And, if it had a Solvent, it would be Vitriol, which would long ago have corroded and consumed the Lead, and left only a bright Sulphur; and since Lead is the chief medicating Principle, the Springs would now be no more than other common Springs. But allowing (contrary to Reason and Experience) that the Lead did still impregnate this Water, it would be Poison instead of Physic, as we see from the Accidents that happen to those who smell, and to the Animals that drink the Waters wherein there is Lead, how soon they are seized with a *Bellon*, and from the Effects of Sugar of Lead taken inwardly. Nor, thirdly, Has the Water a sulphureous Taste or Smell, as he alleges. Nor, fourthly, Do Galls give this the same Colour as they do the *Bath Waters*, nor a Lead colour, which he will have to arise from Lead. The Sulphur he will have to be that of Lead. *Jones* is much more in the Right, when he thinks the Water is too pure, delicious, and fine, for any such Principles as Lead, Copper, or Alum; and contents himself with an impalpable Sulphur.

Now let us see what Medicinal Uses these Experiments and Observations will help us to make of these Waters: In this we shall receive some Assistance from Mr. *Martin's* Account of the Effects of warm Bathing, whereby it is plain, first, That, by the Waters penetrating the Pores of the Skin, it gets into, and mixes with, the Blood, and other Juices, on the Surface of the Body, and thereby increases its Weight. Secondly, That, by this Insinuation of the tepid Steam into the Pores, the Skin is relaxed, its Pores dilated, the Fluids in the Capillary Vessels thinned, their Motion made easier, and their Evacuation promoted. Thirdly, Tho' the Addition to the Weight of the Body by Bathing may seem small, yet we must allow a considerable Discharge by Perspiration during Bathing, both from the Pressure of the Water, added to that of the Air, upon the Body, and the warming relaxing Nature of the Water. But to proceed.

Since these Waters contain so much Air in their Interstices, they must greatly promote Digestion, except they be drank too long; and then, from their very Warmth and Nature, they must relax the Stomach, and retard all the Digestions, unless the Use of them is left off. But the Waters being warmed by Bodies of a different Nature, either brought together, dissolved, or set in Action, by the Water, this Action cannot be without the Communication of some of their Parts, which little Parts must be lodged, together with the Air, in the Interstices of the Water; then not only does the Air (consider'd as a simple Ether) promote Digestion and Attenuation; but being springy, and full of those subtle, invisible, intractable Particles of Mineral Bodies, or Substances, of what a diluting, opening Nature must they be in Animal Bodies? How near in Smallness and Subtlety do they approach to the Particles of Light and Heat, since we have no Vessels that retain one more than the other? And since they are not retainable in the cold Water, wherein we suppose the Air in a stagnant, compressed State, how trifling is it to imagine or attempt procuring of them by Force of Fire in Distillation, whereby the Air is heated, rarefied, and expanded, and even their Vehicle, the Water, so rarefied, that it rises up in a Smoak, in both which they are at greater Liberty than before to make their Escape!

Since these Particles are so much less, and more-subtle, than the most volatile Spirits obtainable by Art, such as those of Hartshorn and Sal Ammoniac, which may be shut up and preserved in so porous a Body as Glass, how impossible is it, that the smallest Vessels in human Bodies, tho' never so much obstructed, (if not grown up, and become tendinous) should hinder their progressive Motion! Will they not even find a Passage between the Interstices of the Fibres that constitute the Sides of the Vessels, and, *a fortiori*, much more in their Cavities? How well then must such a Water at the Spring-head, thus fraught with its subtle mineral Principle, be disposed to carry on the Work of opening and clearing the minutest Vessels in the remotest Extremities of Animal Bodies, or in the smallest Vessels of the Periosteum, in either of the Coats of the Brain, or Spinal Marrow, or in the Brain or Marrow itself, which contain the smallest Vessels comprehensible by human Conception? From this it follows, that these Waters are better adapted to Obstructions from the twentieth-rate Vessels, to the smallest in the whole Body, than to those of the larger and first-rate: No Wonder then, if they produce such surprising Effects in Gouty, Rheumatic, Arthritic, and Scorbutic Pains, all which have their Seat in Vessels so small, as scarce to be come at by Medicines. Again, if we consider this Spirit as wrapt up in Air, it is not only subtle and pene-

trating, but also elastic or springy, so that, when the Heat of the Body is added to its Warmth, it will be so much the more springy, and expand the smallest Vessels, relaxing them, and so making room for the obstructing Matter either to be expelled from the Body, or so attenuated as to be thrown back into the larger Vessels, till it is more attenuated, digested, and fitted for Evacuation by some of the common Outlets. But is the Water attenuating, and the Spirit elastic? Then, not only does the former dissolve the gross Humours, but the Particles of the latter being got between them, and dilating themselves like a springy Wedge, will turn the attractive Force of these Humours into a Repulsive, whereby they are gradually separated, broken, and mix'd with the intercurrent Fluid; but as the Humours cannot be attenuated, and divided into smaller Particles without increasing their Bulk, especially when at the same time there is a Quantity of this Water thrown into the Body, and mix'd with them, this Fusion of the Blood disposes some of its Parts to get into improper Vessels; for one Globule being hereby divided into two or three, they are then capable of entering Vessels that before would not admit nor receive them when only one; and these Vessels being conical, the globular Parts thus divided must stop, before they can reach the Extremity of the Vessel; hence new Obstructions of another kind must be produc'd by this powerful Diluter, which must remain, except either the Vessel relax, and give way, or the stopp'd Globule must be split into two or three others; but, by this necessary Force, the Action of the Vessel is increased, whereby the Blood's Motion becomes brisker: And now both the Quantity and Velocity of the Blood are increased, but the Coats of the Vessels not being hereby strengthen'd, but weaken'd, according to their greater Dilatation or Stretch, if they were weak before, and full of Blood, then Hæmorrhages must necessarily follow, except prevented by due and timely Evacuation, or Reduction of the Humours to their former Standard, that the Vessels may again be restor'd to their natural Dimensions, Strength, and Resistance. But if we are assur'd from Fact and Experience, that there is a mineral Spirit in these Waters, and want to know the Nature of this mineral Spirit, let us get acquainted with the Minerals wash'd by the Water, and consider which of them are capable of having some of their Parts separated by the Water, and which these Minerals are that can neither have their Parts separated nor dissolved; and we are sure, that this Spirit must be from the former, and not from the latter of these: But what these Materials are, we have seen before; therefore the Spirit must be of the same Nature, as its Effects, as well as Theory, prove.

From the Whole we see, that the Intention and Effects of those Waters are Relaxation and Dilution; and where-ever these are indicated, this Water will be of the greatest Service; which is, when the natural and necessary Secretions are lessen'd, from whence arise Obstructions in the small Vessels; but it is of the greatest Benefit in those Obstructions which arise from a Sharpness, Saltiness, or Earthiness of the Blood and Lymph, or from an accidental (where there is no natural) Disposition to a Rarefaction of the Blood, some of whose Parts have mistaken their common Road, in all which Cases we suppose a Stimulus in the Vessels from Pain; since it is impossible the fix'd Parts of this Water should prove a powerful Stimulus. Its Efficacy extends particularly to all Contractions, Stiffness, or Crispation of the Solids and Vessels, when their Parts are so close, that the Fibres are inflexible by such Causes as in a natural and healthy State should bend them: Or where there is a Difficulty and Indisposition sometimes in the Fibres and Vessels, preventing their ready and easy Distention and Contraction, as is mostly the Fate of old Age, and hard Labourers; which is evident from a more difficult bending and contracting of their Joints and Muscles, and from their greater Liability to Rheumatic and Arthritic Pains; and if young People be hard plied betimes in Life, their Fibres are sooner stiffened, become stronger, and are at their Growth, or prevented of their full Growth, sooner; for by whatever means Growth is hastened and finished, the Period of Life is so much shorten'd. Hence such as are of the slowest Growth, provided they live regularly, and escape Accidents, live longest, for the same Space of Time they take to Growth, they stand still as long, and decline the like Time; for should one Man grow till thirty Years of Age, from that he is at a Stand to sixty, and grows back again or declines to ninety; then dies: If we suppose another, who has unnaturally hastened his Growth at sixteen, he cannot outlive forty-eight or fifty at most: Hence it is plain, that such as rejoice at their Childrens early Growth, and such as are uneasy at their slow Growth, are equally foolish. It is judiciously observed by *Sanctorius*, that from the time Men begin to decline and grow old, Perspiration is diminished, and the gross Parts of the Blood are retain'd; which, being gathered to the Thorax or Breast, are expectorated by Coughing, or they are heaped up at the Extremities of the Vessels, the increasing Stiffness of the Parts still occasioning a Waste of the more subtle Parts, and a Collection of the grosser: Hence Diseases from mucous or sily Humours, laid up in one

Part or other of the Body, as Catarrhs, Rheumatisms, Pains of the Joints, Atrophies, Marasmus, and a gradual diminishing of the Actions depending on the small Fibres, as Hearing, Seeing, Memory and Judgment; for the Vessels of the Brain being then partly shut up, and partly become callous, so as to be unfit for the more noble and elevated Actions, then the Person becomes childish, and wears out of Life without much Pain or Uneasiness, and all from a Stiffness induced on the Fibres, and diminished Perspiration.

Upon the Whole, *Buxton* Water being warm, highly impregnated with a mineral Steam, Vapour, or Spirit, containing a most subtle and impalpable Sulphur, and being the Product of Lime-stone, it is therefore rarefying, heating, relaxing, attenuating, sweetening, and a little drying; hence it is signal-ly beneficial, and surprisingly successful, in the Gout, Rheumatism, scorbutic and arthritic Pains, wandering or fix'd Pains inveterate or recent; Cramps, Convulsions, dry Asthmata without a Fever or quick Pulse, bilious Colic, want of Appetite, and Indigestion from Intemperance and Hard-drinking, as also in Contractions, Stiffness and Lameness arising therefrom in any Part, Barrenness from a Constriction and Indilability of the Fallopian Tubes and Uterus; Painfulness, a total Want or other Irregularities of the Menfes from the same Cause; in all Stoppages, and beginning Obstructions, and in preternatural Rigidities of the Vessels, or where external Tumors compress the small Vessels, or where there is an Over-growth, or too great Strength, of the Vessels resisting the Fluids; in St. Antony's Fire, Tetters, Ring-worms, Scab, Itch, and Morpew; it is also useful in the Beginning of the Swellings on the Bones or Periosteum, which are soft, yielding to the Touch, or of the Consistence of soft Wax called Gummata and Tophi, as also in Nodes, in chalky Tumors in any Part of the Body, inward or outward. In all hard callous Swellings it eases the Pain, and softens considerably; in old Strains or Pains afflicting People upon Change of Weather, whether they be originally from broken or disjointed Bones, Distortion of the Parts, or pulling them out of their natural Position; in any Withering or Pining of the Parts; in want of Perspiration from Cold, without a Fever, or Load of Humours; for Heat, Stranguries, and Stoppage of Urine; in too great a Contraction of the Urinary Passages and Strainers; for scouring off Sand, Gravel, and Mucus, out of the Kidneys; in Hiccoughs and Vomiting, from a saline Matter, stimulating and contracting the Stomach or Midriff; in a Dysentery, from salt Humours, raising violent Gripes, and convulsive Pains.

I might here subjoin several secondary Uses of this Water; but the common Vehicle being the only Physic in them, in this Case I shall advise both drinking and bathing; but by no means the last in a Fit of the Gout, inward Inflammations, Fevers, Dysentery, large inward Tumors, Vomiting or Purging of Blood, or where-ever an outward Pressure of the Body may do Mischief.

As to the Age, Sex, and Constitution of the Patient, the particular Lightness and Purity of those Waters recommend their Use, as safe and successful, to all Ages and Sexes, Children, Youth, Men, Women with or not with Child, except in the first and last Months. No Caution or Difference is here to be regarded; only I would not advise young Persons, very full of Blood and Juices, which run with a rapid Course in their Vessels, to be too free with them, from the twenty-third Year of their Age, till the thirtieth. Bilious or choleric Constitutions, phlegmatic, and melancholic, may use them at Discretion, provided they do not overdo the Matter; but the Sanguine must be a little more upon the Watch; for, since they rarefy the Blood, and increase both its Bulk and Motion, as well as add somewhat to its Quantity by bathing; so that their Vessels, being pretty well fill'd already, as often appears from their low brisk Pulse, and florid Countenance, here the Waters may distend the Vessels more, drive the Blood forward till it cause Obstructions, Stagnation, Inflammations, Fevers, or a Discharge of Blood, by some Evacuation, from a Rupture of the stretch'd and weaken'd Vessels. Neither should I be fond of advising phlegmatic gross Bodies, after the Meridian of Life, to continue it long, except for a few Days bathing, to open the Pores of the Skin, attenuate the fizy Humours in its small Vessels, and discharge a Part of them, and so fit them for a colder Bath, of greater Pressure and Stimulus; not that I am fond of Cold-bathing in old Age, when the Spring of the Fibres is almost worn out, but I mean between the Meridian of Life, and old Age. As to the Season of the Year for using these Waters, after so strict an Examination and Investigation of their Parts, excuse me if I differ from the common Opinion, and prefer early in the Spring, and late in the Autumn: For, if we consider, first, the Luxury of the Age in Eating and Drinking, simple plain Food, that was the delicate Dish of our long-liv'd healthy Ancestors, is no longer relish'd; our Meat must be higher season'd; we cannot dine but upon several Dishes; weak plain Liquors are no longer us'd for Drink; we must have Wine, or, which is worse, (as it is more viscid) strong Ale, or perhaps Brandy and Water. Do not all these heat and inflame

the Body? Secondly, Does not the Water of itself rarefy the Blood, and relax the Vessels? And, thirdly, Are not the Juices of the Body more rarefied? Take they not up more Bulk, and are not the Vessels more relaxed, in Summer than in Winter? Is this then a fit Season to send young People of plethoric and sanguine Constitutions to those Waters? Either they must use them for some time, or not; if the latter, why come they to them? What Design will a mere complimenting Visit of the Waters, and, perhaps, tasting them, or going into them, answer? Sure no valuable End. If they use them for any considerable Time, are they not exposed to the Mercy of Inflammations, Faintness, Palpitations, and Fevers, especially of the hectic Kind? And will not the Waters answer the same Intention, with much greater Safety, from the latter End of *March* to the Middle of *May*, and from the first of *September* to the first of *November*? It is true, the Coldness of the Place may be objected; but is there not a good House, dry warm Rooms, Plenty of Coals, for the most part some Company, and a pleasant dry Country? Where then is the Harm, even in the Middle of Winter, upon urgent and necessary Occasions? Are not the Waters considerably warmer? Does not their Efficacy chiefly depend upon their Warmth; and what causes it? And, the warmer they are, are not they the more efficacious and successful? Nor is the Blood so apt to be rarefied, seeing the Air contain'd in it must be in *æquilibrio* with the external Air. This is not Speculation; I mention it from Experience, having order'd Patients there in *March* in great Frost and Snow, and never observ'd better Success than the Water had upon them all.

As to the Method of using the Waters, except the Body be costive, and the first Passages furred up with gross Humours, I declare myself a profess'd Enemy to what is call'd preparing the Body for them, by strong Purging; which often causes Pain in the Bowels, Windiness, Looseness, and Dejection of the Appetite, the chief thing to be regarded, and kept up, in a Course of Mineral Waters, especially of the warm Kind. Therefore I content myself with simple plain Laxatives; which unload the Intestines without Sickness, Pain, Confinement, or Prostration of Strength or Appetite, as Lenitive Electuary, Rhubarb, Manna, and Cream of Tartar: Or, if the Stomach is loaded with Phlegm, pall'd and relax'd, to prevent this being sent down, and carry'd into the Body with the Water, and there doing a great deal of Mischief, I would give a gentle Vomit, as of the Infusion of *Ipecacuanha*, or that in Substance to strong Bodies, and neither order Drinking nor Bathing for thirty Hours after at least. Young People, full of Blood, or who have a meagre and quick Pulse, I would order to be blooded before they begin. Such as are liable to the Gout should neither be blooded nor vomited, except there were strong Indications to the contrary; but let them have *Tinctura Sacra*, or *Elixir Salutis*, for a Purge. When they begin to drink the Waters, a Pint before Breakfast, and as much after, is sufficient for the first two or three Days; then half a Pint more for the two Days following, and, at most, three Pints in a Forenoon; for this Water, not being an Evacuant, but an Alterative, must not be thrown into the Body in large Quantities, whereby a great deal more Hurt may be done than the Good we expect. At best, we thereby turn it to an Evacuant by Urine, or receive certain Mischief. As to Diet, if it be seasonable, healthy, and temperate before, I would have no great Change to be made in it, from what was the Person's ordinary way of Life; only, as the Water heats and rarefies, beware of Pepper, Mustard, Onions, Shallots, Horse-radish, and all aromatic and hot Seasoning, and of all inflaming Liquors; Claret, or White-wine, and Water, for Drink, are best; and, when the Design is to relax, I would allow Fish, but no salt Meats, especially those dry'd in the Smoak, nor salt Fish, Goose, nor Duck. Take Breakfast between Eight and Nine o'Clock in the Morning, Dinner at one, and Supper at Seven; let the Supper be light, and easy of Digestion. Go to Bed at Ten, rise at Five or Six in the Morning. Go into the Bath, continue there from seven Minutes to half an Hour, according to the Strength and Case of the Patient. When you come out, if you go not to Bed to sweat, (which is seldom us'd) dry the Body well, and dress presently; and, if the Weather is cold, go to a warm Room, use gentle Exercise, walking about, and drink your Water. Beware of ungovernable Passions, Moroseness, sitting up late, Revelling, and unseasonable Hours; shun violent Exercise and Intemperance; be cheerful. If the Body is costive, drink Tamarind-broth, or take a Clyster. If the Stomach is weak, raw, and belching, take a little bitter aromatic Wine before you begin your Water-drinking; and, when you have drank ten or twelve Days, intermit for four or five Days. Let me add, once for all, that, as this Water is of such a Nature as I have mention'd, so it is not to be trifled with; for, if it be unnecessarily us'd, it will certainly do harm.

But it may, with Justice, be objected, if these Waters are bad for nothing, they are good for nothing. We shall, therefore, give not only their Advantages, but Disadvantages. Their Use, therefore, is unsafe and unadvisable, where there is too great an Impulse

Impulse of the Fluids into the lateral Vessels; as they relax the latter, and make more way for the former, and rarefy them: Nor are they to be meddled with in Tumors from an Impulse of the Fluids, with a Dilatability of the Solids beyond all Recovery of their natural Tone, and in Swellings from an Extravasation of Blood, Serum, or Lymph, into any of the Cavities of the Body, or Interstices of the Muscles or Membranes; nor are they safe in a natural Fulness of Juices, and a Disposition of the Body to generate Blood too quickly; nor are they adviseable in any inward Inflammations, as of the Stomach, Liver, Lungs, Kidneys, or Pleura; nor ought they to be drank in large outward Inflammations of the Glands, since they both increase the Motion and Quantity of the Blood, and dispose it to run more impetuously upon those Parts, whose Spring and Resistance is impaired or lost; nor is it to be liberally us'd in outward Impostumes. They are of no Effect in those Tumors call'd Meliceris, Steatoma, Atheroma, and Talpa. They are also mischievous in Consumptions attended with a rapid Motion of the Blood, and weak pulmonary Vessels, and in too copious Perspiration. Or, in a Word, where-ever strengthening and bracing up the Solids, and thickening and cooling the Fluids, are indicated, these Waters must be refrain'd from, or where the animal Secretions are to be lessen'd.

Hence observe the following Mistakes in the Use of these Waters: First, Does their chief Efficacy depend on their volatile Parts, which only consist of a Steam or Vapour; and are they better adapted to Diseases of the smaller than of the larger Vessels? Then it is an Error to imagine, that all the Business is done by drinking large Quantities of them, and so turning them to Evacuants, at least powerful Diuretics; whereby they are hurry'd out of the Body before they have done their Work, which lies in much smaller Vessels, and requires longer Retention. Secondly, Is Evacuation inconsistent with all the Intentions of the Waters? Then how imprudent are those who use evacuant Medicines along with the Waters, whether Purgatives or Diuretics, which expeditiously carry off the Waters, and, together with them, the thinner Parts of the Blood, out of the larger Vessels, and the Lymph, which is pour'd into the chylopoetic Organs for diluting the Chyle! But allow they should drink so much more Water in proportion to the Increase of the Drains: In this mending the Matter, and not making it worse! For hereby there is a greater Pressure and Quantity of Water laid upon the Intestines, or Organs destin'd for the Secretion of the Urine, the Fluids in these Glands thinn'd, and their excretory Ducts widen'd and laid more open, and all every way fitted for a larger and freer Vent of the more ferous Parts of the Blood, which should dilute the grosser in the smallest Vessels. Hence Obstructions are more riveted there, or at least not removed,

Thirdly, Does the Water heat and rarefy the Blood? Is it then rational to send young Persons thither, especially in the Heat of Summer, whose Blood is capable of Rarefaction, when the Warmth of the Water, by the Presence of its mineral Principle, join'd to the Heat of the Blood, and the hot Season, has relax'd the Solids, and widen'd the Vessels, and the Blood is in its greatest natural Rarefaction? One would think this Caution needless, to such especially as consider the fatal Consequences of a very rarefied State of the Air, by Lightning, to animal Bodies; for the Atmosphere being suddenly rarefy'd by the Flash, the sudden Expansion of the Air in the Blood, to a Balance with this Atmosphere, quickly bursts the Vessels, mingles Solids and Fluids together, as in a Mortification; and the hardest Parts, which give the greatest Resistance to this violent Expansion, are burst into a thousand Pieces, the Spring of the Air being so much superior to the Cohesion of the Parts. Fourthly, Does the Water rarefy the Blood? Then how inconsistent is violent Exercise with their Use, as Dancing and Revelling to unreasonable Hours, strong Bowling in the Heat of the Day, galloping on Horseback, instead of an easy Trot, or an ambling Pace! These violent Exercises heat the Blood too much, and are often of bad Consequences. Fifthly, Is the Design of this Water Relaxation and Dilution? Then how do such promote those Ends, who deal all the while in Drams, Spirits, and Punch, all which contract and shrivel up the Solids, as the first two very remarkably coagulate the Fluids! Sixthly, Do the Waters rarefy the Blood, and increase its Bulk and Motion? And is it safe and adviseable for those who have a natural Fulness or Superfluity of the Juices, or for such as have naturally a quick Pulse, large Secretions, thin Bodies, and weak Vessels? For once more give me Leave to say, that these Waters are not to be trifled with; since, if their Use is not wanted, and does no Good, they certainly do Mischief; and whoever says the contrary, votes these Waters good for little or nothing; and, if he understands the Waters rightly, may as well advise the Peruvian Bark in continual Fevers, or during the Fit of Intermittents, or Steel Medicines in a Plethora, or Sugar of Lead in a Dropsy or Palsy, or Camphire in the Declination of a hot Fever, which has parched up and dried the Body, and almost worn out the Spring of the Vessels. But, seventhly, Are these Waters warm, and impregnated with a

very volatile penetrating Part, wherein lies their chiefest Efficacy? And is this Principle gone when they are cold? Then they must be drank warm at the Spring to answer any End; for, when they are cold, they only serve instead of common Water, being purer and better than that. Eighthly, Is the Nature of these Waters relaxing and attenuating? Then special Care must be taken, that a suitable Diet, both in Meat and Drink, be observ'd, and that the Patient refrain from every thing that is opposite to their Use, and gave Birth to his Distemper, tho' never so much his Favourite, and seemingly opposite to Nature. Ninthly, Is the chief Design of these Waters Relaxation and Dilution? Then are they improper in Obstructions from a Sickness of the Juices, and a Relaxation of the Vessels, as in Cachexies and Dropsies. Tenthly, But, say some prejudic'd Persons, if you can find out the Nature of this Mineral Spirit, in which you assert the Efficacy of these Waters to consist, why may they not be imitated, and so People sav'd much Labour, and Loss of Time, and Expences? Answer. First, Imitate it with what? Whether with fix'd or volatile Bodies? Where will you furnish me with Matter divided into, and existing in, such small, subtle, incoercible Particles? Or where is the Art that can reduce Mineral Substances to such a volatile, fugitive, Mineral Spirit, a Spirit that cannot be retain'd? A Substance of almost as minute Parts as those of Light and Heat? A Steam fitted to pass the smallest Crannies in Nature? But, secondly, So exquisite is the Mixture, and so great the Difference between divine and human Compositions, that the former are inimitable. What Anatomist, that knows the Structure of a human Body the best, will undertake to make another like it? Or what Chymist, that can separate the Principles of a Plant to the greatest Exactness, will yet have Assurance to boast of his Capacity so far, as to reunite even the same Parts again, in the same Form and Condition, with a vegetable Life? Even so different are the Compositions of God and Man. Hence we see, that he who made these Bodies and Vessels at first, is best able to judge of their Diameters, and knows best how to prepare Substances suited to their Dimensions and Diseases. Therefore, could we pretend to mimic these Waters, yet the Counterfeit would be so much inferior to the Natural, as a Piece of Painting, tho' never so fine, is to the original Life. *Short's History of Mineral Waters.*

BUXUS, Offic. Ger. 1226. Emac. 1410. J. B. 1. 496. Raii Hist. 2. 1693. Synop. 3. 445. Chab. 38. Mer. Pin. 18. Merc. Bot. 1. 25. Phyt. Brit. 18. *Buxus arborescens*, C. B. Pin. 471. Tourn. Inst. 578. Elem. Bot. 450. Boerh. Ind. A. 2. 172. Rupp. Flor. Jen. 264. *Buxus arbor vulgaris*, Park. Theat. 1428. THE BOX-TREE. Dale.

Box seldom grows to be a Tree of any great Bigness in England; the Wood is hard, solid, and ponderous, of a yellow Colour, cover'd with a whitish Bark. The Leaves are small and roundish, of a firm Texture, and a shining green Colour; it is perennial, keeping always green: The Flowers are small, of a yellowish Colour, each composed of five Leaves. The Fruit is small, roundish, and tricapular, with three Points or Horns on the Top. It grows wild in some Parts of Kent and Surry, as about Boxhill near Dorking. *Miller's Bot. Off.*

The Leaves of the Box are bitter, have an ill Smell, and give a faint Red to blue Paper. We obtain from the Wood a little acid Spirit, and a fetid Oil. *Quercetan* esteems this Oil very much for the Epilepsy, the Vapours, and the Tooth-ach. Being rectified, and circulated afterwards with a third Part of good Spirit of Wine, it is very sweetening and aperitive. They give fifteen or twenty Drops of it, mix'd with Sugar or Liqueur-powder. They mix this Oil, unrectified, with melted Butter, to anoint Cancers. A Liniment is made of it, with Oil of St. John's-wort, for the Rheumatism and Gout. *Etmuller*, and several other Authors, maintain, that one may substitute the Box in the room of the Guaiacum, Juniper, or Sassafras, and the Roots of Butterbur and Bennet, in the room of the Sarsaparilla. *Martyn's Fournesort*.

Blegny, in his *Zodiacus Medico-Gallicus*, An. 2. tells us, that he knew three Persons, who, from their own Experience, had found, that a large Quantity of tender Box-leaves, infused in three Quarters of a Pint of White-wine, proved an infallible Cure for pituitous and flatulent Colics, if the strain'd Liquor was drank warm. Dale, in his *Pharmacologia*, informs us, that it is at present little used in Medicine; but that, according to *Schroder*, some from the Wood distil an Oil, which is highly narcotic, and which they wonderfully extol in Epilepsies, Tooth-achs, and Rottenness of the Teeth. He also tells us, that *Fernelius* classes the Leaves of the Box among the Purgatives. In *Eph. N. C. D.* 2. a. 2. o. 155. we are told, that a Lotion, prepared of a Lixivium in which the Leaves and Branches of Box have been boil'd, not only makes the Hairs grow, but also gives them a yellowish Colour. A Decoction of the Flowers of Box is by some said to be sudorific; and others inform us, that one Dram of them proves a violent Purge. *Rondelitus*, in *Forest. Obs. Med.* says, he by no means doubts, but that the Shavings of Box, in consequence of their sudorific Quality, would cure the *Lues Venerea*; but that they are not used for that

that Purpose, because they excite Head-achs, and are of a fetid Smell, and disagreeable Taste. However, *Amatus Lusitanus* used a Decoction of this Wood, more than once, with wonderful Success. The same Author, *Cent. 3. Cur. 36.* by a Decoction of Box-wood, after all other Medicines had proved ineffectual, in the Space of twenty Days cured an *Hemicrania*, brought on by a Consent of the Parts. A Decoction of the Wood, in Red-wine, has by some been found to do great Service in Tooth-achs arising from cold Defluxions. Besides, a singular anodyne Quality is ascribed to the Wood, for which Reason many recommend Tooth-pickers made of it. The Oil also, distilled from the Box-wood, is accounted excellent against the Tooth-ach, Fevers, Vertigoes, the Falling-sickness, and the Hemorrhoids. *Schulzii Praelectiones*, and *Simon Paulli's Quadripartitum Botanicum*. The Wood alone, subjected to Distillation from a Retort in a Sand-heat, yields an acid Spirit, and a fetid empyreumatic Oil; just like those yielded by Guaiac-wood, when treated in a like manner. That this acid Spirit, when rectified, dissolves Coral, and produces other Effects, which prove the Similarity of its Nature to that of penetrating Acids, may be seen in *Boyle's Chymista Scepticus*. If this empyreumatic Oil, which is by some thought to be the *Oleum Heracleum* of *Rulandus*, is put into the Hollow of a carious Tooth, and applied immediately to the Nerves, it removes the Tooth-ach, by burning them, just like Oil of Cloves, or any other acrid and caustic Oils. When mix'd with melted Butter, it is recommended to be used by way of Liniment in Cancers; and, when mix'd with Oil of St. John's Wort, it is used in the same Form in the Rheumatism and Gout. But if it is rectified, and digested for some time, with a third Part of good Spirit of Wine, it affords an anodyne and aperient Medicine for internal Uses, of which fifteen or twenty Drops may be exhibited with Sugar or Liquorice-powder. The Smoak of the kindled Box-wood seems to be justly recommended against the Plague, not so much on account of its highly fetid Smell, which at once induced *Bauhine* to the Affirmative, as because it abounds with an acid Salt, which, when drawn in with the Air, resists that Putrefaction of the Juices, to which, during the Time of the Plague, they are always disposed. It is worth while to inquire into the Origin of the Persuasion of some, that the Virtues of the Box-tree may not only contribute to extinguish the Sense of Venereal Pleasures, but also to banish the Devil himself. All fetid Substances, then, possess a Power of stimulating the Nerves into Motion, removing the disorderly Sallies of the animal Spirits, and consequently of curing those hysteric Indispositions produced by such a Cause. Now, hypochondriac and hysteric Passions are generally attended with surprising spasmodic Motions, by ignorant People ascribed to the Devil, and his Influence on the human Body; but the Box-tree is possess'd of a Quality capable of removing these Disorders, and their concomitant Symptoms. Therefore, say they, it banishes the Devil, whom they as falsely as foolishly suppose to be the immediate Author of these Symptoms.

It is also possible, that this Persuasion of the Power of the Box-wood to banish the Devil may have been owing to a Custom of consecrating its Leaves on *Palm-sunday* in some Countries; where, at that Season, no other Leaves are to be found: Whether it is really so or not, 'tis nevertheless certain, that, from this Circumstance, the Dutch call the Box-tree *Palm-boom*, and its Wood *Palm-hout*. I must not, on this Occasion, forget a Story told by *Levinus Lemnius* in these Words: "I am acquainted, says he, with a certain Priest in our own Country, who has the Misfortune of a weak Judgment, and a whimsical Mind, who exhibited the Ashes of burnt Box-wood, consecrated on *Palm-sunday*, a Ceremony used in the Roman Church, to a young Boy, to be drank in holy Water, performing at the same time a certain ridiculous Exorcism. All this Apparatus, as he told the By-standers, was to remove the Fever, and dislodge the Worms with which the Boy was afflicted. Soon after, indeed, the Fever was carried off, but the Patient unluckily died; upon which I advised my Countryman to beware of the like Practice for the future; since the Leaves of the Box-tree are possess'd of a deleterious Quality, highly prejudicial to the human Constitution, as is obvious from their rank and disagreeable Smell, and their harsh and bitter Taste, so ungrateful to the Palate."

Miller enumerates seven Species of the *Buxus*, of which the

Buxus humilis is possess'd of the same Medicinal Virtues with the *Buxus arborescens*.

BUYO BUYO. The Name of a sort of Pepper, so call'd in the *Philippine Island*. Ray calls it *Piper Longum Molnardi*.

BYNE, βυνή, Malt, which *Aetius* thus describes.

Barley moisten'd with Water, then suffer'd to germinate, and afterwards dried in a Kiln, with the Shoots upon it, is call'd *Byne*.

BYRETHRUM. An arbitrary Word coin'd by *Forestus*, to express a sort of *Cucupha*, or Cap, prepared with Cephalic Ingredients.

BYRSA, βύρσα. A Skin of Leather, frequently used to spread Plaisters upon.

BYRSODEPSICON; βυρσοδεψικόν, from βύρσα, a Skin, and δέψω, to curry Leather. *Caelius Aurelianus, Chronic. L. 4. C. 3.* recommends, for those Persons whom he calls *Ventriculosi*, or *Celiaci*, amongst other Applications to the middle Parts of the Body, Wool sprinkled with *Rutherginarium*, which the Greeks call βυρσοδεψικόν, meaning SUMACH, which see.

BYSAUCHEN; βυσάχην, from βύα, to hide, and αὐχην, the Neck. People are properly call'd by this Name, who hide, as it were, their Necks, by elevating their *Scapulae*, Shoulder-blades. But it is used, in general, to express a Person who labours under a morbid Stiffness of his Neck.

BYSMA. See BYZEN.

BYSSUS, in Botany, is the lowest Species of Moss, of which twelve different Sorts are mention'd in the last Edition of *Ray's Synopsis*. See the Explication of Terms under the Article BOTANY.

Byssus also signifies the *Pudendum Muliebre*.

Byssus, moreover, imports a fine sort of Linen, wore by People of Condition among the Antients; but applied to no Medicinal Purposes that I know of. Some are of Opinion, that our fine Cotton, imported from the *East Indies*, is the true *Byssus* of the Antients.

BYSTINI ANTIDOTUS. An Antidote frequently mention'd by *Arctaeus*, of much the same Virtues, as it should seem, with the *Mithridate*.

BYTHOS, βυθός, Depth, Profundity. Thus it signifies in that Passage of *Hippocrates* (ἐν παρρηγυλ.) ἐν βυθῷ ἀτεχνῶς ἐβίβη: " (Physicians) who are in the Depth of Ignorance of the Art." And thus, in several Places of his Epistles, particularly in that from *Democritus* to *Hippocrates*, περὶ φύσεως ἀνθρώπου, or concerning the Nature of Man. (Βεβύχθη) εἰς βυθὸν καλῆς τέχνης περὶ μύτης " (The Oesophagus) conveys the Aliment to the Depth or Bottom of the Stomach."

BYZEN, βύζην, in *Galen's Exegesis*, is expounded ἀθρόως ἢ πυκνῶς, " in a Heap, in a Crowd, or Throng." The Word is used by *Hippocrates, Lib. 1. περὶ γυναικ.* speaking of the Catamenia, χροῖον βύζην, " flowing in abundance," or, as it were, thronging for Passage. Again, (*Lib. περὶ φύσ. παιδ.*) αἷμα βύζην ἀπὸν κατὰ μῆνα ἕκαστον, " flowing abundantly every Month;" for βύζην, in *Hesychius*, is expounded also by ἰκανῶς, and δαδιλῶς, " abundantly, plentifully." The Word βύζην is derived from the Verb βύζω, or βύω, which is, to fill by stuffing, to condense. Thus, (*Lib. 1. περὶ γυναικ.*) εἷμα καθαρὸν καὶ βεβυσμένον, is a clean Garment of a dense or close Contexture; to which are there opposed τὰ εἰσα ἀγγία τε καὶ μαλακά, " thin and soft Woollen Cloaths." And in the same Book, εἷμα παλῆς ἐὼν καὶ βεβυσμένον, is a full well-stuffed Garment.

From βύω also, or βύω, which signifies to stop up, to obstruct, fill up, stuff, constipate, comes the Word βύσμα, *Bysma*, in the Expression βύσματα ἐκ ἐλασίων κεραμίων, " the Covers or Stopples of Oil-vessels." These *Bysmata* are order'd to be mix'd with the Sordes, or Filth, collected from Fullers Shops, in order to make a Suffumigation in a particular sort of Hemorrhage mention'd, *Lib. 2. περὶ γυναικ.* Some take the *Bysma* to be the same with the *Amurca*, which is recommended by *Dioscorides, Lib. 1. Cap. 135.* as useful in an Infusion for Exulcerations of the Anus, Pudenda, and Uterus. The *Bysmata*, before quoted, are probably such things as, by Intrusion, stop, fill, or close up Oil-vessels, as appears from those Expressions of *Hippocrates, (Lib. περὶ ἐπιζυήσεως) ὀδυσσάσας τὸν δάκτυλον*, " thrusting in the Finger," and διαβύσας τὸ στόμα, " intruding it into the Mouth."

C in the Chymical Alphabet, signifies Salt-petre.

CAA-APIA.

Some People having imagined, that our grey Ipecacuanha was the same with the *Caa-apia* of *Piso*, Mr. *Geoffroy*, as the most natural way of deciding the Question, and removing the Doubt, compares these two Roots with the Descriptions Authors have given of them.

The *Caa-apia Pisonis*, *Hist. Brasiliens.* *Caa-api Brasiliensibus dicta*, G. *Marcgravi*, is a small low Plant, with a Root about a Finger's Breadth or two long, as thick as a Swan's Quill, and sometimes as large as one's little Finger. This Root is knotty, and has its Sides, and its Extremity, furnish'd with Filaments three or four Fingers Breadths in Length. It is of a yellowish-grey Colour externally, but white internally. It is insipid when first put into the Mouth, but afterwards discovers a Taste somewhat acrid and pungent.

From this Root arise three or four Stalks or Pedicles, which are slender, round, and three or four Finger-breadths in Length. Each of these Pedicles bears a Leaf, about a Finger-breadth in Breadth, and three or four Finger-breadths in Length. This Leaf is of a shining-green Colour on the superior, but a little whitish on the inferior Side. It is furnish'd with a Nerve throughout its whole Length, and intersected with small rising Veins on its inferior Side.

The Flower has a Pedicle peculiar to itself, and is round, radiated, and resembling that of the Bellis. It is composed of several Stamina, and bears round Seeds smaller than those of Mustard.

The Root of this Plant is possess'd almost of the same Virtues with the Ipecacuanha, which has induced some to call it by that Name, tho' without any Ground, as *Piso* himself informs us in these Words: "It is, says he, of the same Worth and Efficacy with the *Pecacuanha*, for which Reason it is by some "falsly call'd *Pecacuanha*." It stops Fluxes, and is as good an Emetic as Ipecacuanha, tho' not so strong; for which Reason it may be exhibited in larger Doses. The Dose is from half a Dram to one Dram, in Powder, in Wine, Broth, or any other proper Liquor.

The *Brasilians* bruise the whole Plant, express its Juice, and eat it. This Juice they also use with Success in the Cure of Wounds, made by poison'd Darts, and the Bites of Serpents. Their Method of applying it is to pour it into the Wounds.

Piso adds, that there is another Species of the *Caa-apia*, very like this, excepting that its Leaves are somewhat denticulated about their Edges, and villous as well as the Stalks.

From this Description of the *Caa-apia*, from the Descriptions of the white and brown Ipecacuanhas, which *Piso* and *Markgrave* gives us in their natural History of *Brasil*, and from the express Observation of *Piso*, that some call'd the *Caa-apia* Ipecacuanha, it is obvious, that *Piso* did not intend to describe the *Caa-apia* under the Name of Ipecacuanha. It is much more probable, that what he calls white Ipecacuanha is a Species resembling the grey Kind brought by the *Spaniards* from *Peru*, under the Name of *Bazuquilli*; and that the Ipecacuanha Fusca is that Species of brown Ipecacuanha which is at present so common, and comes from *Brasil* by the Way of *Portugal*. *Memoir. de l'Acad. R. des Sciences, A. 1700.*

CAA-ATAYA *Brasiliensibus*, *Marggr.* *Euphrasie affinis*, *Brasiliensis siliquosa*.

From a slender white Root it shoots up a square Stalk a Foot in-Height, of a pale Green, slender, geniculated, partly erect, and partly incumbent on the Ground, and taking Root where it touches it at the Joints. At every Joint grow two small Leaves, opposite to one another, of the Size and Shape of those of the *Nummularia*, (Moneywort) or rather of *German-der*, or *Male Speedwel*, of a pale Green, and serrated at the Edges. At every Pair of Leaves comes forth a very small white Flower, in a manner galeated, which is succeeded by a Pod, of the Size and Figure of the Grain of Oats, which, opening spontaneously, sheds a very small round Seed, of a dark-yellow Colour, and less than the Seed of the smallest Poppy. The Plant has no Smell, but a bitter Taste.

The Plant bruised, and boil'd in Water, and the Decoction drank, purges much, both upwards and downwards.

In its opposite serrated Leaves, its galeated Flowers, and its Seed inclosed in Vessels, it agrees with the *Euphrasia*, whither it might have been refer'd. *Raii Hist. Plant.*

CAACHIRA. See ANIL.

CAACICA *Brasiliensis*, *Herba Colubrina Lusitanis*, *Marggrave*.

From a small Root, and full of Filaments, it sends forth numerous Stalks, near to one another, half a Foot, and some-

times a Foot in Length, of a reddish Green, a little hairy, geniculated at Intervals, of a Finger's Breadth, and having at each Joint two Leaves finely serrated; much of the Size and Shape of those of the *Veronica*, (Male Speedwel) somewhat hairy, green above, and whitish underneath. At the Joints between the Leaves proceed Multitudes of little Flowers, of a green Colour, mix'd with a very little Red, and disposed in the Form of an Umbella. The whole Plant is full of a milky Juice.

The Herb bruised, and applied, is a most effectual Remedy against the Bites of Serpents; and is good also for other Wounds. *Raii Hist.*

CAACO: A Sort of æschynomenous Plant, which grows in *Brasil*, of which Mr. *Ray* mentions two. The first is the *Caaco Brasiliensibus*, *Herba Viva vulgo*, *Marggr.* *Æschynomene spinosa 2. seu foliolis Acaciae latioribus, siliquis longis birsutis*, *Breyn.* An *Mimosa spinosa Fernambucensis*, *Zanoni*. THE SENSITIVE PLANT.

The second is the *Caaco seu Herba Viva tertia species*, *Margg.* *Æschynomene spinosa tertia, seu foliolis Acaciae angustioribus, siliquis parvis echinatis*, *Breynii*.

I find no Virtues attributed to either of them.

CAÆTIMAY *Brasiliensibus*, *Marggr.* *Senecio Brasiliensis, folio angusto serrato*.

It grows to the Height of three Feet, with a green Stalk, full of a medullary Substance, and, at its first springing up, surrounded with numerous Leaves, four or five Fingers Breadth in Length, narrow, jagged at the Edges, somewhat hairy, as is also the Stalk, and a little hoary, with a soft Down. The upper Part of the Stalk spreads itself into four, five, six, or seven Branches, cover'd with small Leaves, like those of Hyssop. The small Branches bear Multitudes of Flowers, like those of Groundsel, and ending in Down, which is blown away with the Wind.

The Leaves of this Plant have a hot and acrimonious Taste; and being boiled, or bruised, and the Part rubb'd or wash'd with the same, cure the Itch, where-ever it breaks forth. *Raii Hist. Plant.*

CAAGHIYUYO *Brasiliensibus*, *Marggr.* *Pif. Frutex baccifer Brasiliensis, fructu racemato congesto Myrtilli*.

It is an Under-shrub, of the Bigness of the Raspberry-bush. The Stalk is quite woody and hairy; the Leaves grow in Pairs, and always opposite, are hairy, soft to the Touch, slightly serrated, distinguish'd by three eminent Fibres running lengthwise, and interwoven with many small Veins, which run across, are greener above than underneath, and are also set with Tubercles over the whole upper Surface, but underneath are full of little Pits; every Tubercle has a whitish Hair. It bears two, three, four, or five white pentapetalous Flowers, which cluster together, and, falling off, are succeeded by black Berries of the Bigness of Juniper-berries, of a sweet Taste, which are eaten by the Negroes, and yield a Juice much like Myrtle-berries. It grows in several Parts of *Brasil*.

The Leaves pulverized, and sprinkled upon Ulcers proceeding from a hot Cause, are an excellent Cure for them. *Raii Hist. Plant.*

CAAGUA-CUBA *Brasiliensibus*, *Marggr.* *Arbor baccifera Brasiliensis, floribus umbellatis lilæ*.

It is a small Tree, with an upright Trunk, not thick, but without Branches, and having its Top cover'd with numerous large Leaves, a Foot and half in Length, and above a Foot in Breadth; and conspicuous for Fibres, which are soft to the Touch, and hairy, and greener above than underneath. It bears small Flowers, disposed in the Form of an Umbella, resembling the Flowers of the Lime-tree, white, pentapetalous, with a yellow Umbilicus in the Middle, and smelling also like the Flowers of the Lime-tree. The Bark of the Tree is of an Ash Colour, and the Wood brittle: The Fruit is black when ripe, and is eaten by the Birds.

I have met with no physical Virtues ascribed to this Tree. *Raii Hist. Plant.*

CAA-OPIA, *Marggr.* *Pison.* *Pao de Laca. Lusitanis.* *Arbustula gummifera Brasiliensis, fructu cerasi magnitudinis gummi, Gutta femou, simili*.

It is a Tree of no great Bigness, with a Bark of an Ash Colour, inclining to Red, with brown Striæ, of a tough kind of Wood, and spreading itself into many Branches. The Leaves are solid, of a Green, inclining to reddish in the under Part, and of a paler shining Green above. The Flowers, which form an Umbella, take their Beginning from brown Globules of the Size of Lentils, which, in Process of Time, protrude Flowers

composed of five Petals, of a Green inclining to yellow, cover'd on the Inside with a white woolly Substance, and well stock'd with fine yellow Stamina. The Flowers are succeeded by Berries, which are first green, of the Size of a Cherry, round, cover'd with a soft Shell, out of which, being cut, they discharge, by Exsudation, a liquid Substance of an elegant yellow Colour. Within the Bark it contains a white Pulp, composed merely of cylindrical Bodies, placed near, and adhering to one another. At the Extremity of the fructiferous Branches there are always two acuminate brown Leaves, which are compacted, and, as it were, half glued together, in such a manner as to represent the Figure of a Spear or Hunting-pole, and, being cropt from their Pedicle, emit a Saffron-coloured Juice.

It generally flowers in November and December, and the Fruit is ripe in January and February.

If an Incision be made in the Bark of this Tree, especially when it begins to blossom, and let alone for a Day or two, it will discharge a Tear of a Saffron-colour, inclining to Red, which coagulates at first into a soft Mass, which hardens by Degrees. It agrees in Colour and Consistence with the *Gutta Gamba*, and dissolves and purges in the same manner; it is a little redder, almost of a Saffron-colour, and gives a Tincture of a little deeper Gold-colour. It is dissolved in Spirit of Wine, and gives it a Saffron-colour'd Tincture.

Formerly they cured the *Impetigo* by rubbing the Part with this Resin, dissolved in Water. Tho' it be not so effectual as *Gutta Gamba*, which *Piso* knows not whether to impute to its natural Want of Virtue, or to the Way of preparing it, yet from half a Dram to a Dram of it, macerated a whole Night in Vinegar of Squills, or Spirit of Wine, and given in Wine, is a strong Purge. It is better taken in Pills than in a liquid Form, because it is very difficult to be dissolved, on account of its Tenacity. *Raii Hist. Plant.*

CAAPÉEA. A Name for the PAREIRA BRAVA, which see.

CAAPOMONGA. The Name of a Plant which grows in *Brasil*. Mr. Ray calls it *Caapomonga Brasiliensis dicta, Lusitanis Erva de Vina*, Marggr. *Campanula Brasiliana, floribus minimis*.

I find no medicinal Virtues attributed to it.

CAAPONGA. The *Brasilian* Name for a sort of Samphire, call'd also *Trifolii Spica Crithmum maritimum non spinosum Brasiliense*, Pison. *Perexyl Lusitanis*, Marcgrav.

The Leaves and young Stalks of this Plant are boil'd, and pickled with Vinegar, and eat with Flesh or Fish. They are said to excite an Appetite, to provoke Urine, and to open Obstructions of the Viscera.

Piso also mentions another *Caa-ponga*, which is a sort of *Brasilian* Purslane, which is used, like Samphire, for a Pickle.

CAAPO-TIRAGUA *Brasilianis*, Marcgr. *Rubia Brasiliensis, floribus verticillatis albis*.

Ray informs us, that this Plant agrees with the *Rubia* in some respects, but is not a true and genuine Species of *Rubia*.

CAAROBÁ, *Pison*. A Tree very common in *Brasil*.

It is found, in the greatest Perfection, in the richer Soils about *Parnambuc*; but where it grows in less fertile Ground, it scarce exceeds a small Shrub in Bulk. Its Flower, which it sends forth in the Month of June, is of an azure-blue Colour, with a purple Cast. Its Seeds, which are ripe in the Month of September, are of a blackish Colour. Its Pod, tho' rare, is yet of no Use. It resembles the largest Species of the *Kidney-bean*, and, when ripe, it opens, and remains empty.

Its Leaves are oblong, shaped like a Tongue, and of a faint-green Colour: They have a Nerve running thro' all their Length, with oblique prominent Ribs distributed from it.

They are of a bitter Taste; and, when dried and bruised, are said to be highly proper for Fomentations and Baths. The Medicines prepared of them, when exhibited internally, are of a drying, cleansing, and healing Nature; which *Piso* says, he has happily experienced in the Cure of many chronic and arthritic Disorders, but more particularly in that of the *Lues Venerea*. The Leaves, when triturated, form'd into a Plaister, and applied to Ulcers, are of singular Service, and often remove them entirely; especially if, after due Purgation, a Decoction of them is drank for some Days, and a Diaphoresis promoted. Of the Flowers a Conserve is also prepared for answering the same Intention. Ray from *Piso*.

CAB signifies Gold. *Rulandus*.

CABALA, or CABBALA; call'd also Kabbala, Kabala, Cabalia, Cabalistica Ars, Cabula, and Gaballa.

This is deriv'd from a Hebrew Word, which signifies to receive by Tradition. It signifies a Science which consists in the mysterious Explication of the Scripture, either receiv'd by Tradition, communicated by Angels, or learn'd from some imaginary Import of Words or Letters. This is the Jewish Cabala; but the Word, from this Original, has been apply'd to any sort of mysterious or magical Knowledge or Explication of Things. Thus the Medicinal or Hermetical Cabala is a Science which discovers the most conceal'd Knowledge of Bodies, and

Mysteries of Nature, either by a Communication with incorporeal Beings more knowing than ourselves, or by their mystical Characters. In this *Paracelsus* seems to repose a great deal of Faith.

CABALATOR, or CABULATOR. Nitre. *Rulandus*.

CABALLI, CABALES. I take these to be the incorporeal Beings, mention'd under the Article CABALA. *Rulandus* says, they are the astral Bodies of Men, who come to an immature Death before their predestin'd Period, and which are suppos'd to wander about the Earth, as incorporeal Spirits, so long as they were to have liv'd upon it embody'd. As these, probably, only exist in the Imaginations of the Mad or Whimsical, and as the Doctrine which depends upon a Supposition of their Existence is highly extravagant, a farther Account of them would be superfluous.

CABBALLICA Ars, καβαλλική, according to the *Lacedaemonian* Dialect, for καβαλατική, from καβαλλω, to throw down. This is a Term in Gymnastics, importing, amongst Wrestlers, the Art of foiling, or throwing down an Adversary. *Galen, Lib. ad Thrasibulum*.

CABEBI, or CABEB. Scales of Iron. *Rulandus*.

CABELIANUS. A Sort of Fish, of the Cod or Pike Species. *Castellus*.

CABULATOR. See CABALATOR.

CABUREIBA PISON. This Mr. Ray thinks the Tree which affords the Balsam of Peru.

CACAGOGA, χαζαγόνα. Ointments, which, apply'd to the Fundament, procure Stools. *Paulus Aegineta, Lib. 7. C. 9.* directs to take Alum, mix it with Honey, and boil till they acquire a tawny Colour. With this, says he, anoint the Fundament; it procures a great many Stools, but not without Pain.

CACALIA, Offic. κακαλία, Dios. *Cacalia quibusdam, J. B. 3. 569. Cacalia incano folio, Ger. Emac. 815. Raii Hist. 1. 291. Cacalia folio retundo incano, Park. 1221. Cacalia foliis crassis hirsutis, C. B. 198. Hist. Oxon. 3. 94. Tourn. Inst. 452. Cacalia sive Leontice veterum quibusdam; aliis vero Tussilaginis species, Chab. 513. STRANGE COLTSFOOT. Dale.*

The Characters are;

It hath a sterculous Flower, consisting of many Petals, divided into four Parts, fitting on the Embryo, and contain'd in an almost cylindrical Empalement. The Embryo afterward becomes a Seed, furnish'd with Down.

It grows by the Sides of Woods, and amongst Shrubs in shady Places.

Cacalia, which some call *Leontice*, has very large white Leaves, from the Middle of which there shoots up a strait white Stalk, bearing a Flower like that of Bryony; it grows on Hills.

The Root macerated in Wine, like *Tragacanth*, and made into an Eclegma, or chew'd by itself, cures Coughs, and Roughness of the *Astera Arteria*. The Berries, which succeed the falling off of the Flowers, pulveriz'd, and made into a Cerate, and the Face anointed therewith, renders the Skin smooth, and free from Wrinkles. *Dioscorides, Lib. 4. Cap. 123.*

I find no other Virtues attributed to it by the Moderns.

Miller takes Notice of seven Species of this Plant.

CACALIANthemum. A Plant originally brought from the *Canary Islands*, but now common in the Gardens of the Curious. It has been call'd the Cabbage-tree, and Carnation-tree, and Dr. *Dillenius* gave it the Name of *Cacalianthemum*, because the Flower and Seeds nearly agree with the *Cacalia*. Miller has added a second Species.

The Characters are;

It hath a sterculous Flower, consisting of many Florets, like those of Groundsel; but the Florets are cut into four Segments, whereas those of Groundsel are divided into five Parts: The Cup of the Flower is also slenderer than that of the Groundsel.

The first of them is call'd the

Cacalianthemum folio nerii glauco, Hort. Eith. *Cacalianthemum* with a glaucous Oleander-leaf, commonly call'd the Cabbage-tree.

Cacalianthemum Africanum, ficoidis folio. African Cacalianthemum, with a Ficoides-leaf.

This Sort was originally imported from the Cape of Good Hope into Holland.

The Leaves, when broken, emit a strong Scent, somewhat like Turpentine; from whence some Persons have given it the Name of Balm of Gilead, tho' very improperly.

It has been commonly known by the Name of *Senecio*. *Miller's Dictionary*.

CACAMOTIC TLANOQUILONI, seu Battata Peregrina, Hernandez. The Cathartic Potato.

This grows spontaneously in the warmer Countries of America.

The Roots, taken in the Quantity of two Ounces going to Bed, purge with great Gentleness and Safety. It is said to be sweet, and of a very agreeable Taste, not inferior to our Pears.

CACA-

CACANGELIA, κακαγγελία, and, in *Hippocrates*, κακαγγελία. This, according to the Derivation, should signify a Message conveying bad News; but, by *Hippocrates*, it is us'd in a different Sense, in his Treatise *περί τέχνης*.

“There are some, says he, who make it their Business to speak ill of Sciences, without any other View than that of making a Parade of their Knowledge. But, in my Opinion, the Tendency and Use of Knowledge is to discover things of some Use, when found out; or to perfect Discoveries already made; to which those do not in the least contribute, who endeavour to traduce the Discoveries of the Skilful before the Ignorant, without making the least Amendment. These, instead of acquiring the Reputation they aim at, only betray their own Malevolence (*κακαγγελία*) and Ignorance.”

This, amongst many other Passages, shews *Hippocrates* to have been a Gentleman, and an honest Man; for Candor is one of the Characteristics of these, as the Malevolence here spoken of is that of a Scoundrel and a Villain.

I must remark, that in all the Copies I have seen of *Hippocrates*, this Word is printed κακαγγελία but *Galen*, in his Exegesis, explains κακαγγελία by κακολογία and most of the Commentators are of Opinion he has a View to this Passage.

CACANUM, κακάνιον. The Name of a Plant mention'd by *Paulus Aegineta*, in his Catalogue of simple Medicines, L. 7. C. 3. As he ascribes the very same Virtues to the Root, which *Dioscorides* attributes to the *Cacalia*, I suppose he means the same Plant.

CACAO, Offic. Ger. 1364. Emac. 1550. Raii Hist. 2. 1670. Cat. Jam. 134. Hist. 2. 15. Ind. Med. 24. Mont. Exot. 9. *Cacao frve Cacaoate*, THE PEAR-BEARING WHOLSOME ALMOND-TREE, Park. Theat. 1642. *Cacao America*, frve *Avellana Mexicana*, J. B. 291. *Amygdalis similis Guatimalensis*, C. B. Pin. 442. *Arbor Cacaoera*, Pif. Mant. A. 197. *Cacava Quahuil frve Arbor Cacar Cacarifera*, Hern. 79. *Cacava seu Arbor Cacar*, Nieremberg. seu *Arbor cacarifera Mexicanorum*, Jons. Dendr. 124. *Cacava Quahuil*, frve *Arbor Cacar*, Nieremb. 344. *Arbor cacarifera*, Camell. Syllab. *Cacao America*, seu *Avellana Mexicana*, *Cacavata quorundam*, Chab. 19. *Cacao fructus*, Calceol. Mus. 606. Worm. 191. *Arbor cacarifera Americana*, cujus fructus folliculo inclusus *amygdalorum speciem refert*, Pluk. Almag. 40. Phytog. 268. f. 3. **THE CACAO-TREE**. Dale.

The Tree which bears the Chocolate-nut, grows to be pretty big, full of large Leaves, standing on long Foot-stalks, broad and round next the Stalk, growing narrower, and ending in a Point, among which grow large five-leaved yellow Flowers, follow'd by a roundish Capsula, or Pod, of the Bigness of a small Melon, but growing narrower at the End, which terminates in a long sharp Papilla. It is pretty tough, of a reddish-brown Colour, and incloses about twenty or thirty of the *Cacao-nuts*, closely compacted together.

This Tree grows in several Parts of the *West-Indies*, as *Martinico*, *Jamaica*, and some others; but the best come from *Caraccas* in *New-Spain*.

The Nuts are of a brownish Colour on the Outside, about as big as an Almond, but rounder and thicker, cover'd with a thin Shell, under which lies the Nut, of a dark reddish-brown Colour, easily crumbling into several Parts, of an oily and somewhat bitterish Taste. Of these, roasted, and separated from the Shells, is made Chocolate, so much us'd of late, and which is made either with, or without, Sugar; some adding Vanelloes, or what else they like. *Miller's Bot. Off.*

The Juice, express'd from the mucilaginous Pulp contain'd in the Husk of the *Cacao-nuts*, is a Substance resembling Cream, of a grateful Taste, and cordial Quality. It is of a detergent Nature, and, when us'd externally, very proper for removing cutaneous Spots and Roughnesses. The Nuts themselves, included in the Husk or Shell, are said to be of so nutritive a Quality, that one Ounce of them contains more real Nourishment than a whole Pound of Beef. But, that we may at once receive the greater Light, with regard to the Truth of this Assertion, and be enabled to form a juster Judgment of the Medicinal Virtues of *Chocolate*, of which this Nut is the Basis, we must inquire what Substances it yields, and of what Principles it seems to be compos'd, when subjected to a Chymical Analysis.

Two Pounds, then, of crude *Cacao* yielded various Liquors, mix'd with an acid and acrid Salt; that is, fourteen Ounces and an half, and half a Dram of Oil, and half an Ounce and ten Grains of a lixivial Salt. *Du Hamel Hist. and Hist. Ac. R. Sc. T. 2. p. 26.* The pinguious and oleous Part of the *Cacao* was, by Mr. *Hornberg*, separated from the rest, in three different Manners: First, by Distillation, he obtain'd from one Pound of *Cacao* three Ounces and a Quarter of Oil, which is much about the fifth Part of a Pound. Secondly, from one Pound of the *Cacao*, made hot, and bruis'd in the ordinary Manner, he obtain'd, by Expression, two Ounces of Oil; and from the Fœces, afterwards, boil'd in Water, he express'd half an Ounce of a like Oil; from the same Fœces, mix'd with common Water, and subjected to Distillation, he obtain'd two

Ounces and an half more; so that the whole Oil, obtained, amounted to five Ounces and an half. Lastly, grinding the *Cacao* with a warm Stone, as when the Chocolate is prepar'd of it, he mix'd thirteen Ounces of this subdu'd Mass with eight Pounds of boiling Water, which, when cold, exhibited no kind of pinguious Substance on its Surface. But after this Matter, put into the Water, was boil'd, and inspissated to the Consistence of a thick Poulitis, then a pinguious Substance was observ'd to float on the Surface, which, being collected by little and little, till no more appear'd, became gradually so thick and tenacious, that it could not commodiously be handled with a Spoon, and was, at last, indurated like Tallow, but retain'd the Smell of the *Cacao*. Six Ounces and somewhat more of this Fat were taken off, and, by Distillation, the Fœces yielded an Ounce and three Drams more; so that from thirteen Ounces of the Mass seven Ounces and three Drams of Oil and Fat were, by this Method, extracted. The Reason of this Difference, according to the Conjecture of Mr. *Hornberg*, is, that the *Cacao* brought from the *Indies*, being much dry'd, and long kept, loses much of that native Humour, from which Part of the Fat is obtain'd. For this Reason, when put into the Retort dry, in the first Analysis, by a simple Distillation, it yields little Oil; but, in the second Operation, the Fat being separated by Expression, and the Fœces being impregnated with warm Water, the pinguious Matter remaining in the Fœces, and which had, by being too much dry'd, lost a Part of its Moisture, recovers it again, and then yields as much Oil by Distillation, as it had before done by Expression. In the third Process, after a large Quantity of Water had been added to the *Cacao*, reduc'd to a kind of Mass, and, after they had boil'd together, on a gentle Fire, for five or six Hours, the pinguious Particles being, by this time, sufficiently impregnated with Moisture, united, and thus, by this Method, more than three times as much Oil was extracted, as was obtain'd by the first Distillation. *Hamel Hist.*

Ray gives us the following Analysis of *Cacao-nuts*: Eight Ounces, says he, of undecorticated *Cacao-nuts*, reduc'd to a Powder, and committed to the Retort, discover'd themselves to be of a Substance so fix'd and difficultly resolvable, that, by a moderate Fire, they yielded nothing but a small Quantity of a certain whitish Liquor, clear and transparent like Water, and which was taken for Phlegm. Then, increasing the Fire to that Degree which is requisite for extracting the Spirit of Vitriol, in the Space of seventeen Hours, there was a Spirit rais'd in the Form of Exhalations, of a milky Whiteness. This Spirit, contrary to the Custom of all others, subsided in Phlegm to the Bottom of the Receiver. At last, upon the Application of the most violent reverberating Heat, a Practice not usual in the Distillation of Vegetables, there ascended an Oil highly red, and, as it were, of a Blood-colour, but, at the same time, pretty transparent. This Oil, when cold, thickens like other Oil, or like Butter of Wax; the Caput Mortuum weighed two Ounces seven Drams, the Spirit two Ounces, the Oil three Ounces and a half. The Spirit was not very hot, but highly penetrating, neither was it ungrateful to the Smell, as those Spirits generally are which are drawn from Blood or Flesh. The Oil is, in like manner, wonderfully pungent and penetrating, before it is separated from the volatile Salt, of which it contains a large Quantity; it is also highly aromatic and cordial. The Spirit soon becomes acid, a Circumstance which sufficiently proves, that it contains a great deal of an acid Principle. From what has been said, 'tis obvious, that the *Cacao* contains a large Quantity of Oil, and this Oil is found, from Experience, to be highly excellent for some Medicinal Purposes, when it is neither alter'd by Distillation, nor spoil'd by Expression, but obtain'd pure, only by boiling in Water. For this Reason the *Oleum e Nucleis Cacao* is one of the Oils in the *Pharmac. Paris*. For obtaining this Oil, the Nuts, when roasted, and clear'd of their Husks and Buds, are levigated upon a Stone with Fire under it, and then boil'd in Water, till the Oil appears on the Surface, which, when the Water is cold, may be gathered from it concreted and thick like Suet, of a brownish Colour, which is chang'd into that of white, by washing it with warm Water whilst liquid. But it seems to be a preferable Method, by which the Oil is extracted from the Nuts by boiling, after having taken off their Husks and Buds, and bruis'd them without roasting them. Sixteen Ounces of the Nuts, thus treated, yielded three Ounces and an half of a very beautiful Butter, of a white Colour, with a Cast of green and yellow. This Butter, as to its Consistence, had a nearer Resemblance to Suet than to Oil; but it had a most fragrant and delicious Taste. *Comm. Lit. for the Year 1737.* From its Consistence it is call'd *Butyrum Cacao*, or Butter of *Cacao*. In *America* this native Oil, when separated and pure, is said to have no Smell, but a pretty grateful Taste. 'Tis also said, that, in Process of Time, it acquires the Consistence of Cheese, which may be kept for a long time without becoming rancid or corrupted, and which may afterwards be liquified with a very gentle Heat. A certain Quantity of this Oil, distill'd from a Cucurbit, plac'd in the Heat of Ashes, yielded

an unctuous Liquor, which concreted as it drop'd, and seem'd to differ in nothing from the Butter or Oil itself, except in its being somewhat empyreumatic, and depositing in the Bottom of the Receiver a few Drops of a clear Liquor, of a somewhat acid, and highly grateful, Taste. This Butter of Cacao, when not rectify'd, may not only supply the Place of the best Oil of Olives in Food, but 'tis also extol'd as a highly anodyne Medicine, and proper for correcting the acrimonious Humours which prove uneasy to the *Aspera Arteria*. The Method of using it is, to make it up into Troches with Sugar-candy, to be held in the Mouth to melt gradually. Painful Hæmorrhoids are also much reliev'd by being anointed with it, when reduc'd to the Form of a Liniment, with pounded Scorizæ of Lead, or mix'd with Powder of Millepedes, Saccharum Saturni, Pompholyx, and a small Quantity of Laudanum. Some, with Success, apply a Linen Cloth, dipp'd in the Oil, warm, to the Parts affected with arthritic Pains, applying a warm Cloth over it. It is also recommended as a proper Basis for the apoplectic Balsams; and may be substituted, if not prefer'd, to the Oil of Nutmegs. It is also highly proper for anointing Instruments of Steel or Iron, in order to preserve them from Rust. In *America* the Women use it for rendering the Skin smooth and even, without leaving any shining unctuous Gloss behind it. But since, in *Europe*, it is of too firm and hard a Consistence for this Purpose, it may be mix'd with Oil of Ben, or with Oil of sweet Almonds, express'd without Fire. Where the Butter of Cacao, prepar'd of unroasted Nuts, is to be us'd internally, 'tis to be dreaded lest it prove of too hard Digestion, and bring on those Symptoms mention'd in *Comm. Lit.* where we have an Account of a Woman, who, after a *Hæmoptoe*, became phthisical. This Patient, in the Space of seven Days and an half, us'd fourteen Drams of the Butter of Cacao, taking scarce a Dram for each Dose, Morning and Evening; but, next Day after the Use of it, she was afflicted with Head-achs, and Loss of Appetite; to which, on the ninth and tenth Days, were added Weaknesses, and Faintings; and, upon injecting a Clyster, the Patient discharg'd indurated Globules, of a greenish Colour, form'd by the Coagulation of this Butter of Cacao.

But the Circumstance which, of all others, renders the Cacao-nut most celebrated, is, its being the Basis of Chocolate, a factitious Substance, first brought from *America*, into *Europe*, by the *Spaniards*, about the Beginning of the last Century. It is a solid Mass, form'd either into round or square Plates, or made up into Cylinders of a dark-brown Colour. This Substance is friable, and, for the most part, of a grateful aromatic Smell. It is sometimes dissolv'd in Water, sometimes in Wine, and sometimes in Milk; at other times 'tis eaten dry, or mix'd with other Food. It is drank either with a View to nourish, or regale the Stomach, to provoke to Venery, or to answer some Medicinal Intention. The Effects of Chocolate on our Bodies, whether produc'd by its nutritive or stimulating Quality, ought to be determin'd from a joint Consideration of the aromatic Ingredients which enter its Composition, and of the Nature of the Liquor in which it is dissolv'd for Use. Its nutritive Quality is diminish'd by the Addition of a large Quantity of Aromatics, since by that means it becomes too hot. It is also too hot when dissolv'd in Wine, except in those remote Northerly Regions, where the Inhabitants are accusom'd to a hot Regimen. When prepar'd with Milk, it nourishes more than in any other Form; but it seems, at the same time, to load the Stomach too much. By the Addition of an Egg or two, which is the Custom with some People, its nutritive Quality is augmented. Water, therefore, seems, of all others, to be the best Vehicle for Chocolate, since, by its Dilution, it must, of course, promote the Distribution of its nutritive Principles. In the hotter Countries of *Europe*, it is generally prepar'd with Water; and, because it is drank hot, and must, of course, relax the Tone of the Stomach, it is customary to take a Draught of cold Water either before or after it, with a View to assist the Contraction of the Stomach. The *Americans* drink Chocolate, as a Cooler, at their Feasts and Entertainments. Many also of the *Italians* and *Spaniards* drink it, cool'd with Ice or Snow. Chocolate is particularly proper for cold Constitutions, for old People, for such as have their Strength impair'd by continual Watchings, and for those who travel in cold Mornings. It is also, by some, commended in Cases where the Digestion is weak; but the Cacao-nut is of too oily and tenacious a Nature, to be digested by a weak Stomach. For which Reason *Cheyne* thinks, that the Weak and Infirm should not use it, either as Food, or as a Medicine; but rather recommends to them, for common Food, farinaceous Substances, such as Pease, Beans, Millet, Oats, Barley, Rice, Wheat, and other Substances of a like Nature, boil'd in Water or Milk; but he owns, that Chocolate may produce all the salutary Effects of a wholesome Food, in vigorous and robust Constitutions; in which it may also be us'd, as an anodyne Medicine, in Colics, and Nephritic Pains; since, by its Viscidity, it sheaths up and blunts the salt, acrid, and irritating Humours, that

thus, by the lively Impetus of the Viscera, they may be discharg'd thro' proper Passages. *Cheyne's Essay on Health.*

It is confirm'd, by the Experience of many practical Physicians, that, in hectic, scorbutic, and catarrhus Disorders, Atrophies, malignant Itches, and Chin-coughs, Chocolate has prov'd a divine and miraculous Remedy; and that, in these Disorders, when other Remedies have prov'd ineffectual, the Physician has been oblig'd to have recourse to Chocolate, as the last and most effectual Medicine.

According to *Meisner*, in all Disorders arising from an acrid Salt, whether bilious or acid, austere or muriatic, Chocolate may afford the miserable Patients a singular Relief. From this Class of Disorders we do not exclude the *Lues Venerea*, the Gutta Rosacea, the Gout, and wandering arthritic Pains. *H. F. Konig* asserts, that a small Quantity of Chocolate, with a few Aromatics in its Composition, wonderfully relieves the Hypochondriac, and corrects the Acrimony of their Juices, especially if exhibited with the Spices *Diatragacanthi frigidi*; and the celebrated *Hoffman*, in his Consultations, asserts that Chocolate, prepar'd with Water, and drank at proper Times, may conduce very much to the Cure of melancholic Disorders, arising from too weak and lax a State of the Nerves, especially if a few Drops of the Essence of Amber are mix'd with it; for he affirms, that he had, from Experience, found it to contain a kind of Oil, highly friendly to the nervous System. But because Chocolate is frequently recommended in Weakness of the Stomach, we must observe, that, according to *Meisner*, "Chocolate is only proper in such Weaknesses of the Stomach as arise from Inanition or Defect, either in Consequence of using such Aliments as afford little Nourishment, like those in *America*, in Consequence of the Constitution and Stomach being too much exhausted by some previous Evacuation, or in Consequence of the Aliments being too speedily dissipated by the excessive Subtlety of the Atmosphere, as generally happens in cold and mountainous Countries, where the Appetite is always keen. But, in such Weaknesses of the Stomach as arise from other Causes, Chocolate is far from being proper." Thus we find Chocolate possess'd of two Qualities which it derives from the Cacao-nut; that is, a nutritive Quality, and that by which it corrects the Acrimony of the Juices. Hence 'tis obvious, that the learned *Stubbs* was in the right, when he affirm'd, that well-prepar'd Chocolate was an excellent Diet, not only for such as are scorbutic, afflicted with arthritic Pains, or the Stone; for Women in Labour; and for preventing Convulsions, and expelling the Meconium of Children; but also for hypochondriac and chronic Disorders. *Philosoph. Transact.* Its alexipharmic or poison-resisting Quality, or rather its oleous Nature, adapted to obtund and sheath up the Spiculæ of Poison, is sufficiently conspicuous from a Case in *Eph. M. C. D. 1. a. 3. o. 40. D. 3. a. 5. app. p. 102.* where, thro' a Mistake, Arsenic was us'd instead of Sugar, foredulcorating roasted Cherries, and, at the same time, for sweetening Chocolate; and it was observ'd, that those who drank the Chocolate were afflicted less terribly, and struggled longer with the Poison, than those who eat the Cherries. That Chocolate contains a large Quantity of Oil, is also plain from this Circumstance, that it does not keep long before it acquires a kind of Rancidity. *Caldera* is of Opinion, that Chocolate justly deserves a Place among the aperient Medicines; and, indeed, 'tis certain, that every nutritive Substance, whether eatable or drinkable, adds those Degrees of Strength to the Body which are necessary to carry on Perspiration. Besides, Chocolate must be useful for opening Obstructions, on account of those Ingredients, which, being of an aromatic and stimulating Nature, increase the oscillatory Motions of the Vessels, and promote the Circulation of the Juices; so that it must, of course, contribute to carry on the proper Secretions, and excite the various Excretions, in proportion to the Regimen us'd, provided the Patient is not too much accusom'd to drink it; for such Substances as we are not habituated to, only operate as Medicines on our Constitutions.

It would be too tedious to give an Account of the different Methods used by different Nations in preparing the Chocolate. *Benzo*, in his *Nov. Orb.* gives us the Recipe commonly followed by the *Americans*. *Le Fevre* gives us an Account of the Method used by the *Mexicans*; and, in short, different Authors inform us of the various Methods used by different Nations. According to *Herman*, the richer and more opulent Inhabitants of *Spain* prepare it in the following manner:

Take of excorticated clean and roasted Cacao, six Pounds; of Cinnamon, half a Pound; seven Vanelloes, dissolved in Syrup; six or seven Cloves; Meal of *Indian Corn*, half an Ounce; of *Spanish Pepper*, one Dram; of *Arnotto*, in order to give it a reddish Colour, two Drams, dissolved in Rose-water, or Syrup of Roses; of Sugar, a sufficient Quantity, or about three or four Pounds: Beat and mix all together in a Vessel placed over a gentle Fire; stir them constantly, till they are intimately mix'd; reduce to a Mass;

a Mals; and if you have a Mind, add a proper Quantity of Musk, or of the Essence of Amber.

In *Meisner* we have the Receipt of *Barthol. Marradon*, that celebrated *Spanish* Physician, which is as follows:

Take seven hundred Cacao Nuts; of the finest white Sugar, half a Pound; of Cinnamon, two Ounces; of *Mexican* Pepper, fourteen Grains; of Cloves, half an Ounce; of Vanilloes, half a Scruple; or, in their stead, two Ounces of Anise-seeds; and of Arnotto, the Bulk of a Nut: To these some add a little Orange-flower Water, and one Grain of Musk or Ambergrise.

In the Memoirs of the Royal Academy of Sciences at *Paris* we are told, that Chocolate is prepared of

A Pound of Cacao, roasted after the Husks are taken off, with an equal Quantity of Sugar, two Drams of Cinnamon, and half a Dram of Vanilloes.

This Composition, when subjected to Distillation, yielded eight Ounces and four Drams of Oil; and what remained after Distillation yielded two Drams and eight Grains of a lixivial Salt. *Hamel. Hist. Reg. Scienc. Academiæ.*

Le Fevre prefers the following Recipe, taken from *Lemery*, to all the other Methods of preparing Chocolate, used in *France*.

Take two Pounds of Cacao Nuts decorticated, roasted, and reduced to a Paste; with these mix one Pound and an half of Powder-sugar; to these are added a Scruple and an half of Vanilloes, four Cloves, half a Dram of Cinnamon, one Grain of Amber, and half a Grain of Musk, reduced to Powder. *Lemer. Alim.*

At present the Pepper and *Indian* Corn are for the most part rejected by the *Europeans* in making Chocolate; and in *Spain* and *Italy*, that Species, which is prepared without the Vanilloes, is called *Chocolata Sanitatis*, because it is thought less hot than the other Kinds. In the *American* Islands belonging to the *French*, the Vanilloes, though there produced in great Plenty, are not used in preparing Chocolate. But because many love Chocolate of a pungent Taste, some in the room of the Vanilloes substitute other acrid Aromatics, such as Pepper, Ginger, and others of a like Nature. The most simple of all the Methods of preparing Chocolate used in *Europe*, is directed in the *Pharmacop. Augustan.* thus:

Take Cacao Nuts, gently roasted, decorticated, and reduced to a fine Powder; let two Parts of this Powder be reduced to a Paste, with one Part of white Sugar, and dry'd in a gentle Heat.

Whoever has a mind to inform himself more fully of the various Ingredients used in preparing Chocolate, let him consult *Meisner*, *Caldera*, *Du-Four*, and *Piso*. As for the Goodness of the Chocolate commonly sold, that is generally thought best which is intirely dissolved in the Liquor with which it is made, without leaving any Sediment. In *Spain* the Chocolate is thought best which is pierc'd by Worms, who are said to be fond of none but what is good. *Reaumur.*

It now remains, that we say something concerning the Method of reducing Chocolate to a proper Liquor for drinking. The most ordinary manner of doing this is to put boiling Water, or, in its stead, Milk or Wine, in a proper Vessel; then the Chocolate, being cut down, is added to the Liquor; and, during the boiling, the Mixture is well agitated with a denticulated or notched Piece of Wood, commonly called a *Mill*, till it froths; then the frothy Liquor is poured into a Cup or Bowl, and drank warm or tepid. It is also a Custom with many to eat toasted Bread or Biscuit soak'd in it. What remains of the Liquor is, before it is poured into the second or third Cups, to be again agitated as before, till at last the Whole is converted into Froth. Some allow the Chocolate to boil for some time with the Liquor, before they attempt to raise it into a Froth. But 'tis to be fear'd, that, by this Method, it may lose too much of the subtle Aromatic it contains. They who do not think the Chocolate before sufficiently impregnated with Sugar, add of that Ingredient whatever they have a mind. The Proportion of the Chocolate to the Liquor, with regard to Weight, ought, according to *Mundius*, and some other Authors, to be as one to eight. But the Proportion is always varied, according as the Chocolate is wanted strong or weak.

As for the Dose or Quantity of Chocolate to be drank at a time, it is commonly determined by the Person who drinks it. *Colmenero de Ledesma*, a celebrated *Spaniard*, affirms, that between five and six Ounces of it may be drank, without doing any Injury to the Constitution. And that larger Quantities are not prejudicial to such as are not accustomed to it, is plain, from daily

Experience, especially in Cases where the Stomach becoming empty requires fresh Supplies. They who drink the gross Substance which subsides to the Bottom, imagining it to be the most nutritive Part of the Chocolate, are grossly mistaken, and by that Practice considerably injure their Health; since, according to the last quoted Author, it is only the terrestrial Part of the Cacao, which, by creating Obstructions, disposes to melancholic Disorders. The Dose or Quantity must also be considerably varied, according to the Strength or Weakness of the Chocolate, and according as it is made with Milk or Wine. A Man in perfect Health may drink as much as he has an Appetite for, provided he finds himself refresh'd, and his Stomach not overloaded by it. But he ought to remain in a State of Rest for half an Hour, or an Hour, after he has drank it, lest Concoction and Digestion should be interrupted, or irregularly carried on. He ought also to abstain from Food for some time after he has drank Chocolate, lest by a contrary Practice he should injure his Stomach; for Chocolate is itself very good Matter of Nourishment. For this Reason the most proper Time for using it is when the Concoction is finish'd, whether in the Morning, or in the Afternoon. And since in a hot Air the Powers of Digestion are fainter and more languid than in a cold State of the Atmosphere, 'tis hence obvious, that Chocolate ought to be used in smaller Quantities, and less frequently, in Summer than in Winter, as *Colmenero* has justly advis'd; though he adds, "That in *America*, and even in *Spain*, Chocolate may be drank at all times; and that this is owing, first, to Custom; and, secondly, to the excessive Heat of these Countries, by which, in Conjunction with an abundant Humidity, the Pores of the Inhabitants are open'd, and a great Dissipation of the Substance of the Body is caused; so that Chocolate may there be safely drank, not only in the Morning, but at any Hour of the Day. Now, since by the intense Heat the natural Heat of the Body is dissipated; and since the Heat of the Stomach, and other Viscera, retires to the Circumference of the Body, the Stomach must of course be rendered considerably weakened; so that the *Americans* and *Spaniards* find themselves refresh'd, and the Tone of their Stomachs restor'd, not only by Chocolate, but also by pure and unadulterated Wine." The aromatic Ingredients of the Chocolate recruit the languid Stomach; as also generous Wine, by restoring a due Degree of Contraction to the nervous System, and raising the Spirits to a proper Motion. But lest, in Consequence of a Dissipation of the aqueous Liquids, the parched Vessels of the Body should receive a Heat which would farther inflame the Humours, to the no small Detriment of Health, *Caldera* advises, "That if, during an excessive Heat, the Person who intends to drink Chocolate is thirsty, he should a little before take a small Draught of cold Water, lest the Chocolate produce a fresh Degree of Thirst, and render it more intense than it was before. But any Liquor drank after Chocolate generally produces the most terrible Symptoms, whether it be Wine or Water. I myself saw a Vertigo produc'd by this imprudent Practice in a Citizen of *Seville*; the Colic in another; and a Privation of Voice in many others." Physicians are not fully agreed, whether without any Prejudice to Health cold Chocolate may be used as a Cooler. *Gage* affirms, "That it is so excessively cold, that few can use it safely; since it excites Pains of the Stomach, and other Disorders, especially in Women." According to *Caldera*, when this Liquor is cooled with Ice or Snow, it is equally virulent and dangerous with cold Poisons: For, says he, when a sudden Cold seizes the Organs of Respiration, it affects them with such a Numbness and Torpor, that they can no longer perform their proper Motions; and this Motion ceasing, a sudden Death ensues. Now 'tis evident, not only from Reason, but from daily Experience, that the same fatal Consequences must be produced, when an intense and preternatural Cold has seiz'd the Stomach, the Liver, the Uterus, and the extreme Orifices of the Veins; because such a Cold, by obstructing these Orifices, puts a Stop to the Circulation of the Blood, which in this Case is so coagulated in the Extremities of the Veins, that the Functions of Life cease, Syncope ensue, and the Patient dies suddenly, without any apparent Cause. To such an object, that all who daily drink Chocolate thus cool'd do not die suddenly, *Caldera* makes this Reply, That neither do all who are seiz'd with a Plague die of it; because, though the *Fomes* of this Disease is an Agent of wonderful Force and Efficacy, yet it only operates on Subjects properly disposed for yielding to its Virulence; so that every one ought to take care of himself, and become cautious, by an Observation of the Fates of others. *Colmenero*, according to *Meisner*, is of Opinion, that Chocolate drank in the Dog-days by People of hot Constitutions, and such as are afflicted with a Weakness and Debility of the Stomach, is most conducive to Health, when made with Endive-water. But since in Distillation what rises in the Alembic from the Endive does not partake of its saponaceous Qualities, and since that Plant is found to contain no aromatic and volatile Parts, I see no Reason why Endive-water should be more proper for this Purpose than pure com-

mon Water, or distill'd Water. Corroborating and stomachic Virtues are in vain sought for in Endive-water; but these may much more probably be found in a little Wine added to the Chocolate, if no Circumstances concur to contraindicate such a Practice. When Chocolate is prescribed as a Medicine, the Physician must determine the Quantity, and fix the proper Seasons of Exhibition. Such as are become weak; in Consequence of Inanition, may judge of the Quantity from the Sense of Refreshment they feel; but at the same time they ought to use it more sparingly than those who are vigorous and robust.

Having thus considered Chocolate as a Drink, we now come to view it in another Light; that is, when used in preparing Viands. Many, then, add powder'd Chocolate to certain Foods, as an Aromatic; for the sake of a more grateful Smell, and delicious Taste. They also mix it with Broths, and other Dishes. But 'tis obvious, that the more of it is used for these Purposes, the Food becomes not only more fragrant to the Smell, and grateful to the Taste, but also more nutritive. Others, especially on a Journey, in the Morning, eat Chocolate dry, without any foreign Mixture; this supplies the Place of an aromatic Confection; and defends them from the Injuries of the cold and damp Air; since, by stimulating the Juices into a somewhat brisker Motion, it in some measure prevents those unlucky Consequences which are generally produced by an obstructed Perspiration. Besides, as Travellers are sometimes reduced to Straights for want of Food, this Defect may, in some measure, be supply'd by Chocolate; of which are also made Sweetmeats, and other Delicacies, very grateful to the Taste, whose Virtues may be judg'd of from what has already been said of Chocolate, and a Consideration of the other Substances which enter their Compositions. The *Royal Chocolate*, for Instance, prepar'd for *Uladislaus the Fourth, King of Poland*, and preserv'd among the *Arcana Gnofseliana*, is made thus:

Take four Ounces of *Indian Chocolate*, reduc'd to a Powder, and pass'd through a Sieve; of powder'd *Canary Sugar*, one Pound; twelve sweet Almonds decorticated, and well beat in a Marble Mortar: Let these be sufficiently mix'd, incorporated with Whites of Eggs, and by a long Agitation converted into Foam; then add between half a Dram and a Dram of *Ambergrise*, triturated with *Canary Sugar*; and of Musk dissolved in Sugar of Roses, half a Scruple. Reduce the Whole into a Mass, of which form small Cakes an Inch square, to be laid upon Paper, and dry'd over a small Iron Furnace.

The Rob of Chocolate, prepared with Saffron and Oil of Almonds, is by *Bruckman* recommended as a Specific in Coughs. The *Confectio Pacifica de Succolata Inda*, in *Mynsicht*, is an Electuary, which, besides Chocolate, consists of a great Number of Aromatics, and other stimulating and nutritive Ingredients. It is recommended as a Secret of wonderful Efficacy in the Cure of Venereal Impotence, if, after proper Evacuations, a Piece of the Bulk of a Chestnut is daily used.

I must here also observe, that 'tis customary for some to mix purgative, antifebrile, and other Medicines, with Chocolate, in order to render them more grateful and agreeable to the Patient; but whether, and in what Cases, it is a proper Vehicle for other Medicines, must be judg'd from what has already been said concerning it.

From what has been advanc'd, we must be guided in our Judgment, whether Chocolate is proper for all those to whose Palates it is agreeable. When moderately used, it seems to contribute to the Health of those who are in no Danger of having their Juices stimulated into too brisk a Motion, or their Constitutions overheated by the Use of Aromatics; as also of those whose Stomachs are able to concoct and subdue the pinguious and tenacious Substance of the Cacao Nut. Hence 'tis obvious, that those People must abstain from the frequent and immoderate Use of it, who are in the full Vigour of Youth; whose Juices are easily put into preternatural Commotions; who have spare dry Constitutions; and whose *Primæ Viæ*, in consequence of having lost their Tone, are unfit for a due Concoction of the Aliments. The Expressions then of *Piperus*, *Corall*, ad *Myns*. where he calls Chocolate a *Panacea*, and an universal Medicine; and those of *Caldera*, when he asserts, that, like the Apples of the Tree of Life, it preserves from Death, and the Infirmities of Age, are evidently hyperbolic and extravagant; since by one Medicine many Diseases may be remov'd, but no one is found capable of eradicating all the Disorders to which Mankind is subject, as has been demonstrated by the incomparable *Boerhaave*. Lest this should appear a random Assertion concerning Chocolate, I shall, from *Caldera*, who bestows the highest Encomiums upon it, enumerate the several Cases in which the Use, and much more the Abuse, of it is to be avoided. "*Chocolate*," says he, "is prejudicial to all those who labour under Fevers, or any other acute Disorders; since in these it is converted into Bile. It is also hurtful to the Stomach, when disordered with Crudities, in Consequence of Indigestion. It is highly improper in all Diarrheas, especially those of the bilious Kind; though it sometimes proves serviceable in Lienteries, by promoting the Digestion of the Aliments. It is hurtful after Dinner and Supper, especially after Feasting in a luxurious manner. Besides, Chocolate is attended with this Inconvenience, that it carries the crude and unconcocted Chyle along with it to the Blood-vessels, which, if it there becomes putrid, lays a Foundation for the most terrible Disorders; and either creates new, or augments old Obstructions, before too obstinate to be consistent with a State of Health." Then subjoining some things relative to the bad Consequences arising from the Abuse of Chocolate, he adds these Words: "If it is used in larger Quantities, or more frequently than is consistent with preserving the native Heat of the Stomach; it in this Case creates a great deal of Trouble to the strongest and most vigorous Digestion. The habitual Drinking of it proves a Burden to the Stomach, when already full, especially when it is drank with a View rather to provoke, than to remove Hunger: For by such a Practice, Paleness of Colour is produc'd, and Crudities are generated, which bring on a Tremor of the Nerves, and an extreme Leanness. By this Custom the Belly is distended, the Countenance discoloured; and sometimes Vertigoes, Head-achs, creeping Pains of the Brain, and perhaps long-continued Fevers, and insuperable varicose Obstructions, are form'd. From this Cause, and the various Crudities inseparable from it, arise hypochondriac Melancholy, and an incredible Complication of Disorders."

"If," says *Baglivi*, any one, especially of a sanguine and hot Constitution, drinks Chocolate immoderately, since it inspissates the Blood, and renders it unfit for Circulation, probably in Consequence of the viscid and tenacious Nature of the Cacao; it produces Inflammations of the Viscera, long Mesenteric Fevers; and Apoplexies; the Frequency of which is perhaps owing to the too liberal Use of Chocolate, which too much inspissates the Blood; for which Reason the Drinkers of it become excessively fat; as I have observed in a great many Instances."

According to *Meisner*, "Chocolate not only generates Obstructions in those who drink it to Excess, but also when used moderately in every Constitution previously disposed to them by the lacteal Vessels being too small, depressed, or stuffed with a viscid Humour; since, in these, the terrestrial Parts of the Chocolate stop, and either form or augment Obstructions. For this Reason young Girls labouring under a *Chlorosis*, and all others subject to Obstructions, ought to abstain from it." For this Reason also Mr. *Jussieu* disapproves of its being used by Students, since its oleous and pinguious Substance being of difficult Digestion, disposes to Obstructions of the Viscera. He also observes, that Colics, Suffocations, and intense hæmorrhoidal Pains, are produced by it.

Hoffman affirms, that the more of it is drank by hypochondriac Patients, the greater Injury they sustain; since Eructations, Loss of Appetite, Pains and Uneasiness of the *Præcordia*, are produced by the Inflation and Distention of the Stomach occasioned by it; for the strong Acid with which the *Primæ Viæ* of the Hypochondriac always abound, meeting with the earthy and oleous Parts of the Chocolate, produces a tough, viscid Mass, which, adhering strongly to the Foldings of the Stomach and Duodenum, lays a Foundation for the above-mentioned Disorders. In this Case I have observ'd, that a gentle Emetic has afforded present Relief, restor'd the Strength, and eas'd the Patient, by bringing up a large Quantity of a blackish sordid Matter, which had been generating for some time. This happens most readily in Cases where the Tone of the Stomach is lost, and the Patient is costive. Such as indulge themselves to Excess in drinking Chocolate, should according to *König*, take care, lest, like *King William the Third*, as appears from the History of his Disease, by an Accumulation of Viscidities, they destroy the Tone of the *Primæ Viæ*, and rashly bring on a Flux. That drinking Chocolate to Excess also contributes very much to the Formation of Stones, especially in the Gall-bladder, has been attested by the Observations of some of the best practical Physicians. Thus at *Paris*, according to *Carolus Sponius*, the Body of a certain Man who indulg'd too liberally the Use of Chocolate, being laid open, in the Gall-bladder were found above twenty small Stones, which, according to *Meisner*, were justly ascrib'd to his immoderate Use of Chocolate. On account of the large Quantity of Sugar which enters the Composition of Chocolate, its Use, and much more its Abuse, ought to be shun'd by Women labouring under uterine Disorders, and by those who are subject to hypochondriac Flatulencies; not so much because the viscid and tenacious Humours, lodg'd in the *Primæ Viæ*, and which are the immediate Matter of hypochondriac Obstructions, are increas'd by the Sugar, as because the Sugar, meeting with a peccant Acid, increases the troublesome Flatulencies. The Disadvantages arising from the Abuse of Chocolate, consider'd as made up of warm Water, are abundantly plain to every one who will allow himself to reflect, that

the too frequent Use of warm Water relaxes the Organs of Digestion, and all the Solids in general, and must, consequently, be pernicious.

'Tis much disputed, whether a Composition resembling Chocolate may not be made in *Europe*, without the Assistance of *Cacao*. Some maintain the Affirmative, since, in the *European* Climates, Vegetables are produc'd of highly nutritive Qualities, which is the principal Property of the *Cacao*, and which, being reduc'd to Powder, and mix'd with other Substances, may be form'd into a Mass, and made up like Chocolate. Besides, the *European* Vegetables, among many others, have this remarkable Advantage above the *Cacao*, that they are less heavy and burdensome to the Stomach. *Grew* expressly affirms, that Almonds, well triturated, and sufficiently mix'd with a due Proportion of Sugar and Aromatics, make a Mass as pleasant to the Palate as the finest Chocolate; concerning which Composition, *Valentini* affirms, "That, in *Batavia*, he knew a Landlord who sold no other kind of Chocolate than what was prepar'd after this manner." *Rosinus Lentilius*, when speaking on this Subject, has these Words: "*Blancard* orders a Substance, resembling Chocolate, to be made of our own Almonds, sufficiently triturated, with an Addition of Cinnamon, Cloves, Anise, Sugar, and a small Quantity of the Balsam of *Peru*. This Composition he extols very much, and affirms that its Taste is not greatly different from that of Chocolate; nor do I in the least doubt, but a most elegant Composition, possess'd of the same Virtue with Chocolate, may be prepar'd in the following manner.

"Take one Pound of excocticated sweet Almonds, Pine-nuts well clean'd, and fresh Pistache-nuts, each half a Pound; the best Cinnamon, half an Ounce; Cloves, two Drams; choice Manna, four Ounces; of Sugar, a sufficient Quantity. Make into a Confection like Chocolate, to which you may, if you please, add a little Musk and Amber. This Confection drank in Milk, with the Yolk of an Egg, is a celebrated Analeptic; the Confectio Alkermes may also be added to it for answering particular Intentions." *Eph. N. C. D.* 3. a. 5. app.

"In like manner, according to *Bruckmann*, the Chocolate of *Brunswick* is prepar'd of that sort of Ale called *Mum*, with some Yolks of Eggs, and Aromatics; and this is certainly no despicable Liquor. Besides, a Drink resembling Chocolate is prepar'd of the fine Wheat-flour of *Halle*, roasted and mix'd with Yolks of Eggs, Sugar, Cinnamon, and Milk."

The learned *David Friedel*, in a Treatise which he calls, *Medicinishe Bedencken*, prefers to Chocolate a Liquor prepar'd of equal Quantities of bitter and sweet Almonds decocted, and bruised with Sugar and Aromatics. To these must be added a proper Quantity of warm Milk: Or thus:

Take of sweet and bitter Almonds, each an Ounce; after having roasted them in an Iron Pan till they have assum'd a brownish Colour, and wip'd them with a Linen Cloth, bruise them in a Mortar, and with a Spatula mix them with four Measures of boiling Milk, and to this Mixture add the Yolk of one or two Eggs, broken in a little cold Milk; and, last of all, add a little Cloves, Cinnamon and Sugar.

CACAOTETL. An *Indian* Stone, otherwise called *Lapis corvinus*, which when heated, is said to give a Crack like Thunder.

CACATORIA FEBRIS, a Name given by *F. Sylvius* to a kind of intermittent Fever, attended with copious Stools. *Castellus*.

CACAVI, *Monard. frus. Cazabi*, Clus. in *French, Cassave*, or *Pain de Madagascar*, is a kind of Bread which the *Indians* make of the Root of a Plant called *Yuca*. *Caspar Baubine* calls it the *Manihot* of the *Indians*, or the *Yuca* with hempen Leaves; and *John Baubine*, the *Manihot Theveti*, *Yuca*, & *Cassavi*; in *French* they call it *Manioc*, or *Manioque*. It is a Shrub which grows to the Height of five or six Feet; the Stalk is woody, wreathed, abounding with Joints and Bunches, brittle, and full of Pith. The Leaves are of the Breadth of a Man's Hand, divided each into seven or eight Parts, always green, and resembling the Leaves of Hemp; the Flowers are monopetalous and Bell-shap'd, near an Inch in Diameter, and indented with five deep Jags. The Pointal in the Middle becomes a Fruit almost round, and nearly as big as a Hasel-nut; it is composed of three Capsules, or oblong Cells join'd together, which inclose each a Stone or oblong Seed, a little bigger than the Kernel of a Pine-apple. The Root is of the Size and Figure of a large Turnep, of a dark Colour without, and white within. This Plant is cultivated in several Countries of *America*, where they set it in Furrows; it is very fruitful, but its Virtues are very different

according to the Climates where it is produc'd. Thus what grows on the Continent is wholesome, and good to eat raw or dressed; but that of *St. Dominica*, *Cuba*, *Hayti*, and other Isles, is very pernicious, and a violent and speedy Poison, if it be eaten raw; and yet it is of this last that they make the Bread called *Cacavi*, or *Cassave*, in Manner following.

They peel the Roots of the *Yuca*, rasp them, and, putting them into Bags made of the Leaves of the Palm-tree, press out the Juice. After this, they take the Dregs, or pressed Matter, and fry it in a Pan over a small Fire, tossing and turning it from one Side to another, that it may thicken. When it is sufficiently dressed, they make it into thin Cakes, which they dry in the Sun, or over a Fire; and this is the Bread called *Cassave*, which is very nourishing, and, when it is dry, will keep as well as Biscuit, without corrupting. The *Savages* of the *Antilles*, and all the Inhabitants of the *West-Indies*, feed on it.

The Use of this Bread contracts the Gullet by its Asperity, and causes a Strangulation, if care be not taken to steep it in Broth or Water, or mix it with other Aliments: They who have not taken that Precaution, and are willing to eat it dry, ought always to have a Bottle of Water at Hand, to moisten every Mouthful they take.

The expressed Juice of this Root would kill any Animal which should swallow it crude; but if it be boiled to the Consumption of half, and suffer'd to cool, it will be converted into a sour Liquor, of the Taste, Use, and Qualities of Vinegar; being inspissated to a *Sapa* over the Fire, it becomes sweet, and serves the *Indians* instead of Honey.

The *Yuca* Root of the Islands, in order to produce the different Effects before-mention'd, must contain an acrimonious and corrosive volatile Salt, which is dissipated by Boiling, so that nothing remaining but a fixed Salt confounded and entangled with the Oil, it has only Strength enough to make an Acid like Vinegar; and even that Acidity is for the most part destroy'd by Evaporation, and inspissating the Liquor to a *Sapa*, because the Oil, being then much more collected together, straightly binds and encompasses the Salts, and hinders them from making any other Impression upon the Nerves of the Tongue, than a sort of Titillation called Sweetness.

The Juice of the *Roucou* is said to be a Counter-poison to the *Manioque*. *Lemery des Drogues*.

CACCIONDE. The Name of a Pill, which has for its Basis the *Terra Japonica*, or *Catechu*; and is commended by *Baglivi* against a Dysentery. *Castellus*.

CACEDONIUS Tartarum, is peccant Matter in the human Body, generated from Separations by the secretive Faculty, which are not immediately succeeded by the Operation of the expulsive Faculty. *Rulandus*.

CACHECTICUS. One who labours under a *Cachexia*. **CACHEXIA**, καχεξία, from κακός, ill or bad, and ἔξις, a Habit. A Cachexy, that is, an universal bad Habit of Body, proceeding from a Defect in Nutrition, which must arise, either from a Depravation of the nutritious Juices; a Defect in the Vessels which ought to receive these Juices; or a Deficiency in that Action of the Animal Oeconomy, by which a Part of the circulating Juices is apply'd to the Solids for their Nutrition.

The nutritious Juices are deprav'd by Aliments which are superior to the Powers of Digestion, that is, which cannot be digested, and assimilated by the proper Organs. Of this Sort are all crude, farinaceous, and leguminous Vegetables, which on a weak Stomach are subject to form a kind of tenacious Paste. Add to these, all Sorts of Food, which are hard, fibrous, fat, acrid, aqueous, and viscid. Among these may justly be reckon'd some indigestible Substances, which deprav'd Appetites sometimes covet, as Cinders, Chalk, Sand, or Lime.

It must, however, be remark'd, that the Aliments above-mention'd will not be subject to induce a Cachexy, provided the Organs of Digestion are sufficiently strong, and proportional Exercise is used by the Person who takes them. Hence other Causes of the Depravation of the nutritious Juices must be join'd to the preceding; as a Deficiency with respect to Animal Motion or Exercise, and a Debility of the digestive Organs; tho' a too great Tension thereof may have the same Effects, if sufficient to interfere with the Solution and Assimilation of the Aliment. If the general Mass of Blood also happens to be vitiated extremely in any manner whatever, the nutritious Juices must in Proportion be deprav'd. These Defects in the Organs of Digestion are brought about in various manners; as by all profuse Secretions of what kind soever, as violent Vomitings, Diarrhoeas, Dysenteries, or Hæmorrhages; by a scirrhus Disorder of any of the Viscera; or by a Retention of something in the Body which ought to have been excreted.

It is evident, that these Causes united act either by diminishing the Solids, or by distending them with Fluids not adapted to circulate thro' them. Hence arise two Sorts of Diseases; that is, a Consumption, and what is usually called a *Leucophlegmatia*, or an *Anasarca*.

According

According to the different Colour, Bulk, Tenacity, Acrimony, and Fluidity of the stagnating Liquids, various Appearances arise, which may be esteem'd Symptoms of a Cachexy. Thus the Skin appears white, pale, yellow, livid, red, green, black, or tawny; the Patient perceives a Sensation of Gravity; Tumors arise under the Eyes, and affect the more thin Parts of the Body. Add to these, Flatulencies, oedematous Tumors of the Parts remote from the Heart; Palpitations of the Heart and Arteries, which are augmented by the least Motion; crude and thin Urine; spontaneous, and evidently watery Sweats; all which are succeeded by Emaciation, or a *Leucophlegmatia*, and Dropsy.

No universal Defect of the Vessels which ought to receive good nutritious Juices can be assign'd; but their too great Contraction or Laxity, and the Consequences thereof, may be admitted as Causes of these Defects.

There is a Deficiency in that Action of the Animal Oeconomy, by which a Part of the Juices is applied to the Solids, whenever the Force of the Circulation is either too languid, or too violent.

From what has been said, a Cachexy may be easily distinguish'd. And as to the Consequences thereof, they may be foreseen by carefully considering the Cause, Standing, Effects, and Degrees of the Disorder.

To these also the Method of Cure must be carefully adapted; for it is evident, that a Mitigation, and moderate Inspissation, of the too acrid and too fluid Juices are sometimes requir'd; and, in other Cases, the tenacious and adhering Juices must be dissolv'd, and render'd fluid. And as a Dissolution, and an Inspissation, of the Juices may be induc'd by various Causes, it will be necessary to vary the Medicines, and the Manner of applying them, as the different Causes shall determine.

But the principal Rules to be observ'd in the Cure are,

First, To administer such Aliment as approaches nearly to the Nature of the healthful Fluids of the Body, which are easily digestible; which are in their Nature opposite to the Cause of the Disorder; and which are agreeable to the Patient.

Secondly, To promote the Digestion of such Aliments, by seasoning them with proper Aromatics; by drinking proper Quantities of generous Wine; and by Exercise and Air.

Thirdly, To dispose the Organs of Digestion to perform their Duties, by proper gentle Digestives, Vomits, Purges, and Corroborants.

Fourthly, As soon as the Passages are relax'd, and the morbid Matter is attenuated, to promote its Expulsion, by attenuating Diuretics and Sudorifics.

Lastly, To complete the Cure by Chalybeates, alkaline and saponaceous Substances, together with Walking, Riding, or other proper Exercises, Frictions, and Baths.

The Cause however of the Distemper only can determine the Choice of all these, and the Manner of applying them.

When a Cachectic Consumption arises from too great an Acrimony of the Juices, the particular Species of Acrimony must, if possible, be discover'd.

First, By investigating the Cause of the Cachexy.

Secondly, By examining into the Nature of the Disease, and the Constitution of the Patient.

Thirdly, By the Symptoms.

Fourthly, By the Excretions.

And, when the Nature of the prevailing Acrimony is known, it must be corrected by Substances of a contrary Nature. *Boerb. Aph.* See *ALCALI* and *ACIDUM*.

This Account, which *Boerhaave* gives of a Cachexy, is very distinct, and has the Appearance of being just. But for the farther Illustration of the Subject, I shall explain how I apprehend that a Cachexy may be, and generally is, produc'd.

Suppose then, a Person of any Constitution, whatever has his Stomach and Organs of Digestion impair'd by any Accident; and that this Person takes one or more hearty Meals of any Aliment which is superior to the Force of the digestive Organs; and that moreover, he uses little or no Exercise. Upon this Occasion it is not likely, that the Aliment should be digested and assimilated, so as to produce good Blood; but in proportion, as the Aliment is more or less dissolv'd, the partially dissolv'd Portions will stagnate in the first, or more remote Series of Vessels, that is, in the larger or smaller Vessels; and will cause various Disorders, according to the Uses and Importance of the Parts which they obstruct.

Suppose the Aliment so little dissolv'd, that the largest Particles which the Lacteals can possibly admit, are by these convey'd to the Receptacle of the Chyle, and from thence to the Mass of Blood, with which circulating till they arrive at the Lungs, they either pass not at all, or with Difficulty, thro' the minute Vessels of that Organ, on account of their Bulk: Hence Difficulty of Breathing, and Palpitations, arise. And as the Blood should be farther elaborated, and receive its red Colour in the Lungs, this Impediment will in some Degree prevent both: Hence the Blood will be pale, and the Particles of which it consists, will not be so perfectly mix'd and united

together, as to form a Fluid adapted to the Exigencies of the Animal Oeconomy. For this Reason the watery Particles readily separate from the rest, and loiter, or stagnate in different Parts, where they cause soft Tumors, as under the Eyes, and in the Parts remote from the Heart. As these large Particles must, moreover, stagnate in the Glands, and obstruct them, the Secretions of their respective Fluids must be impair'd. For this Reason many of the aqueous Particles, which should either be separated for Expulsion, or apply'd to particular Uses, are retain'd in the Mass of Blood; the Bile also, a Fluid of the utmost Importance in Digestion, as well as the Pancreatic Juice, becomes defective, inert, and languid; and all the Solids are farther relax'd, and, amongst them, the Organs of Digestion; whence every subsequent Meal lays a new Foundation for an Increase of the Disorder, and all its Symptoms. The Consequences of all this are, all the Symptoms related above from *Boerhaave*.

I must add, That when Women have acquir'd such a Habit, the watery Particles of the Blood loiter, or stagnate; and the other Particles are too large to pass thro' the minute Uterine Vessels, and form the *Catamenia*.

From what has been said, the Reasons are evident, why the eating Chalk, Cinders, Dirt, unfermented farinaceous Vegetables, as Oatmeal, and other indigestible Substances, induce a Chlorosis.

I cannot conceive it possible to adapt any Method of Cure to such a Disorder as has been describ'd, more likely to succeed, than that which consists in supplying the Organs of Digestion with Aliments the most easy of Digestion, and which approach the nearest to the Nature of the sound and healthful Juices; in due and prudent Evacuations of the first Organs of Digestion; in corroborating these Organs, and supplying the Deficiencies of Bile, by Aromatics, Bitters, and at last by Steel; in directing proper Exercise; and in expelling the Matter stagnating in the Glands, and other Parts, by the proper Emunctories, when once sufficiently resolv'd, in the manner specify'd above.

CACHIMIA. See *CACHYMIA*.

CACHLEX, καχληξ. A little Stone or Pebble, particularly such as is found in Waters, or by the Sea-shore, according to *Suidas*, who also makes it the Name of an Animal. *Galen*, *Lib. 10. de S. P.* says, that *Cachleces*, καχληκες, heated in the Fire, and quench'd in Whey, endue it with an astrigent Virtue against a Dysentery. *Castellus*.

CACHOS, J. B. *Solanum pomiferum folio rotundo tenui*, C. B. It grows only on the Mountains of Peru, being a Shrub of an extraordinary Greenness, and bearing a round thin Leaf. The Fruit is like a Mad-apple, sessile on one Part, and turbinate on the other, of an Ash-colour, of a grateful Taste, and void of Acrimony, containing a very small Seed.

It is in great Esteem among the *Indians*, for its extraordinary Virtues. For it provokes Urine, expels the Stone in the Kidneys, and, what is better, they say that the Use of it diminishes the Stone in the Bladder, while it is yet soft, and capable of yielding to any Medicine. *Raii Hist. Plant.*

CACHOU. See *TERRA JAPONICA*.

CACHRY.

Cachry is of a heating and vehemently drying Quality, for which Reason it is a proper Ingredient in Smegmas, [external deterfive Medicines] and makes a good Plaster for the Head in Defluxions upon the Eyes, provided it be taken off at the End of three Days. *Dioscorides*, *Lib. 3. Cap. 88*.

CACHRY is the Seed of the *Libanotis*, which Mr. Ray calls *Libanotis Cachryophora*. It is not used in the present Pharmacy; but is by some of the Antients recommended for its heating and drying Qualities; and if taken with Pepper and Wine, is said to be good for the Epilepsy. *Pliny* says, it is the Seed of one Sort of Rosemary; I suppose by Mistake, because Rosemary is sometimes called *Libanotis*. See *LIBANOTIS*.

CACHRYS signifies sometimes roasted or parch'd Barley, as *Galen* explains it.

CACHUNDE.

This is the Name of a Medicine highly celebrated among the *Chinese* and *Indians*; but as the Describers of Aromatics, and the later Authors, had made no mention of it, *Zacutus Lusitanus* gives us the following Method of preparing it, which he says was with great Difficulty obtain'd of celebrated Physicians, who had the Health of the *East-Indian* Viceroy, and other Princes, for many Years committed to their Care.

Take, says he, of the Terra Cimolia, or of any other proper Earth, two Pounds; of Amber, one Pound; of Musk and Ambergrise, each three Ounces; of the best Aloes-wood, by the Portuguese called Calambac, ten Ounces; of prepar'd Pearls, three Ounces; of prepar'd Rubies, Emeralds, Granats, and lacinths, each four Ounces; of red Sanders, four Pounds; of yellow Sanders, three Ounces; of Mastich, sweet Flag, Galangals, Cinnamon,

Cinnamon, Aloes wash'd with the Juice of Roses, the best Rhubarb, *Indian* Mirobalans, Belleric Mirobalans, Wormwood, red Coral, and *Armenian* Bole, each two Ounces; and of calcin'd Ivory, three Pounds and a half. The Ingredients to be pounded must be reduc'd to a very fine Powder, and after having sprinkled them with odoriferous Wines and Balsams, and Water distilled from the Flowers of the Cinamon-tree, they must be dry'd in a Shade, and mix'd up with a sufficient Quantity of the finest white Sugar; then with a Mucilage of Gum Tragacanth, and Gum Arabic, the Whole is to be reduc'd to a very tenacious, viscid Mass, which is of a pretty red Colour.

Of this Mass various Figures are form'd, which the Merchants convey to several Parts of the World, but principally to *Lisbon*, the most celebrated Emporium of the whole Earth. The *Indian* Princes, and the *Grandeos* of *China*, use this Antidote in the following manner: In the Day-time they keep a small Portion of it, about the Bulk of a Lentil, in their Mouths; from this Portion a sweet and fragrant Liquor gradually and insensibly drops from the Fauces to the Stomach, and gives the Breath so agreeable a Flavour, that all who come near them are sensible of it. This Medicine is truly worthy to be used by Kings and *Grandeos*, for the Preservation of the natural Heat; for it preserves and defends the Body from Corruption, prevents the bad Consequences of a peffilential Air, removes Melancholy and Flatulencies, and wonderfully relieves those who labour under melancholic Disorders. It removes Palpitations of the Heart, cures the Cardialgia, the Apoplexy, and the Epilepsy. It refreshes the animal and vital Spirits, invigorates all the Faculties, strengthens the Stomach, and resists Poisons of every Kind. It corroborates the Brain, and is the most sovereign Remedy in the World against a stinking Breath. It proves an Incentive to Vener, for which Intention it is much used by both Sexes in the *Indies*. In short, it is a truly royal Medicine; for it protracts Life, puts Death at a Distance, and is consequently sold at a high Price. Whoever uses it, cannot help admiring the happy Effects produced by it. *Zacutus Lusitanus de Medicor. Princip. Hist. Lib. 1. Observat. 37.*

CACHYMIA, *Cachimia*, *Kakimia*. A Term in *Paracelsus*, by which he intends an imperfect metallic Body, or an immature metalline Ore, which is neither a saline Substance, nor Metal; but almost metalline, since it has the first metallic Matter, and derives its Original from the three first Metalls.

CACHYMIE may be divided, first, into *sulphureous*, as *Marcafites*, *Bismuths*, and *Cobalts*; secondly, into *mercurial*, or *arsenical*, *orpimental*, and *suck-like*; and, thirdly, into *saline*, such are all *Tales*. *Castellus*.

CACIA ferrea. An Iron Spoon. *Rulandus. Johnson.*

CACOA. See **CACAO**. *Blancard.*

CACOALEXITERIUM, *κακοαλεξιηριον*, from *κακός*, evil, and *αλεξιηριον*, a Remedy or Medicine. The same as **ALEXITERIUM**, which see.

CACOCOLIA, *κακοχολία*, from *κακός*, ill, and *χολή*, Bile. An Indisposition of the Bile. *Blancard.*

CACOCROI, *κακοχρόι*, from *κακός*, ill, and *χρῶμα*, Colour. Such as are ill-colour'd in the Face, in which respect they differ from the *Achroi*, *ἀχροί*, colourless. *Galen, Comm. de R. V. I. A. Castellus.*

CACOCHYLIA, *κακοχυλία*, from *κακός*, ill, and *χυλός*, Chyle. A depraved Chylification. *Blancard.*

CACOCHYMIA, *κακοχυμία*, from *κακός*, ill, and *χυμός*, Humour. A depraved State of the Humours. See **CACHEXIA**.

CACODÆMONUM Magia, from *κακός*, evil, and *δαίμων*, a Spirit. Diabolical Magic, which uses the Assistance of evil Spirits; and is opposed to natural Magic, which is promoted only by natural Means. *Castellus.*

CACODES, *κακώδης*, from *κακός*, ill, and *ὀσμή*, to smell. Ill-smelling, fetid. Thus *κακώδης ἐμῆς*, in *Coac.* is ill-scented Matter discharged by Vomiting, which, in *Prognost.* is express'd *ἐν ὀσμῇ δυσώδης*, "if it has an offensive Smell."

CACOETHES, *κακοῖθης*, from *κακός*, ill, and *ἦθος*, a Quality, which, when used with respect to Diseases, signifies Quality or Habit, and is expounded in *Galen* by *τέρας*, Manner, Disposition. An Epithet applied by *Hippocrates* to malignant and difficult Distempers. *Galen, Comment. 1. in Prorrhet.* says, *κακοῖθης νοσήματα καλεῖται ὅσα κινδυνον ἀπελθεῖν τοῖς κάμνοντι, καὶ ἀντιπίπτει τὴν τῆς σωτηρίας ἐλπίδα*. "We give the Name of *Cacoethes* to Diseases, which, tho' they threaten Danger to the Patients, do not cut off all Hope of Recovery." *Κακοῖθης*, when applied to Signs or Symptoms, imports what is very bad, and threatening. Thus *Galen, Comment. 3. in Prorrhet.* expounds *κακοῖθης* by *μοχθηρὴν*, "laborious," under which the Patient labours hard for Life. And in the following Passage, *1. Prorrhet.* τοῖσιν ἡσυχάζουσιν μελαγχολικῶς

Vol. I.

εἰς τρέμουσι ἐπιγίνωσται, κακῶθης. "If a Trembling seizes those who rave thro' Melancholy, it is *Cacoethes*." *Galen, Comment. 1. in Prorrhet.* explains the Word by *ἐξ ὧντος ἐλέβειν*, "fatal to the last Degree." In *Coac.* in the same Case, *κακός* is used instead of *κακῶθης*. The Word, applied to a Tumor, Ulcer, or Erysipelas, or any other like Affection, denotes Malignity, as in *Galen, Paulus*, and thus in *Epidem. 3.* *κακοῖθης* (*ἐρυσιπέλας*) *πολλὰς ἐξέσωεν*, "a malignant (*Erysipelas*) proved fatal to Multitudes." Opposite to *κακοῖθης* is *εὐῖθης* (*Euthes*).

CACONIE, *κακονία*. A corrupt Word for **CANONIE**, which see. *Castellus.*

CACOPATHIA, *κακοπάθια*, from *κακός*, ill, and *πάθος*, an Affection. An ill Affection, an Affliction. The Word occurs in *Hippocrates*, *περὶ ἀρχ. ἰησ.*

CACOPHONIA, *κακοφωνία*, from *κακός*, bad, and *φωνή*, Voice. A Depravation of the Voice, of which there are two Kinds, *ἀφασία*, and *δυσφωνία*, that is, Dumbness, and Difficulty of Speech. *Gal. de diff. Sympt. Cap. 3.*

CACOPHRASTUS. A Name of *Theophrastus Paracelsus*, bestowed upon him, as he complains, by malevolent Persons, tho' he calls himself by the same, *Præfat. ad Paragramm.* *Castellus.*

CACOPRAGIA, *κακοπραγία*, from *κακός*, ill, and *πράξις*, to do or act. A Depravation of the Viscera; by which Nutrition is perform'd. *Blancard.*

CACORRHEMOSYNE, *κακορρημοσύνη*. The same as **CACANGELIA**, which see.

CACORRYTHMUS, *κακορρυθμός*, from *κακός*, ill, and *ρυθμός*, Order. An Epithet of a disorderly Pulse. The same as **ARYTHMUS**, which see.

CACOS, *κακός*. Evil, bad. The Word is very frequently used by *Hippocrates* in prognosticating; and, *2. Aph. 33.* is opposed to *ἀγαθός*. But whether it always signifies the same as *lethalis*, "deadly, mortal," is, with good Reason, doubted by *Galen. Castellus.*

CACOSINON, *κακίσινον*, signifies the same as *κακός*, evil, hurtful. Thus *κακοσινώτατα*, in *Galen's Exegesis*, is expounded by *ἐπιβλαπέςτατα*, "most pernicious." In the same Sense is *κακοσινώτερον* used in *Hippocr. Lib. de Fracturis*.

CACOSIS, *κάκωσις*, from *κακός*, to be indisposed, or disorder'd. An Indisposition. Thus we read, in *Hippocr. de internis Affect.* *κάκωσις τῆς σάρκός*, "a Disorder or Indisposition of Body."

CACOSITIA, *κακοσίτια*, from *κακός*, ill, and *σιτία*, Food. A Loathing of Food. *Castellus.*

CACOSPXYXIA, *κακοσπύξια*, from *κακός*, ill, and *σπύξιν*, to leap, or beat, like an Artery. A Disorder of the Pulse in general. *Galen. de diff. Sympt. C. 4.*

CACOSTOMACHUS, *κακοσμάχος*, from *κακός*, ill, and *σμάχος*, the Stomach, is spoken of such Food as is disagreeable or hurtful to the Stomach, and is opposed to *εὐσμάχος*, (*Eustomachus*) "grateful to, or good for, the Stomach." *Gorræus.*

CACOTHYMIA, *κακοθυμία*, from *κακός*, ill, and *θυμός*, the Mind. Any vicious Disposition of the Mind in general.

CACOTROPHIA, *κακοτροφή*, from *κακός*, ill, and *τροφή*, Nutriment. Any sort of vicious Nutrition in general. *Galen. de diff. Sympt. Cap. 4.*

CACTOS, Offic. *Carduus esculentus*, Park. Parad. 519. *Carduus spinosissimus elatior Chardone dictus*, Hist. Oxon. 3. 158. *Cinara spinosa, cujus pediculi esistantur*, C. B. 383. Raii Hist. 1. 300. Tourn. Inst. 442. Boerh. Ind. A. 139. **THE CHARDON**. Dale.

This is a Species of the Artichoke. It is a culinary Plant, which is blanched like Celery, and, like that, eaten raw with Pepper and Salt in Italy. In the Medicinal Virtues it agrees with the Artichoke, **CINARA**, which see.

CACUBALUM *quibusdam vel Alfine baccifera*, J. B. *Alfine baccifera*, Ger. *Scandens baccifera*, C. B. *Repens baccifera*, Park. **BERRY-BEARING CHICKWEED**.

It is distinguish'd from the other Species of *Alfine* by its Berries, which are of the Size of a Grain of Pepper, or an ordinary Juniper-berry, are green when young, and black when ripe, and full of small, black, shining, round Grains. It grows in Italy, and the Southern Parts of France; but I find no particular Virtues ascribed to this Plant. *Raii Hist. Plant.*

CACUMEN, *ἀκρον*. The Top of any Thing. See **ACRON**.

CADAVER, *νεκρόν*. A Carcase.

CADEL AVANACU. A Species of *Ricinus*, growing in *Brasil*, and flowering and bearing Fruit twice in the Year, that is, in January and July.

The Leaves, bruised, and drank in Water, are purgative: They help the Bite of the Serpent call'd *Cobra Capella*, if reduced to Powder, and put into the Wound. The same, mix'd with the Leaves of the *Pandi Avanacu*, the Flowers of *Schem Pariti*, (a sort of *Indian Alcea*) and Honey, make a proper Unction for Pustules of the Head. One Seed of the Fruit, bruised,

bruised; and taken in Water, is the usual Dose for a Purge. In general this Shrub, in its tricoecous Fruit, agrees with the Ricinus, but differs from it in other respects. *Raii Hist. Plant.*

CADMIA.

The best sort of Cadmia is the *Cyprian*, which is call'd *Botrytis*, (cluster'd) and is of a dense Substance, moderately ponderous, or rather inclining to Lightness, cluster'd on the Surface; of an Ash Colour, and, when broken, appears cineritious and æruginous on the Inside. The next in Goodness to the fore-mention'd, is pretty much of an azure Colour on the Outside, but whiter within, and distinguish'd by Veins, like those Onyx-stones which are digg'd out of old Mines [Hence it is call'd *Onychitis*]. There is also a sort of Cadmia call'd *Placitis*, (crusty) which is surrounded with Veins in the manner of Zones or Girdles, whence it is also call'd *Zonitis*. There is yet another Sort, which is call'd *Ostracitis*, (testaceous) which is of a thin Substance, and, for the most part, black and earthy, or testaceous, on the Outside; but the white is good for nothing.

The *Botrytis* and the *Onychitis* are useful Ingredients in Medicines for the Eyes; and the other Sorts are put in Plaisters, or among Powders, [Ætæ] for cicatrizing of Ulcers. The best for these Purposes is the *Cyprian*; for what is brought from *Macedonia*, *Thracia*, and *Spain*, is of little Value.

Cadmia has an astringent Virtue, fills up hollow Places, and deterges Filth, is an Obstruent, Dryer, and Escharotic, restrains carnos Excrecences, and cicatrizes old and malignant Ulcers [*τὰ κακὰ ἔλκυστα ἐκκαίει*].

There is also a sort of *Cadmia* which is made of the Soot that sticks to the Walls and Roof of the Furnace, in boiling of Copper. These Furnaces, which consist of Iron, and are very large, and call'd by the Workmen *Aceftides*, are closed at Top, in order to intercept and detain the Corpuscles which fly off from the Copper; and, after adhering in great Quantities, they at last thicken, and unite into one Body, constituting sometimes one, sometimes two, and sometimes all the sorts of *Cadmia*.

Cadmia is also made by burning the Stone *Pyrites*, which is digg'd out of a Mountain which overlooks the City of *Soli*. In the same Mountain are found, as it were, Veins of *Chalcitis*, *Misy*, *Sory*, *Melantery*, *Cæruleum*, *Chrysocola*, *Vitriol*, and *Diphryges*. Some say, that *Cadmia* may be found in Quarries of Stone, mistaking for it a Stone which is much like it; such a Stone may be found at *Cumæ*, but void of all Virtue, and may be distinguish'd from the *Cadmia* by its being lighter, ungrateful to the Taste, and offensive to the Teeth; whereas the *Cadmia*, readily yielding to the Impression of the Teeth, may be chew'd without Offence. They may be distinguish'd also by the following Experiment: The *Cadmia*, when levigated in Vinegar, and dried in the Sun, concretes; which the Stone, after the like Management, does not. Besides, the Stone bruised, and thrown into the Fire, hops, and sends up a Smoak nothing different from that of the Fire itself; but the *Cadmia* remains quiet, and emits a yellowish Fume, resplendent like Brass, and curl'd and variegated like a Girdle. Moreover, the Stone heated in the Fire, and afterwards cool'd, changes its Colour, and becomes lighter; but the *Cadmia* suffers no Alteration, except it be kept in the Fire for many Days together.

Cadmia is also produced from the Silver Smelting-furnaces, but it is whiter, and less ponderous, and not so efficacious. They burn the fore-mention'd *Cadmia* by covering it with Coals, till it becomes transparent, and bubbles like the Scoria of Iron; and then quench it in *Aminæan* Wine, but, for the Psora, in Vinegar. Some, after it is thus burnt, levigate it with Wine, and torrefy it afresh in a crude earthen Pot, till it appears like Pumice-stone; then levigate it again with Wine, and burn it the third time, till it be quite reduced to Ashes, retaining not the least Roughness, and so use it instead of Spodium. It is wash'd by pounding it in a Mortar, and throwing away the Water till no Drops swims at Top; and is then made into Troches, and reposited for Use. *Dioscorides, Lib. 5. Cap. 84.*

The Name *Cadmia* has been applied to several Things. *Dioscorides* understood by *καδμεία*, the Recrements which arise from Brass, while melting in the Furnace. *Galen* applied it to two Substances, one which comes from Brass, which is the same with the *Cadmia* of *Dioscorides*; the other a native Substance in the Island of *Cyprus*, which he terms *λίβαδνς*, or stony. *Pliny*, besides the factitious *Cadmia* of *Dioscorides* and *Galen*, mentions another by the Name of *Lapis Ærosus*, which, he says, was an Ore out of which Copper was made; and this is, perhaps, the same with the *Cadmia Lapidosa* of *Galen*. The Dealers in Metals call by the Name of *Cadmia* the *Lapis Calaminaris*, used in making Copper into Brass; and the *Germanis* have given the same Name to *Cobalt*; and therefore *Agricola*, and the more modern Writers, distinguish three Kinds of *Cadmia*, one metallic, one fossil, and the third that of the Furnaces, which Division we shall here retain.

The metallic *Cadmia* is a fossil Substance, containing some

Portion of Copper, Silver, or of both, and is of two Kinds: First, the native *Cyprian Cadmia*, which is a fossil Substance, or Copper-ore. It is likewise found in several Places of *Asia* and *Italy*; and is probably the same which *Galen* found in the Island of *Cyprus*, tho' he does not mention, that Copper was obtain'd from it by Fusion. It is now altogether unknown, or at least confounded with other Copper-ores. The other kind of metallic *Cadmia*, or the Cobalt of the *Germanis*, is a metallic Substance, from which *Arsenic*, (see ARSENICUM) *Zaffera*, and the *Encaustum Cæruleum*, are prepared.

This is distinguish'd, by Authors, by the Names *Cobaltum*, Offic. *Cadmia Metallica*, Worm. Mus. 128. Charlt. Foss. 51. Aldrov. Mus. Metal. 256. Matth. 1338. Kentm. 74. Woodw. Att. 2. P. 1. p. 50. *Cadmia Metallaris alius*, *Cobaltum metallicis*, Schw. 370. *Cadmia fossilis*, ex qua præp. *Zaffera*, Woodw. Att. COBALT.

The fossil *Cadmia* of *Agricola*, stony *Cadmia* of *Schroder*, *Lapis Calaminaris*, or Calamine of the Shops, is a fossil Substance, of a middle Consistence between Stone and Earth, of different Colours, such as a pale Colour inclining to White, Yellowish, and a blackish Red. This last is full of small ferruginous Globules, like Grains of Pepper, and mark'd with white Veins; and is found in great Quantities about *Bourges*, near *Saumur* in *Anjou* in *Frauce*, and in many Parts of *England*. The others are dug in *Germany*, near *Aix la Chapelle*; and all Kinds of it seem to partake of an Iron-ore, because the greatest Part is attracted by the Load-stone. This Species of *Cadmia* was probably unknown to the ancient *Greeks*, or at least was not used by them in Physic, since it is not mention'd either by *Dioscorides* or *Galen*. It is now prescribed, by some Physicians, to dry running Ulcers, to heal the excoriated Parts of Children, either in a fine Powder by itself, or mix'd with Ointments. It is an Ingredient in the Ophthalmic Ointment of *Renodæus*, and in the red drying Ointment, the Plaister call'd *Manus Dei*, and in the styptic Plaister of *Charas*.

The *Lapis Calaminaris* is much used in cooling and drying Cerates; and is, in Powder, frequently sprinkled upon Sores and Ulcers, with a View of drying them, and disposing them to cicatrize. I have been told, that the Surgeons have lately observed, that *Lapis Calaminaris*, reduced to a very fine Powder, operates as an Escharotic; whereas in a more gross Powder it acts as a Dryer.

Preparation of LAPIS CALAMINARIS.

Take any Quantity of *Lapis Calaminaris*, and levigate it upon a hard Marble, with Rose-water; dry it, when reduced into an impalpable Powder, in little Drops, as it will fall from a Spatula upon a Chalk-stone.

In the same manner are prepared Tutty, and all hard friable Substances of the like Kind.

MAGISTERIUM LAPIDIS CALAMINARIS: *Magistery of Calamine.*

Take Calamine, four Ounces; beat it into fine Powder, or levigate it as above: Put it into a Matrafs, and pour upon it, of Spirit of Salt, one Pound. Let them digest upon warm Sand forty-eight Hours; filtre the Dissolution, and precipitate the Magistery with Spirit of Urine; free it from its Salt by several Ablutions, and dry it gently for Use.

It is emetic and cathartic, and given in the like Cases as Antimonial Emetics. Its Dose is from three to seven Grains.

CALAMINARIS DIAPHORETICUS: *Diaphoretic Calamine.*

Beat four Ounces of Calamine into fine Powder; put it into a Matrafs, which place in a Chimney; and put to it, by three or four Ounces at a time, of Spirit of Nitre, one Pound: Let it there stand, cover'd from Dirt, for twenty-four Hours; then decant the Liqueur, which put into a Retort set in a Sand-furnace, and give it a gradual Heat to the third Degree, and so keep it till no Drops fall from it. When all is cold, take it out of the Retort, and keep it for Use.

Some say it is a good Sudorific, but it is little used. Its Dose is from ten Grains to half a Dram. One Ounce of it, infused in half a Pound of Spirit of Wine, makes an admirable Collyrium, and does great Service, by dropping it into the disorder'd Eye three or four times a Day. Some likewise make a good Collyrium by quenching a Lump of Calamine, of about four Ounces, ten or twelve times in one Pound of White-wine. Quincey.

CERATUM DE LAPIDE CALAMINARI: *Cerate of Lapis Calaminaris*, commonly call'd *Turner's Cerate*.

Take of fresh-made unsalted May Butter, and of the best yellow Wax, sufficiently defecated, each three Rounds and

and an half; of pure and newly-prepared Oil of Olives; four Pounds; and of the best Calamine-stone, sufficiently triturated, and pass'd thro' a Sierce, two Pounds and ten Ounces: Let the Wax and Butter be put into a proper Vessel, with the Oil, and melted over a gentle Fire; then strain them thro' a Linen Cloth into another Vessel, and immediately sprinkle the Powder of the Calamine-stone into it by Degrees, continually agitating the Mixture, and stirring it from the Bottom of the Vessel, till it begins to cool, and becomes so thick, that the Powder, in consequence of its Weight, can no longer subside to the Bottom of the Vessel.

Turner gives the following Encomium of this Cerate:

As I have had ample Experience of this Cerate, I may be allow'd, I hope, to judge of its singular Properties, and good Effects, in all cutaneous Ulcerations and Excoriations, either from Scalding, Burning, or Fretting of the said Parts by means of salt, acrid, or sharp Humours; upon which Accounts, not straining a tittle beyond its deserved Eulogy, I am bold to affirm, it will do more in all these superficial Hurts of the Body, than either *Unguentum Tutia*, *Diapompholyx*, *Nutritum*, *Desiccativum Rubrum*, *Album de Calce*, *Rosatum*, or all the Epulotic Medicines now in Use; and for which Cause I can, for the public Benefit, sincerely recommend it to all the Professors of the Art; and do wish, that the Apothecaries would keep it made up in their Shops, to deliver, at a suitable Price, to indigent or poor People, instead of their ridiculous *Lucatellus's Balsam*, and other improper Medicines, which they call for ignorantly to heal their Skin-deep Maladies.

I know the Medicine has been imitated by several, and I have seen somewhat like it in some Gentlemens Salvatories; but I know not more than two Persons I ever communicated it to, as I was wont to prepare it for my own Use.

The Medicine, thus prepared, is of a good Consistence, and a true Cerate, serving both for Pledget and Plaister, neither sticking troublesomely, nor running off, or about, by the Heat of the Parts; but keeping its Body, and performing Things incredible. Whoever thinks fit to take it into Practice, will never repent it, nor perhaps (when he has experienced it as I have done) think I have said too much in its Commendation. This is the Medicine I have so often taken Notice of, under the Name of *Ceratum de Lapide Calaminari*, which, that I might contribute my Mite to the Surgeon's Treasury of Medicine, I here have publish'd, and leave it to take its Fate: I am sure no ingenious Person will despise it for its being less compounded, and consequently less pompous, than some others, or for that it is only a *Tetrapharmacum*. Turner.

Tho' the above quoted Author claims the Invention of this Cerate, I have, as I remember, met with it in a very old *English* Chirurgical Author.

The greatest Quantity of Calamine is consumed in making Brass; and *Agricola* describes two Ways of doing this, in the following manner:

They take some Pieces of the best Copper and Calamine, first calcin'd, and finely powder'd; lay them in Strata in large Pots, each of which holds about fifty Pounds, Some add Glas likewise; and some use the *Cadmia* of the Furnaces, instead of the fossil Kind. These Pots are set in an arched Furnace, on Iron-Stands, placed in the Middle of it, and the Fire is kindled below them. In the upper Part of each Furnace is a round Hole, cover'd with a Stone, by which they regulate the Fire. When the Mixture in the Pots has been thus exposed to a very great Degree of Fire, and continued in Fusion, for eight or nine Hours, it is changed to Brass, and increased very much in specific Gravity, tho' it has not yet the Gold-colour. The Pots, being cool'd, are taken out of the Furnace; and the Brass, which is now of the Colour of white Embers, and cavernous like a Pumice-stone, is melted a second time, and thrown into a Mould, the Sides of which are Stone, and the Wideness or Distance between these Sides equal to the Thickness that the Brass-plates, now become of a yellow or gold Colour, are desired to be of. These Plates are afterwards beat upon the Anvil, to make them perfectly uniform.

The other Way of making Brass is to

Take a Vessel in which Silver is usually melted, to coat it on the Outside with Clay, mix'd with Filings of Iron; and to line the Inside with the purest Honey. Small Copper-plates, of about a Finger's Breadth, are likewise rubb'd over with the same Honey, and then cover'd with fine Powder of Calamine, crude Tartar, and Charcoal made of the Lime-tree, mix'd in equal Quantities. The Plates, thus prepared, are thrown into the Vessel, and the Vessel cover'd with a Brick, over which the Coat of Clay is likewise carried, a Hole being made in the Middle large

enough to admit an Iron Rod; to stir the melted Metal. The Vessel is then set in such a Furnace as the Refiners use; and, as soon as the Calamine begins to mix with the Copper, a red Smoke ascends, which afterwards becomes partly red, and partly blue, and last of all yellow; and this shews, that the Mixture is now perfected. The Vessel being then taken out of the Furnace, the Brass is found of a perfect Gold-colour. In this Operation the Copper takes up a third Part, or at least a fourth Part, of its Weight of Calamine, and yet remains as ductile as before; for it may be drawn out into very fine Wire; or beat into very thin Leaves.

A much better Way of making Brass is now practised at Bristol, which, I am inform'd, consists principally in granulating the Copper, before it is fused, with the *Lapis Calaminaris*; but I am not acquainted with the precise Method of doing it.

Dale mentions two Kinds of *Lapis Calaminaris*, which do not seem to differ in any thing, except that the first is got from the Mendip Hills, and other Places in England; the second, in France.

The first is thus distinguish'd.

LAPIS CALAMINARIS, Offic. Mer. Fin. 211. Dougl. Ind. 50. Schrod. 348. *Cadmia fossilis*, alias, *Lapis Calaminaris*, Worm. 128. Charlt. Foss. 51. *Cadmia fossilis*, Aldrov. Mus. Metall. 256. Worm. 128. Matth. 1338. *Cadmia Lapis*, Calc. Mus. 460. CALAMINAR-STONE.

The second is call'd

Calaminaris Lapis Bituricum, seu *Cadmia fossilis*, Ind. Med. 24. CALAMINE OF BERRY.

Cadmia Fornacia, or of the Furnaces, is of two Kinds; the factitious *Cadmia* of the Antients, and *Cadmia* of the Moderns, or the Tutty of the Shops. But the first Kind of factitious *Cadmia*, *Dioscorides*, *Galen*, and *Pliny*, understood to be only the Recrements of Copper-ore, which is blown off by the Bellows in melting Copper, and sticks to the Sides of the Furnace; of which there are different Species according to the different Figures into which it is concreted, and the Fineness and Variety of its Colours. The finest Kind, says *Pliny*, sticks in the very Edge or Border of the Furnace; and is as light as Wood-ashes or Embers. The best is that which hangs down from the Arch of the Furnace, and is call'd *βερρυδνς*, from the faint Resemblance it bears to Grapes hanging on the Vine. This is of a middle Weight between the foregoing Kind and the following, being of two Colours, one whitish like Wood-ashes, which is least esteem'd, the other purple, which is more valued. It is very brittle, and much used in Medicines for the Eyes. The other Kind sticks to the Sides of the Furnace, as being too heavy to rise to the Top. It is properly a Crust, and is used to destroy Cicatrices, or the remaining Marks of Wounds. From this, two other Kinds are obtain'd; one of a bluish Colour and spotted, the other red. The best *Cadmia*, according to *Pliny*, was found in the Furnaces of Cyprus; and he informs us further, that a *Cadmia* was likewise found in the Silver Furnaces lighter and whiter; but, however, much inferior to the *Cadmia* from Copper. *Galen* says, that a Sort of *Cadmia* was made from one Kind of Pyrites. But all these Kinds are now unknown in the Shops, neither do they seem to have been known to the *Arabians*, who were so little solicitous about the Substances called by the Name of *Cadmia* by the Antients, and which were only to be found in the melting Furnaces of the Island of Cyprus; that they gave the same Names without Hesitation to other Substances; whence a great deal of Confusion has arisen, and especially, because some of the latter *Arabians*, as well as those who have come after them, have endeavour'd to apply to these other Substances, what the Antients said of their true *Cadmia*; and thus *Avicenna* says of the Litharge of Silver all that *Dioscorides* has said of *Cadmia*.

The modern *Cadmia*, *Cadmia Fornacum* of *Agricola*, Tutia of the Shops, is a Recrement of Calamine melted with Copper, and not of Copper alone, as was that of the Antients. The official Tutty therefore may be defin'd a Sublimation of Calamine from melting Copper to the upper Part or Roof of the Furnace, where it concretes round Iron Rods placed there, into a solid Crust, which is afterwards beat off into Pieces, like the Bark of Trees, of a yellowish Colour, smooth on the inside, and sonorous; of a bluish Ash-colour on the Outside, and powder'd, as it were, with very small Grains of the same Substance.

This is perhaps the same with the Tutty of the *Arabians*; for *Serapion* describes a kind of Tutty, which is produced and collected in the Furnaces in which Copper is turn'd to a yellow Colour. But it is not certain, whether they might not likewise mean the Calamine itself by that Word.

The *Cadmia Fornacia* is usually thus distinguish'd.

Tutia, Offic. Dougl. Ind. 92. *Lapis Tutia*, Woodw. Att. T. 2. P. 1. p. 50. *Cadmia Fornacia*, Geoff. Prælect. 182. Schw. 370. Worm. Mus. 134. Charlt. Foss. 55. *Agricola*. *Cadmia*

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Cadmia Boiryitis, Aldrov. Mus. Metal. 16. *Cadmia Capnitis*, Kentm. 43. *Cadmia Facititia*, Schrod. 3. 458. TUTTY. Dale.

Tutty is reckon'd among the principal ophthalmic Medicines. It deterges and dries without Acrimony, and is therefore prescribed with Success in Ulcers of the *Cornea*, *Adnata*, and Eye-lids; and likewise in Itchings of the Eyes, inveterate Ophthalmias, and to stop an involuntary Flux of Tears, and fistulous Humours.

It is seldom used without Preparation, which consists in heating it red-hot, and then quenching it three or four times in Rose-water, and afterwards levigating it according to Art on a Marble or Porphyry.

Take prepar'd Tutty, half a Dram; Mouse-ear, Eye-bright, and Rose-water, of each an Ounce; mix them, and make a Collyrium. Or,

Take Succotrine Aloes, and prepar'd Tutty, of each six Drams; white Sugar, a Dram; Rose-water, and any mild White-wine, of each six Ounces. Digest them in the Sun for forty Days, in a close glass Vessel, and keep the Liquor without straining it. It is apply'd, by dropping a small Quantity of it into the Eyes from time to time. Or,

Take of prepar'd Tutty, a Dram; fresh Butter, half an Ounce; make an Ointment, of which a little is to be apply'd to the Corners of the Eyes, and Edges of the Eye-lids. It is an Ingredient in the ophthalmic Ointment of Charas.

Unguentum Tutiae, Ointment of Tutty.

Take of prepar'd Tutty, two Ounces; of Calamine burnt and quenched two or three times in Plantain-water, one Ounce; let them be reduc'd to a very fine Powder, and mix'd with a Pound and a half of the *Unguentum Rosaceum*, so as to make them into an Ointment.

Nicolaus was the first who gave a Prescription under this Title, which is in the *Augustan* Dispensatory; but that is loaded with a great many unnecessary Ingredients, and differs but little from the *Diapompholygos*: But the College at first receiv'd it in this more compendious manner, with the Liberty of making it either with Hog's-lard, or the *Unguentum Rosaceum*. The Tutty is prepar'd by Levigation, but if the Stone upon which it is ground, be not extremely hard, it will carry a good deal along with it into the Medicine: This is not very often referr'd to in Prescription, but is in great Esteem amongst the common People. *Quincy*.

The *Pompholyx* and *Spodus*, or *Spodium* of *Dioscorides* and *Galen*, are now unknown in the Shops. They tell us, that it was made two ways; the first by burning melted Copper to a white, smooth Powder; and the other by blowing off with Bellows what can be thus separated from *Cadmia*. *Dioscorides* mentions two Kinds of *Pompholyx*; one nearly the Colour of Copper, and moist and fatty; the other very white and smooth. This last, he says, was made by the Copper-smiths, in endeavouring to meliorate that Metal, which they did, by throwing into it a greater Quantity than usual of powder'd *Cadmia*; but it is uncertain, whether he here means New-ore, or the factitious *Cadmia* already mention'd. However this be, the fine Dust, or Flour, that arose from this Mixture, concreted into *Pompholyx*. It was likewise made by burning *Cadmia* alone in Furnaces; for having thrown it in small Pieces into the Fire, near the Nozel of the Bellows, they blow the most fine and subtle Parts against the Roof of the Furnace; and what was reflected from thence was called *Spodium*, which is of a blacker Colour, and heavier, than the *Pompholyx*, and full of Earth, and other Filth; and indeed was no better than the Sweepings of the Shops and Furnaces, and therefore was much less esteem'd than *Pompholyx*. These Substances might probably still be had, where great Quantities of Cyprian or red Copper are melted; but they are now unknown in the Shops.

The *Pompholyx* of our Shops, *Nil*, or *Nil album* of some Authors, is a fine white Flour, or Soot, which sticks to the Arch of the Furnaces and Covers of the Crucibles, in which Calamine and Copper are melted together. It is to be chosen very clean without any Mixture, and has the same Virtues with Tutty. It dries, and is gently Astringent without Acrimony; it absorbs the corroding Acrimony of the Fluids, and from thence is reputed a Cooler.

It is used with Success to dry old cancerous Ulcers, and to cure Defluxions of the Eyes. From this Substance is made the *Unguentum Diapompholygos*, which is thus prepar'd.

Take of Oil of Roses, twelve Ounces; of the Juice of Garden Nightshade-berries, six Ounces; of White-wax,

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and wash'd Cerufs, of each four Ounces; of Lead that has been macerated three Days in the sharpest Vinegar, and then dried and powder'd, and prepar'd *Pompholyx*, of each two Ounces; and of fine Frankincense, one Ounce. Let the Oil and Juice be boiled together to the Consumption of the latter; then let the Wax be melted in the same Oil, and the rest immediately added in Powder, and continually stir'd about with a wooden Spatula, till the Whole is cold, and form'd into an Ointment.

This is ascrib'd to *Nicolaus*, and receiv'd into the *Augustan* Dispensatory, and the first of our College, with the Addition of *Nihil* to its Title. The latter hath indeed taken it with some Alterations, which are conform'd to in this; but they are of no great Moment. It was design'd for salt, hot, inflammatory Ulcers; but it is very rarely used for those, or any other Purposes in the present Practice. *Quincy*.

We have already said, That the *Spodus* or *Spodium*, of the *Greeks*, was the Ashes, or rather the metallic Flour, collected in the Furnaces and Shops of Copper-smiths; and that it differ'd from the *Pompholyx* in being more heavy, and not so pure. *Pliny* has, however, distinguish'd several Kinds of it; the *Spodium* of Copper, which is the best of all, that of Silver, called also *Laurosis*, from Mount *Laurus*, where there were Silver Mines; that of Gold, collected in refining that Metal; and that of Lead, which was next in Goodness to the Copper *Spodium*, according to *Dioscorides*.

The *Spodium* of the *Greeks* was never given inwardly, but was applied externally. Besides these Metallic Kinds of *Spodium*, the *Arabians*, abusing that Name, which in the *Greek* Language is very like the Word which signifies Ashes, added other Kinds, such as the Ashes of Plants and Animals. These Succedanea to the true *Spodium* were by the *Greeks* term'd *ANTISPODA* (See *ANTISPODA*); some of which are mention'd by *Dioscorides*; such as the Leaves, Flowers, and unripe Fruit of the Myrtle, calcined and wash'd; the Leaves of the wild Olive; Balls Glue; new-thorn, rough, greasy Wool; Pears, or Apples, moisten'd with Water, and then burn'd, and such-like. The Ashes of some burnt Roots were by *Avicenna* term'd *Tabasfir*, which Word the Interpreters have render'd *Spodium*; and that *Spodium*, which was brought from the Eastern Countries, was undoubtedly a kind of coarse Sugar, as is prov'd by very strong Arguments, by the learned *Salmasius*; and therefore it is no Wonder, that by the *Arabians*, and those who follow'd them, the inward Use of *Spodium* has been so much recommended.

The *Arabians* were deceiv'd by the Ash-colour of coarse Sugar, and the Merchants by what was related to them, that it was the Powder of some burnt Reeds. Burnt Ivory is now commonly called *Spodium* in the Shops. *Geoffroy*.

The metallic *Spodium* is thus distinguish'd.

Spodium Græcorum, nihil gryseum, Offic. *Spodium*, Matth. Ed. 1339. Aldrov. Mus. Metall. 16. *Spodium facitium*, quidam cinerulum vocant, Worm. Mus. 135. *Spodos*, Kentm. 72. *Spodios facititia*, quibusdam cinerula, Charl. Foss. 55. PUTTY. Dale.

CADUCUS, the Word alone put substantively, or, as an Adjective, with the Substantive *Morbus*, signifies the Falling-sickness, or Epilepsy. See *EPILEPSIA*. *Castellus*.

CADUS, *κάδος*, perhaps from *χάδω*, which signifies to contain, or from the *Hebrew* *Cad*, a Measure mention'd in the Bible, and translated *ἑσπια* by the *Septuagint*. It is a Measure equal to the *Metretes* (about ten Gallons two Pints, *English* Wine-measure); for what *Dioscorides*, Lib. 5. calls *μέτρητον γλεύκος*, *Pliny*, Lib. 14. Cap. 16. renders *Cadum Musti*. It is sometimes writ with a double *δ* as in *Pollux*, Lib. 9. where he tells, that *ἀμφορεύς* was called *κάδδος* by the *Antients*. And the same Author relates from *Philochorus*, that *ἡμικαμφορεύς* esse *ἡμικάδδιον*.

Cadus was called *καράμειον*. *Hesychius* says, *κάδος ἐστὶ καράμειον*. He tells us also, *καράμειον τὸ οὖρον ἢ ὕδωρ σαμνίου*, "a Ceramium of Wine or Water is a Stannium." So *Cadus* and *Stannium* are the same. *Arbuthnot*.

CÆCILIA, Offic. *Jonf. de Serp.* 19. Aldrov. Hist. Serp. 243. *Cæcilia Typhlops*, Charl. Exer. 36. *Cæcilia Typhlops Græcis*, Gefn. de Serp. 60. *Cæcilia Typhlinus Græcis*, Raii Synop. A. 289. *Typhlops Cæcilia*, Mer. Pin. 208. THE BLIND-WORM, or SLOE-WORM. Dale.

This is a sort of Serpent, whose Bite has much the same Effects as that of the Viper; and is to be cur'd by much the same Methods.

Dale, from *Gesner*, gives an Account of a Theriaca being prepar'd of this Serpent, and Treacle-water, for a Sudorific in the Plague.

CÆCUBUM. Old *Aminæan* Wine. *Oribas. Med. Collect. L. 9. C. 6.* See *AMINÆUM*.

CÆCUM *Intestinum*. What we now call the *Appendicula Cæci*, is by *Rufus Ephesus* called the *Cæcum*. But modern Anatomists divide the large Intestines, which form one continu'd Canal, into three Portions. This Canal begins by a kind

kind of Sacculus or Bag, which is reckon'd the first of the three Portions, and called *Cæcum*.

The *Intestinum Cæcum* is then only a round short Bag, the Bottom of which is turn'd downward, and the Mouth and Opening upward. It lies under the Right Kidney, and is hid by the last Convolution of the *Ileum*. It is about three Fingers-breadth in Length, and its Diameter is more than double that of the small Intestines.

Through the membranous or common Coat of the *Cæcum*, we see three white Ligamentary Bands, which adhere very close both to the outer and muscular Coat. One of them is hid by the Adhesion of the *Mesocolon*; and all the three divide the *Cæcum* longitudinally into three Parts, more or less equal.

They all unite on the *Appendicula Vermiformis*, and cover its whole outer Side, immediately under the common Coat. Tho' they appear exteriorly on the *Cæcum* to be Ligamentary, they are made interiorly of fleshy Fibres, which accompany and strengthen the longitudinal Fibres of the muscular Coat.

The villous Substance of the inner Coat of the *Cæcum* is very short, and furnish'd in several Places with glandular Lacunæ, or solitary Glands, broader than those of the small Intestines.

These glandular Lacunæ, or Folliculi, are flatten'd and depressed in the Middle like the Pustules of the Small-pox. When we blow through a Pipe into these Lacunæ without touching them, the Folliculi are inflated, and represent little Caps with a Hole in the Middle of their convex Side: *Winslow*. See *INTESTINA*.

CÆMENTUM.

Cement. This is a Name given by Architects to that Substance put betwixt the Stones of Buildings for fixing and securing them. That tenacious Matter or Paste commonly used by Mechanics for making one Body adhere to another, is also called *Cement*. In a Word, Artists of different kinds have their different *Cements*, prepar'd in such a manner as best to answer their respective Intentions; but these are foreign to our Design. The Matter used by Chymists for the Joinings of their Vessels, is by some also called *Cement*; but as that Substance is more generally known by the Name of *Lute*, see the Article *LUTUM*.

It now remains, that I consider the *Cement* used by the Metallurgists, and Assayers of Metals, since by its Assistance the *Cementatory Calcination* of Metals, as it is called, is perform'd. This *Cement* then is prepar'd of the Dust of the reddest Bricks, Crocus of Mars, Crocus of Venus, plumious Alum, Vitriol, Salt, Blood-stone, Nitre, Sulphur, Sal Ammoniac, Sal Gemmæ, and some other Ingredients. This Powder, either dry, or moisten'd with Vinegar, Urine, or some other Liquor of a like Nature, is alternately sprinkled upon Plates of Metal, either with an Intention of corroding, depurating, or exalting. These Metal Plates, together with the *Cement*, are committed to a Box or Pot, which from its Use has the Epithet *Cementatory* affix'd to it. A Crucible may also be used for this Purpose. The Vessel carefully cover'd, is put upon the Fire, which is not to be rais'd to that Degree of Heat as to melt the Metal, but only increased so far as to put the corrosive Salts in Action, for corroding the prepar'd Metal from which the *Lamina* are intended to be purg'd.

Hence 'tis obvious, that several Salts are proper for forming *Cements*; that is, those Salts which are of such a Nature, as to act like a Menstruum upon the particular Metal to be corroded and separated from the rest of the Metallic Mass, on which they ought to have no Influence. *Cements* are used in the Depuration of the nobler Metal, and the *Cement* used in the Depuration of Gold is called *Cæmentum Regale*; because it spares Gold alone, and destroys all other Metals. What, in *Schroder's Pharmacopœa*, is called *Cæmentum vulgare*, is prepar'd thus.

Take of Brick-dust, eight Ounces; of common Salt prepar'd, four Ounces; of Nitre and Verdegrise, each half an Ounce: Mix together.

For depurating Silver from Copper, *Baguinus*, in his *Tyrociniū Chymicum*, gives a Receipt under the same Name, and consisting precisely of the same Ingredients, except that there is an Addition of two Ounces of white Vitriol. *Stahl*, in his *Opuscula*, excellently accounts for the Manner in which *Cements* act upon Gold. "When, says he, Gold is adulterated by an Inter-mixture of other Metals, especially Silver, tho' in a very small Quantity, by the Addition of corrosive Salts, reduc'd to a kind of Vapour by the Influence of the Fire, it is so thoroughly acted upon, that the Particles of the heterogeneous Metal are corroded, whilst those of the Gold are not in the least affected, by which means its Compages becomes very porous; and if a little more of a foreign Metal was added, it by that means becomes sufficiently friable. For this Purpose Nitre is chosen, together with such Substances as free its acid Spirit from its alkaline Parts, that the Spirit

"may have Access to corrode the Silver or Copper mix'd with the Gold. Substances of this kind are Brick-dust, Bole, and Vitriol; sometimes a little Verdegrise is added, and sometimes Blood-stone, or Crocus of Mars. But this is done principally with a View of heightening the Colour of the Gold, rather than promoting the Efficacy of the Corrosion. But, that this Business may succeed the better, the Gold must be prepar'd, that it may be fitly dispos'd for the Reception of these corrosive Steams. This is done by beating the Gold into pretty thin Plates, that the Vapours, which are not able to penetrate very far, may pervade them so much the sooner."

But 'tis to be observ'd, that many now disapprove of the Use of *Cement* in the Depuration of Gold, because it generally happens, that they carry off some of the precious Metal with them. The Reason of this seems to be, that some Quantity of common Salt, which is the Menstruum of Gold, is often lodg'd in the Nitre. 'Tis now obvious, that to *cement* is the same as to *stratify*; that is, for some time to expose a metallic Body to the Fire, along with *Cement*, Layer above Layer. Hence the Reason is plain, why *Cementation* is call'd corrosive Calcination. From what has been said, we likewise understand, why that Operation is call'd *Cementation*, in which Antimony; mix'd with Nitre, and, pounded, is calcin'd, in order to obtain the Liver of Antimony; and upon what Account *Kircher*, in his *Mundus Subterraneus*, affirms that the *Crocus of Mars* is prepar'd by *Cementation*; since, in that Preparation, Plates of Steel are laid, *Stratum super Stratum*, with a Paste made up of Quick-lime and Urine, and calcin'd in a cementatory Vessel: *Rieger*.

CÆRULEUM. A Name for the *CYANUS*, which see.

CÆSALPINA. This Plant was so nam'd by Father *Plumier*, who discover'd it in *America*, in Honour to *Andreas Cæsalpinus*, who was an eminent Botanist, and one of the first Writers on a Method of classing Plants.

We have no English Name for this Plant.

The Characters are;

It hath a Flower of an anomalous Figure, consisting of one Leaf, which is divided into four unequal Parts; the upper Part is large, and hollow'd like a Spoon. From the Bottom of the Flower arises the Pointal, amongst many incurv'd Stamina, which afterwards becomes a Pod, including oblong Seeds.

We have but one Sort of this Plant, which is, *Cæsalpina polyphylla, aculeis horrida*, Plum. Nov. Gen. Many-leav'd *Cæsalpina*, with large Thorns.

I find no Medicinal Virtues attributed to this Plant: *Mil-ler's Dictionary*.

CAESAREA SECTIO.

By the *Cæsarean Section* the Moderns mean no more than that surgical Operation, whereby the *Fœtus*, which can neither make its Way into the World by the ordinary and natural Passage, nor be extract'd by the Attempts of Art, whether the Mother and *Fœtus* are as yet alive, or whether either of them is dead, is, by a cautious and well-tim'd Section, taken from the Belly of the Mother, with a View to save the Lives of both, or either of them. This Operation is, by some, call'd *usægyptia*, or *usægyptioria*, tho' these Words are not to be found in the Writings of the Greek Physicians. In order to draw an *Odium* upon this Practice, we are told, that some of the most expert and knowing Physicians and Surgeons have not only censur'd the Operation as unsafe and cruel, but absolutely condemn'd it, as necessarily and unavoidably productive of Death. The Authors commonly allieg'd as favouring this Opinion, are *Paré*, *Guil-limeau*, *Rolsincius*, *Hoorn*, *Mauriceau*, *Solingen*, and some others, who are asserted to be sworn Enemies to the *Cæsarean Section*. But, upon a careful Perusal of the Works of these Authors, I find none of them promiscuously condemning the Operation in all Circumstances, but only in certain dangerous Cases; when, for Instance, the *Fœtus* is to be cut from the Uterus of the Mother, as yet alive; in which Case, and others of a like dangerous Nature, the above-mention'd Authors have observ'd the most fatal Consequences resulting from the Operation. But, for the sake of Accuracy, I must here observe, that there are three Cases in which the *Cæsarean Section* is necessary.

The first is, when a pregnant Woman dies, either before the stated Time of Delivery, especially in the last Months, when the *Fœtus* is perfect, and suppos'd alive; or when she dies in Labour; or is cut off by a violent Death, and the *Fœtus* is perceiv'd alive in the Uterus, or at least is, upon good Grounds, presum'd to be so.

The second Case is, when the Mother is still alive, and the *Fœtus* dead, but, at the same time, so unnaturally situated, as that it cannot come into the World in the natural Way, either by the Efforts of the Mother, or the Art and Skill of the Midwife or Physician, in which Case the Life of the Mother is in the highest and most evident Danger.

The third Case is, when both the Mother and *Fœtus* are still alive; but the *Fœtus*, as in the former Case, can neither be expel'd in the natural Way, by the Efforts of the Mother, nor extract'd by the Art of the Midwife, so that both the Mo-

ther and the Fœtus must be in the most imminent and unavoidable Danger of Death, unless they are sav'd by the *Cæsarean Section*.

In the first Case, that is, when the Mother is dead, and the Fœtus reasonably presum'd to be alive, I find few or none of the more noted Physicians and Surgeons, who disapprove of the Operation, since, without it, the Fœtus must necessarily die, as well as the Mother. And, as Delays in this Case are highly dangerous, they universally agree, not only that the deceas'd Mother should be laid open, but also that the Operation should be perform'd as soon as is possible; because, generally speaking, the Fœtus does not long survive the Death of the Mother; tho' *Doleus*, in *Encyclopæd. Lib. 4. Cap. 5.* informs us, that he perceiv'd the Fœtus to move in the Belly the Day after the Death of the Mother. In consequence of the Operation being perform'd in this Case, we have several Instances, not only in the remoter, but also in the latter Ages, of the Fœtus being taken alive from the Belly of the Mother. Accordingly, among the Antients, this memorable Circumstance is recorded of *Lycas*, mention'd by *Virgil*, of *Æsculapius*, of *Scipio Africanus*, thence denominated *Cæsar*, of *Manlius*, and, according to some, of the Emperor *Julius Cæsar*; and, in latter Ages, of *Edward the Sixth*, King of *England*, of *Sanctius*, King of *Navarre*, and several others mention'd by different Authors, and from that Circumstance call'd *Cæsares* or *Cæsones*. When, therefore, the Mother is already dead, or when the Surgeon perceives her to be struggling with the Agonies of Death, he should take care to have every thing prepar'd for the Operation, that, when she is actually dead, he may be ready to save the Fœtus, either by making a crucial Incision in the Abdomen, as in ordinary Dissections; or, which is a safer and more cautious Method, by a large longitudinal Incision, and not a crucial one, as most advise, made on either Side, with a Razor or Incision-knife, without any Regard to the Direction of the muscular Fibres, or the Course of the Blood-vessels. The Operation may be perform'd either in the Bed, or upon a convenient Table. If the Fœtus has fallen into the Cavity of the Abdomen, either in consequence of a Rupture in the Uterus, or by some other Cause, it must, in this Case, be taken out as soon as possible; and since, on the like Occasions, the Fœtus is generally very weak, a little *Hungary Water*, or some other Liquor of a like Nature, may be held to its Nose, for the sake of the Steam. The Breath also, either simply, or after having drank a little Wine or Brandy, is to be blown into its Mouth and Nostrils, in order to cheer it. The Navel-string must be ty'd in the ordinary Manner, and, for Decency's sake, Baptism administer'd. But if the Fœtus remains conceal'd in the Uterus, that Body must be cautiously laid open, the Child extracted, the Navel-string cut, and, if it is still alive, proper Methods must be us'd to cherish and support it; and thus the Operation is at an End. If the Fœtus is lodg'd in the Fallopian Tube, or the Ovary, which sometimes happens, the Abdomen is first to be laid open, and the Child carefully extracted; proceeding in other respects as before directed. But, in an Affair of such vast Importance as the *Cæsarean Section*, the Surgeon should carefully observe whether the Mother be really dead, or only in a Deliquium, lest he rashly perform the Operation on a live Woman, as we are told *Vesalius* did. He should rather be thoroughly satisfy'd of the Mother's Death, by observing whether there be any Motion of the Parts left, especially of the Heart, Arteries, and Lungs; and have the joint Concurrence, if possible, of the By-standers, as to the Propriety of the Operation, before he attempts the least Incision; tho', at the same time, we have no Instances of the Mother reviving under the Operation, after she has been taken for dead; and tho' such an Accident should really happen, the Surgeon has no Reason to think, that he commits Murder, since, in consequence of his believing the Mother to be dead, his Attempts to save the Fœtus not only flow from a Principle of Humanity, but are also authoriz'd by the Laws of the Land. In such a deplorable Case, as there are still some faint Remains of Hope, especially if the Operation has been perform'd by a simple longitudinal Incision on one Side, the Surgeon must stitch up the Wounds, and treat them in the most skilful Manner he possibly can, since live Persons, who have voluntarily submitted to have the Fœtus extracted in this Manner, have sometimes happily recover'd; for, if the Surgeon should delay too long, from a mistaken Terror of murdering the Mother, the Fœtus may be lost, and the Operation perform'd in vain. Some condemn the Operation altogether, because, say they, after the Death of the Mother, we are not certain whether the Child is still alive; for which Reason they are not, in the Phrase of the Vulgar, for disturbing the poor Mother, after she is dead. Tho' I do not deny, that it is often a hard Task to determine certainly whether the Fœtus be dead or alive, and that, in consequence of this, the Operation must often be perform'd in vain; yet, in my Opinion, it is still more adviseable to open ten, or even an hundred dead Mothers in vain, than to lose one live Fœtus for want of the Operation.

My Advice, in general, is, that the Operation should be

perform'd as soon as possible on all Women, who die either a little before, or in the very Pangs of Delivery; partly that the Fœtus may be extracted alive, baptiz'd, and rescu'd from the Jaws of Death; and partly for the better Information of Physicians, Surgeons, and Midwives, to acquaint them with the Figure, Bulk, and Structure of the Uterus in pregnant Women, with the Posture of the Fœtus in it, the State of the Membranes, the Disposition of the Secundines, and their Connexion with the Uterus, that they may, at other times, be the better qualify'd for affording Relief in Circumstances of a like Nature; and partly, according to *Deventer*, that it may be discover'd whether the Death of the Mother was owing to the Unskilfulness of the Midwife or Surgeon, or to some other Cause; that they may be punish'd or acquitted accordingly, and arrive at a greater Knowledge in their Profession. We must not then delay performing the Operation upon a Woman who dies in these Circumstances, much less must we bury her with the Fœtus in her Belly, which is too often the Case; since, on some Occasions, the Child may remain alive in the Uterus a long time after the Death of the Mother; for I think it barbarous and inhuman, repugnant to Christianity, and inconsistent with Mercy, to bury the Child, as yet alive in the Uterus, with its dead Mother. I therefore think, that not only among Christians, but also where-ever Humanity and Compassion have the least Regard paid them, Princes and Rulers should enact the severest Laws, injoining that all Women, who have died during Pregnancy, should not only be laid open before they are bury'd, but also that this should be done immediately after the Death of the Mother, by skilful Physicians and Surgeons, lest, by a Delay, the Fœtus should be allow'd to die in the Uterus, or, by omitting the Operation altogether, it should be bury'd alive with its dead Mother; since, in this Case, they might justly be said to be murder'd, according to that eternal, immutable, and unalterable Law of Nature, *Whom thou didst not save from Death, when it was in thy Power so to do, him thou hast kill'd*. The most antient of the Roman Kings, tho' destitute of the Light of Reveald Religion, were mov'd with the highest Compassion for Infants in this Condition, since they made a Law in their Favour call'd the *Lex regia*, which may be justly dignify'd with the Epithets *Christian* and *Divine*, injoining, *That no Woman who died pregnant, should be bury'd before the Fœtus was extracted from her, and making it a capital Crime to do otherwise*; adding this as a Reason, *That he seems, by so doing, to have destroy'd the Life of the Fœtus*. Their Intention in this Law, doubtless, was, that the Operation should be perform'd in due Season, that is, soon after the Death of the Mother; because the Fœtus, as we know by Experience, does not long survive. But, tho' most of our Lawyers acknowledge the Equity and Sanctity of this Law, yet, by some unhappy Fate, it is seldom or never minded any-where among Christians in our Times, but as much neglected, as if there were nothing relating to it inserted in the Body of the Law. *Hildanus*, indeed, tells us, that this Royal Law was, for the most part, observ'd in his Country, that is, in *Switzerland*; but in other Countries, as far as I could learn, they make no Scruple to bury their dead pregnant Women without Section. Princes and Magistrates, indeed, convict and punish Whores, when their Infants perish for want of a Ligature of the Navel-string, or for some other Neglect; and, in my Opinion, justly; for which Reason I cannot but the more wonder, that they inflict no Punishment on those by whose Fault, or Negligence, the Children of those who die pregnant, perish in the Womb, when they might often have been preserv'd; since the Life of a Child is as much concern'd in one Case as the other, and the Guilt in both Cases is alike. Pertinent to this Purpose is what *Mauriceau, Observ. 345.* relates of a Man who would not suffer his Daughter's Womb, who dy'd without Delivery, to be rip'd open, and so wilfully occasion'd the Death of the Child; a Crime which deserves to be severely punish'd: So here, at *Helmstadt*, a Man would not suffer me to make an Incision in his dead Sister, but threaten'd to shoot me, if I came into his Doors upon such an Account; and so the Child also perish'd. I cannot but think, that Legislators would do nothing improper, or unbecoming their Office, by taking all due Care, and issuing strict Orders, that no pregnant Woman, who dies before or in the Time of Travel, should be interred before Incision of her Belly and Uterus.

When the Mother is still living, but her Child dead in the Womb, without any Hopes of its coming away, or being extracted by the natural Passages, as usually is the Case; when there are Indications, that the Child sticks in the Tuba Fallopiana, or the Ovarium, or in the Cavity of the Abdomen, or, perhaps, in a kind of Hernia without the Belly, of which *Sennertus* and *Hildanus* have given us each an Example; or if the Passage be obstructed by a Callus, a Scirrhus, a Tumor, or an Exostosis about the Os Uteri, or in the Vagina; or if there be too great a Straightness of the natural Parts, occasion'd either by an incurable Coalition of the Vagina, or a Callus, or an ill Conformation of the Bones of the Pubes, which is incident especially to Women of a dwarfish Stature; and thereby the Fœtus is render'd incapable of Expulsion; and the Mother,

thro'

thro' the Vehemence of the Pains, or Convulsions, or a violent Hæmorrhage, or some other considerable Cause, should have her Strength exhausted, and, by that means, her Life endanger'd, I judge the *Cæsarean Section*, tho' never prescrib'd by the Antients for living Persons, and condemn'd by many of the Moderns, to be absolutely necessary for preventing the Death of both the Mother and the Child; for, in these Cases, an Extraction by the natural Ways, which *Mauriceau* advises before a *Cæsarean Section*, in every preternatural Birth, can have no Place. Therefore, in all such Circumstances as render it impossible to extract the Fœtus by the ordinary Ways, (for about these are we principally concern'd) Incision of the Belly is, indeed, a severe and dangerous, but the only Remedy to deliver the Mother from the Fœtus, and from imminent Death; and we are not without Examples, in various Authors, of this Section being happily perform'd; so that *Mauriceau* speaks against Reason and Experience, when he asserts, that this Section is always mortal to the Mother; for which Reason he is also reprehended by *La Motte*, who was himself no Friend to this Operation, but rejected it on some very proper Occasions.

However, tho' there be many Examples of this Operation being perform'd successfully, and tho' there are very few but will admit of a Section of the Belly and Uterus, when the Mother is dead, and even while she is alive, if Nature points out the Way, by some Tumor, Pain, or Abscess, in some Part of the Belly, as on one Side, or about the Navel, in which Case this Operation is usually perform'd with Success, as several Authors have observ'd, because it is follow'd by little or no Hæmorrhage, and the Fœtus, on these Occasions, generally sticks in the Fallopian Tube, the Ovary, or the Cavity of the Abdomen; yet there are some very eminent Physicians and Surgeons, who will by no means admit of it, and not only dissuade from the Practice of it, but utterly condemn it, as cruel and barbarous, and always destructive and fatal to the Mother, when the Fœtus is detain'd in the Uterus, and no Abscess manifests itself. Some of the principal Gentlemen of this Opinion are *Guillemeau*, *Mauriceau*, *Rolfincius*, and *Solingen*; and for this Reason, because they always observ'd it to be succeeded by the Death of the Mother; tho' that might often happen from some other Cause. And some of them do not stick at branding those Physicians, who advise or undertake this Operation while the Fœtus is in the Uterus, and no Abscess is discover'd, with the Titles of *cruel* and *rash*; because, say they, the Fœtus should rather be extracted, by the natural Passage, with the Hand, or by the Help of Instruments, and not by ripping up the Belly and Uterus, with the utmost Danger of the Mother's Life, by the *Cæsarean Section*. But these Gentlemen are sufficiently confuted, both by Reason, and the Experience of some of the most sagacious and approv'd Physicians and Surgeons, such as *Rosset*, *Baubine*, *Sennertus*, *Hildanus*, *Fienus*, *Scultetus*, *Scipio Mercurius*, *Roonbuisen*, *Ruleau*, *Lancisi*, *Saviard*, *Jobert*, *La Motte*, *Teichmeierus*, and others, who all assure us, that the Mother has sometimes happily surviv'd the Operation.

I confess, with respect to the Mother, the Operation is very dubious and hazardous, especially when the Fœtus is to be cut out of the Uterus, and no Abscess appears; and, therefore, I am of Opinion, that it ought not to be undertaken without absolute Necessity; tho', from what has been said, and what will further be remark'd, I cannot but think it, on some Occasions, useful and necessary. *Gouey*, indeed, one of the latest Writers of Surgery among the French, *Rosset*, *Scipio Mercurius*, and *Welschius*, endeavour to prove, that the *Cæsarean Section* has no more of Difficulty or Danger in it, than cutting for the Stone; and, if dexterously manag'd, ought to be frequently undertaken, as appears from Examples which they bring. But, for my part, I cannot consent to so great a Length, and that for weighty Reasons, added to the Observations of *Paré*, *Guillemeau*, *Rolfincius*, *Mauriceau*, and *Solingen*, shewing the frequent unhappy Events which attend such an Operation; and, particularly, because of the Danger of an immoderate Hæmorrhage, or a Gangrene, and the Hazard which accompanies Wounds of the Uterus, especially in pregnant Women, as was long ago well observ'd by *Celsus*, *Lib. 5. Cap. 56*. *Mauriceau*, with some others, as I observ'd, is for extracting the dead Fœtus always by the natural Passages, with the Hands, or by the Help of Instruments, rather than have recourse to so dangerous an Operation as the *Cæsarean Section*. I heartily agree with this their Opinion, as often as the thing is practicable; and utterly disapprove the Rashness of those Surgeons, who have ventur'd upon a Section of the Belly, when the Fœtus might have been extracted by the Vagina, tho' the Operation was sometimes attended with Success. However, since Cases often occur, such as I mention'd above, where it is impossible to extract the Fœtus by the usual Passage, and the Mother is in utmost Danger of perishing, on account of its Detention in the Uterus; I look upon it as a barbarous and impious thing to leave the unhappy Woman, who earnestly implores our Assistance, or at least extremely wants it, without Help; and am of Opinion, that, in Cases of Extremity, the last or most desperate Remedies are to

be us'd; and certainly, according to the Judgments of *Hippocrates* and *Celsus*, the venerable Fathers of Medicine, a dubious Remedy is better than none, and preferable, in such Cases, to leaving the poor Woman helpless in that most deplorable State; under the greatest Torments, and giving her up to inevitable Death, while there is still Hope of saving her, as appears from happy Examples. Therefore I think those Physicians much in the wrong, who had the Care of the Woman mention'd by *Saviard*, *Observ. 114*. who, when they found the Birth was impossible, because of the Narrowness of the Passages, would not undertake a Section, but left both Child and Mother to perish together. And in his *Observ. 60*. we have an Instance of a Woman who beg'd for Section, but could not obtain it. Some there are, as *Mauriceau*, *La Motte*, and others, who acknowledge, that there are Cases in which it is impossible for the Fœtus to be brought away by the ordinary Passage; and yet advise, in such a Circumstance, to leave the Conduct of the Matter wholly to Nature, rather than expose the Patients to so dangerous a Section; because Nature often finds out Ways, by means of an Abscess in the Belly, Navel, Groin, or *Intestinum Rectum*, to expel the putresc'd Fœtus with less Danger than it could be extracted by Section of the Belly. In this I agree with them, as often and as long as the Mother is in no Danger of her Life from this Forbearance, which is sometimes the Case: But when the Danger is urgent, when by too long waiting we hurt, and in a manner kill the Mother, I think we ought to have recourse to the last Remedies, especially such as have been known to succeed, rather than give up the Patient, who might be under a Possibility of being helped, tho' by a dubious Remedy, to an unavoidable and most miserable Death. For, certainly, a Physician seems to me then only to have discharg'd his Duty to the full, and satisfy'd his Conscience, when he has done all things, and omitted nothing that he knows to be serviceable, and which he is sensible has done Good in other Cases of the like kind, without regarding what some, perhaps, may object against his Proceedings, especially when the Patient herself, whose Life is dear to her, and who had rather try a dubious Remedy than none at all, desires it of him. Others there are, who confess that the Reason why they will not undertake this Operation, is the Disgrace they are like to undergo, if it should not succeed: But this seems to me a very vain and trifling Excuse in so serious an Affair, and hardly becoming a good Man, much less a Christian Physician, who, in the way of his Duty, ought to stand in Awe of no Man, much less to be deterred by the Censures of the Vulgar, or the Calumnies of the Malicious. In short, all things are to be done by a Physician for the Preservation of his Patients in general, and especially those of the weaker and tender Sex, in this their most miserable and helpless Condition. And *La Motte* himself has several times perform'd Operations on Women, and particularly the Extractions of the Fœtus, even against the Mother's Consent; to accomplish which, he order'd Women in such a Circumstance to be held by strong Men, that he might by Force extract the Child, when in an ill Situation, in what manner he thought fit. Now, if he thinks such a Proceeding to be fair and lawful, why may we not, with a safe Conscience, use the same violent Means for extracting the Child by a Section of the Belly, that, if the Mother will not voluntarily submit to what skilful Physicians shall judge necessary for her Preservation, she may be compel'd by Force to undergo it? For my part, I see no Reason to the contrary. How much more then are we to lend our Assistance in the former Case, when it is not only voluntarily desir'd, but earnestly intreated!

If, then, the unhappy Woman consent to submit to Section, or voluntarily desire it, the first thing to be consider'd is, whether she has sufficient Strength to undergo the Operation. For if she be very weak and low, be cold in the extreme Parts, and in a cold Sweat, it is to be fear'd, that she will die soon after the Section, and so the Cause of her Death, by ignorant and malicious Persons, may be imputed to the Operation, and the Surgeon. It is best, therefore, in this Circumstance, to forbear such an Undertaking, lest, as *Celsus* says, *Lib. 5. Cap. 16*. we might be thought to kill the Woman, who, in reality, dies of the Violence of her Distemper. But if she be in good Strength and Heart, and there is Hope of saving the Mother, or Child, or both, the Operation is to be readily undertaken; for the right Performance of which, we are to consider, first, what is to be done before the Operation; secondly, what is to be done under the Performance; and, thirdly, what after it. Before the Operation the proper Instruments are to be laid ready, which are, a straight Knife, firmly set in the Handle, and such as is represented (*Tab. 52. Fig. 8.*); or such a one as is commonly used in anatomical Dissections, or else a Razor, or some such Instrument; or one of the blunt Instruments, represented (*Tab. 26.*); also a blunt-pointed Pair of Scissors, with crooked Needles, threaded with strong Threads, or Cords, as for Gastrography; a clean Sponge or two; hot Wine, or some hot vulnerary Decoction in a Vessel; with the proper Apparatus of Bandage, consisting of Lint, Plaisters, Bolsters, and Fillets; not forgetting internal corroborative Medicines, and external

ones, to be apply'd, if needful, to the Mouth and Nostils. All these Things being fitly disposed out of the Woman's Sight, she is first to make Water, lest the Bladder, being distended with Urine, might be exposed to the Knife; she is then to be placed in a proper Situation, either on a Table, or Bed, in the midst of the Chamber, on her Back, in such a manner as that the Attendants may have convenient Access; and her Spirits are to be kept up by pleasing and pious Words; her Face being cover'd, that she may not be terrify'd at the Sight of the Instruments; and her Arms and Legs are to be held by at least four robust Persons, that she may lie immoveable; or, if you think fit, they may be ty'd.

The Surgeon then, standing at that Side of the Woman which seems most convenient, enters a strait Knife by the external Side of the Musculus Rectus, or in the Space between the Navel and the upper and fore Eminence of the Os Ileum, where Persons are now usually tap'd for the Dropsy, (which seems to me, as yet, the fittest Place) making a strait Incision, first thro' the Skin and Fat, about eight or ten Fingers-breadth in Length, after that, thro' the *Musculi Obliqui* and *Musculus Transversus*, and, lastly, with the utmost Caution, thro' the *Peritonæum*; where the principal thing to be observ'd by the Surgeon is, to make but a very small Wound, or Aperture, with this first Knife, for fear of hurting something withinside. Then with another Knife, probe-pointed, (*Tab. 26.*) or with the Scissars, he is to dilate the Wound; or, if he has not the last Instruments in Readiness, or thinks fit to use but a few, he may introduce his Finger thro' the Wound into the Belly, and by the Assistance and Direction hereof, with the first Knife, or with the Scissars, enlarge the Wound, till it seems wide enough for the Extraction of the Fœtus, taking all possible Care, that he hurts nothing else withinside, which may be readily avoided, by dexterously following these Directions: A sufficient Aperture being made in the Belly, the Situation of the Child, and where it sticks, is to be thoroughly inspected. If it be found to lie without the Uterus in the Cavity of the Abdomen, as it sometimes happens, you are immediately to extract it, together with the Secundines. If it be situated in the Fallopian Tube, or in the Ovary, an Incision is to be cautiously made in these Parts, and the Fœtus, with the Placenta, to be extracted thence. If the Fœtus be detain'd in the Womb, the Case is more hazardous, for fear of an immoderate Hæmorrhage, or dangerously hurting the Uterus, the Wounds of which Part have, from all Antiquity, been observ'd to be very pernicious, especially in pregnant Women. However, since the Child cannot be otherwise extracted, an Incision is here also to be made, and afterwards in the Membranes of the Fœtus, wide enough for accomplishing the Extraction. This done, and the Fœtus and Secundines being brought away, the extravasated Blood in the Belly is to be deterg'd with Sponges express'd out of warm Wine, or some warm vulnerary Decoction; and if the Effusion of Blood be immoderate, it should be restrain'd by Lint moisten'd with highly rectify'd Spirit of Wine, and introduc'd into the Wound of the Uterus; and the divided Orifices of the larger uterine Vessels are to be compressed with the Fingers upon Lint, till the Hæmorrhage ceases, or, at least, is very much abated. We have here Occasion to take Notice, that Women, in Child-birth, and after it, often lose a vast Quantity of Blood without Danger of Death; and, therefore, the Surgeon ought not, on a sudden, to be terrify'd at a pretty copious Hæmorrhage on this Occasion, especially if his Patient continues to preserve her Strength and Spirits. After some reasonable Space of Time allow'd for the Woman to recollect her Spirits, and to be refresh'd with some corroborative Medicine, the Lint is to be gently remov'd from the Wound, and the Belly again deterg'd with warm Sponges. The Wounds of the internal Parts are not to be sew'd, as some heretofore directed; but, after an Application of Balsam of Capiivi, or something like it, are to be left to Nature; for, as the Uterus gradually contracts itself, the Lips of the Wound come together, and, at last, if nothing intervene to prevent the Cure, are conglutinated.

But the Wound in the Belly is to be sew'd up with two or three Sutures, in the same manner as has been directed for Wounds of the Abdomen (See ABDOMEN); and a Tent, Pipe, or Canula, of considerable Bigness, is to be adapted to the lower Part of the Wound, in order to keep it open; for thro' this Aperture not only the noxious Humours, discharg'd from the Wound in the Uterus, and remaining within, and those which continue to discharge themselves, may find a Vent, but by the Help of Injections, as is practis'd in other Wounds of the Breast and Abdomen, they may also be brought away. And this Method must be continu'd till the Lips of the Wound are conglutinated, and all Efflux of Pus, or any other Humour from the external Wound, ceases; an Indication that the internal Wound is heal'd. After the Threads us'd in the Suture are cut and extracted, omitting the Tent or the Pipe, the exterior Wound is also gradually conglutinated by vulnerary Balsams, and agglutinating Plaisters. Most, indeed, advise sewing the Wound of the Belly; but, after considering the Matter with myself, and observing that other strait, or, as they are commonly call'd, longitudinal

Wounds of the Abdomen, for the most part, need no Suture, and, by the more modern Surgeons, are excepted from those which are to be sew'd, since their Lips may, for the most part, be commodiously join'd, and retain'd in Contact, by proper Plaisters, and a large uniting Bandage, I am of Opinion, that, in these Cases, we do not often stand in need of Suture, if proper Bandage is carefully apply'd. *Roussel*, taught by Experience, declares that, in this Case, he did not think Suture very necessary: But, if Bandage should be thought absolutely insufficient for the Purpose, then Suture is to be us'd. Some, before the Section is made, mark with Ink not only the Part where it should be made, but also where, and in what Places, Suture should be perform'd; but, as these Marks are quickly obliterated, and effac'd by the Effusion of Blood, I think this Advice altogether trifling and useless. As for the Situation of the Patient in Bed after the Operation, most Authors advise, that she should lie continually on her Back; but, to me, it appears more proper, especially if the Wound has been made on the Side, that the Patient should, as much as possible, lie with the Wound undermost, that some Part of the noxious Humours collect'd within may not only flow continually, and, as it were, insensibly ouse from the external Wound, but also that the Lips of the Wound may be the more easily agglutinated; which Advantage is more easily procur'd when the Section is made in the Side, than when the Operation is perform'd in the middle or anterior Part of the Belly. *Roussel* also advises, that a hollow Pessary should be introduc'd into the Uterus, that the Blood may be the more easily convey'd from it. Besides, the Physician must prescribe a proper Regimen, and suitable internal Medicines, such as are, on other Occasions, order'd for those who have receiv'd large Wounds; and these are to be persisted in, till the Patient is thoroughly recover'd, which, in *Lancisi's* Patient, happen'd in six Weeks.

From what has been said, 'tis obvious to every one, that this Operation, especially when a very large Aperture is made in the Uterus, must be attended with the greatest Danger. But since there are many Instances of Mothers being preserv'd by this Operation, who must have otherwise died very soon according to all Appearance, and since there is often no better, and indeed no other, Method of relieving the miserable Woman, I think it adviseable, rather to attempt this hazardous Operation in Cases where all other Hopes of Relief are cut off, than to abandon the miserable Patient, and leave those to the gloomy Prospect of unavoidable Death, who are often so fond of Life, as to submit to the most cruel Measures for preserving it.

Enough I think has already been said concerning the common and ordinary Method of extracting the Fœtus from the Uterus. But as certain Cases now-and-then occur, in which the Operation is to be otherwise perform'd, these also deserve our Consideration. When, for Instance, the Fœtus can neither be born in the natural manner, nor extracted from the Uterus, there appears any Tumor or Abscess in some Part of the Belly, especially about the Navel, accompanied with Pains more or less acute, as happen'd in the Cases mention'd by *Roussel*, *Baubine*, *Hildanus* from *Albucaſi*, *Alexander Benedictus*, and others; as also in the Instance recorded by *Cyprianus*, that celebrated Dutch Physician, in *Epist. de Hernia uterina*; and in the Case describ'd in the Annals of the *Julian Academy*, for the Year 1727; in which a Tumor and Abscess appear'd in the Musculus Rectus, hard by the Navel, as happen'd in most of the foremention'd Cases; and, upon opening the Tumor, all the Bones of a perfect, but putrified Fœtus were extracted. These Bones are in my Custody, and the Mother is still alive.

In Cases of this Nature, I think the most proper Place for performing the Operation, is that which is indicated and pointed out by Nature itself; since under it, for the most part, are lodg'd both the Fœtus, and the corrupted Humours, which create such intolerable Pains to the miserable Mother. If, then, such an Abscess should be already broken, as sometimes happens, and if the Aperture in it should be too small, it is, as in other Abscesses, to be sufficiently enlarg'd, either with a groov'd Probe, and proper Knife; or, instead of the Probe, with the Finger and Knife, or with Scissars, or with that Knife delineated in *Tab. 26. Fig. 3.*

Then the Bones of the Fœtus left after the Putrefaction of the soft Parts, or whatever of a corrupted Nature is found in it, are to be extracted, either with the Fingers, or with a Pair of Forceps; the vitiated Humors are to be evacuated, the Ulcer is to be deterg'd by proper Medicines, and then conglutinated by such Balsamics as are in like Cases directed by skilful Surgeons. If there is as yet no Aperture in such a Tumor of the Belly, but if Pains, and other bad Symptoms in and about it afflict and weaken the Patient; and especially if to the Touch there appears to be Pus in the Tumor as in Abscesses, lest the Patient should suffer thereby, we must, after consulting with other skilful Practitioners, make a sufficiently large Incision in the Abscess or Tumor, extract the Fœtus, or its Bones; if the Flesh be putrified, dislodge every thing of a corrupted Nature, deterge the Ulcer, and agglutinate it in the manner

manner already directed. In the above-mention'd Cases, there was no Occasion for Suture; but the Wounds gradually united and healed in the same manner other Abscesses do.

If the Fœtus should be lodg'd in a certain uterine Hernia; which rarely happens, tho' it occur'd in the Case related by *Sennertus* and *Hildanus*; a sufficiently large Incision is to be made in the Hernia or Tumor itself, first thro' the Integuments, then thro' the Uterus, and, last of all, thro' the Membranes of the Fœtus. Then the Fœtus is to be extracted, and the Secundines are to be taken from the Uterus, which is to be replac'd in the Belly, either immediately, if it can be done, or a few Days after, when it becomes less by its Contraction. The other Steps to be taken are the same with those already directed. In the Case related by *Sennertus* and *Hildanus*, the Surgeon did not replace the Uterus, but immediately flitch'd up the Skin: Hence I believe it happen'd, that the Uterus could not afterwards be replac'd, but the Mother died a Month after, tho' the Fœtus was alive and sound. It had therefore been better to have omitted the Suture, and replac'd the Uterus in the Belly some Days after, when it had become less by Contraction; for by this means the Mother might have possibly been sav'd.

If Pieces of Bones belonging to a corrupted Fœtus seek a Passage by the *Intestinum Rectum*, and *Anus*, which they sometimes do, as is evident, not only from the Cases already mention'd, but also from one which happen'd a few Years ago in a neighbouring Village; upon such an Emergency, the Splinters which come not away spontaneously are to be extracted cautiously, either with a proper Hook or Forceps; and the Wound of the *Intestinum Rectum* is afterwards to be agglutinated with Balsamics. But these are Circumstances which do not properly belong to the *Cæsarean* Section. But if Cases of this Nature should occur, I advise the Surgeon to read and compare what has been advanc'd upon this Subject, by the above-quoted Authors, that he may at once be apprisd of the Variety of Cases of this kind, and qualified for treating them with the greater Skill and Judgment.

In the third Place, the *Cæsarean* Section is to be perform'd when the Mother and Fœtus are still alive, but at the same time the Fœtus, on account of some Impediments, can neither be born in the ordinary Manner, nor extracted, especially when a bad Conformation of Parts in the Mother prevents the Introduction of the Surgeon's Hand for her Relief. In this deplorable State of Things, both Mother and Fœtus must unavoidably perish, unless reliev'd by the Operation. Tho' in Cases of this Kind, many Physicians and Surgeons are too timorous, tho' many Women from a false Principle of Compassion, or mistaken Notions of Religion, condemn the Operation in these Circumstances as impious, tho' by it the Fœtus, or the Mother, and often both, might be preserv'd; yet I think it more prudent, and more agreeable to the Precepts of Christianity, to undertake the Operation, where no other Means of Relief can be found, than to destroy both Mother and Fœtus, for want of it; especially on Queens and Princesses, where the Peace and Safety of Kingdoms and Nations depend on the Production of a Successor, without which there would be an unavoidable Foundation laid for the most cruel Wars, Devastations of Cities, Robberies, Murder, and the Subversion of States; for, by this Operation seasonably undertaken, either the Mother, or the Fœtus, or both, but most frequently the Fœtus, is preserv'd. The Lives of a great Number of Soldiers are often expos'd in the Field of Battle for the Good of the State, without any Hesitation or Reserve; and, if Circumstances require it, why should not the Life of one Woman be risk'd for the same End? If therefore we think justly on the Point, we shall have Reason to condemn as cruel, barbarous, and inhuman, those very Physicians and Surgeons, who thro' mistaken Views either delay the Operation, or dissuade from it; especially when the Women themselves desire it should be perform'd.

Mauriceau, tho' a skilful Man-midwife, and an inveterate Enemy to the *Cæsarean* Section, yet gives an Instance of the Fœtus being preserv'd alive by it, tho' the Mother died; whereas, without it, both Mother and Child had unavoidably perish'd; for, upon the Principles of common Sense, it is far more eligible to save one, than to destroy both. The Operation is to be perform'd in the same manner, as when the Mother is alive, and the Fœtus dead; only greater Caution is to be used, lest, in opening the Uterus and Membranes, the Fœtus should be hurt or injur'd.

But, tho' I have only perform'd this Operation on dead Women, yet I am so fully apprisd of the Danger that attends it, that I am far from advising it in Cases where there is the least Probability of bringing the Fœtus away by the natural Passages. *Mauriceau*, and others, seem to think, that some Physicians advise the *Cæsarean* Section, where the Fœtus can be extracted thro' the common Passage; and, so far as I can understand, they seem to believe, that some Physicians prefer this Operation to the other gentle and natural Method. But 'tis scarce credible, that a prudent Physician or Surgeon

should either advise, or actually perform, the *Cæsarean* Section; which is so dangerous on a live Woman, when there is a Possibility of extracting the Fœtus thro' the Vagina, tho' it should only be brought away in Pieces, except in some particular Cases upon Queens or Princesses, where Interests of State, and the manifest Good of the Community, require it. Whenever it happens then, that the Fœtus, either on account of its unnatural Situation in the Womb, its excessive Bulk, especially that of the Head, the monstrous Conformation of its Body, or some other Cause, cannot be born, tho' at the same time it is contain'd in the Uterus; and when there is an evident Danger of the Mother's Death, as well as that of the Fœtus, in consequence of her Strength being exhausted; if on such Occasions there should arise a Dispute, whether, in order to preserve the Fœtus, the Operation should be perform'd on the Mother, or whether the Fœtus ought not rather to be extracted with Instruments, if it cannot otherwise be done; I think the Mother is to be preserv'd, and the Fœtus, even tho' alive, to be extracted by any Means. In this Sentiment I am supported by the Judgments of many Physicians, Surgeons, and Divines, who, in Cases of difficult Births, where 'tis impossible to save both Mother and Fœtus, lay it down as a Maxim, that the Life of the Mother is to be prefer'd to that of the Child; or, as they express it, the Tree before the Branch. I am also of Opinion with *Solingen* and *la Motte*; that if a Callus of the Vagina, or Mouth of the Womb, be the Cause why the Fœtus cannot be brought away, and if these Parts can be sufficiently dilated, either by Section or Dilaceration, that this latter Method should be prefer'd to the *Cæsarean* Section; because by this Method the Belly and the Uterus itself are left entire, and the Blood discharg'd flows all thro' the Vagina, but in the other Case is thrown into the Abdomen, and considerably endangers Life. Besides other Advantages attending this Method, the Wound is also more easily agglutinated in it than in the other. I also think, that when the Vagina is shut up by the Hymen, or any other Membrane, these are to be cut rather than the Belly and Uterus: But when the Vagina is cover'd with too large and hard a Callus to admit of a sufficient Dilatation, and especially where there is an originally bad Conformation of the Bones of the Pelvis, then the *Cæsarean* Section is to be had recourse to as the only Method of Relief.

In like manner, if, by the Pains and Efforts made during Labour, the Uterus should be broken, and the Fœtus slip into the Cavity of the Belly, as sometimes happens, the Belly is in this Case to be laid open, since without such an Operation the Fœtus could not be extracted, and consequently neither it nor the Mother preserv'd. It may be known by the following Signs, when this happens to be the Case: If violent Pains, by which the Child is not forc'd into the World, are remitted, or cease all of a sudden, the Mouth of the Uterus in the mean time not being open, or at least not sufficiently open for the Purpose; a Circumstance which denotes the preternatural Situation of the Child; if a certain Rupture or Fragar is perceiv'd in the Belly; if a Shivering succeeds; if a large Tumor afterwards appears, and the Fœtus is perceiv'd to be situated higher in the Belly than before; if the Parts or Members of the Fœtus are more distinctly felt than when it was in the Uterus, especially if it is felt in either of the Hypochondria, with Pains in another Part of the Belly than before; as also, if the Patient is seiz'd with fainting Fits, convulsive Motions, or perhaps Alienation of Mind. When these Symptoms attend a difficult Birth, when no Part of the Fœtus appears externally, and when, upon passing the Finger thro' the Vagina, it is not found to press so strongly on the Mouth of the Uterus, we may conclude, that the Uterus is burst, and the Fœtus slip into the Cavity of the Abdomen. If this should happen to be the Case, the Belly of the Mother is to be open'd in the most prominent Part, where the Child is found to be lodg'd, with a View to save the Lives, if not of both, yet at least of the Fœtus. When the Arm hangs out of the Rupture of the Uterus, 'tis a bad Symptom, and a Cure is in this Case very difficult, if not impossible; however, we must prognosticate from the concomitant Symptoms. I am surpris'd, that the Physicians and Surgeons belonging to the *Strasbourg* Hospital, in which a Patient had been in Labour for five Days, and whose Case is recorded by *Pistor*, should have delay'd laying her open, since even during her Life they had the most manifest and incontestable Proofs, that the Uterus was burst; or, if they were afraid to perform the Operation on a live Woman, why did they not lay open her Belly after her Death, in order, if possible, to save the Life of the Fœtus? The Case of *Saviard* is also worthy of our Attention, when in the *Hôtel Dieu* the Fœtus, in consequence of a Rupture of the Uterus, had fallen into the Abdomen, the Secundines in the mean time hanging out of the Vagina. This he knew to be the Case, as he himself informs us, by introducing his Hand into the Uterus by the Navel-string. Notwithstanding these Circumstances, he did not open the Woman alive, in order to save the

the Child, and perhaps the Mother too, but suffer'd them to die together.

If the Fœtus should happen to be generated in the Cavity of the Belly, and not in the Uterus, (a rare Case) which may be known from the preceding general Signs of Pregnancy, from the Fœtus being situated higher in the Belly than is usual, and from the Mouth of the Uterus being closed at the expected Time of Delivery, even when there are Pains, and some other Symptoms already mentioned; in this Case the Cæsarean Section ought to be performed, because the Fœtus cannot otherwise be preserved; and, besides, the Mother is in less imminent Danger, because there is no Necessity for making an Incision in the Uterus. Sometimes, in difficult Labours, the Uterus is burst in such a manner, that not the whole Fœtus, but only some Part of it, falls into the Abdomen, the rest remaining in the Uterus. The Arm, for Instance, may hang out of the Vagina, whilst the Head or Feet are fallen through the Rupture of the Uterus into the Cavity of the Abdomen; in this Case the Cæsarean Section is not necessary. Thus I myself found the Arms of a Fœtus out of the Uterus, whilst the Head was in the Abdomen, and the rest of the Body in the Uterus. *Albinus* and *La Motte* saw a Case, in which the Head of the Fœtus was duly lodg'd in the Vagina, whilst its Feet had perforated the Uterus, and stuck in the Belly near the Diaphragm. Another Case they make mention of, where the Arm was hanging out of the Vagina, whilst the Feet were in the Abdomen. In both Cases the Patients were excessively weak. *La Motte* brought away the Fœtuses in the natural manner; but both Mothers died a few Days after. But an Instance directly opposite to these was told me by *Rungius*, a Surgeon of *Bremen*, in which, after having brought away the Fœtus, though, through the Rupture of the Uterus, he plainly felt the Intestines of the Patient, and with his Hand kept them for some time from rushing into the Uterus till it contracted itself, yet the Patient happily recover'd.

But I must not forget to make mention of the Difference between *Hysterotomy*, and what is commonly called *Embryulcia*; or between extracting the Fœtus, especially if unnaturally situated, from the Uterus, through the natural Passage, and cutting it out, by making an Incision in the Belly and Uterus; because often by the Vulgar, and even, which is more surprising, by some of the Learned, as also by Physicians themselves, these two Operations are confounded, and taken for each other, tho' nothing can be more different; for when the Fœtus is extracted from any Woman, nothing is more ordinary than to say, that her Child has been cut from her, though there was no manner of Section made, either on the Belly or the Uterus; but only the Child, on account of its unnatural Position, or its excessive Bulk, has been brought away by the Vagina, either by the Hands of the Surgeon, or some proper Instruments. This Operation, therefore, by which the Fœtus is extracted through the natural Passage, is called *Embryulcia*; but that whereby it is cut from the Belly *Hysterotomy*, or the *Cæsarean Section*. And if in this Sense *Embryulcia*, or the Extraction of the Fœtus through the natural Passage, is falsely taken for *Hysterotomy*, it is, perhaps, in some measure, true, which is advanced by *Scipio Mercurius*, "That Exsection of the Fœtus was, in his Time, as customary in *France*, as Venesection in *Italy* for "Head-achs." Thus, when I was lately perusing the Observations of *Franciscus Valleriola*, I found one, concerning Mothers, who were happily cured, and lived after the Fœtus had been cut from them by the Hand of the Surgeon. I expected to find many remarkable Instances of the Cæsarean Section being happily and successfully performed, and perhaps a particular Method of performing it, not mentioned by others. But after I had run over the whole Observation, I found, indeed, several Cases where the Fœtus had been extracted by Hooks, or the Hand of the Surgeon; but not a single Instance of the true Cæsarean Section being once performed. So that 'tis plain, that not only the Vulgar, but also learned Men and Physicians, have often mistaken one of these Operations for the other, as did also *C. Baubine*, though they differ very widely from each other. But by this unjust and unaccurate Way of speaking, a false Horror is often excited in Patients, as if the Belly was to be laid open, so soon as the Surgeon applies his Hand, in order to assist in a difficult Birth, though he sometimes performs his Business, without creating much Pain to the Patient.

As the monstrous Fœtuses, with two Heads, or two Bodies, cannot, for the most part, be born entire, without performing the Cæsarean Section on their Mothers, 'tis disputed whether, for their sakes, the Cæsarean Operation ought to be performed, and the Life of the Mother thereby exposed to imminent Danger; or whether the Fœtus, if it cannot be had entire, ought not rather to be cut in Pieces, and brought away piece-meal, through the natural Passages. In this Case, because these Monsters are either not alive, or, for the most part, horrid and useless Loads and Incumbrances to the Earth, I think the Mother is to be spared, and the monstrous Fœtus to be extracted by Instruments of whatever Kind. *Melli*, a late Italian Writer, condemns the Cæsarean Section on a living Mother;

and not sufficiently viewing the several Reasons that may induce to this Operation, he inconsiderately asks, whether, for the sake of a Monster, the Life of the Mother ought to be exposed to the greatest Danger; but for this very Reason he justly advises, that the Monster should be brought away by any means, thro' the natural Passage. But since there are other Cases which require this Operation, where the Fœtus cannot be brought away through the natural Passages, I think it cannot, with a safe Conscience, be neglected, as I have already shewn.

If the Head of the Fœtus, either by its own Largeness, or the Narrowness of the natural Passage, sticks in the internal Mouth of the Uterus, or in the Vagina; if from its long Continuance there the Fœtus dies, which generally happens in three Days, though it sometimes lives longer; and, in consequence of this Accident, the Lives both of the Mother and Fœtus are exposed to imminent Danger, because the Hand of the Surgeon can neither be introduced to alter the Position, nor the Fœtus expell'd; this is justly look'd upon as the most difficult and important Case in Midwifery. As the Head of the Fœtus cannot be held, in consequence of its Slipperiness, and the Narrowness of the Passage, as the Hand cannot be introduced to alter its Position in the Uterus, and as no Instrument can lay hold of it without killing the Fœtus, it is by some made a Question, whether the Cæsarean Section ought to be performed, in order to preserve the Fœtus; for unless the Child is quickly relieved from this Imprisonment, it must not only die very soon, but the Life of the Mother must be exposed to certain Danger; so that with *La Motte*, and *Sigismunda*, I must own this to be at once the most deplorable and intricate Case that can possibly occur to a Surgeon. 'Tis the Opinion of most of the above-mentioned Authors, that neither the Cæsarean Section ought to be performed, nor the Child dismember'd, whilst either Mother or Fœtus are alive; but, with the superstitious Casuists of the Roman Church, they are for allowing both to perish, rather than for preserving one at the Expence of the other. In this Case they absolutely condemn the Cæsarean Section, notwithstanding the many Instances recorded of both Mother and Fœtus surviving the Operation, which, we are told, by *Roonhuys*, was performed seven times by *Sennius*, a Physician at *Bruges*, upon his own Wife, and both Mother and Fœtus were preserved each time. The celebrated *Olaus Rudbeck* is also said to have performed the Operation with Success on his own Wife, the Fœtus also surviving. *Heister's Surgery*.

In the Case last-mentioned, there is no Possibility of a Necessity for the Cæsarean Section. The Methods of extracting the Fœtus under these Circumstances are specify'd in the proper Place.

Heister proceeds to inform us, that, in his Opinion, it is both prudent and lawful to bring the Fœtus away, in order to save the Mother's Life, though it should not be really dead. It, however, requires great Judgment to determine when this is to be attempted, and when not; though, to speak Truth, there seldom can be any Necessity of destroying the Child in this Situation.

There is something extremely ridiculous, in the Advice given by several Medicinal Authors, of the Catholic Religion, as well as Divines, which is, to baptize the Child in the Womb, by the Help of a Syringe, when any Danger is apprehended of its dying in the Birth; as if it was worth while to keep the Mother in Torture a single Instant, for fear the Supreme Being should punish the Child for the Omision or Crime committed by the Midwife, whether Physician, or old Woman. With whatever good Intent such Fooleries were originally introduced, I am afraid, that the Interests both of Religion and Physic are not much promoted by them.

CÆSIUS. A Colour frequently apply'd by Medicinal Authors to the Eyes, and to the Excrements, as the Urine. It is the same as **GLAUCUS**, which see.

CAFA, CAF, CAFAR. Camphire. *Rulandus. Johnson.*

CAFFE. See **COFFEE**. *Caffe* seems to be the right Word; but as *Coffee* is more in Use amongst us, I chuse to refer this Article thither.

CAGASTRUM. A Term used by *Paracelsus* to signify the morbid Seed, which is not innate or hereditary, but adventitious from Corruption; and, upon that Account, distinguished from the *Iliastrum*. Diseases from the *Cagastrum* are the Pleurisy, Pestilence, Fever, and the like. *Paracelsus Labyrinth. Med.*

CAHOS. A Term in *Paracelsus*, by which he intends not only the universal Mass, or *Chaos*, but the Air, and the *Iliastrum*. *Johnson. See ILIADUS.*

CAJACIA. The same as **CAACICA**, which see.

CAJAHABA. An Indian Plant, which adheres to Trees like Ivy. The Natives bruise it, and bind it upon Fractures. *Raii Hist. Plant.*

CAJAN *Arbor Indica, foliis trifolii bituminosi, siliquis orobi*, Breyne. Prod. *Phaseolus Arbor Indica incana, siliquis torosis, Kayan dista Thora Paerou, H. M. Pisum arborescens quibusdam.*

It is a shrubby Plant, bearing Pods which contain four reddish Peas, which are good to eat. An Apozem of the Leaves restrains the immoderate Flux of the Hæmorrhoids. The Leaves bruised with Pepper cleanse the Gums, and ease the Tooth-ach. The Seeds boiled in the Washings of Rice, and made into a Liniment with Butter, are a Relief to painful Lassitudes of the Joints; and they prepare of the same a wholesome Liquor against the Small-pox. *Raii Hist. Plant.*

CAJEPUTI-OLEUM. An aromatic Oil, imported from the *East-Indies* into some Parts of *Europe*. It is mentioned by *Hoffman* in his *Observationes Physico-chymicæ*, L. 1. Obs. 4. But he does not tell us from what Plant it is procur'd.

CAINITO, [this is the *American* Name by which the *Indians* called this Tree, according to *Oviedo*] Star-Apple, *vulgo*. It hath an open Bell-shap'd Flower, consisting of one Leaf, and cut into several Segments towards the Top, from whose Cup arises a Pointal, which afterwards becomes a globular or Olive-shaped, soft, fleshy Fruit, inclosing a Stone of the same Shape. *Miller* reckons but two Species of this Tree, which are the Star-apple *vulgo*, and the *Cainito* with Olive-shaped Fruit. I find no medicinal Virtues ascribed to it.

CAJOUS. See *ACAJAIBA*.

CAIRION, *καίριον*, in *Hippocrates*, signifies mortal, or very dangerous. Thus *Lib. de Art.* *καίριον πνεύματι ἀνθρώπου*, "Wounds in the Temples are very dangerous, or deadly." The Word is used in the same Sense by *Homer*; as *Iliad* 6, (Verse 84. and 326.) *μάλιστα δὲ καίριον ἐστὶ*, "is most mortal." He speaks of the Top of a Horse's Head, where a Wound is most dangerous or deadly.

CAIROS, *καίρος*, in the same Author, signifies the Season and Opportunity for doing a thing; as *Apb. 1. Lib. 1. καίρος δέξου*, "Opportunity is fleeting;" and the same Sense it bears in many other Places.

Καίροι also signifies the proper Seasons and Opportunities for taking of Remedies; as *καίρος μὲν τοῦδε ἔχει*, "the proper Seasons for using it are as follow;" where *Galen*, on the Place, says, *τὰς καίρους ἵπται, &c.* "He (*Hippocrates*) speaks of the proper Seasons of Use, according to Custom, or the proper Seasons for receiving Benefit; for in this latter Sense he sometimes uses the Word *καίρος*, as I have shewn." Sometimes *καίρος* means the same as *τὸ προσήκον*, "convenient." Thus, *Lib. de Rat. Viæ. in Morb. acut. ἐστὶ δὲ τὸ καίριον ἐξέρχον μᾶλλον ὥς καίριον ἢ ἀπρόσδεκτον*, "sometimes they (the Excrements) are deeper ting'd, and more frothy, than is convenient, or than might be suspected." So also in another Place of the same, where *Galen* observes, that *μᾶλλον ὥς καίριον* is put *ἀντὶ τοῦ μᾶλλον προσήκοντος*, "instead of more than convenient."

Καίροι also signify the Times or Stages of Diseases, universal and particular, the different Ages of human Life, and the Seasons of the Year.

CAKILE. A Name for the *ERUCA MARINA*, which see.

CAL. Yellow Arsenic; also Vinegar. *Rulandus. Johnson.*

CALABA, *Indian* Mastich-tree.

It has a rosaceous Flower, consisting of several Petals, which are placed in a circular Order, from whose Flower-cup arises the Pointal, which afterwards becomes a spherical, fleshy Fruit, including a Nut of the same Form.

This Tree grows to a great Magnitude in the warm Parts of *America*, where it is a Native. From the Trunk and Branches issues out a clear Gum, somewhat like Mastich, from whence it received its Name, the Gum being used in those Countries as Mastich.

CALAE, *Calaem*, *Calaëum*. A kind of *Indian Tin*, which being subjected to the Fire, is transmuted into a kind of Cerufs, such as is made of Lead and *European Tin*.

CALAF. See *CALLAF*.

CALAMAGROSTIS, **CALAMOGROSTIS**, from *καλαμῶς*, a Reed, and *ἀγροστis*, *Agrostis*. A reedy kind of Grass. *Blancard.* See *ARUNDO*.

CALAMBAC. A Name for the *Lignum AGALLOCHUM*, which see.

CALAMBOUR. See *AGALLOCHUM*.

CALAMEDON, *καλαμῆδον*, from *καλαμῶς*, a Reed. A Species of Fracture, which runs along the Bone in a Right Line, but is lunated at the Extremity. It is otherwise called *sis ὀνυχᾶ*.

CALAMINA. *Lapis Calaminaris.* *Johnson.*

CALAMINARIS (*Lapis*). See *CADMIA*.

CALAMINTHA.

Calamintha montana, *Offic. Calamintha*, *Chab. 417. Calamintha vulgaris*; *Park. Theat. 36. Raii Hist. 1. 569. Synop. 3. 243. Calamintha vulgaris officinarum*, *Ger. Emac. 687. Mer. Pin. 18. Calamintha vulgaris vel officinarum Germaniæ*, *C. B. Pin. 228. Tourn. Inst. 194. Elem. Bot. 169. Boerh. Ind. A. 175. Rupp. Flor. Jen. 187. Volck. Flor. Nor. 75. Calamintha montana vulgaris*, *Hist. Oxon. 3. 413. Merc. Bot. 1. 25. Phyt. Brit. 19. Calamintha flore magno, vulgaris*, *J. B. 3. 228. CALAMINT.* *Dale.*

The Stalks of this *Calamint* grow to be a Foot high, hairy,

and four-square, having at each Joint two broad, somewhat roundish, Leaves, hairy, and a little indented about the Edges, scarce an Inch long, and about the same Breadth. The Flowers grow upon the upper Part of the Branches, on each Side the Stalks, but few in Number, several growing on one common Foot-stalk; besides which, they have each a shorter of their own; they grow in long hairy Calyces, and are of a pale-purple Colour, labiated and galeated; and are succeeded each by four small Seeds, lying at the Bottom of the Calyx. The Root is small and fibrous. The Leaves and Flowers have a pleasant aromatic Smell, somewhat like wild Mint. We have two Species of this *Calamint*, whereof one has Flowers almost as big as the other. They are both found together by Hedges, and Highway Sides, especially in *Kent*; and flower in *June* and *July*.

This Plant is full of an aromatic, oily, volatile Salt. It is stomachic, diuretic, aperitive, and provokes the Menfes. It must be used after the manner of Tea. The Decoction of it, given in a Clyster, asswages the Colic, resolves cedematous Tumors, and strengthens the Parts. *Martyn's Tournefort.*

This Herb probably has its Name from the two *Greek* Words *καλὰ μίνθη*, which signify good Mint; for the *Calamintha vulgaris*, or common *Calamint*, not only agrees with Mint in its Virtues, but also resembles it pretty much in Smell. *Calamint* is an aromatic Herb, which, by the grateful Fragrance of its Effluvia, rouses the Spirits, and gently warms the Nerves of him who smells it. What grows in the Mountains has not only a more agreeable Smell, but is also thought more proper for medicinal Purposes, than what is produced elsewhere. The Antients extol'd it for its heating, alexipharmac, resolvent, and discutient Qualities; and prescrib'd not only the external, but also the internal, Use of it, asserting, that it kill'd Worms. It is an Ingredient in the *Theriaca*, and such other Preparations, as go under the general Name of Antidotes. Internally, it is most properly used in Infusions, in Cases where a Stimulus is required. It is proper for phlegmatic Constitutions, and such as are afflicted with Flatulencies; but it is principally conducive to the Relief of Women labouring under Obstructions of the Uterus, a violent *Fluor albus*, or a catarrhus Disorder of the Womb. According to *Etmuller*, it is so powerful a Provoker of the Menfes, that it even excites them in Women big with Child, and kills the Fœtus. It is also said to expel the Lochia, Secundines, and Fœtus. It is an excellent and a mild Diuretic, cleanses Ulcers of the Kidneys, and cures Discharges of bloody Urine. In Asthma and Orthopnoea, whether arising from a Defect of the Stomach, or Ulcers of the Lungs, it is of excellent Service, if boiled with Oxymel. But it ought not to be exhibited to such as have no Occasion for an additional Stimulus; for it acts by producing a Heat, which, though small, is nevertheless often found prejudicial to the Asthmatic, to such as discharge a bloody Urine; nor will it always agree in Ulcerations of the Lungs. But where the languid and relaxed Fibres are to be stimulated, or the sluggish Humours roused into a brisker Motion, *Calamint* will be found of singular Use and Importance; and, upon these Considerations, it is justly rank'd among the several Classes of cordial, alexipharmac, stomachic, carminative, uterine, and emmenagogue Medicines; for this Reason 'tis also used in Clysters, Cataplasms, Fomentations, and such Baths as are intended for the Purposes of Resolution, Discussion, and provoking the Menfes. An Ounce, or an Ounce and an half, of the distil'd Water of *Calamint*, may be given for the same Intentions with the Herb itself; but 'tis rarely used, on account of its ungrateful Taste. The *Syrupus de Calamintha* of *Mesue*, in the *Pharmac. August.* together with *Calamint*, consists of other Aromatics, and Raisins, with which, after they are boiled in Water, Honey is mixed. This Syrup, being of an aperient Quality, is recommended in Obstructions of the Viscera; and its Dose may be an Ounce and an half. Besides this Syrup, there are other two Preparations of *Calamint*, in *Mesue*. The Species *Diacalaminthæ*, of the *Brandenburg Disp.* and of the *London Pharmacop.* are in the *Pharmac. August.* ascribed to *Galen*; and in the *Pharmac. Antwerp.* call'd *Diacalaminthum Galeni*. They are, indeed, Compositions, differing in the Proportions of their Ingredients, but agree in this, that they consist almost of the same Aromatics, or at least Aromatics of the same Virtues, pounded with *Calamint*, as are required for preparing the *Eleæuarium de Calamintha*; in which Case they receive an Addition of a sufficient Quantity of Honey, or dissolved Sugar. This Medicine is, by *Galen*, highly extol'd in many Passages of his Works, not only as serviceable to the Stomach and Intestines, but also as useful in provoking Urine and the Menfes; and curing chronic Diseases; by correcting the Chyle, and consequently purifying the Blood. But our Descriptions of this Medicine differ from that of *Galen*, the Copies of whose Works seem to be corrupted in this Particular, since they require an excessive Quantity of Pepper. I do not doubt, but the continued Use of this Medicine may be of some Service to old Men, and to phlegmatic and pituitous Constitutions. These Species to me appear pretty much to resemble the *Pulvis Ari compositis*. One Scruple may be given for a Dose. *Schulz. Praelect.* What in *Lemery's*

Lemery's Pharmacop. is call'd *Pulvis Diacalaminthes Nicolai Alexandrini* has a smaller Quantity of Pepper; for which Reason two Scruples of it may be given for a Dose. The Species *Diacalaminthes Mesuae*, in the *Pharmac. August.* by Mesue call'd *Diacalaminthum Descriptione Galeni*, differs very little from those above-mention'd.

There is another Species of Calamint call'd

CALAMINTHA MAGNO FLORE, Cod. Med. 24. Hist. Oxon. 3. 412. C. B. Pin. 229. Tourn. Inf. 194. Elem. Bot. 165. Boerh. Ind. A. 175. *Calamintha montana præstantior*, THE MORE EXCELLENT CALAMINT, Ger. 556. Emac. 687. THE GREATEST CALAMINT, OR MOUNTAIN-MINT, Park. Theat. 37. MOUNTAIN-CALAMINT, WITH A LARGE FLOWER, Raii Hist. 1. 569. *Calamintha montana, flore magno ex calyce longo*, J. B. 3. 229. *Calamintha montana, flore magno ex calyce magno*, Chab. 416. MOUNTAIN CALAMINT.

This Plant is of a sweet and grateful Smell, and is cultivated in the Gardens of some, not only on this Account, but also because this Sort is recommended for the *Theriaca*. In its other Virtues it agrees with the *Calamintha vulgaris*.

Another Species of Calamint is the

CALAMINTHA, Offic. *Calamintha odore Pulegii*, Ger. Emac. 687. Raii Hist. 1. 569. Synop. 3. 243. Mer. Pin. 18. *Calamintha flore minore, odore Pulegii*, J. B. 3. 229. Chab. 416. Hist. Oxon. 3. 413. *Calamintha altera, odore Pulegii, foliis maculosis*, SPOTTED CALAMINT, Park. Theat. 36. *Calamintha Pulegii odore seu Nepeta*, C. B. Pin. 228. Tourn. Inf. 194. Elem. Bot. 169. Boerh. Ind. A. 175. Rupp. Flor. Jen. 188. *Calamintha Pulegii odore, Nepeta vera Antiquorum*, Merc. Bot. 1. 25. Phyt. Brit. 19. FIELD CALAMINT.

This Calamint somewhat resembles the *Calamintha montana*; but the Difference between them is, that the Branches of this Sort incline more to the Ground; the Leaves are smaller, and not so broad, but more triangular. The Flowers are much alike; and the Smell comes pretty near that of Penroyal. It grows in the like Places with the *Calamintha montana*; but flowers rather later.

This agrees with the *Calamintha montana* in its Virtues, especially as to the opening, deobstruent Qualities, and they are used promiscuously: But this Species being to be had in greater Plenty than the mountain Sort, the Apothecaries Shops are mostly supplied with it. *Miller's Bot. Off.*

This Plant is of a more acrimonious Nature than the *Calamintha vulgaris*, or common Calamint. When bruised, and applied to any Part of the Body, it acts like a Veficatory; for which Reason it is by some used for removing rheumatic Pains. Others boil the Plant in Water, and apply it, by way of Cataplasm, for the same Purpose, in which Case it acts more mildly. This same Cataplasm is of Use for resolving Tumors, and preventing Anchyloses.

CALAMINTHA PALUSTRIS, Offic. *Calamintha aquatica*, Ger. Emac. 684. Merc. Bot. 1. 25. Phyt. Brit. 18. Mer. Pin. 18. WATER CALAMINT, WITH WHORLED CORONETS, Raii Hist. 1. 530. *Calamintha arvensis verticillata*, C. P. Pin. 229. *Calamintha arvensis verticillata seu aquatica Belgarum, Lobelio*, FIELD CALAMINT, WITH WHORLED CORONETS, Park. Theat. 36. *Mentha seu Calamintha aquatica*, Raii Synop. 3. 232. *Mentha arvensis verticillata hirsuta*, J. B. 3. 217. Chab. 413. Hist. Oxon. 3. 369. Tourn. Inf. 189. Boerh. Ind. A. 185. Dill. Cat. Giff. 145. Rupp. Flor. Jen. 185. Buxb. 213. *Mentha alba Officinarum*, Volck. Flo. Nor. 287. WATER CALAMINT.

Dale imagines this to be the *Polycnemum* (πολυκνήμων) of *Dioscorides*.

This Calamint, or rather Water-mint, grows to be about a Foot high, or more; with square and somewhat hairy Stalks, on which, at every Joint, are set two Leaves, opposite, on short Foot-stalks, roundish, sharp-pointed, larger and longer than the common Calamint, indented about the Edges. The Flowers grow in very thick Whorles, with the Leaves on the upper Part of the Stalks; they are labiated and leaved, being small and purple. The Roots are small, slender, and creeping. The whole Plant has a strong Smell, like Water-mint. It grows in moist Places, and where Water has stagnated in Winter; and flowers in June.

As the Scent of this Plant comes near Penroyal, or the second Calamint, so it is concluded to partake of their Qualities. This is very rarely used. *Miller's Bot. Off.*

CALAMINTHA INCANA, *ocymi foliis*, B. *Calamintha folio & flore parvo, incana*. Hoary Calamint, with Leaves like Basil.

This Species is possess'd of the same Virtues with the *Calamintha magno flore*, or Mountain Calamint, with a large Flower.

Tournefort calls the *Hedera terrestris* by the Name of *Calamintha humilior, folio rotundiore*.

Some few other Calamints are taken Notice of by *Boerhaave*, as the

Calamintha Hispanica frutescens, mari folio, T. 194. *Satureia Hispanica frutescens, mari folio*, Elem. de Botan. H. R. D.

Calamintha montana præalta, Pulegii odore, dentatis foliis, floribus dilute cæruleis, ex longo ramo brachiato pedunculo prædeuntibus, Bocc. Mus. 2. 45.

Calamintha præalta, pulegii odore, Ejusd. T. 40.

Calamintha præalta, pulegii odore, Icon. Altera ex Sabaudia.

CALAMITA. An Appellation for the dry sort of *Styrax*, to distinguish it from the liquid. See *STYRAX*.

CALAMITAS, ἀπισυχία, from ἀπισυχία, to be disappointed or unprosperous, signifies any calamitous or unfortunate Event. Thus the Word ἀπισυχία is used by *Galen*, Comm. 2. in R. V. I. A. and applied to the Effects of Cathartics; and *Calamitas* by *Scribonius Largus*, N°. 231.

CALAMITIS, καλαμίτις. An Appellation of that sort of fictitious *Cadmia*, which, by adhering to Iron Rods, acquires the Figure of a Reed; but the Word is used to express either *Pompholyx*, or *Lapis Calaminaris*. *Agricola* also gives this Name to a marine stony Plant, from its Form.

CALAMOCHNUS. A Name for the *ADARCES*, which see.

CALAMUS. The Reed, of which the following Species are omitted under the Article *ARUNDO*.

ARUNDO FARCTA ATRO-RUBENS, Offic. *Arundo farcta maxima atro-rubens*, C. B. Pin. 17. Theat. 274. Raii Hist. 2. 1286. Hist. Oxon. 3. 220. *Arundo nastos five farcta, crassa & major*, J. B. 2. 487. *Arundo nastos five farcta, crassa & major, Calamus Toxicus Theophrasti*, Chab. 193. *Arundo farcta decima*, Park. Theat. 1210. *Nastos Clusii*, Ger. 34. Emac. 37. THE WALKING-CANE.

It is brought from India and Syria. Dale.

ARUNDO FARCTA FLAVA, Offic. C. B. Pin. 17. Theat. 277. Raii Hist. 2. 1277. Hist. Oxon. 3. 221. *Arundo farcta*, Ger. 33. Emac. 37. *Arundo farcta nana*, Park. Theat. 1210. *Arundo nastos five farcta, seu toxica, & gracilis plicatilis*, J. B. 2. 487. *Arundo nastos, seu farcta, five toxica gracilis & plicatilis Indica*, Chab. 193. THE DART-WEED.

It is brought from Syria. Dale.

ARUNDO FARCTA INDICA, Offic. *Arundo farcta Indica Orientalis sanguinem Draconis manans*, Hist. Oxon. 3. 220. Raii Hist. 3. 615. THE DRAGON'S-BLOOD CANE.

It grows in the East-Indies. The Juice of the Fruit is call'd *DRAGON'S-BLOOD IN DROPS*.

The Method of making this sort of Dragon's-blood is to macerate the Fruit in warm Water, till the red Matter subsides to the Bottom of the Vessel; then the Water is either evaporated, or pour'd off, and the red Substance remains concentered in the Vessel. Of this the Chinese are said to make an excellent Varnish. Dale. See *SANGUIS DRACONIS*.

CALAMUS AROMATICUS. See *ACORUS VERUS*.

CALAMUS ASIATICUS. See *ACORUS ASIATICUS*.

CALAMUS ODORATUS, Offic. *Κάλαμος*, Diosc. *Calamus Aromaticus*, Chab. 199. *Calamus Aromaticus verus quibusdam*, J. B. 2. 528. *Calamus Aromaticus Syriacus*, C. B. Pin. 17. Theat. 255. *Calamus Aromaticus Matthioli*, MATTHIOLUS'S AROMATICAL REED, Park. Theat. 138. *Arundo Syriaca aromatica, foliis ex adverso sitis*, Hist. Oxon. 3. 221. *Calamus odoratus*, Camel. Syllab. 22. AROMATIC REED. Dale.

Some imagine this to be the true *Calamus Aromaticus* of *Dioscorides*, of which he gives the following Account.

It grows in India; and the best is of a tawny Colour, full of Joints, and, when broken, flies abroad into many thin Splinters, has its Cavity full of Cobwebs, is of a whitish Colour, and, being chew'd, is of a viscous, astringent, and somewhat acrimonious Taste.

Calamus Aromaticus, taken in a Potion, provokes Urine; for which Reason, being boiled with Couch-grass, or the Seeds of Smallage, and the Decoction drank, it is good for the Dropsy, Disorders of the Kidneys, the Strangury, and Ruptures: Drank, or used as a Pessary, it provokes the Menfes. The Smoak thereof, either alone, or mix'd with Refin of Turpentine, received into the Mouth through a Reed, cures a Cough. The Decoction is used for Infections, and in Clysters. The *Calamus* is also an Ingredient in Salagmas; and serves to give a Fragrancy to Suffumigations. *Dioscorides*, Lib. 1. Cap. 17.

The true *Calamus*, or rather the bitter *Calamus*, is a Reed the Thickness of a Quill, of two or three Foot high, composed of Joints; from whence grow green Leaves, and little Clusters of yellow Flowers. This little Reed grows in several Parts of the Levant, from whence it is brought, sometimes whole, but generally in small Bags of about half a Foot long. Choose the largest which is fresh, cleansed from the small Root and the Branches, and made up in Bags. It is of a brownish Red without, and whitish within, furnish'd with a white Pith, which when it is stale, the said Pith will turn yellow; and after the Reed is broke, and you put it into your Mouth, it has an intolerable Bitterness. It is chiefly used for Venice Treacle. *Pomet*.

CALANDRA, *Chalandra*, *καλάνδρα*. A large sort of Lark, reckon'd among the most wholesome Foods. *Aldrovand. Ornith.*

CALATLÆ, from *Caleo*. Wanton and shameless Persons. *Johnson.*

CALAZIA. A precious Stone, with Spots like Hail. *Johnson.*

CALBIANUM. The Name of a Plaster in *Myrsus*, *Sect. 10. Cap. 29.*

CALCADINUM, *Calcatar*, *Colcotar*. Red Ink, Vitriol. *Rulandus.*

CALCADIS. White Vitriol, or, according to others, Sal Alkali. *Ruland. Johnson.*

CALCANEUM.

The Calcaneum, or Os Calcis, is the largest Bone of the Foot, of which it makes the posterior Part, and, in some measure, the Basis. It is oblong, and very irregular, and may be divided into a Body, and two Apophyses, one great and anterior, the other small, lateral, and internal.

The Body of the Os Calcis has six Sides, one posterior, one anterior, one superior, one inferior, and two lateral.

The posterior Side is broad, unequally convex, and, as it were, divided into two Portions; one superior, small, and polish'd; the other inferior, much larger, unequal, and rough, which, in Children, is an Epiphysis, and may be named the Tuberosity of the Os Calcis. The lower Part of it is bent downward, and terminates in two Tubercles, or obtuse Points, which belong rather to the inferior than to the posterior Side of the Bone.

The upper Side may be divided into two Parts, one posterior and unequal, having a small Depression; the other anterior, convex, and cartilaginous, proportion'd to the great inferior Cavity of the *Astragalus*. This Side is turn'd obliquely forward, and by this Obliquity becomes Part of the fore Side, the remaining Part of which is lost in the anterior Apophysis.

The lower Side is narrow, and behind it lie the two Tubercles, of which the internal is the biggest. They both serve for the Insertion of the Aponeurosis in the Sole of the Foot, but principally the biggest.

The two lateral Sides are continued over the anterior Apophysis. The external is gently convex and unequal, cover'd only by the common Integuments and Ligaments. The internal is hollow'd and depress'd.

The great or anterior Apophysis lies in the same Direction with the Body, being a Continuation thereof. It has five Sides, or remarkable Parts; and, were it not for the Body, it would have a sixth.

The upper Side has an irregular and unequal Depression, which, together with that in the Apophysis of the *Astragalus*, forms a considerable Fossula. At its anterior Extremity there is a small cartilaginous Surface, answering to one of those in the Apophysis of the *Astragalus*.

The anterior Side of the Apophysis is broad, oblique, cartilaginous, partly convex, and partly concave, and articulated with a little Surface of the Os *Cuboides*. This is the fore Side of the whole Os Calcis, when considered without any Division.

The Outside of the Apophysis is very rough, being a Continuation of the outer Side of the Body, with a Tubercle or Eminence at the Place where these two Sides meet, which, however, is not found in all Subjects. On the lower Part of this Tubercle is a cartilaginous Surface, for the Passage of the Tendon of the *Peronæus Longus*: Sometimes we see only some small Vestiges of this Eminence, and often none at all. We sometimes meet with another small cartilaginous Surface lower down, and more forward, near the anterior Extremity of the Apophysis, for the Passage of the same Tendon. The lower Side is a Tuberosity, continued from the Side of the Body, and designed for the Insertion of Muscles.

The lateral Apophysis is almost common to the Body, and to the great anterior Apophysis, and increases the Cavity on the Inside of the Os Calcis. On its upper Part it has a very smooth cartilaginous Surface, articulated with one of the inferior Surfaces of the *Astragalus*. This Apophysis is very low down, and its inferior Part is smooth for the Passage of Tendons.

The Os Calcis has four Cartilages, of which three are superior, one large, and two small, for its triple Articulation with the *Astragalus*; the fourth is anterior, for the Os *Cuboides*. To these must be added a small thin Cartilage, of a kind of ligamentary Substance, under the Tubercle on the Outside of this Bone. *Winslow.*

The large Tendon, call'd the *Tendo Achillis*, is inserted into this Bone.

CALCANTHOS, *Calcanthum*, in *Rulandus*, are put for *Chalcanthum*, the same as *VITRIOLUM*, which see.

CALCANTUM. A kind of Ink. *Rulandus.*

CALCAR. The same as *CALCANEUM*, which see.

CALCARIA. A sort of calcining Furnace in Glass-houses, which is useful in making of Glass-work. *Castellus.*

The Calcar, or Fornax Calcaria, is made in the manner of

an Oven, ten Foot long, and seven broad, where widest, and two Foot deep. On one Side thereof they have a Trench about six Inches square, the upper Part whereof is level with the Surface of the Calcar, separated only from it at the Mouth by Bricks some nine Inches wide. Into this Trench they put their Sea-coal, the Flame whereof passeth into all the Parts of this Furnace, and reverberates from the Roof upon the Frit, over whose Surface all the Smoak flieth very black, and goeth out of the Mouth of the Calcar; and the Conciator, or Pounder, never stirs his Frit till the Smoak is past. The Coals burn (as in other Furnaces) on Iron Grates, and the Ashes fall thence into the Ash-hole, which is level with the Floor. *Meret's Notes upon Antonius Neri.*

CALCARIS FLOS, is the same as *Flos Regius*, or Larkspur; and so call'd because its Flower, in some measure, resembles *Calcaria*, or Spurs. *Blancard.*

CALCARIUS LAPIS, *Offic. Schw. 376. Geoff. Prælect. 65. Aldrov. Mus. Metall. 745. Schrod. 348. Mer. Pin. 213. Saxum Calcarium; Worm. 45. Charlt. Foss. 20. Boet. 522. Calcaria, Kentm. 55. LIME-STONE. See CALX.*

Castellus seems to think this Stone is sometimes call'd *Asbestos*, *ἀσβεστος*; but I have never met with the Word in any other Author.

CALCATA. Yellow Ink. *Johnson.*

CALCATAR. See *CALCADINUM*.

CALCATON. Troches of Arsenic. *Johnson.*

CALCATREPOLA, *Matth.* The same as *CALCITRAPA*, which see.

CALCATRIPPA. The same as *DELPHINIUM*, which see. *Dale.*

CALCEDONIUS, for *CHALCEDONIUS*, which see.

CALCENA, *Calcenon*, *Calcenonia*, *Calcinonia*, are Terms in *Paracelsus* to express a morboous tartareous Matter, or tartareous Calx. *Paracelsi de Tart. Lib. 2. Cap. 1.*

CALCEOLUS D. Mariæ, Sacerdotis, our Lady's, or Priest's Slipper, is a Species of *Alisma*, having, in the Middle of its Flower, a Concavity resembling that of a *Calceolus*, or Slipper. *Blancard.*

CALCETUS, *Calcenonius*, *Calcenos*. *Paracelsus, Lib. 2. de Tartar. Tr.* says, the Blood is *Calcetus*, by which he means impregnated with tartareous Particles.

CALCHITHIOS, *Verdegrise*. Also a *Marcasite*. *Johnson.*

CALCHOIDES Ossicula. The same as *CUNEIFORMIS OSSICULA*, which see. *Blancard.*

CALCIDICUM. A Medicine prepared of Arsenic. *Rulandus.*

CALCIFRAGA, Breakstone. An Epithet given to the Herb *Scolopendrium*, or *Spleenwort*, in *Scribonius Largus*, No. 150.

CALCIGRADUS, *καλκίγραδνος*, from *καλκίς*, the Heel, and *βαίω*, to go, in *Hippocrates*, *περὶ ἀρθρῶν*, is one who, in Walking, lays much Stress upon the Heels. *Foesius.*

CALCINATIO. See *CALX*.

CALCINATUM majus, is whatsoever is dulcified by the Chymical Art, which was not so by Nature; such are dulcified Mercury, Lead, Anima Plumbi, Salts, and the like Substances, which are very speedily consolidated. *Johnson.*

CALCINATUM MAJUS POTERII, is nothing but Mercury dissolved in Aqua-fortis, and precipitated with salt Water. This Preparation *Poterius* used with great Success in the Cure of obstinate Ulcers. *Etmuller, Lib. 1. c. 516.*

CALCINATUM minus, is any thing which is sweet by Nature, without Edulcoration, and speedily cures; as Sugar, Manna, Terenabin, Nostoch, (sorts of wild Honey) and the like. *Johnson.*

CALCINON. *Rulandus* and *Johnson* seem to make it the same with *Calcinatio*, when all they say of it is, that *Calcinon*, by the Reverberatory, is two-fold; *Calcinatio* specially so call'd, and *Cinefaction*.

CALCITARI, Sal Alkali, Alkael. *Rulandus. Johnson.*

CALCITEA, *Dragantum* (Vitriol). *Johnson.*

CALCITEOSA, Litharge. *Rulandus.*

CALCITHOS, *Verdegrise*. *Rulandus.*

CALCITRAPA. *Dale* takes Notice of two Plants which are call'd by this Name. The first is the

1. *Carduus stellatus*, *Offic. Ger. 1003. Emac. 1166. Schw. 250. Raii Hist. 1. 317. Synop. 87. Carduus stellatus, foliis Papaveris erratici, C. B. 387. Dill. App. 15. Carduus stellatus five Calcitrapa, J. B. 3. 89. Chab. 355. Tourn. Inft. 440. Carduus stellatus five Calcitrapa vulgaris, Park. 989. Jacea ramosissima, capite longis aculeis stellatim nascentibus armato, Hist. Oxon. 3. 144. Jacea stellata, folio Papaveris erratici, Boerh. Ind. A. 140. Herm. Flo. 2. 40. Crupina capite stellato, foliis Papaveris erratici, Dill. Nov. Plant. Gen. 140. STAR-THISTLE.*

The Root of the Star-thistle is single, about a Finger thick, long, and running deep into the Ground, of a whitish Colour, having a pretty thick cortical Part. The lower Leaves grow flat on the Ground, encompassing the Root in a Circle, much

cut in, or jagged to, the middle Rib. The Stalk is divided into numerous Branches, spreading about, and seldom arising above two Foot high, with a few Leaves here-and-there at the Division of the Stalks. The Flowers grow thick upon the Branches, consisting of reddish or purple fistular Flowers, coming out of Heads, which are composed of several Scales, each ending in a long, strait, hard, and sharp Thorn. The Flowers pass away in Down, containing white flattish oblong Seed. The *Star-thistle* grows near Highways, and upon Commons; and flowers in June.

The Root is commended by some as a singular Remedy against the Stone, Gravel, or Colic, by giving it either in Decoction with Wine or Water, or in Powder, with a convenient Vehicle. *Miller's Bot. Off.*

Its Leaves are very bitter, and give a faint Tincture of Red to the blue Paper; the Root gives it a deeper, and has the Taste of an Artichoke. The *Star-thistle* contains a Salt very like that which is natural in the Earth; for its Solution is very bitter, and loaded with Sal Ammoniac and Nitre. It is likely, that the Sal Ammoniac predominates in this Plant; for the Nitre makes no Impression upon the blue Paper, whereas the Sal Ammoniac reddens it considerably. That which is found in this Plant is join'd with a considerable Quantity of Sulphur and Earth; thus the *Star-thistle* is febrifugous, vulnerary, and aperitive. For an Intermittent Fever they give to drink, at the Beginning of the Fit, four or six Ounces of its Juice. It removes the Webs of the Eyes, and cures Wounds.

M. De Lamoignon, Intendant of *Languedoc*, has been willing the Public should enjoy the Benefit of a Remedy, by which he was cured of a troublesome Nephritic Colic, with which he was often afflicted. The Remedy, as it was printed at *Montpelier*, by his Order, is as follows:

The 28th Day of the Moon, every Month, drink, early in the Morning, a Glass of good White-wine, in which has been infused a Dram of the first Bark of the Root of *Star-thistle*, gather'd about the End of September. This Bark is a small Skin, very fine, brown without, and white within. It is dried in the Shade, and reduced to a very fine Powder. The Evening before you take this Medicine, put in a Gallon of Water a Handful of Pellitory, a Dram of Saffraas-wood, as much of Anise, and a Pennyworth of fine Cinnamon; seeth it over a clear Fire for half a Quarter of an Hour; then remove it from the Fire, cover it well with its Lid, and with Paper, and set it upon hot Ashes. The next Day set the Pot again before a clear Fire, and make it seeth for half a Quarter of an Hour; after which put two Ounces of powder'd Sugar-candy in a Silver Porringer, and pour upon it the Infusion, strain'd thro' a Linen Cloth, with the Expression of the Fœces; when the Sugar is dissolved, let the Patient drink it as hot as he can, and take nothing else for three Hours; which must be observed also after taking the first Medicine. The Use of these Medicines requires no particular Regimen.

Camerarius affirms, that at *Frankfort* they make use of the Root of *Star-thistle*, instead of that of *Eryngo*: It is employ'd in aperitive Ptisans and Broths. One Dram of the Seed of *Star-thistle*, infused in a Glass of White-wine, takes away the viscid Matter which obstructs the Urinary Passages. *Martyn's Tournefort*.

A Water distill'd from the Flower, or the Seeds in Powder, are said to expel the Stone. The Root is said to be good in slow Fevers, and to purge the Body of ill Humours. *Dale*.

2. *Calcitrapa*, Offic. *Carduus stellatus luteus, foliis Cyani*, C. B. Pin. 387. Raii Synop. 3. 196. Tourn. Inst. 440. Elem. Bot. 349. *Carduus Solstitialis*, Ger. 1003. Emac. 1166. Mer. Pin. 21. *Carduus Solstitialis Dedonæi*, Park. Theat. 989. *Spina Solstitialis*, J. B. 3. 90. Raii Hist. 1. 317. *Facea stellata*, *Spina Solstitialis dicta, foliis Cyani*, Herm. Flor. 2. 40. Boerh. Ind. A. 141. *Facea lutea, capite spinoso minori*, Hort. Lugd. Bat. 332. *Leucacantha veterum, Carduus vel Spina Solstitialis*, Chab. SAINT BARNABY'S THISTLE. *Dale*.

Gesner affirms, that it is good for the Jaundice: *Camerarius* says the same thing; and commends it in all sorts of Obstructions, for the Cachexy, Dropsy, Pleurisy, and Sciatica. *Martyn's Tournefort*.

It is esteem'd aperient, deobstruent, lithontriptic; and is said to assuage the Fervor of the Blood. *Dale*.

CALCOCOS, Brass. *Rulandus*.

CALCOIDEA Officula. Three little Bones belonging to the Ankle, so call'd by *Fallopian*, and are the same with the Officula Cuneiformia.

CALCOKEUMENOS, Burnt Copper. *Rulandus*.

CALCULIFRAGUS, *lithontripticus*. Stone-breaking, Lithontriptic.

CALCULOSUS. Afflicted with the Calculus, or Stone.

CALCULUS.

The Lithiasis in Greek, Calculus in Latin, the Stone in Eng-

lish, is usually understood of the Stone in the Kidneys, Ureters, or Bladder. Yet these are not the only Parts in which Stones are generated; for we find Stones, and stony Concretions, in many of the Cavities of the Body, and sometimes in other Parts. Thus *Hippocrates* takes Notice of a Stone in the Uterus, which render'd the Woman barren, and was brought away with great Pain when she was Sixty: See the Article AMPHIPOLOS. Thus also it is notorious, that Stones are frequently generated in the Gall-bladder. *Lister* takes Notice of Stones generated in the *Vesiculæ Seminales*; and I have taken small ones out of the *Prostate*, to the Number of twenty or thirty.

Alexander Trallianus relates a Case of a Person who cough'd up a Stone; and I knew a Lady, now alive, who was thought many Years ago to be in a deep Consumption; but, upon coughing up a Stone, near as large as a small Nutmeg, she recover'd her Health perfectly. Dr. *Freind* says, That of such Stones, cough'd up, he had seen several, and some as big as a Filbert, where no Signs of a Consumption appear'd, only there continued an inveterate Cough. One he knew, who had brought up four or five such, at long Distances of Time.

We may therefore conceive, that if any small indissoluble Substance is fix'd in any Part of the Body whatever, a stony Crust soon forms itself upon it, either more or less. If such a Concretion of the earthy Parts of the Blood happens at the Extremities of the Urinary Ducts, where they open into the Kidneys, and forms a small Grain of Sand, hence arises the Stone in the Kidneys, which, increasing daily, in time grows considerable enough to incommode and obstruct the Kidneys, and bring away a Part of its Substance in the Form of grumous Concretions, Pus, Caruncles, or Skins, till at last it corrupts the Whole, exciting bloody, purulent, and fetid Urine; and sometimes an Inflammation, and consequent Exulceration, of the adjacent Parts.

When this is by any Cause whatever remov'd from its native Place into the Pelvis of the Kidney, and from thence into any Part of the Course of the Ureter, or its Entrance into the Bladder, it frequently intercepts the Urine, and causes an acute inflammatory Pain.

When the Stone is convey'd into the Bladder thro' the Ureters, it is often expel'd from thence, and discharg'd by the Urethra. But, if it remains in the Bladder, the earthy Parts of the Urine adhere to it, and increase its Bulk, forming upon it various Strata, which are sometimes red, sometimes white, ash-colour'd, or azure, the Nucleus which fell from the Kidneys always remaining red. And it appears, by Chymical Experiments made upon Stones, that those of an Azure-colour are the most indissoluble, the Ash-colour'd next, the White next, and that the Red are most easily dissolv'd.

The Symptoms of a Stone in the Kidneys are, an obtuse Pain at the Region of the Kidneys; a Discharge of bloody Urine after any considerable Motion of the Body, especially in a Coach upon stony Roads; gravelly small Stones, Caruncles, or Filaments, discharg'd with the Urine. *Boerh. Aph.*

As the Account *Aretæus* gives of Nephritic Complaints is, perhaps, inferior to none, I shall give it in this Place, in order to make up the Deficiencies of *Boerhaave's*.

The Kidneys are of a glandulous Consistence, and of a red Colour, in which respect they are more like the Liver than the Breasts or Testicles; for these, tho' glandular Substances, are more white. The Shape of the Kidneys is like that of the Testicles, only flatter, and more incurvated. Within them are small narrow Sinuses, which serve for the Percolation of Urine; and from them proceed two nervous Ducts, one from each Kidney, like Pipes, which are inserted into the Bladder, one on each Side, and convey the Urine, by equal Passages, on each Side, from the Kidneys to the Bladder.

The Kidneys, and their Canals, or Ducts, before-mention'd, are subject to many and various Disorders, some of which are acute, and destroy the Patient in a short time; such are Hæmorrhages, Fevers, and Inflammations; others are chronic, but mortal and incurable, and, after long wasting the Body, come to one common Period with the Life of the Patient. Of this kind are Abscesses, Ulcers, Stone, and, from hence, bloody Urine. Ulcers proceed from Abscesses, but are always extremely tedious, and difficult of Cure.

The Generation of Stones is very slow, but the Fit very painful, from the Obstruction of the Passages; and, which is the most dismal Circumstance, the Urine is suppressed. If many small Stones, compressed together, or but one great Stone, stop up the Passage, and this be the Case with respect to both Kidneys, Death must necessarily follow in a few Days, from the Suppression of the Urine, and the Distention of the Parts. Nature, indeed, has taken care to form the Sinuses of the Kidneys of an oblong Figure, and of equal Capacity with the Ureters, and larger than small Stones, with an Intent that if such Concretions should be generated in the upper Parts, they might find an easy Descent into the Bladder. For the same Reason the Stones are of an oblong Figure, since they are generally found sticking in the Ureters; and such as are of an uneven

uneven Bigness, are slender in the fore Part, because of the Narrowness of the Ureters, but thicker in the hinder Part, because the Kidneys discharge themselves downwards. The Stones are generated only in the Kidneys, and that when very much distemper'd with Heat, and have no Seat in the Ureters; into which, however, the Gravel falling, is both a Sign, and the Matter, of the Disease. If the Sinus of the Kidney be obstructed with a Stone of considerable Bigness, there arises a Pain in the Loins about the Muscles call'd *Psoæ*, which extends itself to the middle Rib, so as to cause the Disease to be oftentimes mistaken for a Pleurisy; there is a Sense of Weight upon the Hip; the Patient bends forwards with Difficulty, and can scarcely move his Back; he labours under severe Gripings, which are attended with a Sensation of Heaviness, and remove from one Place to another, because of the Convulsions of the Intestine. If there be a Redundancy of Urine, the Parts are distended, and the Patient is tormented with a Desire to make Water, like a Woman in Travail. He becomes fill'd with Flatulencies, which are not readily discharg'd; a biting and dry Fever seizes him; his Tongue is parch'd, his Belly constipated, and his Body wasted; he loaths all Food, or, if he takes any Sustenance, it is with great Difficulty that he digests it, or receives any Refreshment from it. If a Stone falls into an Ureter, it raises a Shivering, as from Cold, and the Progress of the Stone is felt, attended with a violent Pain. If a Stone falls into the Bladder, there is a plentiful Discharge of aqueous Urine, the Belly is evacuated, Flatulencies are expel'd, the Stomach is easy, there are Eructations, and the Patient is freed from those Evils which before molested him. If the Ureter be lacerated by the Stone, Blood sometimes passes off with the Urine. Another Pain commences, when the Stone passes thro' the Urethra; for, if it is larger than that Canal, it is there detained for a long time;—mean while the Bladder is fill'd, and there is a total Suppression of the Urine, attended with a most tormenting Pain; for even the Ureters are full. The crooked Stones are most painful in their Passage; for I have seen some which have bended like a Hook, and have observ'd Callosities in the Urethra; but these Stones are, for the most part, form'd into an oblong Figure, according to the Shape of the Passage. As to the Colour of these Stones, some are white, like Chalk, and these are commonly found in Children; others are yellow, like Saffron, and generally afflict old Persons, who are also most subject to the Stone in the Kidneys, as Children are to the Stone in the Bladder. There are two Causes of the Concretion of these Stones: In aged Persons, the Coldness of their Bodies, and the Thickness of their Blood; for Cold soonest causes a Concretion of thick Matter. A Proof of this is, that the Waters of naturally hot Springs are by Cold congeal'd into a callous sort of Stone. In Children, the Generation of the Stone is owing to much slimy Matter, which the Blood, like Fire, torrefies, and reduces to a stony Consistence. Such are the Disorders which are consequent to the Generation of a Stone.

Some, at certain Seasons, make bloody Urine, in which respect this Disease is like the Hæmorrhoids, and induces a like Habit of Body. Persons thus affected are of a pale Colour, lazy, unfit for Business, and have neither Appetite nor Digestion. After their periodical Hæmorrhage, they become languid and paralytic in their Limbs, but lighter and freer in their Heads: But, if they miss their usual Evacuation, they are troubled with a Pain in the Head, a Dimness of Sight, a Scotomia, and Vertigo; whence many become epileptic, others bloated, blind, and hydropical; others grow melancholy, or paralytic: And these are the Effects which proceed from a Retention of the Blood which used to be evacuated. If the Blood flows from the Kidneys, it is usually discharg'd pure, and unmix'd with the Urine, out of the Bladder. Sometimes it rushes on a sudden, in a full Stream, from a Rupture of the Kidneys, and congeals into Clots; sometimes it congeals in the Bladder, as if it were out of the Body, and thereby causes a terrible Suppression of Urine. A Rupture is succeeded by inveterate and stubborn Ulcers. The Signs of an Ulcer are, the voiding of a Coat, or thin reddish Membrane, like a Spider's Web, or white Pus with the Urine, sometimes pure and unmix'd, and, at other times, mix'd with the Urine. The Signs of the Formation of an Abscess are, a Fever and Shiverings in the Evening, with Pains and Itchings about the Loins. An Abscess is known to be broken by the coming off of purulent fleshy Clots, and white Pus. The Ulcers are of the biting Kind, and sometimes pure, sometimes foul, which is known by the Pus, and from the Urine having sometimes an ill Smell, at other times none at all.

The Spring generates Hæmorrhages and Abscesses; the Winter and Autumn, the Stone and Gravel. If an Ulcer succeeds the Stone, the Disease becomes incurable, and the Patient falls into a Consumption, which soon terminates in Death. *Aræteus πρὸς ἀσθ. καὶ σπυ. καὶ σπ. παθ. Lib. 2. Cap. 3.*

From ALEXANDER TRALLIANUS.

Stones in the Kidneys are generated of a thick and viscid Matter, too much bak'd or torrefy'd by the igneous Heat of

those Parts; so that the material Cause of the Stone is a gross Matter, but the efficient Cause an igneous Fervency; for of such Matter, with the Help of Fire, do Potters make their Vessels, in such a manner as to be indissoluble by Water. This being the Case, we must endeavour to prevent the Generation of this gross Matter in the Kidneys, and to preserve those Parts free from that igneous and intemperate Heat; for, without either of these, no such thing as a Stone can be generated.

You ought to be very careful in your Examination, whether a Pain proceeds from the Stone, or not; for the same Symptoms happen to those who are afflicted with the Colic, as to those who labour under the Stone; and it is no easy Matter, especially in the Beginning, to distinguish one from the other by the Signs. In both Affections the Patients are molested with Vomiting and Costiveness, with Flatulencies and Distentions; which extend so far as to affect even the Stomach and Liver. But tho' they have the same Symptoms in common, a Man who is Master of his Business will know how to distinguish them; for, in the Colic, the Vomiting is more, and the Matter ejected crude and pituitous; the Belly also is more bound, and the Flatulencies more retain'd: But, in the Stone of the Kidneys, it is otherwise; for oftentimes they have the Benefit of a Stool by the Use of proper Remedies, and sometimes break Wind, and evacuate downwards, without the Help of Medicine, which never happens in the Colic. The Urine ought also to be nicely inspected, in which you will perceive a very considerable Difference; for, in the Colic, it has a more pituitous, as well as more copious, Sediment; but, in the Stone of the Kidneys, it has less Sediment, and, upon a careful Examination, you may discover sandy Particles therein, which are not found in the Urine of those affected with the Colic. The Pain also under a Fit of the Stone is not only more severe, but fix'd principally in one Place, which does not happen in the Colic. *Alexander Trallianus, L. 9. Cap. 4.*

From LOMMIUS.

The Pain proceeding from the Stone in the Kidneys may be known by the following Signs: There is a most severe and pungent Sensation in the Kidney, as if a Thorn were fix'd in it, which settles in that Part, without shifting, except that sometimes it communicates itself thro' the Groin towards the Hip, or the neighbouring Testicle: There is no external Tumor: The Patient cannot bend his Back without Difficulty: The Leg on the same Side with the affected Kidney is sometimes contracted, sometimes, as it were, benumb'd: There are frequent Eructations, with a great Loathing of Food. When the Pains are very intense, the Patient is seiz'd with Vomiting; first of Phlegm, soon after of yellow Bile, and, at last, of æruginous Bile; after which the Pain is mitigated. The Belly, in this Disorder, is constipated, and, by pressing upon the Kidney with the contain'd Fæces or Flatulences, augments the Pain: But, if it happens to be evacuated, a sort of bilious Matter, together with Wind, is discharg'd. When the Patient lies on the affected Part, or while he is fasting, the Pain is mitigated; but, when he lies on the contrary Side, or after a full Meal, when the Food begins to descend towards the Intestines, the Pains and Disorder are exasperated.

At the Approach of the Fit, the Urine is little in Quantity, thin, and aqueous; and soon after, as the Pain increases, is frequently utterly suppress'd, till the Stone being discharg'd from the urinary Passage, which the Greeks call *σπινθηα*, (Ureter) a great Quantity of thick Urine comes off, which deposits a good deal of Sand, and sometimes large rough Stones, or Fragments of Stones; sometimes the Urine appears with Bubbles, and has an ill Smell; sometimes comes away frequently, and in small Quantities, attended with a scalding Heat; oftentimes it brings away what is like Blood with it, especially after Labour, or hard Riding. They who are obnoxious to this Disease, have, for a long time, discharg'd a thick reddish Urine, with a dense and tenacious Spume, which sometimes deposits a red, sandy, and somewhat viscous Sediment; sometimes it continues foul, and, if strain'd thro' a Woollen Cloth, leaves a Substance like the Sediment before-mention'd. This kind of Urine often passes off, for many Years together, without any Inconvenience, without any Pain in the Kidneys, or any other Symptom of the Stone; when, unexpectedly, and all on a sudden, the Kidney is seiz'd with a most acute Pain, and, at the same time, the Belly is constipated, and the Leg on the same Side with the affected Kidney taken with a Numbness. The Pain often remits, and returns at pretty long Intervals, and sometimes without discharging any Stone, but a thick and turbid Urine, and, perhaps, after hard Riding, a bloody one. And, indeed, the voiding bloody Urine often shews the Stone in the Kidneys, when there is no Pain, nor any other Mark by which it can be known, or so much as suspected.

When the Pain is succeeded by an Excretion of the Stone from the Kidney, the same, falling into the Head of the Ureter, causes a Discharge of thin waterish Urine, in a small Quantity; or, which often happens, totally suppresses the same. But if the Stone should happen to be repressed into the Cavity of the Kidney,

Kidney, or, at least, if it penetrates into the Bladder, there follows an Evacuation of such Urine as was before describ'd; so that I am of Opinion, that *Hippocrates* was in the right, when he said, that a sudden Pain of the Kidneys, with a Suppression of Urine, prognosticated a Discharge of Stones or thick Urine. The Stone is often so big as not to be expel'd from the Substance of the Kidneys, in which it was generated, into their Cavity; and, during that time, the Patient feels little or no Pain, but makes a thick, foul, reddish Water, as above describ'd. But after violent Exercise, or hard Riding, not only such kind of Urine is discharg'd, but a bloody Urine, which deposits a grumous Concretion of a Substance like Blood. When the Stone is remov'd into the void Space, or Cavity, of the Kidney, if it be large, and tend downwards, it stops the Ureter, and intercepts the Passage of the Urine, in such a manner that but very little, and such as is of a thin and aqueous Substance, can be discharg'd; such a Stone, at the same time, excites a very sharp Pain. But when the Stone, tho' descended into the Ureter, is too small to cause a considerable Stoppage of the Urine, or when large, and newly remov'd from the Substance into the Cavity of the Kidney, and it has not yet applied itself to the Beginning of the Ureter, there passes off a thick, foul, red, or a dark, and somewhat livid Urine.

Smooth and round Stones are not so difficult to be discharg'd, as oblong and rough ones; but all are not of the same Bigness, Figure, or Roughness. Persons who have been long troubled with Pains in the Kidneys, and have their urinary Passages pretty open, are, for that Reason, tormented with large Stones, but not with those of a moderate Size; whereas those who are but newly affected with this Disorder, or, at least, have seldom been pain'd, suffer severely from the least Stone.

The Stones of the Kidneys are, almost all of them, of a reddish Colour; tho' purulent Kidneys discharge also white ones; black and pale Stones have also been observ'd. In this Affection, the more aqueous the Urine is, and the longer it so continues, and the less Sediment it has, the harder, you may assure yourself, are the Stones in the Kidneys, the more confirm'd, and the more obstinate in resisting Remedies; tho' Urine seldom comes off clear from those who are subject to great Pains of the Kidneys. Fat and aged Persons are most frequently afflicted with this Distemper; it seldom or never happens to Children, and rarely to adult Youth. It seldom also molests those who frequently vomit, and are not subject to be costive. As all Disorders in old Persons are very difficult to be cur'd, so this, of which we have been speaking, admits of no Cure at all. The same is hereditary to a greater Degree than all other Distempers; so that a Man seldom or never escapes the Torment of the Stone, who was, on account of his Parents, by Nature subjected to this Disease from his Birth. *Lommius, Med. Obs.*

From HOFFMAN.

The Word *Calculus*, among the antient Romans, had a great many different Ideas affix'd to it: Thus it signify'd a small Pebble or Gravel-stone, a Chess-man, a Counter, and, by a Metonymy, an Account or Computation, a Doubt or Difficulty, a Sentence of Absolution or Condemnation, as also a Vote or Suffrage; but, by Physicians, this Word is appropriated to Stones form'd and generated in the human Body. These are produc'd in various Parts; in the Stomach, for Instance, in the Gall-bladder, in the Liver, in the Lungs, and in the Interstices of the Muscles in almost every Part of the Body; but no-where do they produce such terrible Consequences, or excite such intolerable Pains, as when lodg'd in the Kidneys, the Ureters, and urinary Bladder.

As the Pain, rising from a Stone slipping from the Kidneys into the Ureters, is the most intense and racking that can possibly afflict Mankind; so, upon its first seizing the Patient, it often happens, that it is with Difficulty distinguish'd from other acute Pains of the lumbar Region.

'Tis a Notion as false and absurd, as 'tis common and popular, that when any one is seiz'd with Pains about his Loins, he must therefore be afflicted with the Stone in the Kidneys; since, in that Region, there are several Parts highly sensible of Pain, and susceptible of Injury; such as the external and internal Muscles of the Loins, the nervous Ligaments of the lumbar Vertebrae, the superior mesenteric Plexus of Nerves, a Branch of the superior meseraic Artery, and, in their Neighbourhood, the winding Extremity of the Intestinum Duodenum, and the Sigmoid Flexure of the Colon; in all which Parts, when either too much distended, or compressed, by the Stagnation of an impure bloody, or serous Humour, very terrible Pains are excited. Sometimes also a Rheumatism, seizing these Parts, produces Pains so racking and intolerable, that the miserable Patient, as if his Loins were cut in the Middle, bends forward, and cannot raise himself up. The same Symptom may also be produc'd, if by a Fall, or lifting any great Burden, the Vertebrae and Nerves are remov'd ever so little from their natural and proper Situation. Too large a Quantity of Blood stagnating about the mesenteric Plexus, and emulgent Arteries, in plethoric Habits, and in those who are subject to the Hemorrhoids, or, in other

People, in consequence of neglecting Venesection, when they have been habituated to it, frequently excites a violent Pain in the Region of the Loins, which is commonly, tho' falsely, ascrib'd to the Stone; since it is often suddenly remov'd, either by Venesection in the Foot alone, or by discutient nitrous Powders.

But it very often happens, that the Colic is mistaken for a Pain produc'd by the Stone; for, when the Flexure of the Colon, which lies near the Loins, is either too much distended with Flatulencies, or spasmodically constricted, a violent Pain is not only produc'd in the Region of the Loins, but also passes to the Præcordia, excites a Nausea and Reaching, prevents the Discharge of Urine, renders the Patient costive, and racks the whole Abdomen with Pains as severe as those generally arising from the Stone. But since this spasmodic Pain is not constant and fix'd, but rather wandering, and of such a Nature as to be greatly reliev'd by the Injection of emollient Clysters, the skilful Physician may, from these Circumstances, easily distinguish it from the Pain arising from the Stone, which bears down more powerfully, does not waste the Strength so much, and remits at Intervals, so that the Patient can frequently rise, and walk about, which does not happen in the Colic. Besides, if the Pain arises from the Stone, the Vomiting and Nausea are greater when the Stomach is empty than at other times; a Tithilation, and pricking kind of Pain, are also felt in the Urethra and Glans; the Urine is loaded with Sand, the Testicle is retracted, the Thigh seiz'd with a Stupor, and the Side itself contracted; none of which Symptoms are observ'd to attend the Colic.

'Tis to be observ'd, that Stones of a very large Size, with considerable Branches rising from them, may be lodg'd in the Substance of the Kidneys for some Years, without creating any great Pain or Uneasiness to the Patient; but, as soon as they are remov'd from their former Seat, and falling into those narrow, nervous, and muscular Ducts, call'd the Ureters, seek a Passage thro' them into the Bladder, the most terrible Symptoms forthwith appear: So that the Ureters themselves may be the fix'd and genuine Seat of Pains arising from the Stone; but these Pains are more or less intense, according as the nervous Coats of these Canals are more or less distended by the Bulk, or irritated by the Roughness, of the Stones which shall happen to be lodg'd in them. These Pains are sometimes so severe and intense, that, besides a Shivering and Refrigeration of the Extremities, they also excite a Nausea, a Vomiting, a spasmodic Constriction of the Præcordia, a difficult Discharge of the Urine, a Stricture of the Belly, an Uneasiness in Breathing, a Stupor of the Leg, a Retraction of the Testicle to the Os Pubis, Restlessness, incredible Loss of Strength, a Syncope, and even epileptic Fits; at other times they bring on a Suppression of Urine, which proves fatal to the Patient. I have sometimes observ'd Patients complain, that they felt such a Pain as if one was continually inflicting a deep Wound all along the Spine, near the Bladder; and, in these Cases, when the Patients were laid open after their Death, the Ureters appear'd distended and turgid like a Pudding, by the large Quantity of Urine which had been deny'd a Passage into the Bladder, on account of a Stone lodged in the Ureter, near its Insertion into that Organ.

'Tis confirm'd by Observation and Experience, that a Stone has sometimes been lodg'd for a long time in the Ureter without creating any great Pain, or intercepting the Passage of the Urine; after which the Pain has seiz'd the Patient unexpectedly, and brought along with it Loathing of Food, Nausea, Vomiting, and Interception of Urine. This Phenomenon has, in all Probability, been owing to the Situation of the Stone being chang'd by some Accident, so as, by its Roughness and Inequality, to prove more offensive to the nervous Coat of the Ureter. Nor is this Disorder universally accompanied with the same Train of Symptoms; for, as *Erasmus* says of the Stone with which he himself was afflicted, in his Epistle to *Perckmeyerus*, "It transforms itself into Shapes so unlike those it formerly bore, that one would really believe it to be another Disorder; one Set of Symptoms attends its Beginning; another appears in its Progress; it sometimes remains fix'd, and sometimes changes its Seat."

'Tis a Circumstance worthy our Attention, that Stones are more frequently lodg'd in the Left, than in the Right Kidney; hence it happens, that Pains arising from the Stone in the Kidneys are observ'd to happen more commonly in the Left than in the Right Side. This is confirm'd by *Carolus Piso*, in *Tract. de Morbis ex serosa colluv. oriund.* where he affirms, "that among an hundred labouring under the Stone of the Kidneys, eighty and more have the fatal Cause of their Disorder lodg'd in their Left Kidney." Nor is the Reason of this Phenomenon so much a Mystery as at first it may appear; for in the Vessels of the Right Kidney, which is cover'd with that large Organ the Liver, and cherish'd with a more considerable Warmth than the Left, the Circulation of the Blood is quicker, and the Separation of the urinous Serum more speedily perform'd. Hence a Stagnation of the Blood and Urine cannot so readily happen in this as in the Left Kidney, which

which, being encompassed by the Flexure of the Colon; is more compressed in consequence of a frequent Stagnation of Flatulencies. Hence it happens, that the intercepted Course of the Blood thro' the compressed Vessels renders the Percolation of the Urine thro' the small Tubes more difficult; brings on a speedy Stagnation in them, and consequently lays a Foundation for the Separation and Concretion of a tartareous or calcareous Matter.

'Tis equally remarkable, and equally confirm'd by Experience, that a Stone which has long remain'd in the Parenchyma of the Kidneys, or in the Pelvis, may be remov'd from its former Seat, and thrust into the Origin of the Ureters, by various Causes; the principal of which are, violent Perturbations of Mind in consequence of indulging the Sallies of Passion; vehement and sudden Commotions of the Body, by Gestation or Riding; and particularly the penetrating Cold of Northerly Winds admitted to the Loins; as also a too liberal Use of Diuretics, such as Preparations of Turpentine and Juniper, generally, tho' absurdly, prescrib'd by some Physicians, as Preservatives against the Stone. I have also often observ'd, that flatulent Colics, and the Spasms with which the Hypochondriac, the Hysterical, and such as are subject to the Hæmorrhoids, are commonly afflicted, do by protruding the calculous Concretions lodg'd in the small Papillæ of the Kidneys, frequently lay a Foundation for intense and violent Gravel Pains.

As for the remote, or, as they are called, the natural Causes, which contribute to the Generation of Stones in the Kidneys, and the Production of the subsequent Pains arising from them, the principal and most considerable is what we call a sanguine Constitution; for Bodies of a soft and spongy Texture, especially those of the Female Sex, whose Veins are filled with Blood, who live delicately, and drink Wine, who indulge themselves in Idleness, and lead a sedentary Life, and who wantonly use Cheese, Milk, and Sweet-cakes, are, especially after the fiftieth Year of their Age, when the Monthly Evacuations cease, subject to Pains arising from the Stone, with which for the most part they are not afflicted so long as the Monthly Discharges are duly and regularly carried on. Among Men, they who in their Youth have been subject to Hæmorrhages of the Nose, and frequent Head-achs, as also they who, having been accusom'd to hæmorrhoidal Discharges, have them either entirely stopt or diminish'd, are in a more advanc'd Age most subject to be afflicted with arthritic and nephritic Pains. Experience convinces us, that old Age is of all others most subject to the Stone, both in the Kidneys, and in the Bladder; because then the Humours are more inspissated, the Aliments become acescent in the Stomach, the Belly is less open, and Ease, which at that Period of Life is generally more indulg'd than in Youth, contributes not a little to the Generation of Stones. This Circumstance *Erasmus* in all Probability had in View, when he passes the following Jest upon his own Misfortune. "It may, says he, appear wonderful that "Women should become barren by Age, which has render'd "me more fruitful; for from Day to Day I bring forth more "frequently."

It also happens, that scarce any Disorder whatever is so frequently observ'd to be convey'd from Parents to their Children, as the Stone, and the Gout, another Disorder of a near Affinity to it in consequence of a peculiar Disposition of the Fluids and Solids; for both these Calamities not only afflict those Men who are full of Blood, and are said to be of sanguine Habits, but they also both draw their Origin from a natural Weakness, and want of Tone, in the Solids; with this Difference, that in the nephritic Patient the Kidneys are the Seat of the Weakness; and in the arthritic, the Ligaments of the Joints. We also frequently observe, that rheumatic and arthritic Disorders are easily transform'd, and converted into those of the nephritic Kind; which in their turn are, by a Translation, as readily chang'd into the former; so that when a Person naturally subject to the Gout has been long free from that Disorder, he very readily becomes afflicted with the Stone in the Kidneys, and *vice versa*. It also frequently happens, that both these Calamities in Conjunction rack the miserable Patient at one and the same time.

As for the Generation of Stones in the Kidneys, we may account for it in this manner: When, in consequence of too large an Impulse of Blood, which with Difficulty returns by the Veins, the Blood-vessels of the Kidneys are too much distended and stuff'd; hence it happens, that the minute Arteries, where they become small Papillæ, and slender urinary Ducts, are burst and forc'd open; thus, by a Stagnation of the extravasated bloody Serum, small Abscesses and Ulcers are at first form'd, and afterwards gradually enlarg'd. When the urinous Serum, which is impregnated with many tartareous and slimy Parts, stops in these Abscesses and Ulcers, the more weighty and acuminated Particles are separated from the rest, and form themselves into Concretions, which at first have the Appearance of a thick and coarse fabulous Matter; afterwards Grains of a closer and more compact Texture are generated,

VOL. I.

which by the Assistance of a plentiful Secretion of Urine are easily wash'd away; and often not totally discharg'd without Pain. Where-ever, then, such a gross and heavy Sand subsides in the Urine, it is an infallible Sign of Stones being lodg'd in the Kidneys. But when these calculous Concretions form'd in the ulcerated Substance of the Kidneys become gradually larger and harder, and are either by the Urine, which is impregnated with tartareous Parts, or by some other Cause, convey'd into the Pelvis, or the Beginnings of the Ureters, more terrible Pains are excited, and a formidable Train of Symptoms appear; because the calculous Concretions must make their Way thro' these narrow Ducts, of exquisite Sensation, to the urinary Bladder, into which when they have fallen, the Symptoms are entirely remov'd, and Strength is restor'd, to the no small Joy of the Patient.

That Stones may also be generated in the Parenchyma of the Kidneys, by the Stagnation of an ichorous, bloody, or purulent Humour, is, among other Circumstances, plain from these, that in nephritic Patients, as was long ago observ'd by *Celsus*, something of a bloody or purulent Appearance is discharg'd with the Urine; that Patients afflicted with the Stone frequently discharge a bloody Urine; and that their Kidneys have, after their Death, been found to be large, flaccid, and exulcerated. This is also obvious from a Consideration of the Cure, which is most happily brought about by abstergent, vulnerary, consolidating, and gently astringent Remedies. Nor do I deny, that without the Substance of the Kidneys being previously injur'd, a tartareous Matter, or Concretions of Sand of a very surprising Bulk, may be gradually form'd in the Pelvis, and larger Ducts of the Kidneys, in consequence of a Stagnation of the Urine. But in proportion, as this Matter, whether ichorous, or tartareous, differs with regard to Colour, Crasis, and Consistence, and according as the Accretion is greater or less, so various Kinds of Stones are generated and form'd; for some consist of a Substance so hard, that they appear almost to be of the Nature of a Stone; others are friable, and less firmly compacted; some are of a pale, and others of a cineritious Colour, whilst others are red, or of the Colour of Sandarach; some are larger, and others smaller; some are more angular and rough, whilst others are much less so.

That all nephritic Disorders, such as Infarctions of the Kidneys, Inflammations, Exulcerations, and Pains arising from the Stone, are more difficultly cur'd in old, than in young People, is a Truth not only confirm'd by Experience, but establish'd by the Authority of *Hippocrates*, in the sixth Aphorism of his sixth Section; for as Wounds and Exulcerations of the internal Parts are in an advanc'd Age difficultly cur'd, by reason of an increased Intemperies of the Humours, and an abundance of the Excrements; so the Wounds and Exulcerations of the Bladder are in that Period of Life cur'd with the greatest Difficulty, by reason of the excessive Acrimony of the Urine.

When violent nephritic Pains do not remit for several Days and Nights, but incessantly rack the Patient, and resist the most approv'd Remedies; and when at the same time a total Suppression of Urine comes on, accompanied with Coldness of the Extremities, and a kind of Convulsion of the Tendons; these Symptoms pronounce the Death of the Patient to be near. But Pains arising from the Stone presage the most particular and imminent Danger to those, who, thro' a long continued Course of Grief and Sorrow, have had their Strength previously impair'd; since, immediately upon their being seiz'd, a greater Loss of Strength, and a Gangrene of the internal Parts, ensue. Nor is it a good Symptom, when a Stone lodges long in one of the Ureters; for by this means the Appetite is lost, and the Digestion destroy'd, whilst the Nausea, the strong Efforts to vomit, and the Uneasiness remaining for a considerable time, a slow hectic Fever comes on, wastes the Strength, consumes the Flesh, and puts a speedy End to the Patient's Life.

After the Death of some Patients, Stones of a surprising Bulk, considerably compact, and furnish'd with large Branches, have been found in their Kidneys, which appear'd to be totally exulcerated, and cover'd with a hard Membrane, tho' they were never known to complain of any Pain during their Lives; and these Patients are cut off by a Disorder which we call *Tubes Renalis*. Some are, soon after their being seiz'd with nephritic Pains, cut off by an acute Distemper, whilst an Inflammation of the Stomach or Intestines at last succeeds the racking Pains they have endur'd. Others, by reason of a total Suppression of Urine, fall into a Dropsy of the Breast, a Lethargy, or Convulsions. *F. Hoffman*.

The CURE, as propos'd by *ARETÆUS*.

To prevent the Generation of Stones in a Constitution naturally disposed to breed them, is a Thing impossible; for it is more easy to prevent the Conception of Children in the Womb, than breeding of Stones in the Kidneys; our only Way therefore is to endeavour to expel them. For this Reason I shall

give Directions in Cases of Difficulty, where the Stone pertinaciously adheres to the afflicted Part, which is a Circumstance attended with a violent Pain, and sometimes the Patient sinks under a Complication of Gripes, Colic, and a Suppression of Urine; for the Kidneys and Colon are contiguous. In a Fit of the Stone, therefore, attended with Gripes, and a Suppression of Urine, open the Vein of the Ankle, on the same Side with the affected Kidney; for an Effusion of Blood from the Kidneys relaxes that Constriction, which is the Effect of the Stone; and an Inflammation having seiz'd all the Parts, it is most readily resolv'd by an Exinanition of the Vessels. Embrocations also of the Loins near the Seat of the Kidneys are to be used with old or new Oil, in which Rue has been infused, or Diuretics, such as the Tops of Dill, Rosemary, or Sampsuchus; with these let the affected Parts be embrocated, as with Water; for simple Unctions are of little Service. Besides these, foment the Parts with Oil of Chamomile in Ox-bladders, and let Cataplasms be made of the same Materials, mix'd with Meal. Sometimes Cupping without Scarification relieves in a Fit of the Stone; but the best Way under an Inflammation is to scarify. If none of these move the Stones, let the Patient bathe in Oil, which is instead of all Remedies; for the Warmth thereof relaxes, and in some measure lubricates the Parts, and its Acrimony stimulates to Excretion. These then are the topical Medicines which promote the Expulsion of the Stones. Simple Medicines are Potions of the Roots of Valerian, Spiguel, and Afarabacca; or of the Herbs Prionites, Parsley, or Sium; compound Medicines are, Ointments composed of Spikenard, Cassia, Myrrh, Cinnamon. *Arctaus nesi besan.* *xpcv. nab. Lib. 2. Cap. 3.*

From ALEXANDER TRALLIANUS.

The Cure of the Stone in the Kidneys, at the time of the Fit, must be attempted by such Medicines as are of relaxing and lenitive Qualities, and are, besides, endu'd with the Virtue of dissolving and expelling the Stone. The best Remedy for these Purposes is Bathing; because it not only mitigates, but has Virtue sufficient to cure the Distemper. It frequently indeed mitigates the Pain of the Colic, without curing it; but, under a Fit of the Stone, it not only mitigates the Pain, but wholly relieves the Patient. For the more effectually answering this End, let the Parts be anointed with Oil of Chamomile while in the Bath, and let the Patient sit for a good while together in the Solum, or Bathing-chair, in plenty of hot Water; and not only use the Bath once every Day, but two or three times. In the Summer Season let him often use the cold Bath; after which, being well wrapt in Linen, let him drink the Decoction of Carduus, with Smallage, or a little Anise. If the Pain continues, and the Expulsion of the Stone does not succeed, let him drink the Decoction of Cinquefoil, with his Cloaths still wrapt about him. This is a very grateful as well as effectual Medicine, and ought to be taken out of the Bath, either alone, or with Oxymel. If the Root of Cinquefoil be wanting, a Decoction of Eryngo, or Erysimum, and Prionites, being drank, is very effectual for the same Purpose. Outwardly may be apply'd Bags of frumentaceous Meals, with Decoctions of Chamomile, Marshmallows, Melilot, and Oil of Chamomile, often changing them. If frumentaceous Meals be wanting, you may use Woollen Rags, moisten'd with sweet Oil, or Oil of Chamomile, often warming and changing them. Clysters also are to be administered, but such as are not very acrimonious, but have a good Quantity of Oil in them, and are endu'd with a laxative and dissolvent Virtue. Such are Decoctions of Marshmallows, Fenugreek, dry'd Figs, Chamomile, and Oil of Chamomile; and in Constitutions where Heat much abounds, Cremor of Ptisan, mix'd with Oil of Roses, Chamomile, and Yolks of Eggs. These Medicines being of a lenitive Quality, by restoring the Parts to a good Temperature, lessen the Cause of the Disease, and prevent those who have always the Stone in the Kidneys from having a Fit. If the Disease be still obstinate, we must have recourse to more powerful Medicines; such is Goat's Blood, which must be thus prepar'd:

When Grapes begin to be ripe, take a new earthen Pot, and put Water in it, and boil it, in order to take off the earthy Quality of it; then take a He-goat, in the Vigour of his Age, which is about the fourth Year, and fed for some time with Fennel-leaves, Amomum, and such-like sweet-scented Herbs; cut his Throat, and receive the middle Part of the Blood, rejecting what comes out first and last, in the Pot. After it is coagulated, mince it small in the Pot, and expose it to the Air, under the Cover of a fine Sieve, or a thin Linen Cloth, that the Sun and Moon may shine upon it, and that it may be dry'd, taking care that it receives no Moisture. When it is dry, reduce it to Powder, of which give a Spoonful at a time in *Cretan Wine*.

This is a most powerful and efficacious Remedy, as I know by long Experience. I have given it with burnt Troglodytic Myrrh in the severest Pains, and by that means brought away a large Stone piece-meal by Urine. This Medicine, besides dissolving the Stone, mitigates the Pain, and prevents the Generation of Stones for the future; for which Reason it is called; *The Hand of God*.

Anodynes are to be used only in the time of the Fit, and under extreme Pain, but avoided at other times, for fear of creating a Distemperature in the Kidneys. But if there be any Danger of the Patient's sinking under the continual Pain, and want of Sleep, we must have recourse to such Remedies, as have not only the Virtue of mitigating Pain, but of procuring Sleep.

As to Bleeding, if the Patient be full of Blood, or the Fit be attended with an Inflammation, you ought to begin with breathing a Vein; by means of which, the Parts being relaxed, and the Passages open'd, the Remedies to be administer'd will have the more room to exercise their Virtue.

Amidst a Plenty of Medicines for this Disease, some indeed diminish the Stone, but at the same time promote the Generation of other Stones, by increasing their efficient Cause, which is the igneous Heat and Distemperature of the Kidneys. To prevent this Effect, avoid such Medicines as are very hot and acrimonious; or, if you are necessitated to use them once or twice, desist from them after you have obtain'd your Purpose, and do not use them, as is too commonly done, for the sake of Preservation. But all our Intentions must be directed to the procuring of a good Temperature, for which End we must make use of such Medicines as are attenuating without any considerable Degree of Heat. Such are Oxymel, Maiden-hair, a Decoction of Marsh-asparagus, and Couch-grass, the Roots of Smallage and Eryngo, and the Herb Cinquefoil, the Root and Leaves of Plantain, but especially its Seed, the Broth of Chiches, and Seeds of Peony and Almonds. But these are not to be used continually, but only when you are apprehensive of a Collection of gross Matter in the Kidneys. You would do well, always, before you eat, to drink warm Water; for nothing so well cleanses the Reins from Recrements, or brings them to a just Temperature, so as to be indisposed for generating the Stone; for in Length of Time their fiery Heat is extinguish'd by the Tepidness of the Water. They are in the Right therefore, who in the middle of their Meals drink Water, or Wine cool'd, or prepar'd with the Juice of Roses or Violets. All season'd Meats, of what Kind soever, Pickles, and every thing that has Pepper in it, are to be avoided. And not only acrimonious Food, but such as yield a gross Juice, are to be prohibited, such as salted Meats, prepar'd Swines Udders, fine white Bread, hard Eggs, Cakes, and all other things prepar'd with Milk, as well as Milk itself, and Cheese, together with very black and austere Wines. The Patient also must never lie upon a Feather-bed, for these heat the Kidneys to a great Degree; he ought also not to stand much, but to keep himself sitting, or in Motion. He must avoid eating late, and Meats of hard Digestion, such as Sausages, all Fish of the cetaceous Kinds, as the Tunny, Mackrel, Pollard; and all testaceous Fish, except the Scallop and Sea-urchin, which last he would do well frequently to eat; for, besides inducing a good Temperament, it has a Faculty of provoking Urine. Lobsters and Whelks may sometimes, tho' seldom, be eaten; but Oysters are wholly forbidden, as well as all fat Beasts and Birds, and the continued Use of such as live in Marshes: But the Wings of Geese, and small Birds, which are not fat, as green Sparrows, and such as build in Towers, and the like; of Fruits, Cucumbers, especially the inner and medullary Part, Melons, dry'd Figs, thick-rind'd Apples, and Pears in moderate Quantities, but not for Continuance, are allow'd. *Trallian, Lib. 9. Cap. 4.*

From HOFFMAN.

The whole Secret in curing Nephritic Pains seems to consist in bringing away the Stones easily, and with as little Trouble as possible; and in preventing and hindering the fresh Formation of that Sand or Matter which proves the immediate Cause of the Disorder, and all its concomitant Symptoms; for the Method of Cure, under an actual Paroxysm, differs widely from the Measures to be taken when the Patient is in a State of perfect Ease; in which Case, Preservation or Prevention ought to be the Intention of the Physician.

In the Paroxysm itself, where the Symptoms are violent, and the whole Economy of the vital Functions disorder'd by the exquisite and intolerable Pain, the first Step to be taken is, by proper Medicines, to allay the Vehemence of the Pain; and, by well-chosen Remedies, to sooth, and, if possible, remove the spasmodic Strictures, which not only rack the adjacent Parts, but, in consequence of that mutual Consent which prevails between any one Part and all the others, the whole nervous System. This is so much the more necessary, because, under such a violent Attack of Spasms, which constrict and brace up the Urinary Ducts, the Progress of the Stone thro' the Ureter into

into the Bladder is, with the greatest Difficulty, promoted. Among the most celebrated Medicines for answering this Intention, I must, above all others, recommend my own anodyne Mineral Liquor, on account of its Efficacy and Safeness; for, when exhibited in small, but frequent Doses, by allaying the Spasms of the *Primæ Viæ*, it wonderfully removes the uneasy Sensation there felt, the Nausea, and the Vomiting. If a sufficient Quantity of this Medicine cannot be had, the most proper Succedaneum to it is Spirit of Nitre, carefully prepared, in the manner directed by me in *Observat. Physico-chym.* See NITRUM. For this Spirit, being now divested of its acid Quality, by its mild and sulphureous Exhalations dispels Flatulencies, and relaxes spasmodic Strictures. The Spirit is, for this Intention, most properly exhibited with sedative Waters; such as that of black Cherries, and those of the Flowers of *Egyptian Thorn*, *Elder*, red Poppies, *Lime-tree*, *Primrose*, *Lily of the Valley*, *Meadow-sweet*, and especially the Waters of *Chamomile-flowers*, and the *Tops of Yarrow*, with the Addition of a little of the Syrup of red or white Poppies. It may also be exhibited in *Flesh-broth*, with a few Spoonfuls of pure and new Oil of Almonds, obtain'd without Fire. This Intention is also answered by Emulsions of Sweet Almonds, the Four cold Seeds, and those of Poppy, Gromwel, and Carrot-seeds, prepared with the above-mention'd Waters, and edulcorated with a sufficient Quantity of the *Syrupus Albus*. But when these mild and gentle Medicines are not sufficient for mitigating the Pain, we must have recourse to those which are somewhat more powerful, such as Opiates, corrected, and render'd safe, by the Addition of other Substances; of this Kind are the *Pilulæ Wildeganii*, the *Pilulæ Starkii*, *Sydenham's Liquid Laudanum*, the *Theriaca Coelestis*, and the *Trochisci de Alkekengi*; all which, on account of their Efficacy, and the Tendency of their Ingredients to sooth and allay Pain, deserve the highest Encouragements.

Besides these Remedies already mention'd, nitrous Preparations, and among these Nitre alone, purified and crystallized, or an artificial Composition of the Spirit of Nitre, and Salt of Tartar, or antimoniated Nitre, are superior, both in Efficacy and Safeness, to all other Remedies in allaying intense and acute Pains, accompanied with violent and raging Commotions of the Blood and Humours; and must, of consequence, be of all others the most proper in Nephritic Disorders. These Preparations are most commodiously mix'd with Powder of Crabs-eyes, with Cinnabar, or the *Pulvis Marchionis*, and a few Grains of the *Trochisci Alkekengi*, or the *Pilula Wildeganii*, and so drank off in an Emulsion, or in sweet Whey.

But when the Pains and Spasms become so violent as to be intolerable, internal Medicines alone are not sufficient for soothing and allaying them; but external Applications must also be called in to the Relief of the Patient; and, among these, none produce more happy and salutary Effects than Clysters prepared of emollient Flowers, especially those of the Garden Mallows, *Elder*, red Poppies, *Yarrow*, common *Chamomile*, and *Mullen*, boiled with Whey; adding some of the *Syrupus Dialthææ* of *Fernelius*, Nitre, and *Epsom Salt*. When the inferior Part of the *Rectum* and *Colon* is so violently constricted, that the Flatulencies cannot be transmitted, but, rising to the superior Parts, increase the Uneasiness they already labour under, I have, in this Case, often observed very singular Relief afforded by Clysters of Oil, and pinguious Substances. The Belly being thus rendered soluble, and a Passage open'd for the Flatulencies, the Reachings to vomit, and the uneasy Sensation of the *Præcordia*, forthwith disappear.

In mitigating Pains of this Kind, as the Method of *Hippocrates* is the most antient, so I think it the best and most efficacious of any; for, says he, in his fifth Book *de intern. Affection.* "when a Pain has seiz'd the Kidneys, wash in a large Quantity of hot Water; and apply tepid Fomentations, especially to the Part affected." The same Remedy is recommended by *Trallian*: And it must be owned, that no Remedies whatever are equal to Baths, and Semicupiums of pure Water, especially Rain-water moderately warm, in removing the most violent Pains of this Kind; and the Effect may be the more certainly depended upon, the oftener they are repeated. In Cases of this Nature I have also often seen singular Relief afforded, by applying to the Part affected, Liniments of human Fat, or that of a wild Cat, a Dog, or Beaver, made up with *Unguentum Dialthææ*; or a Bladder fill'd with a Decoction of the above-mention'd emollient Flowers, prepared with Milk.

When, in consequence of a due and careful Use of these Medicines, a remarkable Remission and Alleviation of the Spasms ensues; when the Pulse becomes more calm and gentle; when a moist and equable Heat is felt over all the Surface of the Body; and when the Flatulencies are successfully discharged by the Anus; then the Protrusion of the Stone is to be attempted, with proper Remedies, and due Caution. I have seen this Intention speedily answer'd by various Remedies, and, among these, none affords a more remarkable and instantaneous Relief than liberal Draughts of an Infusion prepared of *Paul's-betony* and *Parsley*, or of the Seeds of wild Carrot, Ce-

lery, and Fennel, Winter Cherries, Liquorice-root, and Yarrow-tops; especially if a Glass of Liquor somewhat spirituous, such as *Malmsey Wine*, or *Geneva*, is drank immediately after the Exhibition of the Infusion. I have also observed, that in Conjunction with the Motion of the Body, a large Draught of *Forestus's Antinephritic Infusion* has proved of singular Efficacy in bringing Stones from the narrow Ducts in which they were lodged. But there is, in some Cases, a Necessity for more powerful Propellers, the safest and most efficacious of which are, Mother of Pearl, or the Shells of Eggs calcined, and exhibited with Lemon-juice, in some proper Vehicle.

The PRESERVATIVE METHOD.

As, in the Beginning of this Disease, Preservation is, comparatively speaking, an easy Task; so in its Progress, when, in consequence of any considerable Fault or Exulceration of the Kidneys, a large Quantity of Stones is form'd, and the Paroxysms return frequently, the Disorder is attended with the greatest Difficulty of Cure, and a Set of the most perplexing Circumstances; for since, as I have already observed, many are afflicted with Nephritic Pains, either in consequence of a preternaturally large Quantity of Blood, or from its being render'd crude and thick, by the Use of a Variety of incongruous, viscid, and acid Aliments; hence nothing can be more proper for removing this terrible Calamity, than taking a sufficient Quantity of Blood, using due Motion and Exercise, drinking diluting Liquors, especially the medicinal *Selterian Waters*; as also fresh, but acidulated, Whey.

In Cases where Stones are continually discharged, there is a Necessity for having recourse to Medicines of a vulnerary, gently consolidating, and astringent Quality; for which Reason it has long ago been observed by many, and confirmed by the Practice of the common People, that, by a long Use of Decoctions, or Infusions of vulnerary Herbs, prepared with Water or Ale, and mix'd with sweet Butter or Honey, many have been entirely freed from this Disorder. The principal Herbs proper for this Purpose are Horsetail, Golden-rod, Ground-ivy, Strawberries, white Horehound, *Paul's-betony*, *Pellitory of the Wall*, *Yarrow* with its Tops, Mallows, Bark of *Egyptian Thorn-root*, Club-moss, torrefied Juniper-berries, Strawberries dried, the Stones and Fruit of roasted Hips; of which Powders an Electuary may be prepared, with white *Prussian Honey*, which, by its consolidating and balsamic Quality, is very proper against Disorders of the Kidneys; and half a Spoonful of it, taken in the Morning, drinking Tea after it, has been observed to afford very singular Relief to those who, for many Years, have laboured under these Disorders.

There is also another Method of preserving from the Stone by alkaline Medicines, which subdue and destroy that acid and glutinous Matter, which is the principal Foundation and Ground-work of the calculous Concretions: Hence it is, that Crabs-eyes, Mother of Pearl, Shells of Eggs, Shells of Fishes, and Snails, either simply prepared, or calcined; as also Thunder-bolts, Jews-stone, and the celebrated Powder of *Volkhammer*, which is thought to consist of calcined precious Stones; or simple Oil of Tartar *per Deliquium*, or of Potash, or fixed Nitre, Tinctures of Tartar, and the acrid Tincture of Antimony, frequently used, prevent the Generation of Stones, and consequently free the Patient from the violent Pains produced by them.

There are still more Remedies, whose Efficacy is observed to be equally beneficial to Nephritic Patients; and these are such as, consisting of oleous, pinguious, mild, and somewhat anodyne Particles, prevent that Union of the saline Spiculæ, which is necessary to the Formation of a solid Concretion; for it is known, from Chymical Experiments, how small a Quantity of any pinguious Substance retards Crystallization. To this Class we may also justly refer those Seeds and Fruits which abound with a mild and sweet Oil; such as the Four greater cold Seeds, those of Gromwel, Saxifrage, white Poppy, and Ladies-thistle, sweet and bitter Almonds, Stones of Cherries and Peaches, which, either when reduced to a Powder with Sugar, or made up in the Form of an Emulsion, and frequently used, prove of singular Service to those who are frequently afflicted with this Disorder. We may also reckon, among the best Remedies for Distempers of the Kidneys, Liqueurice-root, the Powder or Infusion of which is of singular Efficacy, in obtunding and correcting the acrid Particles of the Salts, and washing off mucous Substances. Among other valuable Medicines of this Class we may also justly reckon Yarrow, with its Tops; an Infusion or Decoction of which is, in Disorders of this Kind, of the most singular and surprising Efficacy, if used daily for a considerable time. By the Use of this single Herb, I have observed some Patients entirely freed from Nephritic Pains, to which they had been long subject; for it is proper in Cases of this Nature, upon several Accounts, since, besides its consolidating and mitigating Quality, it abounds with a truly anodyne Oil, which, both in Colour and Virtues, resembles that of Chamomile; and is highly efficacious in allaying Pains, and relieving Spasms.

But,

But, as in all Chronical Disorders, so more especially in preventing Nephritic Indispositions, we are to take particular Care, that the Stomach and Digestion, as also the Discharge of the Fœces, be kept in a due and natural State. *Actius*, in his sixteenth Chapter, has a memorable Passage to this Purpose. "A moderate Quantity of Food, of an easy Digestion, prevails against the Stone; for Crudities not only exasperate the Disorder, but even lay a Foundation for it where it was not before: Let such as are subject to the Stone, therefore, abstain from eating to Excess, and from Supper altogether; let them vomit frequently, and daily drink Liquors impregnated with Wormwood. Let them also be purged at certain times; and live upon Food which can neither create Surfeits, nor generate Crudities. Let them also use such Substances as provoke Urine, daily eating well-boil'd Parsnips, Fennel, Pennyroyal, and Calamint; and, among Sea Substances, the Strombus, (*a kind of Shell-fish*) the Lobster, and the Crab. Let them also drink, for many Days, a Decoction of Eryngo-roots, and also of Dittany. The Water they drink should be of the purest Kind, and strained: Their Wine should be small and white, so that it may provoke Urine. They should use moderate Exercise, and Frictions in a Bath, impregnated with calcin'd Nitre, calcin'd Dregs of Wine, and Pumice-stone." *Trallian* is also very full and circumstantial, as to the Regimen of Nephritic Patients: See his Sentiments above.

The celebrated Secret of *Zecchius*, recorded in his Consultations, was undoubtedly borrow'd from *Trallian*, since it consists only of about a Pint of warm Water, drank before Dinner. And *Carolus Piso*, many Years before the Days of *Zecchius*, recommended warm Water, affirming, that after the first Stone was discharged, none would ever after be form'd, if the Use of warm Water was persisted in.

CAUTIONS and PRACTICAL OBSERVATIONS.

But as in the Cure, as well as the Prevention, of this Disorder, the chief Business of the Physician consists in adjusting his Medicines to different Constitutions, Ages, and Temperaments, and accommodating them to the particular Functions injured, and the several concurring Causes of the Disorder, I shall subjoin some Cautions and Observations, which will be found to be not only useful, but necessary in Practice. First of all, then, we are diligently and carefully to consider, that the Medicines used in the Cure of this Disorder are not equally fit and proper for all Constitutions; nor do they always produce the same Effect, or afford the same Relief, on account of the different and mutable State of the Fluids, and the peculiar Texture of the Solids depending upon that Difference, which is, by the *Greeks*, call'd *Idiosyncrasia*. For this Reason Medicines should sometimes be varied; since, in Process of Time, Nature becomes so habituated to one Medicine, that it often ceases to produce the same Effect it formerly did.

It has often happen'd, that Nature herself, without the Concurrence of Medicines, has unexpectedly discharged the Stone: Something analogous to this happens in Child-birth, when, in some Cases, Medicines are of no manner of Efficacy, till Nature herself come in to their Assistance: Hence it sometimes happens, that Quacks, with their insignificant Medicines, have acquired the Reputation of performing a Cure which was wrought by Nature herself. The Physician ought therefore to advert to this, that Nature alone often puts a Period to these violent Spasms, Pains, and Commotions; which is not to be ascribed to the Force of Imagination, since it may be accounted for from real physical Causes; for the great Art of Physic consists in making a due Estimate, with regard to the precise and lucky Moment in which Nature begins to act, and exert her Force for the Relief of the Patient: Hence it is sometimes advisable, especially when Medicines have for some time been exhibited without Success, to desist from their Use, that Nature may be allow'd to take her own Measures, since she often spontaneously, and unexpectedly, produces more happy Effects than the Physician can possibly do, by disturbing her Operations with his forcing and stimulating Preparations.

Tho' the more acrid and vehement Diuretics, and Provokers of Urine, such as the Preparations of Turpentine, Juniper, Amber, Garlick, Onions, and Parsley, are neither useful in preserving from the Stone in plethoric Patients, nor of any Service in a Nephritic Paroxysm, whether simple, or produced by Stones, but render the Disorder worse, and heighten the Symptoms; yet the prudent and cautious Use of them is not altogether to be condemn'd and laid aside; since in coarse, robust, moist, and sluggish Constitutions, especially when exhibited with a preservative Intention, they produce happy Effects, not only by strengthening the Tone of the renal Vessels, but also by discharging thro' the Kidneys a large Quantity of impure tartarous Serum.

As seasonable, moderate, and dry Gestation, or Motion, is highly assistant to Nature in protruding the Stones, and may be properly used after well-chosen Propellents, especially diluting Liquors, such as hot and cold Medicinal Waters, and Whey,

which, by their Weight, act so powerfully as to remove the Stone from its fix'd Seat; so it has been observed, that unseasonable Gestation, or Riding, has proved prejudicial to many, since, by removing the Stone from the Place in which it created no Uneasiness to the Patient, and altering its Position, so that its rough and pointed Surface more strongly irritated the delicate nervous Coats, Spasms so violent and terrible have been excited as sometimes to prove mortal.

There perhaps is not a better or a more efficacious Method of preserving from the Stone than seasonable Venesection, especially in Cases where the Body is naturally disposed to discharge too large a Quantity of Blood. This Remedy is, in some Cases, also highly proper in the Paroxysm itself; when, for Instance, a Plethora and quick Pulse are attended with an intense Heat, and a preternatural Thirst; for such is the Nature of intense Pain, that, in consequence of the violent Spasms it excites, the free Circulation of the Blood thro' the Veins is retarded, and impetuously carried in large Quantities to improper Parts: Hence arise Epilepsies, Convulsions, Deliriums, Apoplexies of the sanguine Kind, Discharges of bloody Urine, inflammatory Fevers, and other Disorders, of which we have too frequent Instances; all which might be prevented by a due and seasonable Venesection.

When Pains, arising from the Stone, happen in scorbutic Constitutions, in such as abound with impure and recrementitious Humours, or in those who are subject to a chronical purple Eruption, and when, under the very Nephritic Paroxysm, a scorbutic Impurity exerts its Force, various and highly dangerous Symptoms appear, which require the highest Skill and Caution in the Physician; nor, in this Case, can any thing be so properly prescribed as diluting and Pain-allwaging Liquors, such as Whey, either acidulated or sweet. The Patient must also abstain from every kind of Malt-liquor, and Wine of all Sorts; but I have observed, that, in such Cases, Whey moderately warm, and gentle Diaphoretics, were of singular Service.

However instantaneous Relief Baths may afford, or however necessary they may appear, yet they are by no means to be used in plethoric, full, and fat Constitutions, where there is at the same time a Difficulty of Breathing. Before Baths can, in this Case, become proper, the Plethora is to be removed, the Belly render'd soluble, and the Violence of the Pain mitigated.

Nephritic Pains are often accompanied with a convulsive Colic, arising from the Hemorrhoids: The prudent Physician must be at the Pains to distinguish all these Circumstances, and proceed cautiously, both in pronouncing the Fate of the Patient, and in the Cure of his Disease. But what demands our particular Care and Attention, is the racking and intolerable Pain of the Intestines, which must be mitigated or removed by Venesection, the Application of Leeches, or by rendering the Body soluble by means of proper Clysters. It often happens, that when the Stone is thrust, by one continued and violent Impetus, thro' the Ureters, an intolerable Pain, accompanied with Loss of Strength, is excited in the whole Region of the Back and Abdomen; but the Pain immediately ceases when the Stone falls into the Bladder.

When the Pain has continued for a long time, and the Patient has lost his Strength; when old People are afflicted with this Disorder; or when it is brought on by Grief, and a Weakness of the Pulse is observed, that Opium is to be shun'd like so much Poison, and none more carefully than the *Pilula de Cynoglossa*, is confirmed both by Reason and Experience. In these Cases it is better, and more advisable, to recruit and reinforce Nature by analeptic and moderately spirituous Waters, such as those of Mint, Baum, Lilies of the Valley, or of Cinnamon, without Wine; adding a Grain or two of Ambergris, and of the Extract of Saffron: Wine may also be used, in Moderation, for the same Purpose. Externally also the weaken'd Tone of the Intestines must be restored, as much as is possible, by spirituous and balsamic Liniments.

Among the hot and mineral Waters, none, by reason of the calcarious Earth with which they abound, more powerfully resolve and dislodge the tartarous Matter which is the Cause of this Disorder, than the *Caroline Springs*; which, at the same time, must be used very cautiously and circumspectly. After the internal Use of these for a Month's time, I have seen above five hundred small smooth Stones, as large as Vetches or Lentils, discharged: But, after an Accident of this Nature, consolidating and gently-balsamic Medicines are absolutely necessary, in order to unite and incarn the Cavities left in the Kidneys, in consequence of the small Stones being dislodged. But I know, from numberless Instances, that the safest, both for Preservation and Cure, is the *Selteran Spring*; which, besides the Purity of its Waters, contains an alkaline Salt, and is superior to all other Medicines in the Cure of Wounds, and Imperfections of the Bladder. In Cases also where the Humours are fraught with a scorbutic Impurity, and the Parts at the same time are exulcerated, the Waters of the same Fountain, mix'd with Milk, and used for a sufficient time, are very proper.

BOERHAAVE.

BOERHAAVE's Method of Cure of a Stone in the KIDNEYS or URETHERS.

In order to the Cure of a Stone in the Kidneys, the Physician's Views must be directed to diminish the Stone; to procure its Expulsion; or, at least, to bring it into a Part, where it may reside, without giving exquisite Pain, as into the Bladder.

This is principally done by a moist, mild, thin, and moderately salt Diet; by drinking Liquors of an aqueous Nature, or Fluids of the like Kind; and by the vital Powers.

The Vegetables which Boerhaave recommends in this Case, and which he advises to be taken plentifully, boil'd in Broth, are these, and others possess'd of the same saponaceous Virtues.

Borage,	The Roots of Turneps,
Chervil,	————— Skerrets,
Gum Succory,	Sow-thistle,
Lettuce,	Vipers-grass,
Parley,	Dandelion,
The Roots of Carrots,	Yellow Goats-beard.

Amongst Liquors, Whey, Milk, and Buttermilk, of Animals fed on fresh Grass only, are principally recommended.

The Use of these is excellent, provided it be persisted in till a Diarrhea is brought on, which must be continued for some time, though it should reduce the Patient to a considerable Degree of Weakness; for this Method has frequently been known to cure inveterate Disorders of this Kind.

Boerhaave somewhere observes, that Oxen, Stall-fed, and kill'd in Winter, have usually stony Concretions found in their Livers, Gall-bladder, and biliary Ducts; and that in Cattle kill'd immediately after a Summer's Grass, these Concretions are seldom or never found. And hence he draws an Argument for the Efficacy of the young saponaceous Vegetables.

Experience, the Touchstone of Medicinal Applications, does not want the Confirmation of Reason. But it is entertaining, at least, to examine into the Reason of Appearances, when attended with any Degree of Abstruseness. It may not, therefore, be amiss to examine, why the saponaceous Spring Vegetables dissolve stony Concretions in the Body. I have in many Places remark'd, that some *Menstruum* is necessary to dissolve a Portion of the Earth, in order to render it small enough to enter the Pores of the Roots of Vegetables. It is not our present Business to consider what this *Menstruum* may be, having already discuss'd this Subject under the Articles *ACETUM*, and *BOTANY*. But whatever it be, we may reasonably suppose a Portion of it to reside in the Juices of the Spring saponaceous Vegetables, not so much alter'd in its Circulation through them, as to divest it of a Power of dissolving earthy Concretions, when taken into the Body, and assisted by the vital Forces. And as the Milk also of Animals, whose Food is Grass only, and Water, is, in a great measure, immediately produced from these vegetable Juices, may not Milk, Whey, and Buttermilk, be in some measure endu'd with a dissolving Power?

Another Method of bringing about the Expulsion of the Stone is, to relax the Parts by Baths, Clysters, and relaxing Liniments; to lubricate the Passages by moist, emollient, mild, and oily Medicines; to remove the spasmodic Stricture of the Fibres by Opiates and Anodynes; to propel the Stone cautiously by Diuretics, and moderate Motion.

In these Views the subsequent Forms are recommended by Boerhaave.

Take of the Leaves of Mallows, Marshmallows, yellow Mallows, Mercury, Pellitory of the Wall, Brank-urline, and Orache, each four Handfuls: Boil in a sufficient Quantity of Water for a Bath, to reach as far as the Loins.

Clysters of the same Decoction are to be injected, and large Quantities of the same are to be perpetually drank; for all these contribute to relax, open, mollify, and expel.

An oily Lubricating Decoction.

Take thirty sweet Almonds; twenty Pistachio Nut-kernels; Poppy-seeds bruised, three Ounces: Let the Almonds and Pistachio Nuts be blanch'd, and then bruised with the Poppy-seeds; after which let them boil in a sufficient Quantity of common Water for half an Hour; then let them be strongly beat together for some time; and afterwards add of Venice-soap, four Ounces; Liquorice, two Ounces. Let all boil together a little, and strain off the Decoction, which must amount to three Pints. Let the Patient drink half a Pint of this four times a Day, upon an empty Stomach; and afterwards let him walk gently a little time.

An aperient Anodyne Opiate.

Take of Syrup of the Five opening Roots, an Ounce and an half; of solid Laudanum, two Grains; of purify'd Nitre,

twenty Grains; of distill'd Parsley-water, six Ounces: Mix together. Let the Patient take half an Ounce every Hour.

A propellent Diuretic Decoction.

Take of red Chiches contus'd, two Ounces; Parsley-seeds, an Ounce; Roots of Quich-grass, and of Parsley, each four Ounces; Leaves of Agrimony, Golden-rod, Male Speedwell, each half an Handful; Liquorice, an Ounce: Boil for half an Hour, with a sufficient Quantity of Water for three Pints of strain'd Liquor; to which add of Nitre, two Drams. Let the Patient drink two Ounces every Hour.

Thirdly, Regard must be had to the Symptoms. Thus, if there is an Inflammation, it must be remov'd, or at least moderated, by Bleeding, relaxing Remedies, and the other Methods specify'd under the Article *INFLAMMATIO*. The Pain must be mitigated by anodyne Emulsions; and the Asperities of the Stone must be guarded by oleous, saponaceous, and glutinous Remedies.

Boerhaave is of Opinion, that no Dependence is to be had on Lithontriptic Medicines.

Whilst the Stone is falling from the Pelvis of the Kidney thro' the Ureter to the Bladder, the above-specify'd Method and Medicines are proper; particularly Bleeding, Clysters, and Fomentations. Boerhaave *App*.

I must farther remark, that few Fits of the Stone occur, without inducing an absolute Necessity for Bleeding immediately, which generally gives great Relief.

Laxative and emollient Clysters, in which Turpentine is an Ingredient, are highly necessary; and these are to be repeated, or not, according to the State and Constitution of the Patient, and the Effects of the first; which the Physician, who inquires into these Circumstances, can only judge of rightly.

Next to these are lenitive Purges, prepared, for Example, of Manna dissolv'd, and quickened with some of the Cathartic Salts, and whatever else the Physician shall think adapted to the Case.

Opiates, also, are highly necessary, in order to take off the spasmodic Contraction of the Parts where the Stone resides, and to alleviate the Pain; but I think they should seldom or never be administer'd, without the above-mentioned previous Evacuations. Amongst Opiates *Matthew's Pill* is generally most esteemed in these Cases, on account of the Soap of Tartar, and other opening Ingredients. The usual Dose is betwixt six and ten Grains. But the Dose, and Times of Exhibition and Repetition, can only be determined by the attending Physician.

As it may be agreeable to gouty People afflicted with the Stone, to know how Dr. Sydenham, perhaps the best practical Physician that any Age has produced since *Hippocrates*, treated himself under this Circumstances a Part of his Method is specify'd under the Article *ARTHRITIS*; the rest is contain'd in the following Dissertation.

Though it may seem to argue Indiscretion to publish an Observation which I have experienced in myself alone, yet it is hop'd no equitable Person will be displeas'd with me, who have suffer'd so long, and so much, from bloody Urine, from a Stone in the Kidneys, for being moved to compassionate those who labour under the same Disease, and to communicate those Remedies which have given me Relief, though they may, perhaps, seem common, and not worthy of Notice.

In the Year 1660, I had the longest and severest Fit of the Gout I ever had in my Life, so that I was constrained for two Months in the Summer Season to lie always in or upon a soft Bed; whence, towards the Close of the Fit, I began to feel a dull heavy Pain, especially in the Left Kidney; and sometimes, though very seldom, in the Right. And after the Gout went off, the Pain in the Kidneys remain'd, and attack'd me at Intervals, which, though it was not very sharp, made me fear the Stone; for I had hitherto escap'd those Fits which are attended with severe Pain along the Ureters, and violent Vomiting. But though these Signs of the Stone in the Kidney appear'd not hitherto, yet I had Reason to believe I had a large Stone in one of them, being too big to pass into the Ureters, occasioned the above-mentioned Symptoms. And several Years afterwards I found I was not mistaken; for having walk'd considerably, and for a long time, in the Winter Season, in 1676, soon after the breaking of a severe Frost, I made a bloody Urine directly, and constantly did so whenever I walk'd much, or was carried in a Coach over the Stones, though the Horses went slowly; but this Symptom did not seize me when I travell'd in a Coach in unpav'd Roads, how long a Journey soever I made.

The Urine I voided on these Occasions, though it look'd very bad at the time of making, so as to resemble Blood, yet soon after it became clear at the Top, like natural Urine, the Blood falling to the Bottom by itself in Clots. To relieve this Disorder, I had a large Quantity of Blood taken from my Arm;

and, after taking some Purges, had recourse to several Sorts of cooling, incrassating Remedies, along with a proper Regimen, and carefully forbore all sharp, pungent, and attenuating Liquors. But having received no Benefit from these, and many other Remedies, which it would take up too much Time to enumerate, and fearing to drive the Stone forwards by Steel-waters, as suspecting it was too large to be expel'd thereby, I at length lost all Hopes of relieving myself by this Way, especially having found, that some of my Acquaintance hastened their Death by fruitlessly endeavouring to cure this Complaint by such Medicines; for which Reason I resolv'd to desist from all farther Trials, unless by way of Prevention, by avoiding all Motion of the Body as much as I could.

But happening afterwards to recollect the great Commendations which some Persons have bestow'd on the Seed of the Ash-tree, for its Stone-dissolving or Stone-breaking Virtue, I imagin'd, that if the Seed had so much Virtue, the Manna thereof might probably have more. For the Manna which comes to us, according to Mr. Ray, and other earlier Writers, is neither an aereal Honey, nor a certain heavenly Dew, but rather a Liquor ousing from the Leaves, Branches, or Trunk of the *Calabrian* Ash-tree; of the Truth of which Mr. Ray was farther satisfied, whilst he was on his Travels to *Italy*, by a Physician, who frequently gathered Manna from the Branches and Leaves of these Trees, first closely covered with Linen. Accordingly, to make the Trial, I dissolved two Ounces and an half of Manna in a Quart of Whey, and drank it; and took a little Lemon-juice between whiles, as well to make it operate more speedily, it being ordinarily a slow Purgative, as to render it more agreeable to the Stomach. It is hard to express the Ease I perceiv'd in the Region of the Kidneys, from this Medicine; for though the Pain was not continual before, yet I felt a troublesome Weight. Encourag'd by this Success, I took this Purgative every Week, on a set Day, for some Months, and found a manifest Amendment after every Purge; till at length I could bear more shaking in a Coach; and indeed continued free from this Symptom till last Spring, at the Beginning of which it return'd, occasioned by my having had the Gout severely all the preceding Winter, and my Inability to Motion, whence I was constrained to abate of my ordinary Exercise. And now I doubted whether I should have recourse to Purging again, as finding that the mildest Purge certainly occasioned a Fit of the Gout, because the whole Substance of my Body, in these latter Years, had, in a manner, degenerated into Nourishment for this Distemper. But at length I recollected, that I might safely resume my former Method of taking Manna once a Week, provided I took an Opiate in the Evening, after the Operation, to quiet the Tumult rais'd by the Purgative. Accordingly, in the Morning, I drank two Ounces and an half of Manna dissolved in a Quart of Whey; and at Night took sixteen Drops of liquid Laudanum in Small-beer; and repeated the Manna and Laudanum in this manner twice a Week, for three Weeks. But afterwards I took the Manna only once a Week, because it discharged such Plenty of foul Humours, as to leave little Fear of the Gout. And Reason intimating, that if Manna was possess'd of any Stone-dissolving or Stone-breaking Virtue, its Efficacy, on which I depended, must needs be lessened, in some measure, by so powerful an Astringent as Laudanum is, I thought it best to omit taking the Opiate, as I only purged once a Week.

I have continued this Method for some Months, always purging on the same Day of the Week, and would not upon any Account be persuaded to break it. But though the Pain of my Back abated as formerly, upon taking the first Purge, yet soon after repeated Purging brought on some Symptoms of the Gout, and sometimes affected the Limbs, and sometimes the Bowels; but Laudanum effectually check'd these Motions of the Distemper. This Method, however, having hitherto been successful, I judg'd it proper to continue it, both to prevent the Return of the bloody Urine, and to carry off a Part of the Matter which forms the Stone. And, in the End, it answer'd my Expectation, having never had this Symptom since my first Publication of this Treatise, and therefore I left off the Manna entirely.

With respect to Purging, therefore, in case of bloody Urine, and provided only Manna be used according to the Method above delivered, I must retract an Assertion I formerly publish'd in my Treatise on the Gout, which is, that it is absolutely improper to purge gouty Persons, either at the Beginning, Declension, or in the Intervals of the Fits. For I did not then recollect, that the Fit, which I fear'd might be occasioned by the Purgative, might be prevented by giving an Opiate at Night. Nevertheless, if the Gout only be attended to, all manner of Evacuations are very pernicious therein, and therefore not to be us'd, unless the above-mentioned Symptom requires them.

To these Observations I will add a few Particulars relating to the Regimen and Diet, which should seem proper in both these Distempers; for I would not omit mentioning any thing that may be serviceable to Persons in my Condition. In the Morn-

ing, after I rise, I drink a Dish or two of Tea; then I go out in my Coach till Noon; and, at my Return home, dine moderately upon any kind of Meat I like, that is easy of Digestion; for Moderation is principally necessary. I drink a little more than a Quarter of a Pint of Canary immediately after Dinner every Day, to promote Digestion, and drive the Gout from my Bowels. In the Afternoon I go out again in my Coach, and, when Business permits, take a Turn into the Country, two or three Miles, for good Air. A Draught of small Beer serves me instead of a Supper; and I drink another Draught after I am in Bed, and about to compose myself to Sleep, in order to dilute and cool the hot and acrid Humours lodg'd in the Kidneys, which breed the Stone. I always prefer small Beer brew'd with Hops, to that which has none; because, tho' unhopp'd small Beer is smoother and softer, and so better suited to bring away the Stone from the Kidneys, yet that which is brew'd with Hops, on account of the Stypticity it receives from the Hops, is less subject to breed Gravel and calculous Matter, than that which has none, as being more viscid and slimy. On my purging Day I dine upon a Chicken, and, notwithstanding, drink my Canary as usual. I go to Bed early, especially in the Winter Season; this being one of the best Helps for promoting Digestion, and preserving the proper Order of Nature; whereas, on the contrary, sitting up late weakens all the digestive Faculties in aged Persons afflicted with any Chronic Disease, and injures their vital Principle to a Degree not to be easily remedy'd. And, to prevent bloody Urine from the Stone, whenever I am oblig'd to go very far in my Coach upon the Stones, (for the longest Journey in unpav'd Roads does me not the least Hurt) I always drink a large Draught of small Beer before I set out, and another in the Way, if I am abroad a considerable time; by which means I secure myself pretty well from bloody Urine.

Lastly, we are to take Notice of the great Danger which some Persons, who have the Gout and Stone, run, by unadvisedly taking Manna dissolv'd in the purging Mineral Waters; for, tho' being taken this way, it works quicker, and sits easier on the Stomach, yet these inconsiderable Advantages are no Equivalent for the Mischief otherwise occasion'd by the Waters. For if the Stone in the Kidneys be too large to be forc'd thro' the Ureters into the Bladder, these Waters generally occasion a Fit, which continues, not without endangering the Life of the Patient, till the Stone gets back again into the Pelvis. Steel Waters likewise are unsafe, unless it be certainly known beforehand, that the Stone is small enough either to slip, or force its Way, thro' the Ureters; which, to the best of my Judgment, can only be learn'd with Certainty from hence; viz. if the Patient hath already had a Fit of the Stone, (which consists in a very sharp Pain in one of the Kidneys, extending thro' the whole Duct of the Ureters, and accompany'd with violent Vomiting) he may be assur'd, that the Pelvis, instead of having a large Stone in it, rather contains a Number of small Stones, one of which will fall occasionally into the Ureters, and cause a Fit, which generally lasts till it is forc'd into the Bladder. In this Case, I say, there is no better Remedy, either to prevent the Increase of small Stones, or to expel them from the Kidneys, than drinking Steel-waters plentifully every Summer.

But, as Persons may often be seiz'd with a Fit of the Stone, when these Waters are either not procurable, or at an improper Season for drinking them, they are to be treated according to the following short Method. The Patient being sanguine, and not aged, take ten Ounces of Blood away from the Arm of the pain'd Side; then let a Gallon of Posset-drink, in which two Ounces of the Roots of Marshmallows have been boil'd, be drank with the utmost Expedition, and the following Clyster injected.

Take of the Roots of Marshmallows, and the white Lily, each an Ounce; the Leaves of Mallows, Pellitory of the Wall, Bear's-breech, and Chamomile-flowers, each an Handful; the Seeds of Flax and Fenugreek, each half an Ounce: Boil them together in a sufficient Quantity of Water to a Pint and a half; in the strain'd Liquor dissolve brown Sugar, and Syrup of Marshmallows, each two Ounces: Mix the Whole for a Clyster.

When the Patient has thrown up the Posset-drink, and the Clyster has done working, give a sufficient large Dose of liquid Laudanum, for Instance, twenty-five Drops, or fifteen or sixteen Grains of *Matthew's* Pill. But Bleeding is not to be us'd in aged Persons, worn out by some inveterate chronic Disease, and ancient Women, subject to the Vapours, especially if they void black gravelly Urine at the Beginning of the Fit. Nevertheless, in other respects, this Method must be closely follow'd.

But, to return to the Stone, supposing it a large one, which is our present Subject: If the Patient hath never had a Fit, on account of the Stone's being too large to quit the Pelvis, Steel-waters will not only do no Service, but cannot be us'd without immediate Danger, for the Reasons above-mention'd. Nor do Mineral Waters succeed better in gouty Persons, if they be advanc'd in Years, as such mostly are, and withal of a weak and phlegmatic

phlegmatic Constitution; the Strength of Nature being sometimes impair'd to that Degree in such Subjects, as to give great Reason to apprehend the total Loss thereof from such a Quantity of Water. But whether the ill Consequences, happening to Persons of this Constitution, proceed from this, or some other Cause, I am thoroughly persuaded, that abundance of Persons, who have been extremely debilitated, and in a manner worn out by this Distemper, have been destroy'd by these Waters. *Sydenham.*

The Stone in the BLADDER.

From ARETÆUS.

No Disease affecting the Bladder is of a gentle Nature; for, as to acute Disorders of that Part, such as Inflammations, Wounds, Convulsions, and acute Fevers, they are all mortal; and an Ulcer, an Abscess, the Palsy, or a large Stone in the same, are incurable. The Stone is not to be dissolv'd by any Potion, or lithontriptic Medicine, nor taken out by cutting, with any Safety; for the fine Membranes of the Bladder must, at the same time, be cut, which Operation kills the Patient on the same Day, or carries him off in a few Days with Convulsions and a Fever. If the Stone be not cut out, an Ischury, Pain, Fever, and Colliquations, destroy the Patient; or, if it be of no considerable Bigness, the Suppression of Urine is the more obstinate, because it the more easily falls into the Neck of the Bladder, and intercepts the Passage of the Urine; and tho' such a Stone may be extracted with less Danger than a larger, it is necessary to cut the Bladder, the Consequence of which, if not Death, is a continual Efflux of the Urine, which, tho' no dangerous Disorder, is yet insupportable to a free Person, who knows not how to live under a perpetual Dribbling, which molests him whether he sleeps or wakes, and is very troublesome in walking; but a Multitude of small Stones may be cut out with Safety.

If a Stone grows to the Bladder, it manifests itself by the Uneasiness, and sometimes Pain, which it excites, and a Weight which is felt, tho' not accompany'd with a Dysury; but if it does not adhere to the Bladder, there is also a Dysury. All Stones may be known by the sandy Sediment in the Urine; the Pudenda also project. The Patients void their Urine with Pain, by reason of the Obstruction from the Stone, and handle and attract the Pudendum, as if they would pull out the Stone and the Bladder together; the Anus suffers by Consent, being affected with an Itching. The Intestinum Rectum is protruded by the violent Efforts of the Patient, who imagines himself on the point of voiding the Stone; for there is so near a Vicinity between the Bladder and the Anus, that they mutually affect each other; wherefore, in an Inflammation of the Anus, the Bladder labours under a Suppression of Urine; and, in Diseases of the Bladder, the Anus will discharge nothing, tho' the Belly be not costive. *Aretæus, περί δι. & σπ. χρο. παθ. Lib. 2. Cap. 4.*

From ALEXANDER TRALLIANUS.

The Stone in the Bladder afflicts the Patient by Fits at certain Times, after the same manner as the Stone in the Kidneys; but the former is more frequent in Children than adult Persons, and does not owe its Rise to so great a Heat, but rather to a grosser Matter, proper for the Generation of Stones, which readily forms Concretions, by means of the natural Heat. Our main Intention, therefore, must be to correct the Grossness of this Matter by Attenuants, and to prevent any considerable Collection of it, which is promoted by nothing so much as an inordinate Voracity, and stirring of the Body after eating.

The Signs of the Stone in the Bladder are, a crude and whitish Urine, with a sandy kind of Sediment, resembling Scurf. Besides, the Patients are very subject to scratch the Pudenda, and violently and frequently to distend them; and that most of all, when they have occasion to make Water. *Alexander Trallianus, L. 9. C. 7.*

From LOMMIUS.

The Pain which proceeds from the Stone in the Bladder is most afflicting, because it lasts a long time, and makes frequent Returns at certain Intervals. While it holds the Patient, there is an extraordinary Sensation of a Weight, if the Stone be large, and especially when the Body is mov'd, or a sort of Titillation about the Pubes and Perinæum. There is a Difficulty of Urine, with a continual Desire of making Water, and a kind of Strangury, so that the Urine seems hardly possible to be restrain'd, and yet, as soon as it begins to flow, is on a sudden quite intercepted; and thus is the Evacuation perform'd with continual Interruptions. During this time a Pain is felt throughout the Duct of the Penis, but oftentimes seizes only the Glans, and is most tormenting when the Patient has just made an End of making Water; at which Time he has also a Desire of going to Stool. From some the Urine comes off more freely when they stand upright, than when they lie upon their Back, if the Stone be large. Others evacuate bending forward, and endea-

vour to ease their Pain by handling and extending the Pudendum. Women often rub the external Parts of the Pudenda with their Hands, and, by applying a Finger to the Neck of the Bladder, now-and-then feel the Stone. Many Patients, in the midst of their Pains, cross their Feet one over another by turns. The Urine which comes off is white, thick, and turbid, with a purulent or mucous Sediment; sometimes Blood, or a bloody concreted Matter, is discharged with it. This Disease is more incident to Children than adult Persons, to Men than Women. The Stone of the Bladder is whiter, larger, and harder, than that of the Kidneys: A lesser Stone more easily slides into the Neck of the Bladder, and more pertinaciously retains the Urine, than a larger; for the latter, by a proper Position of the Body, or by introducing an Instrument, may, with no great Difficulty, be remov'd from the fore-mention'd Part. *Commius, Med. Obs.*

From BOERHAAVE.

We may know, that a Stone is got into the Bladder, by a Cessation of the Signs of a Stone passing from the Kidney to the Bladder thro' the Ureter; and by its Effects, when in that Organ; which are, Inflammation, with all its Symptoms; Pressure upon, and Fretting of the internal Membrane; Ulcerations; purulent Urine; Strangury; entire Obstruction of the Urethra, inasmuch that the Patient cannot discharge his Water, unless in a supine Posture; a hectic Fever, and Consumption; a Pain is felt before, during, and after the Discharge of Urine, which does not come away in a full Stream, but, as it were, dribbling, and with many Interruptions; and which is white, and deposits a mucous, thick, heavy Sediment, in considerable Quantities; an uneasy Itching is felt in the Glans of the Penis; and the Discharge of Urine is attended with a *Tenesmus*. But the most certain Method of discovering a Stone in the Bladder is by searching; for the Method of doing which, see LITHOTOMIA.

The CURE. From ARETÆUS.

If the Suppression of Urine be caus'd by the Stopping of its Passage by Stones, they must be remov'd by the Instrument call'd the *Catheter*, that a Passage may be open'd for the Urine to run off, unless there be an Inflammation, in which Case the Passage will not admit an Instrument, and, besides, is subject to be wounded by the Catheter. But if this Method be impracticable, and the Pain insupportable to the Patient, we must have recourse to cutting the *Trichas*, (*τρίχας*, some read *πληχάδα*, which, according to *Ruffus*, is the Place between the Scrotum, the Neck of the Bladder, and the Thigh) and the Neck of the Bladder, that the Stones may fall out, and so the Urine be evacuated. This done, the Wound must be cicatrized, if it can be done; if not, it is, however, better for the Patient to be troubled with a running Sore all his Life, than to be suffer'd miserably to expire with Extremity of Pain. *Aretæus, περί βεζαν. δι. παθ. Lib. 2. Cap. 9.*

From ALEXANDER TRALLIANUS.

As for Medicines, the Blood of a Goat, rub'd warm upon the Part, is of excellent Service; but a better way is, to apply the Blood of a He-goat upon the Bladder; tho' the Method which is by far the most convenient and effectual, is, to rub the Parts with it in the warm Air of the Bath, and to bind it thereon; and this must be done not only once, but often, and at Intervals. *Trallian. Lib. 9. Cap. 7.*

From BOERHAAVE.

As soon as we have reason to believe, that a Stone is pass'd thro' the Ureters into the Bladder, we must use our utmost Endeavours to procure its Expulsion by the Urethra; otherwise it will increase in Bulk, and become more troublesome. This is done by the same Methods and Medicines that are recommended above for a Stone in the Kidneys and urinary Ducts, except that the Topics are to be apply'd to the Region of the Bladder; to which add Baths, and Clysters of Oil; Injections of Oil into the Urethra; and it will be of Service to rub the external Part of the Urethra with the same Oils.

If a Stone is fix'd in the Urethra, and will not move forwards, the Part is to be relax'd by Injections of Oils frequently repeated, and by the most emollient and relaxing Fomentations which can be contriv'd. The *Egyptians* have a Method of diffusing the Urethra by blowing into it, and then inviting the Stone forwards by Suction. It may also be pressed gently forwards, or brought out with an Instrument shap'd like an Ear-probe; or, if that will not do, the last Remedy is to cut the Urethra or Perinæum.

If the Stone sticks in the Neck of the Bladder, it may be put back by the Catheter. *Boerh. Aphor.*

The Method of extracting a STONE out of the URETHRA.

From HEISTER.

Sometimes, in Persons afflicted with the Stone and Gravel, a small Stone slips into the Urethra, or Passage of the Urine, and

and there sticks, where it excites not only violent Pains, but a great Difficulty of Urine, and sometimes a total Suppression of the same; in which Case the lamentable State of the Patient calls upon the Physician to use his best Endeavours to expel the Stone. There are various Parts of the Urethra in which the Stone may be seated: Sometimes it lies in the Beginning of the Urethra, behind the Scrotum, about the Perinæum, in the Neck or Sphincter of the Bladder; sometimes about the Middle of the urinary Duct, before the Scrotum, and sometimes not far from the End of the Urethra. Sometimes the Stone is lodg'd in a peculiar Expansion, or Bag of the Urethra; such a one is describ'd by *Le Dran, Obs. Chir. 79. Tom. 2.* and *Dionis*, in his Surgery, mentions some of the like Kind; and I myself, this present Year 1737. discover'd Stones in such a Bag before the Scrotum; and, what is seldom known, cut two out of one little Bag under the Urethra, which are represented (*Tab. 48. Fig. 16. and 17.*). In what Part the Stone is detain'd, may be judg'd partly from the Pain, and partly from Searches made with the Fingers or Instruments. The Cure may be attempted various Ways: Sometimes internal Medicines, which provoke Urine, and, at the same time, external ones, as Fomentations, Cataplasms, Bathing, Clysters, and the like, are administer'd, and continu'd for some time. If all these prove ineffectual, the next Attempt is to moisten and lubricate the Inside of the Urethra by Injections of Oil of Olives, or Oil of sweet Almonds, that the Passage being render'd slippery, the Stone may the more easily slide off; or the Patient is put into some emollient Bath, with the same View. Some bind the Penis behind the Stone, and then distend the Forepart of the Urethra by strong Inflation, in order to enlarge the Passage for the more easy Expulsion of the Stone. This Method of Cure is practis'd by the *Egyptians*, as we are assured, among other Authors, by *Prosper Alpinus* in his *Medicina Ægyptiorum, Lib. 3. Cap. 14.*

If the Stone cannot be expel'd by these Remedies, but the Difficulty of Urine is rather exasperated by them, it will be convenient to try some other powerful Remedy. First, then, if the Stone be detain'd in the Neck of the Bladder, it may be cut out by making a Section in the Perinæum, where it is perceiv'd by the Touch; but, because many are very much afraid of an Instrument which carries an Edge, the Stone may be push'd back into the Bladder by introducing the Catheter. However, since it is to be fear'd, that the Stone will increase in the Bladder, and, by that means, expose the Patient to far greater Danger, I should prefer Section. So, also, if the Stone should happen to stick too fast in this Place to be repel'd by the Catheter, and so reduce the Patient to Extremities, or if we do not think it advisable to repress it for the Reason aforesaid, it must be artfully extracted by the Section call'd the *Apparatus minor*, or *lesser Apparatus*, one or two Fingers being introduc'd into the Anus, in order to sustain the Stone; for oftentimes there is no other Way to save the Patient's Life. If the Stone be detain'd near the Glans, the best Method, after using the Remedies above propos'd, is, first to lubricate and relax the narrow Passage, by repeated Injections of Oil into the Urethra, and then, with the Fingers, to press the Stone forwards, or attempt its Extraction, especially in Boys, by Suction with the Mouth of some Woman, Nurse, or Assistant; for, by this means, all Wounds, Cicatrices, and Fistulas of the Urethra, are happily prevented. If the Stone sticks near the End of the Passage, it is to be taken with the Forceps, Hook, or some sort of Ear-probe, (see *Tab. 27. Fig. 14.*) and gently drawn forth. If this be impracticable, it will not be amiss to try the Instrument so much recommended by *Marini*, and describ'd by him (see *Tab. 50. Fig. 7.*). Of this Instrument the Part (A) is cautiously introduc'd into the Urethra, beyond the Stone, of which it takes hold; then the Operator takes the Part (B) in his Hand, and gently pulling, draws along the Stone, and extracts it. But if either an Inflammation, or the Bulk of the Stone, should, contrary to Expectation, render all these Methods ineffectual, we are directed by *Tulpius* and *Garengot* to make use of Section. And *Garengot*, in such a Case, immediately cuts the Extremity of the Glans with the Scissars, and then introducing a Probe, or Hook, into the Wound, extracts with it the Stone; after this he washes the Wound with Wine, and dresses it with Lint and some glutinous Balsam.

If none of the Methods before propos'd prove successful for extracting the Stone, as it often happens, when it is detain'd in the Middle of the Urethra, and there is Danger, lest the Difficulty of Urine, with the most intense Strainings to discharge it, and the tormenting Pains, should, in a short time, destroy the Patient, there is but one Remedy left, and that is, to make an Incision in that Part of the Penis where the Stone lodges, and, by that means, extract it. The Manner of Operation is thus: The Extremity of the Skin, as *Celsus* formerly advis'd, is very much drawn forwards; or, as others advise, retracted; and the Glans being by this means cover'd, or laid bare, the Penis is ty'd behind the Stone, in order to prevent the Stone from being forc'd back by the Hands of the Operator, when apply'd upon the Penis. The Operator then sets the Thumb of his Left Finger

against the Stone, in such a manner as to hinder it from giving way forwards, and, with his Right Hand, makes a strait Incision in the Side of the Penis; and then, with his Fingers, or some Instrument, as the Forceps, Probe, or Hook, pulls out the Stone. This done, the Skin is set loose, and the Wound, after being anointed with some proper vulnerary Balsam, is cover'd with a Plaister. By this Way of Management the sound Part of the Skin comes to cover the Incision in the Penis, the Urine flows the natural Way, and the Conglutination of the Wound is promoted. When a Wound requires to be made a little larger than ordinary, the best way is to introduce a Leaden Pipe into the Urethra beyond the Wound, and to keep it there for some time for the Reception and Emission of the Urine. For if this should be suffer'd to flow by the Wound, it is very much to be fear'd, that its Acrimony would excite sharp Pains, and an Inflammation, by which the Conglutination of the Wound would be considerably retarded, and a Fistula might be generated in the Urethra. But a very good way to preserve the Wound from the pernicious Effects of the Urine, is, to drink very sparingly for some Days before and after the Operation. As for making the Incision in the Side of the Penis, it is done for very good Reasons; for, if it were made in the under Part of the Penis, the Wound would be much more liable to be incommoded by the Urine; and to make an Incision in the upper Part would be very unadvised, because of cutting the cavernous Bodies of the Penis; whence an immoderate Hæmorrhage, besides other pernicious Consequences, might justly be fear'd. *Albucasis*, formerly a very celebrated Physician among the *Arabians*, shews a Way to break a Stone which sticks in the Urethra, by perforating it with a sort of Terebra, which he delineates; but if he happen'd to fail in this Attempt, he ty'd the Penis on both Sides near the Stone, to prevent its giving way on either Side, and then cut it out.

Thus we have explain'd the common Method of cutting the Urethra for extracting the Stone. We shall now give some Account of a new Way invented by *Thibaut*, formerly a very celebrated Surgeon of *Paris*, and describ'd by *Garengot*, which was this: He took the Penis in his Left Hand, and made an Incision on the Side; then, with the Knife, he separated the cavernous Body from the Urethra, in which he afterwards made a strait Incision in the Place where the Stone was lodg'd, which is commonly under the cavernous Body, and, extracting it with the Hook or Forceps, he anointed the Wound with some glutinous Balsam, and then applying Lint and Compresses, carefully bound up the Whole with a Fillet. By this Method, the entire Part of the cavernous Body is brought to cover the Incision in the Urethra; and the Lips of the Wound, as they assert, sooner unite, and come to a Coalescence.

When the Stones are lodg'd in a peculiar Bag, the best way, in my Opinion, is, to make an Incision in the Place where we can most conveniently (and that sideways) have Access to them; for thus, thro' a pretty large Wound, I extracted the Stones above-mention'd, which you see represented (*Tab. 48. Fig. 16, 17.*). The Cavity of the Bag I first treated with a Digestive, then with Corrosives, as red precipitate, Mercury, and sometimes cleansed it with Lapis Infernalis, and at last heal'd it with Balsam of *Copivi*, and little glutinating Plaisters. But Conglutination, in this Case, is sometimes very difficult, as appears from *Le Dran, Obs. 79.* where several ways of Healing were try'd to no Purpose. *Heister Chirurg.*

The Case refer'd to by *Heister*, in *Le Dran*, is very remarkable, and deserves Notice.

Towards the End of the Year 1722. a Lad, sixteen Years of Age, perceived a small Swelling in the *Perinæum*, but gave no Attention to it, as it was not painful.

Some time after, he went a Journey on Horseback, and the Pressure of the Saddle against the *Perinæum* forc'd a Stone out of it, of the Bigness of a Pea, which pass'd thro' the Skin and Urethra, both being worn out by the reciprocal Pressure of the Saddle and the Stone; and the Urine, distilling thro' this Aperture, form'd a Fistula.

Soon after, the Patient perceived a Swelling at the Bottom of the Scrotum, on the Left Side; and, finding it to increase daily, he shew'd it to a Surgeon of his Acquaintance, who look'd upon it as venereal, and propos'd a Salivation: He consented to this Proposal, and went thro' it without receiving the least Benefit. During this time the Fistula closed, and the Urine pass'd no longer that Way, which might perhaps happen from the daily Augmentation of the Volume of the Tumour.

The Occasion of this Augmentation was a fresh Stone, which, being stopp'd in that Place, and perpetually moisten'd by the Urine, was considerably increased. At length, in December 1725. the Patient straining to lift a great Weight, he felt a violent Pain in the *Perinæum*, and, putting his Hand to the Part, felt something hard which had pierced the Skin: He used his Endeavour to extract it with his Nails, but could not succeed; but, as the Stone was soft, he crush'd a Part of it in Pieces (whence we may judge what Situation it had kept during its Stay there). He was much incommoded by it for eight Days, not being able to sit without a violent Pain; and at length, in rising from his Seat,

Seat, perceived the whole Stone to come out. He came to *La Charité* the next Day, and gave me an Account of his Disposition, producing the Stone, which I preserve for the Rarity of the Case: It weighs an Ounce and fifteen Grains, is almost of a triangular Figure, two Inches and a half from one of the Angles to each of the other two; and two Inches from each Angle to the Sides subtending them, and three Quarters of an Inch thick.

It seems surprising, that an extraneous Body should lodge so long, without causing either Pain, or Difficulty in making Water. By examining the Stone you may discover the Reason: There is a Depression in it, on that Side next the *Os Pubis*, and probably the Urine flow'd freely by it.

Tho' the Lips of the Wound, thro' which the Stone pass'd, were approach'd, the Hole was still large enough to admit of my Finger. I felt a large Cavity where the Stone had lodged, which was formed by a Dilatation of the Urethra; and I imagined, at first, that the Stone, when it was small, came from the Urethra thro' the Hole by which the former had pass'd, and then had increased between the Urethra and the Skin; but my Finger undeceived me, and convinced me, that it had been grown in the Urethra itself; for, besides feeling the whole Circumference very smooth, as it grew narrow, it guided my Finger almost behind the Scrotum, where the Dilatation ended. The dilated Urethra was very thin in that Part where the Stone had lodged, and a Callosity was to be felt on both Sides, without any Sinus. This Circumstance proves, that the Urethra was not open'd, but when the Stone came out; for, if it had been open'd before, the Urine would undoubtedly have form'd Sinuses and Fistulas in several Parts of the Perinæum, and here we had none; from whence I infer, that the Callosities at the Side were occasion'd only by the Pressure of the Stone.

I had recourse to generous Remedies and Topics to dissolve them, such as emollient Cataplasms, applied to the *Perinæum*; and that the Urine, by passing that Way, might not wet the Flesh and the Dressings, and that it might not be lodged in the Cavity from whence the Stone proceeded, I introduced an *Algaly* into the Bladder, and there left it. After I had used the Cataplasms two or three Days, I substituted resolvent Plaisters in their stead, and put small Dossils into the Wound, cover'd with melted Diachylon, with the Gums, and the Mucilage-plaister. All the Hardness decreased in less than three Weeks; after which I used only Injections, with Barley-water, and vulnerary Water, every Day. But my Attempts were fruitless, for nothing could close the Urethra, and cicatrize the Fistula. *Le Dran*.

An *Algaly* is a sort of hollow Probe, or Catheter.

Dr. *Hale* has obliged the World with an Account of an Instrument of his own Invention, for extracting a Stone out of the Urethra.

While I was, says he, intent upon these Experiments on the Calculus, it occur'd to my Thoughts, that large Gravel-stones, which often stick for several Days in the Urethra, to the great Torment of the Patients, and which they cannot sometimes be delivered from without cutting them out, might be drawn out by the following Instrument.

I cut off the lower End of a strait Catheter, which made it a proper Canula for a Stillet or Forceps to pass thro'; the lower End of the Forceps was divided into two Springs, like Tweezers, whose Ends were turn'd a little inwards: These Springs were made of such a Degree of Tenderness and Pliancy, as not to bear too hard against the Sides of the Urethra, by their Dilatation.

When this Instrument is used, the Springs are drawn up within the Canula; which being pass'd into the Urethra, as far as to the Stone, the Canula must then be drawn back, so far as to give room for the Forceps to dilate; which dilated Forceps being then thrust down a little farther, so as to embrace the Stone, then the Canula must again be slid down, to make the Forceps take fast Hold of the Stone, so as to draw it out.

I sent this Instrument to Mr. *Ranby* to have his Opinion of it, who tells me, That, upon repeated Trials, he found it extracts these Stones with great Ease and Readiness; and that it is so well approved of by other Surgeons, that many of them make use of it.

This strait Instrument will, therefore, serve to extract such Stones as are lodged, after they have pass'd the Turning at the *Os Pubis*; and I am informed, that they are aptest to lodge in those Parts of the Urethra which are within the Reach of this strait Instrument: But if it should lodge a little beyond the Turn at the *Os Pubis*, it might probably be practicable to extract them thence by bending this Instrument, as the common Catheters are bent: If the Stillet were Silver, it would bend the more easily.

Mr. *Ranby* is of Opinion, that this Instrument may be farther useful, in case of a Stricture or Contraction of any Part of the Urethra, viz. by thrusting the Forceps into that Stricture, where, by continuing some time, the constant Tendency of the Springs to dilate will widen the Stricture. *Hale's Vegetable Statics*, Vol. 2.

If the Stone of the Bladder is too large to pass thro' the Duét of the Urethra, the only Remedy is Lithotomy. *Boerhaave* has the best Opinion of the greater Apparatus, as being most certain; the Event, however, is always uncertain, on account of many Accidents, which can neither be foreseen, prevented, nor remedy'd.

In Women the Stone is generally taken away by dilating the Urethra, and seldom by Cutting. See LITHOTOMIA.

I do not know why *Boerhaave* has omitted mentioning Honey as a Remedy for, or Preservative against, the Stone. As this is extremely saponaceous and detergent, it is, by these Qualities, well adapted to scour off the calculous Concretions adhering to the Tubes of the Kidneys. And it is possible, that, if the Blood, and consequently the Urine, could be for a long time much saturated with Honey, small Stones might be dissolved, and large ones diminish'd. But the smallest Portion of Honey affects some Constitutions in such a manner, as to render the taking of it as a Medicine, impossible; and few can endure large Quantities of it without falling into a violent *Diarrhæa* or *Cholera Morbus*.

As the Bladder is subject to many other Disorders besides the Stone, which appear with Symptoms not unlike it, I shall give the following Treatise from *Hoffman*, in which the Reader will find his Account:

The Bladder, as being a nervous and muscular Part of the Body, is very subject to Spasms; by which Word we understand an intense and preternatural Constriction of the Body of the Bladder, and also of the Sphincter; or a Stricture, Coarctation, and Crispation of the Fibres, to which Disorder many other morbid Affections owe their Original.

Those tormenting Pains which are excited by the long Continuance of a Stone in the Bladder, together with a perpetual Desire of making Water, and the very difficult and painful Evacuation of the Urine, are owing to nothing but Spasms. For a convulsive Stricture, which affects not only the Musculo-nervous Coat of the Bladder, but also its Sphincter, and the Urethra itself, in a violent manner, excites a Strangury, and so great a Straining in the Pubes, as if it were scarce possible to stop the Urine, which yet, as soon as it begins to drop, is quite repressed and retain'd. This Disorder is attended with a Pain throughout the whole Region of the Penis, but oftentimes only with a most acute Pain in the Glans; according to the Observations of *Hildanus* and *Baglivi*. This extraordinary Sensation of Pain, Itching, and continual Irritation, in the Glans and Extremity of the Penis, is to be accounted one of the Pathognomic Signs of the Stone, both in Boys and Men. But, besides this, there is also a frequent Desire of going to Stool, or a Tenesmus, because of the strict Connexion of the *Intestinum Rectum* with the Bladder, and the Communication of the Nerves. The Urine which comes off in this Dysury, is, for the most part, white and foul, with a mucous Sediment; for the Convulsion of the muscular Fibres, by a violent Stricture and Compression, squeezes out, from the interior mucous Coat of the Bladder, a great Quantity of viscid glutinous Lymph, which, mix'd with the Urine, supplies that mucous Sediment. Oftentimes also a thin, aqueous, and almost colourless Urine comes away from the Patient, while under this racking Pain; and these Spasms, which, by mutual Consent and Communication of Parts, penetrate to the very Ureters, and are the Cause of their transmitting nothing but a thin and aqueous Substance, convey'd from the Blood by the emulgent Vessels. Moreover the Patient, in making Water, often suffers very severe Pains, sets his Legs across, compresses his Hips, bends his Body forwards, and, with one Hand, sometimes with both, presses with all his Might upon his Belly near the Region of the Pubes; and this painful Evacuation of the Urine is attended with Trembling, and, as it were, convulsive Motions of the whole Body, as is well observ'd by *Vienissens* in his *Neurologia*; for the fine Nerves of the Bladder, being vellicated and convulsed in a violent manner, by means of the intercostal Nerves, communicate the same to the spinal Nerves; and so to all the other Parts. It is observ'd also, that, under a Strangury, and a vehement Dysury, the Belly is constipated, and the Fæces, together with the Flatulences, retain'd, which, when the Pain ceases, readily resume their usual and natural Course.

It is certain also, from Observation, that all these recited Symptoms, and even worse, may be excited not only by a Stone in the Bladder, but by a Stagnation of the Blood within the Blood-vessels of that Part; the frequent Consequence of which is a violent Inflammation. For it is a vulgar Error to ascribe all these Symptoms to a Stone in the Bladder, or an Acrimony of Urine; since Observations and Dissections of dead Bodies abundantly shew, that the Diseased have not only been afflicted with the same Symptoms which proceed from a Stone in the Bladder, but have undergone worse Torments; tho' there has not been the least Sign of a Stone found in them after their Death. For, as when a Check is given to the Course of the Menes or Hæmorrhoids, the Blood regurgitates upon the Vessels of the Stomach and Intestines; and, stagnating within their nervous and sensible Coats, by stretching and compressing them,

them, excites violent Gripings, Anxieties, Pains, Convulsions, and spasmodic Motions; so also, when thro' the Default or Retention of the Hæmorrhoidal Flux, or from any other Cause, the Blood is repelled in great Quantities upon the Body of the Bladder, and there stagnates, no wonder if, in such a sensible Part, it excites Spasms, and other consequent Symptoms.

Thus a Suppression of the Hæmorrhoidal Flux is sometimes follow'd by bloody Urine, which being stop'd, the Bladder is seized with a Pain, Convulsions, and Inflammation. Sometimes Women of a plethoric Habit of Body, when past their fiftieth Year, after a total Cessation of the Catamenia, have been taken with terrible Convulsions of this kind, which have ended in a fatal Inflammation. For those who die of Diseases of the Bladder, are destroy'd by an Inflammation and Sphacelus, which are owing to a stubborn and fix'd Stagnation of the Blood in its Vessels, whereby their small Ramifications are too much distended; and that in such a manner, that the Inflammation, for the most part, affects not only the Bladder, but the *Rectum*; the Truth of which the Hæmorrhoidal Vessels, being full of black Blood, with the Lividness of the Penis, and the Veins in the Neck of the Bladder being very much distended, and varicose with Blood, sufficiently prove.

There is but one principal Cause of this mortal Inflammation, and that is a strong Spasm of the Bladder, which the more violent it is, so much the more it increases the Stagnation and Detention of the Blood in the Vessels, and hinders its Resolution and Discussion; whence it passes at last into an Abscess and Ulcer, and so becomes a chronic Disease, or degenerates into a Sphacelus, which soon destroys the Patient. And, indeed, this violent Convulsion of the Bladder, which is increased by the present Inflammation, is the Cause of a Multitude of dreadful Symptoms with which an Inflammation is attended; among which, according to *Aetius* and *Oribasius*, are a continual Fever, great Heats, Pain, a burning Heat, and Tumor under the Perinæum, and above the Pubes, an Emission of Urine by Drops, with great Difficulty, hard Strainings, and lamentable Cryings-out, a frequent Stimulation to evacuate by Stool, attended at last with Vomitings of Bile, a Pain of the Head, Thirst, Difficulty of breathing, Redness of the Face and Eyes, a Tongue black with parching Heat, obstinate want of Sleep, Delirium, Restlessness, Refrigeration of the extreme Parts, and at length Death. There is a Passage in *Hippoc. Lib. Prænotionum*, concerning the fatal Event of Diseases of the Bladder, which deserves to be mention'd here: "Hardnesses and Pains of the Bladder are dreadful and pernicious in the utmost Degree, especially such as attend a continual Fever; for the Pains themselves (these are the Effects of Convulsions) are sufficient to kill the Patient; and the Belly, at this time, makes no Excretions, but of a hard sort of Substance; and that forc'd. A Solution is attended with a Discharge of purulent Urine, depositing a white and thin Sediment. But if, after such an Evacuation, the Pain be not mitigated, nor the Bladder mollify'd, it is to be fear'd, that the Patient will die in the first Periods (*πρῶτον*) of the Distemper."

These Symptoms which attend an Inflammation of the Bladder, and discover themselves in various Parts of the Body, are, indeed, very much to be dreaded; and yet all of them, if well consider'd, can hardly be ascrib'd to any other Cause than a violent Spasm, which begins in the Bladder, as being the Part affected, and is thence communicated to the whole System of the Nerves; for when a most violent Stricture and Crispation affect the Fibres of the neighbouring Parts, which are the *Intestinum Rectum*, and the *Sphincter* of the *Anus*, there is either a continual Stimulation to Excretion, or so great a Constriction of the *Anus*, that neither Fæces nor Flatus can be transmitted, nor so much as a Clyster can gain Admission. And since a strong Spasm is well known to debilitate the Part it long affects, and leaves it at last in a State of Relaxation, the Consequence is a Falling-out of the *Anus*, especially in aged Persons and Infants. Whenever a severe Spasm of the Bladder extends itself to the superior Parts, and particularly the Intestines, it excites Rumbings and Gripes, and, when it is communicated to the Stomach, Loss of Appetite, ill Digestion, and Vomitings. *Celsus, Lib. 7. C. 27.* has a very remarkable Passage of the Consent between the Bladder and the Stomach. "We know very well, says he, that an Ulcer in the Bladder often affects the Stomach, between which two Parts there is a kind of Sympathy. Hence it is, that the Food is not retain'd, or, if retain'd, is not concocted, nor the Body nourish'd." This Convulsion also of the Bladder, which attends an Inflammation, by affecting the Muscle of the Diaphragm, with the Nerves and nervous Coats of the Lungs and Bronchia, causes a difficult and troublesome Respiration, with an Anxiety of the *Præcordia*; and being communicated to the Muscles of the Heart, and the musculo-nervous Coats of the Arteries, makes a hard, contracted, and quick Pulse, with a continual Fever, and an unquenchable Thirst, which is, in like manner, owing to a convulsive Stricture of the soft and glandulous Parts of the Tongue and Fauces. But the Danger is still greater, if it extends itself to the Membranes of the Brain, and the Origin of

the Nerves; for then a constant want of Sleep, Delirium, Convulsions, Refrigeration, and Horror of the extreme Parts, with an unequal and intermittent Pulse, are Signs of approaching Death.

Tho' the Symptoms which proceed from a Stagnation and Inflammation of the Blood, whether pure or impure, in the Bladder, are very much to be dreaded, and often mortal; yet those Disorders which arise from a salt, impure, and corrupted Serum, obstinately adhering to, and vellicating the Coats of the Bladder, are milder, and less dangerous. Of this Nature are those Pains which attend a Difficulty of Urine, and a Strangury. We often meet with Cases of this kind among the Observations of Physicians, particularly *Drawitz*, who deserves to be remember'd, and who, about an Age ago, wrote an entire Treatise, in the *German* Tongue, concerning the Scurvy, which is one of the best on the Subject. In this Book he makes several Observations, and describes Cases of Patients who complain'd of racking Pains in the passing off of their Urine, the Cause of which was no Defect, or Stone, in the Bladder, but only an impure scorbutic Humour. Among others, he relates a memorable Case of a Butcher, who had never labour'd under the Stone, and was on a sudden taken with an intolerable Pain in his Feet; the Disease, being remov'd from those Parts, was translated upon the Urethra, with an intense Heat, and Difficulty of Urine, which scarce came away by Drops. This Disorder yielded to Discutients, but return'd into the Feet, the Consequence of which was a Tumor in those Parts.

We have often observ'd, in aged Persons, Disorders of the Bladder, and especially a Difficulty of Urine, which have been contracted by a sedentary Life, or a scorbutic Dyscrasy of the Humours, which, in old Age, is almost perpetual; and nothing is more frequent, than, upon a Cessation of the rheumatic or gouty Pains, for the Patient to be afflicted with a Dysury, which, on the Return of those Pains, goes off spontaneously. It is also a usual Observation, that scorbutic Persons, affected with a chronic *Purpura*, or purple Eruptions, a Disorder very common in our Days, when, by a Cold, or some other Cause, as, for Instance, often repeated Bleeding, the Humour has been retracted inwards, or remains within, are seiz'd with a great Difficulty of Urine, an Anxiety about the *Præcordia*, a Restlessness, want of Sleep, and an inward burning Heat; all which Symptoms, upon the Expulsion of the *Purpura* to the Superficies of the Body, vanish and disappear.

There is yet another Cause of the Spasms and Pain of the Bladder, which is some Disorder in the Kidneys, whence, sometimes, a purulent and viscous Matter, at other times Stones and Gravel, are transmitted by the Ureters to the Bladder. In both Cases, unless the foreign Matter be timely expell'd, it is capable of exciting very dangerous Disorders, and particularly most violent Spasms. If the Matter be more tenacious and acrimonious than ordinary, it adheres to the Inside of the Bladder, and especially about its Neck, and excites a Strangury, Dysury, Tenesmus, and Inflammation; or secretly and slowly corrodes the Membranes of the Bladder, and so renders it exulcerated. If this Matter, by the Accession of other Causes, become transform'd, and pass into the Nature of a Stone; or a Stone, already made, descends from the Kidneys into the Bladder; it is continually irritating the same by its Roughness or Weight, and produces the same Disorders as before-mention'd; and, in the latter Case, the Bottom also, and the Sides of the Bladder, especially where the Stone is large, are exulcerated.

Sometimes the Neck of the Bladder is irritated, stretched, and convulsed, by other Causes besides those already mention'd; as, for Example, when a Gonorrhea, whether of the mild or malignant Sort, continues, for a long time together, in its proper Seat, which is in the two Glandulæ Prostatæ, which are contiguous to the Neck of the Bladder; for the Humour, in this Space of Time, being corrupted with the Venereal Impurity, becomes every Day more deprav'd, and generates Ulcers, sometimes but slight, sometimes of a more dangerous Nature, or excites Inflammations in the affected Part. And if the Cure of these Disorders happens to be ill perform'd, it is often observ'd, that the next adjacent Parts are infected with the Contagion. The Urine then comes off of a purplish Colour, and a Scabies of the Bladder, and even an Exulceration of that Part, especially about the Neck, frequently succeed. Hence it is that those who labour under a virulent Gonorrhea, often discharge a turbid Urine, which deposits a good deal of a viscid and sanious Sediment.

Among the Causes of this dangerous Spasm of the Bladder, may also be reckon'd, an Inflammation or Ulcer of the *Intestinum Rectum*, or of the Penis; an Abscess in any of the inner Parts of the Abdomen, which breaking, the Pus being discharg'd into the Cavity of the Abdomen, makes its Progress at last towards the Bladder; a Corruption of the Omentum; an Effusion of Blood, however caused, into the Abdomen; the Falling of the Water, in Dropsies, upon the Bladder; an Inflammation and Ulcer of the Uterus, especially its Neck; and other Disorders of the like kind, of all which you may meet with Instances enough in *Bonetus* and others.

As to the external Causes of this convulsive Distemper of the Bladder, we may suppose them to be Contusions, and violent Blows about the *Pubes*, or *Perinaeum*; an unskilful Section for the Stone, in which, thro' want of Dexterity in directing the Knife, or extracting the Stone, especially if it be larger and rougher than ordinary, the Cure of the Wound becomes difficult, and is attempted by improper Means; a too careless introducing of the Catheter, in order to search for the Stone; or in a Suppression of Urine, or for any other Reason, when the Sphincter of the Bladder happens to be under a close Constriction, or the Passage stop'd by a Tumor, Caruncle, Scirrhus, or any other Cause; the Section of a Fistula in Ano, where, for want of Caution, the Sphincter of the Anus, which is pretty closely connected with the Neck of the Bladder, happen'd to be incautiously too much wounded, or due Care was not taken of the Wound. In Women, a Cause may be hard Labour in Childbirth, in which the Bladder, and especially its Neck, are often compressed and affected in such a manner, as to give Rise to an Ulcer and Fistula in those Parts, according to *Mauriceau, Aph. 285*. And here the remarkable Malignity of Cantharides, with respect to the Bladder, deserves our Notice; for whether taken inwardly, or outwardly apply'd, they have been certainly known, from Observations, to excite Spasms, Inflammations, and Ulcers in that Part, of which there are many Examples. It appears also, from practical Observations, that drinking of cold Water, after Section for the Stone, excites violent Spasms, or gives Rise to a mortal Gangrene, or a fistulous Ulcer.

Having assign'd the Causes of this spasmodic Affection of the Bladder, we think ourselves oblig'd to account for a peculiar Phenomenon, which is, why those Symptoms, such as a Difficulty of Urine, attended with a Pain, and other concomitant Evils, should so miserably afflict the Patient only at Intervals, tho' the material Cause, which is the Stone, or a scorbutic Dyscrasy, be always present. The Reason seems to be this: All vehement Pains in a nervous sensible Part, if they continue long, induce and leave a Weakness and Relaxation, in which State the Pains are no longer felt; but then this very Weakness is the Cause of a new Collection and Stagnation of impure Humours supply'd from other Parts of the Body; whence there is always a Generation and Coacervation of fresh Matter, for rekindling and reviving the Paroxysm. For Debility, as *Celsus* says, is subject to all Diseases; and therefore it may be establish'd as an universal pathological Canon, That those Parts which are debilitated by the preceding Violence of a Distemper, are very easily susceptible of the morbid Humour, which, after a gradual Collection, either spontaneous, or excited by some slight Cause, makes a fresh Attack upon the Patient; and hence may be deduc'd the true Original of periodical Affections.

We have several times observ'd, that a Stone in the Bladder is only at certain Intervals the Cause of many Disorders, such as frequent and difficult Attempts to make Water, attended with a scalding Heat and Pain, Gripes of the Belly, Coldness of the extreme Parts, and a Decay of Strength, and that principally when the North Wind blows, or after flatulent Food, or Beer not well defecated, or from some unusual Commotion of the Mind, or too great a Refrigeration of the extreme Parts, or customary Bleeding too long omitted. The general Reason to be given for the Return of those Disorders on such Occasions, is, that all those things before-mention'd as Causes, are of such a Nature, and so qualified, as, partly by suppressing the salutary Excretions, partly by augmenting the Quantity of impure Humours, and propelling them towards the weaker Part, to give Occasion for the Return of the Disease, with its usual Train of Symptoms, upon the Patient. It is often observed also, that Distempers of the Bladder are attended with a flatulent Colic, especially when there is a hot and painful Discharge of the Urine; and that all Aliments which generate Inflammations, exasperate the Disorders of the Bladder, as, on the contrary, all Carminatives are beneficial.

Among Diseases of the Bladder, which are attended with Spasms, may well be reckon'd discharging of bloody Urine, which, however, does not all proceed from the Kidneys or emulgent Vessels, as Physicians usually imagine, but often flows proximately and immediately from the Blood-vessels of the Bladder, and especially the ruptur'd Branches of the external hæmorrhoidal Vein. This Hæmorrhage, attending the Urine, may be known to proceed from the Vessels of the Bladder, by a Difficulty of Urine, a burning Heat, and Tenesmus affecting the *Anus*, convulsive Motions about the *Glans*, a pungent Pain from the *Glans* to the *Perinaeum*, a rigid Tension of the *Penis*, with Rumblings and Flatulencies in the Abdomen, Loss of Appetite, and frequent Eructations; as also, if the bloody Urine, and concomitant Symptoms, after bleeding in the Foot, and Application of Leeches to the Anus, are remitted and cease. And, indeed, tho' such bloody Urine does not so very frequently proceed immediately from the Bladder, yet it has been sometimes observed, and particularly by *Hoechstetter, Decur. 1. Schol. in Cas. 2*. Sometimes pure Blood comes off

with the Urine, or, instead thereof, Urine of a brown Colour, like Coffee; as we observed in a Man eighty Years of Age, whenever he rode on Horseback: The Urine, when cold, deposited a dense and red Sediment.

Dreadful Symptoms also usually happen from concremented Blood within the Bladder, as *Lommius* observes, such as frequent Faintings, a Difficulty of Breathing, a low, small, and quick Pulse, a great Nausea, Anxiety of Spirit, and a cold Sweat, with an universal Inbecillity, Paleness of Countenance, and Refrigeration of the extreme Parts; all which Symptoms are to be ascribed to a violent convulsive Stricture, communicated to the whole nervous System. A Condensation of Blood in the Bladder is also the Cause of racking Pains, with a vehement Heat at the Bottom of the *Pubes*, and about the *Penis*, which have been observed to cease after the Patient had voided large, oblong, grumous Concretions of Blood in his Urine. As to the Cure of bloody Urine, which proceeds from an affected Bladder, *Lommius* rightly judges, that it is more difficult than when it descends from the superior Parts.

We must not omit to observe, that a Spasm of the Bladder, which excites a Strangury and Dysfury, especially in old, scorbutic, and cacochemical Constitutions, may proceed also from a very salt Urine, impregnated with acrid, tartarous, salinofulphureous, and muddy excrementitious Parts: For the Urine is sometimes found so salt as to corrode the Tongue, and, as it distils from the Urethra, to excoriate the neighbouring Parts; and therefore, if it should happen to stagnate for a considerable Time in the Bladder, will, by vellicating the Fibres of the Nerves, close up the Sphincter, and streighten the Urethra; and, by tearing and corroding the Membrane, excite most intolerable Pains. If, after a painful Discharge of the Urine, there appear in it branny little Masses, with Plenty of slender Filaments, which subside, the Antients call this Affection a *Scabies* of the Bladder; because it indicates a Corrosion of the mucous and villous Membrane thereof.

We said before, that a Stone, contain'd in the Bladder, is often the Occasion of strong and painful Convulsions, attended with a Difficulty of Urine, which molest the Patient at Intervals; but we are also to take Notice, that Spasms of the Bladder, when proceeding from other Causes, frequently lay the first Foundation for the Generation and Concretion of the Stone in the Bladder. This principally happens in old Men, who are of a plethoric Constitution, addicted to a sedentary Life, and, on account of a weak Perspiration, commonly void a high-colour'd Urine, saturated with tartarous muddy Scorix: For the Spasm excites a Dysfury; and the urinous Liquor, being retain'd a little longer than ordinary, deposits a tenacious glutinous Matter, which, being involved in tartarous Salts, may be supposed the first Principles of a calculous Concretion hereafter to be form'd; unless the Matter be evacuated by some convenient Medicine, and a free Passage made for the Urine by removing the Spasm.

Of all Diseases of the Bladder, a violent Stricture is most dangerous, and often mortal, especially when it is attended with a vehement Pain, an acute Fever, with an Hardness of the Bladder appearing near the *Pubes*, Costiveness, and a Suppression of Urine, according to *Hippocrates* in his *Prognostics*, and his *Coacæ Prænotiones*, where he says, "That a Hardness and Pain in the Bladder are very bad Symptoms upon all Accounts, but worst when attended with a continual Fever; for the Pain alone is sufficient to kill the Patient: There is but little Evacuation, by Stool, under this Distemper."

If the Pain and Hardness are but moderate, and without an acute Fever, the Inflammation is of a mild Nature. The Event, in such Cases, is various; sometimes the Disease is critically resolved, by the cutaneous Eruption of an Erysipelas; sometimes it tends to a Suppuration, in which Case there comes away purulent Urine, which deposits a thin white Sediment. If there be a plentiful Discharge of the Urine with Pus, the Tumor subsides, the Bladder is mollify'd, the Fever mitigated, and a free Passage made for the Excrements. The worst Event is, when the Distemper degenerates into a mortal Sphacelus. *Hoffman, Medic. Rat. System.*

The CURE.

Having consider'd the many severe and dangerous Disorders proceeding from painful Spasms of the Bladder, Urethra, and adjacent nervous Parts, with respect to the different Nature of their Causes, we now come briefly to propose and explain the most convenient Methods and Remedies for the Relief of the Patient. If we find the Disease approaching, or at least are apprehensive of its coming, and that it proceeds from a Redundance of Blood, especially in old Persons of a vigorous Constitution, who have for a long time pass'd their Lives without sufficient Motion of Body; the greatest Relief, in such a Case, is to be expected from speedy and plentiful Bleeding, which becomes the more necessary, if the Cause is suspected to be a Retention of the Menfes, or a Stoppage of the Hæmorrhoidal Flux,

Flux, or an Omission of long accusom'd Phlebotomy, or Scarification. This is agreeable to the Advice of *Hippocrates*, *Aph.* 36. *Lib.* 6. where, under a Difficulty of Urine, he orders the inner Veins to be open'd.

In a Redundance of impure Serum, impregnated with scorbutic, acrimonious, and saline Particles, which, by its Defluxion, and Settlement about the Bladder, and the Parts included within the Pelvis, furnishes Matter for this Disorder; or if it be owing to the scorbutic Purples, a Distemper grown common in our Times; we must use our best Endeavours, that the Mass of Blood and Humours, which is vitiated by the Mixture of those heterogeneous and impure Particles, may be depurated, and the Redundance of Serum evacuated by the proper Emunctories. For this Purpose temperate Diluents, in sufficient Quantities, and for a convenient Length of Time, are to be used: Of this Nature are the temperate kinds of Mineral Waters, which consist of the purest and lightest Liquid, impregnated with a slightly alkaline Salt; such, above all others, are the *Selteran* and *Spaw* Waters; for they are very agreeable, and extremely beneficial, in all the Disorders and Defects of the Breast, Kidneys, and Bladder, which Parts, in particular, they relieve by a sort of specific Virtue. In the scorbutic Purples they exert their Virtues much more to Advantage, when mix'd with Milk, especially Asses Milk.

As a Regimen of Diet is of the greatest Importance, both in preventing and curing a Disease, so that they who live freely, without regarding the Laws of Medicine, or the Rules of Sobriety, can never be relieved from such afflicting Distempers; but, at most, only procure to themselves some Intervals of Ease; for this Reason, in so chronical a Disorder, where the Nerves, and most sensible Parts, are affected, the least Error in Diet must, of necessity, have a bad Influence upon the nervous Parts. The Patients, therefore, are to be strictly forbidden all salt, acrimonious, and four Meats, all Vegetables which breed Inflations, or are astringent; and they must also abstain from all Malt-liquors, and acid and austere Wines: But sweet Wines, and particularly the *Hungarian*, are not only harmless, but very beneficial. Here a Passage of *Aetius*, *Tetrab.* 3. *Serm.* 3. *Cap.* 22. concerning a Scabies of the Bladder, deserves to be quoted: "The Patient, says he, must abstain from all Things of a biting Quality, and such as render the Humours salt and acrimonious; but give him sweet Wines, and Milk, with Broths made of Hens, or the Flesh of Kids or Lambs." And tho' Motion and Exercise of the Body have a very good Effect in preventing Distempers of this Kind, by giving a Check to the Redundance of Blood, and maintaining a due Circulation of the Humours through the Vessels; yet, if the nervous Parts at the Bottom of the Belly are affected with Pains and Convulsions, Rest is better for the Patient than Motion, which, in such a Circumstance, would be very prejudicial; especially such kinds of Motion as drive the Blood more upon the inferior Parts, as a great Elevation of the Voice, long and earnest Speaking, Agitations of the upper Parts, Gestation, and Lifting of Burdens.

While the Patient is under the convulsive Fit, attended with racking Pains, and a Difficulty of Urine, I have learnt by frequent Experience, that there are no better Remedies than oily emollient Clysters, a Bath, or a Semicupium, which is confirm'd by the Observations of Physicians, every-where to be met with; and we have an elegant Observation of *Drawitz*, in his Book of the *Scurvy*, to the same Purpose. A Vapour-bath of emollient and anodyne Flowers is also beneficial in the Time of the Paroxysm; such are the Flowers of common Chamomile, Melilot, the Elder-tree, Mallows, Mullein, and Millefoil, boiled in Milk; for, by their lenient and demulcent Virtues, they are of excellent Service in composing and mitigating the Pains and Convulsions. Internally may be given our *mineral anodyne Liquor*, either alone, or mix'd with Carminatives; also antispasmodic Powders, as the Marquis's Powder, or purified Nitre, with an Addition of a little Saffron and Castor, taken in an Emulsion of the Four greater cold Seeds. These Remedies are preferable to all others, and may be used even under a Fever, and when an Inflammation is threaten'd, if the Proportion of Nitre be augmented.

When the Disease of the Bladder proceeds from a Translocation of a rheumatic Defluxion from the external Parts upon the Viscera, Fontanels, cut in the Arms, have been of no small Service. Also a demulcent and gently diuretic Decoction of the Roots of Scorzonera, Sarsaparilla, China, the Shavings of Hartshorn, the Roots of Liquorice, Couch-grass, Succory, and Fennel seeds; or our *mineral anodyne Liquor*, mix'd with the Bezoardic Spirit of Buffius, are Remedies which never fail of having a good Effect.

If bloody Urine, having its Origin in the Bladder, be attended with a convulsive Affection of the same Part, or an Exulceration supervene, I have frequently found the good Effects of an Application of the vulnerary Water call'd *L'eau d'Arquebuse*, (see *AQUA*) in answering the Intention of discharging and corroborating. I also use repeated Applications of Bags

of Mint, Baum, Myrtle-leaves, Bay-leaves, Roses; with the Flowers of common and *Roman* Chamomile, all boiled in Red-wine, to the Region of the Bladder: And to prevent a Cohesion of any grumous Blood, that may happen to be retain'd in the Bladder, with a tartarous Mucus adhering to the Part, which may produce a Stone, internal, absterfive, and gentle vulnerary Medicines may very properly be used. Some of the best of these are Golden-rod, Ladies-mantle, the Tops of St. John's-wort, and Millefoil, the Roots of Avena, Marshmallows, and Liquorice, Figs, and Spleenwort, in the Form of an Infusion or Decoction, well sweeten'd with *Prussian* Honey, or *Fernelius's* Syrup of Marshmallows. The Decoction of *Forestus*; and *Sperma Ceti*, are also very good Medicines for dissolving grumous Blood retain'd in the Bladder.

When the Inflammation is succeeded by an Abscess, which is known by the Exacerbation of the Symptoms, and a Sense of Weight in the Region of the *Perinaem* and *Pubes*, it is necessary, that it should be timely open'd, and the Pus discharged from the Bladder; for the longer it continues, the more acrimonious it grows, and corrodes the adjacent Parts, corrupting them in like manner, and introducing *Fistulas*, and other very bad Symptoms. To prevent such mischievous Effects, Injections of warm Milk, boil'd with emollient Species, are to be used: If these are of little or no Efficacy, our last Recourse must be to the Surgeon, who is to make an Incision with the Knife in the same Place of the *Perinaem*, as, in cutting for the Stone, with what they call the *greater Apparatus*. Two Examples of this Method in *Bonetus*, *Sepulchr.* *Lib.* 3. taken out of *Riolanus*, are worth our Notice. In Women the Case is otherwise; for they stand in no need of this kind of Remedy, because in them the Orifice of the Bladder is larger, and the Access to it more open. The Ulcer being open'd, and well cleansed, is to be treated with the same Remedies as were directed in the preceding Paragraph.

PRACTICAL CAUTIONS.

I.

When a Redundance of Blood requires Evacuation, the best Method is to open a Vein in the upper Parts, by way of Revulsion; and the next Day, or the Day after, to cut the Veins in the Anus, if they are swell'd and prominent, for the sake of Derivation; or, if this cannot conveniently be done, a Vein may be open'd in the Ankle or Ham. If the Habit of Body be lax, and full of Blood and Juices, and especially for the Female Sex, Cupping-glasses, applied to the upper and lower Parts, may be very beneficial, by attracting the Blood and Humours towards the Superficies.

II.

You are to take Notice, by way of Caution, that tho' repeated Bleeding, as before advised, be very serviceable in preventing or removing an Inflammation, or hindering its Increase; yet where the Blood and Spirits are deficient, and in case of an Exulceration, Phlebotomy is rather hurtful than beneficial, by exhausting the Strength and Spirits of the Patient, which are absolutely necessary for expelling and subduing the Disease.

III.

In all Pains, and convulsive Disorders, of the Bladder, from whatever Cause they proceed, strong Cathartics are by no means convenient, neither in the Beginning nor Progress of the Distemper; for it is to be fear'd, lest the Humours, being by their means put in Agitation, should be impel'd, and bend their Course towards the affected Parts. But under a Remission of the Pain and Spasms, and in the Decline of the Disorder, it is very useful, and even necessary, now-and-then, to give a Purge, in order to cleanse and free the Intestines from those stercoraceous Recrements and Sordes, of which there is generally a Collection and Coacervation in those Parts, during the Time in which the Pain and Convulsions molest the Patient: But this Intention is to be answered by the milder Sort of Purges, such as those prepared of Manna, and Rhubarb, and solutive Syrup of Roses, drank in Whey, or Asses Milk.

IV.

In order to mitigate the convulsive Paroxysm, besides external Remedies, as Liniments and Fomentations, Clysters composed of Lenients and Emollients are to be injected, which, by their mild and comfortable Warmth and Influence in relaxing the rigid and convulsed Fibres of the adjacent Parts, may probably cause a Remission of the Pain, and afford considerable Relief to the Patient; but these are to be administer'd in small Quantities, for fear of compressing the Sides of the Bladder.

V.

If the Bladder, and Parts connected with it, be affected with a considerable Exulceration, which is indicated by a copious Sediment

Sediment of viscid Matter, and a slow Fever consuming the Strength and Flesh, the Patient must abstain from too free an internal Use of the *Caroline Waters*; for the plentiful Drinking of them, as I have learn'd by Experience, is very prejudicial, because both the Corruption and Fever are increased by the Stagnation of these Waters.

VI.

A seasonable Use may be made of anodyne Injections, as well for correcting the Acrimony of the Humours, as for blunting the Sense of the intolerable Pains. These may be prepared of four Whites of Eggs, beaten to a Water, with an Addition of two Ounces of Woman's Milk, and a Dram of the freshest Butter; or an artificial Emulsion may be made of the Seeds of Gourds, and of white Poppy, the Water of Elder-flowers, Rose-water, and black Cherry-water, for the same Purpose.

VII.

All acrid Diuretics must be carefully avoided in this convulsive Affection; for, in an Exulceration of the urinary Passages, the Pain and spasmodic Symptoms must, of Necessity, be very much exasperated by the Acrimony of such Medicines.

VIII.

When the Patient is under extreme Pains, which may be of dangerous Consequence; Anodynes of the greatest Efficacy may be useful, for preventing too great a Diminution of the Strength, with an Increase of the Fever and Dysury, or Madness; and I have known half a Dram of Troches of Alkekengi given as a Dose, with very good Success: But we must utterly avoid such Medicines when there is a Decay of Strength, either thro' Age, or some Passion of the Mind, particularly Sorrow. *Hoffman Med. Rational. Syst.*

Mr. Sharp gives us the following Remarks relative to the Stone, which, for the farther Illustration of this important Subject, I shall insert.

Hitherto there has never been given any satisfactory Account of the Causes of this concreting Disposition in the Fluids; and tho' there may be some Propriety in considering the Sand of Urine in the same Light as the Tartar of Wine, from their Similitude in several Experiments, yet we cannot infer from thence, what does immediately produce it; at least it is not, with any Certainty, to be imputed to a particular Diet or Climate, which, however, are the Causes commonly assigned; since we see, that in all Countries, and amongst all Ranks of People, as much amongst the Sober as the Luxurious, the Stone is a frequent Distemper; and tho' the great Numbers cut at the Hospitals of *Paris*, where the Water of the *Seine* is so remarkable for its Quantity of Stone, seems to favour the Opinion of its being generated by particular Fluids received into the Blood, yet, I believe, upon Inquiry, this famous Instance will not appear conclusive, since most of those Patients come from the Provinces, or distant Villages, where that River does not pass; and as to the Inhabitants of *Paris* itself, by what I was able to learn of the Surgeons there, the Number of those afflicted with the Stone amongst them is pretty nearly in the same Proportion as in *London*: From which Considerations, and the Circumstance of so many more Children having the Stone than Men, one would be inclined to think the Disposition is much oftener born with us, than acquired by any external Means.

It is certain, the Urine generally abounds with Matter proper to compose a Stone; and, perhaps, if it could grow cold in the Bladder, it would always deposit the Matter there; as it does on the Sides of the Chamber-pot; tho' the Coats of the Bladder, being cover'd with a Mucilage, make them more unfit than the Sides of the Pot to attract the stony Particles; but we see, when once a hard Body is insinuated into the Bladder, it seldom fails to become the Nucleus of a Stone, whether it be a large Piece of Gravel, a Needle, a Bullet, or any other firm extraneous Substance.

From the monstrous Increase of some Stones in a small time, and the Cessation of Growth for many Years of others, we may be persuaded, that the Constitution varies exceedingly at different times, with regard to these stony Separations; and, from the Appearances of most Stones when artfully saw'd through, we may gather, that this Variation of Constitution does not shew itself only in the Quantity of Gravel added to the Stone, but the Quality of it also; so that a red uniform Stone, of an Inch Diameter, may perhaps, at half that Size, have been a smooth white one, at a Quarter, a brown Mulberry one, and so on at different times, altering in its Species: Hence (from the Apposition of different-colour'd Gravel) arises for the most part the laminated Appearance of a Stone, tho' sometimes the Laminæ are very nearly of the same Colour and Composition; and, in this Case, their Formation seems to be owing to the want of Accretion in the Stone for a certain time; during which, its Surface, by rubbing against the Coats of the Bladder, and its Attrition, from the Stream of

Urine, becomes smooth and compact; so that when more fresh loose Gravel adheres to it, its different Density in that Part will necessarily make the Streaks we see in a Section of the Stone, which are only the outside Surfaces of each Lamina.

That the ceasing to grow gives them this laminated Form; and not any particular Disposition in Sand to shoot into such a Shape, is probable from the Examination of some other Stones, in which a great Quantity of Gravel is first collected without any Nucleus, into a spongy uniform Mass; and after that is cover'd with several Laminæ.

'Tis no Wonder that Stones are so generally form'd in the Kidneys, since the Disposition of the Urine will naturally shew itself as soon as it is separated into the Pelvis; that is, the stony Particles, having as strong an Endeavour to unite with one another in the Kidneys as the Bladder, will consequently, from meeting first there, generally produce Gravel and Stone in that Part.

Small Stones and Gravel are frequently voided without Pain, but sometimes they collect, and become very large in the Kidneys; in which Case, a Fit of the Stone in that Part is the Cure, from the Inflammation and Pain occasioning convulsive Twitches, which at last expel them. But in this Disease the Patient is very much reliev'd by several kinds of Remedies, such as the Mucilaginous, the Saponaceous, &c. some of which lubricate, and others both lubricate and stimulate: The Sand, in passing through the Ureters, is very much forwarded by the Force of the Urine, which is so considerable; that I have seen a Stone which was obstructed in the Ureter in its first Formation, perforated quite through its whole Length, and form a large Chancel for the Stream of Urine. The Ureters being very narrow, as they run over the Psoas Muscle; and also at their Entrance into the Bladder, make the Movement of the Stone very painful and difficult in those Parts: but there is seldom so much Trouble after the first Fit; for, when once they have been dilated, they generally continue so: I have often seen them as big as a Man's Finger, but they have been found much larger.

The Symptoms of Stones in the Bladder are by no means infallible, since a Stone in the Ureter or Kidneys, or an Inflammation of the Bladder from any other Cause, will sometimes produce the same Effects; but if the Patient cannot urinate, except in a certain Posture, 'tis almost a sure Sign the Orifice is obstructed by a Stone; if he finds Ease by pressing against the Perinæum with his Fingers, or sitting with that Part upon a hard Body, there is little Doubt to be made, that the Ease is procur'd by taking off the Weight of the Stone; or lastly, if with most of these Complaints he thinks he can feel it roll in his Bladder, it is hardly possible to be mistaken: However, the only sure Judgment to be form'd is from Searching.

That we should not readily distinguish the Complaints of the Stone from many other Affections of the Bladder, is not very surprising, when we reflect, that a Fit of the Stone is nothing but an Inflammation of its Coats, which, tho' it be excited by the Stone, requires a Disposition in the Blood to produce it; for, if the Complaints in a Fit were owing to the immediate Irritation of the Bladder, it should follow, that the Stone being always the same, the Fit would be continual; but, besides that all Patients have considerable Intervals of Ease, (often of many Months) except in those Cases where the Stone is either very large, or pointed, there are Instances of some few happy Constitutions which have no Pain at all, even after having for a certain time suffer'd very much.

To prevent the Violence and frequent Returns of the Fits of the Stone, Bleeding, and gentle Purgings with Manna, are beneficial; abstaining also from Malt Liquors, and Excess of Eating and Drinking, is very serviceable; but a Milk-diet and Honey are the greatest Preventatives, not only of Inflammation, but perhaps sometimes, too, of the farther Accretion of the Stone.

From considering the Disorders of the Stone in this Light, and the frequent Intervals of Ease which happen without the Assistance of Medicine, we cannot wonder, that so many Patients have believ'd the Stone dissolv'd, when they have been under any particular Regimen; and that in all Ages there have been many People deceiv'd for a Length of Time, by a suppos'd Dissolvent, tho' hitherto no safe one has been discover'd. *Sharp.*

Many Authors have pleased themselves with comparing the Animal Calculus with Tartar, and in finding out some Resemblance betwixt them. But I know no two Substances in Nature which can differ more widely than these two, both with respect to their Generation and Analysis. The only Circumstances wherein they agree, are their generating alike large Quantities of elastic Air, and their containing some Earth, tho' Tartar contains but a very little: As to their Generation, Tartar is the Offspring of Fermentation; whereas no such thing can happen in the Animal Fluids: And, who-

ever

ever compares the Analysis of Tartar (see TARTARUS) with the following Analysis of a Calculus, will readily perceive how different they are in their Composition. Tartar is an Acid; but no Portion of an Acid can by any means be discover'd in a Calculus.

Dr. Stare says, We distilled one Ounce of human Calculus that was recently cut out of a Body, which afforded about two Drams of a brownish Spirit, nearer to that of Hartshorn, than Urine. We put the Caput Mortuum upon the Capel, and reduc'd it to near a Dram; the rest burning and smoking away. Another time, we distilled in a naked Fire a Stone that weigh'd two Ounces; the Vapour came over upon a good Streis of Fire, and settled in the Form of Salt without any Liquor, of which we preserv'd only a Dram; it appear'd very brown, and tasted bitter, as the fetid Oil of Hartshorn, and other empyreumatical Oils, do. We examin'd by boiling and evaporating Water from the Caput Mortuum, whether it held any fix'd Salt, but found none. The Caput Mortuum weigh'd one Ounce, and six Drams; so that it lost only two Drams in the Distillation, that is, only two Drams came over the Helm. We proceeded farther, and placed the Caput Mortuum upon a Test in an open Fire, where it burnt away to two Drams forty-four Grains. This we also boiled in Water to see what Salt it held; but it scarce afforded a Taste of Salt, hardly surmounting that we usually find in the like Quantity of common Water. In this fiery Trial, an Ounce and three Drams of the two Ounces evaporated in the open Fire, (a material Circumstance, which Chymists rarely inquire after) of which we have no Account. *Phil. Trans. Abr. Vol. 3.* Dr. Hale says, That the greatest Part of this is raised into permanently elastic Air.

As to the Production of Stones in the Body, if we reflect upon what is said under the Article ARTHRITIS, with respect to the Generation of the Gouty Matter, and consider, at the same time, the great Affinity there is betwixt the Gout and Stone, and that either of these frequently is transmuted into the other, we may perhaps have Reason to believe, that the Causes of both are a Defect in the Solution of the earthy Particles of our Aliment by the Powers of Digestion; and if it happens, that the Sedentary, Luxurious, and Idle, are more subject to the Stone, than the Active, Temperate, and Laborious, it will be a farther Confirmation of its being generated in this manner. That Children also, who use but little Exercise, and whose Stomachs are lax and weak, are often afflicted with the Stone, seems to favour this Opinion.

Upon this Occasion I cannot omit a beautiful Observation of *Boerhaave*, who, speaking of Menstruums, says thus: Tho' earthy Bodies, when corroded by Acids, may be dissolv'd in Water, Alcalies, when intimately united with Earth, cannot be afterwards dissolv'd with Water, as plainly appears in Glafs, which consists of an Alkali, and an Earth, intimately united, and is less soluble in Water, the closer the Union: So great is the Difference between the Solution of Earth by one kind of Salt and another. Alcalies, we see, subtilly dissolve Earth into a fix'd, transparent, hard Body, which resists the dissolving Power of Water, more than any other Body; but it appears stranger still, that the subtil, volatile, alkaline Salts of Animals, intimately united with Earth, should form a Mass undissolvable in boiling Water; for the Stones generated in Animals I take to consist of these two Principles and Oil; and in whatever Part of the Body such Stones are generated, they commonly produce terrible Effects; as having a Power of attracting and joining to themselves a similar Matter, from such Animal Juices as approach nearest to Putrefaction, as the Bile and Urine; which containing Salts nearly alkaline, these Salts unite to themselves the fine Earth, wore off from the Parts of the Body; and thus lay the Foundation of new Stones, or enlarge the old ones: and hence the daily Increase of this monstrous Production, which brings on terrible Disorders.

Hence we may perhaps deduce the Reason, why the Author of Nature has made nearly all the Aliments of Animals incline to Acidity; for the acid Salts, on this Account, predominate in the Stomach, dispose such Aliments to dissolve more easily, whose firmer Parts cohere principally by means of Earth; whence they would otherwise with much more Difficulty be dissolv'd into fluid Chyle. But when afterwards a Matter is to be form'd of this Chyle, fit to bind the Solids together, the Tendency to Acidity, which was necessary in the Chyle, is changed, and an alkaline Tendency of the Salts introduced; which, by binding the earthy Particles, forms a Structure indissoluble in Water, and fit to resist the Action of the Fluid. At least we know, that Bones remain solid and firm, if steep'd in Alcalies; but grow soft and flexible, if detain'd in Acids; as the ingenious Mr. *Ruych* has often assur'd me, he found in his Anatomical Experiments. And doubtless, when the Power of changing Acescents into Alcalies is wanting in the Body, the Bones, Cartilages, Teeth, and Ligaments, become soft, weak, loose, and flexible, as we daily see in the Rickets. *Boerhaave's Chymistry.*

It would be inexcusable, if I was to omit taking Notice of Mrs. Stevens's Medicine for the Stone, as it was thought of Importance enough to merit the Consideration of the Legislature. I shall therefore give it in her own Words, as published in the *Gazette*.

Mrs. STEPHENS's Medicine for the Stone.

It consists of a Powder, a Decoction, and Pills.

The POWDER is thus prepar'd.

Take Hens Egg-shells well drain'd from the Whites, dry and clean; crush them small with the Hand, and fill a Crucible of the twelfth Size (which contains nearly three Pints) with them lightly; place it in the Fire, and cover it with a Tile; then heap Coals over it, that it may be in the midst of a very strong clear Fire, till the Egg-shells be calcin'd to a greyish White, and acquire an acrid, salt Taste: this will take up eight Hours at least. After they are thus calcin'd, put them into a dry clean earthen Pan, which must not be above three Parts full, that there may be room for the Swelling of the Egg-shells in flaking. Let the Pan stand uncovered in a dry Room for two Months, and no longer. In this time the Egg-shells will become of a milder Taste, and that Part which is sufficiently calcin'd will fall into a Powder of such a Fineness, as to pass thro' a common Hair-sieve; which is to be done accordingly.

In like manner:

Take Garden-snails with their Shells, clean'd from the Dirt; fill a Crucible of the same Size with them whole; cover it, and place it in a Fire as before, till the Snails have done smoking, which will be in about an Hour, taking care that they do not continue in the Fire after that. They are then to be taken out of the Crucible, and immediately rubb'd in a Mortar to a fine Powder, which ought to be of a very dark-grey Colour.

Note. If Pit-coal be made use of, it will be proper, in order that the Fire may the sooner burn clear on the Top, that large Cinders, and not fresh Coals, be plac'd on the Tiles which cover the Crucibles.

These Powders being thus prepar'd, take the Egg-shell Powder of six Crucibles, and the Snail Powder of one; mix them together, rub them in a Mortar, and pass them thro' a Cypress-sieve. This Mixture is immediately to be put up into Bottles, which must be close stop'd, and kept in a dry Place for Use. I have generally added a small Quantity of Swines-creffes burnt to a Blackness, and rubbed fine, but this was only with a View to disguise it.

The Egg-shells may be prepar'd at any time of the Year; but it is best to do them in Summer. The Snails ought only to be prepar'd in *May, June, July, and August*; and I esteem those best that are done in the first of these Months.

The DECOCTION is thus prepar'd.

Take four Ounces and a half of the best Alicant Soap, beat it in a Mortar, with a large Spoonful of Swines Cressles burnt to a Blackness, and as much Honey as will make the Whole of the Consistence of Paste; let this be form'd into a Ball. Take this Ball, and green Chamomile, or Chamomile-flowers, sweet Fennel, Parsley and Burdock-leaves, of each one Ounce; when there are not Greens, take the same Quantities of Roots; cut the Herbs or Roots, slice the Ball, and boil them in two Quarts of soft Water half an Hour; then strain it off, and sweeten it with Honey.

The PILLS are thus prepar'd.

Take equal Quantities, by Measure; of Snails calcin'd as before; of wild Carrot-seeds, Burdock-seeds, Ashen-keys, Hips and Haws, all burnt to a Blackness, or, which is the same thing, till they have done smoking; mix them together, rub them in a Mortar, and pass them thro' a Cypress-sieve; then take a large Spoonful of this Mixture, and four Ounces of the best Alicant Soap, and beat them in a Mortar, with as much Honey as will make the Whole of a proper Consistence for Pills, sixty of which are to be made of every Ounce of the Composition. When there is a Stone in the Bladder or Kidneys, the Powder is to be taken three times a Day, viz. in a Morning after Breakfast, in the Afternoon about five or six, and at going to Bed. The Dose is a Dram Avoirdupois, or 56 Grains, which is to be mix'd in a large Tea-cup full of White-wine, Cyder, or small Punch; and half a Pint of the

the Decoction is to be drank, either cold or Milk-warm, after every Dose.

These Medicines do frequently cause much Pain at first, in which Case it is proper to give an Opiate, and repeat it as often as there is Occasion.

If the Person be costive during the Use of them, let him take as much lenitive Eleatuary, or other laxative Medicine, as may be sufficient to remove that Complaint, but not more; for it must be a principal Care at all times to prevent a Looseness, which would carry off the Medicines; and if this does happen, it will be proper to increase the Quantity of the Powder, which is astringent, or lessen that of the Decoction, which is laxative, or take some other suitable Means by the Advice of Physicians.

During the Use of these Medicines, the Person ought to abstain from salt Meats, Red-wines, and Milk, drink few Liquids, and use little Exercise, that so the Urine may be the more strongly impregnated with the Medicines; and the longer retain'd in the Bladder.

If the Stomach will not bear the Decoction, a sixth Part of the Ball made into Pills must be taken after every Dose of the Powder.

Where the Person is aged, of a weak Constitution, or much reduc'd by Loss of Appetite, or Pain, the Powder must have a greater Proportion of the calcin'd Snails than according to the foregoing Direction; and this Proportion may be increased suitably to the Nature of the Case, till there be equal Parts of the two Ingredients. The Quantity also of both Powder and Decoction may be lessen'd for the same Reasons. But as soon as the Person can bear it, he should take them in the above-mention'd Proportions and Quantities.

Instead of the Herbs and Roots above-mention'd, I have sometimes used others, as Mallows, Marshmallows, Yarrow both red and white, Dandelion, Water-creffes, and Horse-radish Root; but do not know of any material Difference.

This is my Manner of giving the Powder and Decoction. As to the Pills, their chief Use is in Fits of the Gravel, attended with Pain in the Back, and Vomiting, and in Suppression of Urine, from a Stoppage in the Ureters. In these Cases, the Person is to take five Pills every Hour, Day and Night, when awake, till the Complaints be remov'd. They will also prevent the Formation of Gravel, and Gravel-stones, in Constitutions subject to breed them, if ten or fifteen be taken every Day. Thus far Mrs. Stephens.

In order to form a just Judgment of these Medicines, it is necessary to know, that Shells by Calcination are converted into a Lime; and that a Lixivium of Lime is a principal Ingredient in Alicant Soap.

I find these Medicines are at present in much Disrepute. But as I am to give my Sentiments upon them undisguised, and without being biassed by any Authority whatever, I shall give my Reasons for believing them of some Efficacy, tho' I have never seen any remarkably good Effects from them.

My first Reason is, That the principal Ingredients in these Medicines are recommended for the Stone, by Authors of the first Reputation. Thus Hoffman speaks of Egg-shells and Mother of Pearl; and Boerhaave prescribes Soap, as we have seen above.

My second Reason is, That they have indisputably been of great Relief to many Persons afflicted, before taking them, with the most exquisite Tortures from the Stone. I say, indisputably; because, to doubt it, would be paying a very bad Compliment to the Understanding and Honour of many Gentlemen of known Integrity, who were appointed by Parliament to inspect into, and who afterwards gave their Opinion in Favour of, these Medicines.

My third Reason is, That I have known in several Instances, great Effects produc'd by a Medicine, which seems to be nearly of the same Nature with those of Mrs. Stephens, as it consists of Lime made of Oyster-shells. The History of it, so far as I am acquainted with it, is thus. Mr. Schuemberg, a German Gentleman, extremely well versed in the most abstruse Operations of Chymistry, has a Method of melting, by the Help of a Flux, calcin'd Oyster-shells, so as to make them run like Wax, and to admit of being cast into Cakes, which dissolve per Deliquium into a Fluid; this, when filtered, is limpid as Rock-water, and extremely alkaline, tho' not corrosive; and, which is pretty surprising, will, upon the Affusion of an Acid, be entirely converted into a Snow-white Powder. Twenty-five or thirty Drops of this Liquid, taken twice a Day in Water, I have frequently known to afford great Relief in nephritic Disorders.

My fourth Reason is, That a Lixivium of Lime will dissolve human Stones, when out of the Body.

My fifth Reason is, That Lime seems to be, in general, a powerful Dissolver of Earth, and earthy Concretions. Thus Lime produces a great Fertility, when laid upon the most barren kinds of Land, as Gravel; that is, it helps to dissolve the

large Particles of Earth, and prepares it for furnishing Matter for a subsequent Vegetation. Hence it happens, that what Boerhaave remarks in the Passage quoted above, in regard to Alkalies uniting with Earth, and rendering it indissoluble, does not hold good with respect to the Salt of Lime, which is an Alkali sui generis, and in many Instances different, as to its Properties, from all others. See CALX.

I shall conclude this Article with remarking, that, as, in all Cases whatever, the principal Duty of a Physician consists in distinguishing accurately one Distemper from another; so, particularly with respect to the Stone, he must take care not to be deceived; for there are three Distempers, which mimic so exactly the Stone of the Kidneys, Ureters, and sometimes even of the Bladder, that it is not easy for a Person, not well versed in these things, to distinguish some Symptoms of these from the genuine Stone; I mean the Gout, latent Intermitting Fevers, and Hysterics. And, indeed, it is of great Importance, in the Practice of Physic, to distinguish the Symptoms caused by these three Distempers, when they seize upon any of the Viscera, from the genuine Disorders to which the Part is otherwise subject; for the Kidneys, Ureters, and Bladder, are not the only Parts subject to their irregular Attacks.

As to the Gout, when it fixes upon the Region of the Kidneys and Loins, and imitates the Stone, or when it affects the Neck of the Bladder, it must be distinguish'd from the Stone, by carefully comparing the Patient's Complaints with the Symptoms of the genuine Stone above enumerated; in which I have been designedly very full, and given them from different, and those the best, Authors, that they may be view'd in every Light. The Constitution of the Patient is also to be taken into Consideration, which, if gouty, gives an useful Hint to the Physician; and the Unsuccessfulness of Remedies, which usually relieve in the Stone, lay a strong Suspicion, that the Disorder may have another Cause. See the Quotation above from Hoffman.

As to Hysterics imitating the Stone, Sydenham has observ'd; and since him, I believe, every Physician concern'd in much Practice, that sometimes this Disease seizes one of the Kidneys; where, by the violent Pain it occasions, it entirely resembles a Fit of the Stone, not only with respect to the kind of Pain, and the Part affected, but likewise by the violent Vomiting wherewith it is accompanied, and the Pains extending thro' the whole Duct of the Ureter: So that 'tis hard to distinguish, whether the Symptoms are from the Stone, or an Hysteric Disorder; unless, perhaps, some Misfortune having depressed the Woman's Spirits, a little before the Disorder came on, or the Discharge of green Matter by Vomit, should shew that the Symptoms are rather to be ascrib'd to an hysteric Disorder than the Stone. The Bladder also is occasionally affected with this delusory Symptom, causing Pain, and a Suppression of Urine, as in the Case of an Obstruction of the urinary Passages from a Stone. This last Species rarely happens, but the former more frequently. Both usually attack such Women as are greatly debilitated by frequent hysteric Fits. Sydenham.

The Constitution of the Patient, and the Symptoms, are to be accurately consider'd in this Case, as well as in nephritic Symptoms proceeding from the Gout. This Disorder I have frequently known instantly remov'd by Bleeding, without any ill Consequences, notwithstanding the Cautions given by some practical Writers against bleeding in Hysterics. See HYSTERICA.

As to intermitting Fevers imitating the Stone, and other Disorders, it is remarkable, that the general Use of the Peruvian Bark has introduc'd many anomalous Symptoms of these Fevers utterly unknown to the Antients. These Irregularities were, so far as I know, first taken Notice of by Morton, in his most excellent Dissertation, de Proteiformi Febris intermit-tentis Genio; where there are many important Observations, so strictly genuine and true, that a Physician must have practis'd to very little Purpose, if he has not almost daily observ'd Cases which strongly confirm them. It seems as if the Bark, by stifling, and not carrying off the Disorder, leaves in the Blood a Portion of the morbid Matter, which causes the Fever; or which, to use the Language of Sydenham, Nature raises a Fever, in order to expel. Now this is, in the Course of the Circulation, convey'd to, and deposited upon, one or other of the Viscera, there causing the Symptoms which are raised by any other Obstructions, or spasmodic Constrictions, in the same Part. Hence Fevers, which have been treated with the Bark, frequently afflict the miserable Patient for many Years, from time to time, under the Mask of other Disorders. But, to do Justice to a Remedy now in so great Reputation not altogether undeservedly, I must confess, that these irregular Symptoms sometimes precede its Exhibition, and even constitute the very first Scene of the Tragedy, before the Fever has shewn itself to be what it really is.

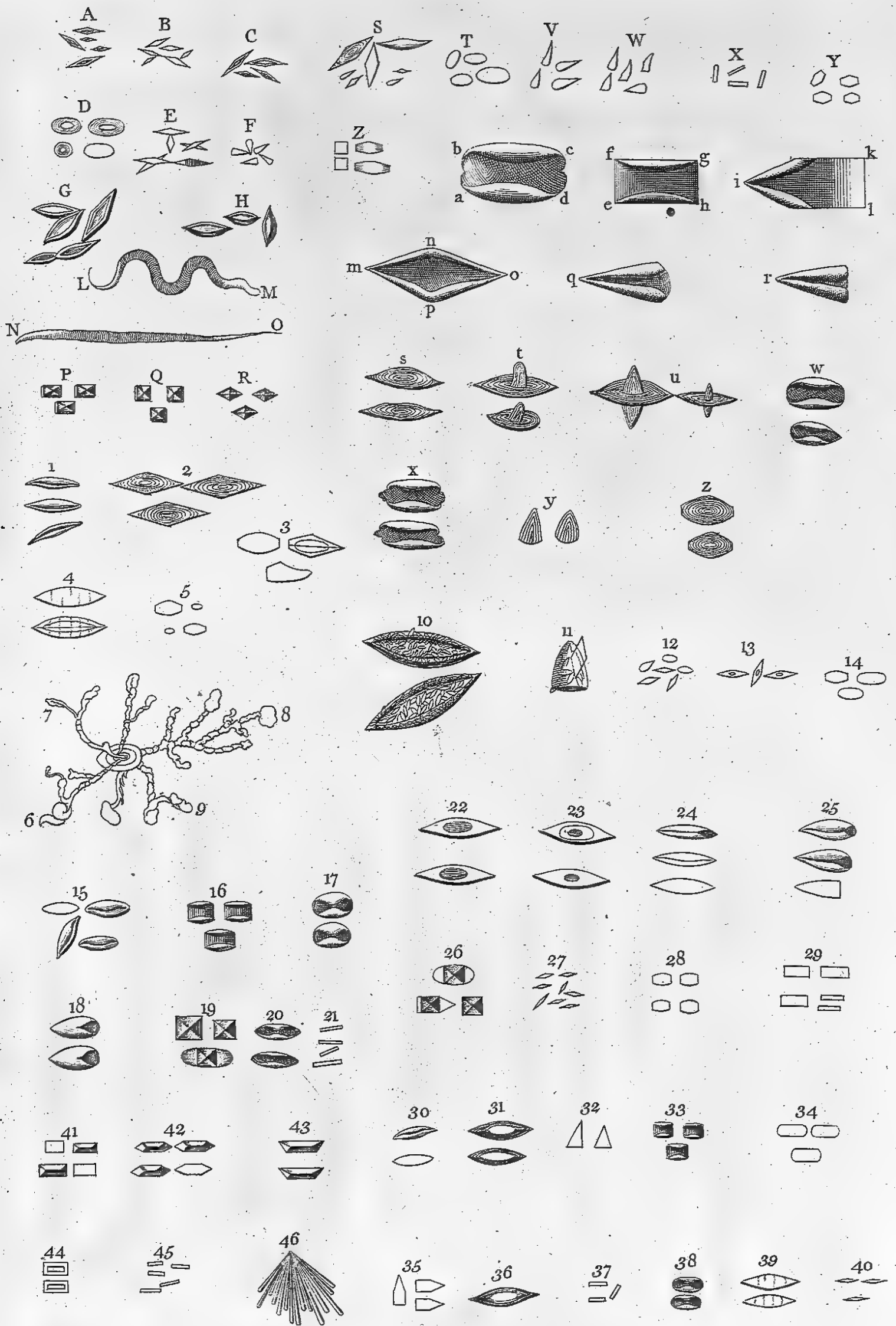
In order to distinguish these Cases, regard is to be had to the genuine Symptoms attending Disorders of the Part affected, to the Constitution, and the Inefficacy of Remedies which usually

usually relieve. If a Fever has preceded, which was treated with the Bark, tho' many Years before, it lays a Foundation for suspecting that to be the latent Cause, especially if it has frequently returned, and as often been treated with the Bark. But if a Sediment of a Pink-colour subsides to the Bottom of the Urine, or the Pain is periodical, it puts the Case out of Dispute. It often, however, happens, that tho' a latent Fever is the Cause of the Complaints, yet at first there is no Separation in the Urine, nor do the Symptoms recur at any regular Periods; but, after prudent Evacuations, the Periods generally become more regular, and the Disease betrays its Family by the Sediment above described. The Method, therefore, is to take away some Blood; after this, to give one lenient Purge, or more, if necessary. The Alteratives should consist princi-

pally of neutral Salts, either natural, as Nitre, or artificial, as Juice of Lemons with Salt of Wormwood, distill'd Vinegar with volatile Sal Ammoniac, and some simple Water as a Vehicle, and an Addition of a proper Syrup to make it agreeable; the *Terra Foliated Tartari*, otherwise call'd *Tartarus Regeneratus*; *Tartarus Tartarizatus*; but, above all, the *Tartarus Vitriolatus*, perfectly neutraliz'd, according to *Boerhaave's* Method. Such a Treatment will very seldom fail to make the Disorder, if caused by an Intermitting Fever, appear in its proper Form; and then the *Peruvian Bark*, if it should be judged proper, will generally cure it; or a Continuation of the same neutral Salts, with lenient Purges, intercalated at proper Intervals, will generally perform a Cure, especially if assisted with Blisters, if necessary, and nothing forbids their Use.



END of VOL. I.



Place this before the Signature V.

L. Baurer sculp.

Plate II.

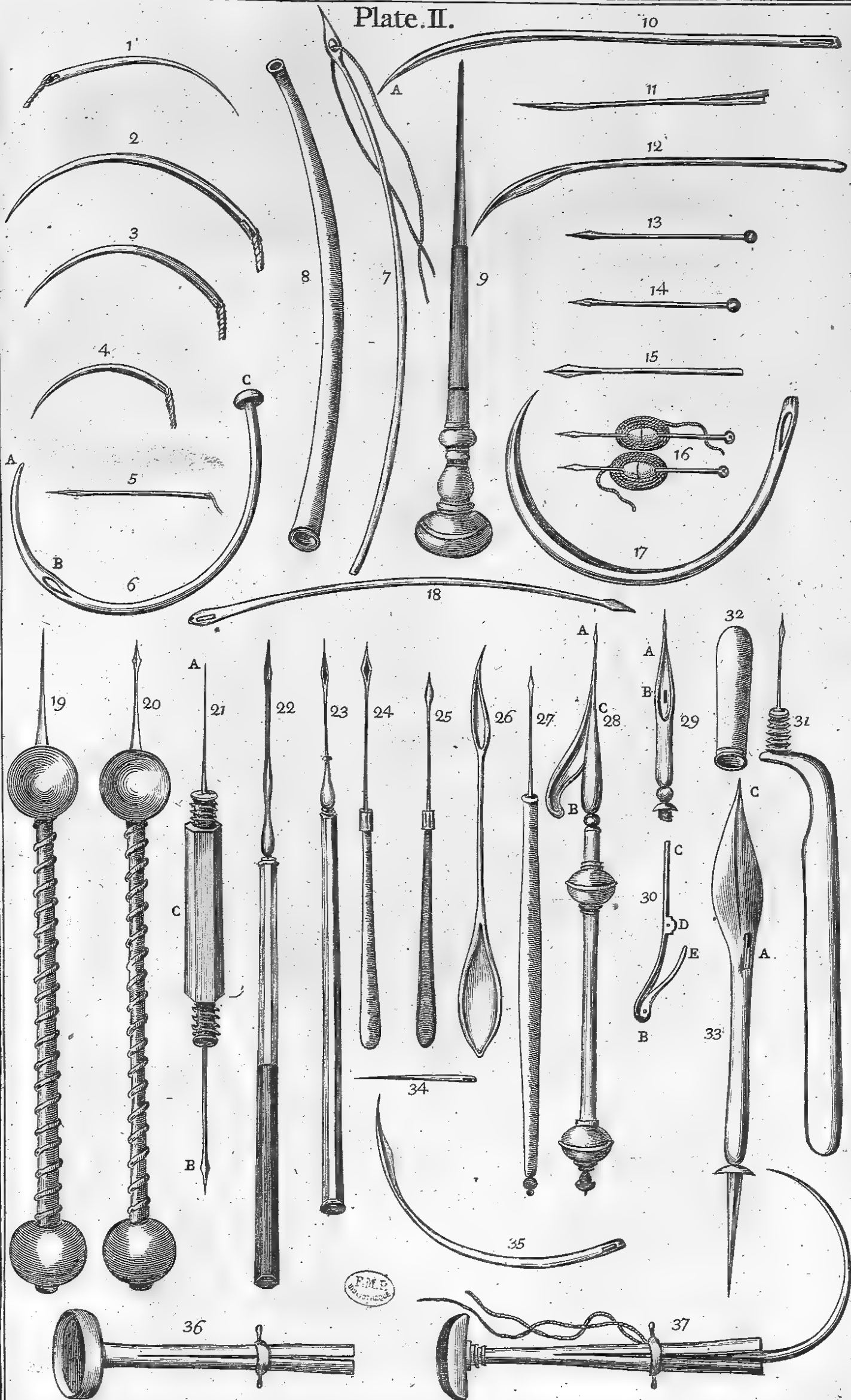
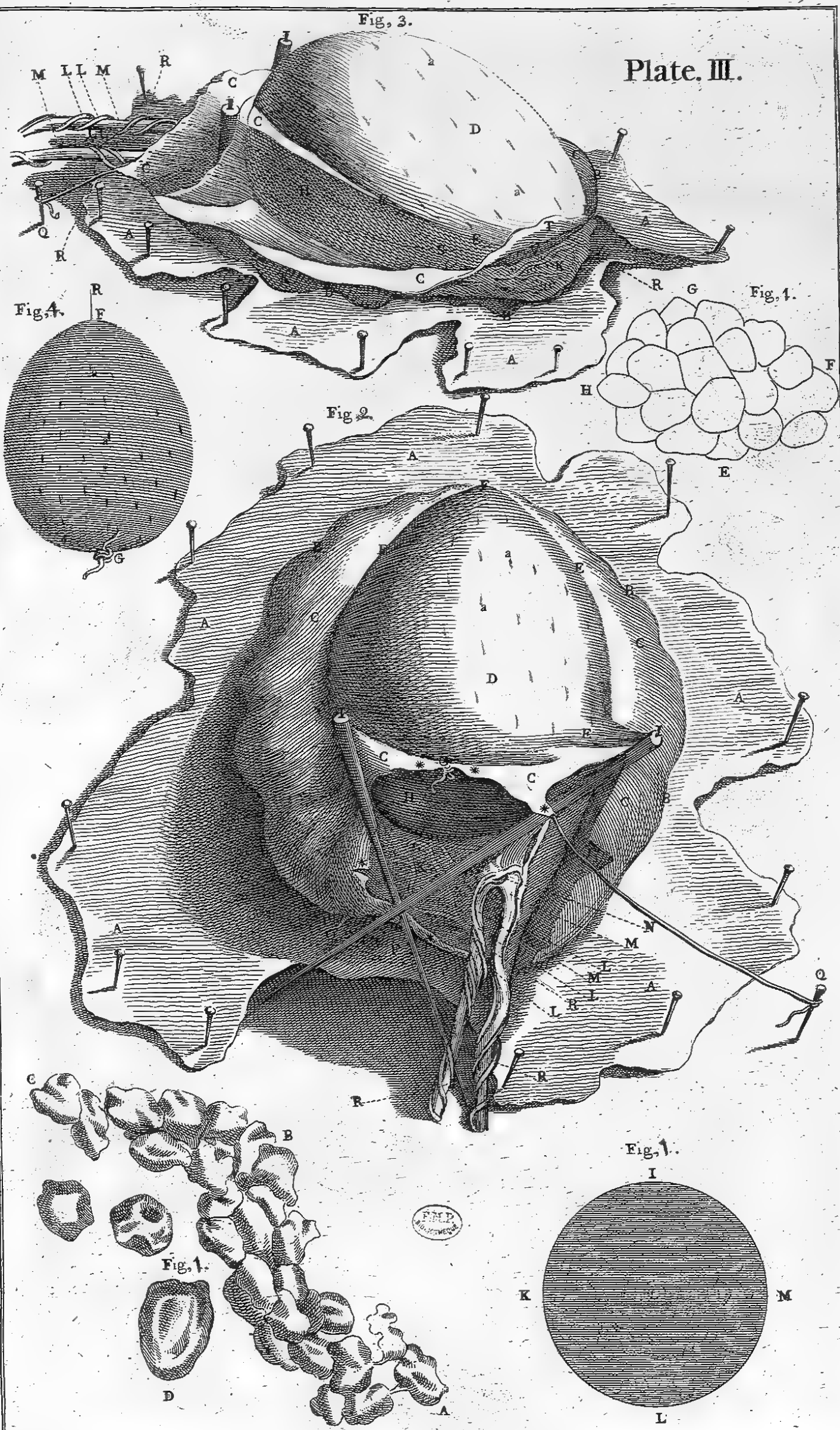
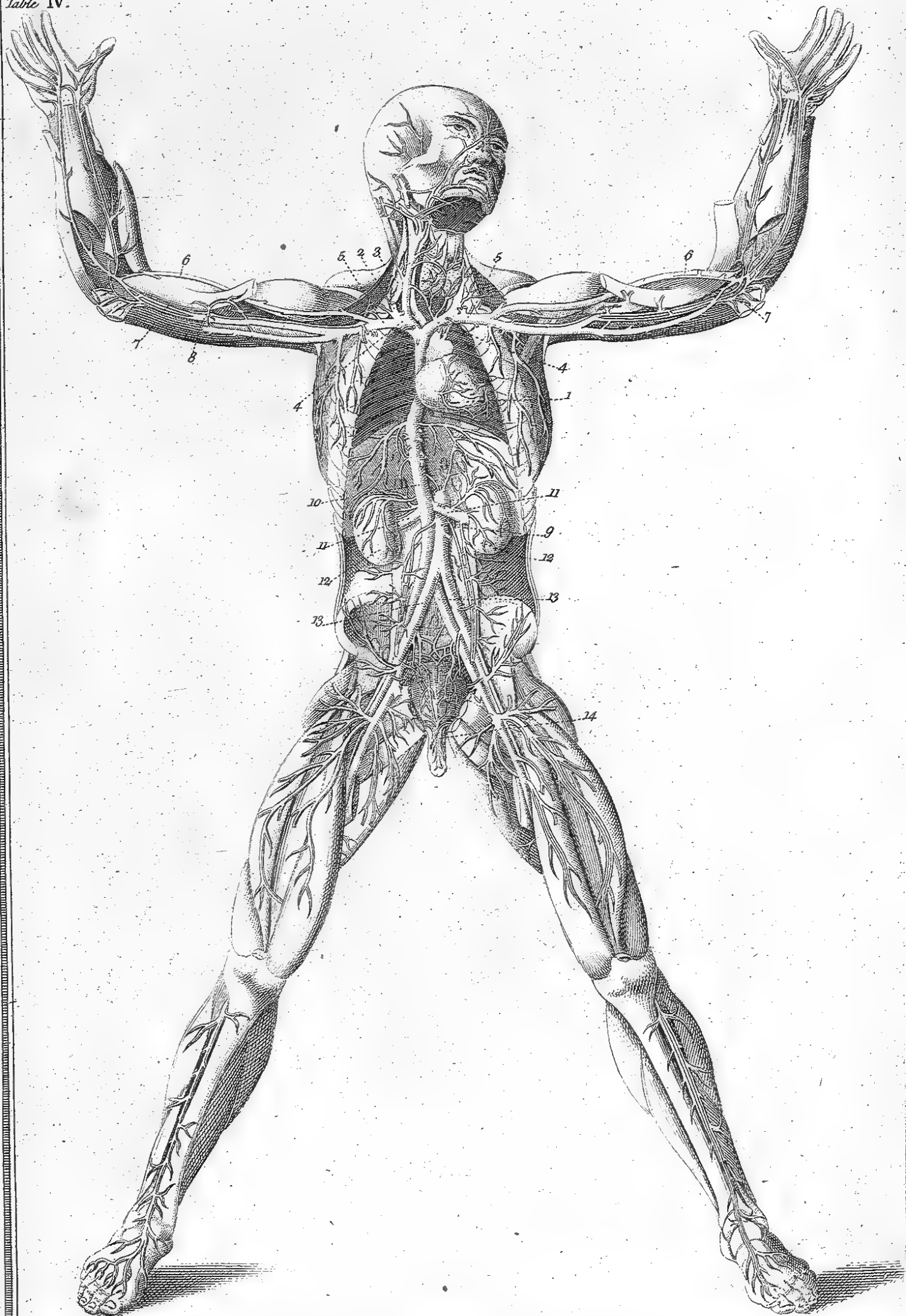


Plate. III.



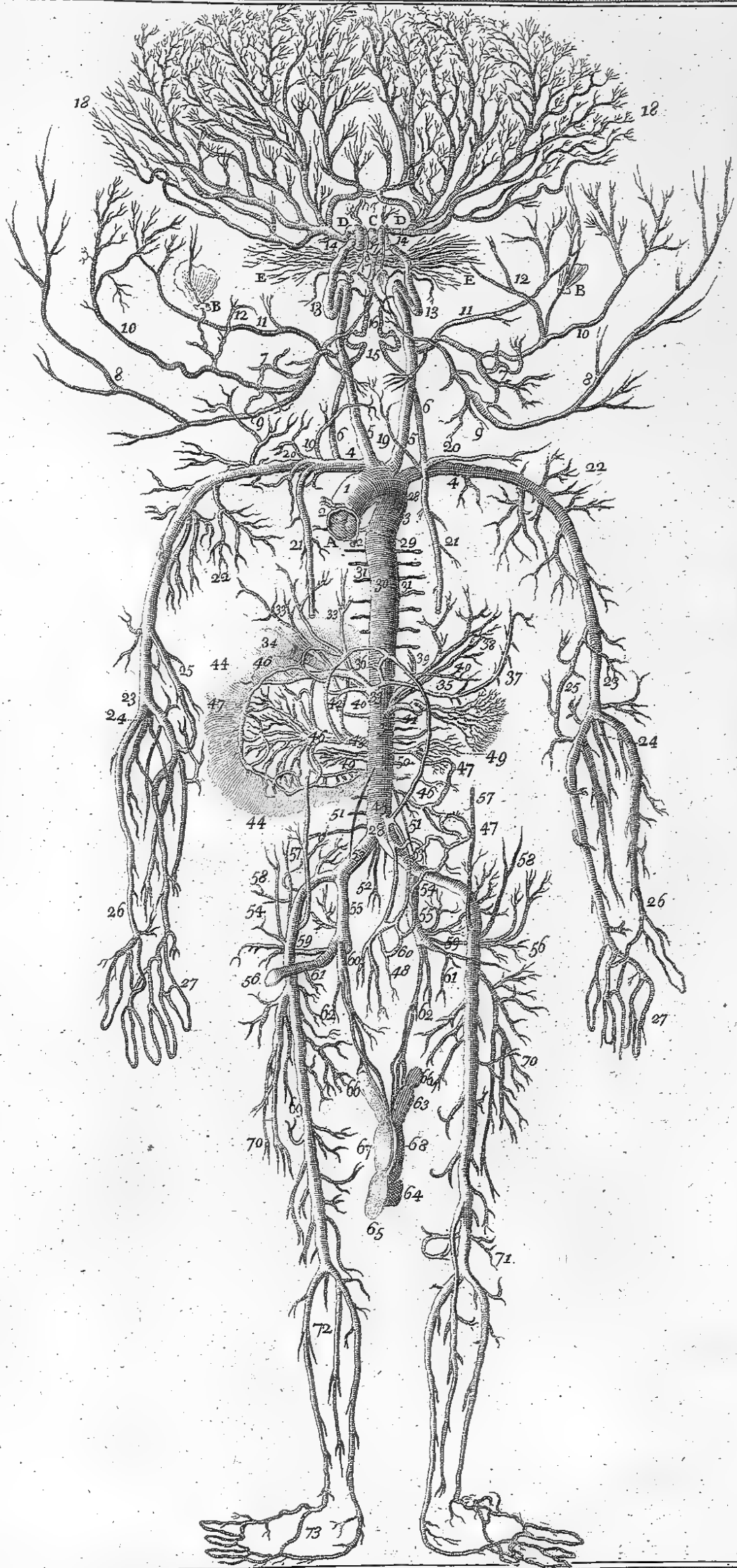
G. Bickham, del. sc.

Table IV.



J. B. de la Haye sculp.

Table V.



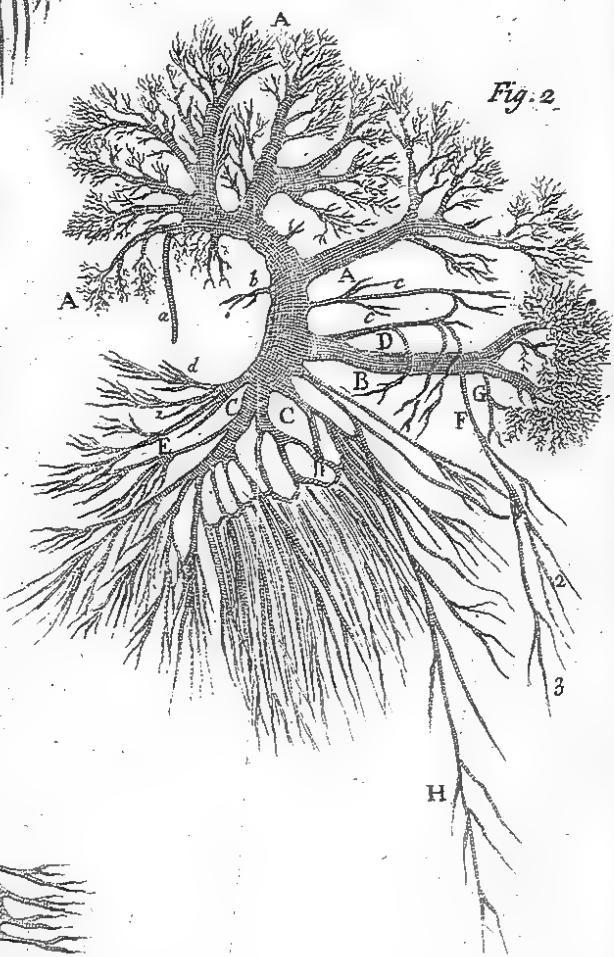
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Table VI.

Fig. 1.



Fig. 2.



I. Bafire, sculp.

Table VII.

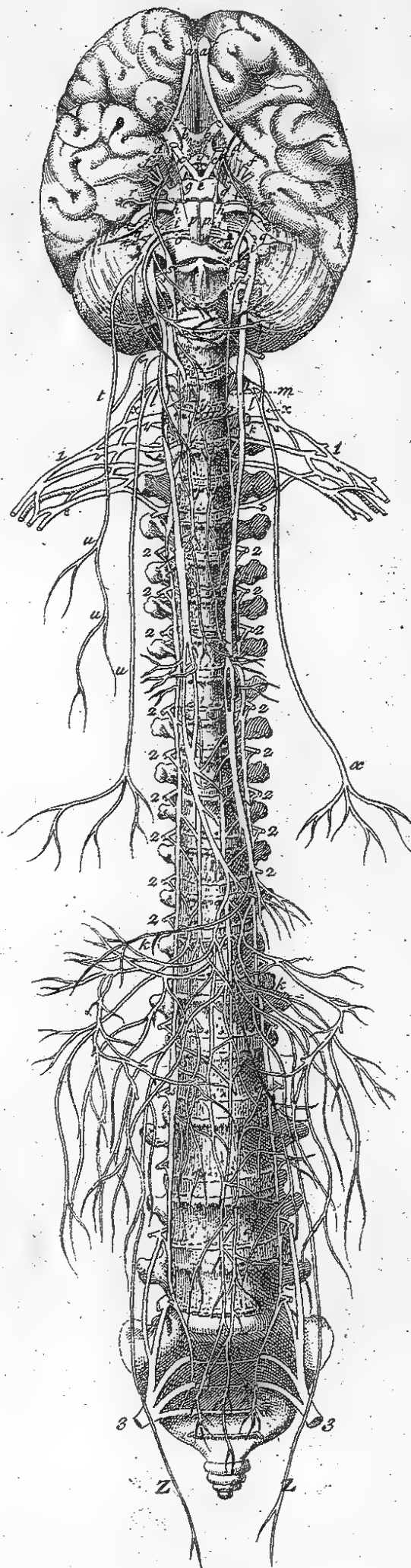


Table VIII.

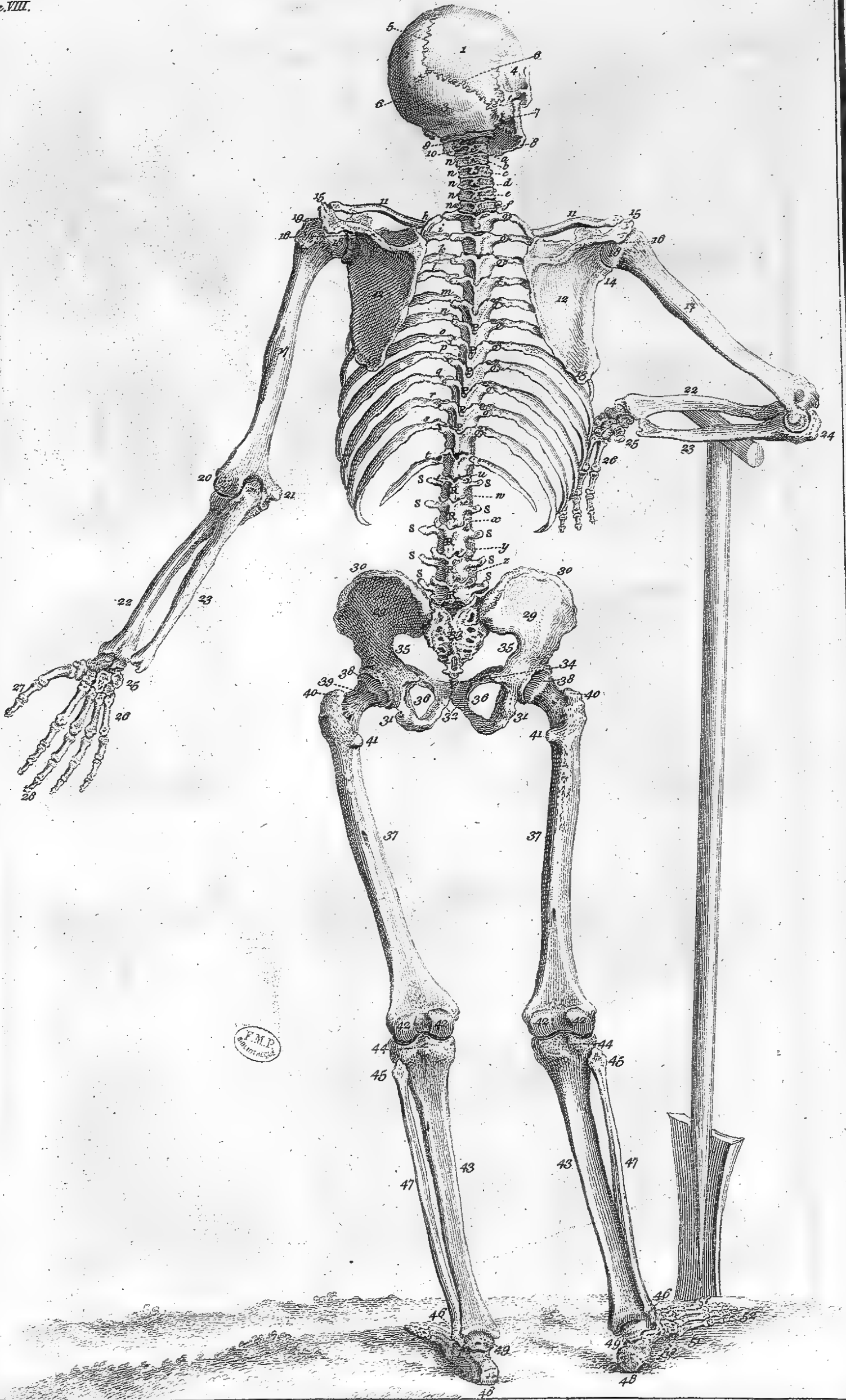
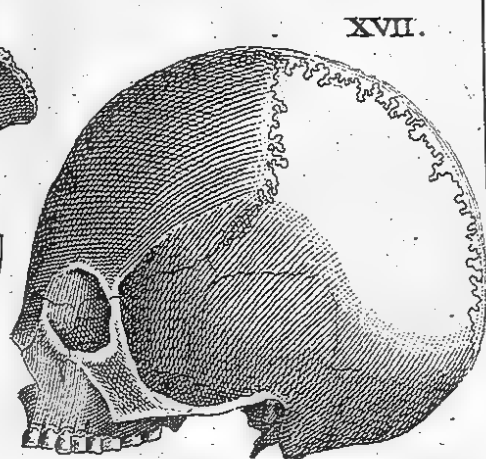
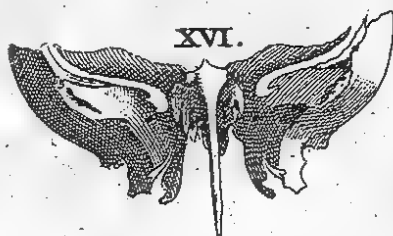
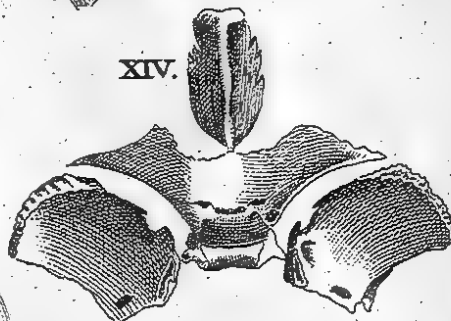
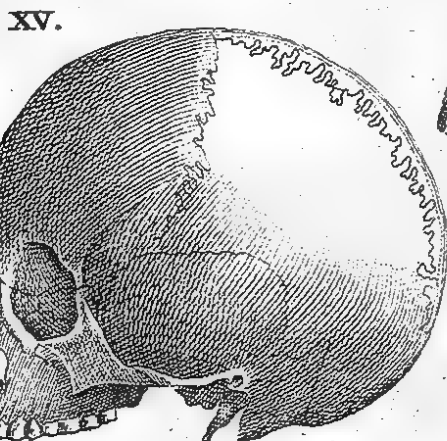
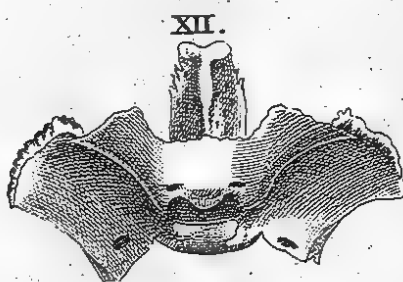
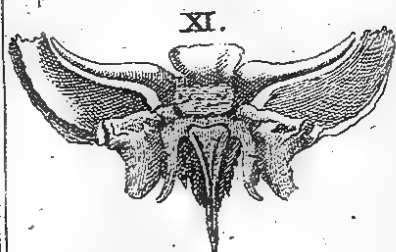
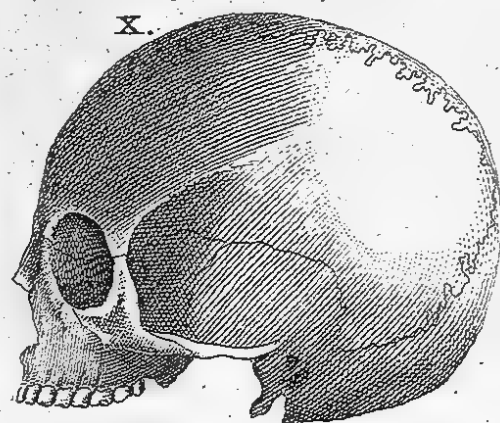
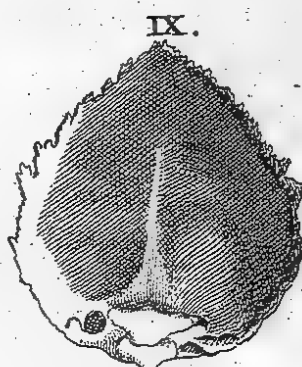
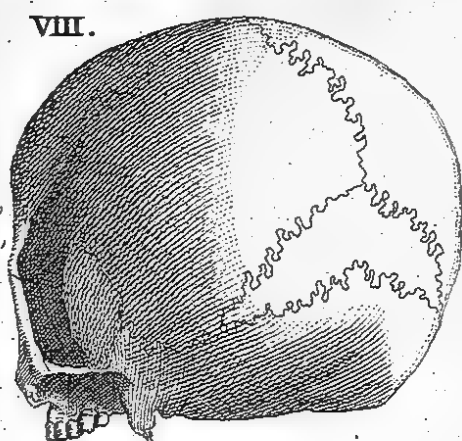
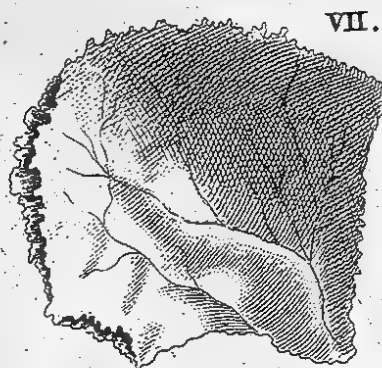
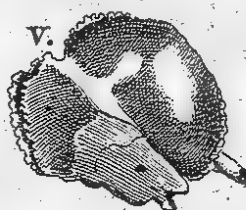
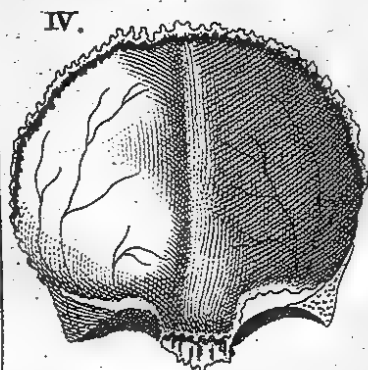
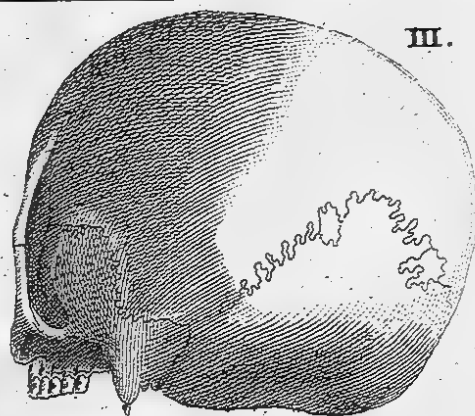
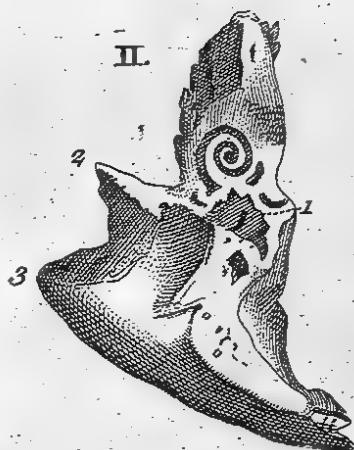
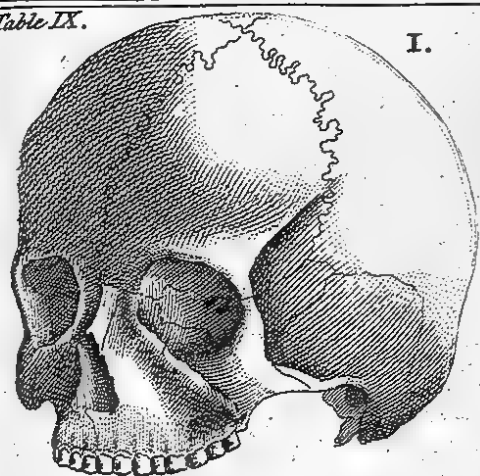
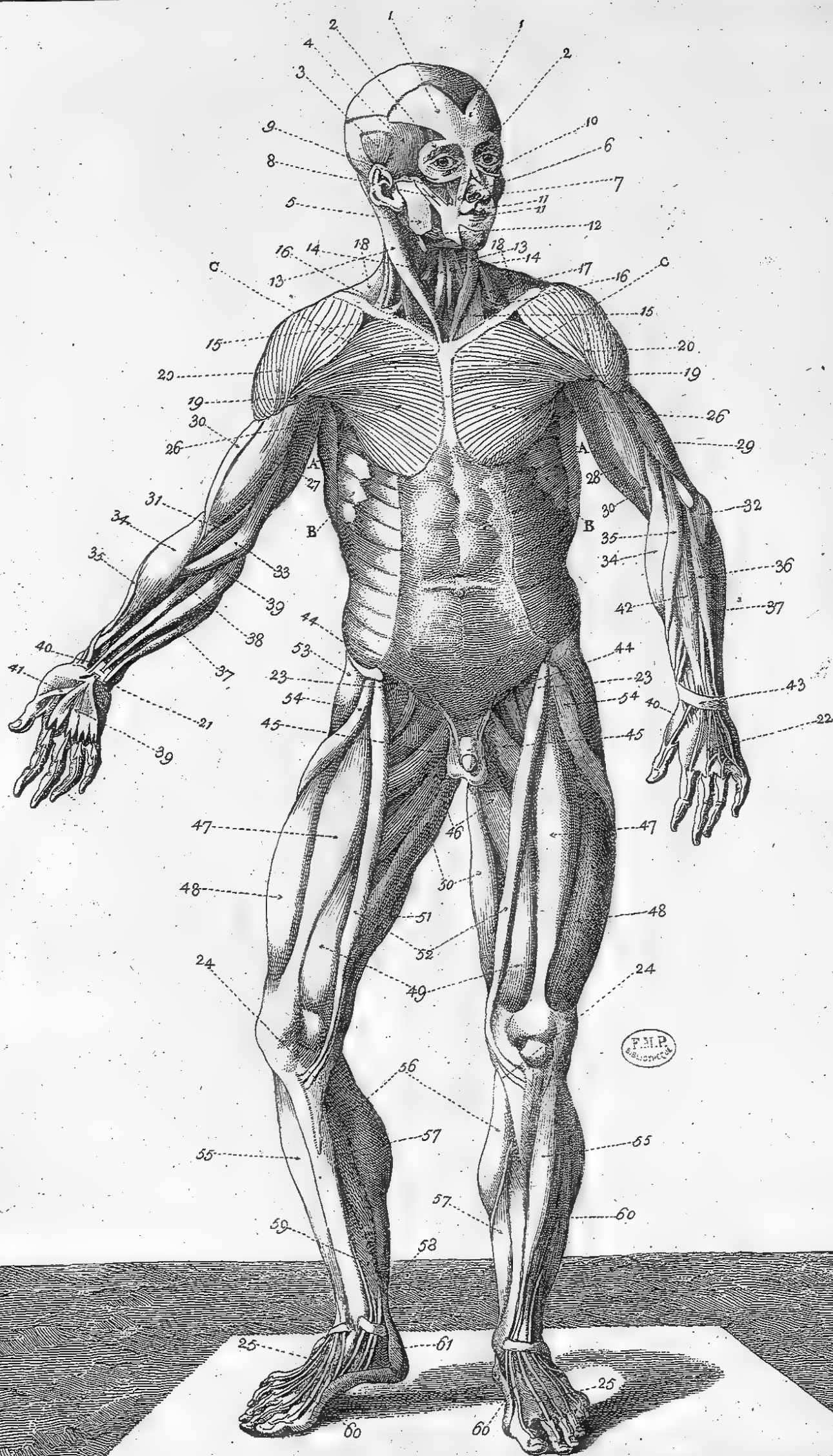


Table IX.



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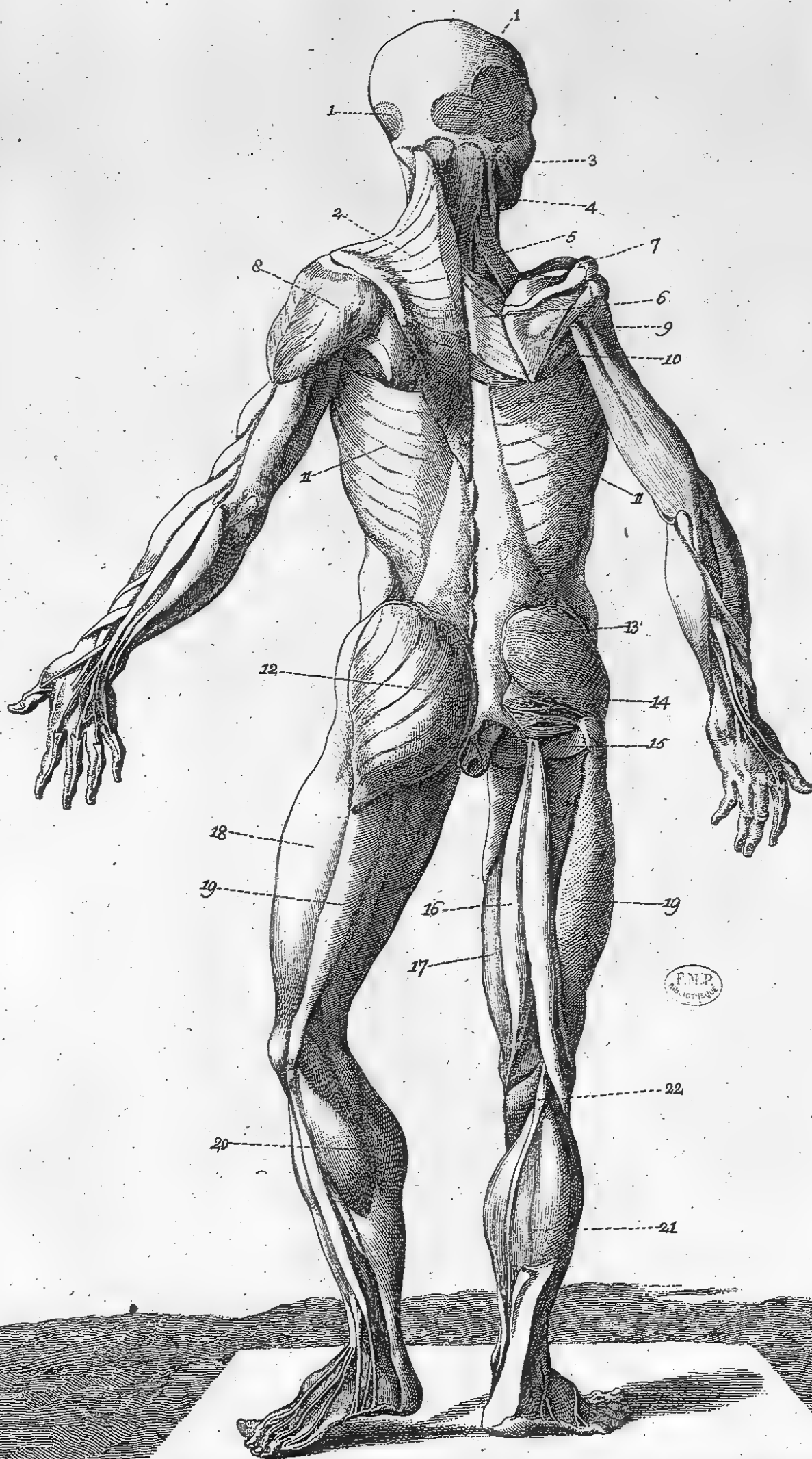


Fig. 1.

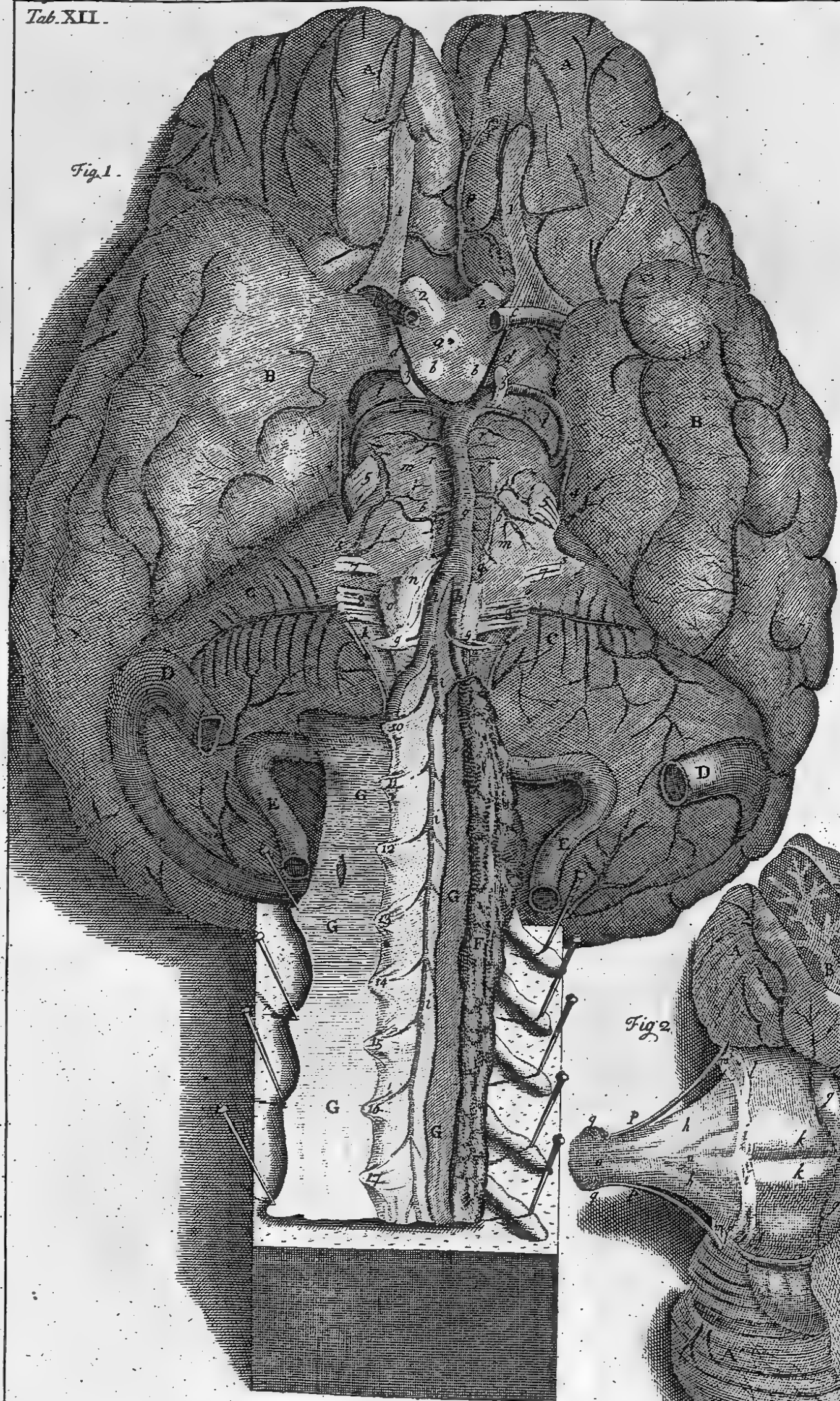


Fig. 2.

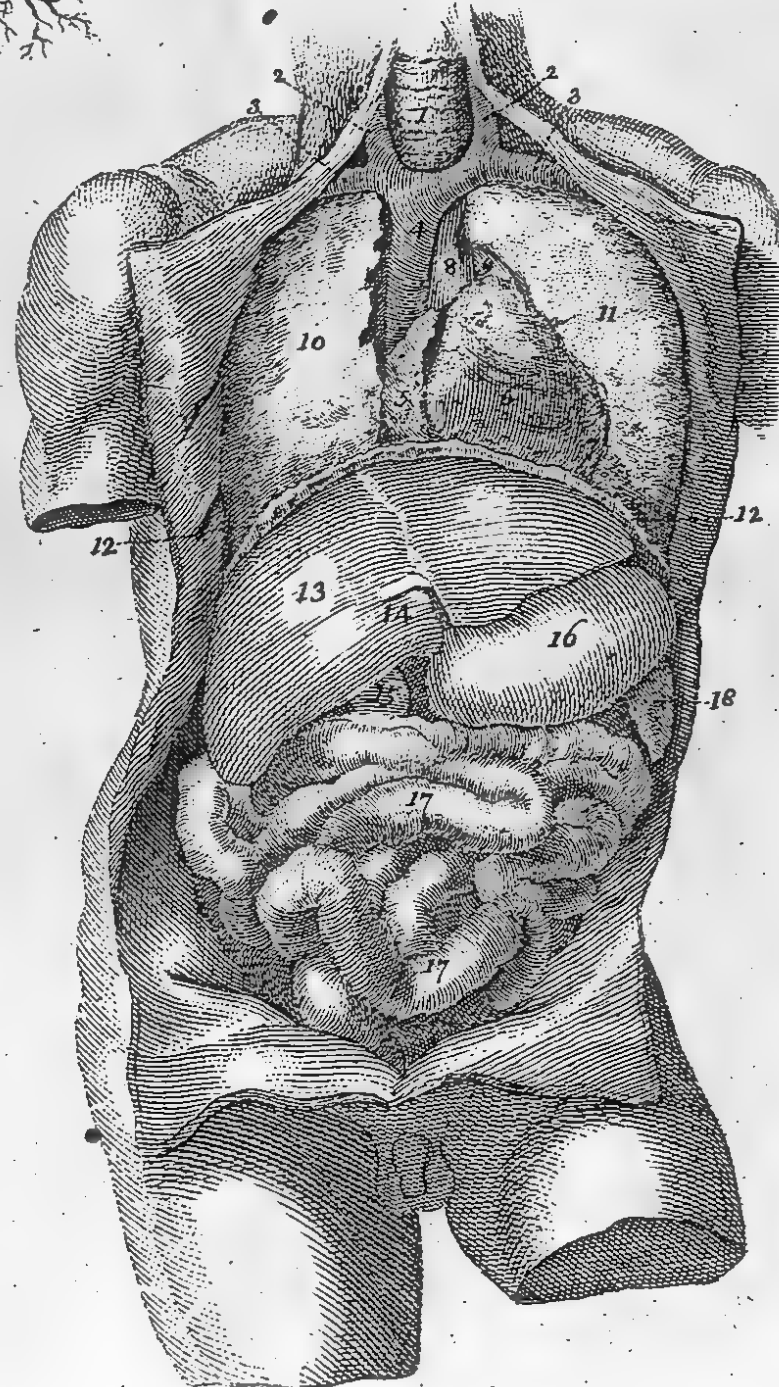
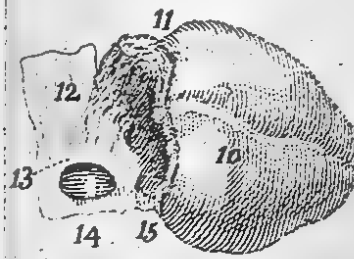
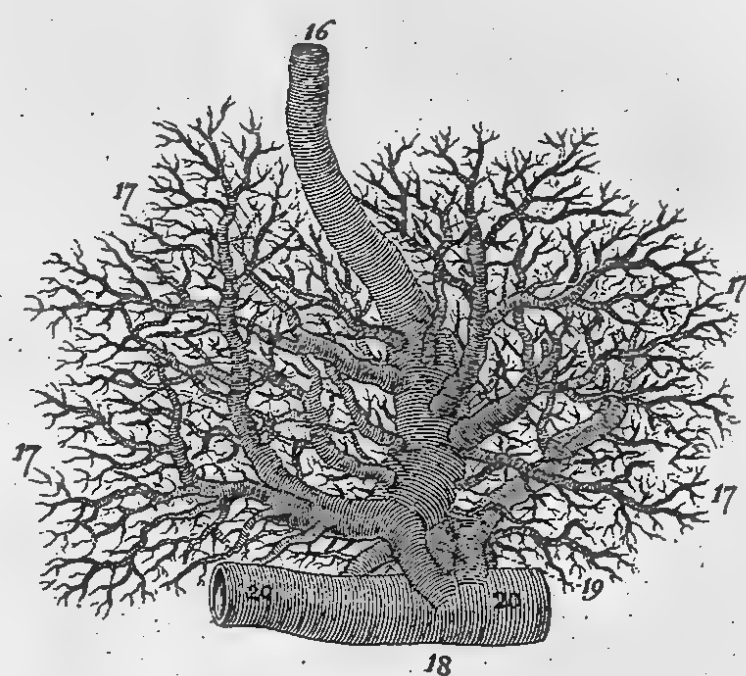
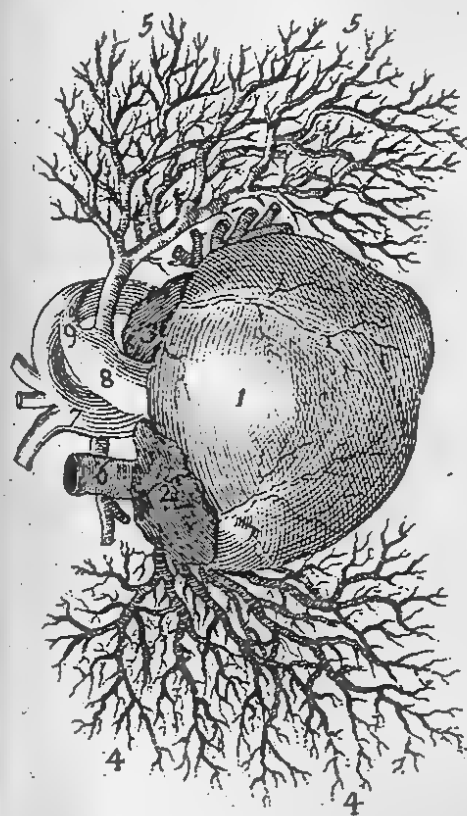
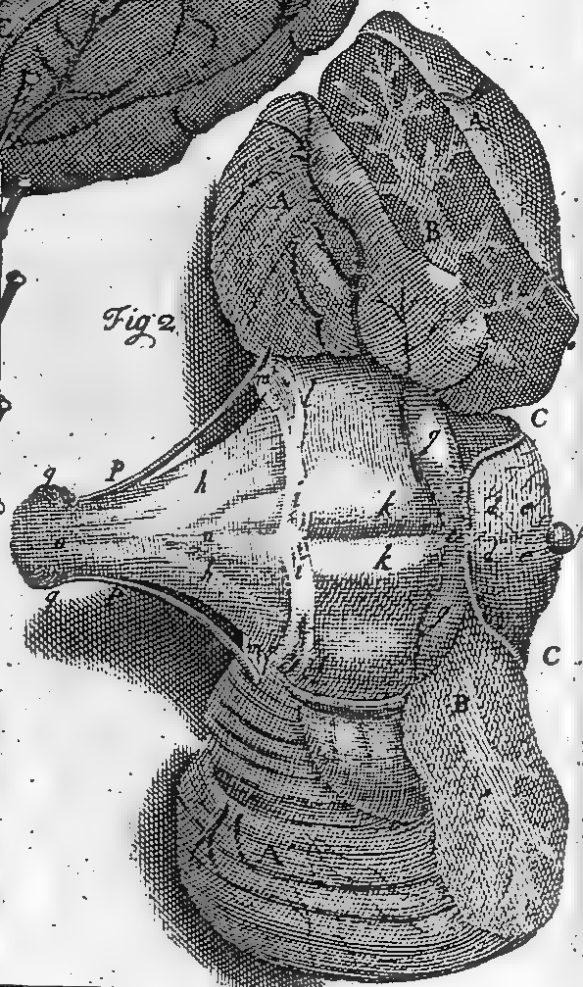
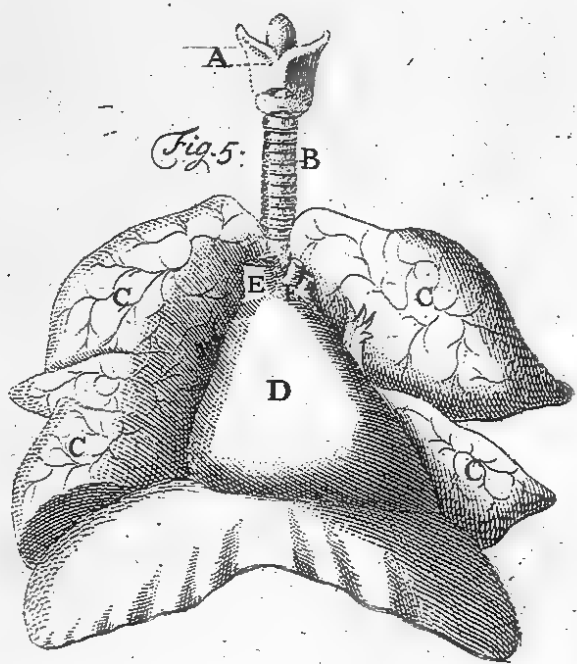
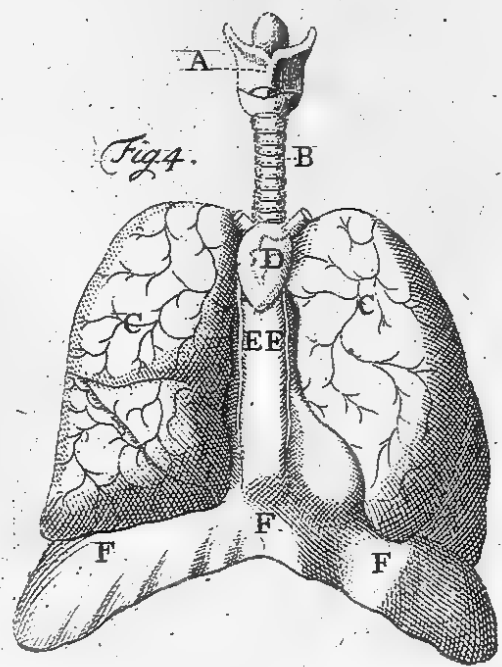
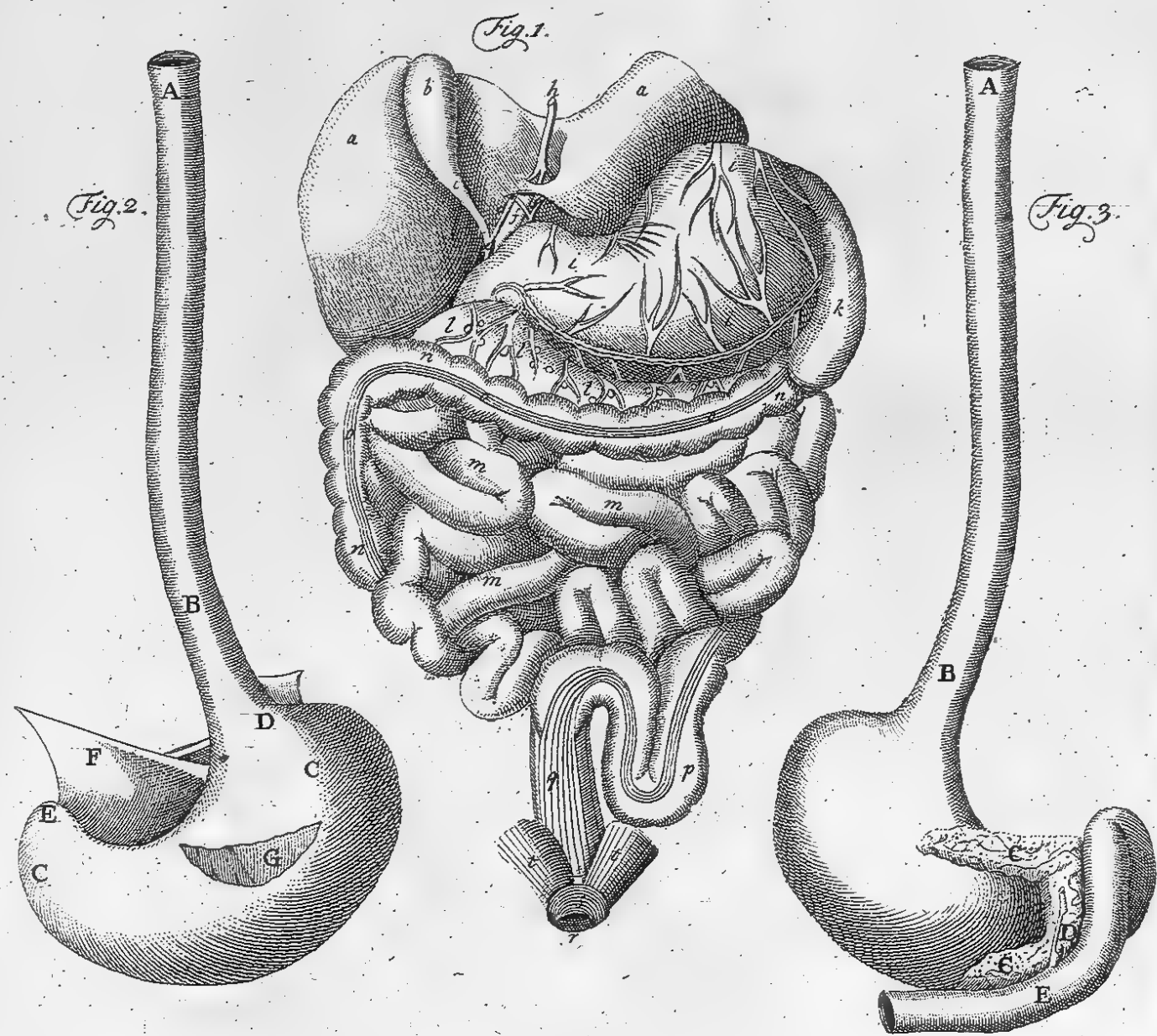
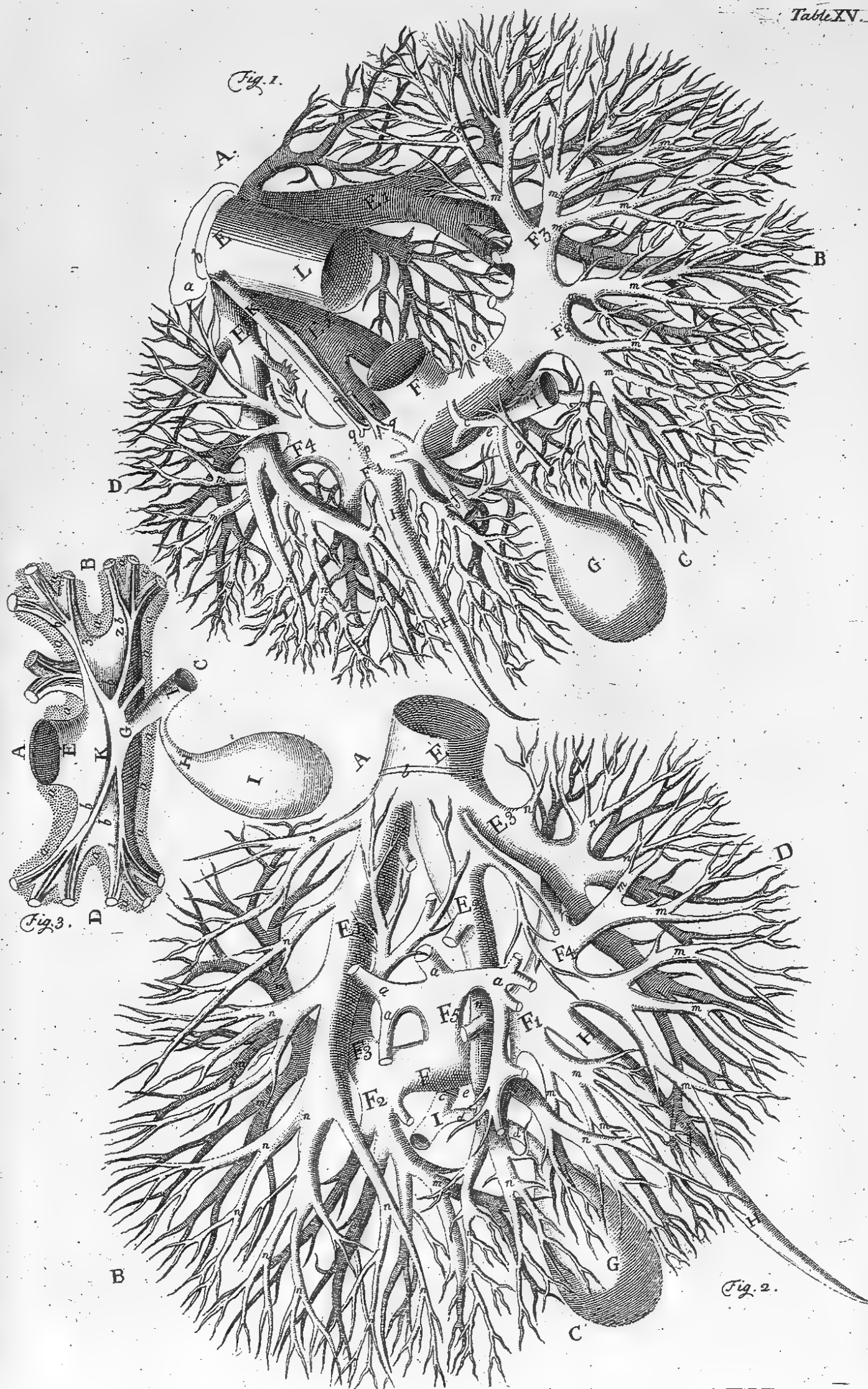


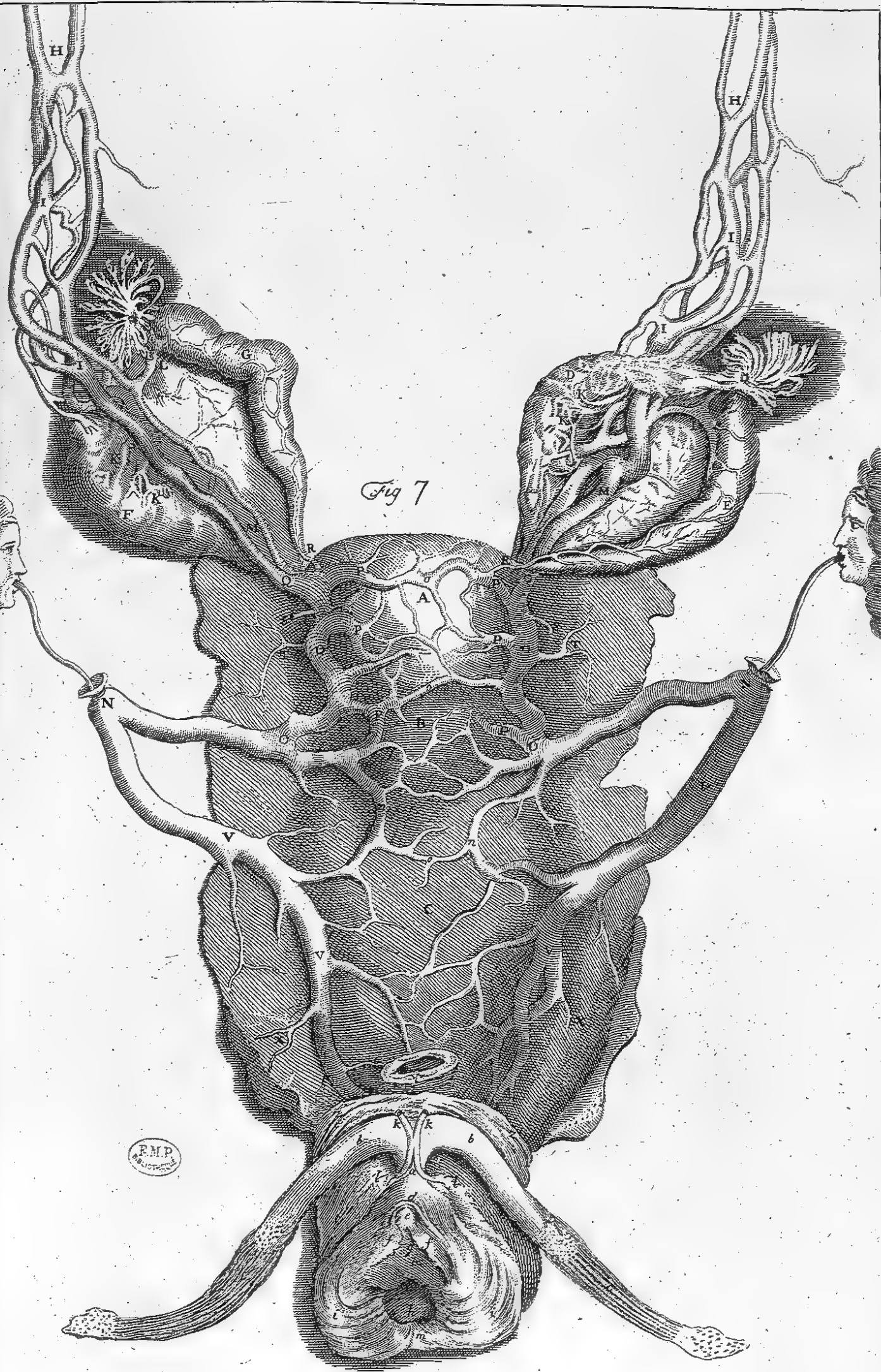
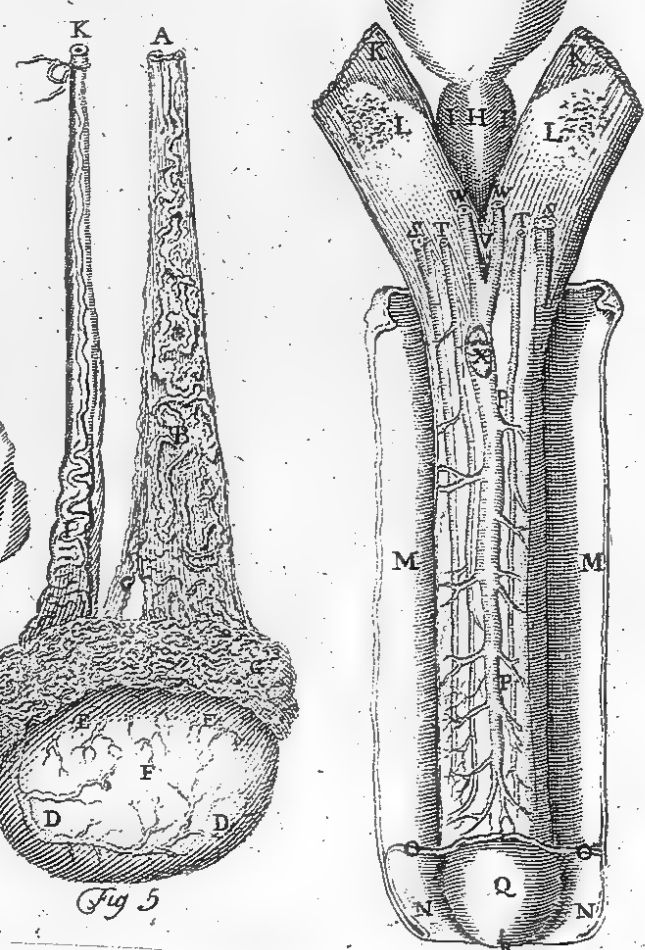
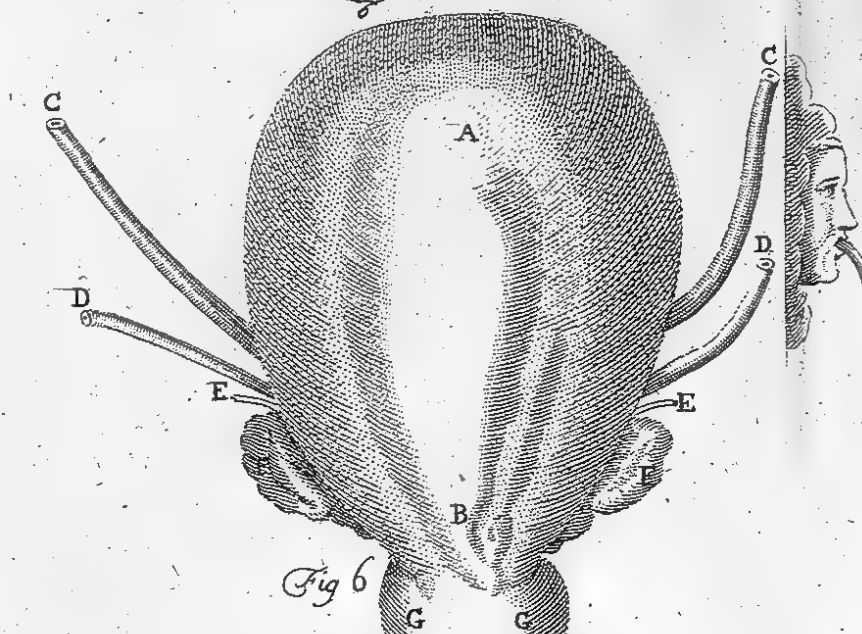
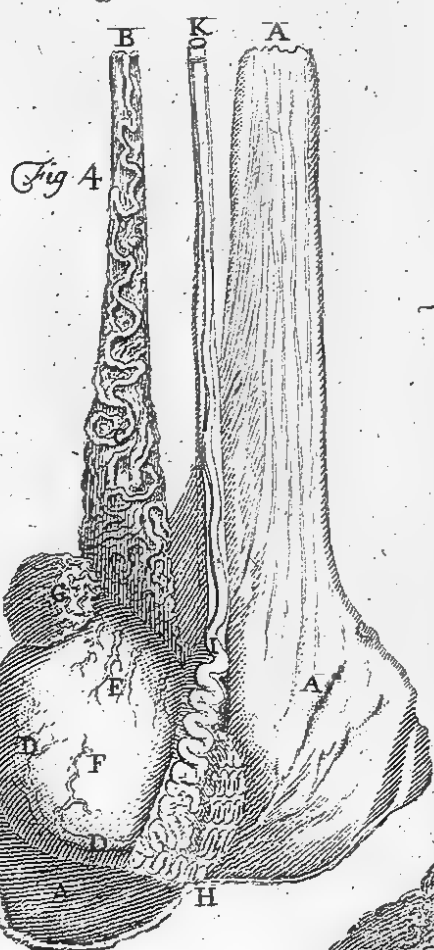
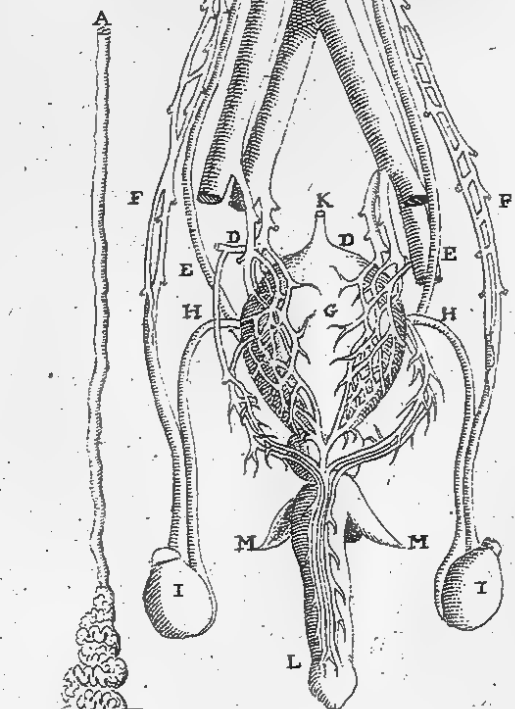
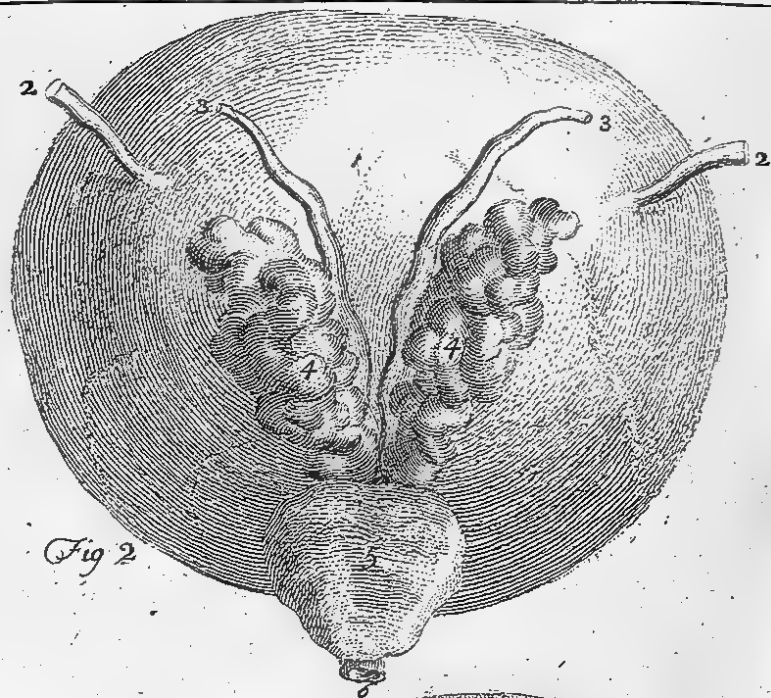
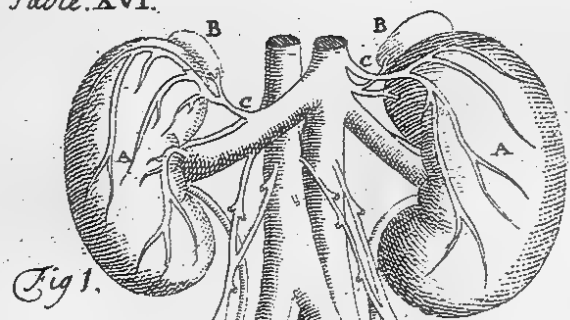
Table XIV.



J. B. Baillie sculp.

Table XV.





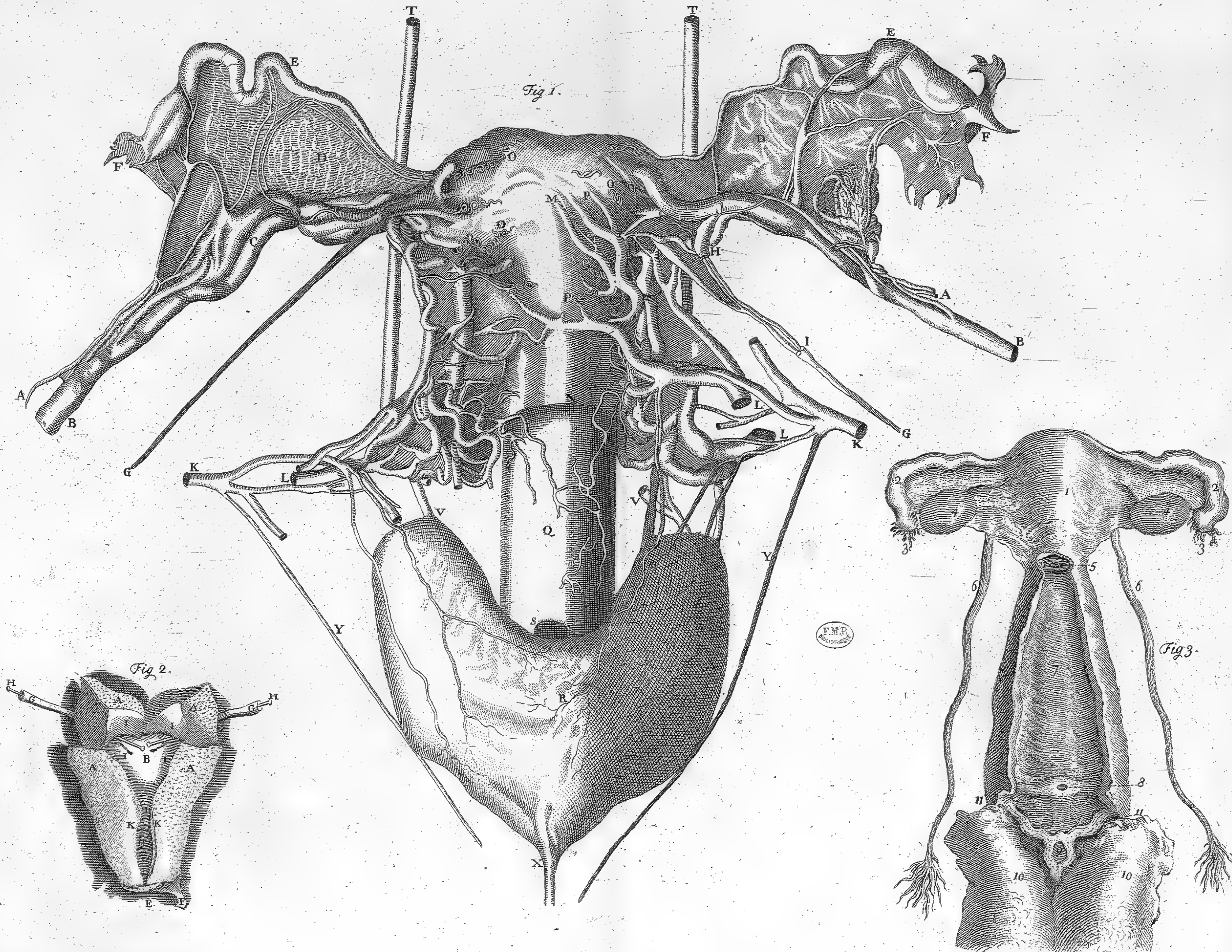


Table 20

C H A R A C T E R S.

<i>Abstrahere</i>	A	To Abstract	<i>Chalybs</i>	♂	Steel or Iron
<i>Acetum</i>	✕	Vinegar	<i>Cineres</i>	☐	Ashes
<i>Acetum Distillatum</i>	✕	Distill'd Vinegar	<i>Cineres clavellate</i>	☐	Pot Ash
<i>Aer</i>	✕	Air	<i>Cinnabaris</i>	☐	Cinnabar
<i>Erugo destillata</i>	☐	Distill'd Verdigrise	<i>Coagulare</i>	HE.	To Coagulate
<i>Es Ustum</i>	♀	Burnt Brass	<i>Cornu Cervi</i>	CC.	Hartshorn
<i>Abenum</i>	☐	A Kettle	<i>Cornu cervi ustum</i>	CC.U	Burnt Hartshorn
<i>Albumen</i>	☐	The white of an Egg	<i>Creta</i>	☐	Chalk
<i>Albaest vini</i>	☐	highly rectified Spirit of Wine	<i>Crocus</i>	☐	Saffron
<i>Alembicus</i>	XX	An Alembic	<i>Crucibulum</i>	+	A Crucible
<i>Alumen</i>	O	Alum	<i>Crystallus</i>	☐	Crystal
<i>Alumen plumosum</i>	OP.	Plumous Alum	<i>Cuprum</i>	♀	Copper
<i>Alumen ustum</i>	☐	Burnt Alum	<i>Destillare</i>	Q.d.	To Distil
<i>Amalgama</i>	aaa.		<i>Dies</i>	♂	A Day
<i>Ampbora</i>	☐	A Pail or Wooden Vessel of nine Gallons properly	<i>Digerere</i>	8	To Digest
<i>Ana</i>	a a	Equal parts of each	<i>Drachma</i>	3	A Dram
<i>Annus</i>	☐	A Year	<i>Essentia</i>	☐	Esence
<i>Antimonium</i>	☐	Antimony	<i>Fæces vini</i>	☐	Lies of Wine
<i>Aqua</i>	▽	Water	<i>Farina</i>	☐	Meal
<i>Aqua fortis</i>	▽		<i>Farina laterum</i>	☐	Brickdust
<i>Aqua Pluvialis</i>	▽ pl.	Rain Water	<i>Ferrum</i>	♂	Iron
<i>Aqua Regia</i>	▽		<i>Filtrare</i>	33	To filter
<i>Aqua salis nitri</i>	☐	Mother Water of Nitre	<i>Fluere</i>	≈	To Flow
<i>Aqua vitæ</i>	▽	Brandy	<i>Fuligo</i>	☐	Soot
<i>Arcitenens</i>	♂	Sagittarius a Celestial Sign	<i>Fumus</i>	☐	Smoke
<i>Arena</i>	☐	Sand	<i>Gemini</i>	II	The Celestial Sign so call'd
<i>Argentum</i>	☐	Silver	<i>Granum</i>	gr.	A Grain
<i>Argentum limatum</i>	☐	Filings of Silver	<i>Gummi</i>	☐	Gum
<i>Argentum vivum</i>	♀	Quicksilver	<i>Gutta</i>	G.g.	A Drop
<i>Aries</i>	▽	The Ram a Celestial Sign	<i>Hora</i>	8	An Hour
<i>Arsenicum</i>	☐	Arsenic	<i>Ignis</i>	△	Fire
<i>Atripigmentum</i>	☐	Orpiment	<i>Ignis reverberans</i>	△ R.	A reverberating Fire
<i>Aurum</i>	☐	Gold	<i>Ignis rotæ</i>	☐	A circular Fire
<i>Aurum foliatum</i>	☐	Leaf Gold	<i>Jupiter</i>	♂	Tin
<i>Aurum limatum</i>	☐	Filings of Gold	<i>Lapis Hæmalites</i>	☐	Blood Stone
<i>Aurum potabile</i>	OP.		<i>Lapis Lazuli</i>	☐	
<i>Balneum</i>	B.	A Bath	<i>Leo</i>	♂	The Celestial Sign so call'd
<i>Balneum Mariæ</i>	NB.	The Heat of boiling Water	<i>Libra coelestis</i>	☐	The Celestial sign so call'd
<i>Balneum vaporis</i>	VB	Vapour Bath or Heat	<i>Libra pondo</i>	☐	A Pound Weight
<i>Borax</i>	☐		<i>Litbargyrus</i>	☐	Litharge
<i>Cæmentare</i>	☐	To Cement	<i>Luna</i>	☐	Silver
<i>Calcinare</i>	☐	To Calcine	<i>Lutare</i>	☐	To Lute
<i>Calx</i>	c.	Lime	<i>Lutum Hermis</i>	☐	Lute of Hermes
<i>Calx viva</i>	♀	Quick Lime	<i>Magnes</i>	☐	The Load Stone
<i>Campbora</i>	☐	Camphire	<i>Manipulus</i>	M	A Handful
<i>Cancer</i>	☐	The Celestial sign thus call'd	<i>Manipulus semis</i>	M s.	Half a Handful
<i>Capricornus</i>	☐	The Celestial Sign so call'd	<i>Marcasita</i>	♂	Marcasite
<i>Caput mortuum</i>	☐		<i>Mars</i>	♂	Iron
<i>Cera</i>	☐	Wax	<i>Martis limatura</i>	☐	Filings of Iron
<i>Cerussa</i>	☐	Cerufs	<i>Massa</i>	☐	A Mass

Table 21

C H A R A C T E R S.

<i>Materia</i>	aa	Matter	☐	Scorpius	☐	The Celestial Sign Scorpius
<i>Materia Prima</i>	M.P.	The first Matter	☐	Scrupulus	☐	A Scruple
<i>Mel</i>	☐	Honey	☐	Semis	☐	Half
<i>Menstris</i>	☐	A Month	☐	Sextilis	☐	Sexile
<i>Mercurius</i>	☐	Mercury	☐	Sigillare Hermetice	S.H.	To Seal hermetically
<i>Mercurius præcipitatus</i>	☐	Mercury Precipitate	☐	Sol	☐	The Sun or Gold
<i>Mercurius sublimatus</i>	☐	Mercury Sublimate	☐	Solvere	☐	To Dissolve
<i>Nitrum</i>	☐	Nitre	☐	Spiritus	☐	Spirit
<i>Nox</i>	☐	A Night	☐	Spiritus vini	☐	Spirit of Wine
<i>Oleum</i>	☐	Oil	☐	Stannum	☐	Tin
<i>Oleum olivarum</i>	☐	Oil of Olives	☐	Stantium Super Stantium	S.S.S.	To Sublime
<i>Oppositio</i>	☐	Opposition in Astronomy	☐	Sublimare	☐	Amber
<i>Orichalcum</i>	☐	Brass	☐	Succinum	☐	
<i>Pblegma</i>	☐	Phlegm	☐	Sulphur	☐	
<i>Pisces</i>	☐	The Celestial Sign so call'd	☐	Sulphur Philosophorum	☐	Sulphur of the Philosophers
<i>Plumbum</i>	☐	Lead	☐	Sulphur vivum	☐	Mineral or live Sulphur
<i>Præcipitare</i>	☐	To precipitate	☐	Taleum	☐	Talc
<i>Pugillus</i>	☐	A Pugil	☐	Tartarus	☐	Tartar
<i>Pulvis</i>	☐	Powder	☐	Taurus	☐	The Bull a Celestial Sign
<i>Pumice</i>	☐	Pumice Stone	☐	Terra	☐	Earth
<i>Purificare</i>	☐	To Purify	☐	Terra sigillata	☐	Seal'd Earth
<i>Putrificare</i>	☐	To Putrify	☐	Tinctura	☐	Tincture
<i>Quadratus</i>	☐	Quartile	☐	Trigonus	☐	Trine
<i>Quinta Essentia</i>	☐	Quintessence	☐	Venus	☐	Copper
<i>Recipiens</i>	☐	A Receiver	☐	Vinum	☐	Wine
<i>Regulus</i>	☐	A Retort	☐	Vinum album	☐	White Wine
<i>Retorta</i>	☐	Sugar	☐	Vinum coctum	☐	Burnt Wine
<i>Saccharum</i>	☐	Alcaline Salt	☐	Vinum rubrum	☐	Red Wine
<i>Sal alcali</i>	☐	Common Salt	☐	Virgo	☐	The Celestial Sign
<i>Sal ammoniacum</i>	☐	Sea Salt	☐	Viride Aeris	☐	Verdigrise
<i>Sal commune</i>	☐	Salt Nitre or Nitre	☐	Vitellum ovi	☐	The Yolk of an Egg
<i>Sal gemmæ</i>	☐	Soap	☐	Vitriolum	☐	Vitriol
<i>Sal marinum</i>	☐	Lead or Saturn	☐	Vitrum	☐	Glass
<i>Sal nitrum</i>	☐		☐	Uncia	☐	An Ounce
<i>Sapo</i>	☐		☐	Urina	☐	Urine
<i>Saturnus</i>	☐		☐		☐	

		3j a Scruple	20 Grains
	3j a Dram	3 Scruples	60 Grains
	3j 1 Ounce	8 Drams	24 Scruples
1b 1 Pound	12 Ounces	96 Drams	288 Scruples
1lb 1/2 a Pound	6 Ounces	48 Drams	144 Scruples
	3/4 an Ounce	4 Drams	12 Scruples
	3/8 a Dram	1 1/2 Scruples	30 Grains
	3/16 a Scruple		10 Grains

P. Amongst the Medicinal Writers, signifies Pondo, Weight.
 XX. Or as it was afterwards wrote * stands for Denarius.
 These Characters, especially the last, occur in Celsus.

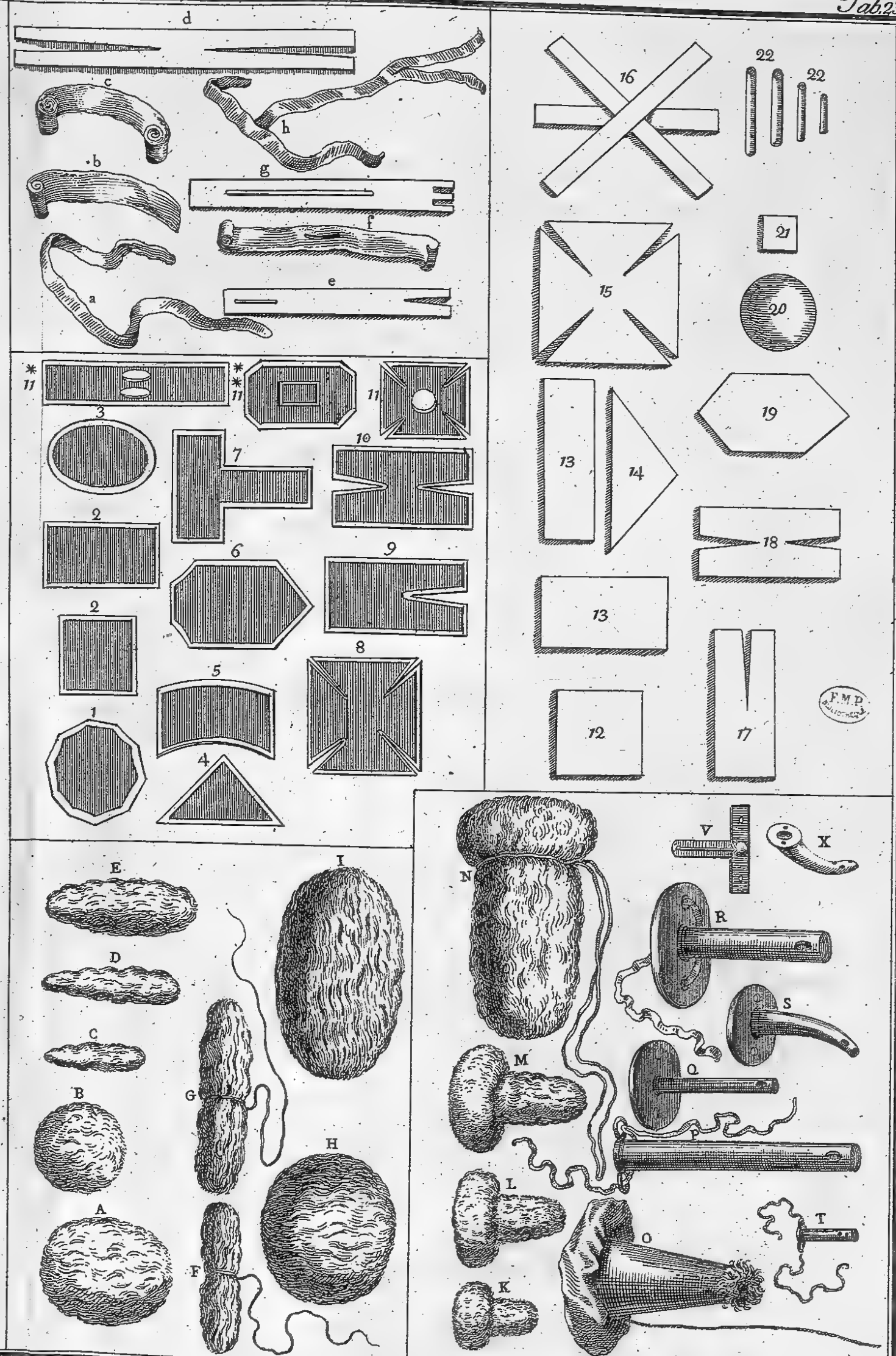
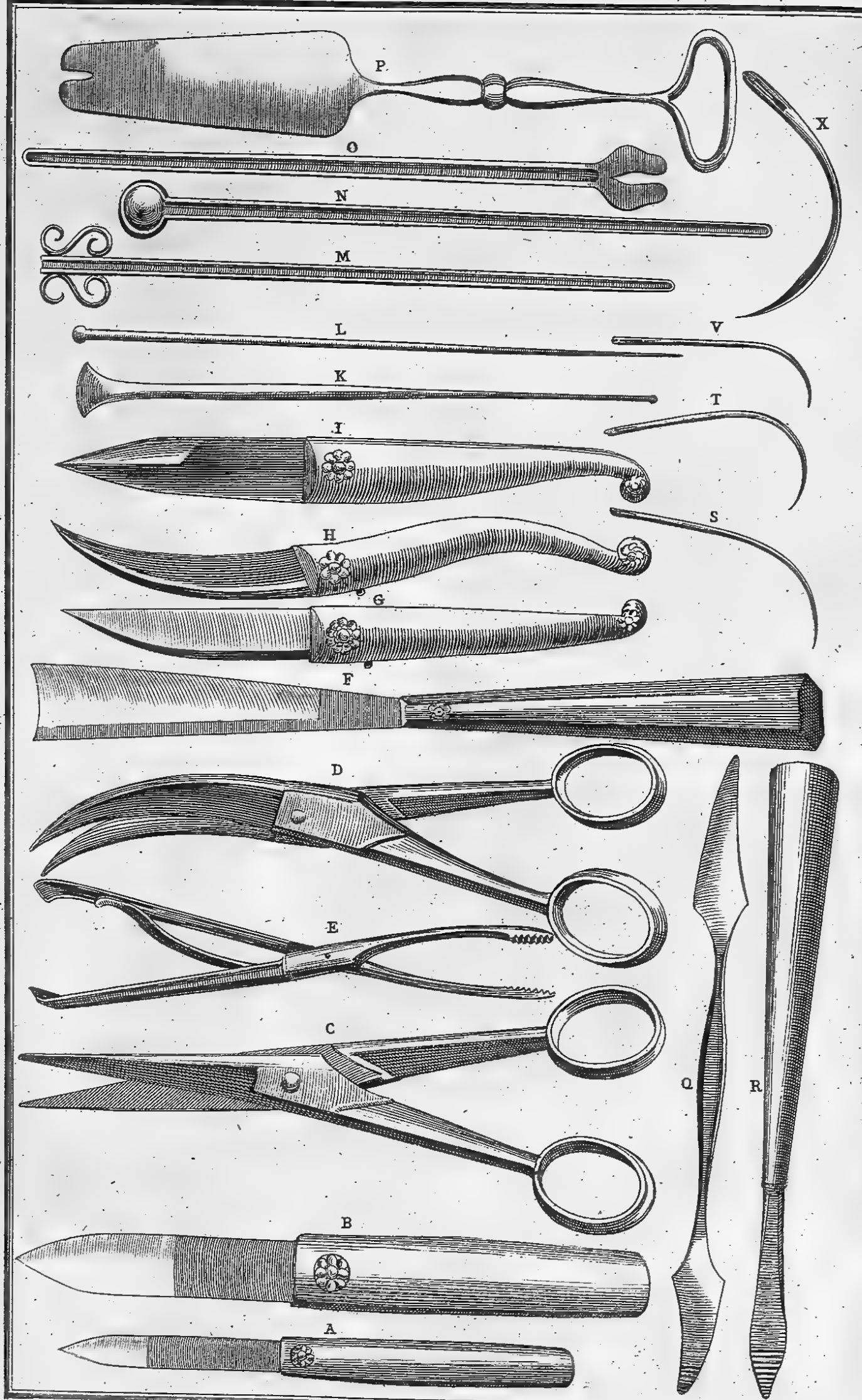


Table XXIV. Fig:1.

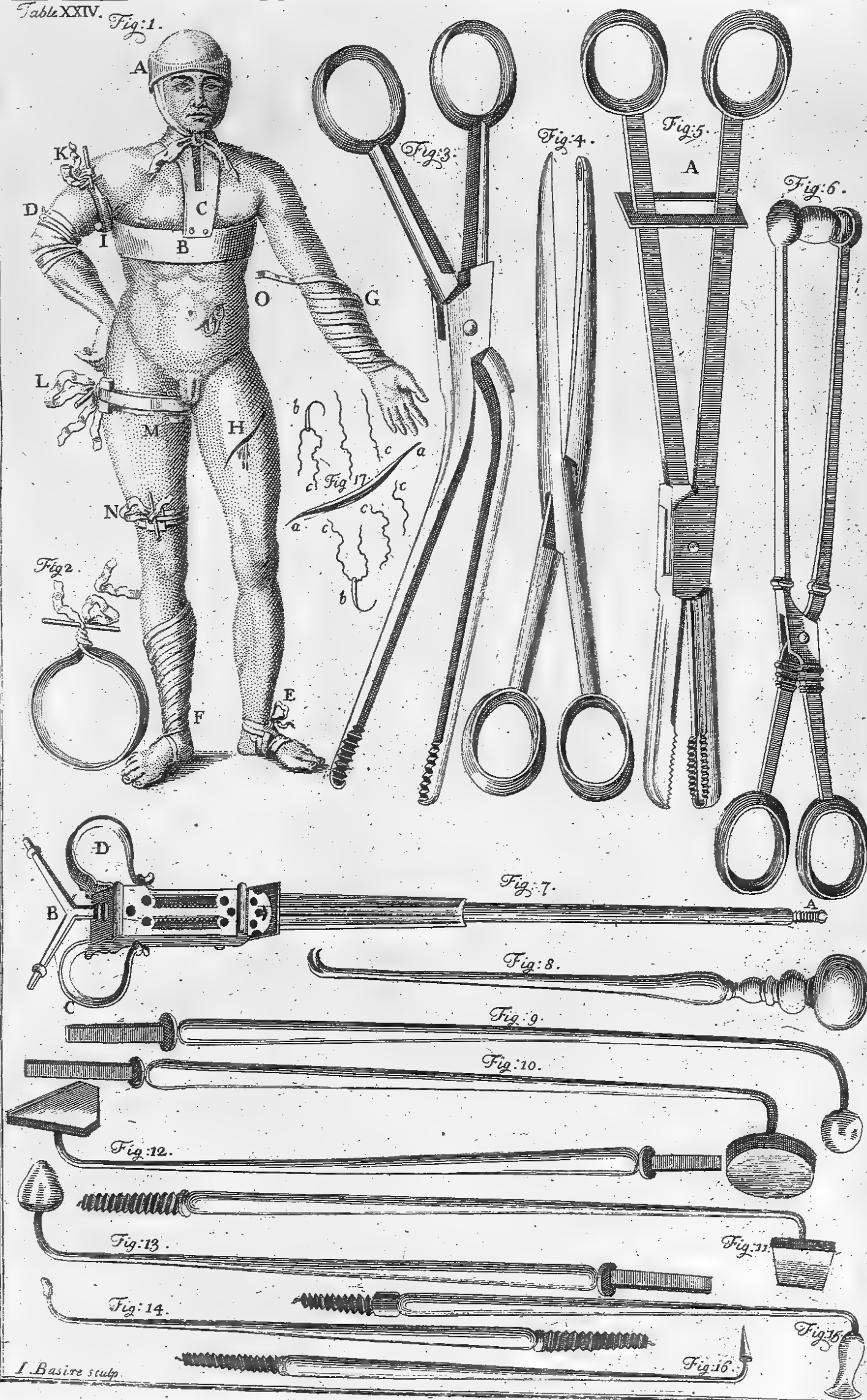
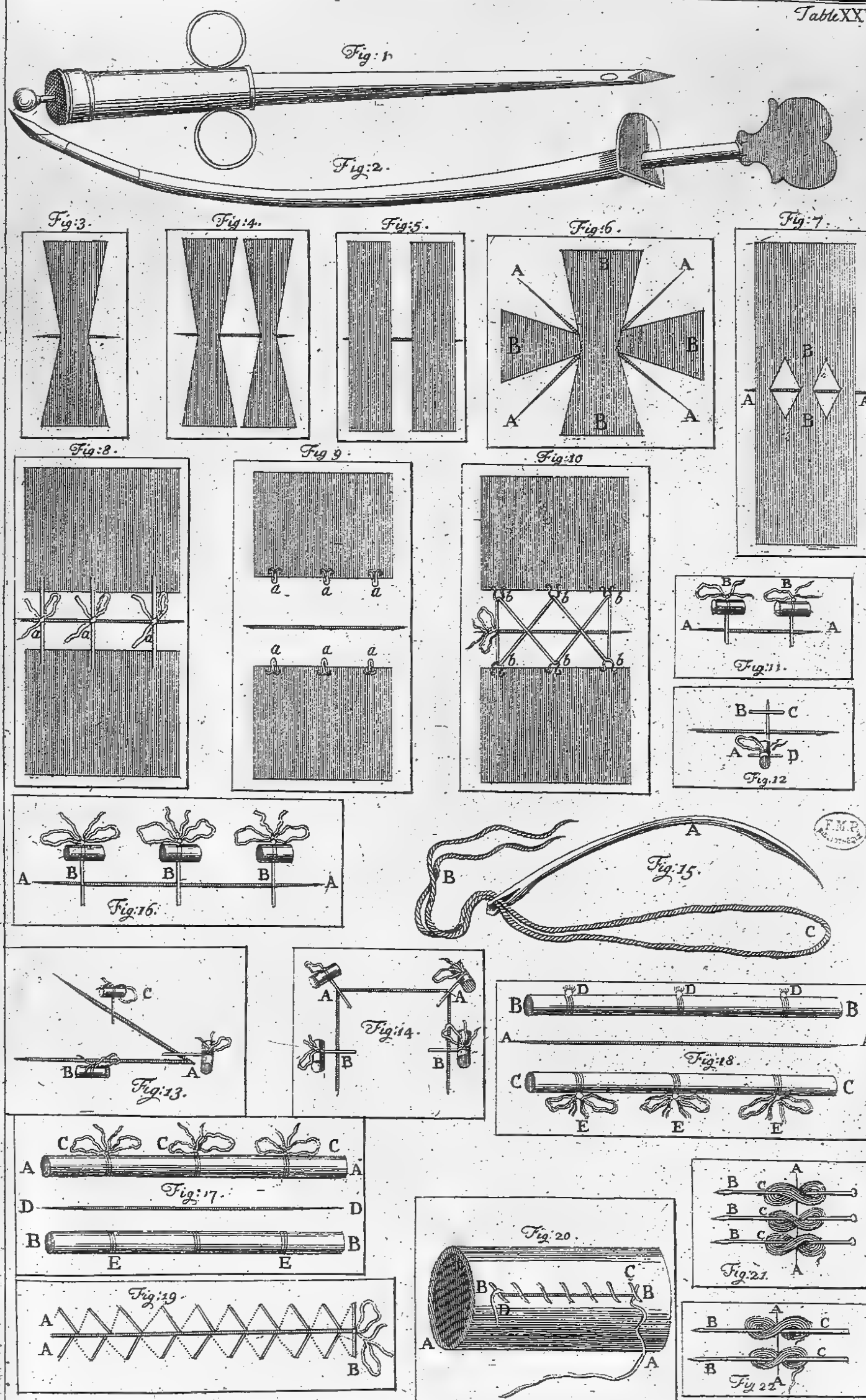
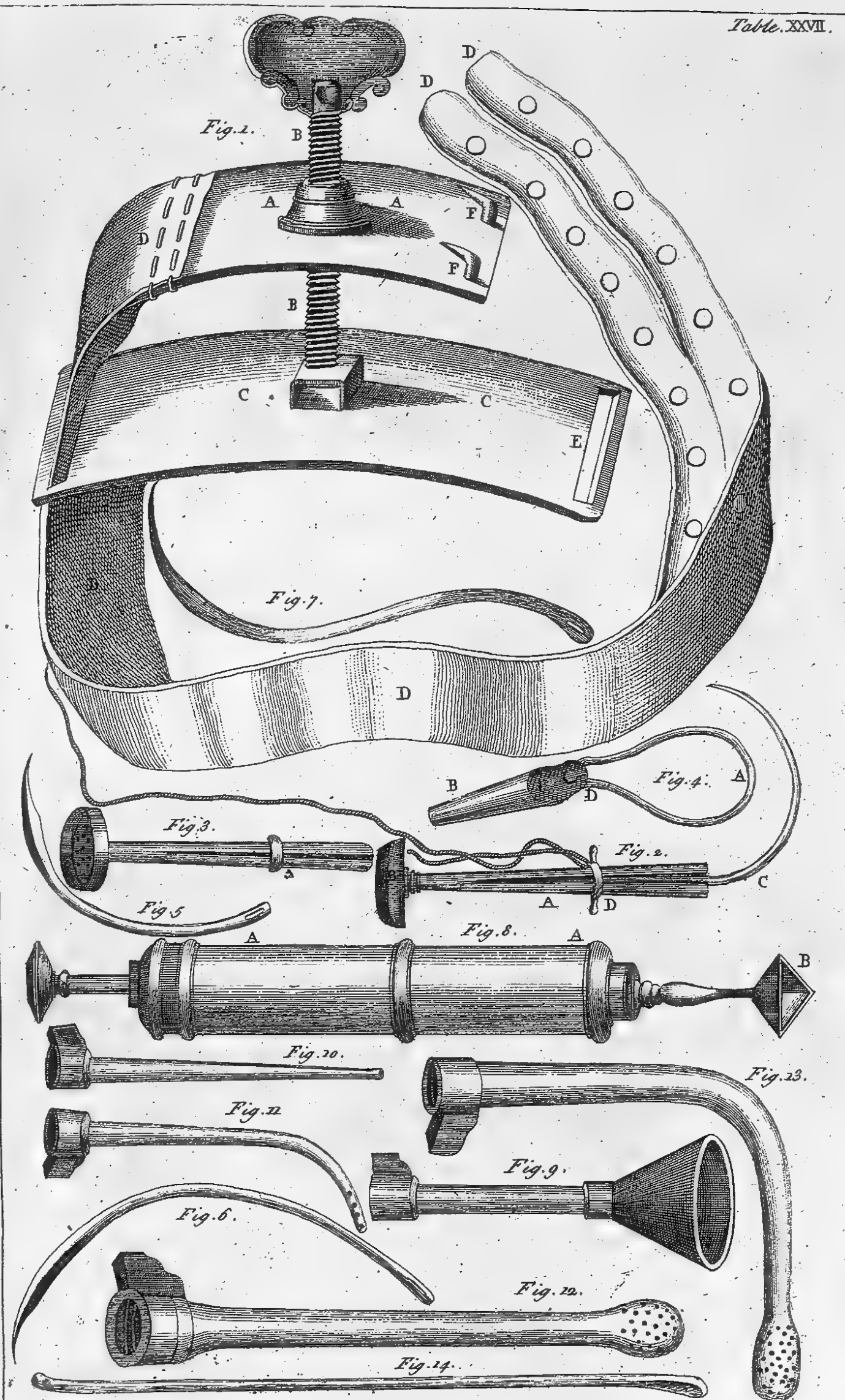
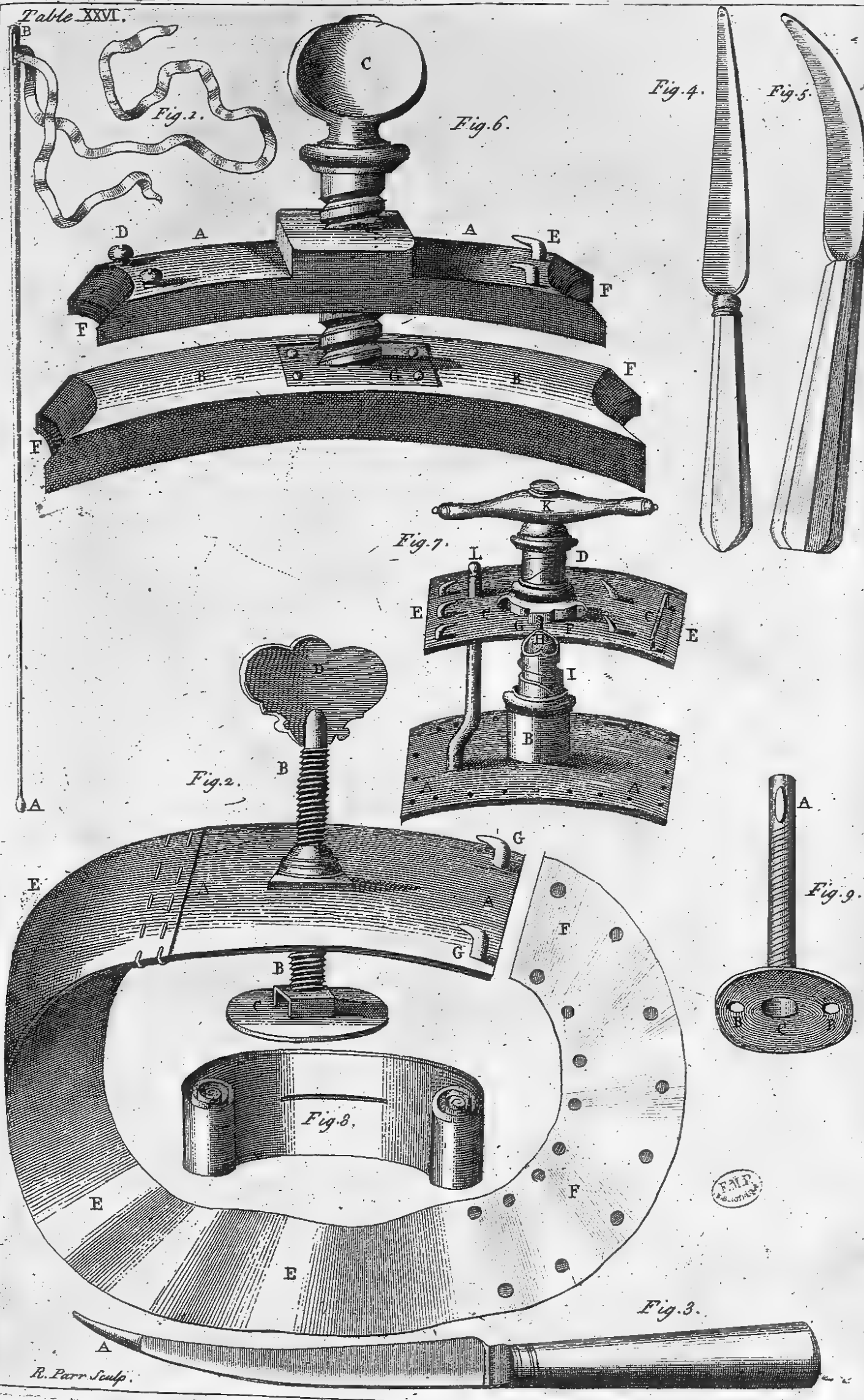


Table XXV.





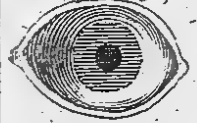


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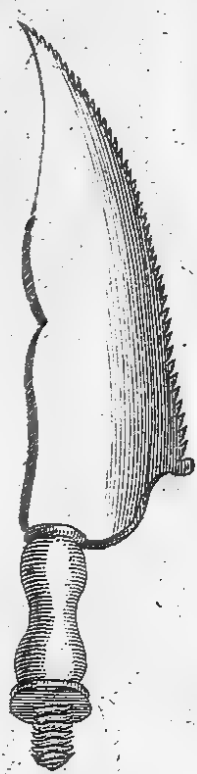


Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.

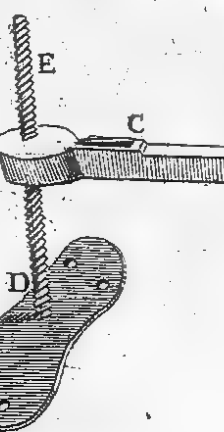


Fig. 7.



Fig. 8.

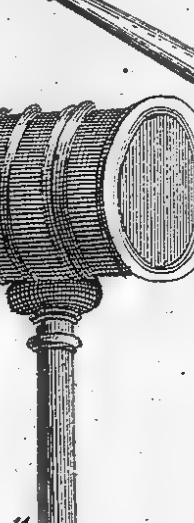


Fig. 9.



Fig. 10.



Fig. 11.

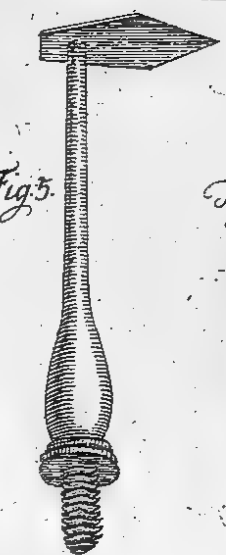


Fig. 12.



Fig. 13.

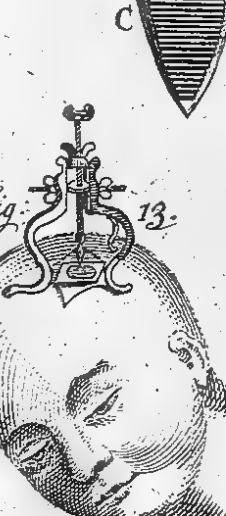


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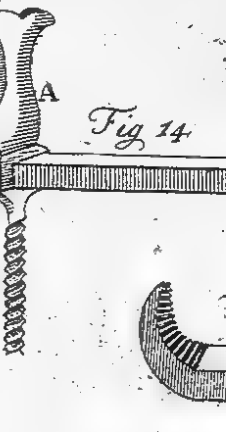


Fig. 15.



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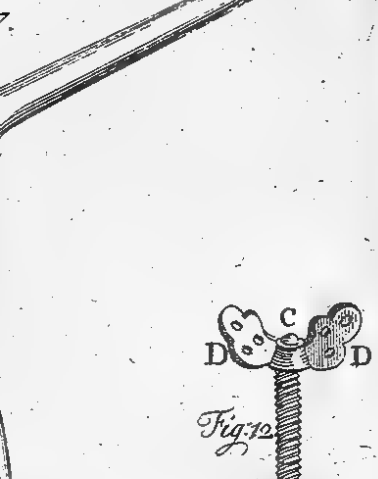


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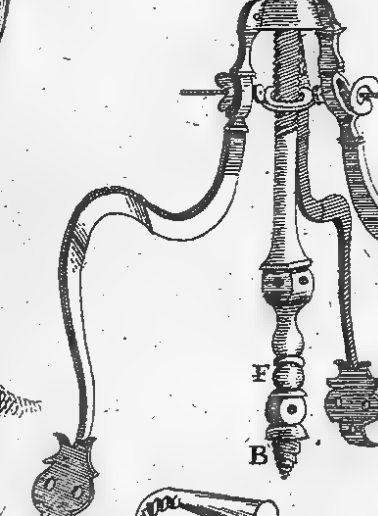


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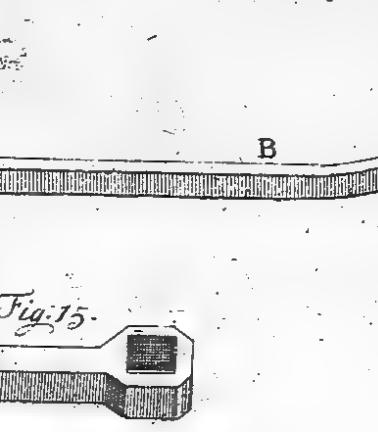


Fig. 19.



Fig. 20.



Fig. 21.

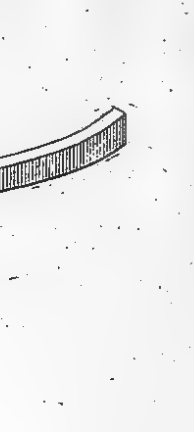


Fig. 22.



Fig. 1.



Fig. 2.

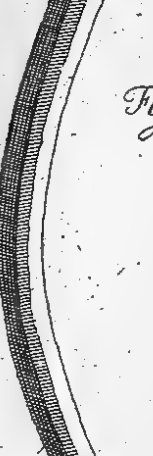


Fig. 3.



Fig. 4.



Fig. 5.

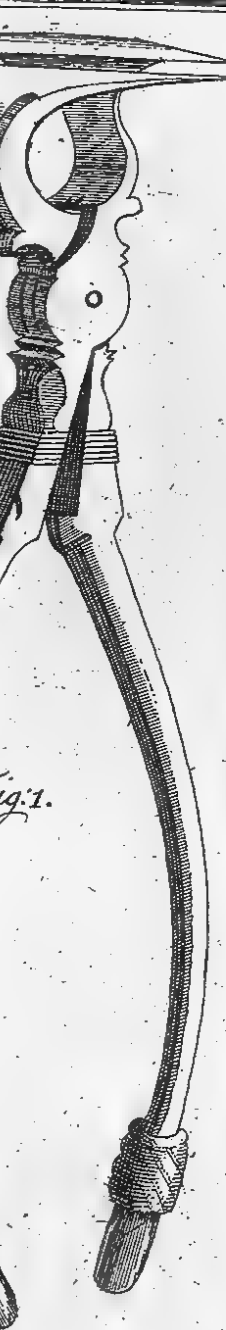


Fig. 6.



Fig. 7.

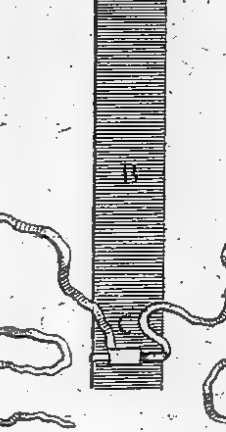


Fig. 8.



Fig. 9.

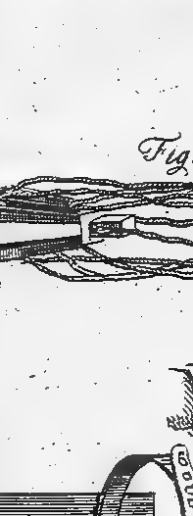


Fig. 10.



Fig. 11.



Fig. 12.



Fig. 13.

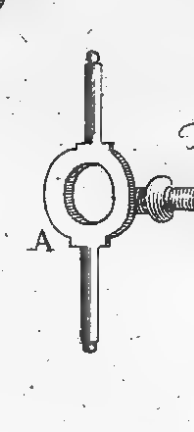


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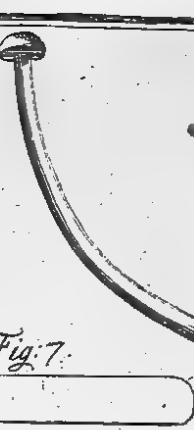


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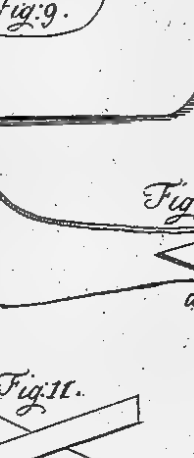


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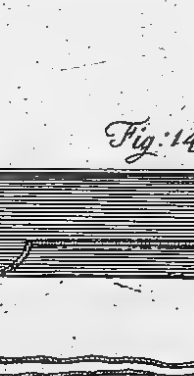


Fig. 17.



Fig. 18.

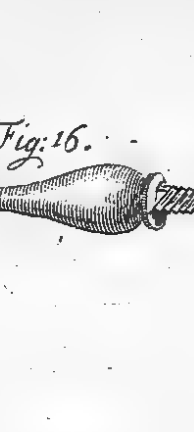


Fig. 19.



Fig. 20.



Fig. 21.

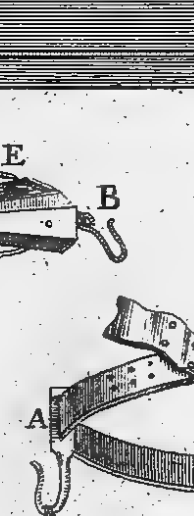


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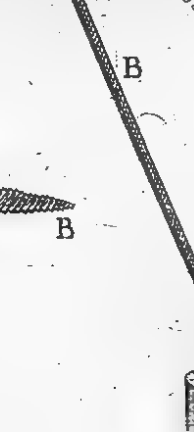


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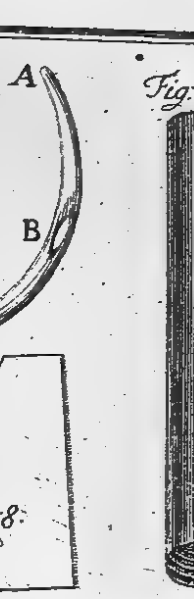


Fig. 24.



Fig. 25.



Fig. 26.

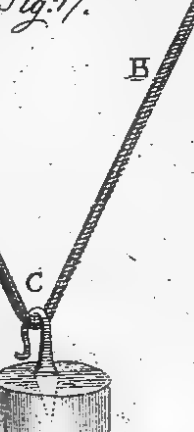


Fig. 27.

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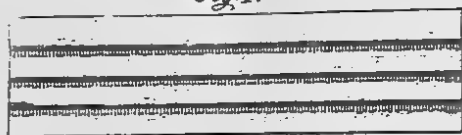


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Fig. 3:

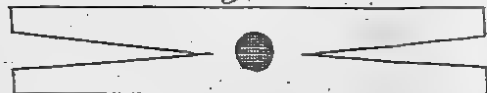


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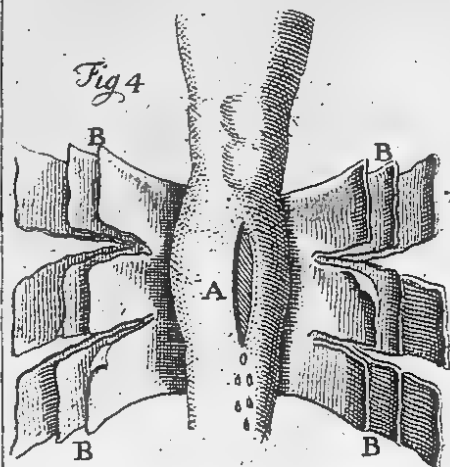


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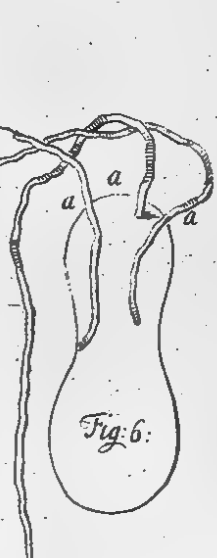


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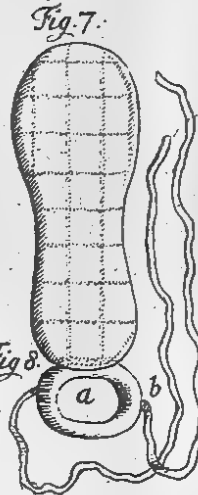


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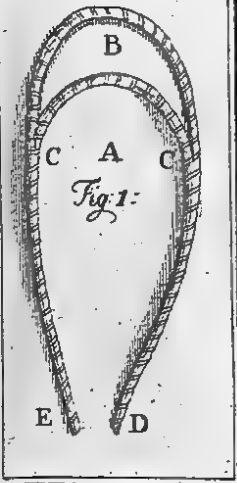
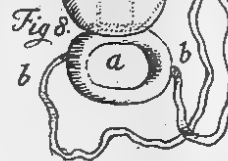


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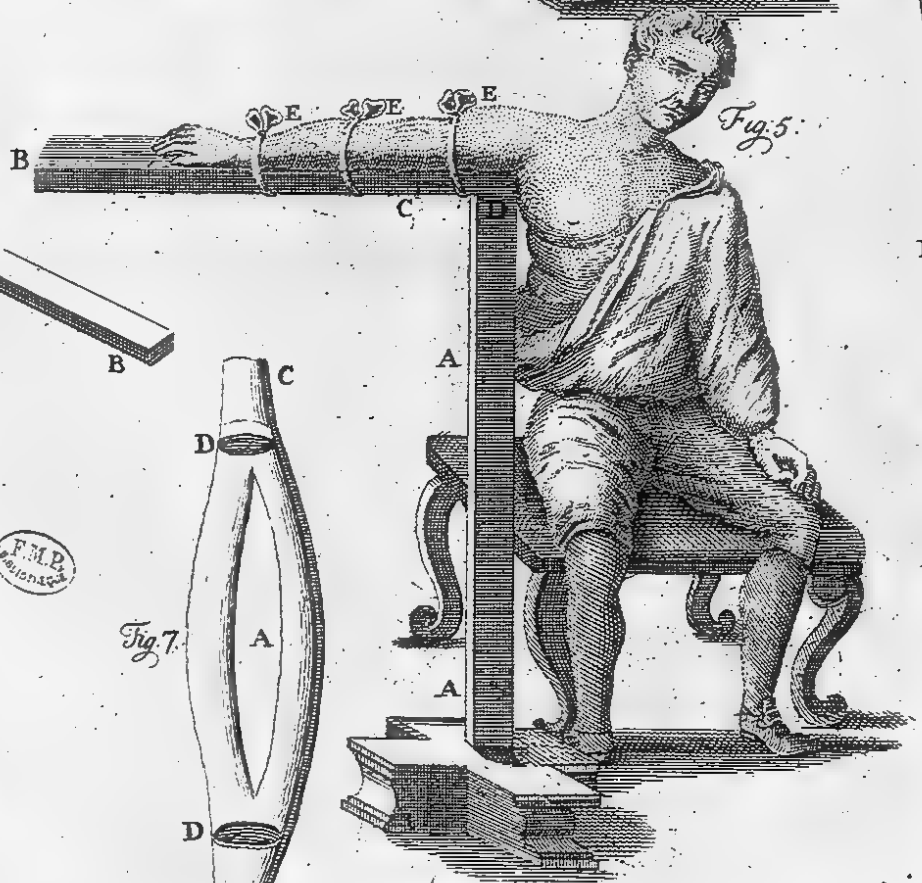


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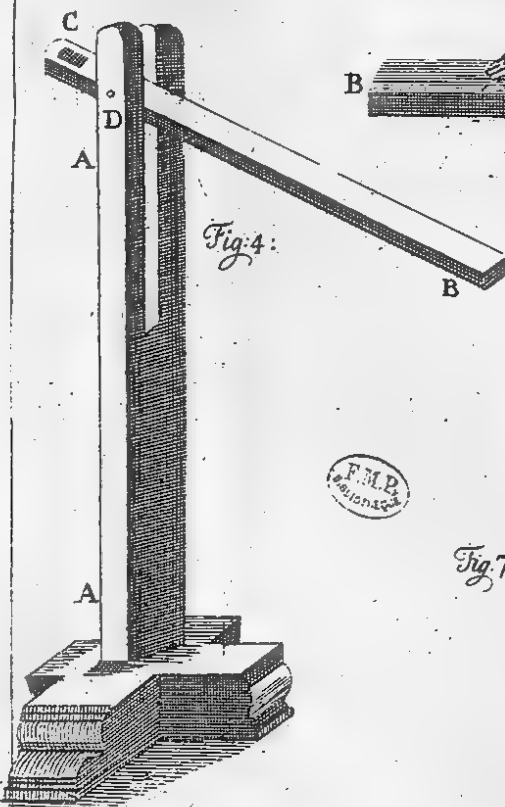


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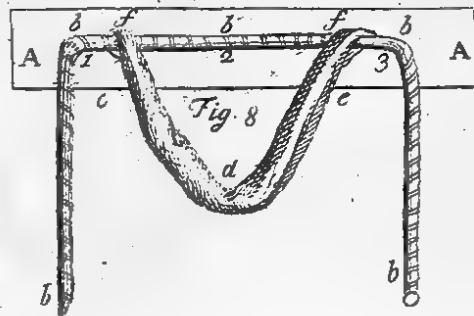


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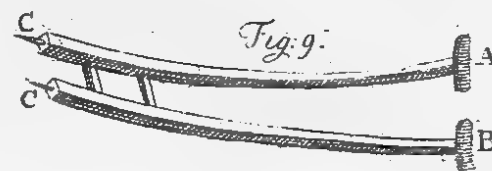


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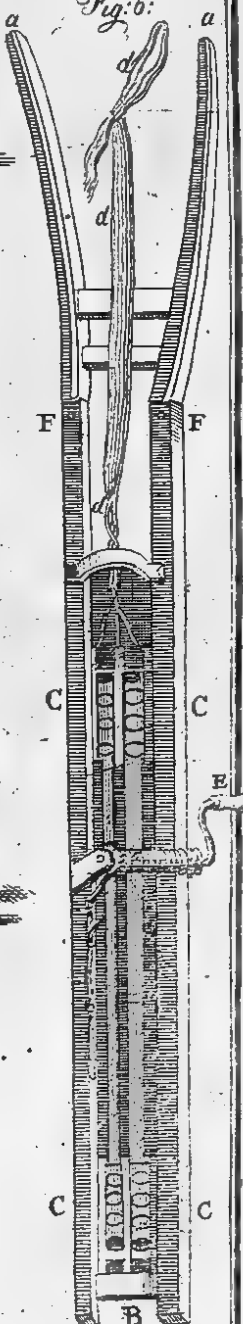


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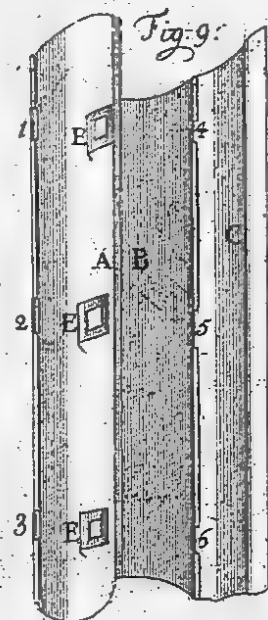


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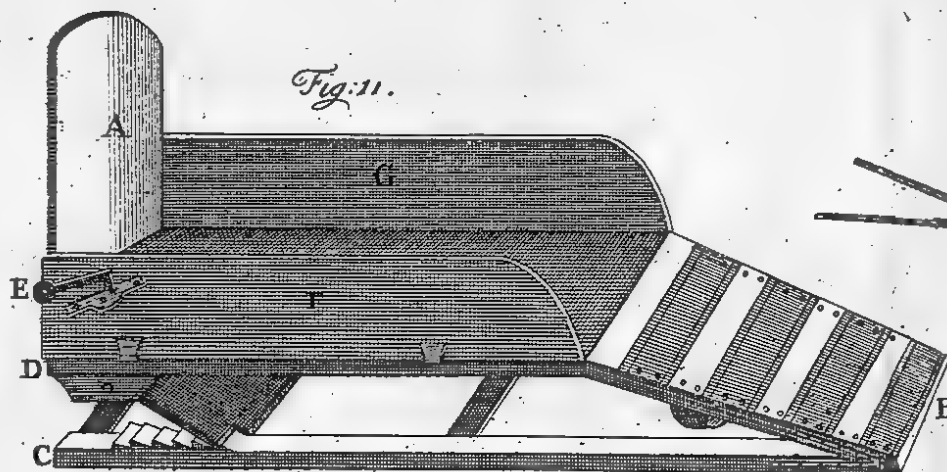


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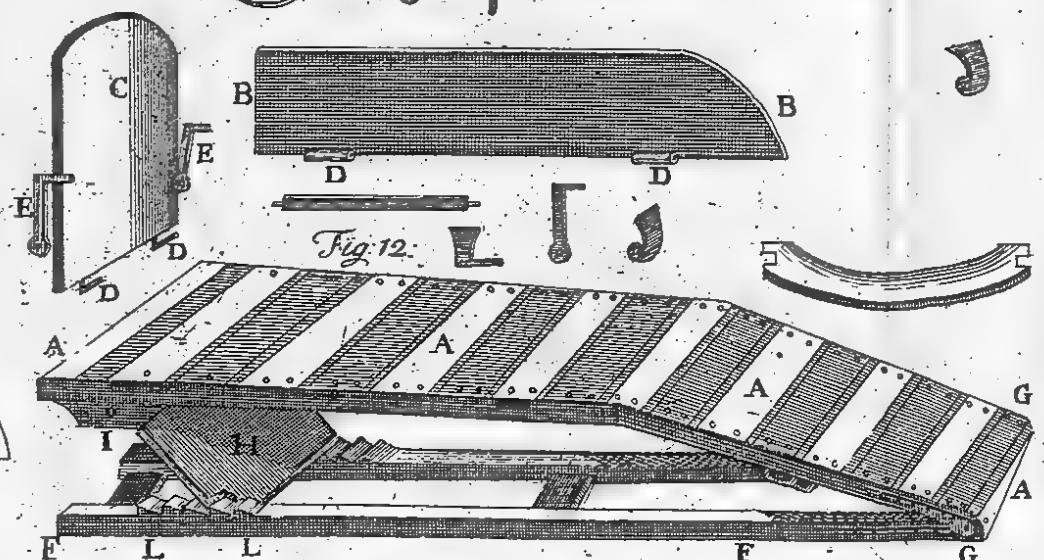


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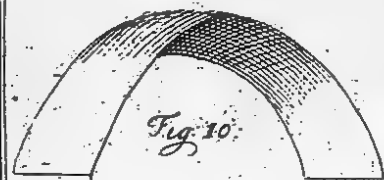
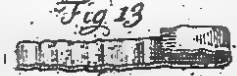


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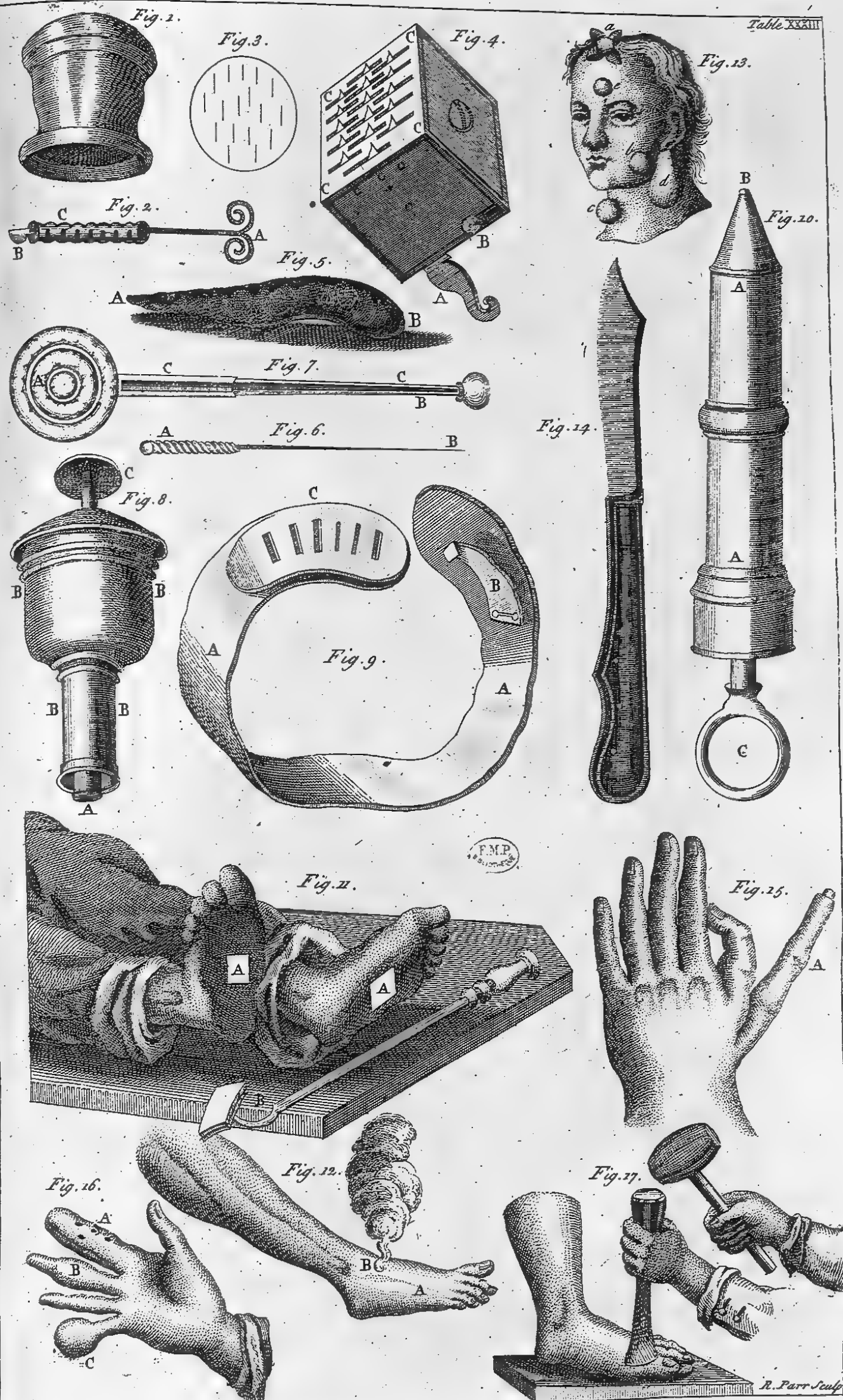
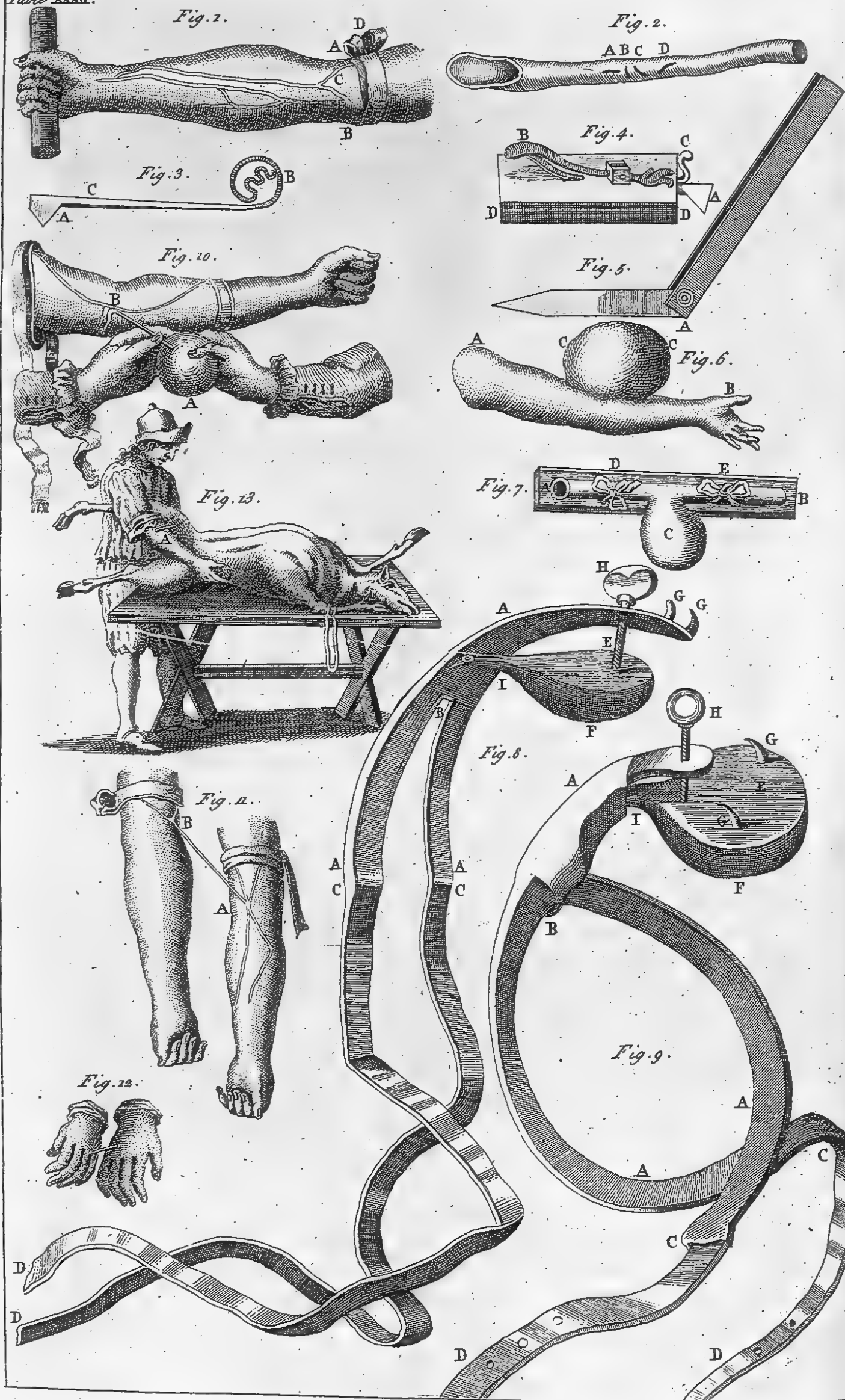


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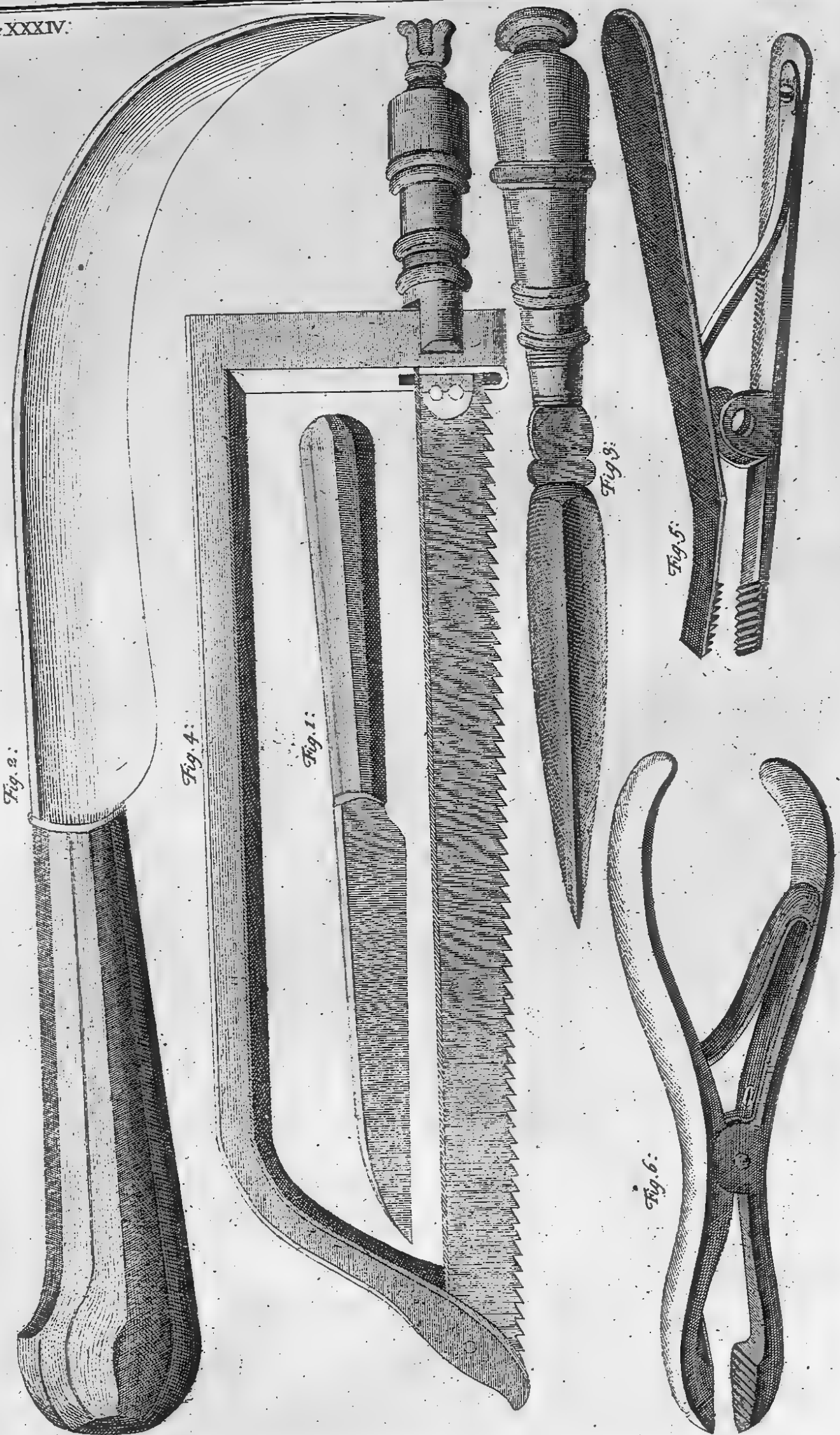


Table XXXV.



EXPLICATIONS

OF THE

TABLES in Volume the First.

TABLE I.

THE Figures mark'd A, B, C, D, E, F, G, H, I, M, N, O, P, Q, R, S, T, U, W, X, Y, Z, are explain'd under the Article ACETUM.

All the rest are explain'd under the Article VINUM.

TABLE II.

All the Figures in this Table are explain'd under the Article ACUS.

TABLE III.

The Figures mark'd 1. 1. 1. are explain'd under the Article ADEPS.

2. 3. 4. are explain'd under ALLANTOIS.

TABLE IV. TABLE V.

These Figures are explain'd under the Article ARTERIA.

TABLE VI.

From the Philosophical Transactions.

FIGURE I.

The Trunks of the Vena Cava, with their Branches, dissected, from an adult human Body.

A. A. The Orifice of the Vena Cava, as it appears when cut from the Right Auricle of the Heart.

a. The Orifice of the Coronary Vein of the Heart.

B. A. The superior or descending Trunk of the Vena Cava.

C. C. A. The inferior or ascending Trunk; so distinguish'd from the Motion of the Blood in these Trunks; which is contrary to their Position.

D. D. The Subclavian Veins.

†. That Part of the Left Subclavian Vein, where the Thoracic Duct enters it, and discharges itself of its Chyle and Lymph.

b. The Vena Azygos, with its Branches going to the Ribs;

e. e.

c. The superior Intercostal Veins.

d. d. The internal Mammary Veins.

E. E. The Right and Left Iliac Branches.

F. F. The internal Jugular Veins.

G. G. The external Jugulars.

H. H. The Veins which bring Blood from the lower Jaw, and its Muscles.

I. I. The Trunks of the internal Jugulars, cut off at the Basis of the Skull.

f. The Veins of the Thymus and Mediastinum.

g. g. The Veins of the Thyroid Glands.

h. The Vena Sacra.

i. The internal Iliac Branch.

k. The external.

K. K. The Occipital Veins.

L. The Right Axillary Vein.

M. The Cephalic.

N. The Basilic.

O. The Median Vein.

P. The Trunk of the Veins of the Liver.

Q. The Phrenic Vein of the Left Side.

R. The Right Phrenic Vein.

r. A large Vein from the Left Glandula Renalis, and Parts adjacent.

S. The Left Emulgent Vein.

T. The Right Emulgent, in this Subject very much lower than the Left, which is not usual.

U. U. The two Spermatie Veins.

VOL. I.

X. X. Two communicant Branches between the ascending Trunk of the Vena Cava and Vena Azygos, by which the Wind passes into the descending Trunk of the Cava, when we blow into the ascending at A. P. C. tho' the Trunk at A. P. and C. is firmly tied on the Blow-pipe.

*. An uncommon Branch between the lower Trunk of the Vena Cava and the Left Emulgent Vein.

Y. A Vein which brings Blood from the Muscles of the Abdomen into the external Iliac Branch.

Z. The Epigastric Vein on the Right Side.

1. 1. The Vena Saphena.

FIGURE 2.

The Trunks of the Vena Portæ dissected, and display'd.

A. A. A. The Branches of the Vena Portæ freed from the Liver.

a. The Umbilical Vein.

B. The Splenic Branch.

C. C. The Mesenteric Branches; which are continued from the Intestines.

b. The Trunk of the Vena Pancreatica, which receives Branches from the Duodenum.

c. c. The Vena Gastrica dextra Coronaria superior.

D. The superior Coronary Vein of the Stomach, on the Left Side.

E. The inferior Coronary Branch of the Stomach, on the Right Side. And,

F. The same Coronary Vein of the Left Side, removed from their proper Situations. From these two last are continued;

1. The Vena Epiploica superior dextra: And;

2. The Sinistra: With;

3. The Media.

G. The Vein call'd Vas Breve.

d. The Vena Duodeni.

H. The Vena Hæmorrhoidalis, arising from the Rectum and Anus; in this Subject emptying itself into the Left Mesenteric Branch; but in other Bodies (and particularly in a Preparation of these Veins) I find this Trunk of the Hæmorrhoid Veins ending in the Ramus Splenicus.

TABLE VII.

LANCISI'S Explanation.

a. a. The Olfactory Nerves.

b. b. The Optic Nerves cut.

c. c. The common Movers of the Eyes.

d. d. The Pathetic Nerves.

e. Processus Annularis.

f. f. The three Branches of the fifth Pair.

g. g. The sixth Pair.

h. h. The two Portions of the Auditory Nerve.

i. i. i. The Origin of the eighth Pair.

k. k. k. Several Ramifications of the Par Vagus, and Intercostal Nerves.

l. l. A remarkable Communication betwixt the Phrenic Nerves and one of the Intercostals, which helps to form the Brachial Nerves.

m. The Recurrent Nerve on the Left Side.

n. The Left Nerve of the ninth Pair.

o. The Right Nerve of the ninth Pair.

p. p. The Corpora Pyramidalia.

q. q. The tenth Pair cut.

r. r. The superior Extremity of the Nerves, commonly called Intercostales; which, according to Lancisi, may be reckon'd an eleventh Pair.

II. L.

S. S. S.

EXPLICATIONS of the TABLES in Volume the First.

TABLE IX.

LANCISI'S EXPLICATION.

3. s. s. The great Trunks of these Nerves.
1. u. u. u. The Nervus Accessorius of the eighth Pair, and its Communication with the third Pair of the Vertebrales.
- x. x. x. The Phrenic Nerves, call'd also the Diaphragmatic Nerves, of which the Left is naturally longer than the Right.
- y. The inferior Opening of the Infundibulum.
- z. z. The Nerves which go to the Testes, Uterus, &c.

Additional Explication.

1. 1. The Brachial Nerves.
2. 2. &c. The Communications of the Vertebral Nerves, with those commonly call'd Intercostals.
3. 3. The Crural and Sciatic Nerves.

TABLE VIII.

1. The Os Sincipitis on the Right Side.
2. The Os Sincipitis on the Left Side.
3. The Os Occipitis.
4. The Os Squamosum.
5. The Sutura Sagittalis.
6. 6. The Sutura Lambdoidalis.
7. The Processus Mammillaris.
8. Part of the lower Jaw.
9. The first Vertebra of the Neck, call'd Axis.
10. The second Vertebra of the Neck, call'd Epistropheus.
11. 11. The Claviculae.
12. 12. The Scapulae.
13. 13. The Basis of the Scapulae.
13. 14. The Costa inferior of the Right Scapulae.
14. The Processus Brevis.
15. 15. The Acromion.
16. 16. The Spina Scapulae.
17. 17. The Os Humeri.
18. 18. The Head of the Os Humeri.
19. The Asperities of the Left Os Humeri.
20. The external Protuberance of the Left Os Humeri.
21. The internal Protuberance of the Left Os Humeri.
22. 22. The Radius.
23. 23. The Ulna.
24. The Olecranon, or the Elbow, on the Right Side.
25. 25. The eight Bones of the Carpus.
26. 26. The four Bones of the Metacarpus.
27. The three Bones of the Thumb on the Left Side.
28. The Bones of the Fingers on the Left Side.
29. 29. The back Part of the Os Ilium, or Dorsum Ilii.
30. 30. The Spine of the Ilium on each Side.
31. 31. The Protuberances of the Os Ilium on each Side.
32. The internal Part of the Os Pubis.
33. The Os Sacrum.
34. The Os Coccygis.
35. 35. The large Sinus of the Ilium.
36. 36. The Foramen of the Ilium on each Side.
37. 37. The Femur on each Side.
38. 38. The Head of the Femur.
39. The Neck of the Femur.
40. 40. The Trochanter major, on each Side.
41. 41. The Trochanter minor on each Side.
42. 42. 42. 42. The two inferior Protuberances of the lower Appendix of the Os Femoris.
43. 43. The Tibia on each Side.
44. 44. The Head of the Tibia on each Side.
45. 45. The superior Appendix of the Fibula on each Side.
46. 46. The inferior Appendix of the Fibula on each Side.
47. 47. The Fibula on each Side.
48. 48. The Os Calcis on each Side.
49. 49. The Astragalus on each Side.
50. The Bones of the Tarsus.
51. The Bones of the Metatarsus.
52. The Bones of the Toes.
- a. b. c. d. e. f. The Spinal Processes of the Vertebrae of the Neck.
- n. n. n. n. n. The transverse Processes of the Vertebrae of the Neck.
- o. o. o. o. o. o. o. o. o. o. The transverse Processes of the Vertebrae of the Back on the Right Side.
- P. P. P. P. P. P. Some of the Spinal Processes of the Vertebrae of the Back.
- R. R. R. R. R. The Spinal Processes of the Vertebrae of the Loins.
- S. S. S. S. S. S. S. S. S. The transverse Processes of the Vertebrae of the Loins.
- b. i. k. l. m. n. o. p. q. r. s. t. The Ribs on the Left Side, at the Articulation of their small Tubercle with the transverse Processes of the Vertebrae.
- u. The last Vertebra of the Back.
- w. x. y. z. The Bodies of four of the Vertebrae of the Loins.

The Figures of this Plate are of the utmost Importance, since their principal Design is to exhibit various Figures of the human Skull, with which, according to Hippocrates in his Book *de Vulneribus Capitis*, every Physician and Surgeon ought to be well acquainted; for, since the natural and most common Figure of the Head resembles that of an oblong Sphere, its anterior and posterior Parts are of course somewhat prominent: But it frequently happens, that Skulls vary from each other, not only in the Number of Sutures, but also in the Diversity of Shapes and Forms.

FIG. 1. represents a human Skull, of the natural Form with the Sagittal Suture, continued to the Root of the Nose, to which it also reaches in Fig. 10. but in this latter the Coronal Suture is wanting; and tho' this Suture is observed in Fig. 17. yet the anterior Eminence, which is generally seen on the Sinciput, and upper Part of the Forehead, is wanting; but the posterior Eminence, belonging to the Occiput, remains. Tho' in Fig. 8. the posterior Part of this Eminence is only to be observed, yet, on the Occiput, it is a little more depress'd than in other Skulls.

FIG. 2. exhibits the Os Petrosum cut through, in order to give a Prospect of the Concha, the Cochlea, and the Foramina which open into it.

1. The Concha.
2. The Beginning of the Styliform Process.
3. The Mastoid Process.

FIG. 3. is, by Eustachius, principally intended for the Confutation of those, who, being more sway'd by Assertions than Fact, assert, with Galen, that the Sagittal Suture is never wanting, but always found in human Skulls; for, says Eustachius, "Tho' no Anatomist has hitherto adverted to it, I myself have frequently found the Sagittal Suture wanting; and some time ago I exhibited to public View and Examination fifteen human Skulls, in which there was not the smallest Appearance of a Sagittal Suture; tho', at the same time, all the other Sutures were to be distinctly and easily observed."

FIG. 5. and 6. represent both the Offa Petrosa, with the Foramina thro' which the Auditory Nerve enters.

FIG. 12. and 14. exhibit the Sella Turcica, with the Offa Cribiformia, and the Processus Cristati. In the Offa Cribiformia are observed the Foramina, thro' which the Processus Papillares, or Olfactory Nerves, pass. In Fig. 14. are observed the Foramina thro' which the Optic Nerves pass to the Eyes, the Foramina thro' which the Blood-vessels are admitted; as also the Sella Turcica. And in Fig. 12. all these Foramina are distinctly seen.

FIG. 13. represents that Side of the Os Cuneiforme which lies next to the Fauces, with its small Foramina, thro' which, according to some Anatomists, the Air enters, and reaches the Brain itself.

FIG. 16. represents the inferior Part of the Cranium, below the Os Sphenoides, with the Septum Medium of the Nose, which, when freed from the other Bones and Cartilages, is of a styliform Shape.

FIG. 17. represents a Cranium almost entirely round, which Figure is by some call'd *κεφαλή*, or *σφαίρα*; with two preternatural Sutures, one running transversely thro' the Middle of the Head, from the Right to the Left Ear; and the other reaching all along the Head, from that Foramen which gives a Passage to the Spinal Marrow, to the Root of the Nose.

Lancisi takes no Notice of the other Figures.

FIG. 4. seems to be the Os Frontis, separated from the other Bones of the Cranium.

FIG. 7. seems to be an irregular Portion of the Cranium, also separated.

In FIG. 8. there appears an irregular Suture.

FIG. 9. is the Os Occipitis separate.

FIG. 11. seems to be another View of the Bone represented in Fig. 16.

FIG. 15. represents a Skull, in which I observe nothing greatly anomalous.

TABLE X.

From EUSTACHIUS.

Represents the Muscles which are conspicuous on the fore Part.

1. 1. The Musculi Frontales.
2. 2. The Orbiculares Palpebrarum.
3. The Attollens Auriculam.
4. The Temporalis.
5. The Masseter.
6. Represents the Muscle call'd, by Lancisi, Constrictor, or Depressor Pinnæ Narium.
7. The Dilatator Alæ Nasi.
8. The Zygomaticus.
9. The Place of the Elevator Labiorum, or Elevator Labiorum.

EXPLICATIONS of the TABLES in Volume the First.

orum communis, called by *Lancisi* Gracilis; but it is not expressed in this Figure.

10. The Elevator Labii superioris proprius.
11. 11. The Constrictor or Sphincter Labiorum, or Orbicularis Labiorum; by some called Osculatorius.
12. The Buccinator. The Reference points too low for this Muscle, which lies exactly betwixt the Constrictor Labiorum, Fig. 11. 11. and the Masseter, Fig. 5.
13. 13. The Musculi Mastoidei. 15. 15. those Parts of these Muscles which arise from the Clavicle.
14. 14. The Sternohyoidei.
16. 16. The Coracohyoidei.
17. The Sceleni.
18. Represents Part of the Cucullaris on the Right Side.
18. On the Left Side is the Levator or Elevator Scapulae, otherwise called Musculus Patientiae.
19. 19. The Place where the Fibres of the Pectoralis unite in some measure with those of the Deltoides.
20. 20. The Deltoides.
21. The Place in the Carpus, where the Palmaris Longus passes thro' a Ring in the Annular Ligament.
22. A remarkable Union of the Tendons of the Extensors of the three last Fingers.
23. 23. The Productions of the Peritonaeum, which, perforating the Muscles of the Abdomen at the Rings, descend to the Scrotum.
24. 24. The Place where the three Tendons of the Sartorius, Gracilis, and Seminervosus, are inserted into the anterior, and internal Part of the Tibia, just under the Knee.
25. 25. The Tendons of the Extensors of the Toes, which are secur'd by a Ligament at the Ankle, as appears on both Sides. But on the Right Side internally another Ligament is represented, which fixes the Tendons of the Extensor longus Digitorum, the Tibialis Posticus, and the Flexor Pollicis.
26. 26. The Musculus Pectoralis.
27. The Triceps Extensor Cubiti on the Right Side.
28. and 30. The Biceps on the Left Side according to *Lancisi's* Explication.
29. Part of the Triceps Extensor on the Left Side.
30. The Biceps on the Right Side. *N. B.* The prick'd Line is not carried far enough by three Lines.
31. The Brachizus Internus.
32. The Anconaeus.
33. The Pronator Rotundus.
34. 34. The Supinator Longus.
35. 55. The Radizus externus, according to *Lancisi*.
36. The Extensor Carpi Ulnaris.
37. 37. The Cubitaeus internus, according to *Lancisi*.
38. The Radizus internus, according to *Lancisi*.
39. 39. The Palmaris with its tendinous Expansion.
40. 40. Tendons of the Muscles of the Thumb.
41. The Tendon of the Adductor Pollicis.
42. The Extensor magnus Digitorum.
43. The Ligamentum Carpi.
44. 44. The Tendons of the Iliaci Interni.
45. 45. The Pectinæus.
46. One of the Heads of the Triceps.
47. 47. The Rectus Femoris on each Side.
48. 48. The Vastus externus on each Side.
49. 49. The Vastus internus on each Side.
50. The Gracilis.
51. The Seminervosus not well distinguish'd in the Figure.
52. The Sartorius on each Side.
53. A Part of the Origin of the Vastus externus.
54. 54. The Membranofus.
55. 55. The Tibialis Anticus.
56. The Gemelli.
57. 57. The Solæi.
58. The Tendo Achillis.
59. According to *Lancisi*, is the Extensor digitorum longus.
60. 60. The Tendons of the Extensors of the Toes. The other 60. is inserted in the Figure by Mistake.
61. The Tendons of the Extensor Longus, Tibialis Posticus, and Flexor Pollicis.
- A. A. Portions of the Latissimus Dorsi on each Side.
- B. B. The Indentations of the Serratus major anticus.
- C. C. The Sternum.

This Explication is principally according to *Lancisi*, as the Figure is taken from his Edition of *Eustachius*; but I think it is not very accurate.

TABLE XI. From EUSTACHIUS.

1. Two Muscles upon the Occiput, called by *Eustachius* Quadrati.
2. The Musculus Cucullaris on the Left Side; that on the Right Side being remov'd.
3. The Splenius.
4. The Musculus Mastoideus.

5. The Musculus Patientiae, or, Levator Scapulae proprius.
6. The Rhomboides.
7. The Articulation of the Clavicle with the Scapula on the Right Side.
8. The Deltoides.
9. The Teres Minor.
10. The Teres Major.
11. 11. The Latissimus Dorsi on each Side.
12. The Gluteus major.
13. The Gluteus medius.
14. The Musculus Pyriformis.
15. The Quadratus femoris.
16. The Biceps femoris.
17. The Semimembranosus.
18. The Membranofus, according to *Lancisi*.
19. 19. The Vasti Externi.
20. The Gastrocnemii.
21. The Soleus.
22. The Plantaris.

TABLE XII. From RIDLEY.

FIGURE I.

Exhibits the Basis of the Brain, with Part of the Medulla Oblongata, the Blood-vessels being injected with Wax.

- A. A. The fore Lobes of the Brain.
- B. B. The hinder Lobes.
- C. C. The Cerebellum.
- D. D. The lateral Sinuses.
- E. E. The Vertebral Arteries, as they pass between the first Vertebra, and the Bone of the Occiput.
- F. The Vertebral Sinus.
- G. G. G. G. G. The Dura Mater on the Right Side taken off from the Spinal Marrow, and remaining on the Left.
- 1, 2, 3, 4, &c. The ten Pair of Nerves belonging to the Brain, with seven of the Spinal Marrow.
- a. The Foramen that opens into the Pituitary Gland from the Infundibulum.
- b. b. The two white Protuberances behind the Infundibulum.
- c. c. The two Trunks of the carotid Artery cut off where they begin to run betwixt the fore and hinder Lobes of the Brain.
- d. d. The two Arteries joining the Carotids, with the cervical Artery called the communicant Branches.
- e. e. Two large Branches of the cervical Artery, sometimes seeming as tho' they came from the communicant Branch on each Side; from the first of which the Plexus Choroideus hath its Original in chief, and from the last the Plexus Choroideus of the fourth Ventricle.
- f. Several little Branches arising from the carotid Artery.
- g. The cervical Artery composed of the two Trunks of the Vertebral Artery within the Cranium.
- h. h. The two Trunks of the Vertebral Artery.
- i. i. i. The Spinal Artery.
- k. A small Branch of an Artery running thro' the ninth Pair, broken off from its other Part thro' Inadvertency of the Graver.
- l. l. The Crura of the Medulla Oblongata.
- m. m. The annular Protuberance, or Pons Varolii.
- n. That Part of the Caudex Medullaris on the Right Side, called by *Willis* and *Vieussenius*, Corpora Pyramidalia.
- o. That Part on the same Side called Corpus Olivare.
- P. The foremost Branch of the carotid Artery, dividing the fore Lobes of the Brain, consisting of two Branches, one of them only appearing here.
- q. q. Little Branches of Arteries, helping to make the Plexus Choroideus in the fourth Ventricle.
- r. r. r. r. Branches of Arteries dispersed from the cervical Artery upon and thro' the annular Protuberance.
- s. s. Part of the second Process, or Pedunculi of the Cerebellum.
- *. *. The Spinal accessory Nerve, not expressed very plain.

FIGURE 2.

Exhibits the Cerebellum cut thro' on its hinder Part, and reclined laterally.

- A. A. A. The Cerebellum.
- B. B. The arboreous Ramification of the Meditullium of the Cerebellum appearing, being cut right downwards.
- C. C. The pathetic Nerves.
- c. c. The Nates; the Engraver has by Mistake made the Letters c. c.
- d. d. The Testes.
- e. The transverse Process, whence the pathetic Pair of Nerves have their Original.
- f. Glandula Pinealis.

EXPLICATIONS of the TABLES in Volume the First.

- g. g. The first Process of the Cerebellum running from it to the Nates, here extended laterally.
 h. h. The third or chordal Processes.
 i. i. The transverse medullary Process in the fourth Ventricle, from whence the soft Branch of the seventh Nerve has its Original.
 k. k. The medullary Process descending from the transverse Process behind the Testes, down to the aforementioned other medullary transverse Process.
 l. l. The Originals of that Process a little too low.
 m. m. The eighth Pair of Nerves.
 n. The Calamus Scriptorius, or Extremity of the fourth Ventricle.
 o. The Spinal Marrow.
 p. p. The accessory Nerves.
 q. q. The tenth Pair of Nerves.

TABLE XIII. From CHESELDEN.

The Engraver by Mistake has omitted numbering the Figures in this Plate.

1. in FIG. 1. The Right Ventricle of a Foetus distended with Wax.
 2. The Right Auricle.
 3. The Left Auricle.
 4. 4. Branches of the Pulmonary Veins of the Right Lobe of the Lungs, those of the Left being cut off short.
 5. 5. The Arteries of the Left Lobe of the Lungs.
 6. The Vena Cava descendens.
 7. Aorta Ascendens.
 8. Arteria Pulmonalis.
 9. Ductus arteriosus.
 10. in FIG. 2. The Under-side of a Heart of a younger Foetus.
 11. The Right Auricle cut open.
 12. The Cava Descendens cut open.
 13. Tuberculum Loweri.
 14. The Foramen ovale closed with its Valve.
 15. The Mouth of the Coronary Veins.
 16. in FIG. 3. The Umbilical Vein.
 17. 17. 17. Branches of the Vena Portæ in the Liver.
 18. Ductus venosus. Here the Engraver by Mistake has omitted a prick'd Line from the 18 to the Vessel refer'd to.
 19. Branches of the Cava in the Liver.
 20. 20. Vena Cava:
 1. in FIG. 4. Larynx.
 2. 2. The internal Jugular Vein.
 3. 3. The Subclavian Vein.
 4. Cava descendens.
 5. The Right Auricle of the Heart.
 6. The Right Ventricle.
 7. Part of the Left Ventricle.
 8. Aorta Ascendens.
 9. Arteria Pulmonalis.
 10. The Right Lobe of the Lungs, part of which is cut off, to shew the great Blood-vessels.
 11. The Left Lobe.
 12. 12. The Diaphragm.
 13. The Liver.
 14. The Ligamentum Rotundum.
 15. The Gall-bladder.
 16. The Stomach, press'd by the Liver towards the Left Side.
 17. 17. The small Guts.
 18. The Spleen.

TABLE XIV. From EUSTACHIUS.

FIG. 1.

- The Liver, Stomach, and intestinal Tube.
 a. a. The Liver turn'd upwards, in order to shew,
 b. The Gall-bladder.
 c. The Cystic Duct, which uniting with,
 d. The Hepatic Duct, forms,
 e. The Ductus communis Choledochus.
 f. The Vena Portæ.
 g. Some small Branches of the Hepatic Artery.
 h. The Vena Umbilicalis cut off.
 i. i. i. The Stomach, with its coronary Vessels.
 k. The Spleen.
 l. l. l. A Portion of the Omentum, with some of the Adipose Glands.
 m. m. m. Windings of the small Intestines.
 n. n. n. Part of the Colon.
 o. o. o. The Fascia Muscularis of the Colon, which, being not so long as the Colon, contracts that Intestine, in such a manner as to form various Cells.
 p. The Extremity of the Colon, where it makes a Flexure, in order to form the Rectum.
 q. The Rectum.
 r. The Anus.

- s. The Sphincter Ani.
 t. t. The Elevatores Ani.

FIG. 2.

- Represents the Oesophagus at A. B. &c.
 C. C. The Stomach.
 D. The Cardia.
 E. The Pylorus.
 F. The external Membrane of the Stomach, which it borrows from the Peritonæum raised.
 G. The Muscular Coat of the Stomach raised.

FIG. 3. Represents

- A. B. The Oesophagus.
 C. C. The Pancreas.
 D. The Pancreatic Duct, in its Progress to,
 E. The Duodenum.

FIG. 4.

- A. The Larynx.
 B. The Aspera Arteria.
 C. C. The Lungs.
 D. The Thymus.
 E. E. Two Branches of Nerves passing to,
 F. F. F. The Diaphragm.

FIG. 5.

- A. The Larynx.
 B. The Aspera Arteria.
 C. C. C. C. Four Lobes of the Lungs.
 D. The Heart inclosed in the Pericardium.
 E. The Vena Cava superior.
 F. The Subclavian and Carotid Arteries.

TABLE XV. From GLISSON.

That the Structure of the Liver may be the better understood, *Glisson* has given us two Delineations of it, one of which represents the Distribution of Vessels in its Cavity, and the other those of its convex Part. But that Author lays down the following general Cautions with regard to both his Representations.

1st. That, in a duly prepar'd Liver, there is a far greater number of Ramifications, and capillary Vessels, than are really express'd in his Figures. This, he says, was designedly done, because by expressing the Traces of the small Ramifications distributed thro' the Meditullium of the Liver, the Delineation of the larger and more important Vessels had been too much clouded.

2dly, He tells us, that we are not to expect the same Distribution of Vessels in all Livers; that his own Representations are not to be made invariable Standards; that when his Figures were engrav'd, he had four newly prepar'd Livers by him, each of which differ'd in some respect or other from the rest; and that Nature, in the Formation of this Organ, delights in that Variety observable in all her other Productions.

3dly, He tells us, that the smaller Vessels, the Arteries, for Instance, the Nerves, and the Lympheducts, are not always of the same Number in all Livers; that their Deficiency, with regard to Number, was continually compensated by their Largeness; that there were some Livers which had two hepatic Arteries, but smaller than the usual Size; that he himself saw a Liver with three Nerves, a small Ramification of one of which ran to the Gall-bladder; that the Lympheducts themselves varied very much as to their Number in different Livers; and that, in his own Representation, he had only exhibited two Lympheducts, because in the Liver delineated, when boiled and prepar'd, he found no more, tho' in other Livers he had frequently observ'd a larger Number.

FIG. 1. & 2. Exhibit the Liver freed from its Parenchyma.

FIG. 1. Represents the flat Part of the Liver, together with the most conspicuous Vessels in it.

- A. That Part of the Liver which lies next to the Back.
 B. Its Right Side.
 C. Its anterior Edge.
 D. Its Left Side.
 E. The Vena Cava, where it passes thro' the Diaphragm.
 E. 1. E. 2. E. 3. E. 3. Its three principal Branches distributed almost thro' the whole Liver.
 F. The Vena Portæ turn'd upwards, that other Vessels may be the more easily seen.
 F. 1. F. 2. F. 3. F. 4. Four Branches of the Vena Portæ distributed to the several Quarters of the flat Part of the Liver, but the fifth Branch is not observ'd on this Side.
 G. The Gall-bladder.
 H. H. The Vena Umbilicalis become a Ligament.
 I. The Ductus Communis Choledochus.
 K. The Canalis Venosus, now performing the Office of a Ligament.
 L. The Trunk of the Vena Cava descendens.
 a. A small Portion of the Membrane investing the Liver.
 b. That

EXPLICATIONS of the TABLES in Volume the First.

- b. That Part of the Diaphragm which surrounds the Vena Cava.
- c. The Biliary Duct.
 - d. The Cyftic Duct.
 - e. The Place where these Vessels meet.
 - f. The Hepatic Artery.
 - o. o. The Hepatic Nerves.
 - p. p. p. The common Capsula laid open.
 - q. q. The Lympheducts.
 - m. m. m. &c. The smaller Branches of the Vena Portæ.
 - n. n. n. &c. The small Branches of the Vena Cava.

FIG. 2.

Represents the convex Part of the Liver, together with the Vessels situated in it.

A. The superior Part of the Liver which lies next to the Back.

B. Its Right Part.

C. Its lowest anterior Part.

D. The Left Part of the Liver.

E. The Trunk of the Vena Cava above the Diaphragm.

F. The Sinus of the Vena Portæ.

F. 1. F. 2. F. 3. F. 4. Four Branches of the Vena Portæ distributed in four different Directions thro' the Liver.

F. 5. The fifth Branch of the Vena Portæ, which could not be describ'd in the preceding Figure.

G. The Gall-bladder.

H. H. The umbilical Vein.

I. The Ductus communis Choledochus.

a. a. a. a. The small Ramifications of the fifth Branch of the Vena Portæ cut off, that the other Vessels may be the more distinctly seen.

b. That Portion of the Diaphragm where it is join'd to the Vena Cava.

c. The Biliary Duct.

d. d. The Cyftic Duct.

e. The Angle where these Vessels are join'd.

m. m. m. &c. The smaller Branches of the Vena Portæ.

n. n. n. &c. The smaller Branches of the Vena Cava.

FIG. 3.

A. The convex Part of the Liver.

B. Its Right Part.

C. The concave Part of the Liver.

D. Its Left Part.

E. The Trunk of the Vena Portæ turn'd upwards, that the other Vessels may be the more easily seen.

1. 2. 3. 4. 5. The five larger Branches of the Vena Portæ.

F. The Ductus communis Choledochus.

G. The Biliary Duct, and its first Division.

H. The Cyftic Duct.

I. The Gall-bladder.

a. a. a. a. &c. The common Capsula laid open.

b. b. b. b. b. The Subdivisions of the biliary Duct.

TABLE XVI.

FIG. 1. From EUSTACHIUS.

Represents the Kidneys, Glandulæ Succenturiatæ, Bladder, and Male Organs of Generation, with their Vessels.

A. A. The Kidneys.

B. B. The Glandulæ Succenturiatæ.

C. C. The emulgent Vessels, together with those which are distributed in the Membranes of the Kidneys.

D. D. The hypogastric Vessels, which, branching off from the Iliacs, are distributed in the urinary Bladder, and Penis.

E. E. The Course of the Ureters.

F. F. The Course of the spermatic Vein and Artery to the Testicles. In these, several Branches appear cut off, which are distributed in the Peritonæum.

G. The urinary Bladder.

H. H. The Vasa Deferentia.

I. I. The Testicles.

K. The Urachus cut off.

L. The Penis.

M. M. The Musculi Erectores Penis.

FIG. 2. From CHESELDEN.

1. The under Side of the Bladder.

2. 2. The Ureters.

3. 3. Vasa Deferentia.

4. 4. Vesciculæ Seminales.

5. The Prostate Gland.

6. The urinary Duct.

FIG. 3. From DE GRAAF.

A. A Portion of one of the Vasa Deferentia, in which there is a conspicuous Cavity.

Vol. I.

B. The Serpentine Flexures about the End of the Epididymis partly unravel'd.

C. A Piece of the Epididymis entirely unravel'd.

D. The Serpentine Flexures about the Middle of the Epididymis partly unravel'd.

E. The same Part of the Epididymis entirely unravel'd.

F. Another Part near the Middle of the Epididymis partly unravel'd.

G. The same Part of the Epididymis entirely unravel'd, so that it appears to be one continu'd Vessel, which, as it gradually approaches to the superior Part of the Testicle, becomes proportionably smaller.

H. The large Globe or Beginning of the Epididymis.

I. The Belly of the Testicle.

K. The Arteria Præparans, which ascends from the inferior Part of the Testicle thro' its Belly.

L. L. The Ramifications of the Venæ Præparantes.

FIG. 4. and 5.

Exhibit the Testicles of brute Animals, in which the Vessels belonging to the Testicles are not only, by the Assistance of Art, but also naturally, more easily and distinctly observ'd.

FIG. 4. From DE GRAAF.

A. A. A. The Tunica Vaginalis of the Testicles laid aside.

B. The preparing Artery, which, before it approaches to the Testicle, is twisted from one Side to the other, upwards and downwards.

C. The Vasa Præparantia, as yet connected by a certain slender Membrane.

D. D. The Arteria Præparans, ascending thro' the Belly of the Testicle.

E. The Branches of the Vena Præparans.

F. The Testicle and Epididymis of a Dog turgid with Seed.

G. The larger Globe of the Epididymis.

H. The lesser Globe of the Epididymis.

I. The Beginning of one of the Vasa Deferentia.

K. One of the Vasa Deferentia ty'd in a Dog before Copulation.

FIG. 5. From DE GRAAF.

A. The Vasa Præparantia cut.

B. The Vasa Præparantia too confusedly express'd by the Engraver, as they are also in the preceding Figure.

C. The Ramifications of the Vasa Præparantia going off to the Epididymes.

D. D. The largest Branch of the Arteria Præparans running thro' the Belly of the Testicle.

E. E. The Ramifications of the Venæ Præparantes.

F. The Testicle of a Dog turgid with the seminal Fluid.

G. The larger Globe of the Epididymis turgid with the seminal Fluid.

H. The smaller Globe of the Epididymis, in like manner distended by a large Quantity of the same Fluid.

I. The End of the Epididymis, or the Beginning of the Vas Deferens.

K. The Vas Deferens in like manner ty'd in the Groin of a Dog before Copulation, that the seminal Vessels, when fill'd with the seminal Fluid, may appear more distinctly.

FIG. 6. From DE GRAAF.

Exhibits an anterior Prospect of the genital, and some of the urinary, Parts, still cohering with each other.

A. The anterior Part of the urinary Bladder.

B. The Neck of the urinary Bladder.

C. C. Certain Portions of the Ureters.

D. D. Certain Portions of the Vasa Deferentia.

E. E. Vessels running off to the Vesciculæ Seminales.

F. F. The Vesciculæ Seminales.

G. G. The anterior Part of the Prostate, or Corpus Glandulosum.

H. The Urethra, adjoining to its spongy Part.

I. I. The spongy Part of the Urethra.

K. K. The Muscles which erect the Penis, call'd the *Musculi Erigentes, Extendentes, or Erectores*.

L. L. The Beginnings of the Corpora Nervosa, which, when the Penis is inflated, protuberate like so many small Bladders.

M. M. The Skin of the Penis laid aside.

N. N. The Duplication of the Skin, which constitutes the Prepuce.

O. O. The Duplication of the Skin, which forms the Prepuce.

P. P. The Dorsum Penis.

Q. The Glans Penis.

R. The Meatus Urinarius, with which the anterior Part of the Glans is perforated.

S. S. The

EXPLICATIONS of the TABLES in Volume the First.

- S. S. The Nerves running upon the Dorsum Penis.
 T. T. The Arteries running upon the Dorsum Penis.
 V. The Corpora Nervosa joining together.
 W. W. Two Veins which unite themselves, and run in one remarkable Branch along the Dorsum Penis.
 X. The same Vein laid open, that the small Valves may be observ'd in it.

FIG. 7. From DE GRAAF.

Represents both the Venæ Præparantes and Hypogastricæ with their Ramifications, as distended with Air blown into them, and running off to the Testes, the Tubes, the anterior Part of the Uterus, and its Vagina.

- A. The Bottom of the Uterus.
 B. The Neck of the Uterus.
 C. The Vagina.
 D. The Left Testicle, almost in its natural Situation.
 E. The Left Fallopian Tube, in its natural Situation.
 F. The Right Testicle, drawn downwards, out of its natural Situation.
 G. The Right Tube, drawn upwards, out of its natural Situation.
 H. H. The Venæ Præparantes cut.
 I. I. I. I. The Anastomoses between the Venæ Præparantes.
 K. K. K. K. The Branches of the Venæ Præparantes running to the Testes.
 L. L. The Branches of the Venæ Præparantes running off to the Tubes, and to their foliaceous Decoration.
 M. M. The Venæ Præparantes join'd by an Anastomosis to the Hypogastric Veins.
 N. N. The Hypogastric Veins ty'd to the Extremities of Pipes, in order to be inflated.
 O. O. O. O. Large Branches of the Hypogastric Veins running off to the Sides of the Uterus.
 P. P. P. P. P. P. Branches from them going to the Uterus.
 Q. Q. Branches of them reaching to the Venæ Præparantes.
 R. R. Branches going from them to the Tubes.
 S. S. Their Branches, reaching to the Ligamenta Rotunda of the Uterus, cut off.
 T. T. Their Branches going to the Ligamenta Lata of the Uterus.
 V. V. V. V. Their large Branches going to the Vagina.
 X. X. Their Branches going off to the Fat, and membranous Parts adjoining to the Sides of the Vagina.
 Y. The urinary Bladder cut about the Neck.
 Z. Z. The fleshy Fibres of the Sphincter Muscle.
 a. The Clitoris.
 b. b. Its Crura.
 c. c. Its Muscles.
 d. Its Prepuce.
 e. Its Glans.
 f. f. The Nymphæ.
 g. The Orifice of the Urethra.
 h. The Mouth of the Vagina.
 i. i. The Labia.
 k. k. Veins running along the Dorsum of the Clitoris, join'd to each other by an Anastomosis.
 l. l. The Branches of these Veins running out to all the Parts of the Pudendum.
 m. The Perinæum.
 n. n. The Anastomoses between the Veins of the Uterus and Vagina.
 o. o. o. The Anastomoses between the Hypogastric Veins of both Sides.

TABLE XVII.

From SWAMMERDAM, DE GRAAF, and CHESELDEN.

FIG. 1. The fore Prospect of the Uterus of a Woman after Delivery.

- A. A. The Spermatic Arteries.
 B. B. The Spermatic Veins distributed thro' the Tubes and Fundus of the Uterus.
 C. C. The Corpora Pyramidalia, composed of the Spermatic Arteries and Veins.
 D. D. The membranous or broad Ligaments of the Womb, thro' which the Blood-vessels pass to the Fallopian Tubes, call'd by some Alæ Vespertilionum.
 E. E. The Fallopian Tubes well express'd.
 F. F. Their Aperture at the Expansum Foliaceum, on each Side, call'd Morfus Diaboli.
 G. G. The round or inferior Ligaments of the Womb.
 H. The Origination of the Veins and Arteries of those Ligaments.
 I. The Valve in the Vein of the round Ligament, hindering the Relapse of the Blood to the Uterus.
 K. K. The two Hypogastric Arteries.
 L. L. L. The Hypogastric Veins variously contorted, and in their Progress implicated and perplex'd with the Arteries.

- M. Fundus Uteri.
 N. The Cervix, or Neck of it, at the End of which is the inner Orifice of the Womb.
 O. O. O. The Arteries on the Fundus or Bottom of the Womb, curl'd like the Tendrils of a Vine.
 P. P. A great Number of Veins running over the exterior Tunic of the Uterus, in which the Anastomoses are singularly remarkable.
 Q. The Vagina Uteri.
 R. The Bladder of Urine inverted, to shew the Tortuosity of the Arteries of the Vagina, by which means its proper Vessels are represented somewhat longer than they ought to be.
 S. The Orifice of the Urethra in the Vagina.
 T. T. The Ureters.
 V. V. Their Insertion into the Bladder, which is here turn'd downwards.
 X. Part of the Urachus.
 Y. Y. The Umbilical Arteries.

FIG. 2. From DE GRAAF.

Exhibits the anterior Part of the Uterus laid open by a crucial Incision.

- A. A. A. A. The Parts of the Uterus crucially divided, and so dispos'd, that its Cavities, and the Thickness of its spongy Substance, may appear.
 B. The Cavity of the Bottom of the Uterus.
 C. The Cavity of the Neck of the Uterus.
 D. The Coarctation for the most part observable between the Cavities of its Bottom and Neck.
 E. The Mouth of the Uterus.
 F. That Part of the Vagina which adheres to the Mouth of the Uterus.
 G. G. Certain Portions of the Tubes.
 H. H. Probes introduc'd thro' the Fallopian Tubes to the Bottom of the Uterus.
 I. I. I. I. The proper Membrane of the Uterus covering its internal Substance.
 K. K. The interior less spongy Substance of the Neck of the Uterus.

FIG. 3. From CHESELDEN.

1. That Side of the Uterus which is next the Gut.
2. 2. The Fallopian Tubes.
3. 3. The Fimbriæ.
4. 4. The Ovaria.
5. The Mouth of the Uterus.
6. 6. Ligamenta Rotunda.
7. The Inside of the Vagina.
8. The Orifice of the Meatus Urinarius.
9. The Glans Clitoridis.
10. 10. The external Labia of the Vagina.
11. 11. The Nymphæ which are continu'd from the Præputium Clitoridis.

TABLE XVIII.

This entire Table is explain'd under the Article AURIS.

TABLE XIX.

This Table is explain'd under the Article OCULUS.

TABLE XX. and XXI.

These are explain'd in the Tables.

TABLE XXII.

From HEISTER.

- A. B. Two Lancets of different Sizes. These are used, especially the smaller Sort, in opening Veins, for which Reason the Greeks call'd them Phlebotomi; but the larger Sort are used for opening Abscesses with.
 C. A Pair of strait Scissars, fit for many Uses. The Surgeon should be furnish'd with several Pair of these of different Sizes.
 D. A Pair of crooked Scissars, proper to be used in dividing Fistulas, and in many other Cases.
 E. A Pair of Forceps furnish'd with Teeth at one End. These are used to remove Dressings, and sometimes to extract Splinters or other Things; they are also serviceable in anatomical Dissections. Forceps of this kind are commonly made of Steel, but those of Silver are much neater.
 F. A Razor.
 G. A strait Incision-knife.
 H. A crooked Incision-knife.
 I. A strait double-edg'd Incision-knife.
 K. A Probe, one End of which is broad and thin, for discovering a Fissure in the Cranium, and other Uses; the other End is rounded, to examine the Depth and Situation of Wounds; for which Uses also the Probe L. may serve. The neatest Probes are made of Silver, tho' they are frequently also made of Steel, Ivory, or Whalebone.

EXPLICATIONS of the TABLES in Volume the First.

M. A groov'd Probe, or Conductor, to direct the Edge of the Knife or Scissars in opening Sinuses or Fistulæ, in order to preserve the subjacent Vessels, Nerves, and Tendons, from being injur'd; the Ornament at the upper Part of it is for a Handle, tho' sometimes that End is made in the Form of a Spoon, as you may see at N. that it may contain a Powder to sprinkle upon Wounds or Ulcers; sometimes also it is forked at the End, that it may be useful in the Operation for dividing the Frænum of the Tongue, as at O.

P. is a Spatula. The Use of this Instrument is to depress the Tongue, in order to examine the State of the Tonsils, Uvula, and Fauces, when they are affected with any Disorders; it is also used to elevate the Tongue, when the Frænum is to be divided; for which Purpose it has a Fissure at its Extremity, and should therefore be rather made of Silver than of any other Metal.

The following Spatulas also at Q. and R. resemble this: These are principally used in spreading Plaisters, Ointments, and Cataplasms; sometimes, with their sulcated Extremity, they are of Service in raising up fractur'd Bones of the Cranium.

In this Place also it will be proper to describe different sorts of Needles, strait and crooked, for stitching up of Wounds, taking up of Arteries, and many other Uses. Crooked ones, of different Sizes, are represented at S. T. V. X.

TABLE XXIII.

From HEISTER.

- A. B. Scrap'd Lint, commonly call'd Pledgets.
- C. D. E. Dossils, which are compos'd of Lint, work'd into the Shape of Olives, or Dactyle Stones.
- F. G. The same, with the Addition of a Thread ty'd round them.
- H. I. Larger Pledgets made of Tow.
- K. L. M. represents Tents of different Sizes made of Lint.
- N. A very large Tent, with a Thread annex'd to it.
- O. A conical Tent made of Linen.
- P. Q. R. S. T. V. X. Tubes or Canulas of different kinds, made of Silver or Lead.
- 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 11. different Forms of Plaisters.
- 12. 13. 13. 14. 15. 16. 17. 18. 19. Different sorts of Compresses, amongst which the Fig. 16. represents three Compresses laid across in the Form of an Asterisk.
- N. B. The Reference to this Figure, in the Original of Heister, is wrong. I observe, however, the English Translation exactly follows the Original, as to the Reference; but has made Nonfense of the Explication.
- 20. A Ball of Lint, which is sometimes us'd as a Compress.
- 21. A small square Compress.
- 22. 22. Several small slender Compresses.
- a. A simple Roller, not roll'd up.
- b. A one-headed Roller, which is roll'd up at one End.
- c. A double-headed Roller, which is roll'd up at both Ends.
- d. A four-headed Roller.
- e. A small Roller, particularly intended for the Security of Dressings, which are applied to one of the Fingers, or the Penis.
- f. The uniting Roller, which is perforated in the Middle.
- g. The Scapular Roller.
- h. Heliodorus's, or the T. Roller.

TABLE XXIV.

From HEISTER.

- FIG. 1. A. describes how the grand Capital Roller is to be apply'd after the Operation of the Trepan, or after Wounds of the Head.
- B. The Belt, or Napkin, which is to surround the Body in Wounds of the Thorax or Abdomen.
- C. The Scapulary to support the Belt.
- D. The Method of making the Ligature after Bleeding in the Arm.
- E. The Manner of tying up the Foot after Bleeding, which, from the Similitude it has with a Stirrup, is call'd by that Name.
- F. shews the spiral Manner in which the Roller ought to ascend, when it is applied to the Leg or Arm.
- G. A serpentine Roller, where the Convolutions are not so frequent.
- H. A large Wound in the Thigh, which requires the true Suture.
- I. K. The Part where the Tourniquet is to be apply'd to the Arm, and the Manner of applying it.
- L. The Manner of applying the Tourniquet to the upper Part of the Thigh; the Fillet, which is roll'd up, and apply'd as a Bolster, lies upon the Crural Artery at M.
- N. Shews how the Tourniquet is to be apply'd to the lower Part of the Thigh, in which Case the roll'd Fillet is to be apply'd to the back Part of the Thigh.
- O. A large Wound of the Abdomen, with the Intestines falling out.
- FIG. 2. The common Tourniquet, before it is apply'd.

FIG. 3. Crooked Forceps, furnish'd with Teeth at the End; call'd the Crane's-bill.

FIG. 4. A Pair of strait Forceps.

FIG. 5. The Duck's-bill Forceps, furnish'd with a moveable Ring, A.

FIG. 6. The Goose-bill Forceps.

FIG. 7. The Instrument invented by Bartholomæus Maggius, to extract Bullets which are fix'd in a bony Part:

FIG. 8. A Hook to extract Bullets.

FIG. 9. 10. 11. 12. 13. 14. 15. 16. Different sorts of Cauteries:

FIG. 17. Shews, in some measure, the manner of performing the Operation call'd Gastroraphy, or the Suture of the Abdomen:

a. a. Describe the Wound.

b. b. Two crooked Needles, with the Threads hanging to them.

c. c. c. c. c. Two Threads drawn thro' the Lips of the Wound, and clear'd from their Needles.

TABLE XXV.

From HEISTER.

FIG. 1. Petit's triangular Needle, for making a Counter-opening in Wounds or Ulcers.

FIG. 2. Another crooked Needle, of Heister's Invention, which may be us'd in some Wounds and Ulcers, where the preceding is not so proper.

FIG. 3. Represents a Wound, the Lips of which are united by an adhesive Plaister on both Sides.

FIG. 4. Represents a Wound, to which two adhesive Plaisters are apply'd, with Indentations.

FIG. 5. A Wound of the like Nature, to which two adhesive Plaisters, without Indentations, are apply'd.

FIG. 6. Two Wounds crossing each other, A. A. A. A. and united by two Plaisters laid crossways, B. B. B. B.

FIG. 7. A. A. A Wound to which an adhesive Plaister is apply'd, with two Openings in the Middle, B. B.

FIG. 8. A Wound united by the Application of two Plaisters, with strong Threads fix'd to each of them, which are drawn together, and fasten'd with slip Knots, a. a. a.

FIG. 9. The same Wound, with Plaisters of the same kind, furnish'd with Hooks, a. a. a. a. a. instead of Threads, by which, with the Assistance of Threads fasten'd to them, the Lips of the Wound are drawn together.

FIG. 10. Represents in what manner, by the Assistance of the small Eyes, b. b. b. b. b. b. used instead of the Hooks in the preceding Figure, Plaisters of this kind may be form'd, and drawn, or, as it were, laid, together, as some of the Antients used to do.

FIG. 11. A transverse Wound, A. A. united by a double-knotted Suture, B. B.

FIG. 12. Shews in what manner a cross Wound is to be stitch'd up, and the Lips of it brought together, by drawing the Threads, A. B. C. D. tight.

FIG. 13. Represents how the Stitches are to be made in a triangular Wound, A. B. C.

FIG. 14. Represents how a Wound with two Angles is to be stitch'd with the knotted Suture, first at the Angles A. A. and then, if it is necessary, on each Side, at B. B.

FIG. 15. A large crooked Needle, with a double Thread, to make the quilled Suture:

A. The Needle.

B. The double Thread.

C. The bow End of the Thread.

FIG. 16. A large transverse Wound, A. A. united by a triple-knotted Suture, B. B. B.

FIG. 17. D. D. The same kind of Wound, which, besides the Threads at Fig. 16. is furnish'd also with small cylindrical Rolls of Silk, spread with some Wax or Plaister, A. A. and B. B. The Threads on the upper Lip of the Wound are ty'd in Slip-knots, C. C. C. whilst the Roll that lies on the under Lip is confin'd between the bow Ends of the Threads, E. E. E. This shews Palfyn's Method of making the quilled Suture.

FIG. 18. Shews another Method of making the quilled Suture in large Wounds, particularly in those of the Belly:

A. A. The Wound.

B. B. The upper Roll.

C. C. The lower Roll.

D. D. D. The single Knots which confine the upper Roll.

E. E. E. The Slip-knots which secure the lower Roll.

FIG. 19. Represents the Suture of Celsus, in which he used two Needles for stitching up transverse and penetrating Wounds of the Abdomen. The Method of performing it is directed in the sixteenth Chapter of his seventh Book. It is generally call'd the Gastroraphia Celsi, but is now diffus'd, on account of its not answering the End so well as Sutures of another kind.

A. A. Represent the Beginning of the Suture.

B. Its End, where it is secur'd by a Knot.

Fig.

EXPLICATIONS of the TABLES in Volume the First.

FIG. 20. The Glover's Suture, used for uniting Wounds of the Intestines.

A. A. The Intestine.
B. B. The Wound;
C. The Beginning of the Suture, with Part of the Thread hanging out.

D. The End of the Suture, where it is fasten'd in a Knot.

N. B. The Knot is not represented in the Figure.

FIG. 21. and FIG. 22. The Suture for the Hair-lip, which is made with two or three Needles.

A. A. The Wound.

B. B. B. Needles pass'd thro' the Lips of the Wound.

C. C. C. The Thread twisted round the Needles.

TABLE XXVI.

From HEISTER.

FIG. 1. Represents a blunt Iron Needle, to pass a fine Rag, or Skein of Silk, thro' gun-shot or other pervers Wounds, after the manner of a Seton.

FIG. 2. An Instrument to stop the Blood in Wounds of the large Arteries.

A. A. A Brass Plate, somewhat bent.

B. B. A strong Brass Screw.

C. A round Plate, of a Thumb's Breadth, to be fix'd upon the Wound.

D. The Handle by which the Screw is turn'd, and so presses the Plate C. strongly upon the Wound.

E. E. E. A strong Leather Belt to surround the wounded Part.

F. F. Part of the Belt pierc'd with several Holes, by which it may be fix'd upon the Hooks G. G. and lengthen'd or shorten'd, according to the Size of the Limb.

FIG. 3. A crooked Knife, with a round blunt Point, A. to enlarge Wounds of the Thorax or Abdomen, where such an Operation is requir'd.

FIG. 4. A strait Knife, with a Button on the Point.

FIG. 5. A crooked Knife, with a blunt Point.

FIG. 6. A Wooden Tourniquet of its proper Size.

A. A. The upper Part.

B. B. The lower Part.

C. The great Screw.

D. Two small Iron Screws, to which a Leather or Silk Belt is to be fix'd.

E. Hooks to fasten the other End of the Belt on, when it is brought round the Limb.

F. F. F. F. The Ends of the upper and lower Part of the Instrument hollow'd to receive the Belt, and to keep it steady in its Situation.

FIG. 7. Another kind of Tourniquet made of Iron; the Representation is less by half than the proper Size of the Instrument.

For the farther Explication of this and the above Figure, see the Article AMPUTATIO.

FIG. 8. A broad Roller, call'd the uniting Roller. This is perforated in the Middle, and rolls up with two Heads. It is used in treating Wounds of the Abdomen, which are made lengthways.

FIG. 9. A flexible Silver Tube, useful to discharge the Matter which is collected in Wounds of the Thorax, or in an Empyema.

A. The Openings at the Extremities, and on both Sides.

B. B. The Plate round it, with two Holes to pass a Thread thro'.

C. The Cavity which runs thro' the Tube A.

TABLE XXVII.

From HEISTER.

FIG. 1. A Brass Tourniquet after Petit's Manner, but with some Alterations. The Use of this Instrument, and Method of applying it, will easily appear, upon comparing it with what we have said under the Article AMPUTATIO.

FIG. 2. A Handle to fix Needles in, when Sutures are to be made. See ACUTENACULUM.

FIG. 3. Another of the same Sort, from Garengot.

N. B. These two are, by Mistake, represented also in Tab. 2. Fig. 36. and 37.

FIG. 4. Petit's Acutenaculum, or Handle for Needles.

FIG. 5. A Needle to perform Gastroraphy.

FIG. 6. Another of a larger Size.

FIG. 7. Another of a new Invention, to perform the same Operation.

FIG. 8. A Syringe for various Uses, furnish'd with Pipes of different Sorts: By the Help of this you may not only inject Fluids into Wounds of the Abdomen and Thorax, into the Fauces, into Abscesses, Ulcers, and into the Uterus; but you may also, by the Assistance of this Instrument, draw extravasated Blood from the Cavity of the Thorax, in which Case the Syringe should be twice as large; the Mouth of the Pipe, B. should be triangular, and about two Thumbs Breadth.

FIG. 9. Another Pipe with a round Mouth, intended for the same Uses.

FIG. 10. A smaller Pipe, which may be fasten'd to the Syringe, Fig. 8. for various Uses.

FIG. 11. Another somewhat curv'd, and perforated on both Sides: This will serve to suck Blood out of the Cavity of the Thorax, and to throw Injections into that Part, or into the Fauces.

FIG. 12. Another perforated at the End like a Cullender.

FIG. 13. Another like the former, but curv'd, to throw Injections into the Uterus, and for other Uses.

FIG. 14. An Iron Instrument, like an Ear-picker, or Probe, for various Uses.

TABLE XXVIII.

From HEISTER.

FIG. 1. An artificial Eye, made of Glass or Silver: This may be introduc'd into the Orbit, and supply the Place of the natural Eye, and prevent the Deformity which will otherwise be the Consequence of the Loss of an Eye.

FIG. 2. An Awl, or sharp Instrument, to perforate the external Table of the Cranium.

FIG. 3. 4. 5. Different Forms of Rugines, or Rasping-chisels, to scrape the Cranium, or other Bones.

FIG. 6. Shews how the Depression of the Cranium in Infants may be elevated by sticking Plaisters.

FIG. 7. A. A quadrangular or pointed Steel Instrument, to perforate the external Table of the Cranium.

B. A Terebra.

C. An Elevator, to raise depressed Bones of the Cranium.

FIG. 8. Another Elevator, accommodated to the same Uses as the former.

FIG. 9. A small fine Saw; and Fig. 10. a small Rugine, which may be used with or without the Handle, represented in that at Fig. 3.

FIG. 11. A Wooden Mallet, the Head of which is fill'd with Lead.

FIG. 12. An Elevator with three Feet.

As the Elevatories at Fig. 7. and 8. are so contriv'd, that where the neighbouring Bones are depress'd or fractur'd, these Instruments cannot be applied without Danger of increasing the Complaint, it appear'd necessary to the Surgeons amongst the Antients to invent another Instrument for this Purpose, which might be apply'd with more Safety. This they call'd, from the Number of its Feet, *Tripes*. It is near twice as big as the Figure we have given. The Feet, A. A. A. may be placed at farther Distances, or brought nearer to each other, as you shall see Occasion. The Manner of applying it is this: The Feet of this Instrument are apply'd to the sound Parts of the Head, and the Screw, B. C. by frequently turning round its Handle, D. D. will presently lay hold of the depressed Part of the Cranium, especially if you have beforehand made a small Hole in the Middle of it with the Awl at Fig. 2. upon turning the Screw, E. E. the Terebra, at B. is raised by Degrees, and with it the depressed Part of the Cranium. You will conceive this more clearly by examining Fig. 13. but if any Opening shall appear between the fractur'd Parts of the Cranium, it will be better to take off the pointed End of the Instrument, and, in its room, fix on the Elevatory, G. by the Screw, H. at the Part about the Letter F. and, by the Assistance of this, the depressed Part may be rais'd.

FIG. 13. Describes the Method of applying this Instrument.

FIG. 14. This should be furnish'd with the Terebra, A. and the Hook, at Fig. 15. thro' either of which, according as you shall see necessary, the Lever, B. C. may be pass'd, after the Instrument is fix'd upon the depressed Part of the Cranium. The Plate, D. is to be plac'd upon the sound Part of the Head, laying Bolsters under it to prevent Pain; then, by raising the End of the Lever, at B. the depressed Part of the Cranium will be gently elevated, and restor'd to its natural Situation. You will observe a Joint at the Extremity of the Lever, C. to accommodate the Plate, D. by inclining it to the Convexity of the Head, in some Parts of it, which may be also raised or depressed by the Screw, E. If you please, you may make the Lever longer than it is represented here, which will add to its Force.

FIG. 15. The Hook belonging to this Elevator.

TABLE XXIX.

From HEISTER.

FIG. 1. Is a Sort of long and sharp Forceps, proper to cut off the Splinters, or Fragments of Bones, which stick out; but to make them cut the easier, the Handles should be two or three Inches longer than the Figure.

FIG. 2. Is a simple Hook.

FIG. 3. Is a double Hook, serving for various Purposes in Surgery and Anatomy.

FIG. 4. Is a Needle for taking up Arteries, with a Ligature, in Hæmorrhages, and many other Cases.

EXPLICATIONS of the TABLES in Volume the First.

- A. is its blunt Point.
- B. its Eye, transmitting the Thread.
- C. its little Head.

FIG. 5. is a Case to hold the subsequent Instrument, which is used to hold and apply the Lapis Infernalis, or Caustic-stone.

FIG. 6. The Instrument itself, made of Steel, for holding and conducting the said Stone.

- a. The Nippers which lay hold of the Stone.
- b. The little Ring, which shuts and holds them fast upon the Stone.

- c. The other End of the Instrument, used in Chirurgical Sutures to support the Lips of Wounds.

FIG. 7. exhibits the Figure of a Splint, made of thin Wood, or PASTE-board, to be used in Fractures of the Arms and Feet: Its Breadth should be about three or four Fingers, and its Length suitable to the Size of the Limb.

FIG. 8. is a PASTE-board Splint, such as is sometimes used in Fractures of the Nose: Its Size is to correspond to that of the Nose.

FIG. 9. is a Splint of Paper, suited to the lower Jaw, when fractured only on one Side.

FIG. 10. is a double Splint of the same Kind, for the lower Jaw, when fractured on both Sides: It is to be applied so, that the Aperture *a.* in the Middle, may let in the Chin; but its two Extremities or Wings *b. b.* which may be folded together in the Middle *a.* are to be applied towards the Ears.

FIG. 11. is a Compress, in form of an X. to be used in Fractures of the Clavicle.

FIG. 12. is a PASTE-board Splint, to be laid over the former Compress, in the same Fracture.

FIG. 13. is an Iron or Steel Instrument in the Form of a T. useful to retain the Shoulders in a proper Posture, in Fractures of the Clavicle.

A. A. its transverse Part, to which are fasten'd Iron Rings, to retain and keep back the Shoulders.

B. its perpendicular Part, going down to the Back.

C. An Aperture in its lower End, by which it is to be fasten'd with a Ligature round the Waist, to be tied before on the Belly.

FIG. 14. is a PASTE-board Case, in which a fractured Arm is to be lodged, after it has been set and dress'd: Its Size is to be answerable to the Arm.

FIG. 15. is a Polyssaston, or compound Pulley, used to extend fractured Bones.

A. and B. are two Hooks, by which the Instrument is fasten'd at both Ends.

C. The Rope, by drawing which an Extension is made of the broken Limb.

D. and E. are two Pullies, consisting of several Wheels, by which the Force is very much increased.

FIG. 16. is a strong Iron Screw, whose Worm or Thread, B. is to be forced by the two Handles into some Beam or Rafter; and upon its Ring A. the Pulley E. is to be fix'd, as before said.

FIG. 17. is the Belt of *Hildanus*, sometimes necessary to make Extensions of the Bones of the Arms and Feet.

A. A. Two Hooks, upon which is hung the Sling or Rope B. B.

C. The Place where the extending Force is to be applied.

TABLE XXX.

From HEISTER.

FIG. 1. is a Compress, call'd, by the *French*, *Compresse graduée*, to be applied in Fractures of the Thigh, to make its small and inferior Part of the same Thickness with its other, that the Splints may more equally embrace it, and retain it in its proper Situation.

FIG. 2. Two lunar Plaisters, to include and hold firm the fractured Patella, after it has been set.

FIG. 3. A perforated Plaster for the same Use.

FIG. 4. Is a Fracture of the Leg, with an external Wound A. to be bound up with the Roller of eighteen Heads B. B. B. B. which commodious kind of Roller seems to have been unknown to the Antients.

FIG. 5. Is a Straw Couch or Case for a broken Thigh, called by the *French* *Fanon*. A. A. A. A. represent two Sticks cover'd with Straw, bound on with strong Packthread; to both Sides of these is also fasten'd a strong Cloth B. B. of about two Foot broad, and three long. This Couch is usually made twice the Length of the Thigh, so as to reach from the Groin and Os Ilium, to the End of the Foot.

FIG. 6. Is a Sole of thick PASTE-board, or Wood, fitted to the Size of the Patient's Foot: it is to be applied to the Bottom of the fractur'd Foot, and bound on by the three Tapers *a. a. a.* to retain or stay the Foot in its proper Posture, whence *Celsus* calls it *Mora*.

FIG. 7. Is a quilted Compress to be applied between the

VOL. I.

Foot and the Stay, to be soft, and defend it from any rough Action of the PASTE-board or Wood.

FIG. 8. Is a soft Linen Ring join'd to the foregoing Compress to let in, and hold the Heel; it is to be fasten'd to the Foot by the two Strings *b. b.*

FIG. 9. Is a brass Trunk for securely retaining a broken Leg; it consists of three Parts, A. B. C. which are join'd by the Hinges 1. 2. 3. 4. 5. 6. The middle Part B. is the Basis of the Machine, which like an hollow Pipe, receives the bound up Limb: the outer Parts A. C. are as moveable Sides or Wings, which may be turn'd back, or folded together: To each of these Sides A. C. are join'd three almost square Loops E. E. E. through which are pass'd Strings to draw them tight together, and keep them firm upon the fractur'd Leg: Its Size must agree with the Leg.

FIG. 10. Is a wooden Arch to put over a broken Leg, to keep it from being incommoded by the Bed Cloths.

FIG. 11. and FIG. 12. A very useful and proper Machine, or wooden Case, or Box, for retaining Fractures of the Leg, contriv'd and describ'd by *Petit*, a celebrated Surgeon of *Paris*, first in the Memoirs of the Royal Academy of Sciences for the Year 1718. and afterwards in his Treatise of Diseases of the Bones, from whence *Garengot* transferr'd it into his Account of Chirurgical Instruments: We chuse to exhibit the Machine rather from the Memoirs of the Academy, than from the Inventor's Book on the Bones, or *Garengot's* of Instruments; because, in the two latter, the Instrument is represented entire only, and with less Perspicuity. I shall, therefore, give it entire in *Fig. 11.* and then separated into its component Parts at *Fig. 12.*

The Basis, or principal Part of the Machine, A. A. A. *Fig. 12.* is to be gently put under the broken Leg, (after it has been first set, the Wound properly dress'd, the Whole bound up with the Roller of eighteen Heads, and defended with Splints, tied on with three Strings, as is usual) the two lateral Parts of the Case B. B. B. B. and its Front C. which serves as a Sole to the Foot, are fasten'd together by the Hinges D. D. D. D. and kept shut by the Hooks E. E. as may be seen at *Fig. 11.* by which means the Foot cannot slide or move, but is held firm, and easy to the Patient.

F. F. is the lower Part or Foot of the Machine, serving as a Foundation to the rest; at its End, G. G. it is joined by Hinges to the Part on which the Leg is to lie. N. B. The Engraver, has by Mistake, put *one* instead of *an* F. In the anterior Part there is a moveable wooden Fulcrum H. fix'd to the superior Part I. by the moveable Pins I. I. But the other Extremity of this Fulcrum at K. is moved backwards or forwards into the Notches or Sulci at L. L. and by this means the Machine, together with the Leg, is elevated or lower'd at pleasure. The superior Part A. A. is to be lined with strong Girthing and Linen, which are to be nailed tight to the Sides, upon which the Limb rests more easy than upon the Plank or Board. The other Parts of this Case seeming to be obvious from the Figure, we shall, for Brevity, omit any Explication of them, and only observe, its Size is to agree with that of the Limb.

But, by reason of the vast Numbers of Fractures which happen in a War, and the great Scarcity and Cumberfomeness of these Machines at such Times, the Camp-surgeons are generally obliged to substitute Cases of Straw in the room of them. At every Dressing of the Limb, the Hooks E. E. are to be undone, and the three Sides open'd; but when the Wound and Fracture are dress'd, and bound up, the Foot must be exactly placed, and the Case fasten'd as before.

FIG. 13. is a Compress folded at one End, to fill up the Small of the Leg, that the Splints may compress the more equally and firmly.

TABLE XXXI.

From HEISTER.

FIG. 1. is a Sling which may be used to make an Extension in Luxations of the Head.

FIG. 2. is another Sling, to retain the Patient's Body firm in the same Case.

FIG. 3. shews the most commodious Method of reducing a recent Luxation of the Humerus.

A. is the Patient, seated ready to undergo the Operation.

B. is the Assistant that holds the Patient firm in his Seat.

C. is the Assistant that distends the dislocated Humerus.

D. The Surgeon, reducing the dislocated Humerus.

E. A Napkin, whereby the Surgeon elevates the Arm, in order to its Reduction.

FIG. 4. Is a Machine commonly called the *Ambe* of *Hippocrates*, used formerly to reduce Luxations of the Humerus. It consists of the Fulcrum A. A. to which is fasten'd the moveable Lever B. C. join'd to each other by a Sort of moveable Articulation D. See this under the Article *AMBE*.

FIG. 5. Shews how the former Instrument is to be applied to a Luxation of the Humerus. There is some Difference between

EXPLANATIONS of the TABLES in Volume the First.

between the Structure of this and the former, at the Joint C. D. some think this is preferable to the other.

A. A. Is the Fulcrum.

B. C. The Lever, to which the luxated Arm is fasten'd by the three Ligatures E. E. E.

D. The Place where the Fulcrum and Lever are fasten'd together by a moveable Joint. When the End of the Lever B. is pressed downwards, the luxated Arm is extended, and elevated near its Scapula.

FIG. 6. Is *Petit's* Machine for reducing Luxations of the Humerus, and several other Luxations.

a. a. Are two Arms or Horns, by which the Patient, and particularly his Scapula, is held firm, from giving way in the Extension.

B. The other End of it, resting upon the Ground or Floor.

C. C. C. C. Pullies of the Machine.

d. d. d. The Rope, by winding up which, an Extension is made.

E. The Handle, which, being turn'd round, draws the Rope tight, and extends the Limb.

F. F. The Place where the two Horns are join'd to the Body of the Machine.

FIG. 7. Is a *Retinaculum* or Supporter, to be used in a Luxation of the Humerus.

A. An Opening or Slit in the Machine.

B. C. The Form of it at each End.

D. D. Two Apertures, thro' which the two Legs or Horns a. a. of the Instrument represented by Fig. 6. are to be passed.

FIG. 8. Is a particular Sling of Mr. *Petit's*, proper for extending luxated Limbs.

A. A. The Part made of Leather.

b. b. b. b. A Silk Ligature, sew'd to the Leather in three Places at 1. 2. 3. The Part A. A. is fasten'd round the Arm.

c. d. e. Is a strong Loop fasten'd to the Silk Ligature at f. f. so as to be moveable.

FIG. 9. Is an Instrument recommended by *Petit* for the Reduction of a luxated Femur, when dislocated inward. It is to be fasten'd at F. F. in the Machine, represented by Fig. 6. instead of the two Arms a. a.

A. Is apply'd to the Os Ilium.

B. To the middle of the Thigh; but C. C. are fixed into the Machine represented by Fig. 6. at F. F.

TABLE XXXII.

From HEISTER.

FIG. 1. Represents an Arm in which a Vein is to be open'd.

A. Denotes the Cephalic Vein.

B. The Basilic.

C. The Median Vein.

D. The Ligature fixed above the Elbow to make the Veins swell.

FIG. 2. Represents the several Forms of cutting a Vein with the Lancet.

A. Shews a longitudinal Incision.

B. A transverse one.

C. D. Oblique ones.

FIG. 3. Exhibits the ancient *German* Phlebotome or Fleam for opening a Vein.

A. The sharp Point to be fixed on the Vein.

B. The Handle to be held in one Hand, while the Part C. is to be struck by a Filipp of the Finger of the other Hand, so as to drive the Point A. into the Vein.

FIG. 4. Is a Spring Fleam, now in Use with some.

A. This Part being apply'd to the Vein, and the Part C. being elevated, depresses the Spring by the End B. which, by its Reaction or Elasticity, strikes the End C. upon the Fleam A. so as to drive it into the Vein.

D. D. Is a hollow Case of Brass or Silver, in which the Spring Part of the Instrument B. is included.

FIG. 5. Represents the Instrument used in Venesection, commonly called a Lancet, so bended into an obtuse Angle at the Joining A. as that it may be commodiously held for performing the Operation for which it is intended.

FIG. 6. Represents a certain Arm A. B. at the Bending of whose Elbow *Purmannus* found the terrible Aneurysm C. C. as large as one's Head.

FIG. 7. Shews the manner of applying the Ligatures above and below an Aneurysm, in the Operation for that Disorder.

A. B. The Artery.

C. The Aneurysm.

D. The upper Ligature.

E. The lower Ligature.

FIG. 8. Represents an Instrument design'd not only for preventing, but curing Aneurysms of the smaller Kind.

A. A. A. The Plate of Iron adapted to the Flexure of the Arm.

B. Its Fissure.

C. C. D. D. Cords or small Ligatures of Silk fix'd to the Plate at A. A. and extended to D. D.

E. Denotes a moveable Iron Lamina, join'd to the Plate by the Hinge I, and cover'd with a Cushion of Cotton or Silk, of a convex Form at F. which is to be apply'd to the Aneurysm.

G. G. Two small Hooks by which the Instrument is fix'd on the Arm, by means of the Cords C. C. D. D.

H. A Screw by which the Plate and Cushion E. F. are screw'd down upon the Tumor, that so the Aneurysm may be depressed, and the affected Artery strengthen'd.

FIG. 9. Represents an Instrument of the same Kind with the former, somewhat varied in its Figure, and with a larger Plate and Cushion E. F. and consequently accommodated to the Cure of larger Aneurysms. Almost the whole Machine is cover'd with Leather, but more particularly the inferior Part of the Plate E. is cover'd with Cotton and Leather. The Cords also C. D. are made of Leather, whereas in the former Instrument they were made of Silk. The other Letters denote the Parts represented by the same Letters in the former Figure.

FIG. 10. Shews the Apparatus, with a Bladder and Tube for Injection of Liquors into the Veins.

A. The Bladder and Tube.

B. A Vein of the Arm open'd, in which the Tube is inserted.

FIG. 11. Represents the Method used by some Physicians of the preceding Age, for conveying the Blood from one Man's Arm represented by A. to that of another exhibited by B.

FIG. 12. In some measure represents the manner in which a like Conveyance or Transfusion is made from one Hand to another.

FIG. 13. Shews the Transfusion of Blood from the crural Artery or Vein of an Animal into the Arm of a Man, by the Intervention of the Tube A.

TABLE XXXIII.

From HEISTER.

FIG. 1. Represents the Cupping-glass, used at present in Germany, and elsewhere, for dry Cupping, or for extracting Blood after Scarification.

FIG. 2. Is the Instrument or Scarificator, commonly used by the *German* Cuppers.

A. The Handle.

B. The Edge.

C. The Part which is struck extremely quick by the Finger, so as to make the Edge wound the Skin as often as they incline.

FIG. 3. Represents the Order or Position of the little Incisions made in the Skin by the Cupper, that they may all be entirely cover'd by the Cupping-glass, represented by Fig. 1.

FIG. 4. Exhibits the modern cubical Scarificator, making sixteen Incisions in the Order of Fig. 3. by one Stroke upon the Skin, and with very little Pain.

FIG. 5. Exhibits the Shape of a Leech, for the Information of such as may be ignorant of that Insect.

A. The Mouth or Head by which it bites.

B. The Body and posterior Parts; but it must be observ'd, that one and the same Leech may, by differently contracting and expanding itself, appear in a hundred Shapes, so that its Length and Thickness are very uncertain.

FIG. 6. Is the Needle used by the Inhabitants of *China* and *Japan*, for making their Acupuncture.

A. The Handle.

B. The Point which enters the Flesh.

FIG. 7. Is the little Hammer used by the *Indians* to strike the preceding Needle.

A. The Head of this Hammer.

B. Its Handle.

C. C. A Case in the latter to deposit the Needle in.

FIG. 8. Represents the actual and concealed Cautery, used formerly for making of Issues, and is by some denominated *Capula Casseriana*.

A. Denotes the End of the actual Cautery, or red-hot Iron, protruding itself beyond the Case.

B. B. B. B. Is the wooden Case concealing the red-hot Iron from terrifying the Patient.

C. The Handle, by depressing which the Cautery is forc'd into the Skin.

FIG. 9. Is a Machine to be used as a Bandage for Issues in the Arm, and to be made a little longer for those in the Neck or Foot.

A. A. Is a leathern Swath of about two or three Fingers Breadth.

B. A small Hook made of Brass or Copper.

C. Is a Brass Plate with several oblong and transverse Apertures, for receiving the Hook B. in the manner of a Clasp, in order to fix the Swath on the Foot, Neck, or Arm.

FIG.

EXPLICATIONS of the TABLES in Volume the First.

FIG. 10. Represents the small Syphon or Syringe proper for injecting Liquors into the Urethra of Males, and the Vagina of Females, for the Cure of Wounds and Ulcers.

A. A. The Body of the Syringe.

B. Its Extremity, ending with an obtuse Point instead of a small Tube, to prevent the injected Liquor from regurgitating.

C. The Ring or Handle of the Sucker, by which the Liquor is drawn into, and forced out of, the Cylindric Body.

FIG. 11. The Letters A. A. exhibit those Parts in the Soles of the Feet, which the Italian Physician *Mistichellius* directs to be cauteriz'd in Apoplexies.

B. The square Iron Cautery for the Operation, which in that Disorder, he says, is highly serviceable.

FIG. 12. Represents the Method of burning the Part affected in the Gout with the *Indian Moxa*.

A. denotes the Cone of Moxa not yet fired.

B. One that is burning.

FIG. 13. a. b. Give a View of several encysted Tumors.

c. d. Scirrhus Glands in the Neck.

e. A fleshy Excrescence or Mark from the Mother.

FIG. 14. Represents the small Knife, which I generally use for extirpating scirrhus Tumors, or Glands in the Neck, Wens, or even scirrhus Glands of the Breasts.

FIG. 15. Represents the Hand of an Infant with six Fingers, in which

A. Denotes the superfluous Finger with a Nail like a Cock's Spur, which I took off by a Pair of amputating Scissors or Pincers; which Instrument I also use in a Spina Ventosa, or Caries of the Fingers.

FIG. 16. Is a Hand with the whole Index A. carious and ulcerated, which I amputated close to the Metacarpus, with the Knife represented by FIG. 14. but then I also removed the Head of the first Phalanx, that the Wound might heal the sooner.

B. Denotes a Spina Ventosa in the middle Finger, and in the second Internode, which I amputated in the first Bone, or Phalanx.

C. Is a large Excrescence or Protuberance at the End of the little Finger from the same Disorder, which I successfully amputated in the second Bone, by the Mallet and Chisel.

FIG. 17. Shews the Method of amputating the great Toe with the Mallet and Chisel, used by *Roonhuijs*.

TABLE XXXIV.

From HEISTER.

FIG. 1. Exhibits a small-sized Knife, more commodious for dividing the Skin and Flesh in Amputations, than the large crooked one following.

FIG. 2. Is the large crooked Knife, commonly used for dividing the Flesh to the Bone in Amputations of the upper and lower Extremities; though, in most Cases, I prefer the small one, represented by FIG. 1.

FIG. 3. The double-edged Knife for dividing the Flesh and Ligament betwixt the Bones of the Arm and Leg, which may be also performed by a less and single-edged Knife like that in Tab. 22. Letter G. This Knife is also used in the Method of amputating the Leg, when the Calf is to be preserv'd.

FIG. 4. Represents the Saw used for amputating Bones of the Limbs. This Instrument is by many delineated as large again as our Figure of it; but a Saw of the same Size, or but little larger than our Figure, will perform the Operation as well, and even more commodiously, than a larger. This, and the two preceding Instruments, are usually embellished with various Ornaments, which may serve to encumber them, and enhance their Price, but can add nothing at all to their Usefulness.

FIG. 5. Represents a Pair of Pliers, furnished with Teeth at one End, and a Spring at the other, for taking hold of the Ends of divided Arteries, in order to secure them by Ligature with strong Thread, and stop their bleeding in Amputations of the upper and lower Extremities.

FIG. 6. Is another Pair of Pliers for the same Use, taken from Mr. *Garengeot*; which may be also made with very flat or no Teeth at the End, to avoid injuring the Coats of the Artery.

TABLE XXXV.

From HEISTER.

FIG. 1. Shews the Manner in which the Patient, Surgeon, and Assistants are to be placed, for amputating the Hand or Arm.

A. Denotes the Patient.

B. The Surgeon amputating with the Saw.

C. The Assistant extending the Hand.

D. Another Assistant holding the Arm.

E. The Assistant who holds the Patient's Body, and takes Care of the Tourniquet.

F. Denotes the Dish or Vessel placed underneath to receive the Blood.

FIG. 2. Represents the Position of the Patient, Surgeon, and his Assistants, in amputating the Leg.

A. Denotes the Patient seated in a Chair.

B. The Surgeon.

C. The Assistant who holds the Foot below the Calf.

D. The Assistant who holds the Leg above the Knee.

E. A Vessel placed on the Floor, to catch what little Blood may be spilt in the Operation.

FIG. 3. A. denotes the most convenient Part for amputating the Leg; and

B. That most proper for amputating the Thigh. But when the Disorder has extended itself higher up in the Thigh, it must be amputated proportionably above this Mark, though the Operation is then so much the more dangerous.

FIG. 4. A. Represents the Thigh, with the Leg, B. amputated. In the Thigh may be seen the Part for fixing the Tourniquet C. D. The Tourniquet, thus apply'd, may serve for amputating the Tarsus or Metatarsus; as also for amputating the Leg, though not so conveniently. In this Figure you have also a View of the divided Artery extended a little by the Pliers E. and about to be secured by the Ligature and Knot F. Some indeed do not approve of this manner of tying the Ligature; but I have often experienced, that it answers very well.

FIG. 5. Describes the Manner of amputating the Leg, so as to preserve the Calf.

The Line A. B. denotes the first Incision to be made by the Knife in Tab. 34. by FIG. 1. or FIG. 3.

The Line B. C. is the Course of the second Incision, by which the Flesh of the Calf is separated from the Bones of the Leg.

C. D. The Place where the rest of the Flesh being remov'd, the Amputation is to be perform'd. Some reverse this Course of Incision, and first perforate the Calf with a double-edged Knife, Tab. 34. FIG. 3. at C. and then they direct the Knife in the Course B. A. but the former Method is, in my Opinion, more eligible.

FIG. 6. A. Represents the Manner of turning back the Calf of the Leg towards the Ham, after it has been separated from the Bones of the Leg by a double Incision; which done, the Surgeon next cuts the Integuments, Flesh, and Periosteum, in the Line B. and then saws off the Bones there.

FIG. 7. Denotes a Leg just amputated, with the Calf A. hanging down, to see the Ends of the two Bones.

B. The Extremity of the Os Tibiæ.

C. The Extremity of the Os Fibulæ.

FIG. 8. Shews the Leg thus amputated, with

A. The Calf brought over, and joining to the Stump.

B.

C. Denotes Part of the Thigh.

FIG. 9. Represents the Method of applying the Screw Tourniquet (Tab. 26. FIG. 6. or Tab. 27. FIG. 1.) above the Knee, for amputating the Leg.

C. C. The Tourniquet, with its subjacent Pillow.

D. The Place where the leathern or silken Strop E. E. is fastened by Studs on one Side, and by two small Hooks, F. on the other Side.

G. The Screw, by turning which the subjacent Artery is compressed in the Ham.

FIG. 10. Is a large crooked Needle for making a Ligature on the Brachial Artery, before the Arm is amputated in its Articulation with the Scapula, though the same may be also performed by the straight Needle, Tab. 39. FIG. 12. either of which Needles will also serve for making Setons in the Neck.